2020-2313

In the United States Court of Appeals For the Federal Circuit

GATEARM TECHNOLOGIES, INC.,
Plaintiff-Appellant

v.

ACCESS MASTERS, LLC, BLACKSKY TECHNOLOGIES, INC., GATEARMS.COM, LLC,
Defendants-Appellees

Appeal from the United States District Court for the Southern District of Florida in Case 0:14-cv-62697-RNS, District Judge Robert N. Scola, Jr. and Magistrate Judge Alicia M. Otazo-Reyes

CORRECTED PRINCIPAL BRIEF OF PLAINTIFF-APPELLANT GATEARM TECHNOLOGIES, INC.

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U.S. Patent No. 8,845,125, Appx1755:

1. A vehicle barrier system comprising:

a gate arm formed from a single piece of material having a top convex member and a bottom convex member defining first and second opposing side surfaces, a distal end and a proximal end defining a longitudinal axis therebetween, said proximal end coupled to a housing having a control system and power supply to selectively pivot said gate arm between a horizontal position and a vertical position, said gate arm including at least a first elongated inset channel centrally disposed in said first side surface defined by said top convex member and said bottom convex member and formed along said longitudinal axis of said gate arm, said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first inset channel backwall, said first side surface having a first upper sidewall including a terminating end and a first lower sidewall including a terminating end which ends terminate partially within said first opening and spaced apart from each other;

at least a first, removable light strip formed from a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, said first light strip cradled entirely within said first elongated inset channel between said backwall and said inset channel sidewalls and retained therein solely by said terminating ends of said upper and lower sidewalls;

a first electrical cable connected to said plurality of light emitting diodes; and

an electronic connector electrically releaseably connected to said housing power supply and said first electrical cable;

wherein said first light strip is removably retained within said first elongated inset channel with said plurality of light emitting diodes aligned towards said first opening such that light from said plurality of light emitting diodes enumerates through said first opening between the terminating ends when said plurality of diodes are powered from said power supply.

U.S. Patent No. 9,157,200, Appx1768:

1. A vehicle barrier system comprising:

a gate arm formed from a single piece of material that is generally circular shaped having a distal end a proximal end defining a longitudinal axis therebetween, said proximal end coupled to a housing having a control system and a power supply to selectively pivot said gate are between a horizontal position and a vertical position, said gate arm including a first elongated inset channel formed along said longitudinal axis of said circular shaped member, said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;

a first light strip formed from a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, said first light strip cradled entirely within said first elongated inset channel between said backwall and said inset channel sidewalls and retained therein solely by said first upper and said first lower terminating ends;

a first electrical cable connected to said plurality of light emitting diodes; and

an electronic connector electrically releasably connected to said power supply and said first electrical cable;

wherein said first light strip is positioned within said first elongated inset channel with said plurality of light emitting diodes aligned towards said first opening such that light from said plurality of light emitting diodes enumerates through said first opening between the terminating ends when said plurality of diodes are powered from said power supply.

CERTIFICATE OF INTEREST

Counsel for the Plaintiff-Appellant GateArm Technologies, Inc. hereby certifies the following:

1. The full name of every party represented by me is:
GateArm Technologies, Inc.

2. The full name of all real parties in interest for the entities, not including the real parties in interest which are the same as the entities, are:
None/Not Applicable.

3. The full names of all parent corporations for the entities and all publicly held companies that own 10% or more of stock in the entities are:
None/Not Applicable.

4. The names of all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency of (b) are expected to appear in this court for the entities, not including those have already entered an appearance in this court, are:
Brian M. Taillon, Esq., Kenneth W. Cohen, Esq., James S. Telepman, Esq., and the law firm of Cohen Norris Wolmer Ray Telepman Berkowitz & Cohen

5. The case title and numbers of any case known to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. See Fed. Cir. R. 47.4(a)(5) and 47.5(b).
None/Not Applicable.

6. Any information required under Fed. R. App. P. 26.1(b) and 26.1(c). See Fed. Cir. R. 47.4(a)(6).
None/Not Applicable.

January 6, 2021

/s/ Andrew D. Lockton
Andrew D. Lockton
Counsel for Plaintiff-Appellant GateArm Technologies, Inc.

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STATEMENT OF RELATED CASES

Plaintiff-Appellant GateArm Technologies, Inc. and its Counsel are not aware of other related or pending cases that will directly affect or be affected by this Court's decision in the pending appeal.

JURISDICTIONAL STATEMENT

Plaintiff-Appellant GateArm Technologies, Inc. appeals from the United States District Court for the Southern District of Florida's Order Adopting Magistrate's Report and Recommendation in Case No. 14-62697-Civ-Scola ("Order"), Appx37-42. The Order adopted the magistrate judge's report and recommendation, Appx1-36, which recommended: denying GateArm Technologies Inc.'s motion to exclude the testimony of Defendants-Appellees' expert, Dr. Tipton, Appx28-30; denying the Plaintiff-Appellant's motion for a determination that the patent injunction was violated based on the Defendants-Appellees' modified product; and denying that the Defendants-Appellees' be found in contempt.

Plaintiff-Appellant timely filed its Objections to the report and recommendation on June 4, 2020, *see* Appx69, preserving the issues raised in this appeal, *see* Appx36, and on September 18, 2020, timely filed a notice of appeal, *see* Appx70, Appx3377, within the time limit prescribed by Fed. R. App. P. 4(a)(1)(A). This Court has appellate jurisdiction under 28 U.S.C. § 1295(a)(1).

STATEMENT OF THE ISSUES

1. Under the Eleventh Circuit's precedent for reviewing an objection to a magistrate's report and recommendation, expressed in *LoConte v. Duggar*, 847 F.2d 745 (11th Cir. 1988), *Stokes v. Singletary*, 952 F.2d 1567 (11th Cir. 1992), *Jeffrey S. v. State Bd. of Educ.*, 896 F.2d 507 (11th Cir. 1990), and their progeny, the district judge erred by deferring to, and reviewing for error, the report and recommendation instead of reviewing the record and making a *de novo* determination of the issues objected to by GateArm.

2. Under this Circuit's precedent in *TiVo Inc. v. Echostar Corp.*, 646 F.3d 869 (Fed. Cir. 2011) (en banc) and *KSM Fastening Sys. v. H.A. Jones Co.*, 776 F.2d 1522 (Fed. Cir. 1985), *overruled on other grounds in TiVo*, 646 F.3d 869, the Order, and the Report it adopted, erred by: (1) failing to analyze the modified product against the prior *infringement* by the enjoined product as to both patents-in-suit, U.S. Patent No. 8,845125 (the "'125 patent") and U.S. Patent No. 9,157,200 (the "'200 patent"); (2) failing to compare the modified product to the enjoined product under the contempt-specific version of the "doctrine of equivalents"; (3) failing to consider the obviousness of the modification in light of the prior art when analyzing whether the modified product was more than colorably different from the enjoined product; (4) analyzing contempt based on a "C"-shaped channel versus "U"-shaped channel analysis instead of the claim limitations of the patents-in-suit; and (5) failing to consider the infringement of the '200 patent in analyzing contempt.

3. Under this Court's precedent in *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351 (Fed. Cir. 2008) and its progeny, the Order, and the Report it adopted, erred by (1) allowing Appellees' expert, Dr. Tipton to testify as to matters of claim scope, and utilizing that improper testimony to disregard the testimony of GateArm's expert, Dr. Rice; and (2) improperly relying on Appellees' principals' testimony as "experts" and further allowing that testimony to address matters of claim scope.

4. Under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) and its progeny, Fed. R. Evid. 702, and *TiVo*, 646 F.3d 869, the district court erred by allowing Dr. Tipton to testify because his analysis did not employ this Court's required *TiVo* analysis.

5. Under *TiVo*, 646 F.3d 869 and *KSM*, 776 F.2d 1522, it was clearly erroneous for the Order and Report to find that the modified product did not violate the injunction when the magistrate's findings based on the Appellees' principals' admissions, and their expert's concession, that the modified product maintains the same aspects of the enjoined product, without change, that were alleged to infringe the relevant limitations of the '200 patent and were a basis for the injunction.

STATEMENT OF THE CASE

Plaintiff-Appellant GateArm Technologies, Inc. ("GateArm" or "Appellant") appeals from the order of the United States District Court for the Southern District of Florida ("Order"), Appx37-42, which adopted the magistrate judge's report and recommendation ("Report"), Appx1-36, over GateArm's detailed objections, Appx3299-3325. The Order, deferring to and reviewing the Report rather than conducting a *de novo* review, adopted the finding that the Defendants-Appellees Access Masters, LLC ("Access Matters"), Blacksky Technologies, Inc. ("Blacksky") and Gatearms.com, LLC ("Gatearms.com") (collectively, "Appellees") did not violate the Consent Decree's patent-injunction through, *inter alia*, the sale of their newly-accused modified gate arm (the "modified product"). GateArm timely objected to the findings in the Report based on myriad legal errors in the Report's analysis, and findings by the magistrate which made the conclusion that the injunction was not violated clearly erroneous. Appx3304-3323.

The Order applied a legally improper review in response to GateArm's objections; the Order reviewed, and deferred to, the Report instead of reviewing the record and conducting a *de novo* review. The Order did not review most of GateArm's objections and it misstated GateArm's objections related to the only two issues it addressed. *Compare* Appx40-42 *with* Appx3299-3323. Though the legal errors would ordinarily require vacating the Order and remanding for new proceedings, the findings by the magistrate in the Report and the admissions by the Appellees' principals

establishes at least, that the modifications did not change the aspects of the enjoined product which were alleged to infringe the '200 patent and were a basis for the injunction. *Infra*, Section V. Thus, this Court can reverse the Order and direct a finding that the modified product violates the injunction.

STATEMENT OF THE FACTS

I. BACKGROUND OF THE INVENTION, THE DISPUTE, AND THE INJUNCTION.

Movable gate arms are commonly used for regulating the flow of traffic into and out of secured areas, providing controlled access for vehicular traffic. Appx1746 at 1:27-40. A problem with drivers seeing the gate arm exists, however, in low light situations and for vehicles approaching from a distance. *See id.* at 1:48-63. While reflective surfaces and tapes can provide greater visibility, such solutions are less effective during the daytime. *Id.* at 54-63.

The prior art addressed this problem through electronic light assemblies fastened to the outer surface of the barrier gate arms using mounting flanges, brackets, screws, or bolts, most often securing the light on the top of the gate arm. *Id.* at 1:64-2:12. But this solution had drawbacks: the light's position still resulted in visibility problems at night, maintenance of the assemblies was time consuming, burdensome, and costly, and if a vehicle struck the gate arm it also damaged the light assembly. *Id.* at 2:13-32.

U.S. Patent No. 8,845125 (the "'125 patent") and U.S. Patent No. 9,157,200 (the "'200 patent"), overcame these problems in the prior art by including an internally formed inset channel for removably retaining an LED light strip within a side of the gate arm, positioned so that the light from the LEDs was visible to oncoming traffic. *Id.* at 2:36-3:7. By removably retaining the LED lights inside the gate arm, the problems associated with the fastening were negated. *See ibid.* To removably retain the LED lights on the side of the gate arm facing oncoming vehicles, the gate arm was designed to include a channel positioning the LED light strip on the side facing oncoming traffic; to retain the LED light strip within the channel, protrusions extended into the channel, closing the channel enough to prevent the light strip from falling out while allowing the light from the LED strip to shine towards oncoming vehicles. Appx1750 at 9:66-10:41; Appx1751 at 11:3-63.

These claimed features are shown in the figures of both the '125 and '200 patents:

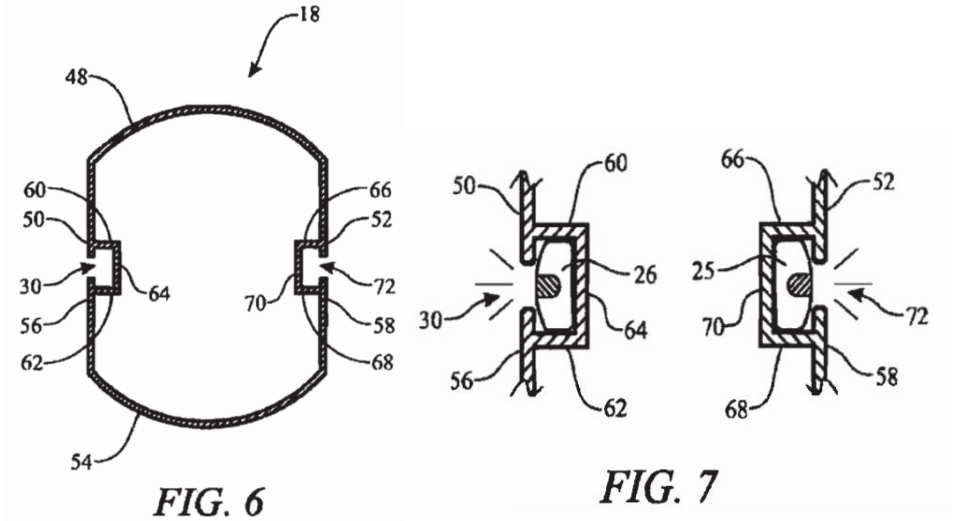


FIG. 6 FIG. 7

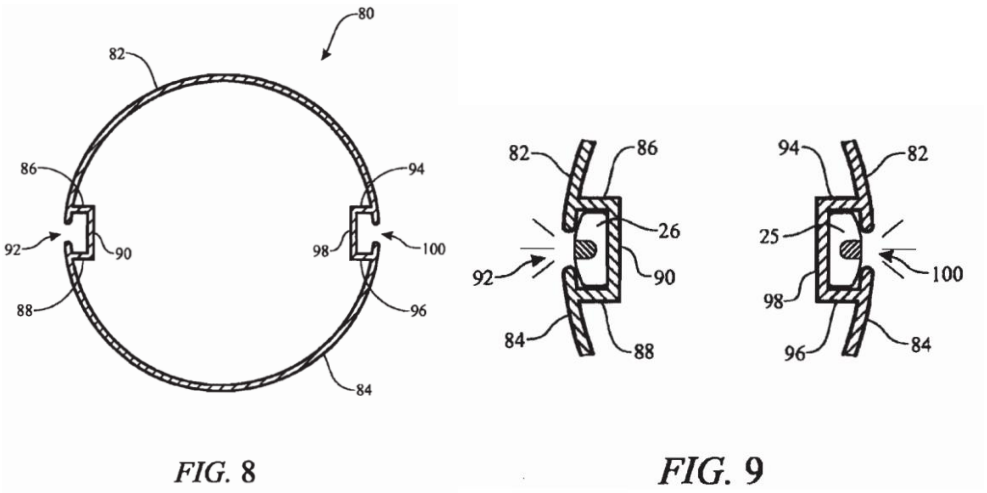


FIG. 8 FIG. 9

Appx1744-1745; Appx1761-1762; *see also* Appx1755 at 1:21-63; Appx1768 at 12:26-60.

On November 26, 2014, GateArm filed an action against Appellees for infringement of the '125 patent. Appx47. Following the USPTO's reexamination of the '125 patent, GateArm amended its complaint to assert infringement of both the reexamined '125 patent and the newly issued '200 patent. Appx47-50. The originally accused product sold by Appellees was the embodiment of the invention shown in figures 8 and 9 of the '125 and '200 patents:

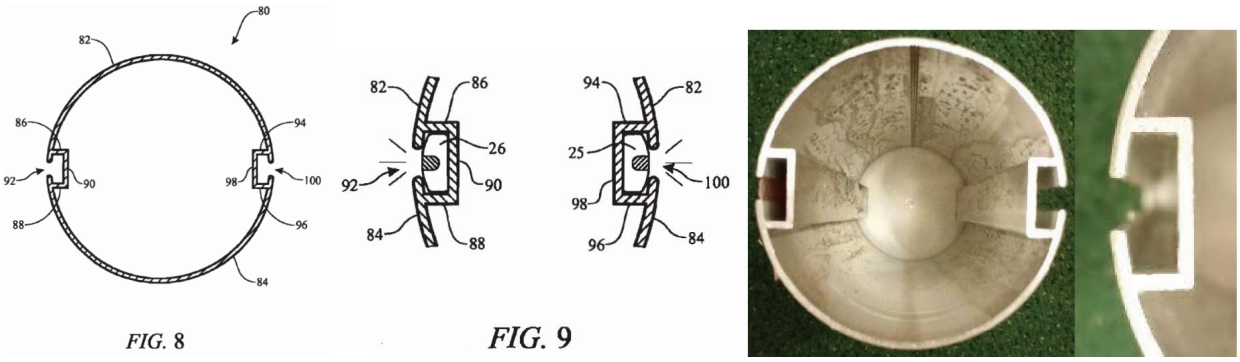
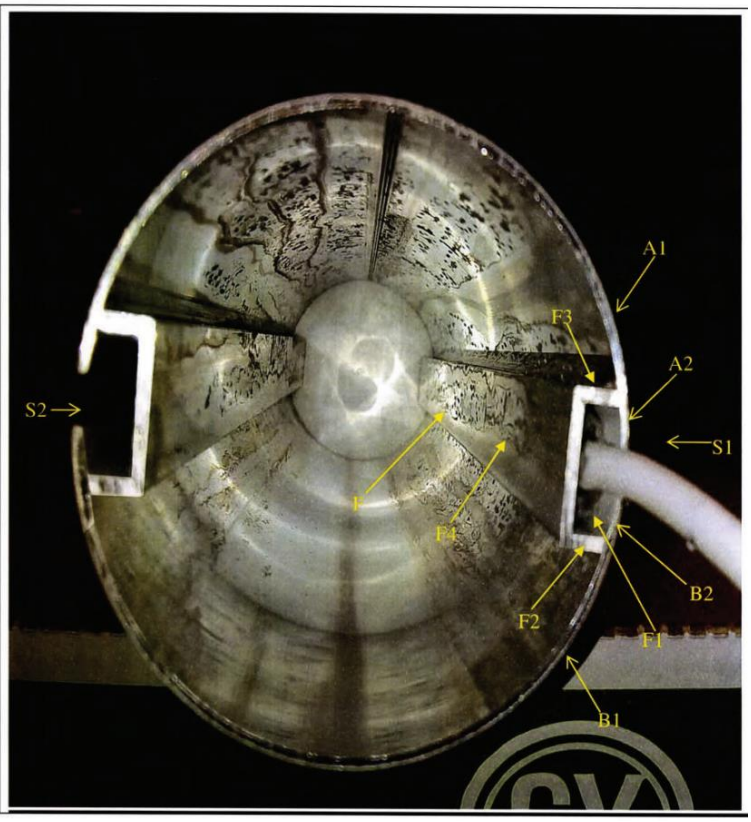


FIG. 8 FIG. 9

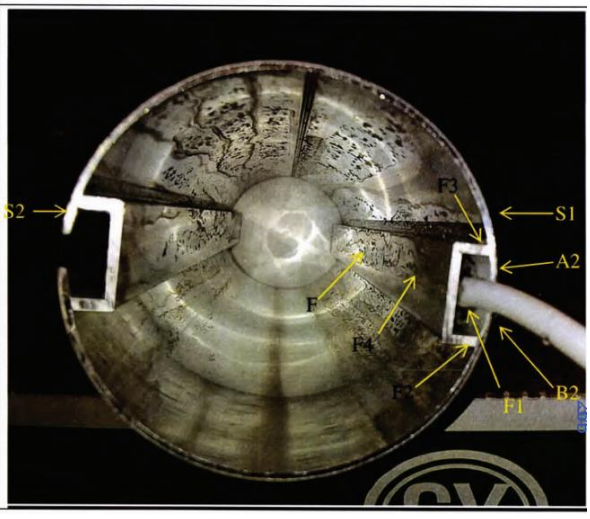
Appx38

Under the district court's scheduling order, Appx1770-1777, GateArm served Appellees with infringement contentions, Appx1914-1946, identifying the claim

limitations present in the accused gate arm, for each of the patents-in-suit (reproduced in relevant part below from claim 1 of each patent, addressing the aspects of the enjoined product Appellees modified):

said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first inset channel backwall,	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4).	
said first side surface having a first upper sidewall including a terminating end and a first lower sidewall including a terminating end which ends terminate partially within said first opening and spaced from each other;	The first side surface (S1) has a first upper sidewall (A1) that includes a terminating end (A2) and a first lower sidewall (B1) that includes a terminating end (B2) which ends terminate partially within the first opening spaced apart from each other.	

Appx1928, '125 patent contentions;

said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4). The accused device has an upper terminating end (A2) and a lower terminating end (B2) which each terminate partially within the first opening spaced apart from each other.	

Appx1939, '200 patent contentions.

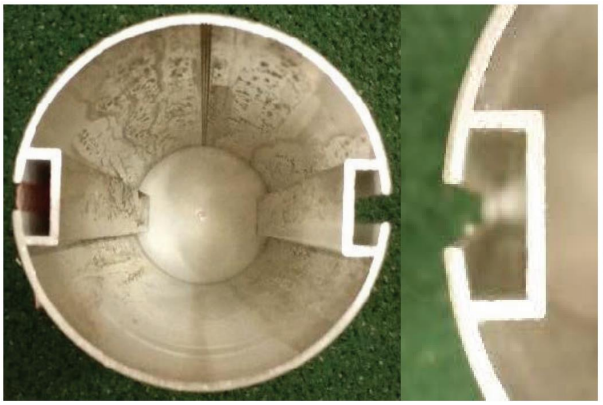
Appellees contentions, also served under the scheduling order, did not include non-infringement contentions. Instead, they contested infringement solely through invalidity contentions; there was no dispute that the original (enjoined) product embodied the claimed inventions of the '125 and '200 patents. Appx1778-1800.

Mediation resulted in the Consent Decree, whereby the '125 and '200 patents were adjudged valid and Appellees' product was enjoined based on the infringement of those patents. Appx150-154. Days after the Consent Decree was entered, Appellees modified the enjoined product. Appx14, ¶ 33; Appx2215-2216 (reading Appx3315-3316). Assessing the modification to be insignificant and a clear attempt to evade the injunction, GateArm moved to reopen the action and sought a finding of contempt. *See* Appx52-53.

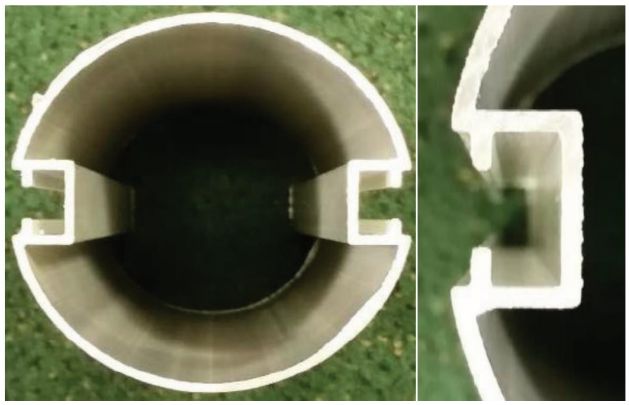
II. DEFENDANTS' MODIFIED PRODUCT.

The main modification to Appellees' enjoined product was that the "fins", i.e., the protrusions preventing the LED lights from falling out of the channel, were recessed. The magistrate judge found, based on Appellees' admissions, that those protrusions in the modified product are part of the upper and lower inset channel sidewalls. *See* Appx14; *see also* Appx31-32; Appx34-35; Appx38-39; Appx1622-1624; Appx1653-1655; Appx3156-3159. Those protrusions, referred to at times as "lips", "fins", or "retaining fins", served the identical function as in the enjoined product, i.e., they retained an LED light strip within the channel. *See* Appx3156-3159. Though

other changes were made, such as thinning the aluminum and increasing the opening space, the recession is the only modification relevant to the contempt inquiry. *See, e.g.*, Appx22, ¶ 75; Appx23, ¶¶ 79, 83; Appx2297-2299; Appx2305; Appx2307; *TiVo*, 646 F.3d at 881-83. This is clear when comparing the two products:

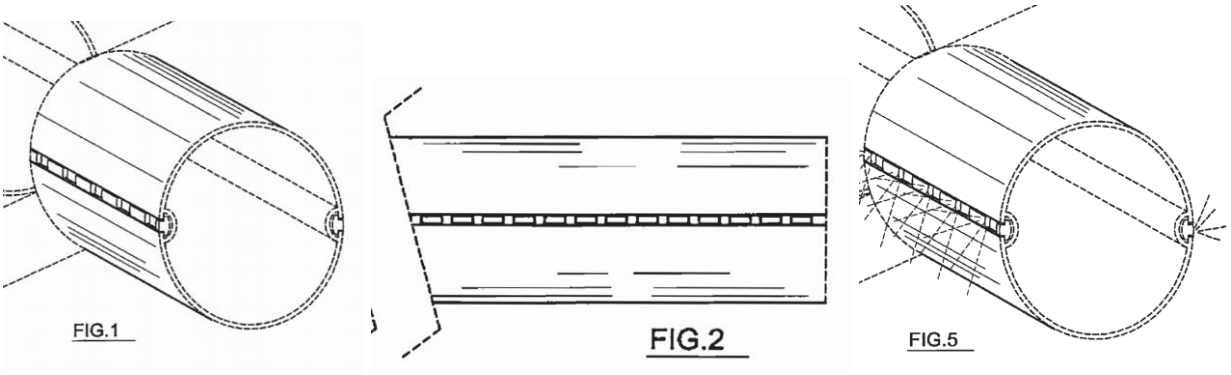


Appx38
Pictures of the enjoined product



Appx39
Pictures of the modified product

Characterizing the modified product to their customers, Appellees stated "The outward visual appearance will be virually identical to the [enjoined product]." Appx12 (quoting Appx1657-1659). Further, Appellees mark both the enjoined and modified products as practicing U.S. Design Patent No. D707,851, claiming the ornamental appearance on the surface of a gate arm:



Appx1645-1651.

Appx11-13; Appx1637-1643; Appx1631-1632; Appx1671; Appx1728; Appx2188-2195; Appx2205; Appx2211-2212; Appx2215.

Appellee Access Masters' pricipal, Michael Pikman, applied for patent protection for their modified product, claiming the recessed the channel modification, referring to it as recesses "retaining fins." Appx14-15; Appx24-25; Appx1730-1737; Appx2218-2219; Appx3159-3161. The USPTO determined that the invention was obvious based on, *inter alia*, the '125 patent, and twice rejected the application, Appx1802-1815, Appx1817-1833, resulting in that application being abandoned, Appx2446-2447. In those rejections, the USPTO found that the invention as a whole was obvious, and specifically found that the claim limitation directed to recessing the "retaining fins," was an obvious modification to the '125 patent based on the prior art. Appx1806-1814; Appx1821-1831.

Before that application was abandoned, Mr. Pikman filed a continuation-in-part ("CIP") application. *See* Appx1835-1842. In three separate office actions, while finding the invention as claimed up to that point was obvious, the USPTO specifically maintained the finding that recessing the "retaining fins" is an obvious modification to the '125 patent based on the prior art. Appx1849-1851; Appx1856-1861; Appx1868-1873.

After the evidentiary hearing and record closed, Mr. Pikman received a notice of allowance for the CIP application, based on further narrowing of the submitted claims. *See* Appx2142-2144; *see also* Appx2151-2159. The USPTO's finding that

recessing the "retaining fins" was an obvious modification to the '125 patent never changed. *See* Appx2142-2144; *see also* Appx2151-2159. The magistrate judge admitted the notice of allowance, addressing the separate patentability of Appellees' narrowed invention, over GateArm's objections that the evidence of further modifications *in the application* and patentability based on additional claim limitations narrowing the claim scope are not relevant to determining a violation of the injunction by the modified product. Appx2164-2168; Appx2172-2175; Appx2178; Appx2414-2415; Appx2510-2517; Appx2520-2525. The remaining file history was also entered. *See* Appx2509-2518; *see also* Appx2520-2540.

III. CONTEMPT PROCEEDINGS.

A. Claim Construction.

As part of resolving GateArm's motion for contempt, the magistrate judge conducted claim construction. *See* Appx5-6; *see also* Appx54-57. Though Appellees originally identified multiple terms for construction, from both the '125 patent *and* the '200 patent, *see* Appx298-306, at the claim construction hearing Appellees stated that only two terms needed to be construed: "first upper sidewall including a terminating end" and "first lower sidewall containing a terminating end", both terms from the '125 patent, Appx4-6, Appx709-718. Adopting the magistrate's recommendation, the district court construed those terms as: "The upper half of the first side surface, extending from the convex top to its terminal end located in the first opening" and

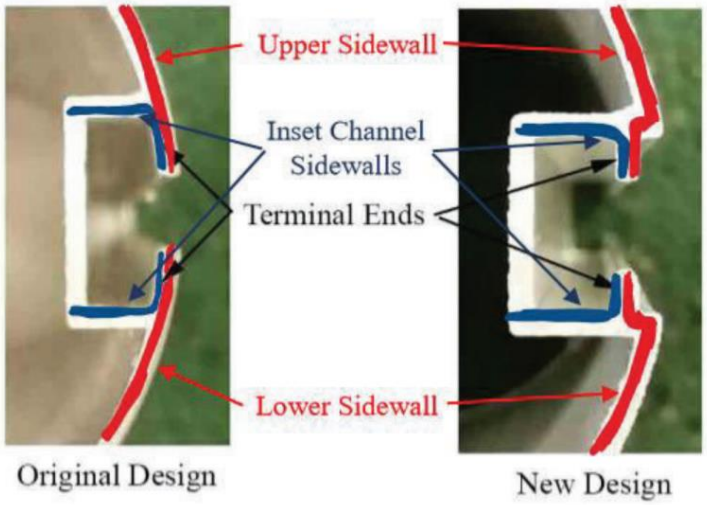
"[t]he lower half of the first side surface, extending from the convex bottom to its terminal end located in the first opening." Appx6. Appellees did not request that any of the claim terms of the '200 patent be construed. *See* Appx4-6; *see also* Appx709-718.

B. Expert Testimony and GateArm's Objections.

During the contempt proceedings Appellees' relied on an expert opinion from Dr. Steven M. Tipton, Ph.D. *See* Appx1046-1057. His opinion, however, was based on a traditional patent-infringement analysis instead of this Court's *TiVo* analysis for use in contempt proceedings. *See ibid.* GateArm timely moved to exclude Dr. Tipton's testimony as methodologically flawed and likely to cause confusion rather than help the trier of fact. Appx1023-1028; Appx1030-1040. Indeed, Dr. Tipton's opinion was contradicted by the Appellees' admissions of prior infringement by the enjoined product. *See* Appx1034-1039. Over GateArm's objections, the magistrate judge permitted Dr. Tipton to testify at the evidentiary hearing, qualified as a mechanical engineering expert. *See* Appx2348; Appx2350-2352.

Dr. Tipton testified at the evidentiary hearing regarding GateArm's demonstrative exhibit. Appx2365-2374. The demonstrative exhibit, reproduced below, reflected the relevant earlier infringement contentions related to the '125 patent in red lines and the relevant earlier infringement contentions of the '200 patent

in blue lines, highlighting the relevant infringement contentions applied to both the enjoined product and the modified product:



New Design with Shifted Position of the Integrally Formed Sidewall Terminal Ends

Appx2141. This demonstrative was first addressed to Appellees in the rebuttal expert report of Dr. James Rice, GateArm's technical expert. Appx1291. It was also presented and explained in GateArm's prehearing briefing, explaining that the red and blue lines corresponded to the infringement contentions related to each of the asserted patents. Appx1398-1399; Appx1487-1488. Dr. Tipton did not provide a rebuttal report addressing this demonstrative.

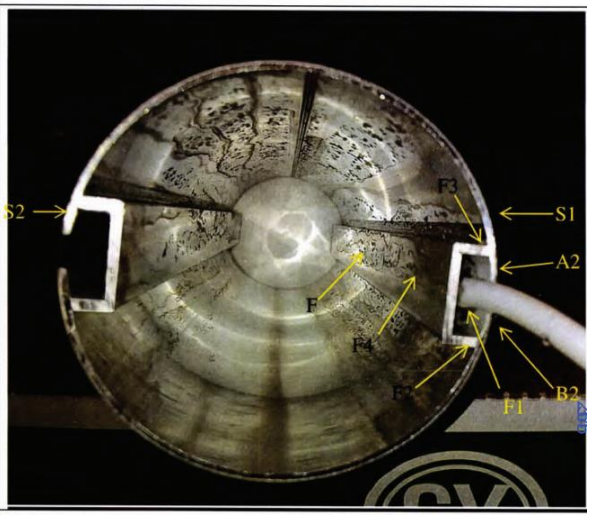
Separate from its standing objection under *Daubert*, GateArm objected to Dr. Tipton offering expert testimony regarding the demonstrative because Dr. Tipton provided no report on this topic, and separately, because Dr. Tipton's testimony invaded the role of the court to determine claim scope; Dr. Tipton impermissibly re-

construed the claim terms through his testimony. Appx2364-2370; Appx2372-2373; 2381-2384. Further, cross-examination clarified that Dr. Tipton was testifying based on a comparison of the modified product to the claims of the '125 patent; he was not testifying based on a comparison of the modified product to the enjoined product and he was not testifying based on a comparison of the modified product to the infringement admitted to by the enjoined product, *see* Appx2377-2381, thus maintaining the improper methodology of his report and failing to apply this Court's *TiVo* analysis.

The magistrate judge admitted Dr. Tipton's testimony on two points: (1) recessing the LED strip in the channel improved visibility and (2) regarding GateArm's demonstrative, Dr. Tipton stated, "it makes no sense from an engineering standpoint for the [retaining] fin to be identified as two different parts, namely, a red part and a blue part." Appx25-26. Dr. Tipton's analysis did not consider, however, that the red and blue lines of the demonstrative exhibit addressed the prior infringement applied to the modified product from the standpoint of each of the patents. *See* Appx25-27; *see also* Appx1289-1291; Appx1398-1399; Appx1487-1488; Appx2365-2370; Appx3309-3313.

Dr. Tipton nevertheless confirmed that the blue line in the demonstrative exhibit represents the inset channel side wall including the "retaining fin", Appx2366-2367, and that the blue line is the same for both the enjoined product and the modified product, Appx2370, *see also* Appx26. Based on Dr. Tipton's testimony, the

features of the enjoined product which were the basis for the infringement and injunction related to the '200 patent, were unchanged between the enjoined product and the modified product. *See* Appx2366-2370; *see also* Appx2141; Appx1398; Appx1474-1476; Appx1478-1479; Appx1488; Appx2141; Appx3286-3290; Appx3296-3298; Appx1939 (relevant infringement contentions for claim 1 of the '200 patent):

said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4). The accused device has an upper terminating end (A2) and a lower terminating end (B2) which each terminate partially within the first opening spaced apart from each other.	

C. GateArm's Objections and the District Court's Order.

The magistrate judge entered a report and recommendation denying GateArm's *Daubert* motion to exclude Dr. Tipton's testimony, Appx29-30, and finding that the modified product was both (1) more than colorably different from the enjoined product and (2) did not continue to infringe, Appx30-35. But much of the evidence and legal analysis addressed by GateArm as necessary for the magistrate judge to consider in the analysis was missing from the Report. *Compare* Appx1384-1399 *and* Appx3286-3298 *with* Appx30-35. Further, as stated in the Report, infringement was *only* analyzed with respect to the two claim terms of the '125 patent that had been

construed, implicitly acknowledging that infringement based on the claim limitations of the '200 patent was *not* considered. Appx35. GateArm timely objected to the Report, identifying eight (8) errors of law in the magistrate's analysis, and addressing the Report's finding that the "fins" were part of the inset channel walls, which established the violation of the injunction and its conclusion to the contrary was clearly erroneous. Appx3299-3323.

Appellees response to GateArm's objections did not argue in support of the Report's findings and analysis, but instead asserted alternate grounds for the district judge to rely on. Appx3332-3351. Because Appellees' response presented arguments not made to the magistrate, GateArm moved to strike those portions of their response. *See* Appx41; *see also* Appx70-71. The Order struck Appellees' "contract defense" as not presented to the magistrate judge but considered the rest of Appellees' response. Appx41. Three (3) days after briefing was complete on GateArm's motion to strike portions of Appellees' response, the district judge issued the Order adopting the magistrate's Report. Appx37-42; Appx71. The Order addressed only two grounds of objection: whether "the report misapplie[d] the contempt proceeding standard" and whether "the report disregarded the '200 patent from the analysis." Appx41. The Order did not address GateArm's other objections. Appx41, n.1.

In adopting the Report, the Order stated that "the report examine[d] the differences between the enjoined gate arm and the new gate arm, and it determined

that the differences between the two are significant." Appx41. Regarding the second ground reviewed, the Order states that "[t]he report's analysis focuses on the differences between the products and is not a typical patent infringement analysis. Therefore, the report's analysis does not frequently reference either patent. The report does not, however, ignore the '200 patent," relying on the fact that Report "recounts Dr. Rice's testimony regarding both patents," Appx42, testimony that the Report rejected, Appx31-32.

SUMMARY OF THE ARGUMENT

The district court's Order adopting the Report is premised on myriad legal errors which should be addressed by vacating the Order and remanding for a new opinion consistent with this Court's and the Eleventh Circuit's precedent. Further, the findings in the Order and Report that the Appellees' modified product was more than colorably different from the enjoined product and no longer infringed the patents-in-suit is clearly erroneous based on the Report's finding and Appellees' admissions that the "retaining fins" are part of the inset channel walls and Dr. Tipton's concession that with respect to infringement contentions for the '200 patent the modified product is the same as the enjoined product; such error should be addressed by reversing the Order and directing a finding that the modified product violates the injunction.

First, the Order was contrary to established Eleventh Circuit precedent for reviewing an objection to a magistrate judge's report and recommendation, which requires the district judge to review the *record* under a *de novo* review and reach an independent determination. *See LoConte*, 847 F.2d 745; *see also Stokes*, 952 F.2d 1567; *Jeffrey S.*, 896 F.2d 507. Instead, the district judge reviewed the Report for error, improperly deferring to the Report and failing to provide an independent review of the matters objected to by GateArm. Moreover, the Order is clear that many of GateArm's objections were not reviewed.

Second, the Order and Report legally erred by analyzing the contempt issue contrary to this Court's established precedent in *TiVo*, 646 F.3d 869 and *KSM*, 776 F.2d 1522. The district court's analysis erred by: (1) failing to analyze the modified product against the prior *infringement* by the enjoined product against both patents-in-suit; (2) failing to compare the modified product to the enjoined product under the contempt-specific version of the "doctrine of equivalents"; (3) failing to consider the obviousness of the modification in light of the prior art when analyzing whether the modified product was more than colorably different from the enjoined product; (4) analyzing contempt based on a "C"-shaped channel versus "U"-shaped channel analysis instead of the claim limitations of the patents-in-suit; and (5) failing to consider the infringement of the '200 patent in analyzing contempt.

Third, the Order and Report legally erred by analyzing the contempt issue contrary to this Court's established precedent in *O2 Micro*, 521 F.3d 1351 because the

Report and Order were based on (1) allowing Appellees' expert, Dr. Tipton to testify as to matters of claim scope, (2) utilizing that improper testimony to disregard the testimony of GateArm's expert, Dr. Rice, and (3) improperly relying on Appellees' principals' testimony as "experts" and then allowing their testimony to impermissibly address matters of claim scope.

Fourth, the Order adopted the Report's improper determination not to exclude Dr. Tipton's from testifying at trial, despite his failure to analyze contempt based on this Court's precedent in *TiVo*, instead analyzing infringement using the traditional non-contempt analysis. Under *Daubert*, Fed. R. Evid. 702, and *TiVo*, 646 F.3d 869, allowing Dr. Tipton to testify was error.

Fifth, and finally, the finding in the Order and the Report that Appellees' modified product did not violate the injunction was clearly erroneous; the Report made findings and the Appellees admitted that the modified product's "retaining fins" were part of the inset channel walls—the exact contention for the enjoined product's infringement of the '200 patent—and Dr. Tipton conceded in the hearing that the aspects of the enjoined product alleged to infringe the '200 patent were "the same" in the modified product.

The legal errors in the Order and Report warrant vacating the Order and remanding for a new opinion. However, because the finding in the Report and the admissions by Appellees establishes that the modified product is not different from the enjoined product and continues to infringe, at least with respect to the '200 patent,

in the interest of efficiency the Order should be reversed, and the district court should be directed to find that the modified product violates the injunction.

ARGUMENT

The District Court erred in concluding that the minor modification made to the enjoined product—found by the U.S. Patent Office to be an obvious modification to GateArm's '125 patent—resulted in more than a colorable difference in the modified product and no longer infringed the asserted patents. *See* Appx1-36, adopted by Appx37-42. Because the District Court's conclusions are not supported by the record and clearly erroneous, and because the District Court legally erred in its contempt analysis, this Court should reverse the District Court's Order. Alternatively, because the District Court legally erred in allowing Appellee's expert, Dr. Tipton, to provide testimony employing a legally incorrect methodology and to invade the province of the Court in explaining the scope of the claim language, this Court should reverse the District Court's denial of the Appellant's motion *in limine* to exclude that testimony and remand with instructions to analyze the issue of the Appellee's violation of the injunction independent of that improper testimony.

I. STANDARD OF REVIEW.

A party seeking an order of civil contempt has the burden of demonstrating by clear and convincing evidence "that 1) the allegedly violated order was valid and lawful; 2) the order was clear, definite and unambiguous; and 3) the alleged violator

had the ability to comply with the order." *McGregor v. Chierico*, 206 F.3d 1378, 1383 (11th Cir. 2000); *accord FTC v. Leshin*, 618 F.3d 1221, 1232 (11th Cir. 2010). The evidence must also clearly and convincingly establish that the order was indeed violated. *McGregor*, 206 F.3d at 1383.

"The criteria for adjudicating a violation of a prohibition against continued infringement by a party whose products have already been adjudged to be infringing is a matter of Federal Circuit law." *TiVo*, 646 F.3d at 881. "In evaluating whether an injunction against continued infringement has been violated by a newly accused product, courts must follow the two-step test outlined in [*TiVo*]." *Proveris Sci. Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1370 (Fed. Cir. 2014). "Regional circuit law governs contempt proceedings that do not raise issues unique to patent law." *Schaefer Fan Co., Inc. v. J&D Mfg.*, 265 F.3d 1282, 1289 (Fed. Cir. 2001).

The Eleventh Circuit "review[s] *de novo* the legal question of whether the district court applied the proper standard of review in adopting the report and recommendation of the magistrate judge." *Macort v. Prem, Inc.*, 208 Fed. Appx. 781, 784 (11th Cir. 2006). It then reviews a district court's civil contempt order and evidentiary rulings regarding expert testimony for abuse of discretion. *Med. Assoc. of Ga. v. Wellpoint, Inc. (In re Managed Care)*, 756 F.3d 1222, 1232 (11th Cir. 2014) (addressing civil contempt); *United States v. Frazier*, 387 F.3d 1244, 1259 (11th Cir. 2004) (addressing evidentiary rulings regarding experts).

When employing the abuse-of-discretion standard, the Eleventh Circuit will affirm an order unless it finds "that the district court has made a clear error of judgment, or has applied the wrong legal standard." *Med. Assoc. of Ga.*, 756 F.3d at 1232 (quoting *Frazier*, 387 F.3d at1259). "A district court abuses its discretion if it applies an incorrect legal standard, follows improper procedures in making the determination, or makes findings that are clearly erroneous." *Klay v. United Healthgroup, Inc.*, 376 F.3d 1092, 1096 (11th Cir. 2004) (quoting *Martin v. Automobili Lamborghini Exclusive, Inc.*, 307 F.3d 1332, 1336 (11th Cir. 2002)).

II. THE DISTRICT COURT ERRED BY FAILING TO REVIEW *DE NOVO* THE DETERMINATION OF EACH PORTION OF THE REPORT AND RECOMMENDATION TO WHICH GATEARM OBJECTED.

The issue of whether the district court applied the proper standard of review in adopting the report and recommendation is not unique to patent law; the Eleventh Circuit applies a *de novo* review to whether the proper legal standard was applied. *See Macort*, 208 Fed. Appx. at 784. In the Eleventh Circuit, a party must file written objections to a report and recommendation to preserve issues for appeal. Appx36 (citing *Resolution Tr. Corp. v. Hallmark Builders, Inc.*, 996 F.2d 1144, 1149 (11th Cir. 1993)).

If a party's objection specifically identifies the portions of the proposed findings and recommendation to which objection is made and the specific basis for the objection, a district court "must 'make a *de novo* determination of those portions of

the report to which objection is made and may accept, reject, or modify in whole or in part, the findings or recommendation made by the magistrate judge.'" Appx40 (quoting *Macort*, 208 Fed. Appx. at 783-84 (quoting *Heath v. Jones*, 863 F.2d 815, 822 (11th Cir. 1989) (appendix to the opinion, magistrate's report and recommendation))); *accord LoConte*, 847 F.2d at 750; *Stokes*, 952 F.2d at 1576. The Eleventh Circuit uses mandatory language when enunciating this standard of review; indeed, it is constitutionally required for referring matters to a magistrate judge. *Jeffrey S.*, 896 F.2d at 512 ("The *de novo* review requirement is essential to the constitutionality of [28 U.S.C. §] 636."); *see also LoConte*, 847 F.2d at 750; *Stokes*, 952 F.2d at 1576.

The district judge did not make the required *de novo* review when adopting the report and recommendation. For the limited subset of GateArm's objections that the Order addressed, the Order did not review the issues *de novo*; instead, it gave improper deference to the Report. Appx40-42. *De novo* review, however, requires an independent analysis of the record without deference to the Report. *See, e.g.*, *LoConte*, 847 F.2d at 750 ("As the use of the phrase *de novo* implies, the district court's consideration of the factual issue must be independent and based upon the record before the court."); *Jeffrey S.*, 896 F.2d at 512 ("although *de novo* review does not require a new hearing of witness testimony, *United States v. Raddatz*, 447 U.S. 667, 675-76, 100 S. Ct. 2406, 2412-13, 65 L. Ed. 2d 424 (1980), it does require independent consideration of factual issues based on the record."); *Renegotiation Board v. Bannercraft Clothing Co.*, 415 U.S. 1, 23 (1974) (defining a "de novo proceeding" as a review that

was "unfettered by any prejudice from the [prior] agency's determination and free from any claim that the [agency's] determination is supported by substantial evidence."); *United States v. First City Nat'l Bank*, 386 U.S. 361, 368 (1967) (observing that "review de novo" means "that the court should make an independent determination of the issues" and should "not . . . give any special weight to the [prior] determination of" the agency); *Kaiser Aero. & Elecs. Corp. v. Teledyne Indus. (In re Piper Aircraft Corp.)*, 244 F.3d 1289, 1295 (11th Cir. 2001) ("De novo review requires the court to make a judgment independent of the bankruptcy court's, without deference to that court's analysis and conclusions.").

The Eleventh Circuit's opinion in *Jeffrey S.*, vacating and remanding after the district court "clearly failed to conduct such a *de novo* review," is instructive here. *See* 896 F.2d at 513. In that case, after a six-day hearing, a six-volume transcript, and sixty-pages of objections to the report, the district court "adopted the magistrate's recommendation after only four days." *Ibid.* While the district court's order stated it "was technically a *de novo* ratification" of the report and recommendation, it "relied heavily" on the magistrate's assessment of the evidence and "judgment in drawing reasonable inferences therefrom." *Ibid.* Reviewing that order, the Eleventh Circuit found that the deference to the magistrate, including the statement that the report was not clearly erroneous, reflected the application of the improper review. *Ibid.* Further, the Eleventh Circuit expressed skepticism that even a technical *de novo* review

occurred, based on the quick adoption by the district judge. *Ibid.* ("Whether the review constituted even a technical *de novo* review is questionable.").

In this action, the Order acknowledges that it did not address many of GateArm's objections, and for two issues addressed, the language in the Order demonstrates that it improperly deferred to the Report instead of reviewing the evidence *de novo*. Appx40-42; *see LoConte*, 847 F.2d at 750; *see also Jeffrey S.*, 896 F.2d at 512. As stated in the Order, it addressed only the objections that (1) the Report misapplied the *TiVo* analysis and (2) the Report disregarded the '200 patent in its analysis. Appx41. GateArm objected, however, on numerous other grounds which should have resulted in rejecting the report and recommendation. Appx3304-3323. Moreover, the language of the Order demonstrates that for those two grounds, the Order reviewed the Report for error instead of reviewing *de novo* the record as required. *See* Appx41-42; *see also LoConte*, 847 F.2d at 750; *Jeffrey S.*, 896 F.2d at 512.

Like the improper review by the district court in *Jeffrey S.*, the district court here improperly deferred to the magistrate's Report. Appx40-42. The Order's statements demonstrate that the district judge reviewed *the Report* instead of the evidence. Appx41-42. The Order states that "*the report* examine[d] the differences between the enjoined gate arm and the new gate arm, and determined that the differences between the two are significant," Appx41 (emphasis added), and that "*the report* d[id] not . . . ignore the '200 patent," Appx41-42 (emphasis added). The Order did not

independently review the record and determine *de novo* the issues objected to. *See* Appx40-42.

Further, like in *Jeffrey S.*, the speed of the adoption evidences the improper review. The evidentiary hearing took two days and resulted in a 202-page transcript and addressed, ultimately, fifty-four (54) exhibits. The Report incorporated three (3) additional hearings on the legal issues, including approximately 667 pages of briefing between trial briefs, preliminary briefs on the legal issues, GateArm's *Daubert* motion, and the objections. It took the magistrate over six months to decide and write the thirty-six (36) page Report. *See* Appx2-7; *see also* Appx60-71 (docket entries 128, 130, 135-142, 147-150, 153-162, 165-188, 194-203, 207-220). Yet the district judge adopted the Report a mere three (3) days following the completion of briefing on the objections. Appx71 (briefing completed 8/19/2020, order issued 8/21/2020).

Additionally, beyond failing to review the findings *de novo*, the district court's Order does not "contain sufficient explanations of the[] rulings so as to provide this Court with an opportunity to engage in meaningful appellate review" of the analysis. *See Danley v. Allen*, 480 F.3d 1090, 1091 (11th Cir. 2007). The Order is cursory, failed to explain its rulings and analysis, and ignored many of GateArm's objections. *Compare* Appx41-42 *with* Appx3307-3311, Appx3313-3314, *and* Appx3316-3318. The Order's footnote confirms that it did not address each of GateArm's objections, stating "[t]o the extent the Court did not address each of GateArm's objections, a

decisionmaker need not specifically address and reject every argument raised by one of the parties." Appx41.

The District Court misreads the Eleventh Circuit's opinion in *Guice v. Postmaster, U.S. Postal Service*, 718 Fed. Appx. 792 (11th Cir. 2017), as supporting its decision not to address GateArm's objections. Appx41 at n.1. *Guice*, however, not only fails to support the Order's decision not to perform its constitutionally necessary review, but it further clarifies the error in this case. *See* 718 Fed. Appx. at 795; *see also Jeffrey S.*, 896 F.2d at 512.

In *Guice*, the Eleventh Circuit reviewed an appeal of a dismissal on statute of limitations grounds at the pleadings stage. 718 Fed. Appx. at 794-95. There, the plaintiff-appellant argued "that the district court erroneously considered arguments and authorities not raised by either party and did not specifically address each argument she raised in her opposition to the motion to dismiss." *Id.* at 795. After confirming that orders from a district court "should contain sufficient explanations of their rulings so as to provide th[e] Court with an opportunity to engage in meaningful appellate review," *ibid.* (quoting *Danley*, 480 F.3d at 1091), the Eleventh Circuit found no error in not separately addressing each argument because once the district court determined that the action was barred on statute of limitations grounds "it did not need to go any further or address and specifically reject her *other* arguments," *ibid.*

(citing *Samaan v. Gen. Dynamics Land Sys., Inc.*, 835 F.3d 593, 605 (6th Cir. 2016)) (emphasis added).[1]

In contrast, GateArm's objections that were not addressed in the Order included, *inter alia*, identification of: errors in the Report's legal analysis; errors in the evidence relied upon by the Report; errors in the Report's failure to consider evidence from the USPTO addressing the obviousness of the relevant modification based on the '125 patent and the prior art; errors in not considering the Defendants' extrajudicial admissions; errors in accepting the improper methodology utilized by the Defendants' expert; and errors in the Report's improper analysis of "C"-shaped channels versus "U"-shaped channels, terms which are not part of the patents-in-suit, or relevant to the invention claimed in each patent. *See* Appx3304-3318.

Further, the Order did not address that the Report's finding that the "fins" were part of the inset channel walls, relying on the *Appellees'* testimony and the testimony of the *Appellees'* expert, tracks *exactly* the claim terms of the '200 patent and should establish that the differences in the modified product are legally insignificant and that the modified product continues to infringe *at least* the '200 patent. *Compare*

[1] The plaintiff's claim in *Guice* was brought under 29 U.S.C. § 185, which is "governed by a six-month statute of limitations period." 718 Fed. Appx. at 796. The action was not filed, however, until "over four years after the statute of limitations began to run," and therefore, the plaintiff's "claim [was] time barred." *Ibid.* Because the claim was barred, the plaintiff's "other" arguments were irrelevant, and it was not reversible error that he district judge did not consider them. *See id.* at 795-796.

App37-42 *with* Appx3318-3323. Thus, the Report's fact findings, under the correct legal analysis, establish that the modified product violates the injunction. *See* Appx3318-3323.

Because the district court failed to apply the required *de novo* review of the magistrate's Report, the Order should be vacated and remanded. In so doing, this Court should address the several legal errors articulated in Report to guide the district court's analysis.

III. THE DISTRICT COURT LEGALLY ERRED BY FAILING TO APPLY THIS COURT'S *TiVo* ANALYSIS WHEN ANALYZING WHETHER THE DEFENDANTS' MODIFIED PRODUCT VIOLATED THE INJUNCTION.

Because the district court failed to conduct the required *de novo* review of the magistrate's Report, *supra*, Section II, the Order does not contain a separate analysis of the evidence based upon this Court's en banc opinion in *TiVo*, *see* Appx41-42. The Report, however, shows that the magistrate judge's recommendation, which the Order adopts, was based on an incorrect application of *TiVo* and several errors in its legal analysis. Accordingly, GateArm addresses herein the legal errors expressed in the Order as well as those expressed in the Report which were improperly adopted by the Order.

A. The *TiVo* Analysis for Determining Contempt of a Patent Injunction.

As this Court held in *TiVo*, because contempt is a severe remedy that should not be found when there is a fair ground of doubt as to whether a new or modified

product violates an injunction, a "party seeking to enforce [an] injunction must prove both that the newly accused product is not more than colorably different from the product found to infringe and that the newly accused product actually infringes." 646 F.3d at 881-82. Clarifying the "more than colorable differences" test in *TiVo*, this Court explained that "the contempt analysis must focus initially on the differences between the features relied upon to establish infringement and the modified features of the newly accused products. *Id.* at 882.

The primary question becomes "whether the newly accused product is so different from the product previously found to infringe that it raises 'a fair ground of doubt as to the wrongfulness of the defendant's conduct.'" *Ibid.* (quoting *Cal. Artificial Stone Paving Co. v. Molitor*, 113 U.S. 609, 618 (1885)). That analysis must focus on "those aspects of the accused product that were previously alleged to be, and were the basis for, the prior finding of infringement, and the modified features of the newly accused product." *Ibid.*

"[I]n order to determine whether two devices are 'merely colorably different,' the accused device must be compared to the adjudged device under a 'doctrine of equivalents'" analysis this Court adapted from the doctrine enunciated in *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950). *KSM*, 776 F.2d at 1527. Unlike the product-to-patent comparison in *Graver Tank*, the "doctrine of equivalents" analysis in a contempt action compares the modified product to the enjoined product. *Ibid.* When an enjoined product and modified product "do the

same work in substantially the same way, and accomplish substantially the same result, they are the same, even though different in name, form or shape." *Ibid.* (citing *Interdynamics, Inc. v. Firma Wolf*, 698 F.2d 157, 162 (3d Cir. 1982) (quoting *Interdynamics, Inc. v. Firma Wolf*, 653 F.2d 93, 99 (3d Cir. 1981), *cert. denied sub nom.*, *Trans Tech, Inc. v. Interdynamics, Inc.*, 454 U.S. 1092 (1981))); *accord Bass Pro Trademarks, L.L.C. v. Cabela's, Inc.*, 485 F.3d 1364, 1368 (Fed. Cir. 2007) ("The grant of a contempt order for violation, by a modified device, of an injunction against infringement requires that the modified device infringes the patent either literally or by application of the doctrine of equivalents.").

Further, this Court explained in *TiVo* that because the significance of the differences between two products is "much dependent on the nature of the products at issue," "[t]he court **must** also look to the relevant prior art, if any is available, to determine if the modification merely employs or combines elements already known in the prior art in a manner that would have been obvious to a person of ordinary skill in the art at the time the modification was made," focusing on the modification at issue instead of the device as a whole. 646 F.3d at 882-83 (emphasis added); *id.* at n.1.

Contrary to the Appellee's repeated arguments to the district court, this analysis is not changed when an injunction is based on a consent decree rather than a full trial. *Compare* Appx1279-1282, Appx1456-1457, Appx3254-3255, *and* Appx3335-3337 (Appellees' arguments that there was no prior adjudication of infringement) *with KSM*, 776 F.2d at 1529. "A consent decree is a judicial act, *United States v. Swift & Co.*, 286

U.S. 106, 114, 115, 52 S.Ct. 460, 76 L.Ed. 999 (1932), and possesses the same force and character as a judgment rendered following a contested trial." *Siebring v. Hansen*, 346 F.2d 474, 477 (8th Cir. 1965) (citing *Kiwi Coders Corp. v. Acro Tool & Die Works*, 250 F.2d 562, 568 (7th Cir. 1957)).

In *KSM*, this Court has explained that "with a consent decree, an adjudged device could have been found *not* to fall within the scope of the claims upon a full trial. Nevertheless, such a device is an admitted infringement, and the claims of the patent may be construed in light of that admission when the court undertakes to determine whether the modified device is also an infringement in contempt proceedings." 776 F.2d 1529 (emphasis in original). Thus, when analyzing a modified product to determine whether it violates an injunction, the product must be compared to "the admitted or adjudicated scope of the claims" to determine whether it infringes. *Id.* at 1529-30.

B. The Order and Report Failed to Compare the Modified Product to the Prior *Infringement* of the Enjoined Product.

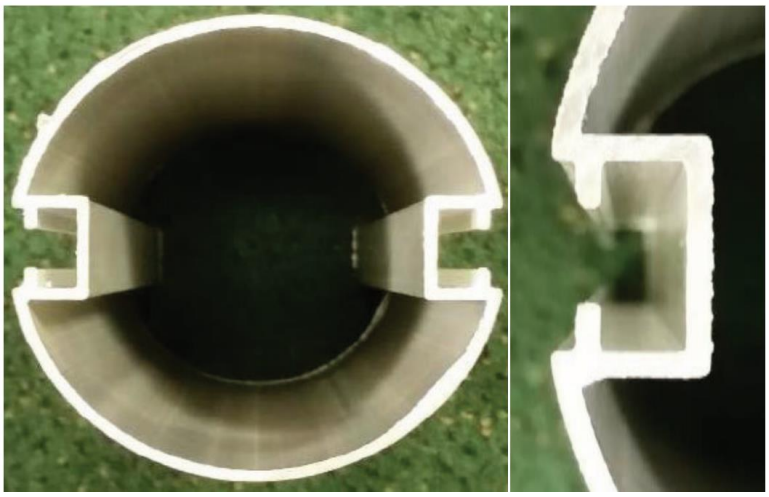
Applying an improper review standard, the Order conclusorily states that the Report "examine[d] the differences between the enjoined gate arm and the new gate arm, and it determined that the differences between the two are significant." Appx41; *see supra*, Section II. But GateArm objected on the grounds the Report did not analyze contempt based on the prior *infringement* of the enjoined product. Appx3307-3308. "[T]he contempt analysis **must** focus initially on the differences between the

features relied upon to establish infringement and the modified features of the newly accused products. *TiVo*, 646 F.3d at 882 (emphasis added). Neither the Order nor the Report performed this required analysis; they did not analyze the "features relied upon to establish infringement" and did not compare them to the modified features of Appellees' modified product. Appx40-42; Appx30-35.

The district court misapprehended the objection and addressed only that the Report identified the *modification* by comparison to the enjoined product. Appx41 (citing Appx6, Appx30-31). Neither the Order nor the Report analyze whether the modified product is "no more than colorably different" from the enjoined product and whether it "continued infringement," i.e., infringed the way the enjoined product does, through a comparison—or even reference—to the *infringement* by the enjoined product. Appx40-42; Appx30-35; *TiVo*, 646 F.3d at 882-83; *KSM*, 776 F.2d at 1529. The parties, the experts, the magistrate judge, and the district judge agree: *Factually*, the only difference between the modified product and the enjoined product is the "recessed channel to hold the LED light strip." Appx14; Appx22-23; Appx31; Appx41. Indeed, this factual difference is readily apparent through a visual inspection of the two products, reproduced below from the Order:



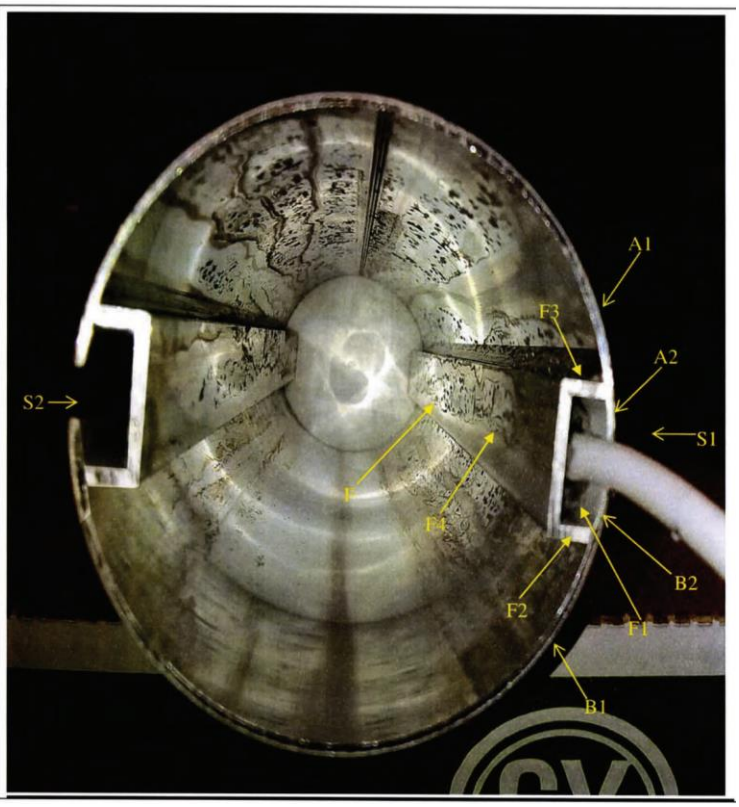
Pictures of the enjoined product, Appx38; *see also* Appx1622-1642 (exhibit P1)



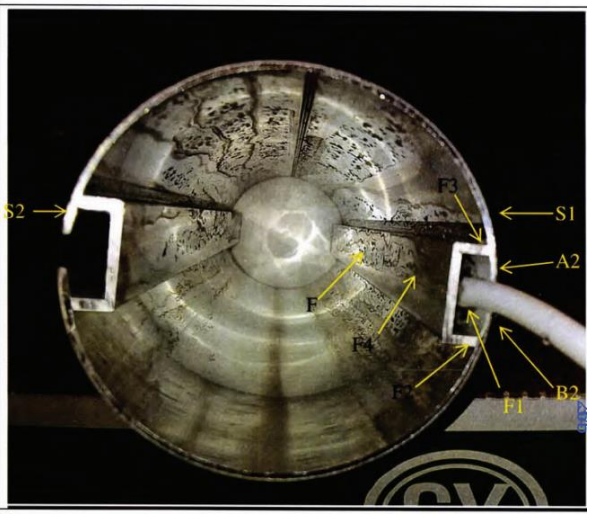
Pictures of the modified product, Appx39; *see also* Appx1653-1655 (exhibit P7)

The Order and the Report erred, however, because the analysis failed to address the prior infringement contentions, i.e., the admissions as to how the enjoined product met the claim limitations of *both* the '125 and '200 patents and which formed a basis for the injunction. *See KSM*, 776 F.2d at 1529; *see also TiVo*, 646 F.3d at 882-83; Appx3307-3311; Appx3317-3318 (Appellees' patent-marking admission); Appx3318-3323 (explaining how the record evidence proves a violation of the injunction). The relevant contentions showed how the enjoined product met the

relevant portions of claim 1 of the '125 patent, reproduced from Appx1928, and claim 1 of the '200 patent, reproduced below from Appx1939:

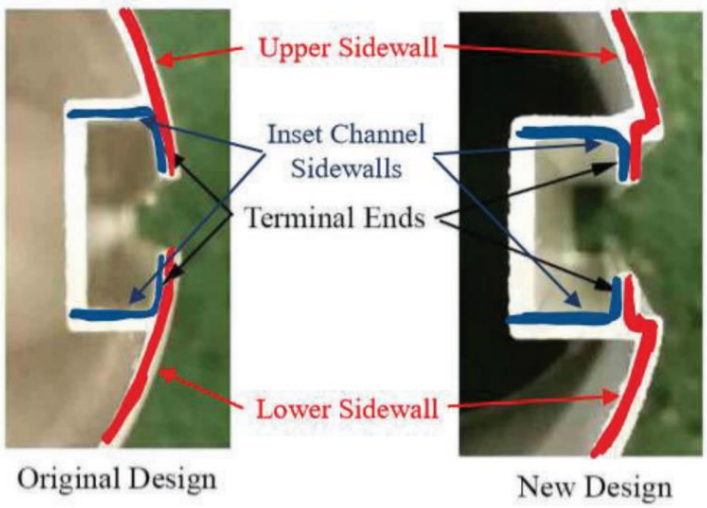
said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first inset channel backwall,	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4).	
said first side surface having a first upper sidewall including a terminating end and a first lower sidewall including a terminating end which ends terminate partially within said first opening and spaced from each other;	The first side surface (S1) has a first upper sidewall (A1) that includes a terminating end (A2) and a first lower sidewall (B1) that includes a terminating end (B2) which ends terminate partially within the first opening spaced apart from each other.	

'125 patent contentions

said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4). The accused device has an upper terminating end (A2) and a lower terminating end (B2) which each terminate partially within the first opening spaced apart from each other.	

'200 patent contentions.

GateArm and its expert addressed the *TiVo* prior-infringement-based analysis in its briefing and through a demonstrative at the hearing. The demonstrative is reproduced below from Appx1398 (pre-hearing brief), Appx1488 (pre-hearing response brief) and Appx2141 (hearing demonstrative), referencing the "retaining fins" using the claim language "terminal ends":



New Design with Shifted Position of the Integrally Formed Sidewall Terminal Ends

See also Appx1474-1476, Appx1478-1479; Appx2141; Appx3286-3290, Appx3296-3298 (GateArms' proposed findings of fact and conclusions of law). Nevertheless, the Report, and Order by extension, failed to consider the prior infringement contentions in analyzing whether the modified product violated the injunction. Appx30-35; Appx41-42.

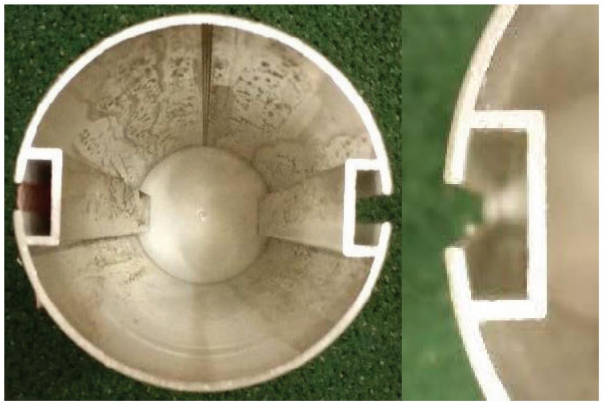
C. The Order and Report Failed to Compare the Two Products Under the Required "Doctrine of Equivalents" Analysis.

Despite being presented with evidence from all parties to address whether the modified product was the functional equivalent of the enjoined product under the contempt-version of the "doctrine of equivalents" analysis, both the Order and Report erred by failing to perform this required analysis. *See* Appx41-42; *see also* Appx32; *but see* Appx1395-1396; Appx1426-1427; Appx3240; Appx3287-3296; Appx3318 (citing Appx14 ¶¶ 35-37, Pikman admissions); Appx3388-3389; Appx3392-3393. Acknowledging that the argument was raised, the Report only superficially addressed it, failing to perform the analysis after disregarding *one* aspect of the voluminous record evidence. Appx32. Though GateArm objected based on this deficiency, Appx3392-3393, the Order was improperly silent, Appx37-42.

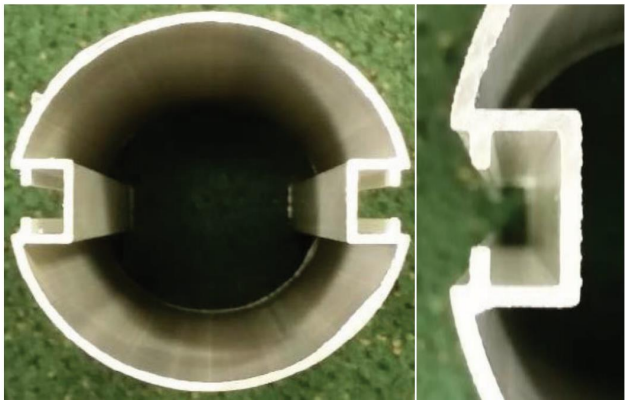
As this Court held in *KSM*, "in order to determine whether two devices are 'merely colorably different,' the accused device must be compared to the adjudged device under a 'doctrine of equivalents'", a test this Court adapted from the doctrine enunciated in *Graver Tank*, 339 U.S. at 608, but comparing product-to-product instead of product-to-patent. 776 F.2d at 1527. Two products that "do the same work in substantially the same way, and accomplish substantially the same result, . . . are the same, even though different in name, form or shape." *Id.* at 1527. Despite the wealth of evidence directly related to this analysis, neither the Order nor the Report analyzed

the record to determine if the modified product was "equivalent" to the enjoined product. Appx30-34; Appx41-42.

The record addressed the "equivalence" of the modified and enjoined products. As an initial matter, a visual comparison is clear in establishing the two products' functional equivalence; the relevant product features modified are the sidewall portions which retain an LED light strip within the gate arm. *See, e.g.*, Appx1621-1624; Appx1652-1655; Appx38-39 (figures reproduced below).



Appx38
Pictures of the enjoined product



Appx39
Pictures of the modified product

Further, Defendants' testimony and extrajudicial admissions concede the equivalence. *See, e.g.*, Appx11-12, ¶¶ 11-13 (citing Appx1637-1651), ¶¶ 15-18 (citing Appx1656-1663); Appx14, ¶¶ 35-40 (citing Appx1729-1737); Appx22-23, ¶¶ 75, 77-79 (quoting Appx2305, ll. 6-17); Appx23-25, ¶¶ 83-90 (quoting Appx1518, Appx1553, Appx2314-2315 and citing Appx1587-1601, Appx1608-1609, Appx1619-1620); Appx2297-2298; Appx2302-2303; Appx2307; Appx3073-3075; Appx3096; Appx3098-3103; Appx3108; Appx3155-3159; Appx3163-3164; Appx3198-3199.

The only expert testimony regarding equivalence was from Dr. Rice, who testified that the products were equivalent. Appx2251-2259. Dr. Tipton did not contradict this analysis. The Report disregarded Dr. Rice's entire testimony, however, based on Dr. Tipton's inconsistent and improper testimony about the explanatory demonstrative. Appx25-27; Appx31-32. But Dr. Tipton addressed his opinion "from an engineering standpoint," failing to account for legal significance of the prior infringement contentions. *See* Appx25-27; *see also* Appx31-32.

Relying on Dr. Tipton's improper analysis, the Report rejected what it referred to as the *factual* premise of Dr. Rice's testimony, i.e., "that the old and new design are the same, with the only difference being that the gate arm's upper and lower side walls have been shifted slightly inward." Appx31-32. Despite rejecting Dr. Rice's factual premise, the magistrate judge still found, accepting the Appellees' factual premise, that the modification to the enjoined product was "having a recessed channel to hold the LED light strip, with the channel being "C"-shaped rather than "U"-shaped." Appx31. The Report's *accepted* factual premise is the same as the *rejected* factual premise. Appx31-32.

The closest Dr. Tipton comes to addressing the equivalence is his stray statement that "when a light strip is recessed, the light comes out better in the daylight." Appx26; Appx2299; *but see* Appx2297-2298 (attributing the improvement to reflection on the surface of the gate arm). Regardless, an improvement increasing

the amount of visible light or reflected light, does not affect the functional equivalence of the features of the two products. *See KSM*, 776 F.2d at 1527.

Having more than sufficient evidence to perform the required "equivalence" analysis, the Order and the Report failed to do so. As such, the matter should be remanded to the district court and this Court should clarify the correct analysis for the court to perform.

D. The Order and Report Failed to Determine if the Modification is Obvious in Light of the Relevant Prior Art When Determining the Significance of the Modification.

Neither the Order nor the Report address the modification's significance, or lack thereof, based on the relevant prior art. *See generally*, Appx1-35; Appx41-42. But in determining whether there is more than a colorable difference or not, "[t]he court **must** also look to the relevant prior art, if any is available, to determine if the modification merely employs or combines elements already known in the prior art in a manner that would have been obvious to a person of ordinary skill in the art at the time the modification was made," focusing on the modification at issue rather than the device as a whole. *TiVo*, 646 F.3d at 882-83 (emphasis added); *id.* at n.1. Despite the arguments being presented and the evidence existing in the record, neither the Report nor the Order addressed the obviousness of the modification in light of the prior art, as required by this Court's analysis. *Compare* Appx30-34 *and* Appx41-42 *with*

TiVo, 646 F.3d at 882-83. Having failed to perform the required analysis, the Order should be remanded for the correct application of the law.

The record evidence analyzing the modifications based on the prior art came from the USPTO; five (5) separate office actions analyzed the modification, i.e., recessing the "channel" or "fins", and stated that such recession is an obvious modification to the '125 patent based on the prior art. Appx1801-1815; Appx1816-1833; Appx1843-1852; Appx1853-1863; Appx1864-1874. While the Report acknowledges the fact that Mr. Pikman filed for patent protection for the modified product, Appx14-15 (citing Appx1729-1737 (P16) and Appx1834-1842 (P37)), and that portions of those prosecution histories were also admitted, Appx14-15 (citing Appx1801-1815 (P35), Appx1816-1833 (P36), Appx1843-1852 (P38), Appx1853-1863 (P39), and Appx1864-1874 (P40)), it does not address the USPTO's analysis of the modification based on the prior art, *see* Appx14-35.

First, rather than analyzing the modification-at-issue based on the prior art, the Report disregards the USPTO's analysis based on a misreading of *TiVo*. Appx32-33. The Report misreads the footnote in *TiVo*, addressing the "law on obviousness," as providing permission to disregard the obviousness of the modification in the proper analysis. Appx33. But *TiVo* instructs that a court "must" look to the relevant prior art to determine if the *modification* is obvious, 646 F.3d at 882; the footnote merely reflects the fundamental principal that separate patentability, i.e., the

obviousness/non-obviousness of the newly claimed invention as-a-whole is not binding or at issue, *id.* at n.1.

Further, the Report's error is reflected in its statement that the USPTO determinations of obviousness could be disregarded because they were not "admission[s] of obviousness" by the Appellees. Appx33. This highlight's the Report's misunderstanding of the legal analysis in *TiVo*, requiring the modification—not the product as a whole—to be analyzed and the obviousness of that modification to be compared to the prior art if there is any of record. *See* 646 F.3d at 882-83. Disregarding the obviousness of the modification, the Report legally erred. *See* Appx32-33; *see also TiVo*, 646 F.3d at 882-83. Compounding that error, the Order did not address the issue at all. Appx41-42. Accordingly, this Court should reverse the Order, providing the district court with instructions of the correct analysis.

E. The Order Adopted the Report's Improper Analysis, Basing its Conclusions on its Addition of New Claim Terms Which Are Not Part of the Patents-in-Suit.

Like the error in *TiVo*, the report based its analysis on aspects of the modified product that were not at issue for the infringement of the enjoined product. In *TiVo*, the lower court erred because it analyzed a violation based on a different feature in the modified device that was found to meet the claim limitation in the enjoined device. 646 F.3d at 883-84. Because the lower court's analysis focused on an aspect which had never previously been alleged to meet the claim limitation at issue, this Court

vacated the decision and remanded to the district court with guidance to analyze the violation based on whether the replacement feature on the modified product continued to meet the claim limitation. *Ibid.*

Here, the Report's analysis, not addressed in the Order, was incorrectly based on whether the LED-retaining channel was "C"-shaped versus "U"-shaped. Appx31-36; Appx41-42. It was on that basis that the Report "conclude[d] that there is more than a colorable difference between" the enjoined and modified products. Appx31-32. Because the Report's analysis, adopted by the Order, was based on a comparison of "C"-shaped channels versus "U"-shaped channels instead of the claim limitations of the patents-in-suit, the analysis and resulting findings were clearly erroneous. *See TiVo*, 646 F.3d at 881-84.

This error appears based on a legally improper analysis, resting on the characterization of the differences between the enjoined product and modified product by Appellee Access Masters' principal, Mr. Pikman. *See* Appx23. Mr. Pikman characterized that difference as having a "U"-shaped channel whereas the modified product has a "C"-shaped channel. *See ibid.* Neither the '125 nor the '200 patent includes any claim limitation distinguishing between a "C"-shaped channel versus a "U"-shaped channel. Appx1754-1755; Appx1768-1769. Indeed, Dr. Tipton's expert report clarifies that this is a distinction without a difference. *See* Appx155-1056.

The Report's use of this improper analysis appears to be based on misapprehending the legal *insignificance* of the separate patent issued from Mr.

Pikman's CIP application, elevating the notice of allowance, as Appellees argued, to being a reversal by the USPTO of its prior and repeated determinations that recessing the "retaining fins" was an obvious modification to the '125 patent. *See* Appx2143-2144. The CIP application included, along with many narrowing limitations, the modification of recessing the channel and "retaining fins." *See* Appx27-28; *see also* Appx30-35; Appx2143-2144. Indeed, Appellees incorrectly argued to the magistrate judge that the notice of allowance demonstrated that the USPTO "reversed [its] position" that recessing the "retaining fins" was an obvious modification to the '125 patent. Appx2143-2144. The USPTO made no such reversal; rather, Mr. Pikman made further narrowing amendments to the scope of the submitted claims and argued patentability based on those other amendments. Appx2520-2525.

Mr. Pikman narrowed the claims and argued that the combination of prior art did not disclose the complete combination of the narrowed claims, specifically addressing the lack of limitations in the prior art teaching a device having "no transparent or semitransparent protective covers over the channel and light strip housing," and having "no reflective surfaces within the channel." Appx2523-2525. Presuming the notice of allowance was based on these arguments, which were preceded by an Examiner's interview, the allowance of the narrowed claims is irrelevant to the issue before the magistrate judge. *See, e.g.*, *Fiskars, Inc. v. Hunt Mfg. Co.*, 221 F.3d 1318, 1324 (Fed. Cir. 2000) ("it is well established that separate patentability does not avoid equivalency as a matter of law."); *Atlas Powder Co. v. E.I.*

du Pont De Nemours & Co., 750 F.2d 1569, 1580 (Fed. Cir. 1984) ("where [a] defendant has appropriated the material features of the patent in suit, infringement will be found 'even when those features have been supplanted and modified to such an extent that the defendant may be entitled to a patent for the improvement.'") (quoting *Bendix Corp. v. United States*, 199 U.S.P.Q. (BNA) 203 (Ct. Cl. Trial Div. 1978), *aff'd*, 600 F.2d 1364 (1979)); *Horechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1582 (Fed. Cir. 1996) ("The fact of separate patentability presents no legal or evidentiary presumption of noninfringement and, in this case, does not outweigh the substantial evidence supporting the jury verdict of infringement.").

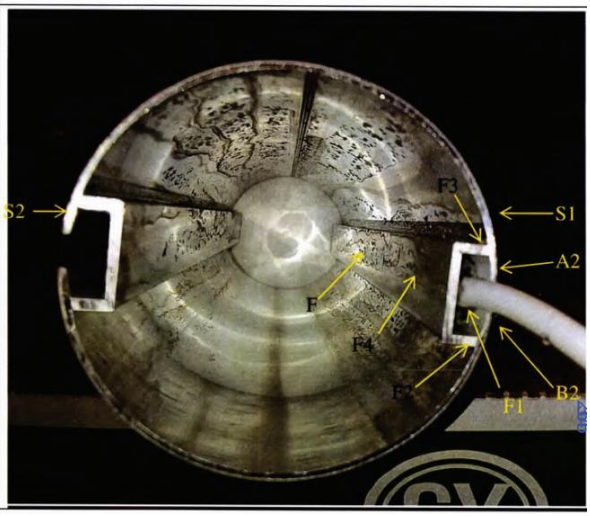
Accordingly, the Report's analysis, adopted by the Order, was premised on a misapplication of the law and therefore, should be vacated and remanded. This Court should clarify the correct analysis for the district court, reiterating the requirement from *TiVo* that the analysis must focus on the aspects of the products which were the basis for the prior infringement and that the significance and continued infringement must be analyzed in the context of the claims from the patents-in-suit, not new characterizations of "C"-shaped channels versus "U"-shaped channels. *See* 646 F.3d at 881-84.

F. The Order and Report Failed to Consider the Enjoined Product's Infringement *of the '200 Patent* in Analyzing Contempt.

Evidencing the error in the legal analysis, the Order and Report each fail to analyze the "no more than colorable differences" prong and "continued

infringement" prong of the *TiVo* analysis regarding the modified product based on the admitted infringement of the '200 patent. The Order improperly deferred to the Report, finding that the magistrate judge's mere reference to the '200 patent as one of the patents-in-suit was sufficient to reflect the Report's consideration of that patent in its contempt analysis. Appx41-42. But, as GateArm articulated in its objections, the Report failed to consider the admitted infringement of the '200 patent in its contempt analysis. Appx3309-3311; *see also* Appx30-35 (analyzing the '125 patent).

The enjoined product's infringement of the '200 patent was based on the "retaining fins" extending from the upper and lower inset channel sidewalls, as addressed in the infringement contentions for claim 1 of the '200 patent:

said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4). The accused device has an upper terminating end (A2) and a lower terminating end (B2) which each terminate partially within the first opening spaced apart from each other.	

Appx1939.

As the Report found—and as Appellees and Dr. Tipton admitted—the "retaining fins" of the modified product extend from the upper and lower inset channel sidewalls. Appx14-15; Appx22-26; Appx31; Appx35. Despite Appellees' and Dr.

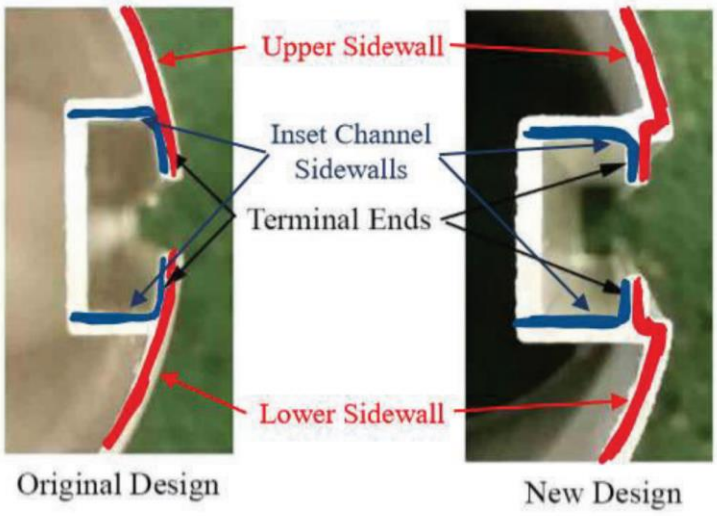
Tipton's admissions and the Report's findings that the "retaining fins" were part of the inset channel sidewalls, it failed to consider in its analysis that the '200 patent claims those "retaining fins" as included on the upper and lower inset channel sidewalls. *Compare* Appx30-35 *with* Appx1768 at 12:35-41 *and* Appx1939 (above). As Dr. Tipton testified regarding the demonstrative, the "blue lines", i.e., the representation of infringement of the '200 patent, Appx1398, was the same in the modified product as in the enjoined product. Appx26; Appx2369-2370; Appx3311.

G. The Order Adopted the Report's Improper Reliance on Inadmissible and Legally Irrelevant Testimony by Dr. Tipton Employing the Wrong Legal Analysis and Impermissibly Addressing Matters of Claim Scope, Which the Report Used as the Basis for Disregarding Dr. Rice's Testimony.

The Report legally erred by disregarding Dr. Rice's opinion in favor of Dr. Tipton's improper testimony that—from an *engineering* standpoint—it made no sense for the demonstrative to label the "retaining fins" with both the blue lines and the red lines. Appx25-27; Appx31-32; Appx2368-2370. As addressed *infra*, Section IV, Dr. Tipton should never have been permitted to testify, because his opinions were all based on a legally incorrect methodology. As GateArm predicted, that testimony was not helpful, in fact harmful, to the magistrate's determinations of whether the modified product was more then colorably different from the enjoined product and if it still infringed the patents in the same ways as previously admitted. Appx1030-1040; *see also* Appx3311-3313; Appx3316.

Further, Dr. Tipton's testimony characterizing GateArm's demonstrative was legally improper and error for the magistrate judge to rely on; he was a fact-expert testifying as to a matter of law, i.e., the claim scope of the two patents-in-suit. Appx2368-2370; *see also* Appx3311-3313; *O2 Micro*, 521 F.3d at 1361-62 (reversing the jury verdict because the expert was permitted to testify as to what claim terms meant). The infringement contentions, the basis for infringement and the claim scope in the contempt analysis, *TiVo*, 646 F.3d at 882-83, were identified in the demonstrative exhibit. Dr. Tipton's testimony, therefore, was his opinion "from an engineering standpoint" on the scope of the two patents-in-suit; this was legally improper, and the Order and Report should be vacated as a result. *See O2 Micro*, 521 F.3d at 1361-62.

GateArm properly objected to Dr. Tipton's testimony at the evidentiary hearing, Appx2368-2370, and again in objecting to the Report, Appx3311-3313. The Order, however, did not address this objection, one of the ways it failed to perform the district court's constitutionally required review, *supra*, Section II. Dr. Rice's opinion was the only expert opinion which employed the *TiVo* analysis, and in following *TiVo*, Dr. Rice addressed the enjoined product and modified product based on the prior infringement contentions, represented in the demonstrative exhibit with red lines identifying the aspects of the product matching the relevant infringement contentions for claim 1 of the '125 patent and blue lines identifying the aspects of the products matching the relevant infringement contentions for claim 1 of the '200 patent:



New Design with Shifted Position of the Integrally Formed Sidewall Terminal Ends

Dr. Tipton, failing to employ the *TiVo* analysis, *see infra*, Section IV, addressed only that "from an engineering standpoint" it did not make sense to him to identify the "retaining fins" of the products both with the red lines and the blue lines, Appx25-26, Appx2365-2370. The magistrate erred in disregarding Dr. Rice's testimony based on Dr. Tipton's view that "from an engineering standpoint" the demonstrative made no sense, Appx31-32; the demonstrative properly reflected the *TiVo* analysis, addressing the legal insignificance of modification based on the infringement contentions of two different patents that were the basis for the injunction, 646 F.3d at 882-83.

H. The Order Adopted the Report's Improper Reliance on Appellees' Principals' Testimony as "Experts" and on Matters of Claim Scope.

The Report, adopted by the Order, further erred by relying on Appellees' principals as persons of ordinary skill in the art, and by permitting them to offer

expert opinion into the record, including opinion about the scope of the claim terms. Appx30-31; Appx35; Appx3314-3316. The testimony of Appellees' principals, Messrs. Brinkman and Pikman, is where the Report finds its basis for the improper analysis of "C"-shaped channels versus "U"-shaped channels, *supra*, Section II(E); but those terms are not part of the claim scope of the patents-in-suit, Appx40, Appx1741-1753, Appx1754-1755, Appx1757-1769. The testimony of Appellees' principals on matters of claim scope was improper, and the Reports findings based on that improper testimony is error. *See O2 Micro*, 521 F.3d at 1361-62.

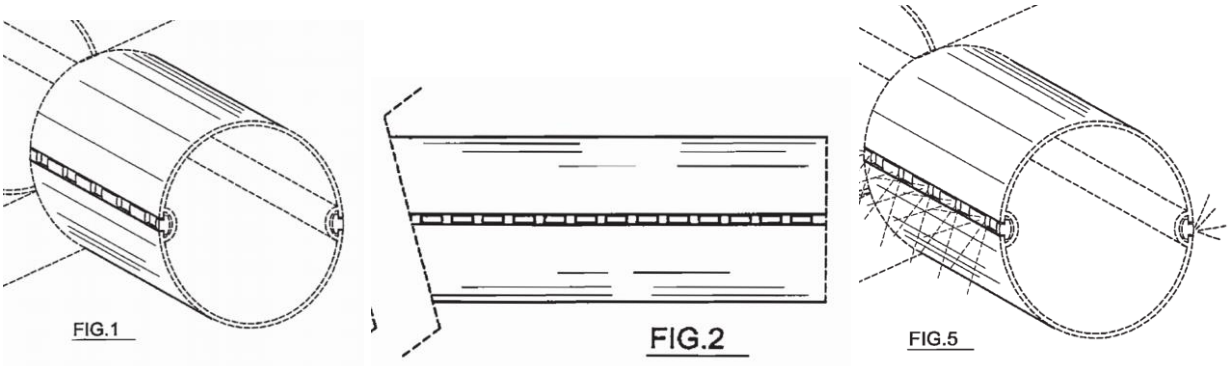
Because the Order adopted the findings in the Report which were based on the improper inclusion of lay witnesses as experts and then permitting them to testify as to claim scope, the Order should be vacated and remanded for the correct analysis under this Court's precedent.

I. The Report Erred by Disregarding the Appellees' Extrajudicial Admissions That the Only Relevant Part of the Modified Product is the Same as the Enjoined Product.

As part of analyzing whether the modified product violated the injunction the Order and Report should have considered the Appellees' extrajudicial admissions regarding the relevant modification. *See* Appx3317-3318. Appellees' characterized the changes to their customers, stating that the "outward visual appearance" of the modified product, with a modified LED track, would be "virtually identical to the [enjoined product]." Appx1657-1663. While the Report addressed Appellees'

statements, it disregarded those statements as a "marketing message," relying on Mr. Brinkman's testimony and because "the emails did not discuss the modifications." Appx33. Mr. Brinkman's emails state, however, that the modifications were to the LED track and that those modifications would result in a product with a "virtually identical" outward appearance. Appx1657-1663. The Court's claim construction for the two terms of the '125 patent it construed explained those limitations with reference to the upper and lower half of the gate arm's side surface, i.e., the part of the gate arm visible to oncoming traffic and thereby making up its "outward visual appearance." *See* Appx40. Thus, the Report's analysis of this admission is contradicted by the record and should have been reviewed by the district judge *de novo*.

Further, Appellees marked the enjoined product and the modified product as falling within the scope of Mr. Pikman's design patent, claiming the ornamental appearance of a gate arm:



Appx1645-1651.

Appx11-13; Appx1637-1643; Appx1631-1632; Appx1671; Appx1728; Appx2188-2195; Appx2205; Appx2211-2212; Appx2215. Mr. Pikman's design patent claims the

upper and lower halves of the gate arm's side surface, directly tracking the claim limitations of the '125 patent construed by the district court. *Compare* Appx40 *with* Appx1645-1651.

Therefore, Appellees admitted through patent marking, that the relevant aspects of the modified product are the same as from the enjoined product. *See, e.g.*, Appx11; Appx27; Appx31; Appx1637-1643. "[M]arking a product with a patent number is a form of extrajudicial admission that the product falls within the patent claims." *Frolow v. Wilson Sporting Goods Co.*, 710 F.3d 1303, 1309 (Fed. Cir. 2013) (finding that "the district court erred when it held that the defendant's marking was irrelevant.").

Appellees admitted that both the enjoined product and modified product fall within the scope of Mr. Pikman's design patent, a patent claiming only the outer appearance of the gate arm. *See* Appx11; *see also* Appx27; Appx1637-1643; Appx1645-1651. Though the Report acknowledged that this evidence was presented in the record, Appx11, Appx27, the Report did not address these admissions in the analysis and thereby committed error, *see Frolow*, 710 F.3d at 1309. The Order did not address that error, but instead improperly adopted it. *Supra*, Section II.

IV. THE DISTRICT COURT ERRED BY FAILING TO EXCLUDE DR. TIPTON'S IMPROPER TESTIMONY, WHICH WAS METHODOLOGICALLY FLAWED, BEYOND THE SCOPE OF HIS EXPERT REPORT, AND IMPERMISSIBLY ADDRESSED CLAIM SCOPE.

GateArm moved to exclude Dr. Tipton from testifying at the evidentiary hearing because he did not apply the *TiVo* analysis required for a contempt

proceeding and therefore any opinion rendered was irrelevant and unhelpful and needed to be excluded. Appx1030-1040. The matter was referred to the magistrate judge, Appx66, who reserved ruling on the issue so that she could address his testimony on the stand, *see* Appx64, *see also* Appx2348. Accordingly, motions to exclude Dr. Tipton's testimony became trial matters, and required the district judge to review *de novo* GateArm's objections to his testimony. *See, e.g.*, *LoConte*, 847 F.2d at 750, 756; *Stokes*, 952 F.2d at 1576; *Jeffrey S.*, 896 F.2d at 512 ("The *de novo* review requirement is essential to the constitutionality of section 636."). The Order did not review or address GateArm's objections to Dr. Tipton's testimony. Appx37-42.

Dr. Tipton's testimony should have been excluded or stricken from the record. "Under Rule 702 and *Daubert*, district courts must act as 'gatekeepers' which admit expert testimony only if it both reliable and relevant." *Rink v. Cheminova, Inc.*, 400 F.3d 1286 (11th Cir. 2005) (citing *Daubert*, 509 U.S. at 589); *accord Kilpatrick v. Breg, Inc.*, 613 F.3d 1329, 1335 (11th Cir. 2010). As explained by the Eleventh Circuit:

> To fulfil their obligation under *Daubert*, district courts must engage in a rigorous inquiry to determine whether: "(1) the expert is qualified to testify competently regarding the matters he intends to address; (2) the methodology by which the expert reaches his conclusions is sufficiently reliable as determined by the sort of inquiry mandated in *Daubert*; and (3) the testimony assists the trier of fact, through the application of scientific, technical, or specialized expertise, to understand the evidence or to determine a fact in issue."

Rink, 400 F.3d at 1291-92 (quoting *City of Tuscaloosa v. Harcros Chems., Inc.*, 158 F.3d 548, 562 (11th Cir. 1998)). "The party offering the expert has the burden of satisfying

each of these three elements by a preponderance of the evidence." *Id.* at 1292 (citing *Allison v. McGhan Med. Corp.*, 184 F.3d 1300, 1306 (11th Cir. 1999)).

An expert cannot be permitted to testify when rendering an opinion based on an incorrect methodology. *See Frazier*, 387 F.3d at 1260; *see also Guinn v. AstraZeneca Pharms. LP*, 602 F.3d 1245, 1253 (11th Cir. 2010) (affirming exclusion of expert testimony based on an unreliable methodology). Even if an expert claims to have performed a methodologically proper analysis, "an expert does not establish the reliability of his techniques or the validity of his conclusions simply by claiming" such; even then, the reviewing court must examine whether the expert correctly applied that methodology. *Guinn*, 602 F.3d at 1253. Further, to prevent against "trial by ambush," an expert should not be permitted to testify about subject matter not first provided in the expert report furnished under Fed. R. Civ. P. 26(a)(2).

A. Dr. Tipton Should Have Been Excluded From the Evidentiary Hearing Because His Analysis Was Methodologically Flawed, Unreliable, and Unhelpful to the Trier of Fact.

The magistrate should have excluded Dr. Tipton's testimony because his opinion was based on the wrong legal analysis for, and therefore irrelevant to, determining whether the modified product violated the injunction. Dr. Tipton's opinion did not compare the modified product to the enjoined product to determine the significance of the differences or analyze the modified product based on the infringement of the enjoined product, as *TiVo* requires. Appx1032-1039; Appx1047-

1057. Indeed, the irrelevance of his opinion was highlighted by its inconsistency with the enjoined product being an infringing product. Appx1034-1039.

Instead of following the *TiVo* analysis and the infringement of the enjoined product, Dr. Tipton looked to the patents-in-suit to interpret the claims and render an opinion following the traditional, non-contempt, patent infringement method. Appx1047-1057. That opinion did not follow the *only* acceptable methodology of analyzing contempt of a patent injunction by comparing the newly accused product to the enjoined product based on the prior findings or allegations of infringement. *See TiVo*, 646 F.3d at 882-83. Dr. Tipton was required to look at the aspects of the enjoined product that were the basis for the injunction and compare them to the modified product; he did not. *See ibid.*; *see also* Appx1047-1057.

Because the only opinion provided in Dr. Tipton's report was methodologically flawed, it was legally irrelevant and allowing him to testify was unhelpful to, as resulted in confusion by, the trier of fact. It was improper to permit his testimony using this flawed methodology.

B. Dr. Tipton's Testimony at the Evidentiary Hearing Should Have Been Excluded as Beyond the Scope of his Expert Report and Therefore Improper, and Separately Impermissible Because He Testified as to Matters of Claim Scope.

Over Plaintiff's objections, Dr. Tipton testified at the evidentiary hearing. Though the magistrate struck the majority of his testimony, he was still permitted to testify about GateArms' demonstrative exhibit, addressed in Dr. Rice's testimony and

which showed the infringement contentions applied to both the enjoined and modified products. Appx2364-2370. It was legally improper for the magistrate to admit that testimony into the record over GateArm's objections; Dr. Tipton was testifying beyond the scope of his expert report and was testifying as to matters of claim scope. *See ibid.*; *see also* Appx3304-3307; Appx3311-3313.

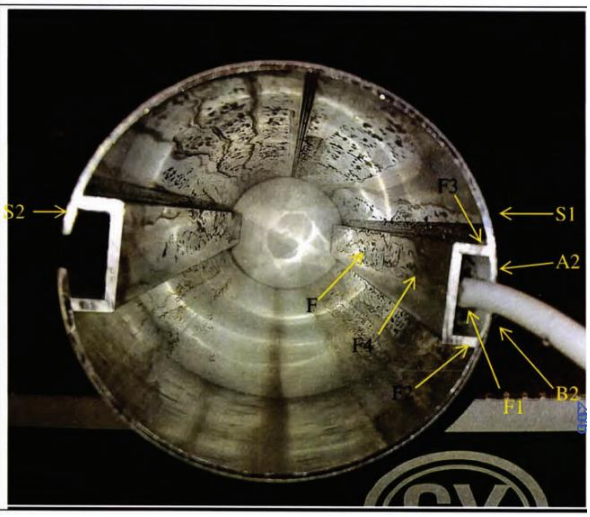
Dr. Tipton addressed the demonstrative, testifying that "from an engineering standpoint" it did not make sense that the "retaining fins" portion of the enjoined and modified gate arms were identified by both the red lines and the blue lines. Appx25-26; *see also* Appx2364-2370. This testimony about the red and blue lines was beyond the scope of Dr. Tipton's expert report, Appx1047-1057, and improperly concerned matters of claim scope, addressed in the contempt context by the prior infringement contentions, *see TiVo*, 646 F.3d at 882-82, *O2 Micro*, 521 F.3d at 1361-62.

Allowing Dr. Tipton to testify on these matters was an error of law, and this Court should vacate and remand the Order to review the record after excluding Dr. Tipton's testimony. *See O2 Micro*, 521 F.3d at 1361-62.

V. BECAUSE THE FINDINGS IN THE REPORT, RELYING ON ADMISSIONS OF THE APPELLEES AND THEIR EXPERT, DETERMINED THAT THE "RETAINING FINS" ARE PART OF THE INSET CHANNEL SIDEWALLS, THIS COURT CAN, AND SHOULD, REVERSE THE DISTRICT COURT'S ORDER AND DIRECT A FINDING THAT THE MODIFIED PRODUCT VIOLATES THE INJUNCTION.

While the Order and adopted Report improperly applied this Court's precedent for analyzing contempt of a patent injunction, *supra*, Section III, the findings that the

modified product's "retaining fins" are part of the upper and lower inset channel sidewalls, Appx30-31, establishes a violation. This finding by the magistrate judge, relied on admissions by Appellees' principals. *See ibid.* But the "retaining fins" being included on the upper and lower inset channel sidewalls is *the relevant limitation* of claim 1 of the '200 patent, as shown in GateArm's prior infringement contentions:

said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;	The first elongated inset channel (F) has a first opening (F1) formed by a first pair of inset channel sidewalls (F2,F3) integrally joined to a first inset channel backwall (F4). The accused device has an upper terminating end (A2) and a lower terminating end (B2) which each terminate partially within the first opening spaced apart from each other.	

Appx1939.

Because Appellees' admit that the modified product includes the same aspects of the enjoined product that were alleged to infringe the '200 patent and were a basis for the injunction, this Court can, and should, vacate the Order and issue directions for the district court to find that the modified product violates the injunction. Such a finding is further supported by Appellees' expert, Dr. Tipton, who testified that the "blue line" of GateArm's demonstrative—representing the infringement contentions for the '200 patent—are the same for both the enjoined product and the modified product, Appx2366-2370.

The Appellees' admissions, their expert's testimony, and the magistrate judge's factual finding as to the modification establish that the modified product maintains the exact features of the enjoined product which were alleged to, and admitted to, infringe the '200 patent; any finding that the modified product no longer violates the injunction would be clearly erroneous. *See TiVo*, 646 F.3d at 881-83. It was only through misapplication of this Court's precedent that the Report, and therefore the Order, found otherwise. *See supra*, Section III; *see also* Appx3318-3323.

As explained in *TiVo*, a violation of a patent injunction will be found when the modified product is not more than colorably different from the enjoined product and continues to infringe the patents-in-suit, analyzing the "aspects of the accused product that were previously alleged to be, and were a basis for, the prior finding of infringement, and the modified features of the newly accused product." 646 F.3d at 882. Here, the Appellees' admissions, their expert's concession, and the Report's findings establish that the "aspects of the [enjoined] product that were previously alleged to be, and were a basis for, the prior finding of infringement" are maintained in the modified product. *See ibid.*; *see also* Appx30-35; Appx2366-2370.

The findings of the magistrate judge and Appellees' admission establish the continued violation of the injunction, by a modified product, where the modifications did not change the aspects forming the basis for the injunction. Therefore, the Report's finding, adopted by the Order, that the modified product did not violate the injunction was clearly erroneous under this Court's precedent. This Court can reverse

the Order and direct a finding of a violation because the evidence need not be reweighed by the district judge; the violation is admitted by Appellees. Because that result is dictated by Appellees' admissions, no re-weighing of the evidence is necessary to make such a finding.

Rather than vacate the Order and remand for a new analysis, as would otherwise be appropriate for the reasons addressed *supra*, Sections II-IV, GateArm respectfully requests that this Court reverse the Order and direct a finding that under the correct application of this Court's precedent, Appellees' modified product violates the injunction.

CONCLUSION AND STATEMENT OF RELIEF SOUGHT

The District Court's Order constitutes legal error and its finding of no violation of the injunction is clearly erroneous. For the reasons set forth above, GateArm respectfully requests that the Court vacate and remand the Order for the correct application of the law under both this Court's and the Eleventh Circuit's precedent. However, because Report's findings, based on the Appellees' admissions and the concession of their expert establish a violation, GateArm respectfully requests that this Court reverse the Order and direct a finding that the modified product violates the injunction.

January 6, 2021

Respectfully submitted,

/s/ Andrew D. Lockton
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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA

Case No. 14-62697-CIV-SCOLA/OTAZO-REYES

GATEARM TECHNOLOGIES, INC.,
a Florida corporation,

Plaintiff,

v.

ACCESS MASTERS, LLC, a Florida
limited liability company,
BLACKSKY TECHNOLOGIES, INC.,
a Florida corporation, and
GATEARMS.COM, LLC,

Defendants.
_____/

REPORT AND RECOMMENDATION

THIS CAUSE came before the Court upon Plaintiff Gatearm Technologies, Inc.'s ("Plaintiff" or "Gatearm") Motion to Re-Open, for an Order to Show Cause Why Defendants Should not be Held in Contempt, and to Enforce the Consent Judgment (hereafter, "Motion to Reopen," "Motion for Contempt," and "Motion to Enforce") [D.E. 56 & 59].[1] This matter was referred to the undersigned pursuant to 28 U.S.C. § 636 by the Honorable Robert N. Scola, Jr., United States District Judge [D.E. 74]. The Motion to Reopen was implicitly GRANTED when the undersigned held a status conference on April 19, 2017 and prescribed a schedule for the initial phase of the reopened proceedings. See Order [D.E. 78]. As to the Motion for Contempt, the undersigned respectfully recommends that it be DENIED for the reasons stated below. The

[1] The document filed at D.E. 59 on December 5, 2016 is a redacted, non-sealed version of the document filed under seal at D.E. 56 on November 15, 2016.

undersigned further recommends that, absent a finding of contempt, the Motion to Enforce also be DENIED.

PROCEDURAL BACKGROUND

Plaintiff commenced this action on November 26, 2014 with the filing of a Complaint for Patent Infringement ("Complaint") against Defendants Access Masters, LLC ("Access Masters") and BlackSky Technologies, Inc. ("BlackSky"). See Compl. [D.E. 1].

On July 10, 2015, the Court stayed the action pending the United States Patent and Trademark Office's ("USPTO") reexamination of the patent-in-suit, namely, U.S. Patent No. 8,845,125 ("the '125 Patent"). See Order Granting Motion to Stay Pending Patent Office Reexamination [D.E. 19]. The Court administratively closed the case pending the USPTO's reexamination. Id.

On September 17, 2015, Plaintiff notified the Court that the USPTO's reexamination had been completed and stated its intention to amend the Complaint. See Plaintiff's Notification to the Court of Completion of Ex Parte Re-Examination and Intention to Amend Complaint to Include an About to Issue Second Patent (hereafter, "Notification") [D.E. 20]. Plaintiff attached to its Notification the USPTO's Ex Parte Reexamination Certificate for the '125 Patent (hereafter, "Reexamination Certificate"), which shows the amendments to the '125 Patent resulting from the reexamination [D.E. 20-1 at 3].

On September 21, 2015, the Court directed the Clerk of Court to reopen the case and set a deadline of September 29, 2015 for Plaintiff to amend the Complaint. See Paperless Order [D.E. 21]; Amended Complaint [D.E. 23]. Thereafter, the Court granted Plaintiff leave to file a Second Amended Complaint by January 8, 2016 [D.E. 32, 35].

Pursuant to the Court's Scheduling Order entered on November 24, 2015 [D.E. 30],

Plaintiff served its infringement contentions on December 7, 2015. See Plaintiff's Disclosure of Asserted Claims and Infringement Contentions [D.E. 128-1].

On January 6, 2016, Plaintiff filed its Second Amended Complaint for Patent Infringement ("Second Amended Complaint"), asserting two patent infringement claims against Access Masters, BlackSky and GATEARMS.COM, LLC ("GATEARMS.COM") (collectively, "Defendants"). See Second Am. Compl. [D.E. 36]. One of the claims related to the '125 Patent and the second one related to U.S. Patent No. 9,157,200 ("the '200 Patent"). Id. at 3-8. Both patents are entitled "Vehicle Barrier System with Illuminating Gate Arm and Method." Id. ¶¶ 11, 30. Plaintiff alleged that Access Masters and BlackSky competed with it in the marketing and distribution of home and commercial security products; and that BlackSky and GATEARMS.COM were the distributors of Access Masters' products, including an allegedly infringing light-emitting diode ("LED") arm for a gate (the "Accused Product"). Id. ¶¶ 9, 12.

On January 7, 2016, also pursuant to the Court's Scheduling Order [D.E. 30], Defendants served their Non-Infringement, Unenforceability, and Invalidity Contentions [D.E. 175-21].

On January 20, 2016, Defendants filed their Answer and Affirmative Defenses to the Second Amended Complaint and Counterclaim [D.E. 40]. In their Counterclaim, Defendants sought declaratory judgments of invalidity and non-infringement with respect to both the '125 Patent (as originally constituted and as modified by the USPTO's Reexamination Certificate) and the '200 Patent. Id. at 9-12.

On March 11, 2016, the parties settled the case at mediation and executed a Settlement Agreement. See Mediator's Report [D.E. 52]; Settlement Agreement [D.E. 172-12]. On March 29, 2016, the Court entered a Consent Decree providing that:

> 1. Effective five months from the Court's entry of this Order, each Defendant, on behalf of itself and its officers, agents, servants,

employees, directors, representatives, successors-in-interest, and all persons, firms or entities acting in concert or participating with them, are permanently enjoined and restrained from manufacturing, advertising, marketing, distributing, selling, offering to sell, importing or exporting the accused "LED Arm for a Gate" or any vehicle barrier system with an illuminating gate arm that would infringe any valid and enforceable claim of U.S. Patent No. 8,845,125 or 9,157,200.

2. U.S. Patent No. 8,845,125 and U.S. Patent No. 9,157,200, owned by GATEARM TECHNOLOGIES, INC., are valid.

3. All claims and counterclaims set forth in the Complaint and Counterclaims entered in this action are hereby dismissed with prejudice, with each party to bear its own fees and costs.

4. The Court retains jurisdiction to enforce the concurrent Settlement Agreement between the parties.

See Consent Decree [D.E. 53]. In its Motion for Contempt, Plaintiff argues that Defendants have violated the Consent Decree and the Settlement Agreement by releasing a new product under an ostensible new design that is not "colorably different" from the Accused Product. See Motion for Contempt [D.E. 59 at 2].[2]

Initially, the parties agreed that the first step to be undertaken in connection with the Motion for Contempt was the construction of two instances of claim language in the '125 Patent and the '200 Patent that were in dispute. As a result, the undersigned conducted a *Markman* hearing on August 2, 2017 and thereafter issued a claims construction Report and Recommendation, which the Court adopted [D.E. 94, 95, 99, 101]. Following are several drawings showing embodiments of the '125 Patent that are useful in visualizing Plaintiff's product and the claims construction rulings made after the *Markman* hearing:

[2] See Applicable Law, *infra*, for a discussion of the "colorable differences" contempt inquiry in patent cases.

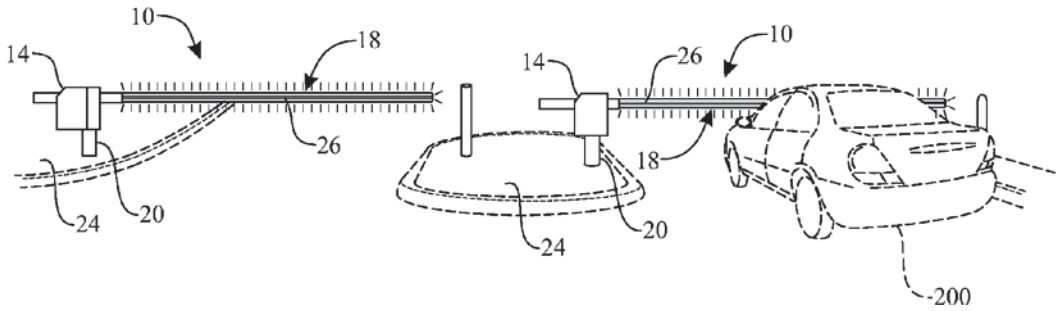


FIGURE 1

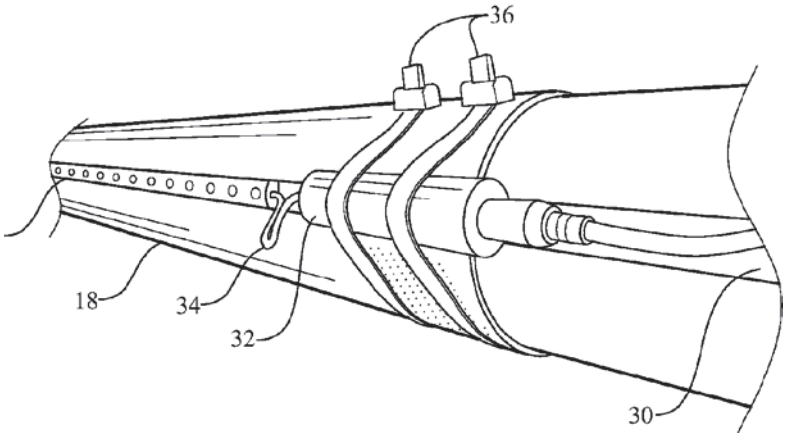


FIGURE 3

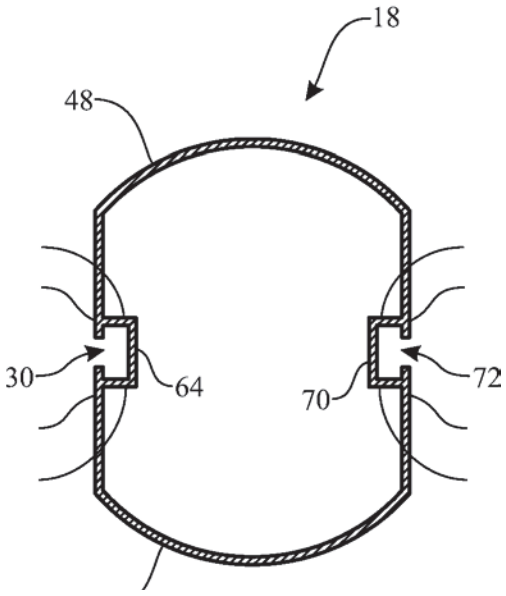


FIGURE 6

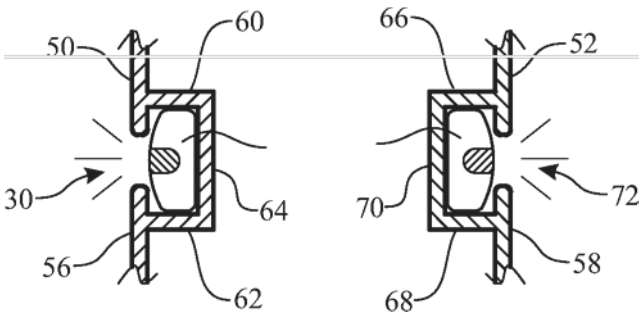


FIGURE 7

See '125 Patent [D.E. 86-2 at 3-5]. Figures 6 and 7 are particularly relevant to the Court's claims construction Order:

Claim language	**Construction**
"first upper sidewall including a terminating end"	The upper half of the first side surface, extending from the convex top to its terminal end located in the first opening.
"first lower sidewall including a terminating end"	The lower half of the first side surface, extending from the convex bottom to its terminal end located in the first opening.

See Order Granting Unopposed Motion to Amend [D.E. 101].

After the *Markman* proceedings were completed, the undersigned held a status conference and prescribed a deadline of January 31, 2019 for the parties to complete all discovery, including expert discovery, on the issue of infringement [D.E. 107, 108]. Thereafter, the undersigned held several hearings to resolve the parties' discovery disputes [D.E. 125, 130, 141].

Finally, the undersigned held an Evidentiary Hearing on the Motion for Contempt on May 13-14, 2019 (hereafter, "Evidentiary Hearing") [D.E. 170-71]. Thereafter, Defendants filed a Motion to Reopen the Record of the Evidentiary Hearing and/or for a Partial New Trial and/or for Alternate Equitable Relief (hereafter, "Motion for New Trial") [D.E. 177]. On September 16, 2019, the undersigned granted the Motion for New Trial and allowed the parties to supplement the record of the Evidentiary Hearing. See Order [D.E. 187]. The undersigned also directed the parties

to submit Proposed Findings of Fact and Conclusions of Law based on the entire record of the Evidentiary Hearing, as supplemented. Id. The record supplementation and briefing have been completed [D.E. 177-1, 188, 194-95]. Therefore, the Motion for Contempt and the Motion to Enforce are ripe for ruling.

APPLICABLE LAW

"The criteria for adjudicating a violation of a prohibition against continued infringement by a party whose products have already been adjudged to be infringing is a matter of Federal Circuit law." TiVo Inc. v. Echostar Corp., 646 F.3d 869, 881 (Fed. Cir. 2011). "The Supreme Court has cautioned that contempt 'is a severe remedy, and should not be resorted to where there is a fair ground of doubt as to the wrongfulness of the defendant's conduct.'" Id. at 881-82 (citing Cal. Artificial Stone Paving Co. v. Molitor, 113 U.S. 609, 618 (1885); MAC Corp. of Am. v. Williams Patent Crusher & Pulverizer Co., 767 F.2d 882, 885 (Fed. Cir. 1985)).

The contempt "inquiry in patent cases [i]s one of colorable differences between the newly accused product and the adjudged infringing product." Id. at 882 (citing Abbott Labs. v. TorPharm, Inc., 503 F.3d 1372, 1380 n.3 (Fed. Cir. 2007)). "Thus, the party seeking to enforce the injunction must prove both that the newly accused product is not more than colorably different from the product found to infringe and that the newly accused product actually infringes." Id.

The TiVo court further explained:

> The primary question on contempt should be whether the newly accused product is so different from the product previously found to infringe that it raises "a fair ground of doubt as to the wrongfulness of the defendant's conduct." The analysis must focus not on differences between randomly chosen features of the product found to infringe in the earlier infringement trial and the newly accused product, but on those aspects of the accused product that were previously alleged to be, and were a basis for, the prior finding of infringement, and the modified features of the newly accused product. Specifically, one should focus on those elements of the adjudged infringing products that the patentee previously contended, and proved, satisfy specific limitations of the asserted claims. Where one or more of those

> elements previously found to infringe has been modified, or removed, the court must make an inquiry into whether that modification is significant. If those differences between the old and new elements are significant, the newly accused product as a whole shall be deemed more than colorably different from the adjudged infringing one, and the inquiry into whether the newly accused product actually infringes is irrelevant.

Id. (citations omitted).

Thus, the actual infringement inquiry need not proceed if the newly accused product is found to be "more than colorably different from the adjudged infringing one." Id. at 882. In such cases, "[c]ontempt is [] inappropriate." Id. (quoting Arbek Mfg., Inc. v. Moazzam, 55 F.3d 1567, 1570 (Fed. Cir. 1995) ("[T]he modifying party generally deserves the opportunity to litigate the infringement questions at a new trial.")).

"Conversely, when a court concludes that there are no more than colorable differences between the adjudged infringing product and modified product, a finding that the newly accused product continues to infringe the relevant claims is additionally essential for a violation of an injunction against infringement." Id. at 883. The TiVo court added:

> Thus, the court is required to evaluate the modified elements of the newly accused product against the asserted claim, on a limitation by limitation basis, to ensure that each limitation continues to be met. In making this infringement evaluation, out of fairness, the district court is bound by any prior claim construction that it had performed in the case. The patentee bears the burden of proving violation of the injunction by clear and convincing evidence, a burden that applies to both infringement and colorable differences.

Id.

FINDINGS OF FACT

I. Evidentiary Submissions

1. The following witnesses testified at the Evidentiary Hearing: BlackSky's Principal Jonathan Brinkman ("Mr. Brinkman") via deposition excerpts proffered by Plaintiff, and via live testimony in Defendants' case; Access Masters' Principal Michael Pikman ("Mr. Pikman") via

deposition excerpts proffered by Plaintiff, and via live testimony in Defendants' case;[3] Plaintiff's Expert James G. Rice, Ph.D. ("Dr. Rice"); and Defendants' Expert Steven Michael Tipton, Ph.D. ("Dr. Tipton").[4] See Transcript of Civil Hearing, May 13, 2019 (hereafter, "5/13/19 Transcript") [D.E. 180]; Transcript of Civil Hearing, May 14, 2019 (hereafter, "5/14/19 Transcript") [D.E. 181].

2. The following documents were admitted into evidence at the Evidentiary Hearing: Plaintiff's Exhibits P1, P2, P3, P3-1, P4, P5, P6, P7, P8, P9, P10, P13, P14, P16, P17, P24, P25, P26, P28, P29,[5] P32, P33,[6] P35, P36, P37, P38, P39, P40, and P41; and Defendants' Exhibits 7A, 7B, 10–11, 12A, 12B, 12C, 13, 18, 24–25, and 27–30.

3. The following documents were admitted as a supplement to the record of the Evidentiary Hearing pursuant to the undersigned's Order dated September 16, 2019 [D.E. 187]: Defendants' Exhibit 35 [D.E. 177-1]; and Plaintiff's Exhibits P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52, and P53 [D.E. 188].

II. Stipulated Facts[7]

4. According to the Second Amended Complaint (ECF No. 36), this case involves claims of patent infringement of two U.S. Patents, 8,845,125 (the '125 patent) and 9,157,200 (the '200 patent) [D.E. 99, page 1].

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[3] Mr. Brinkman's and Mr. Pikman's deposition excerpts were proffered subject to Defendants' objections [D.E. 168-2 & 168-1].

[4] Dr. Tipton's expert testimony was presented subject to Plaintiff's Motion *in Limine* to Exclude the Report and Testimony of Defendants' Expert Dr. Steven M. Tipton under *Daubert* and the Federal Rules of Evidence 702 and 703, for Relying on an Improper Methodology and as Being Inherently Unreliable (hereafter, "*Daubert* Motion") [D.E. 147]. The *Daubert* Motion is addressed *infra*.

[5] The undersigned overruled Defendants' objection to the admission of Pl.'s Ex. P29. See generally 5/13/19 Transcript [D.E. 180 at 55-59].

[6] Plaintiff's Exhibits P32 and P33 are the transcripts of Mr. Brinkman's and Mr. Pikman's depositions, respectively, which are subject to Defendants' objections [D.E. 168-2 & 168-1].

[7] See Stipulated Facts Section in the parties' Joint Statement of Stipulated and Disputed Facts and Legal Issues (hereafter, "Joint Statement") [D.E. 128 at 4]. The entire Joint Statement [D.E. 128] was admitted at the Evidentiary Hearing as Pl.'s Ex. P41, including "Plaintiff's Disclosure of Asserted Claims and Infringement Contentions." See Pl.'s Ex. P41, Exhibit A; D.E. 128-1.

5. On March 11, 2016, the parties entered into a Settlement Agreement and a proposed Consent Decree.

6. On March 29, 2016, the Court entered the Consent Decree, specifying that each Defendant, on behalf of itself and its officers, agents, servants, employees, directors, representatives, successors-in-interest, and all persons, firms or entities acting in concert or participating with them, are permanently enjoined and restrained from manufacturing, advertising, marketing, distributing, selling, offering to sell, importing or exporting the originally accused "LED Arm for a Gate" or any vehicle barrier system with an illuminating gate arm that would infringe any valid and enforceable claim of U.S. Patent Nos. 8,845,125 or 9,157,200. [D.E. 53, at 1].

7. Defendants are enjoined from manufacturing, advertising, marketing, distributing, selling, offering to sell, importing or exporting the originally accused "LED Arm for a Gate" or any colorable imitation thereof.

8. Plaintiff filed a Motion to Re-Open, for an Order to Show Cause Why Defendants Should Not Be Held in Contempt, and to Enforce the Consent Judgment.

III. Testimonial Evidence

A. Mr. Brinkman's testimony via deposition excerpts[8]

9. Mr. Brinkman identified several of Plaintiff's Exhibits as follows:

Pl.'s Ex. P1 - aluminum portion of Mr. Pikman's gate arm that was the subject of Plaintiff's lawsuit.[9]

Pl.'s Ex. P2 - sample of portion of light strip used with full length version of Pl.'s Ex. P1.

Pl.'s Ex. P3 - installation kit for gate arm.

Pl.'s Ex. P4 - Consent Decree entered in the case.

[8] See Deposition of Jonathan Brinkman, February 11, 2019 (hereafter, "Brinkman Depo."), Pl.'s Ex. 32. Mr. Brinkman was deposed as BlackSky's corporate representative, pursuant to Fed. R. Civ. P. 30(b)(6). Id. at 4.

[9] Pl.'s Ex. P1 is a truncated version of the actual aluminum beam.

10. Defendants' gate arm's aluminum was changed as a result of the Consent Decree. Additionally, the LED strips continued to be improved and technical changes were made to the product unrelated to the aluminum.

11. On BlackSky's website (Pl.'s Ex. P5), the statement "[o]ur patented gate arms have LED lighting built into the gate arm" refers only to design patent U.S. D707851 (Pl.'s Ex. P6), owned by Mr. Pikman. BlackSky no longer sells the gate arm represented by Pl.'s Ex. P1.[10]

12. Pl.'s Ex. P7 represents the revision created by Defendants as a result of the Settlement Agreement.[11]

13. The statement in BlackSky's website (Pl.'s Ex. P5) that "[o]ur patented gate arms have LED lighting built into the gate arm" is a reference to the aluminum gate arm having the shape of Pl.'s Ex. P7.

14. Eastern Metal Supply sells the aluminum gate arms to Mr. Pikman, who sells them to BlackSky, who equips them with the LED light strips and electrical controller and other pieces. BlackSky provides the outfitted gate arms to distributors, who sell them to professional installers for use at, predominantly, gated communities. The installers are the source of BlackSky's customer base.

15. On March 14, 2016 and April 6, 2016, Mr. Brinkman sent emails to BlackSky's distributors (Pl.'s Ex. P8) as a result of signing the Consent Decree on March 11, 2016.

16. The emails informed the distributors of the modifications to the LED barrier gate arm. One was to change the shape of the aluminum and one related to the light coming out. However, the emails did not discuss the modifications; they simply said a consent decree had been agreed upon.

[10] The undersigned admitted Pl.'s Exs. P5 and P6 but limited them to admissions as to the design patent.
[11] Pl.'s Ex. P7 is also a truncated version of the actual aluminum beam.

17. In Mr. Brinkman's opinion, the product represented by Pl.'s P7 honors the Consent Decree because the Consent Decree required Defendants to change the shape of the aluminum in order to continue selling gate arms and Defendants changed the shape of the outer aluminum from Pl.'s Ex. 1 to Pl.'s Ex. 7.

18. Mr. Brinkman acknowledged that the March 14, 2016 and April 6, 2016 emails stated, "The outward visual appearance will be virtually identical to the current design." See Pl.'s Ex. P8.

19. Access Masters' answer to Plaintiff's First Interrogatory No. 1 states: "Since June 2016, ACCESS MASTERS has manufactured a barrier gate design, described to customers as '12ft LED Arm' and '15ft LED Arm,' there is no other model name or product number." See Pl.'s Ex. P9. This was the product that BlackSky obtained from Access Masters.

20. BlackSky's answer to Plaintiff's First Interrogatory No. 1 states: "A single model of barrier gate design, identified as 'barrier arm design version 2.0' has been manufactured and sold since June 2016. This model is manufactured by Access Masters, LLC." See Pl.'s Ex. P10. This is the barrier gate arm obtained from Access Masters and equipped with LED lights and an electrical kit by BlackSky.

21. Mr. Brinkman identified Pl.'s Ex. P13 as the gate arm brochure.[12]

22. Mr. Brinkman identified Pl.'s Ex. P14 as BlackSky's older installation manual, as it appeared on BlackSky's website, with a revision date of February 2018.

23. The installation manual (Pl.'s Ex. P3-1) included in the gate arm installation kit (Pl.'s Ex. 3) is also an older version, dating back to November 2018. BlackSky has more recent installation manuals.

[12] The undersigned limited the admissibility of this exhibit in a similar fashion as Pl.'s Exs. P5 and P6.

24. Mr. Brinkman was the primary author of the installation manuals represented by Pl.'s Ex. P3-1 and Pl.'s Ex. P14, with input from BlackSky employees.

B. Mr. Pikman's testimony via deposition excerpts[13]

25. BlackSky and GATEARMS.COM are the distribution centers for Access Masters' LED gate arms.

26. The truncated gate arm represented by Pl.'s Ex. P1 is part of an Access Masters LED gate arm.

27. The marking "D707,8515" on Pl.'s Ex. P1 corresponds to a design patent owned by Mr. Pikman.[14]

28. Access Masters does not supply its gate arms to any distributors other than GATEARMS.COM's distributors, but it installs complete gate arm packages at communities that are its direct customers.

29. Mr. Pikman did not recall the substance of a conversation he had with Mr. Brinkman a long time prior regarding whether the Access Masters gate arms were covered by a U.S. patent.

30. Mr. Pikman did recall a conversation with Mr. Brinkman regarding exclusivity, but he affirmed that Mr. Brinkman is the exclusive distributor of Access Masters' gate arms.

31. According to Mr. Pikman there are three versions of the Access Masters gate arm, represented as follows:

Version # 1 – Pl.'s Ex. P6 (design patent)
Version # 2 – Pl.'s Ex. P1
Version # 3 – Pl.'s Ex. P7

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[13] See Deposition of Michael Pikman, February 12, 2019 (hereafter, "Pikman Depo."), Pl.'s Ex. P33. Mr. Pikman was deposed as Access Masters' corporate representative, pursuant to Fed. R. Civ. P. 30(b)(6). Id. at 4-5.

[14] The undersigned applied to all facts regarding the design patent the same ruling as the one made for Pl.'s Exs. P5 and P6.

32. Mr. Pikman does not know whether all three versions are covered by the design patent and has no idea as to what the design patent covers.

33. Mr. Pikman started working on Version # 3 a few days after the parties entered into the Settlement Agreement. He did not have the idea for that version prior to that time.

34. The first change Mr. Pikman made was to remove the fins from the outside wall of the gate arm to the channel; so that, if the channel is taken out there will be no fins in the gate arm. In Pl.'s Ex. P1 the fins are part of the outside wall; in Pl.'s Ex. P7 they are part of the channel.

35. In Pl.'s Ex. P1, the LED strip is concealed, in that it is part of the gate arm; it is inserted in the gate arm by pulling it through; it is retained in the gate arm by sitting inside the channel; and it doesn't fall out of the channel because it is held in place by the outside wall of the gate arm.

36. The channel in Pl.'s Ex. P1 where the LED strip sits has three walls, with an opening for the light to shine through; and the LED strip does not fall out.

37. Pl.'s Ex. P7 has a channel. The LED strip is retained by sitting in the channel, which has an opening for the light to shine out. The LED strip will not fall out of that channel because it is a complete channel with five walls.

38. Mr. Pikman, as sole inventor, filed a patent application for the configurations represented by Pl.'s Ex. P7. A provisional application was filed on May 17, 2016 and a non-provisional one was filed on February 4, 2017 (Pl.'s Ex. P16). The non-provisional patent application was assigned application number 15/424,782 and was for a "Barrier Gate Arm with Recessed Light Housing" (hereafter, "'782 Patent Application"). See Pl.'s Ex. P16 at 1.[15]

39. According to Mr. Pikman, the novel feature claimed in the May 17, 2016 provisional patent

[15] Additional portions of the '782 Patent Application were admitted as Pl.'s Exs. P35, P36. Portions of Mr. Pikman's non-provisional patent application number 15/889,195 (hereafter, "'195 Patent Application") were admitted as P37, P38, P39 and P40.

application was recessed light housing; and his understanding of the purpose of filing this patent application was to protect his design so he could make his gate arms.[16]

40. According to Mr. Pikman, the differences between Pl.'s Ex. P7 and Pl.'s Ex. P1 are that: the fins are below the outside surface of the gate arm; the channel is recessed deeper; the channel is smaller; and the LED strip used in Pl.'s Ex. P1 is wider than the one used in Pl.'s Ex. P7.

41. Mr. Pikman identified Pl.'s Ex. P17 as a portion of the Computer Assisted Design ("CAD") file for the gate arm represented by Pl.'s Ex. P7.

42. Mr. Pikman's understanding that Pl.'s Ex. P7 does not violate the Consent Decree is based on the following reason: the fins are not part of the gate arm's outside wall; they are part of a channel and they recess from the surface. These are all the differences between the LED arm referenced in the Consent Decree and the gate arm designated as version 2.0 by GATEARM.COM.

C. Dr. Rice's expert testimony

43. Dr. Rice was qualified as an expert in mechanical engineering and patent-related matters.

44. Dr. Rice prepared an expert report regarding infringement of the '125 Patent and the '200 Patent. His analysis consisted of examining the parties' agreement to determine whether Defendants' new design was substantially the same as their original design and thus infringed the '125 Patent and the '200 Patent. Specifically, Dr. Rice considered whether the new design (Pl.'s Ex. P7) is colorably different from the original design (Pl.'s Ex. P1) in light of the terms of the parties' agreement and the Court's claims construction order.

45. Dr. Rice concluded that there is absolutely no significant difference between the two designs from the viewpoint of an infringement analysis. The Court's claims construction was the

[16] The undersigned sustains Defendants' objections to this portion of Mr. Pikman's deposition testimony [D.E. 168-1 at 4, first entry] as being beyond the scope of permitted discovery into the colorable variation issue.

fundamental aspect of this opinion.

46. The key portion of the Court's claims construction for Dr. Rice was that the terminal end is located in the first opening; and he concluded that in both designs the terminal end does terminate in the first opening. According to Dr. Rice, the first opening is quite clearly defined in the specification of the patent as being defined by the upper and lower horizontal portions and the rear portion of the opening.

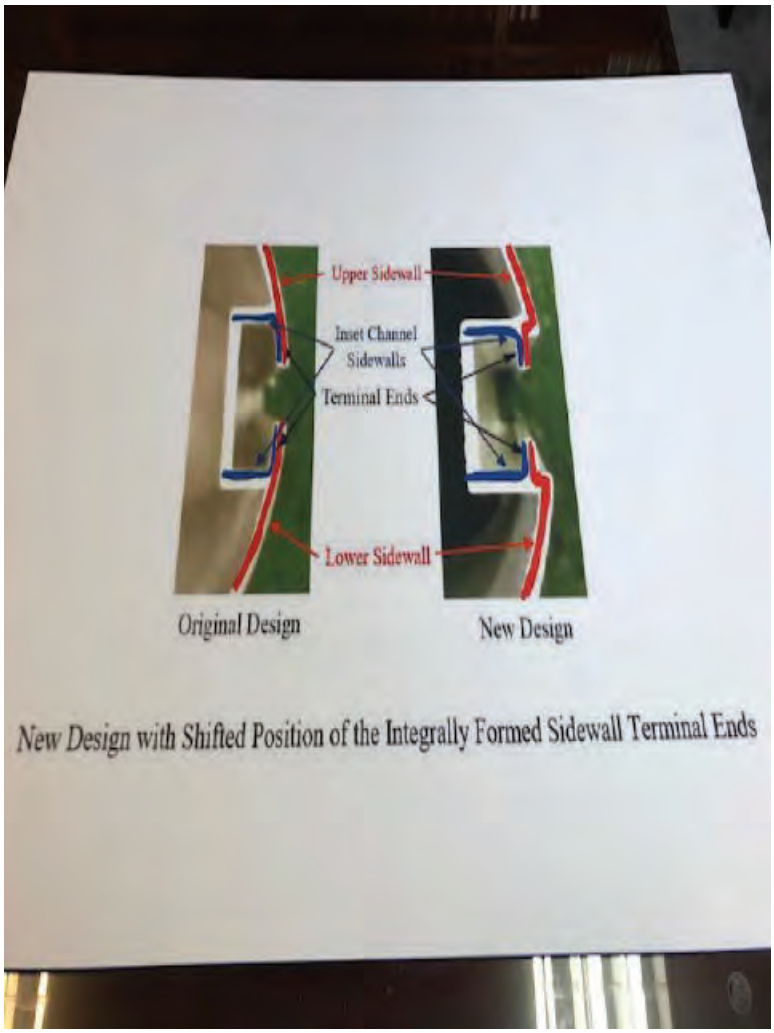
47. In Dr. Rice's view, the novel feature of the '125 Patent and the '200 Patent is the cradle for the LED strip and the various terms used to describe what restrains the LED light strip within the opening; namely, the two terminal ends, the lips, or the fins. According to Dr. Rice, in all cases it is essentially the same structural feature.

48. Dr. Rice noted that there is a slight difference between the two designs represented by Pl.'s Ex. P1 and Pl.'s Ex. P7 in that, in the latter, the fins are slightly shifted inward into the opening; but he concluded that this does not constitute a substantial difference between the two designs. According to Dr. Rice, a "C"-shaped cradle, whose function is to retain the LED strip in such a manner that the strip is easily removable and replaceable, is present in both devices. Dr. Rice further opined that the lips or fins component of the "C"-shaped cradle is also present in both devices.

49. According to Dr. Rice, the Court's claims construction states that the terminal ends should terminate within the opening, as defined in the specification of the patents. Dr. Rice opined that both the original and the new design meet this requirement.

50. Dr. Rice reiterated his conclusion that there is not a significant difference between the design represented by Pl.'s Ex. P1 and Pl.'s Ex. P7 and that both designs infringe on Plaintiff's patents because they both meet the limitations set forth in the patents' claim one.

51. Dr. Rice relied on the following demonstrative exhibit, entitled "New Design with Shifted Position of the Integrally Formed Sidewall Terminal Ends" (hereafter, "Ex. P-Demonstrative"), to illustrate that the new design is the same as the original design and that the only difference is that the terminal end has been shifted slightly inward.



See Ex. P-Demonstrative [D.E. 175-31].

52. According to Dr. Rice, the way in which both designs infringe Plaintiff's patents is as follows:

> Well, basically the lip or the terminal end on both designs serves to retain the LED light strip within the channel.

> And, so they both function in an identical manner there is no difference. The only difference is the terminal end has been shifted slightly inward. But it still serves exactly the same function in exactly the same manner.

See 5/13/19 Transcript [D.E. 180 at 79].

53. With regard to the structure of the "C"-shaped channel, when comparing the original design to the new design, Dr. Rice stated:

> Well, a key factor is it is a continuous structure. In other words, this goes down and it shifts slightly inward. It is a continuous structure there is no difference. One continues straight down, one continues with a slight shift inward in the radial direction.

Id. at 80.

54. Applying the foregoing observations, Dr. Rice opined that both designs infringe on Plaintiff's patents.

55. Dr. Rice testified that his methodology involved a two-part test: "one was to determine whether there was significant difference between the original design and the new design;" and the second part, after he decided that there was not a significant difference, was an infringement analysis. Id. at 81.

56. At the close of Dr. Rice's direct testimony, the undersigned admitted Pl.'s Ex. P24 (the '125 Patent) and Pl.'s Ex. P26 (the '200 Patent).

57. On cross-examination, Dr. Rice acknowledged that there is a slight geometric difference between a "U"-shaped channel and a "C"-shaped channel, as depicted in Def.'s Ex. 30 (Def.'s Ex. 23 to Dr. Rice's deposition).[17]

58. Dr. Rice also acknowledged that a patent claim cannot cover something that was given up in order to obtain the patent, but he did not take that into account when conducting his analysis.

[17] The undersigned limited the admission of this exhibit to its relation to Dr. Rice's testimony that the two shapes are different.

59. Dr. Rice also acknowledged that he did not take into account differences in the height and depth of the interior channel between Defendants' original and new designs. In his deposition, however, Dr. Rice had testified that the height and width of the inset channel are the same in both designs and he agreed with that conclusion at the evidentiary hearing.

60. Dr. Rice acknowledged that he read the Court's claims construction as stating that the ends terminate "within the opening, not partially or wholly. Simply within the opening." See 5/13/20 Transcript [D.E. 180 at 103]. In his expert report, however, Dr. Rice used the word "partially" when referring to the terminating ends. See Dr. Rice's Expert Report [D.E. 128-4 ¶ 6] ("A key requirement is that the 'terminating ends' of the upper and lower sidewalls terminate 'partially within a first opening'. . .").

61. Dr. Rice acknowledged that the Settlement Agreement states that "the parties agreed that if the ends did not terminate partially within the opening, there would be no infringement." See 5/13/20 Transcript [D.E. 180 at 105] (citing Settlement Agreement [D.E. 172-12 ¶ 4]).

62. Dr. Rice acknowledged and agreed with the following testimony from his deposition: "[T]hose ends terminate within the opening of the channel" and "the ends are completely within what is defined as the first opening in the claims." Id. at 106 (citing Dr. Rice's deposition at p. 33 ln. 17). Although Defendants' counsel provided no context for the foregoing citation, a review of the preceding portion of Dr. Rice's deposition transcript [D.E. 150-8 at 30-32] reveals that the testimony relates to Figure 8 in the '125 Patent, which is reproduced below from Pl.'s Ex. P24.

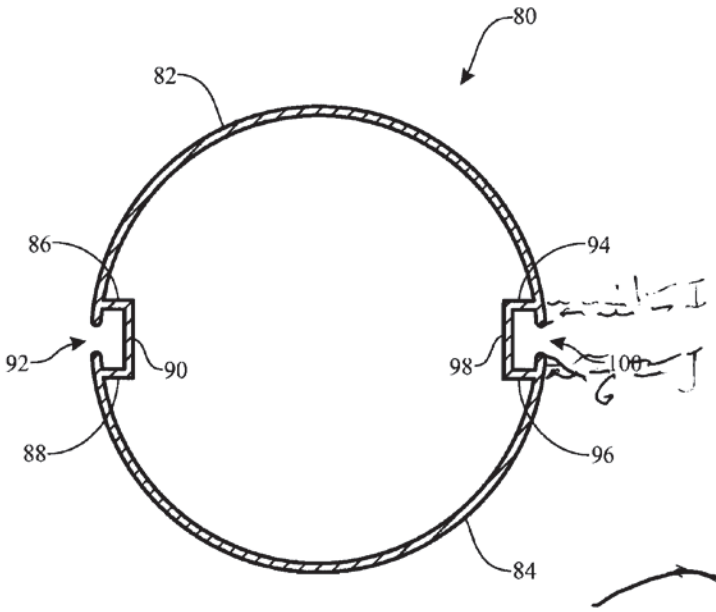


FIG. 8

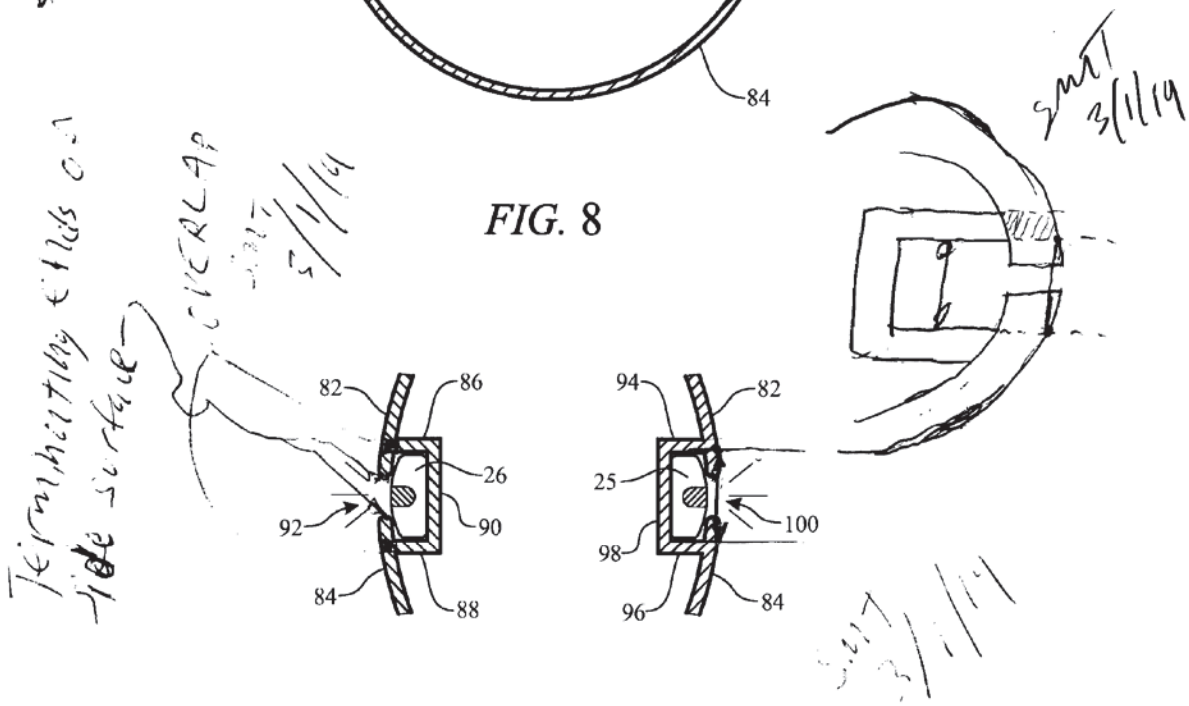


FIG. 9

See Pl.'s Ex. 24.

63. On re-direct examination, Dr. Rice explained that he did not consider the height and width of the channel because he did not deem them to be relevant.

64. Dr. Rice also stated that he understood the Court's claims construction.

65. Returning to Ex. P-Demonstrative, Dr. Rice identified the opening in the original design as the space between the blue lines rather than the space between the red lines.

66. For the new design shown on Ex. P-Demonstrative, Dr. Rice identified the upper half and lower half of the first side surface as continuous structures indicated by the red lines, respectively.

D. Mr. Brinkman's testimony

67. Mr. Brinkman has an educational background in accounting and computer science and has work experience in information technology. He founded BlackSky in 2008 and has developed software and hardware for gated communities.

68. Mr. Brinkman met Mr. Pikman at a trade show and then arranged for the representation of Mr. Pikman's lighted gate arm. Thereafter, the two of them began developing their product. There have been twelve variations of the product in the context of the hardware and software. However, when Plaintiff sued Defendants for patent infringement in this action, the suit was against the first form of gate arm that BlackSky had sold.

69. As a result of the Settlement Agreement, Defendants changed the design of the gate arm's aluminum. Thus, Pl.'s Ex. P1 represents the first variation of the gate arm sold by BlackSky and Pl.'s Ex. P7 represents the second variation, which is the current one.

70. BlackSky purchases the aluminum for the gate arm from Access Masters and obtains the LED strips directly from China.

71. BlackSky's customers are wholesale distributors located in the United States and throughout the world.

72. The LED strips that Mr. Pikman was using for his product were of inferior quality. BlackSky re-engineered the LED strip to be more durable and more appropriate for a barrier gate arm setting.

73. Prior to the Settlement Agreement, BlackSky had made changes to the LED strip that affected its physical shape. BlackSky made additional changes after the Settlement Agreement.

74. BlackSky initially encountered problems inserting the LED strip into the gate arm because the track was too small, which required the use of lubricant to make the track or channel slippery. That problem was eliminated with the design represented by Pl.'s Ex. P7 because the channel was enlarged to an appropriate size for the new LED strip.

75. The changes made to the channel are as follows: the new channel is twenty percent wider than the original one and is also almost double in height; the aluminum used for the walls of the gate arm is less thick, that is, lighter; the opening for the LED strip's light is wider so that more light can escape from the channel; and the retaining fins are inside the channel and reflect light.

76. At the conclusion of Mr. Brinkman's direct examination, the undersigned admitted the Settlement Agreement as Def.'s Ex. 28.

77. On cross-examination, Mr. Brinkman characterized his March 14, 2016 email to customers (Pl.'s Ex. P8 at 1), in which he stated that the outward visual appearance of the gate arm's new design would be virtually identical to the original one, as a marketing email intended to calm the customers' nerves.

78. Mr. Brinkman acknowledged that the LED strip used for the new design, with some variations, is the same one that was used for the original design.

79. On re-direct examination, Mr. Brinkman explained his statement in the March 14, 2016, email that "[t]he modification will improve the focus of the LED light so it is directed primarily at the driver, rather than fully ambient in 180 degrees as at present" (Pl.'s Ex. P8 at 1), as follows:

> We believed that the new design works better than the old design in that it restricts the emission of light into a specific angle of emission.
>
> So that previously it was emitting light across almost 180 degrees of emission, because the light was so close to the opening. Now, by moving the opening deeper into the channel, we are constraining the light, the angles at which it can exit the aluminum.
>
> So, by constraining the light and by giving it a reflective surface upon which to bounce off on the way out of the channel, we bring more light to the eyes of the driver than the previous design did.

See 5/13/19 Transcript [D.E. 180 at 126].

E. Mr. Pikman's testimony

80. Mr. Pikman established Access Masters in Florida in 2007, after working for a gate arm company and owning an automotive repair shop in Philadelphia.

81. Access Masters services gated community operators and gates; and fabricates aluminum gate arms.

82. Mr. Pikman designed the gate arms represented by Pl.'s Exs. P1 and P7, the latter after the Settlement Agreement.

83. According to Mr. Pikman, the changes between Pl.'s Ex. P7 and Pl's. Ex. P1 are that in Pl.'s Ex. P7 the channel is recessed deeper into the gate arm and it is a "C"-shaped channel rather than a "U"-shaped channel (as seen from the side of the gate arm), all of which create better visibility for drivers.

84. Mr. Pikman attempted to obtain a patent for his new design, but he acknowledged that nothing in the USPTO's correspondence references a "C"-shaped channel. Mr. Pikman made some modification to the patent application, which was pending at the time he testified.

85. A communication from the USPTO dated March 24, 2017, states: "Lumsden et al. is silent concerning the upper and lower channel walls extending from terminating ends of the exterior wall." See Def.'s Ex. 7A at 6.[18] The communication from the USPTO then references an elongate visor channel in the Patten patent. Id.

86. Reviewing a drawing from the Patten patent (Def.'s Ex. 24), Mr. Pikman stated that it shows a "C"-shaped channel like Access Masters' new product, represented by Pl.'s Ex. P7. The entire Patten patent was admitted as Def.'s Ex. 10.

87. A communication from the USPTO dated September 5, 2017, states: "Lumsden et al. is silent concerning an elongate visor channel." See Def.'s Ex. 7B at 6. The communication from the USPTO then references an elongate housing in the Nagano patent. Id. The entire Nagano patent was admitted as Def.'s Ex. 11.

88. Mr. Pikman testified as follows regarding Figure 8B in a communication from the USPTO dated September 5, 2018 (Def.'s Ex. 12B), which related to Mr. Pikman's continuation of his patent application: "The channel looks like channel "C" and the fins are inserted deeper into the -- below the surface of the structure." See 5/13/19 Transcript [D.E. 180 at 135]. See also Def.'s Exs. 27 & 13.

89. Mr. Pikman interpreted a communication from the USPTO dated December 26, 2018 (Def.'s Ex. 12C) as "point[ing] out that upper and lower fins are basically into – below the surface

[18] Lumsden is Plaintiff's patent.

of the outside wall." See 5/13/19 Transcript [D.E. 180 at 136]. See also Def.'s Ex. 29. According to Mr. Pikman, that configuration generally corresponds to his new product.[19]

90. On cross-examination, Mr. Pikman acknowledged language referring to obviousness in the USPTO's communications admitted as Def.'s Exs. 7A and 7B. Mr. Pikman denied that the patent application referenced in those communications had been abandoned and described its status as pending.

91. Mr. Pikman expressed no knowledge as to language referring to obviousness in the USPTO's communications admitted as Def.'s Exs. 12B and 12C. He reiterated that his patent application was pending.

F. Dr. Tifton's expert testimony

92. Dr. Tifton was qualified as an expert in mechanical engineering.

93. Dr. Tifton identified Def.'s Ex. 15 as Figure 8 in the '125 Patent (Pl.'s Ex. 24). Dr. Tifton's testimony relating to this exhibit was stricken. See 5/14/19 Transcript [D.E. 181 at 155-65].[20]

94. Dr. Tifton interpreted the red and blue lines in the Original Design portion of Ex. P-Demonstrative, *supra*, as follows: at the top of the drawing, the red line represents the upper side wall and extends down into the lip or fin that holds the light strip in; the blue line has a horizontal and a vertical component, and represents both the inset channel side wall and the upper side wall, which extends into the lip or fin. A corresponding interpretation applies to the bottom of the drawing.

95. According to Dr. Tifton, the use of the blue line and the red line to identify the same component by putting two color lines on the same element is incorrect because one thing cannot

[19] Def.'s Ex. 12A was also admitted, but it was not addressed in Mr. Pikman's testimony.
[20] The undersigned reserved ruling on Plaintiff's objection to the admission of Def.'s Ex. 15. Based on the lack of admissible testimony relating to it, the exhibit is excluded.

be two things. Specifically, the part called the "lip" or "fin" cannot be both the outer side wall and the channel.

96. Dr. Tifton interpreted the red and blue lines in the New Design portion of Ex. P-Demonstrative, *supra*, as follows: the red line is an illustration of a wall that bends to the left and bends downward and forms a separate fin in the channel to hold the light in; the blue line is the same as in the Original Design portion of Ex. P-Demonstrative; specifically, there is a horizontal piece that turns down and goes into the same fin.

97. According to Dr. Tifton, it makes no sense from an engineering standpoint for the fin to be identified as being two different parts, namely, a red part and a blue part.

98. Dr. Tifton further testified that, when a light strip is recessed, the light comes out better in daylight.

99. On cross-examination, Dr. Tifton testified that, while two separate things can overlap in a general engineering sense, that does not make them the same thing. They are properly referred to as a system in which two structures overlap.

100. Dr. Tifton acknowledged having shaded a portion of the channel in Figure 9 of Pl.'s Ex. 24 and labeling the shaded area an "overlap" at the request of Plaintiff's counsel during his deposition; but he testified that, in his opinion, it was not reasonable to do so.

101. According to Dr. Tifton, his expert report, when viewed in its entirety, covered the differences between Defendants' original product and redesigned product. Specifically, Dr. Tifton testified that he looked at the representations of the two products in Dr. Rice's expert report in excruciating detail and considered them when writing his own report, but he did not repeat the contents of Dr. Rice's report for the sake of avoiding redundancy.

102. Dr. Tifton further testified that he focused on the new design because that is what he wanted to describe and explain how it was different and that he operated on the premise that Plaintiff's patent covered the original product.

103. On re-direct examination, Dr. Tifton testified that, based on his understanding, Defendants' original product and Plaintiff's patented product were identical, but he acknowledged that a figure in his report omitted the lips that retain the light strip. See 5/14/19 Transcript [D.E. 181 at 184-85]; see also Dr. Tifton's Expert Report Figure 2 at Page 6, reproduced in Plaintiff's *Daubert* Motion [D.E. 147 at 14].

G. Post-Evidentiary Hearing supplemental evidence

104. On June 6, 2019, the USPTO issued a Notice of Allowance and Fees Due (hereafter, "Notice") for Mr. Pikman's non-provisional patent application number 15/889,195, titled "Barrier Gate Arm with Recessed Light Housing," filed on February 5, 2018 (hereafter, "'195 Patent"). See Def.'s Ex. 35 [D.E. 177-1].

105. According to the Notice, the '195 Patent Application was amended by the USPTO examiner with respect to the abstract, the specification, and Claim 1. Id. at 6-7.

106. The complete prosecution history for the '195 Patent is contained in Pl.'s Ex. P53 [D.E. 188-12].

107. The '195 Patent Application was submitted as a continuation in part of the '782 Patent Application. See Pl.'s Ex. P45 at 4 [D.E. 188-4 at 4].

108. Portions of the prosecution history for the '195 Patent are reflected in the following exhibits:

Pl.'s Ex. P46 [D.E. 188-5] - 6/8/18 Applicant-Initiated Interview Summary
Pl.'s Ex. P47 [D.E. 188-6] - 6/5/18 Amendments to '195 Patent Application
Pl.'s Ex. P48 [D.E. 188-7] - 11/20/18 Applicant-Initiated Interview Summary
Pl.'s Ex. P49 [D.E. 188-8] - 12/3/18 Amendments to '195 Patent Application

Pl.'s Ex. P50 [D.E. 188-9] - 2/26/19 Applicant-Initiated Interview Summary
Pl.'s Ex. P51 [D.E. 188-10] - 3/26/19 Amendments to '195 Patent Application

109. The complete prosecution history for the '782 Patent Application, which Mr. Pikman testified at the Evidentiary Hearing was for the configurations represented by Pl.'s Ex. P7, is contained in Pl.'s Ex. P52 [D.E. 188-11].

110. On March 27, 2018, the USPTO issued a Notice of Abandonment with respect to the '782 Patent Application. See Pl.'s Ex. P44 [D.E. 188-3].

111. Portions of the prosecution history for the '782 Patent Application are reflected in the following exhibits:

Pl.'s Ex. P42 [D.E. 188-1] – 5/30/17 Applicant-Initiated Interview
Pl.'s Ex. P43 [D.E. 188-2] – 6/9/17 Amendments to '782 Patent Application

PLAINTIFF'S *DAUBERT* MOTION

1. Daubert Standard

Rule 702 of the Federal Rules of Evidence provides:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
>
> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
>
> (b) the testimony is based on sufficient facts or data;
>
> (c) the testimony is the product of reliable principles and methods; and
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. A party who seeks to admit expert testimony bears the burden of laying the proper foundation for its admissibility by a preponderance of the evidence. Allison v. McGhan Med. Corp., 184 F.3d 1300, 1306 (11th Cir. 1999). Thus, before expert testimony may be admitted as evidence at trial pursuant to Rule 702 of the Federal Rules of Evidence, the district court must

act as a gatekeeper and screen the proffered evidence. Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 596-97 (1993). In the Eleventh Circuit, this gatekeeping function must be performed as follows:

> [I]n determining the admissibility of expert testimony under Rule 702, [the court must] engage in a rigorous three-part inquiry [and] must consider whether: (1) the expert is qualified to testify competently regarding the matters he intends to address; (2) the methodology by which the expert reaches his conclusions is sufficiently reliable as determined by the sort of inquiry mandated in *Daubert*; and (3) the testimony assists the trier of fact, through the application of scientific, technical, or specialized expertise, to understand the evidence or to determine a fact in issue.

United States v. Frazier, 387 F.3d 1244, 1260 (11th Cir. 2004) (citing City of Tuscaloosa v. Harcros Chems., Inc., 158 F.3d 548, 562 (11th Cir. 1998)).

2. Discussion

As noted above, Dr. Tifton testified at the Evidentiary Hearing subject to Plaintiff's *Daubert* Motion [D.E. 147]. Dr. Tifton was qualified as an expert in mechanical engineering at the Evidentiary Hearing. See Dr. Tifton's expert testimony, *supra*. However, Plaintiff argues in its *Daubert* Motion that Dr. Tifton's expert opinion was based on an incorrect methodology; hence, it is unreliable and will not assist the Court in its fact-finding mission with respect to the Motion for Contempt. See Plaintiff's *Daubert* Motion [D.E. 147 at 8]. Specifically, Plaintiff contends that Dr. Tifton incorrectly employed a typical patent infringement analysis rather than the analysis applicable to the Motion for Contempt, which involves a comparison between Defendants' original gate arm and their new gate arm, to ascertain if there are colorable differences between the two. See Applicable Law, *supra.* However, Dr. Tifton testified at the Evidentiary Hearing that his expert report, when viewed in its entirety, covered the differences between Defendants' original product and redesigned product. Moreover, Dr. Tifton testified that he looked at the representations of the two products in Dr. Rice's expert report in excruciating detail and considered

them when writing his own report, but he did not repeat the contents of Dr. Rice's report for the sake of avoiding redundancy. Dr. Tifton further testified that he focused on the new design because that is what he wanted to describe and explain how it was different and that he operated on the premise that Plaintiff's patent covered the original product. Given Dr. Tifton's testimony, the undersigned does not find it appropriate to strike him as an expert on the grounds advanced by Plaintiff. Therefore, the undersigned DENIES Plaintiff's *Daubert* Motion and gives Dr. Tifton's expert testimony the weight she deems appropriate.

CONCLUSIONS OF LAW

1. The Colorable Differences Inquiry

In accordance with TiVo, the purpose of this inquiry is to determine whether the differences between Defendants' original gate arm (Pl.'s Ex. P1) and new gate arm (Pl.'s Ex. P7) are significant. TiVo, 646 F.3d at 881. If they are, then Pl.'s Ex. P7 is more than colorably different from Pl.'s Ex. P1 and the infringement inquiry becomes irrelevant. Id. at 882.

At an earlier discovery hearing, Plaintiff argued that Mr. Brinkman and Mr. Pikman are persons of ordinary skill in the art. See Transcript of January 10, 2019 Hearing [D.E. 133 at 53] ("The defendant is actually a person of ordinary skill in the art. They're the ones manufacturing and working with these. They know this art. It is their field."); see also id. at 56 ("[A]nd I would pluralize that to principals of -- each defendant has a different principal."). Therefore, the undersigned deems their testimony to be that of persons of ordinary skill in the art and accepts it as such.

At the Evidentiary Hearing, Mr. Brinkman testified that the changes between Pl.'s Ex. P1 and Pl.'s Ex. P7 are as follows: the new channel is twenty percent wider than the original one and is also almost double in height; the aluminum used for the walls of the gate arm is less thick, that

is, lighter; the opening for the LED strip's light is wider so that more light can escape from the channel; and the retaining fins are inside the channel and reflect light. Mr. Pikman testified regarding the changes between the two products as follows: in Pl.'s Ex. P7, the channel is recessed deeper into the gate arm and it is a "C"-shaped channel rather than a "U" shaped channel (as seen from the side of the gate arm), all of which create better visibility for drivers.

On the other hand, Dr. Rice opined that there is not a significant difference between the design represented by Pl.'s Ex. P1 and Pl.'s Ex. P7. Dr. Rice further opined that Defendants' new design is the same as their original design and that the only difference between them is that the gate arm's upper and lower side walls have been shifted slightly inward. See Ex. P-Demonstrative (red and blue markings on old and new designs). However, Dr. Tifton found Dr. Rice's analysis to be flawed due to his use of both a blue line and a red line to identify the same component. According to Dr. Tifton, one thing cannot be two things. In other words, the part called the "lip" or "fin" could not be both the outer side wall and the channel. The undersigned agrees that Dr. Rice's approach is flawed and contrary to common sense. Hence, the undersigned rejects Dr. Rice's contorted attempt to show that the old and new design are the same, with the only difference being that the gate arm's upper and lower side walls have been shifted slightly inward.

Rather, the undersigned accepts Mr. Brinkman's and Mr. Pikman's characterization of Pl.'s Ex. P7 as having a recessed channel to hold the LED light strip, with the channel being "C"-shaped rather than "U"-shaped. This makes the fins or lips in Pl.'s Ex. P7 part of the channel rather than part of the upper and lower side walls as in Pl.'s Ex. P1. Notably, this comparison accurately reflects the Court's claims construction for the claims that Plaintiff contends were infringed by Pl.'s Ex. P1:

"first upper sidewall including a terminating end"	The upper half of the first side surface, extending from the convex top to its terminal end located in the first opening.
"first lower sidewall including a terminating end"	The lower half of the first side surface, extending from the convex bottom to its terminal end located in the first opening.

See Order Granting Unopposed Motion to Amend [D.E. 101]. Therefore, the undersigned concludes that there is more than a colorable difference between Pl.'s Ex. P7 and Pl.'s Ex. P1.

Plaintiff also argues that the colorable differences test is met pursuant to the "doctrine of equivalence " because Defendants' "'new' gate arm 'do[es] the same work in substantially the same way, and accomplish[es] substantially the same result' as the enjoined gate arm, making the two 'the same.'" See Plaintiff's Proposed Findings of Fact and Conclusions of Law [D.E. 195 at 29] (citing KSM Fastening Sys. Inc. v. H.A. Jones Co., Inc., 776 F.2d 1522, 1527 (Fed. Cir. 1985)). Plaintiff relies for this argument on Dr. Rice's testimony that "the lip or the terminal end on both designs serves to retain the LED light strip within the channel. And, so they both function in an identical manner there is no difference. The only difference is the terminal end has been shifted slightly inward. But it still serves exactly the same function in exactly the same manner." See 5/13/19 Transcript [D.E. 180 at 79]. However, the undersigned has rejected Dr. Rice's approach as flawed and contrary to common sense. Therefore, the factual premise for Plaintiff's reliance on the doctrine of equivalences fails.

Plaintiff further argues that recessing the channel deeper into the gate arm in Pl.'s Ex. P7 was nothing more than an "obvious" modification to Pl.'s P1 and that "in reference to the obviousness analysis in a contempt proceeding . . . the inquiry is whether the specific modification is an obvious modification." See Plaintiff's Proposed Findings of Fact and Conclusions of Law [D.E. 195 at 30] (citing TiVo, 646 F.3d at 882 n.1). In support of this argument, Plaintiff refers to "obviousness" comments made by the USPTO examiner in the course of rejecting the '782 Patent

Application at various stages of the prosecution history, which, according to Plaintiff, were never withdrawn or reversed by the USPTO examiner or disputed by Mr. Pikman. Id.[21] However, Plaintiff's obviousness argument is unpersuasive for two reasons. First, in its paraphrasing of the TiVo passage upon which it relies, Plaintiff omitted the following language: "We do not suggest that the law on obviousness is binding in contempt proceedings." TiVo, 646 F.3d at 882 n.1. Second, Plaintiff does not explain how selected portions of the prosecution histories suffice to transmute the USPTO examiner's comments into an admission of obviousness by Mr. Pikman. Therefore, Plaintiff's "obviousness" argument also fails.

Finally, Plaintiff characterizes BlackSky's emails to its customers regarding the new gate arm (Pl.'s Ex. P8) as admissions that Defendants' new product was not significantly different from their original product. According to Mr. Brinkman, the purpose of the emails was to inform BlackSky's distributors of the modifications to the LED barrier gate arm, which were related to the shape of the aluminum and to the light coming out. However, the emails did not discuss the modifications; they simply said a consent decree had been agreed upon. While acknowledging the statement that the outward visual appearance of the gate arm's new design would be virtually identical to the original one, Mr. Brinkman characterized it as a marketing message intended to calm the customers' nerves. Given this contextual explanation, which the undersigned finds to be credible, the emails do not rise to the level of technical admissions for purposes of the colorable differences inquiry.

[21] Specifically, Plaintiff references its proposed factual findings at paragraphs 57, 60, 63, 66, 68 (citing portions of the'782 Patent Application's and the '195 Patent Application's prosecution histories found at Pl.'s Exs. P35, P36, P38, P39, P40); and its proposed factual findings at paragraphs 59, 61, 65, 67, 70, 72 (citing portions of the'782 Patent Application's and the '195 Patent Application's prosecution histories found at Pl.'s Exs. P43, P44, P47, P49, P50, P51).

Based on the foregoing, the undersigned concludes that Plaintiff has not met its burden of showing by clear and convincing evidence that Pl.'s Ex. P1 and Pl.'s Ex. 7 are no more than colorably different. TiVo, 646 F.3d at 881-83. Accordingly, the second step in the analysis, consisting of the infringement inquiry, becomes irrelevant. Id. at 882. Nevertheless, for the sake of completeness, the undersigned addresses the infringement prong below.

2. The Infringement Inquiry

TiVo teaches that, "when a court concludes that there are no more than colorable differences between the adjudged infringing product and modified product, a finding that the newly accused product continues to infringe the relevant claims is additionally essential for a violation of an injunction against infringement." 646 F.3d at 883. In conducting the required infringement analysis, "the court is required to evaluate the modified elements of the newly accused product against the asserted claim, on a limitation by limitation basis, to ensure that each limitation continues to be met[;]" and the "court is bound by any prior claim construction that it had performed in the case." Id.

Defendants contend that, "[i]n this case, there was no prior finding of infringement," and that the Consent Decree and the Settlement Agreement each only contain "an agreement on validity, not infringement." See Defendants' Proposed Findings of Fact and Conclusions of Law [D.E. 194-1 at 37]. Plaintiff argues that, as a result of its Disclosure of Asserted Claims and Infringement Contentions (Pl.'s Ex. P41, Exhibit A), Defendants' Non-Infringement, Unenforceability, and Invalidity Contentions (Pl.'s Ex. P29) and the Consent Decree (Pl.'s Ex. P4), Pl.'s Ex. P1 "is *admitted* as having infringed as alleged, and that admission substitutes as the [required] 'finding of infringement.'". See Plaintiff's Proposed Findings of Fact and Conclusions

of Law [D.E. 195 at 26] (citing KSM, 776 F.2d at 1529). In KSM, the Federal Circuit stated that, in cases involving a consent decree,

> an adjudged device conceivably could have been found *not* to fall within the scope of the claims upon a full trial. Nevertheless, such a device is an admitted infringement, and the claims of the patent may be construed in light of that admission when the court undertakes to determine whether a modified device is also an infringement in contempt proceedings.

776 F.2d at 1529.

The undersigned accepts Plaintiff's argument and deems infringement admitted by virtue of the Consent Decree only for the purpose of conducting the infringement prong analysis and limited to Plaintiff's two claims that were construed at the *Markman* hearing:

"first upper sidewall including a terminating end"	The upper half of the first side surface, extending from the convex top to its terminal end located in the first opening.
"first lower sidewall including a terminating end"	The lower half of the first side surface, extending from the convex bottom to its terminal end located in the first opening.

See Order Granting Unopposed Motion to Amend [D.E. 101].

As discussed *supra*, the undersigned accepts Mr. Brinkman's and Mr. Pikman's differentiation of Pl.'s Ex. P1 from Pl.'s Ex. P7 as the latter having a recessed channel to hold the LED light strip, with the channel being "C"-shaped rather than "U"-shaped, which makes the fins or lips in Pl.'s Ex. P7 part of the channel rather than part of the upper and lower side walls as in Pl.'s Ex. P1. Based on this assessment, the relevant claims limitations in Plaintiff's patents, as explained by the Court's claims construction, do not continue to be met by Pl.'s Ex. P7. Hence, Plaintiff has not satisfied the infringement prong of the contempt analysis by clear and convincing evidence. TiVo, 646 F.3d at 883.

CONCLUSION

Based on the foregoing considerations, the undersigned RESPECTFULLY RECOMMENDS that the Motion to Reopen be GRANTED *nunc pro tunc* April 19, 2017; and that the Motion for Contempt and the Motion to Enforce be DENIED.

The parties have **fourteen (14) days** from the date of receipt of this Report and Recommendation within which to serve and file objections, if any, with the Honorable Robert N. Scola, Jr., United States District Judge. See Local Magistrate Rule 4(b). Failure to timely file objections shall bar the parties from attacking on appeal the factual findings contained herein. See Resolution Tr. Corp. v. Hallmark Builders, Inc., 996 F.2d 1144, 1149 (11th Cir. 1993). Further, "failure to object in accordance with the provisions of [28 U.S.C.] § 636(b)(1) waives the right to challenge on appeal the district court's order based on unobjected-to factual and legal conclusions." See 11th Cir. R. 3-1 (I.O.P. - 3).

RESPECTFULLY SUBMITTED in Chambers at Miami, Florida, this 30th day of April, 2020.

ALICIA M. OTAZO-REYES
UNITED STATES MAGISTRATE JUDGE

cc: United States District Judge Robert N. Scola, Jr.
Counsel of Record

United States District Court
for the
Southern District of Florida

Gatearm Technologies, Inc., Plaintiff,	)	
v.	)	Civil Action No. 14-62697-Civ-Scola
Access Masters, LLC, and Blacksky Technologies, Inc. Defendants.	)	

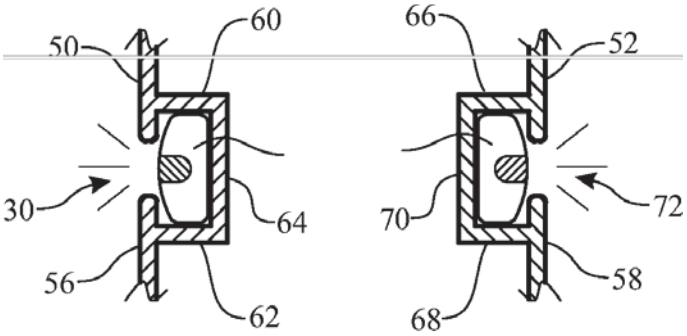
Order Adopting Magistrate's Report and Recommendation

This matter was referred to United States Magistrate Judge Alicia M. Otazo-Reyes for a report and recommendation on the Plaintiff's motion to reopen, for an order to show cause why Defendants should not be held in contempt, and to enforce the consent judgment (Mot., ECF No. 59). Judge Otazo-Reyes recommends that the motion for contempt be denied and the motion to enforce be denied. (ECF No. 202.) The Plaintiff Gatearm Technologies, Inc. ("Gatearm") filed objections to the report (ECF No. 207), to which the Defendants Access Masters, LLC ("Access Masters"), Blacksky Technologies, Inc. ("Blacksky"), and Gatearms.com, LLC ("Gatearms") responded (ECF No. 211). Gatearm also filed a motion to strike portions of the Defendants' response that raised new arguments and evidence outside the scope of the report and the objections. (ECF No. 217.) For the reasons set forth below, the Court **grants in part and denies in part** the Plaintiff's motion to strike the Defendants' response (**ECF No. 217**), and it **affirms and adopts** Magistrate Judge Otazo-Reyes's report and recommendation. (**ECF No. 202**.)

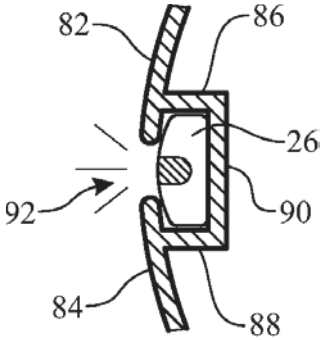
1. Background

This case involves claims of patent infringement of two patents (8,845,125 ('125 patent) and 9,157,200 ('200 patent)) for LED arms for vehicle and pedestrian traffic gates. (*See* Second Am. Compl., ECF No. 36.) The Plaintiff provides access control products, including LED gate arms, and is the owner of the '125 and '200 patents. Essentially, the Plaintiffs' gate arms feature small outer cavities on either side that serve as housings for strips of LED lights. The Defendant Access Masters, LLC ("Access Masters") competes with the Plaintiff in the marketing and distribution of security products, including LED gate arms. The Defendants Blacksky Technologies, Inc. ("Blacksky") and Gatearms.com distribute Access Masters products. The Plaintiff alleges that the Defendants collectively infringed the '125 and '200 patents by manufacturing and selling a

similar LED gate arm. The design at issue is depicted as follows in the '125 and '200 patents:

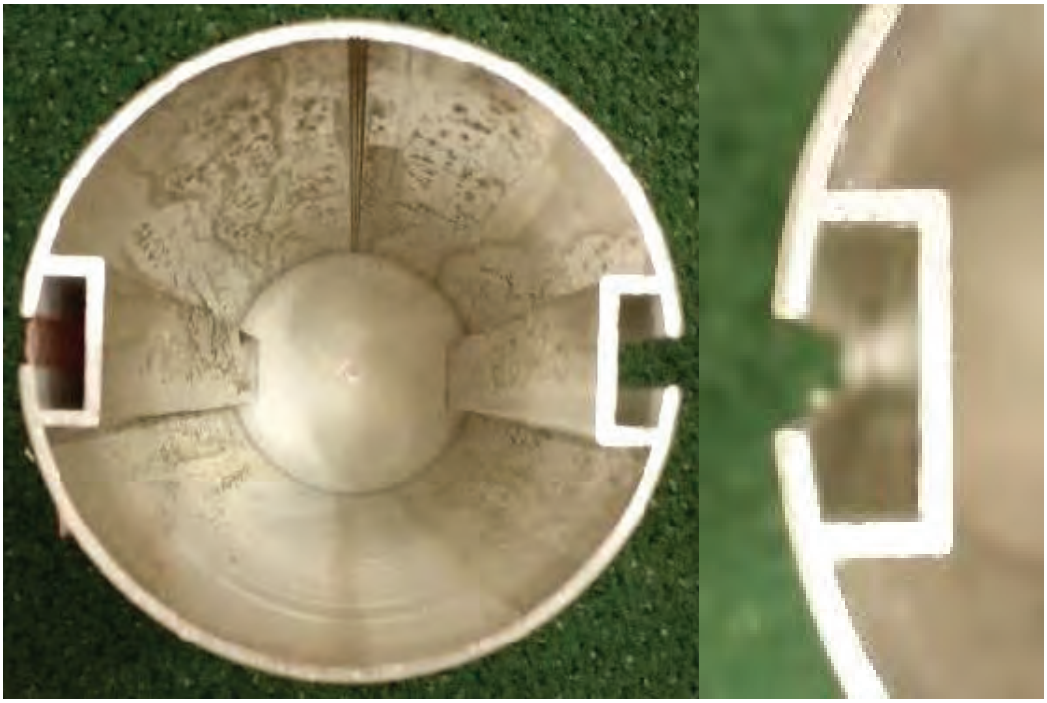


(Fig. 7)



(Fig. 9)

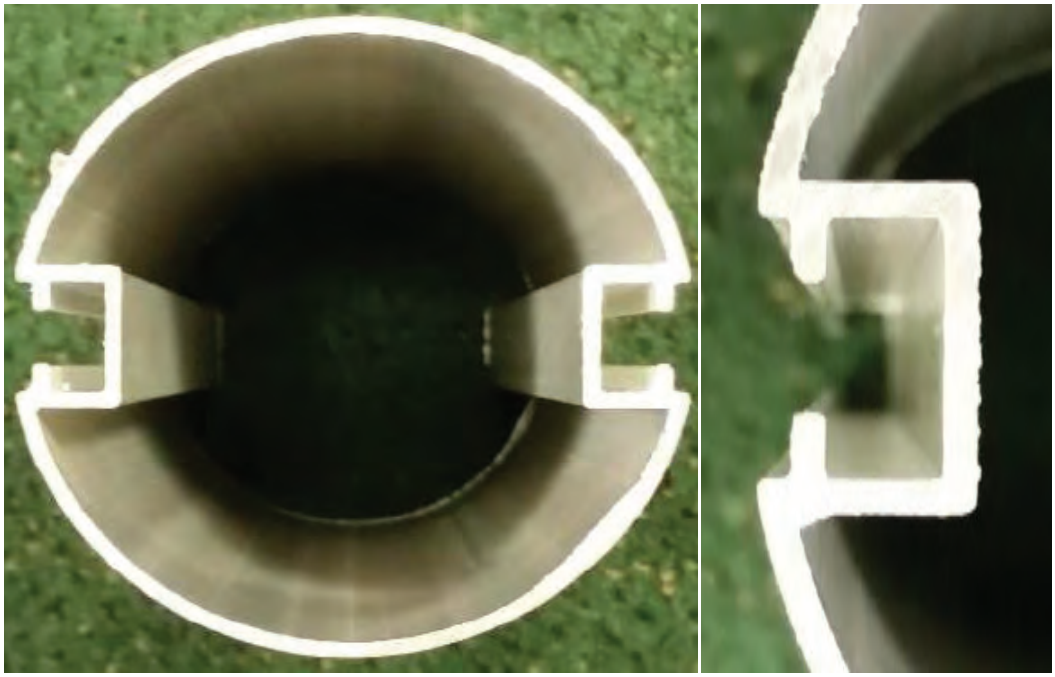
The Defendants' accused product, which the Plaintiff contends infringed its patents is pictured below:



The parties participated in mediation and settled this case in early 2016. (*See* ECF No. 52.) Following the parties' settlement, the Court entered a consent decree that permanently enjoins the Defendants from "manufacturing,

advertising, marketing, distributing, selling, offering to sell, importing or exporting the accused 'LED Arm for a Gate' or any vehicle barrier system with an illuminating gate arm that would infringe any valid and enforceable claim" of the '125 or '200 patents. (ECF No. 53.) Thus, the Court did not have an opportunity to engage in any substantive analysis of the patents, or otherwise determine whether an infringement occurred. After entry of the consent decree, the Court closed this case.

Less than nine months later, the Plaintiff filed its motion to reopen, in which it contends that the Defendants are in contempt of the consent decree because they have released a new product that infringes upon the '125 and '200 patents, and therefore, violates the consent decree. The Defendants' new product appears below:



Judge Otazo-Reyes held a status conference on the Plaintiff's motion, during which the parties agreed that prior to determining the issue of contempt, the Court would have to determine the issue of infringement. (ECF No. 78.) Accordingly, Judge Otazo-Reyes set a *Markman* hearing. (*Id.*)

During the *Markman* hearing, Judge Otazo-Reyes heard argument regarding the claim terms that the parties dispute. The parties agreed with Judge Otazo-Reyes's assessment that only two particular phrases appearing in Claims 1, 2, and 3 of the '125 patent require construction—"first upper sidewall including a terminating end" and "first lower sidewall including a terminating end." The Court adopted Judge Otazo-Reyes's recommendation that it adopt the

Defendants' proposed claim construction. (*See* R. & R., ECF No. 95 at 9-10) because it is consistent with the "customary and ordinary meaning" standard applicable in patent claim construction. (*Id.* at 10.) The Court determined that the following claim construction applies:

Claim language	**Construction**
"first upper sidewall including a terminating end"	The upper half of the first side surface, extending from the convex top to its terminal end located at the first opening.
"first lower sidewall including a terminating end"	The lower half of the first side surface, extending from the convex bottom to its terminal end located in the first opening.

(Order adopting R&R, ECF No. 99.)

Following the adoption of the patent claim construction, Magistrate Judge Otazo-Reyes oversaw the completion of discovery on the issue of infringement and held an evidentiary hearing on the motion for contempt. (ECF No. 22 at 6.) Judge Otazo Reyes made a number of findings of fact following that evidentiary hearing (*Id.* at 8-29.) Ultimately, Magistrate Judge Otazo-Reyes recommends that the Court deny Gatearm's motion for contempt and deny its motion to enforce the consent decree because the Defendants did not infringe on Gatearm's patent in violation of the consent decree.

2. Legal Standards

"In order to challenge the findings and recommendations of the magistrate judge, a party must file written objections which shall specifically identify the portions of the proposed findings and recommendation to which objection is made and the specific basis for objection." *Macort v. Prem, Inc.*, 208 F. App'x 781, 783 (11th Cir. 2006) (quoting *Heath v. Jones,* 863 F.2d 815, 822 (11th Cir.1989)) (alterations omitted). The objections must also present supporting legal authority. Once a district court receives "objections meeting the specificity requirement set out above," it must "make a *de novo* determination of those portions of the report to which objection is made and may accept, reject, or modify in whole or in part, the findings or recommendations made by the magistrate judge." *Macort*, 208 F. App'x at 783-84 (quoting *Heath,* 863 F.2d at 822) (alterations omitted). To the extent a party fails to object to parts of the magistrate judge's report, those portions are reviewed for clear error. *Id.* at 784 (quoting *Johnson v. Zema Sys. Corp.,* 170 F.3d 734, 739 (7th Cir.1999)). A court, in its discretion, need not consider arguments that were not, in the first instance,

presented to the magistrate judge. *Williams v. McNeil*, 557 F.3d 1287, 1291 (11th Cir. 2009).

3. Analysis

Before considering the report and recommendations, the Court will briefly address the motion to strike. The motion to strike the Defendants' response (**ECF No. 217**) is **granted in part and denied in part**. The motion is granted with respect to the Defendants' argument that paragraph four of the settlement agreement exempts them from liability because this argument was not presented to the magistrate judge, and a court, in its discretion, need not consider arguments that were not, in the first instance, presented to the magistrate judge. *Williams v. McNeil*, 557 F.3d 1287, 1291 (11th Cir. 2009). The Court will consider the rest of the Defendants' response.

Gatearm objects to Magistrate Judge Otazo-Reyes's report primarily because (1) the report misapplies the contempt proceeding standard and (2) the report disregards the '200 patent from the analysis. The Court will address each of these objections in turn.[1]

First, Gatearm agrees that Judge Otazo-Reyes's report quotes the correct legal standard from *TiVo*, but it nevertheless argues that the report fails to apply that standard correctly. 646 F.3d at 882-883. According to Gatearm, the report does not compare the original product and the new product to determine whether the differences are colorable, and instead compares the new product to the patent. Specifically, Gatearm identifies a portion of the report that described the figures from the patent, or "Figures 6 and 7," as "particularly relevant." (ECF No. 202 at 6.) Gatearm misconstrued the report's reference to the figures. In the statement of facts, the Court stated that "Figures 6 and 7 are particularly relevant *to the Court's claims constructions Order*" and explicitly cites the Court's prior order adopting Judge Otazo-Reyes's report and recommendation on claim construction, (ECF No. 101). Indeed, the report examines the differences between the enjoined gate arm and the new gate arm, and it determined that the differences between the two are significant. (ECF No. 202 at 30-31.)

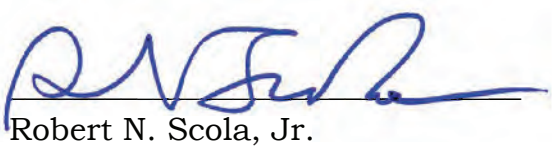
Second, the Plaintiff's objection that the report disregards the '200 patent is incorrect. As stated above, the report correctly applies *Tivo* by comparing the new gate arm to the enjoined gate arm and finding that there were significant differences between the two products. 646 F.3d at 882. The analysis should

[1] To the extent the Court did not address each of Gatearm's objections, a decisionmaker need not specifically address and reject every argument raised by one of the parties. *Guice v. Postmaster General, U.S. Postal Service*, 718 Fed. App'x 792, 795 (11th Cir. 2017).

focus on those aspects of the accused product "that were previously alleged to be, and were a basis for, the prior finding of infringement." *Id.* The report's analysis focuses on the differences between the products and is not a typical patent infringement analysis. Therefore, the report's analysis does not frequently reference either patent. The report does not, however, ignore the '200 patent. The report recounts Dr. Rice's testimony regarding both patents. Specifically, the report states that Dr. Rice testified that the novel feature of both patents is the cradle for the LED strip and the various terms used to describe what restrains the LED light strip within the opening. (ECF No. 202 at 16.)

In sum, the Court **grants in part and denies in part** the Plaintiff's motion to strike the Defendants' response (**ECF No. 217**), and it **affirms and adopts** Magistrate Judge Otazo-Reyes's report and recommendation. (**ECF No. 202**.) The motion to reopen is granted *nunc pro tunc*. The Motion for contempt and to enforce (**ECF No. 59**) is **denied**.

Done and ordered in chambers, at Miami, Florida, on August 21, 2020.



Robert N. Scola, Jr.
United States District Judge


US008845125B1

(12) **United States Patent**
Lumsden et al.

(10) **Patent No.: US 8,845,125 B1**
(45) **Date of Patent: Sep. 30, 2014**

(54) **VEHICLE BARRIER SYSTEM WITH ILLUMINATING GATE ARM AND METHOD**

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(73) Assignee: **GateArm Technologies, Inc.**, Port Saint Lucie, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 41 days.

(21) Appl. No.: **13/803,093**

(22) Filed: **Mar. 14, 2013**

Related U.S. Application Data

(60) Provisional application No. 61/654,280, filed on Jun. 1, 2012.

(51) **Int. Cl.**

F21S 8/00	(2006.01)
F21V 33/00	(2006.01)
E01F 13/06	(2006.01)

(52) **U.S. Cl.**
CPC ***E01F 13/06*** (2013.01); ***F21V 33/0076*** (2013.01)
USPC **362/152**; 362/84; 362/249.02; 362/145; 49/49; 340/908

(58) **Field of Classification Search**
CPC E01F 13/06
USPC 362/84, 145, 152, 249.02, 800; 49/49; 340/908, 913
See application file for complete search history.

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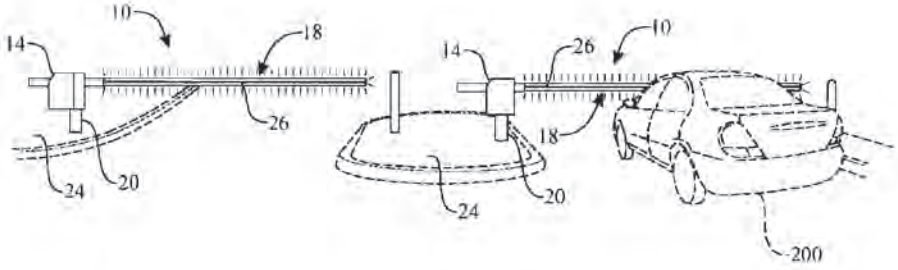
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Primary Examiner — Anabel Ton
(74) *Attorney, Agent, or Firm* — McHale & Slavin, P.A.

(57) **ABSTRACT**

The present invention is directed to a vehicle barrier system and method of use. The vehicle barrier system includes a control system adapted to pivot a gate arm between a horizontal position and a vertical position to control the flow of vehicle or pedestrian traffic in control access areas such as parking lots, or parking garages. The gate arm includes inset channels that are disposed along the longitudinal axis of the gate arm and configured to each removeably receive an array of light emitting diodes to increase visibility and alert drivers or pedestrians to the presence of a gate arm.

8 Claims, 4 Drawing Sheets



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Steven M Tipton, PHD
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Robyn Maxwell, RPR

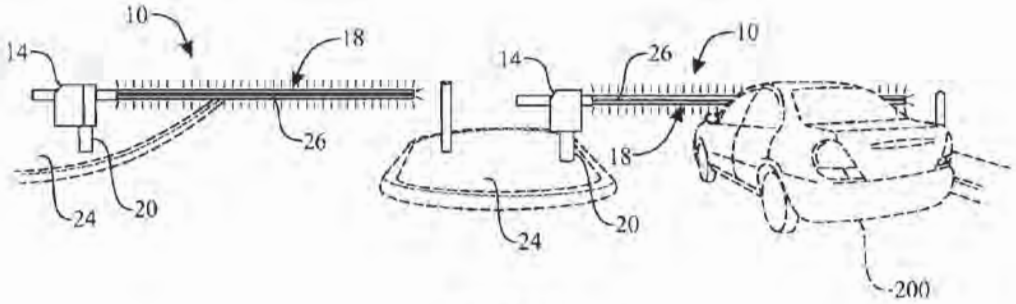


FIG. 1

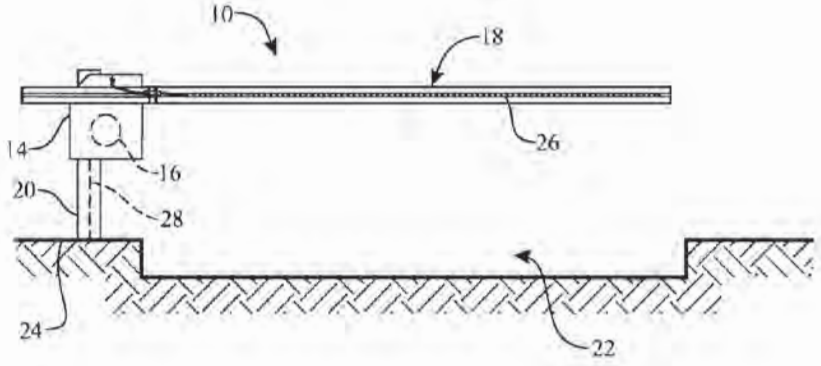


FIG. 2

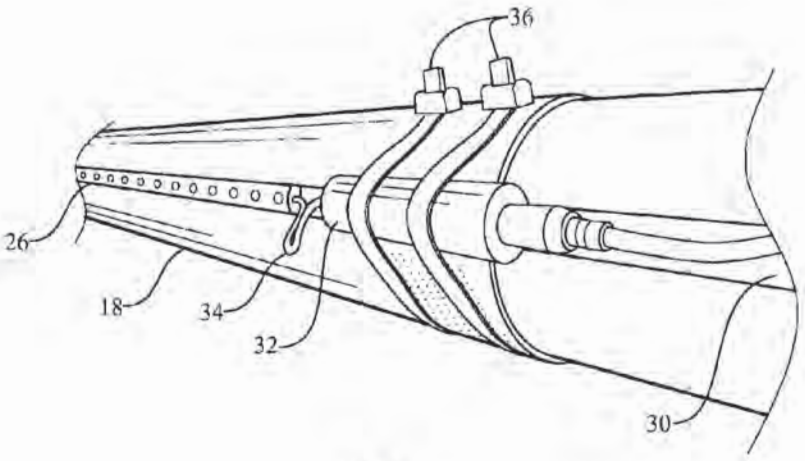


FIG. 3

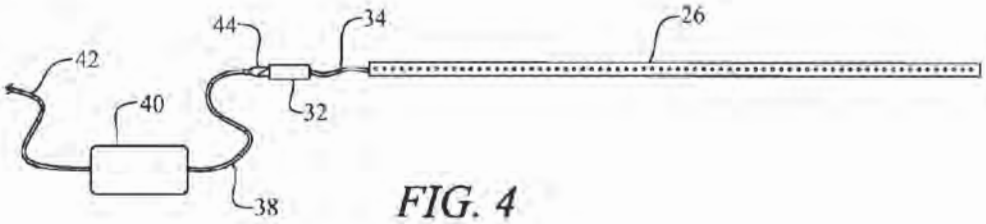


FIG. 4

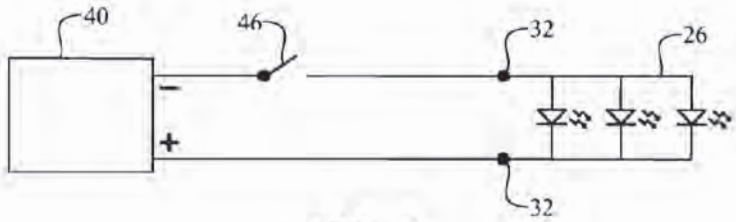


FIG. 5

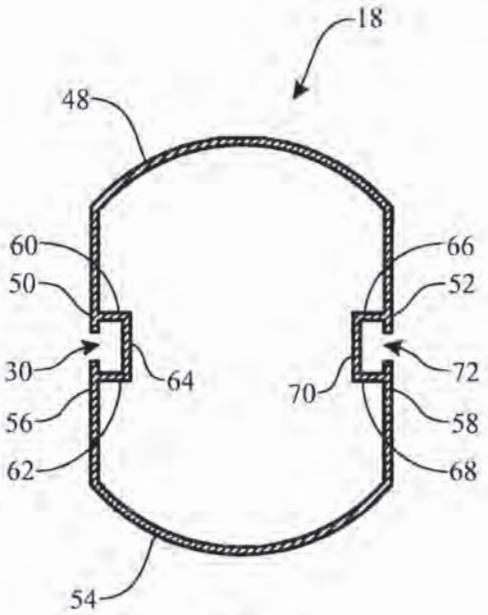

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FIG. 6

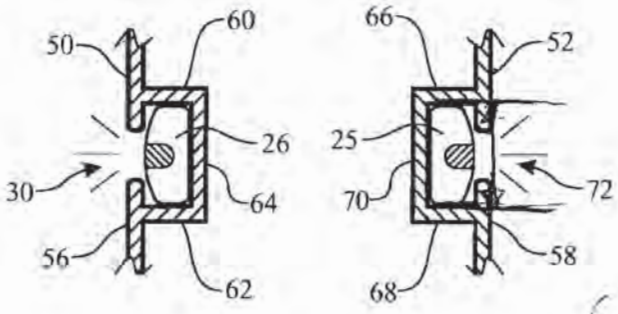

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FIG. 7

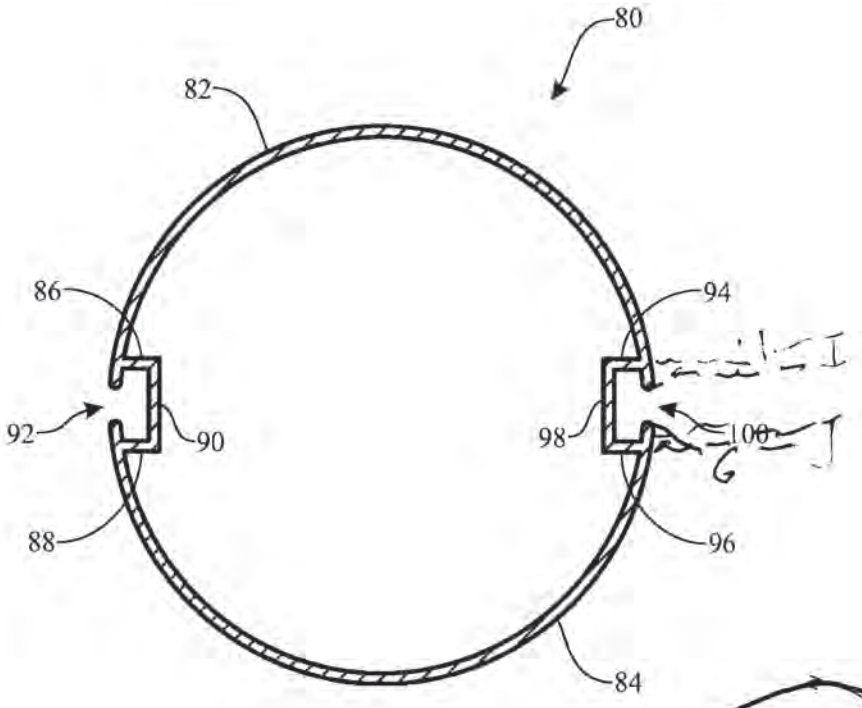

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FIG. 8

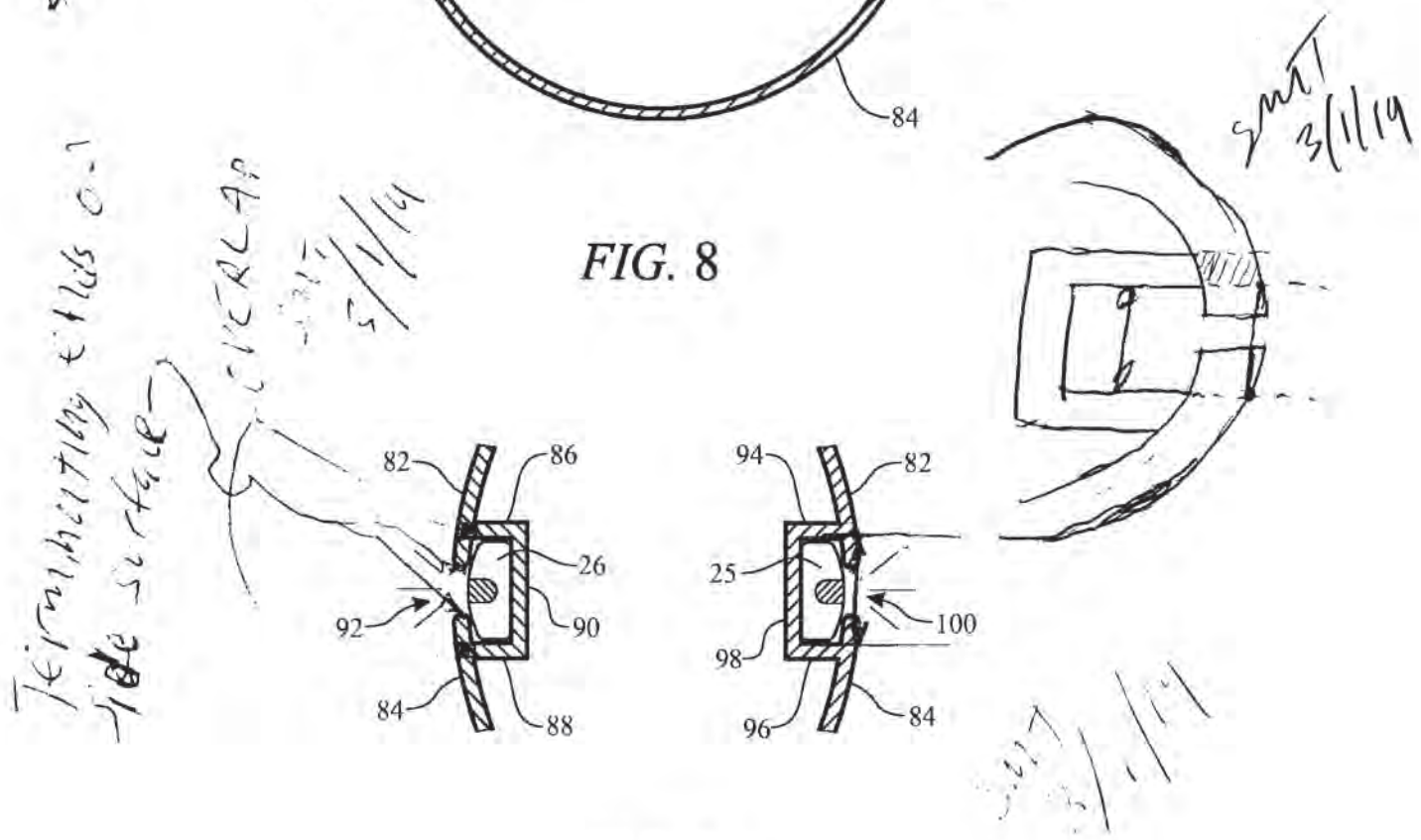

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FIG. 9

VEHICLE BARRIER SYSTEM WITH ILLUMINATING GATE ARM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Patent Application Ser. No. 61/654,280 filed on Jun. 1, 2012, which is incorporated herein in its entirety.

FIELD OF THE INVENTION

The present invention relates generally to barrier systems. More particularly, the present disclosure relates to a vehicle barrier system and method where the barrier system includes a control system adapted to pivot a gate arm between a guarded and unguarded position to provide controlled access of vehicle traffic in restricted areas such as parking lots, parking garages, or other controlled access areas. The gate arm includes a plurality of light emitting diodes that are removeably inserted in channels formed along the length the gate arm to increase visibility and alert drivers or pedestrians to the presence of a vehicle barrier.

BACKGROUND OF THE INVENTION

There are a number of physical barriers that are often used in regulating the flow of pedestrian traffic in designated areas. Exemplary types of physical barriers include erectable signs, banners, vertical cones, and gates. Such barriers have typically been developed to restrict individuals from entering or exiting controlled access areas, to provide warnings, or to identify passageways or direction to individuals. Many of these physical barriers are often used in banks, shopping centers, movie theaters, government buildings, and other public forums.

Traffic or vehicle barriers have also been developed to provide controlled access of vehicle traffic to restricted areas such as parking lots, parking garages, loading docks, or to control the flow of traffic on roads and highways. Typical vehicle barriers often include plastic barrels, cones, colored poles, interlocking barriers filled with a ballast material such as water or sand to help stabilize the barriers, reinforced steel barriers, cement barriers, traffic safety barriers including a plank disposed between A frame legs, and barriers including a gate arm that is operatively pivoted in a horizontal and generally vertical position to provide passage of vehicle traffic. Many conventional vehicle barriers employ physical indicators, such as reflective tape, markers, or bright colors, to help increase visibility and effectively capture drivers' attention to better assist them in visually identifying vehicle barriers from a distance, and at night. However, many vehicle barriers including such physical indicators provide limited use. For example, most physical indicators are more effective during the day when a driver's visibility is less impaired as compared to at night. Also, driver's often cannot see the physical indicators from greater distances, and as such, by the time the driver is alerted to the presence of the barrier, the vehicle is within close proximity of the barrier thereby further impairing the driver's ability to respond effectively. The reflective tape, markers or bright colors, used on vehicle barriers, tend to fade over time, are often covered with debris, and provide limited visibility at night.

To address the limitations that vehicle barriers with physical indicators provide, many vehicle barriers have been developed to include an electronic light assembly. In use, most light assemblies are typically fastened to the outer surface of barriers using mounting flanges, brackets, screws, or bolts. The light assembly typically includes a large, round red or yellow lens body attached to a waterproof receptacle for housing circuitry and a power source such as batteries. One or more incandescent bulbs are generally connected to the power source, via a switching mechanism. Such light assemblies are often seen on vehicle barriers comprising barrels, and safety barriers where the light assembly is secured on top of a horizontal plank, or on top of the support frame. Vehicle barriers including electronic light assemblies are designed to alert drivers to the presence of vehicle barriers at night or in low lit areas.

However, conventional vehicle barriers employing electronic light assemblies have certain drawbacks. Many vehicle barriers use a single, light assembly that is mounted on the external surface of the vehicle barrier. The single light assembly often provides limited visibility to drivers at night. Further, maintenance of such light assemblies can be time consuming, burdensome and costly. Prior art light assemblies tend to be bulky, heavy and are typically mounted on the external surface of vehicle barriers using large brackets, or a number of blots thus increasing both the costs and time in attaching and removing the light assemblies for each vehicle barrier. Technicians are often forced to remove light assemblies from vehicle barriers to make necessary repairs as a result of traffic engaging the vehicle barriers and damaging the lighting devices. Also, general maintenance of the light assemblies can be time consuming, and often results in the need for placing the vehicle barriers out of commission for a period of time while making necessary repairs, or replacing parts.

SUMMARY OF THE INVENTION

The present invention overcomes the deficiencies of the known art and the problems that remain unsolved by providing a barrier system including a control system adapted to pivot a gate arm between a horizontal position and a vertical position to control the flow of vehicle or pedestrian traffic in control access areas such as parking lots, or parking garages. The gate arm includes inset channels for removeably receiving an array of light emitting diodes to increase visibility and alert drivers or pedestrians to the presence of a gate arm at night.

In accordance with one implementation of the present invention, there is provided a vehicle barrier system comprising:

a housing;

a gate arm coupled to the housing and including at least one elongated inset channel having an opening, said at least one elongated inset channel formed along a longitudinal axis of the gate arm;

a control system enclosed in the housing and operatively coupled to the gate arm to selectively pivot the gate arm between a horizontal position and a vertical position;

a mounting member attached to the housing for installing the housing adjacent a roadway of a controlled access area;

at least one light strip including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member and including a first electrical cable connected to said plurality of light emitting diodes;

an electronic connector electrically connected to the first electrical cable, and releasably fastened to the gate arm;

a power supply enclosed within the housing and releasably, electrically connected to the electronic connector;

an electrical switch selectively operated to couple the power supply to the at least one light strip; and

wherein the at least one light strip is removeably retained within the at least one elongated inset channel such that light from the plurality of light emitting diodes enumerates through the opening when the plurality of diodes are powered from said power supply.

In another aspect, the control system includes any one of an electrically motorized system, a pneumatic system, a hydraulic system, or a spring-balanced system.

In another aspect, the at least one elongated inset channel includes a first elongated inset channel having a first opening, and a second elongated inset channel having a second opening, where the second elongated inset channel is disposed opposite the first elongated inset channel.

In another aspect, the gate arm includes a first pair of inset channel sidewalls integrally joined to a first inset channel backwall to form the first elongated inset channel, and a second pair of inset channel sidewalls integrally joined to a second inset channel backwall to form the second elongated inset channel, where the inset channel sidewalls and the inset channel backwalls extend along a longitudinal axis within the gate arm.

In another aspect, the at least one light strip comprises a second light strip including another plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, and also including a second electrical cable connected to the another plurality of light emitting diodes and to another electronic connector, the another electronic connector electrically coupled to the power supply.

In another aspect, the gate arm includes a top convex member having a first upper sidewall and a second upper sidewall, and a bottom convex member having a first lower sidewall coextensively aligned with the first upper sidewall, and a second lower sidewall wall coextensively aligned with the second upper sidewall, where the top convex member is attached to the bottom convex member via, the first and second pair of inset channel sidewalls, and the first and second inset channel backwalls.

In another aspect, the first upper sidewall and the first lower sidewall each terminate partially within the first opening for removably securing the at least one light strip within the first elongated inset channel, and wherein the second upper sidewall and the second lower sidewall each terminate partially within the second opening for removeably securing the second light strip within the second elongated inset channel.

In another aspect, the vehicle barrier system further includes a top member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, and a bottom member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, where the top member and the bottom member are integrally joined together via, the first elongated inset channel and the second elongated inset channel forming a generally circular gate arm.

In another aspect, the second light strip is removeably retained within the second elongated inset channel aligning the plurality of light emitting diodes towards the second opening such that light from the plurality of light emitting diodes of the second light strip enumerates through the second opening when the plurality of diodes are powered from the power supply.

In another aspect, the protective member comprises any one of a clear rubber material, a clear resin, a clear epoxy, a clear hardened gel, a clear vinyl, or a transparent protective enclosure.

In accordance with another implementation of the present invention, there is provided a barrier system providing controlled access to a designated area, said barrier system comprising:

a housing;

a control arm coupled to the housing and including a first channel having a first opening, and a second channel having a second opening, each channel formed along a longitudinal axis within the control arm and disposed opposite each other;

a control system enclosed in the housing and operatively coupled to the control arm to selectively pivot the control arm between a horizontal position and a vertical position;

a first light assembly including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective substrate and including a first electrical connector electrically coupled to the plurality of light emitting diodes;

a second light assembly including another plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective substrate and including a second electrical connector electrically coupled to the another plurality of light emitting diodes;

a power supply enclosed within the housing and releasably, electrically connected to the electrical connectors;

an electrical switch selectively operated to couple the power supply to said light assemblies; and

wherein the first light assembly is removeably retained within the first channel with the plurality of light emitting diodes aligned towards the first opening and the first electrical connector removeably fastened to the control arm, and wherein the second light assembly is removeably retained within the second channel with the another plurality of light emitting diodes aligned towards the second opening and the second electrical connector removeably fastened to the control arm.

In one aspect, the control arm comprises a circular geometric shape including a top member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, and a bottom member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, where the top member and the bottom member are integrally joined together via, the first and second channel.

In another aspect, the barrier system further includes a mounting post attached to the housing and adapted for installing the barrier system adjacent a roadway of a controlled access area such that the control arm is pivoted in a horizontal position to prevent the passage of vehicles, and in a generally vertical position to allow the passage of vehicles through.

In another aspect, the barrier system further includes a first power supply cable electrically connected to the power supply and releasably connected to the first electrical connector, and a second power supply cable electrically connected to the power supply and releasably connected to the second electrical connector.

In another aspect, the control system includes an activation device operated to pivot the control arm between a horizontal position and a vertical position. The activation device includes any one of an electrical switch, a motion sensor system, a vehicle detection system, or a ticket dispenser.

In accordance with yet another implementation of the present invention, there is provided a method of regulating traffic in a controlled access area, said method comprising the steps of:

constructing a barrier system comprising:

a housing;

a gate coupled to the housing and including a first channel having a first opening, and a second channel having a second opening, each channel formed along a longitudinal axis within the gate and disposed opposite each other;

a control system operatively coupled to the gate and including an activation device to selectively pivot the gate between a horizontal position and a vertical position;

a first light assembly including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective enclosure and including a first electrical connector coupled to the plurality of light emitting diodes;

a second light assembly including another plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective enclosure and including a second electrical connector coupled to the another plurality of light emitting diodes;

a power supply enclosed within the housing and releasably, electrically connected to the electrical connectors;

an electrical switch selectively operated to couple the power supply to the light assemblies; and

wherein the first light assembly is removeably retained within the first channel with the plurality of light emitting diodes aligned towards the first opening and the first electrical connector removeably fastened to the gate, and wherein the second light assembly is removeably retained within the second channel with the another plurality of light emitting diodes aligned towards the second opening and the second electrical connector removeably fastened to the gate;

installing the housing and gate near a roadway of a controlled access area;

electrically connecting the power supply to a power source;

activating the electrical switch to power the first and second light assembly; and

operating the activation device to pivot the gate between a horizontal position and a vertical position to selectively control the flow of traffic in the controlled access area.

In one aspect, the step of installing the housing and the gate near a roadway includes the step of attaching the housing to a mounting post and installing the mounting post adjacent said roadway.

In another aspect, the step of operating the control system to pivot the gate includes the step of detecting the presence of a vehicle or individual when situated near the gate a predetermined distance, and generating a signal to operate the control system.

These and other aspects, features, and advantages of the present invention will become more readily apparent from the attached drawings and the detailed description of the preferred embodiments, which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiments of the invention will hereinafter be described in conjunction with the appended drawings provided to illustrate and not to limit the invention, in which:

FIG. **1** presents a perspective view of vehicle barrier systems each installed adjacent a designated roadway and including a control system coupled to a gate arm, with the gate arm including a light assembly for visually alerting drivers or pedestrians to the presence of a vehicle barrier, in accordance with one embodiment of the present invention;

FIG. **2** presents a front view of the vehicle barrier system of FIG. **1**, illustrating the light assembly that includes an array of light emitting diodes secured along the length of the gate arm with the gate arm displaced in a horizontal position for restricting vehicle passage, in accordance with one embodiment of the present invention;

FIG. **3** presents a partial, side perspective view illustrating the array of light emitting diodes removeably secured within an inset channel formed along the longitudinal axis of the gate arm with the array of light emitting diodes electrically connected to an electronic connector that is releasably fastened to the gate arm;

FIG. **4** presents a side view of the light assembly including an array of light emitting diodes releasably connected to an electrical connector that is electrically coupled to a power supply;

FIG. **5** presents a schematic view of an electrical circuit of the light assembly of FIG. **4**, in accordance with one embodiment of the present invention;

FIG. **6** presents a cross-sectional view of a gate arm including a convex top and a convex bottom, upper and lower sidewalls, and inset channels, each inset channel configured for removeably holding an array of light emitting diodes therein, in accordance with one embodiment of the present invention;

FIG. **7** presents a cross-sectional view illustrating dimensional details of inset channels of FIG. **6**, in accordance with one embodiment of the present invention;

FIG. **8** presents a cross-sectional view of a circular gate arm including inset channels, each inset channel configured for removeably holding an array of light emitting diodes therein, in accordance with another embodiment of the present invention; and

FIG. **9** presents a cross-sectional view illustrating dimensional details of inset channels of FIG. **8**, in accordance with another embodiment of the present invention.

Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE INVENTION

The following detailed description is merely exemplary in nature and is not intended to limit the described embodiments or the application and uses of the described embodiments. As used herein, the word "exemplary" or "illustrative" means "serving as an example, instance, or illustration." Any implementation described herein as "exemplary" or "illustrative" is not necessarily to be construed as preferred or advantageous over other implementations. All of the implementations described below are exemplary implementations provided to enable persons skilled in the art to make or use the embodiments of the disclosure and are not intended to limit the scope of the disclosure, which is defined by the claims. For purposes of description herein, the terms "upper," "lower," "left," "rear," "right," "front," "vertical," "horizontal," and derivatives thereof shall relate to the invention as oriented in FIG. **1**. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, brief summary or the following detailed description. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification, are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments dis-

closed herein are not to be considered as limiting, unless the claims expressly state otherwise.

The present invention is directed to a vehicle barrier system **10** for use in providing controlled access of vehicle traffic in particular designated areas including, but not limited to, parking lots, parking garages, loading docks, highways, military bases, airports, roadways, or the like. It will be understood that the barrier system **10** of the present invention may be modified slightly to provide a barrier system for use in providing controlled access of individuals or pedestrian traffic in or out of various designated areas including but not limited to, buildings, walkways, bridges, tunnels, or other areas where controlled access to individuals is contemplated.

With reference made to FIGS. **1** and **2**, vehicle barrier systems **10** are each deployed along a designated roadway to provide controlled access of vehicles **200** in restricted areas that include parking lots, parking garages, military bases, government buildings or the like. It is noted that, for illustrative purposes, the functional elements, components and features of each vehicle barrier **10** are the same and thus identical vehicle barriers **10** are shown to provide controlled access through entrance and/or exit areas of a controlled access area. Vehicle barrier **10** includes a waterproof housing **14**, for enclosing a control system **16** that is adapted to pivot a gate arm **18** between a guarded position and unguarded position thereby limiting the passage of vehicles **200** to enter or exit certain areas where controlled access of vehicle traffic is desired. Accordingly, control system **16** is adapted to pivot gate arm **18** in a horizontal, guarded position such that vehicles **200** cannot pass through gate arm **18** to enter a controlled area, and to pivot gate arm **18** in a generally vertical, unguarded position such that vehicles **200** are permitted to pass through the gate arm **18** to enter or exit the controlled area.

A mounting post **20** is provided for installing the barrier system **10** adjacent a designated roadway **22**, as shown in FIG. **2**. Mounting post **20** is securely attached to housing **14** and mounted onto the ground or cement foundation **24** using a metal flange or bracket (not shown). Preferably, the flange includes a set of holes to receive bolts for firmly attaching the flange onto the cement foundation **24**. For installation purposes, the height of the mounting post **20** is preselected to align gate arm **18** above the surface of the roadway **22** such that the gate arm **18** spans the width of the roadway **22** to prevent the passage of vehicles **200** when gate arm **18** is displaced horizontally in a guarded position.

Housing **14** is preferably fabricated from a heavy weight sheet metal material or a durable thick plastic material and includes four sidewalls joined to a closed top and bottom. A locked door panel (not shown) may be hingedly attached to one of the four sidewalls to allow service technicians to access control system **16** and related components that are enclosed within the housing **14**. Housing **14** is preferably waterproof to withstand the elements of rain and snow, and may include a small transparent window to view status indicators, gages, or other operative elements enclosed within housing **14**. In another embodiment, other functional devices (not shown) such as a camera, an intercom, speakers, a phone, or a ticket dispenser, may be secured onto or within housing **14**. For example, a camera may be implemented to take photos of license plates of vehicles **200** that pass along the roadway **22** through gate arm **18**. Also, an operator may wish to converse with a driver using an intercom or speaker system.

Control system **16** is adapted to pivot gate arm **18** in a horizontal and vertical position to provide a guarded and unguarded position, respectively, to control traffic through roadway **22**. Control system **16** may include an electrical control system (not shown) that includes an electric motor coupled to a gearing system such as a gear box, and an electronic DC controller, or variable frequency drive that is used to operate the speed and torque of a DC or AC electric motor. Alternatively, control system **16** may include a pneumatic system (not shown) or hydraulic system (not shown) including an air compressor, a hydraulic pump, fluid motors, pneumatic or hydraulic cylinders, electrical limit switches, valves, filters, couplings, regulators, and hoses or pipes where such components are operatively coupled together to control the pivoting movement of gate arm **18**. The operative characteristics of the electric or fluid motors, pumps, compressor or cylinders should be selected to provide the optimum torque and force needed to pivot gate arm **18** in a horizontal and vertical position. An electrical AC power source, via a power cable **28**, is provided to power control system **16**. Preferably, control system **16** includes a control panel that includes an I/O interface, and may include a keypad or other input keys to program and/or operate functional parameters. A computer system including a processor, memory and interface may also be implemented to operate the vehicle barrier system **10**. In yet another embodiment of the present invention, vehicle barrier **10** may include a spring-balanced system with the spring tension holding the security gate arm **18** in an upright, vertical position until pushed downwardly by force. An internal spring counter balancing weight may be included to allow easy lifting and lowering of gate arm **18**.

Control system **16** may be operated locally or remotely by an attendant, or may include electronics that provides automated control of gate arm **18** in the absence of an attendant. For example, control system **16** may include an activation device (not shown) such as a camera, motion detectors, or other detectors used to detect or sense the presence of a vehicle **200** or individual and generate a signal to operate gate arm **18**. Alternatively, control system **16** may include an electrical switch that comprises a pushbutton, or include an automated ticket dispenser, to permit drivers to operate gate arm **18**, via, by manually operating pushbutton, or retrieving a ticket from the ticket dispenser, as often seen at airports.

With continued reference to FIGS. **1** and **2**, gate arm **18** comprises an elongated, rigid member having a predefined geometric shape and dimension. In one non-limiting example, gate arm **18** may comprise a square shape, a triangular shape, a rectangular shape, or a circular shape. Gate arm **18** is preferably made of aluminum, a durable heavy duty plastic material, or wood, and may be constructed to include various lengths. In one non-limiting example, gate arm **18** ranges between 3 to 15 feet in length with a preference comprising 12 feet in length. Gate arm **18** may be 3 to 8 inches in diameter and include a wall thickness of ½ inch. Gate arm **18** may be designed to include a break-away gate where gate arm **18** breaks apart when engaged by a vehicle **200**. This feature can be employed to deter damage to both the vehicle barrier system **10** and vehicle **200** in the event the vehicle **200** engages gate arm **18**.

As illustrated in FIGS. **1** through **3**, vehicle barrier system **10** includes a light assembly that includes an array of light emitting diodes **26** secured along the length of gate arm **18**, in accordance with one embodiment of the present invention. The array of light emitting diodes **26** has the primary function of increasing visibility and alerting drivers to the presence of gate arm **18** at night, or in low lighting conditions. The array of light emitting diodes **26** includes a plurality of light emitting diodes enclosed within a protective enclosure, or alternatively secured within a shock absorbing protective substrate to define a light strip. The protective substrate may comprise any of a transparent rubber, a clear hardened gel

material, a clear epoxy, a clear vinyl, or a clear resin material. In the preferred embodiment, each of the plurality of light emitting diodes comprises the same color, however, each of the light emitting diodes may comprise multiple sets of different colors where an N number of light emitting diodes comprise one color, and an N number of light emitting diodes comprise another color. One embodiment may include a high-intensity LED flasher unit. A high-intensity LED flasher unit is capable of outputting a very bright luminescence that is of considerable increased brightness as compared to standard LED's. The SunBurst Model 1224AD manufactured by Ingram Products of Jacksonville, Fla. operates on either 12V or 24V DC and operates in a flashing mode of 60 flashes per minute, and also draws less-than-half the current as compared to when operating in the steady-on mode.

The array of light emitting diodes **26** includes a plurality of light emitting diodes disposed adjacent each other in series, along the longitudinal axis of gate arm **18**. The array of light emitting diodes **26** is removeably secured within inset channel **30** which is formed within the body of gate arm **18**, as also illustrated in FIGS. **6** through **9**. As illustrated in FIG. **3**, the array of light emitting diodes **26** is electrically connected to an electrical connector **32**, via, an electrical cable **34**. Electrical connector **32** is secured along the outer surface of gate arm **18** via, fasteners **36** that comprise tie wraps in the exemplary embodiment. Tie wraps can be quickly severed to easily and quickly remove the array of light emitting diodes **26** from inset channel **30** for general maintenance, repair or replacement.

With reference now made to FIG. **4**, the array of light emitting diodes **26** is electrically connected to electrical connector **32**, via electrical cable **34**. Electrical connector **32** is electrically, releasably connected to power supply **40**, via, electrical cable **38**. The power supply **40** may include a step-down transformer and AC to DC converter, a voltage or current regulator, resistors, rectifiers, fuses, a 12 volt battery source, or a 24 volt battery source. Power supply **40** may include a stand-alone DC source, or be electrically coupled to an AC power source via, a power cable **42**. A key feature of the present invention is that one end of electrical cable **38** includes an electrical bayonet connector **44** that permits releasable connection to electrical connector **32** for quickly and easily detaching the power supply **40** to the array of light emitting diodes **26**. Accordingly, bayonet connector **44** allows a user to quickly and easily disconnect the array of light emitting diodes **26** from the power supply **40** and remove the lights from the inset channel **30** by simply sliding the array of lights out from the inset channel **30**.

The array of light emitting diodes **26** is defined by a plurality of light emitting diodes that are electrically connected together in parallel, as shown in FIG. **5**. The electrical parallel connection allows continued operation of light emitting diodes **26** should one or more diodes fail to operate or simply burn out. Power supply **40** is provided to power the array of light emitting diodes **26**, via, an electrical switch **46**. Preferably, electrical switch **46** is enclosed within housing **14**, of the vehicle barrier system **10**, and is operated locally or remotely by an attendant. In one alternative embodiment, electrical switch **46** may be operated remotely via, wireless communication, or over an internet interface connection. Electronic switch **46** may include a relay circuit including a transmitter, receiver or transceiver. Where the power supply **40** includes DC batteries, further enhancements to the electrical circuit could include a solar cell array panel (not shown) that is coupled to recharge the power supply **40** during the day.

Turning to FIG. **6**, there is shown a cross-sectional view of a gate arm **18**, in accordance with one embodiment of the present invention. Gate arm **18** includes a convex top member **48** integrally formed to include a first upper sidewall **50**, and a second upper sidewall **52**. Gate arm **18** also includes a convex bottom member **54** integrally formed to include a first lower sidewall **56** that is aligned coextensively with the first upper sidewall **50**, and a second lower sidewall **58** that is aligned coextensively with the second upper sidewall **52**. Accordingly, first upper and lower sidewalls **50**, **56** and second upper and lower sidewalls **52**, **58** form flat sidewalls **50**, **52**, **56**, **58** of gate arm **18**. Inset channel sidewalls **60**, **62**, and inset channel backwall **64** are integrally formed together, along a longitudinal axis within the interior of gate arm **18**, to define inset channel **30** having an opening. As depicted in FIG. **6**, the first upper and lower sidewalls **50**, **56** terminate partially within the opening of inset channel **30**. Inset channel sidewalls **66**, **68**, and inset channel backwall **70** are also integrally formed together, along a longitudinal axis within the interior of gate arm **18**, to define inset channel **72** having an opening. The second upper and lower sidewalls **52**, **58** terminate partially within the opening of inset channel **72**. In the preferred embodiment, inset channel **30** is aligned opposite inset channel **72**, though inset channels **30**, **72** may be oriented anywhere about gate arm **18**. Also, gate arm **18** may include additional inset channels (not shown) to accommodate additional arrays of light emitting diodes **26**, if desired. Gate arm **18** may be molded as one unit to include inset channels **30**, **72** using well-known injection molding techniques and methods.

A first array of light emitting diodes **26** is inserted within inset channel **30** and cradled within the combination structure of inset channel sidewalls **60**, **62**, and inset channel backwall **64**, as illustrated in FIG. **7**. Terminating ends of both the first upper and lower sidewalls **50**, **56** help retain the first array of light emitting diodes **26** within the inset channel **30** thus eliminating the need for fasteners and allowing quick and easy removal of the array of light emitting diodes **26** if required. The array of light emitting diodes **26** is positioned within inset channel **30** such that light, enumerated from the light emitting diodes passed through the opening of the inset channel **30** when the light emitting diodes are powered.

A second array of light emitting diodes **25** is also inserted within inset channel **72** and cradled within the combination structure of inset channel sidewalls **66**, **68**, and inset channel backwall **70**, as seen in FIG. **7**. Terminating ends of both the second upper and lower sidewalls **52**, **58** help retain the array of light emitting diodes **25** within inset channel **72** thus eliminating the need for fasteners and allowing quick and easy removal of the array of light emitting diodes **25** if required. Light emitting diodes **25** enumerate light through the opening of the inset channel **72** when the light emitting diodes **25** are powered. Accordingly, gate arm **18** includes two inset channels **30**, **72** for accommodating respective arrays of light emitting diodes **26**, **25** on both sides of the gate arm **18** to increase visibility and alert drivers or individuals to the presence of a gate arm **18** when approaching gate arm **18** from either side. This feature proves beneficial where a single vehicle barrier **10** is used to control traffic flow in and out of a designated control access area. In the preferred embodiment, an electrical cable identical to cable **38** also includes an electrical bayonet connector **44** that permits releasable connection to an electrical connector associated with the array of light emitting diodes **25**. The bayonet connector **44** provides quick detachment when removing the array of light emitting diodes **25** from inset channel **72**. Accordingly, bayonet connector **44** allows a user to quickly and easily disconnect the array of light emitting diodes **25** from the power supply **40**

and remove the lights from the inset channel **72** by simply sliding the array of lights out from the inset channel **72**.

Turning to FIG. **8**, there is shown a cross-sectional view of a gate arm **80**, in accordance with another embodiment of the present invention. In the embodiment, gate arm **80** comprises a circular shape and is preferably constructed from aluminum, a durable heavy duty plastic material, or wood. Gate arm **80** may include various lengths ranging from 3 to 15 feet with a preference comprising 12 feet in length. Gate arm **80** may be 3 to 8 inches in diameter, and include a wall thickness of ½ inch. Gate arm **80** may be designed to include a break-away gate where gate arm **80** breaks apart when engaged by a vehicle **200**. This feature can be employed to deter damage to both the vehicle barrier system **10** and vehicle **200** in the event the vehicle **200** engages gate arm **80**.

In a preferred embodiment, gate arm **80** includes a semi-circular shaped first member **82** joined to a semi-circular shaped second member **84**, via, inset channels **92** and **100**. Inset channel sidewalls **86**, **88** and inset channel backwall **90** are integrally formed together, along a longitudinal axis within the interior of gate arm **80**, to define inset channel **92** having an opening. Inset channel sidewalls **94**, **96** and inset channel backwall **98** are also integrally formed together, along a longitudinal axis within the interior of gate arm **80**, to define inset channel **100** having an opening. A first and second end of both members **82**, **84** terminate partially within the openings of inset channel **92**, and **100** to help retain an array of light emitting diodes within each inset channel **92**, **100**. Although inset channel **92** is oriented opposite inset channel **100**, it will be noted that inset channels **92** and **100** may be oriented anywhere along gate arm **80**. Also, gate arm **80** may include additional inset channels (not shown) to accommodate additional arrays of light emitting diodes, if desired.

As illustrated in FIG. **9**, an array of light emitting diodes **26** is inserted within inset channel **92**, of gate arm **80**, and cradled within the combinational structure of inset channel sidewalls **86**, **88**, and inset channel backwall **90**. A first end of both the first and second member **82**, **84**, respectively, extends partially within the opening to help retain the array of light emitting diodes **26** within the inset channel **92** thus eliminating the need for fasteners and allowing quick and easy replacement of the array of light emitting diodes **26** for repair or replacement. Light generated from the array of light emitting diodes enumerates through the opening of the inset channel **92**. A second array of light emitting diodes **25** is inserted within inset channel **100** and cradled within the combination structure of inset channel sidewalls **94**, **96** and inset channel backwall **98**, as better illustrated in FIG. **9**. A second end of both the first and second member **82**, **84** terminates partially within the opening to help retain the array of light emitting diodes **25** within inset channel **100** thus eliminating the need for fasteners and allowing quick and easy removal of the array of light emitting diodes **25** if required. Light emitting diodes enumerate light through the opening of the inset channel **100** when the light emitting diodes **25** are powered. Accordingly, gate arm **80** includes two inset channels **92**, **100** for accommodating respective arrays of light emitting diodes **26**, **25** on both sides of the gate arm **80** to increase visibility and alert drivers or individuals to the presence of a gate arm **80** when approaching gate arm **80** from either side. The array of light emitting diodes **25** also includes an electrical cable, connector and bayonet connector **44** identical to that of the array of light emitting diodes **26** as shown in FIG. **4**.

A lens (not shown) may be provided to help protect the array of light emitting diodes **25**, **26** from debris or damage as a result of impact. The lens may comprise a transparent, opaque, tinted, or colored lens, or alternatively include an optical lens providing magnifying, reflective, or light focusing properties. In one non-limiting example, the lens may comprise a Fresnel lens. Preferably each lens comprises an elongated lens that spans the length of each inset channel **30**, **72**, **92**, **100** and may be attached to the gate arm **18**, **80** using any bonding agent, or fasteners.

Vehicle barrier system **10** may also include an audible system (not shown) such as an alarm or buzzer that is activated when gate arm **18**, **80** is pivoted between horizontal and vertical positions to alert individuals that the gate arm **18**, **80** is moving. Vehicle barrier system **10** may also include indicia, media or advertising that is provided anywhere on the housing **14**, or gate arm **18**, **80**.

Since many modifications, variations, and changes in detail can be made to the described preferred embodiments of the invention, it is intended that all matters in the foregoing description and shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense. Thus, the scope of the invention should be determined by the appended claims and their legal equivalence.

What is claimed is:

1. A vehicle barrier system comprising:

a gate arm having a top convex member, a bottom convex member, opposing side surfaces, a distal end and a proximal end defining a longitudinal axis therebetween, said proximal end coupled to a housing having a control system and power supply to selectively pivot said gate arm between a horizontal position and a vertical position, said gate arm including at least one elongated inset channel formed along said longitudinal axis of one of said side surfaces of said gate arm, said elongated inset channel having an opening formed by a pair of inset channel sidewalls integrally joined to a channel backwall;

at least one light strip formed from a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member and including a first electrical cable connected to said plurality of light emitting diodes;

an electronic connector electrically releasably connected to said housing power supply and said first electrical cable;

wherein said at least one light strip is removeably retained within said at least one elongated inset channel such that light from said plurality of light emitting diodes enumerates through said opening when said plurality of diodes are powered from said power supply.

2. The vehicle barrier system of claim **1**, wherein said at least one elongated inset channel includes a first elongated inset channel having a first opening positioned along a first side surface of said gate arm, and a second elongated inset channel having a second opening positioned along a second side surface of said gate arm, said second elongated inset channel disposed opposite and forming a mirror image of said first elongated inset channel.

3. The vehicle barrier system of claim **2**, wherein said at least one light strip comprises a second light strip including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, and also including a second electrical cable connected to said plurality of light emitting diodes and to another electronic connector.

4. The vehicle barrier system of claim **3**, wherein said gate arm top convex member includes a first upper sidewall and a second upper sidewall, and said bottom convex member includes a first lower sidewall aligned coextensively with said

first upper sidewall, and a second lower sidewall aligned coextensively with said second upper sidewall, said top convex member attached to said bottom convex member via, said first and second pair of inset channel sidewalls, and said first and second inset channel backwall.

5. The vehicle barrier system of claim 4, wherein said first upper sidewall and said first lower sidewall each terminate partially within said first opening for removeably securing said at least one light strip within said first elongated inset channel, and wherein said second upper sidewall and said second lower sidewall each terminate partially within said second opening for removeably securing said second light strip within said second elongated inset channel.

6. The vehicle barrier system of claim 3, further including a top member comprising a semi-circular shape having one end terminating partially within said first opening, and another end terminating partially within said second opening, and a bottom member comprising a semicircular shape having one end terminating partially within said first opening, and another end terminating partially within said second opening, said top member and said bottom member integrally joined together via, said first elongated inset channel and said second elongated inset channel to form a generally circular gate arm.

7. The vehicle barrier system of claim 6, wherein said second light strip is removeably retained within said second elongated inset channel aligning said plurality of light emitting diodes towards said second opening such that light from said plurality of light emitting diodes of said second light strip enumerates through said second opening when said plurality of diodes are powered from said power supply.

8. The vehicle barrier system of claim 3, wherein said protective member is selected from the group of: a clear rubber material, a clear resin, a clear epoxy, a clear hardened gel, a clear vinyl, or a transparent protective enclosure.

* * * * *

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(12) EX PARTE REEXAMINATION CERTIFICATE (10705th)

United States Patent

Lumsden et al.

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(54) **VEHICLE BARRIER SYSTEM WITH ILLUMINATING GATE ARM AND METHOD**

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(58) **Field of Classification Search**
None
See application file for complete search history.

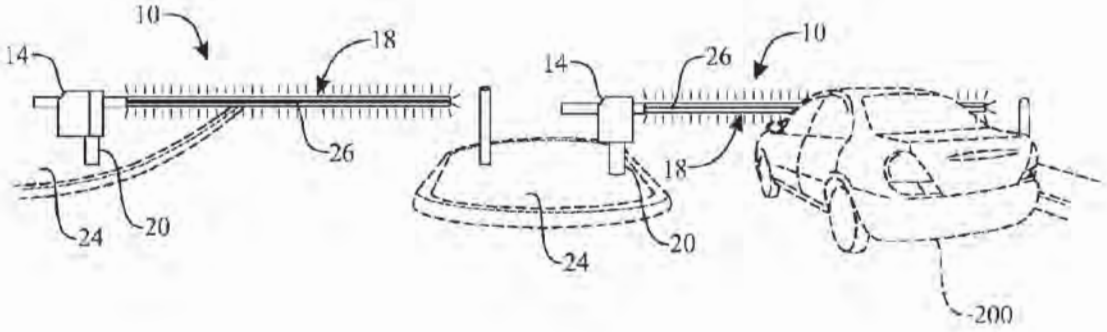
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To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/013,402, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — Karin Reichle

(57) **ABSTRACT**

The present invention is directed to a vehicle barrier system and method of use. The vehicle barrier system includes a control system adapted to pivot a gate arm between a horizontal position and a vertical position to control the flow of vehicle or pedestrian traffic in control access areas such as parking lots, or parking garages. The gate arm includes inset channels that are disposed along the longitudinal axis of the gate arm and configured to each removeably receive an array of light emitting diodes to increase visibility and alert drivers or pedestrians to the presence of a gate arm.



PLAINTIFF EXHIBIT 25
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3/1/19
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EX PARTE REEXAMINATION CERTIFICATE

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **5** and **7** are cancelled.

Claims **1-4** and **6** are determined to be patentable as amended.

Claim **8**, dependent on an amended claim, is determined to be patentable.

1. A vehicle barrier system comprising:

a gate arm *formed from a single piece of material* having a top convex member[.] *and* a bottom convex member[.] *defining first and second* opposing side surfaces, a distal end and a proximal end defining a longitudinal axis therebetween, said proximal end coupled to a housing having a control system and power supply to selectively pivot said gate arm between a horizontal position and a vertical position, said gate arm including at least [one] *a first* elongated inset channel *centrally disposed in said first side surface defined by said top convex member and said bottom convex member and* formed along said longitudinal axis [of one of said side surfaces] of said gate arm, said first elongated inset channel having [an] *a first* opening formed by a *first* pair of inset channel sidewalls integrally joined to a *first inset* channel backwall, *said first side surface having a first upper sidewall including a terminating end and a first lower sidewall including a terminating end which ends terminate partially within said first opening and spaced from each other;*

at least [one] *a first, removable* light strip formed from a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member [and including a first electrical cable connected to said plurality of light emitting diodes], *said first light strip cradled entirely within said first elongated inset channel between said backwall and said inset channel sidewalls and retained therein solely by said terminating ends of said upper and lower sidewalls;*

a first electrical cable connected to said plurality of light emitting diodes; and

an electronic connector electrically releaseably connected to said housing power supply and said first electrical cable;

wherein said [at least one] *first* light strip is removeably retained within said [at least one] *first* elongated inset channel *with said plurality of light emitting diodes aligned towards said first opening* such that light from said plurality of light emitting diodes enumerates through said *first* opening *between the terminating ends* when said plurality of diodes are powered from said power supply.

2. The vehicle barrier system of claim **1**, [wherein said at least one elongated inset channel includes a first elongated inset channel having a first opening positioned along a first side surface of said gate arm, and] *further comprising* a second elongated inset channel *centrally disposed in said second side surface defined by said top convex member and said bottom convex member and formed along said longitudinal axis of said gate arm, said second elongated inset channel* having a second opening [positioned along a second side surface of said gate arm,] *formed by a second pair of inset channel sidewalls integrally joined to a second inset channel backwall, said second side surface having an upper sidewall including a terminating end and a lower sidewall including a terminating end which ends terminate partially within said second opening and spaced from each other,* said second elongated inset channel disposed opposite and forming a minor image of said first elongated inset channel.

3. The vehicle barrier system of claim **2**, [wherein said at least one light strip comprises] *further comprising* a second, *removable* light strip [including] *formed from* a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, *said second light strip cradled entirely within said second elongated inset channel between said backwall and said inset channel sidewalls and retained therein solely by said terminating ends of said upper and lower sidewalls;* and [also including]

a second electrical cable connected to said plurality of light emitting diodes and to another electronic connector[.],

wherein said second light strip is removeably retained within said second elongated inset channel with said plurality of light emitting diodes aligned towards said second opening such that light from said plurality of light emitting diodes of said second light strip enumerates through said second opening between the terminating ends when said plurality of diodes are powered from said power supply.

4. The vehicle barrier system of claim **3**, wherein said gate arm top convex member includes [a] *said* first upper sidewall and [a] *said* second upper sidewall, and said bottom convex member includes [a] *said* first lower sidewall aligned coextensively with said first upper sidewall, and [a] *said* second lower sidewall aligned coextensively with said second upper sidewall, said top convex member attached to said bottom convex member via[,] said first and second pair of inset channel sidewalls[,] and said first and second inset channel [backwall] *backwalls*.

6. The vehicle barrier system of claim **3**, further including a top member comprising a semi-circular shape [having one end] *defining said first and second upper sidewall ends* terminating partially within said first opening[,] and [another end terminating partially] within said second opening, and a bottom member comprising a semicircular shape [having one end] *defining said first and second lower sidewall ends* terminating partially within said first opening[,] and [another end terminating partially] within said second opening, said top member and said bottom member integrally joined together via[,] said first elongated inset channel and said second elongated inset channel to form a generally circular gate arm.

* * * * *


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(54) **VEHICLE BARRIER SYSTEM WITH ILLUMINATING GATE ARM AND METHOD**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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(60) Provisional application No. 61/654,280, filed on Jun. 1, 2012.

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B61L 29/04 (2006.01)
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(52) **U.S. Cl.**
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(58) **Field of Classification Search**
CPC F21S 8/00; F21V 33/00
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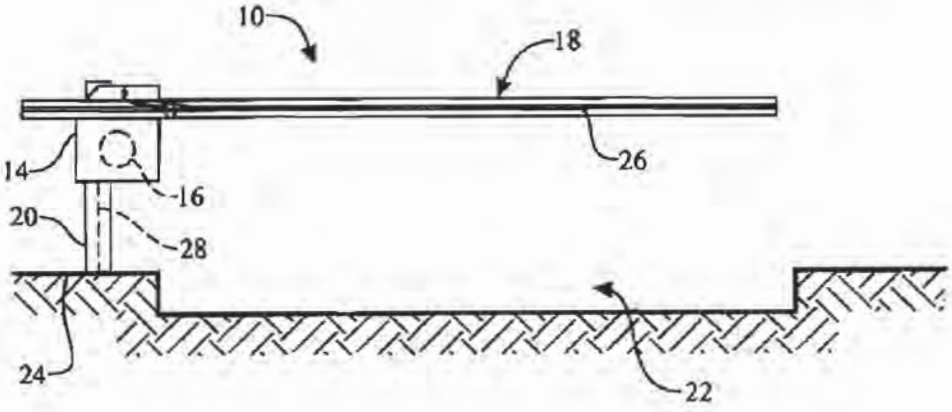
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(57) **ABSTRACT**

The present invention is directed to a vehicle barrier system and method of use. The vehicle barrier system includes a control system adapted to pivot a gate arm between a horizontal position and a vertical position to control the flow of vehicle or pedestrian traffic in control access areas such as parking lots, or parking garages. The gate arm includes inset channels that are disposed along the longitudinal axis of the gate arm and configured to each remove ably receive an array of light emitting diodes to increase visibility and alert drivers or pedestrians to the presence of a gate arm.

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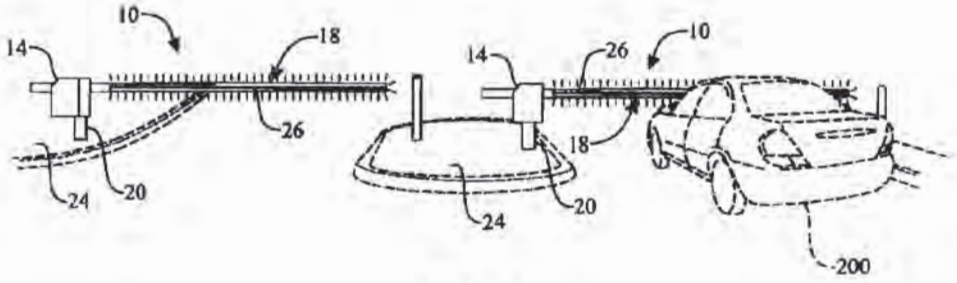


FIG. 1

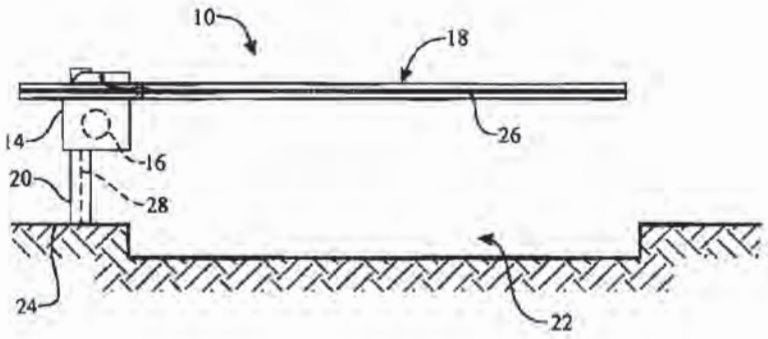


FIG. 2

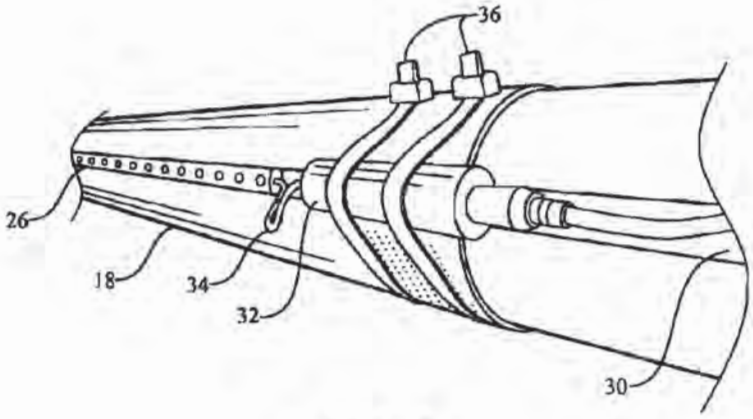


FIG. 3

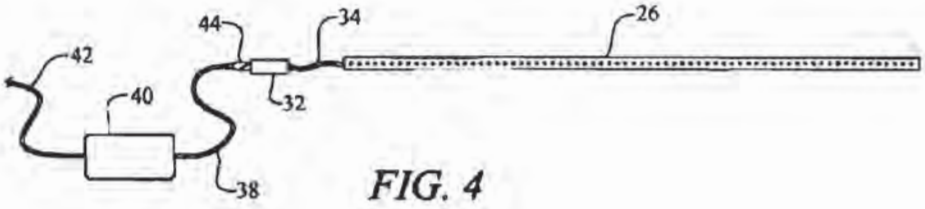


FIG. 4

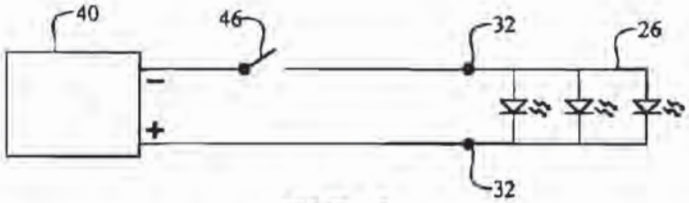


FIG. 5

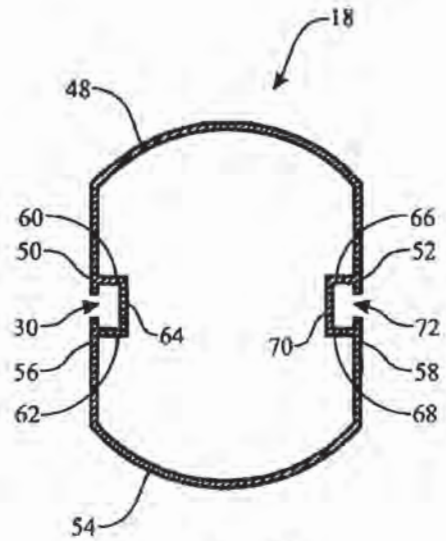

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FIG. 6

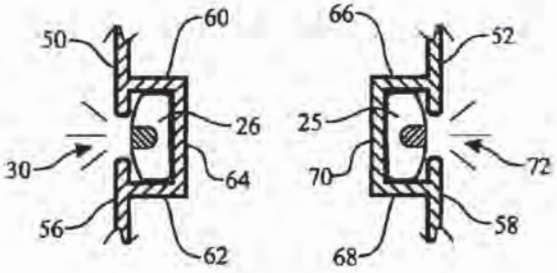

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FIG. 7

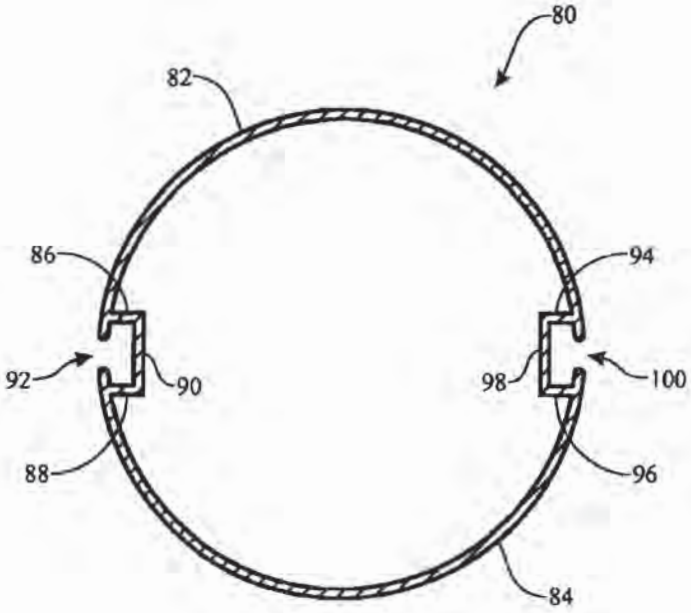

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FIG. 8

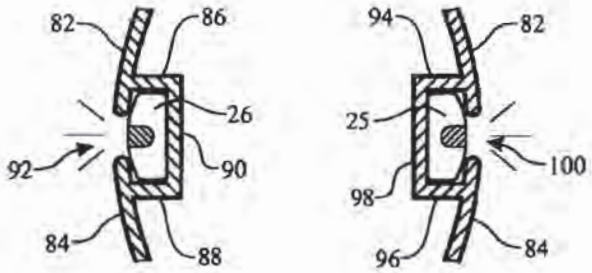

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FIG. 9

VEHICLE BARRIER SYSTEM WITH ILLUMINATING GATE ARM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATION

In accordance with 37 C.F.R. §1.76, a claim of priority is included in an Application Data Sheet filed concurrently herewith. Accordingly, the present invention claims priority as a continuation of U.S. patent application Ser. No. 13/803,093, filed Mar. 14, 2013, entitled VEHICLE BARRIER SYSTEM WITH ILLUMINATING GATE ARM AND METHOD, which claims priority of U.S. Provisional Patent Application No. 61/654,280, filed on Jun. 1, 2012. The contents of which the above referenced applications are incorporated hereby by reference in their entirety.

FIELD OF THE INVENTION

The present invention relates generally to barrier systems. More particularly, the present disclosure relates to a vehicle barrier system and method where the barrier system includes a control system adapted to pivot a gate arm between a guarded and unguarded position to provide controlled access of vehicle traffic in restricted areas such as parking lots, parking garages, or other controlled access areas. The gate arm includes a plurality of light emitting diodes that are removeably inserted in channels formed along the length the gate arm to increase visibility and alert drivers or pedestrians to the presence of a vehicle barrier.

BACKGROUND OF THE INVENTION

There are a number of physical barriers that are often used in regulating the flow of pedestrian traffic in designated areas. Exemplary types of physical barriers include erectable signs, banners, vertical cones, and gates. Such barriers have typically been developed to restrict individuals from entering or exiting controlled access areas, to provide warnings, or to identify passageways or direction to individuals. Many of these physical barriers are often used in banks, shopping centers, movie theaters, government buildings, and other public forums.

Traffic or vehicle barriers have also been developed to provide controlled access of vehicle traffic to restricted areas such as parking lots, parking garages, loading docks, or to control the flow of traffic on roads and highways. Typical vehicle barriers often include plastic barrels, cones, colored poles, interlocking barriers filled with a ballast material such as water or sand to help stabilize the barriers, reinforced steel barriers, cement barriers, traffic safety barriers including a plank disposed between A frame legs, and barriers including a gate arm that is operatively pivoted in a horizontal and generally vertical position to provide passage of vehicle traffic. Many conventional vehicle barriers employ physical indicators, such as reflective tape, markers, or bright colors, to help increase visibility and effectively capture drivers' attention to better assist them in visually identifying vehicle barriers from a distance, and at night. However, many vehicle barriers including such physical indicators provide limited use. For example, most physical indicators are more effective during the day when a driver's visibility is less impaired as compared to at night. Also, driver's often cannot see the physical indicators from greater distances, and as such, by the time the driver is alerted to the presence of the barrier, the vehicle is within close proximity of the barrier thereby further impairing the driver's ability to respond effectively. The reflective tape, markers or bright colors, used on vehicle barriers, tend to fade over time, are often covered with debris, and provide limited visibility at night.

To address the limitations that vehicle barriers with physical indicators provide, many vehicle barriers have been developed to include an electronic light assembly. In use, most light assemblies are typically fastened to the outer surface of barriers using mounting flanges, brackets, screws, or bolts. The light assembly typically includes a large, round red or yellow lens body attached to a waterproof receptacle for housing circuitry and a power source such as batteries. One or more incandescent bulbs are generally connected to the power source, via a switching mechanism. Such light assemblies are often seen on vehicle barriers comprising barrels, and safety barriers where the light assembly is secured on top of a horizontal plank, or on top of the support frame. Vehicle barriers including electronic light assemblies are designed to alert drivers to the presence of vehicle barriers at night or in low lit areas.

However, conventional vehicle barriers employing electronic light assemblies have certain drawbacks. Many vehicle barriers use a single, light assembly that is mounted on the external surface of the vehicle barrier. The single light assembly often provides limited visibility to drivers at night. Further, maintenance of such light assemblies can be time consuming, burdensome and costly. Prior art light assemblies tend to be bulky, heavy and are typically mounted on the external surface of vehicle barriers using large brackets, or a number of blots thus increasing both the costs and time in attaching and removing the light assemblies for each vehicle barrier. Technicians are often forced to remove light assemblies from vehicle barriers to make necessary repairs as a result of traffic engaging the vehicle barriers and damaging the lighting devices. Also, general maintenance of the light assemblies can be time consuming, and often results in the need for placing the vehicle barriers out of commission for a period of time while making necessary repairs, or replacing parts.

SUMMARY OF THE INVENTION

The present invention overcomes the deficiencies of the known art and the problems that remain unsolved by providing a barrier system including a control system adapted to pivot a gate arm between a horizontal position and a vertical position to control the flow of vehicle or pedestrian traffic in control access areas such as parking lots, or parking garages. The gate arm includes inset channels for removeably receiving an array of light emitting diodes to increase visibility and alert drivers or pedestrians to the presence of a gate arm at night.

In accordance with one implementation of the present invention, there is provided a vehicle barrier system comprising:

a housing;

a gate arm coupled to the housing and including at least one elongated inset channel having an opening, said at least one elongated inset channel formed along a longitudinal axis of the gate arm; a control system enclosed in the housing and operatively coupled to the gate arm to selectively pivot the gate arm between a horizontal position and a vertical position; a mounting member attached to the housing for installing the housing adjacent a roadway of a controlled access area; at least one light strip including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member and including a first electrical cable con-

nected to said plurality of light emitting diodes; an electronic connector electrically connected to the first electrical cable, and releasably fastened to the gate arm;

a power supply enclosed within the housing and releasably, electrically connected to the electronic connector;

an electrical switch selectively operated to couple the power supply to the at least one light strip; and

wherein the at least one light strip is removeably retained within the at least one elongated inset channel such that light from the plurality of light emitting diodes enumerates through the opening when the plurality of diodes are powered from said power supply.

In another aspect, the control system includes anyone of an electrically motorized system, a pneumatic system, a hydraulic system, or a spring-balanced system.

In another aspect, the at least one elongated inset channel includes a first elongated inset channel having a first opening, and a second elongated inset channel having a second opening, where the second elongated inset channel is disposed opposite the first elongated inset channel.

In another aspect, the gate arm includes a first pair of inset channel sidewalls integrally joined to a first inset channel backwall to form the first elongated inset channel, and a second pair of inset channel sidewalls integrally joined to a second inset channel backwall to form the second elongated inset channel, where the inset channel sidewalls and the inset channel backwalls extend along a longitudinal axis within the gate atm.

In another aspect, the at least one light strip comprises a second light strip including another plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, and also including a second electrical cable connected to the another plurality of light emitting diodes and to another electronic connector, the another electronic connector electrically coupled to the power supply.

In another aspect, the gate arm includes a top convex member having a first upper sidewall and a second upper sidewall, and a bottom convex member having a first lower sidewall coextensively aligned with the first upper sidewall, and a second lower sidewall wall coextensively aligned with the second upper sidewall, where the top convex member is attached to the bottom convex member via, the first and second pair of inset channel sidewalls, and the first and second inset channel backwalls.

In another aspect, the first upper sidewall and the first lower sidewall each terminate partially within the first opening for removeably securing the at least one light strip within the first elongated inset channel, and wherein the second upper sidewall and the second lower sidewall each terminate partially within the second opening for removeably securing the second light strip within the second elongated inset channel.

In another aspect, the vehicle barrier system further includes a top member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, and a bottom member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, where the top member and the bottom member are integrally joined together via, the first elongated inset channel and the second elongated inset channel forming a generally circular gate arm.

In another aspect, the second light strip is removeably retained within the second elongated inset channel aligning the plurality of light emitting diodes towards the second opening such that light from the plurality of light emitting diodes of the second light strip enumerates through the second opening when the plurality of diodes are powered from the power supply.

In another aspect, the protective member comprises anyone of a clear rubber material, a clear resin, a clear epoxy, a clear hardened gel, a clear vinyl, or a transparent protective enclosure.

In accordance with another implementation of the present invention, there is provided a barrier system providing controlled access to a designated area, said barrier system comprising:

a housing;

a control arm coupled to the housing and including a first channel having a first opening, and a second channel having a second opening, each channel formed along a longitudinal axis within the control arm and disposed opposite each other;

a control system enclosed in the housing and operatively coupled to the control arm to selectively pivot the control arm between a horizontal position and a vertical position;

a first light assembly including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective substrate and including a first electrical connector electrically coupled to the plurality of light emitting diodes;

a second light assembly including another plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective substrate and including a second electrical connector electrically coupled to the another plurality of light emitting diodes;

a power supply enclosed within the housing and releasably, electrically connected to the electrical connectors; an electrical switch selectively operated to couple the power supply to said light assemblies; and

wherein the first light assembly is removeably retained within the first channel with the plurality of light emitting diodes aligned towards the first opening and the first electrical connector removeably fastened to the control arm, and wherein the second light assembly is remove ably retained within the second channel with the another plurality of light emitting diodes aligned towards the second opening and the second electrical connector removeably fastened to the control arm.

In one aspect, the control arm comprises a circular geometric shape including a top member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, and a bottom member comprising a semi-circular shape having one end terminating partially within the first opening, and another end terminating partially within the second opening, where the top member and the bottom member are integrally joined together via, the first and second channel.

In another aspect, the barrier system further includes a mounting post attached to the housing and adapted for installing the barrier system adjacent a roadway of a controlled access area such that the control arm is pivoted in a horizontal position to prevent the passage of vehicles, and in a generally vertical position to allow the passage of vehicles through.

In another aspect, the barrier system further includes a first power supply cable electrically connected to the power supply and releasably connected to the first electrical connector, and a second power supply cable electrically connected to the power supply and releasably connected to the second electrical connector.

In another aspect, the control system includes an activation device operated to pivot the control arm between a horizontal

position and a vertical position. The activation device includes anyone of an electrical switch, a motion sensor system, a vehicle detection system, or a ticket dispenser.

In accordance with yet another implementation of the present invention, there is provided a method of regulating traffic in a controlled access area, said method comprising the steps of:

constructing a barrier system comprising:

a housing;

a gate coupled to the housing and including a first channel having a first opening, and a second channel having a second opening, each channel formed along a longitudinal axis within the gate and disposed opposite each other;

a control system operatively coupled to the gate and including an activation device to selectively pivot the gate between a horizontal position and a vertical position;

a first light assembly including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective enclosure and including a first electrical connector coupled to the plurality of light emitting diodes;

a second light assembly including another plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective enclosure and including a second electrical connector coupled to the another plurality of light emitting diodes;

a power supply enclosed within the housing and releasably, electrically connected to the electrical connectors; an electrical switch selectively operated to couple the power supply to the light assemblies; and

wherein the first light assembly is removeably retained within the first channel with the plurality of light emitting diodes aligned towards the first opening and the first electrical connector removeably fastened to the gate, and wherein the second light assembly is removeably retained within the second channel with the another plurality of light emitting diodes aligned towards the second opening and the second electrical connector removeably fastened to the gate;

installing the housing and gate near a roadway of a controlled access area;

electrically connecting the power supply to a power source;

activating the electrical switch to power the first and second light assembly; and

operating the activation device to pivot the gate between a horizontal position and a vertical position to selectively control the flow of traffic in the controlled access area.

In one aspect, the step of installing the housing and the gate near a roadway includes the step of attaching the housing to a mounting post and installing the mounting post adjacent said roadway.

In another aspect, the step of operating the control system to pivot the gate includes the step of detecting the presence of a vehicle or individual when situated near the gate a predetermined distance, and generating a signal to operate the control system.

These and other aspects, features, and advantages of the present invention will become more readily apparent from the attached drawings and the detailed description of the preferred embodiments, which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiments of the invention will hereinafter be described in conjunction with the appended drawings provided to illustrate and not to limit the invention, in which:

FIG. **1** presents a perspective view of vehicle barrier systems each installed adjacent a designated roadway and including a control system coupled to a gate arm, with the gate arm including a light assembly for visually alerting drivers or pedestrians to the presence of a vehicle barrier, in accordance with one embodiment of the present invention;

FIG. **2** presents a front view of the vehicle barrier system of FIG. **1**, illustrating the light assembly that includes an array of light emitting diodes secured along the length of the gate arm with the gate arm displaced in a horizontal position for restricting vehicle passage, in accordance with one embodiment of the present invention;

FIG. **3** presents a partial, side perspective view illustrating the array of light emitting diodes removeably secured within an inset channel formed along the longitudinal axis of the gate arm with the array of light emitting diodes electrically connected to an electronic connector that is releasably fastened to the gate arm;

FIG. **4** presents a side view of the light assembly including an array of light emitting diodes release ably connected to an electrical connector that is electrically coupled to a power supply;

FIG. **5** presents a schematic view of an electrical circuit of the light assembly of FIG. **4**, in accordance with one embodiment of the present invention;

FIG. **6** presents a cross-sectional view of a gate arm including a convex top and a convex bottom, upper and lower sidewalls, and inset channels, each inset channel configured for removeably holding an array of light emitting diodes therein, in accordance with one embodiment of the present invention;

FIG. **7** presents a cross-sectional view illustrating dimensional details of inset channels of FIG. **6**, in accordance with one embodiment of the present invention;

FIG. **8** presents a cross-sectional view of a circular gate arm including inset channels, each inset channel configured for removeably holding an array of light emitting diodes therein, in accordance with another embodiment of the present invention; and

FIG. **9** presents a cross-sectional view illustrating dimensional details of inset channels of FIG. **8**, in accordance with another embodiment of the present invention.

Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE INVENTION

The following detailed description is merely exemplary in nature and is not intended to limit the described embodiments or the application and uses of the described embodiments. As used herein, the word "exemplary" or "illustrative" means "serving as an example, instance, or illustration." Any implementation described herein as "exemplary" or "illustrative" is not necessarily to be construed as preferred or advantageous over other implementations. All of the implementations described below are exemplary implementations provided to enable persons skilled in the art to make or use the embodiments of the disclosure and are not intended to limit the scope of the disclosure, which is defined by the claims. For purposes of description herein, the terms "upper," "lower," "left," "rear," "right," "front," "vertical," "horizontal," and derivatives thereof shall relate to the invention as oriented in FIG. **1**. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, brief summary or the following detailed description. It is also to be understood that the specific devices and processes illustrated in the attached draw-

ings, and described in the following specification, are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

The present invention is directed to a vehicle barrier system **10** for use in providing controlled access of vehicle traffic in particular designated areas including, but not limited to, parking lots, parking garages, loading docks, highways, military bases, airports, roadways, or the like. It will be understood that the barrier system **10** of the present invention may be modified slightly to provide a barrier system for use in providing controlled access of individuals or pedestrian traffic in or out of various designated areas including but not limited to, buildings, walkways, bridges, tunnels, or other areas where controlled access to individuals is contemplated.

With reference made to FIGS. **1** and **2**, vehicle barrier systems **10** are each deployed along a designated roadway to provide controlled access of vehicles **200** in restricted areas that include parking lots, parking garages, military bases, government buildings or the like. It is noted that, for illustrative purposes, the functional elements, components and features of each vehicle barrier **10** are the same and thus identical vehicle barriers **10** are shown to provide controlled access through entrance and/or exit areas of a controlled access area. Vehicle barrier **10** includes a waterproof housing **14**, for enclosing a control system **16** that is adapted to pivot a gate arm **18** between a guarded position and unguarded position thereby limiting the passage of vehicles **200** to enter or exit certain areas where controlled access of vehicle traffic is desired. Accordingly, control system **16** is adapted to pivot gate arm **18** in a horizontal, guarded position such that vehicles **200** cannot pass through gate arm **18** to enter a controlled area, and to pivot gate arm **18** in a generally vertical, unguarded position such that vehicles **200** are permitted to pass through the gate arm **18** to enter or exit the controlled area.

A mounting post **20** is provided for installing the barrier system **10** adjacent a designated roadway **22**, as shown in FIG. **2**. Mounting post **20** is securely attached to housing **14** and mounted onto the ground or cement foundation **24** using a metal flange or bracket (not shown). Preferably, the flange includes a set of holes to receive bolts for firmly attaching the flange onto the cement foundation **24**. For installation purposes, the height of the mounting post **20** is preselected to align gate arm **18** above the surface of the roadway **22** such that the gate arm **18** spans the width of the roadway **22** to prevent the passage of vehicles **200** when gate arm **18** is displaced horizontally in a guarded position.

Housing **14** is preferably fabricated from a heavy weight sheet metal material or a durable thick plastic material and includes four sidewalls joined to a closed top and bottom. A locked door panel (not shown) may be hingedly attached to one of the four sidewalls to allow service technicians to access control system **16** and related components that are enclosed within the housing **14**. Housing **14** is preferably waterproof to withstand the elements of rain and snow, and may include a small transparent window to view status indicators, gages, or other operative elements enclosed within housing **14**. In another embodiment, other functional devices (not shown) such as a camera, an intercom, speakers, a phone, or a ticket dispenser, may be secured onto or within housing **14**. For example, a camera may be implemented to take photos of license plates of vehicles **200** that pass along the roadway **22** through gate arm **18**. Also, an operator may wish to converse with a driver using an intercom or speaker system.

Control system **16** is adapted to pivot gate arm **18** in a horizontal and vertical position to provide a guarded and unguarded position, respectively, to control traffic through roadway **22**. Control system **16** may include an electrical control system (not shown) that includes an electric motor coupled to a gearing system such as a gear box, and an electronic DC controller, or variable frequency drive that is used to operate the speed and torque of a DC or AC electric motor. Alternatively, control system **16** may include a pneumatic system (not shown) or hydraulic system (not shown) including an air compressor, a hydraulic pump, fluid motors, pneumatic or hydraulic cylinders, electrical limit switches, valves, filters, couplings, regulators, and hoses or pipes where such components are operatively coupled together to control the pivoting movement of gate arm **18**. The operative characteristics of the electric or fluid motors, pumps, compressor or cylinders should be selected to provide the optimum torque and force needed to pivot gate arm **18** in a horizontal and vertical position. An electrical AC power source, via a power cable **28**, is provided to power control system **16**. Preferably, control system **16** includes a control panel that includes an I/O interface, and may include a keypad or other input keys to program and/or operate functional parameters. A computer system including a processor, memory and interface may also be implemented to operate the vehicle barrier system **10**. In yet another embodiment of the present invention, vehicle barrier **10** may include a spring-balanced system with the spring tension holding the security gate arm **18** in an upright, vertical position until pushed downwardly by force. An internal spring counter balancing weight may be included to allow easy lifting and lowering of gate arm **18**.

Control system **16** may be operated locally or remotely by an attendant, or may include electronics that provides automated control of gate arm **18** in the absence of an attendant. For example, control system **16** may include an activation device (not shown) such as a camera, motion detectors, or other detectors used to detect or sense the presence of a vehicle **200** or individual and generate a signal to operate gate arm **18**. Alternatively, control system **16** may include an electrical switch that comprises a pushbutton, or include an automated ticket dispenser, to permit drivers to operate gate arm **18**, via, by manually operating pushbutton, or retrieving a ticket from the ticket dispenser, as often seen at airports.

With continued reference to FIGS. **1** and **2**, gate arm **18** comprises an elongated, rigid member having a predefined geometric shape and dimension. In one non-limiting example, gate arm **18** may comprise a square shape, a triangular shape, a rectangular shape, or a circular shape. Gate arm **18** is preferably made of aluminum, a durable heavy duty plastic material, or wood, and may be constructed to include various lengths. In one non-limiting example, gate arm **18** ranges between 3 to 15 feet in length with a preference comprising 12 feet in length. Gate arm **18** may be 3 to 8 inches in diameter and include a wall thickness of Y2 inch. Gate arm **18** may be designed to include a break-away gate where gate arm **18** breaks apart when engaged by a vehicle **200**. This feature can be employed to deter damage to both the vehicle barrier system **10** and vehicle **200** in the event the vehicle **200** engages gate arm **18**.

As illustrated in FIGS. **1** through **3**, vehicle barrier system **10** includes a light assembly that includes an array of light emitting diodes **26** secured along the length of gate arm **18**, in accordance with one embodiment of the present invention. The array of light emitting diodes **26** has the primary function of increasing visibility and alerting drivers to the presence of gate arm **18** at night, or in low lighting conditions. The array of light emitting diodes **26** includes a plurality of light emit-

ting diodes enclosed within a protective enclosure, or alternatively secured within a shock absorbing protective substrate to define a light strip. The protective substrate may comprise any of a transparent rubber, a clear hardened gel material, a clear epoxy, a clear vinyl, or a clear resin material. In the preferred embodiment, each of the plurality of light emitting diodes comprises the same color, however, each of the light emitting diodes may comprise multiple sets of different colors where an N number of light emitting diodes comprise one color, and an N number of light emitting diodes comprise another color. One embodiment may include a high-intensity LED flasher unit. A high-intensity LED flasher unit is capable of outputting a very bright luminescence that IS of considerable increased brightness as compared to standard LED's. The SunBurst Model 1224AD manufactured by Ingram Products of Jacksonville, Fla. operates on either 12V or 24V DC and operates in a flashing mode of 60 flashes per minute, and also draws less-than-half the current as compared to when operating in the steady-on mode.

The array of light emitting diodes **26** includes a plurality of light emitting diodes disposed adjacent each other in series, along the longitudinal axis of gate arm **18**. The array of light emitting diodes **26** is removeably secured within inset channel **30** which is formed within the body of gate arm **18**, as also illustrated in FIGS. **6** through **9**. As illustrated in FIG. **3**, the array of light emitting diodes **26** is electrically connected to an electrical connector **32**, via, an electrical cable **34**. Electrical connector **32** is secured along the outer surface of gate arm **18** via, fasteners **36** that comprise tie wraps in the exemplary embodiment. Tie wraps can be quickly severed to easily and quickly remove the array of light emitting diodes **26** from inset channel **30** for general maintenance, repair or replacement.

With reference now made to FIG. **4**, the array of light emitting diodes **26** is electrically connected to electrical connector **32**, via electrical cable **34**. Electrical connector **32** is electrically, releasably connected to power supply **40**, via, electrical cable **38**. The power supply **40** may include a step-down transformer and AC to DC converter, a voltage or current regulator, resistors, rectifiers, fuses, a 12 volt battery source, or a 24 volt battery source. Power supply **40** may include a stand-alone DC source, or be electrically coupled to an AC power source via, a power cable **42**. A key feature of the present invention is that one end of electrical cable **38** includes an electrical bayonet connector **44** that permits releasable connection to electrical connector **32** for quickly and easily detaching the power supply **40** to the array of light emitting diodes **26**. Accordingly, bayonet connector **44** allows a user to quickly and easily disconnect the array of light emitting diodes **26** from the power supply **40** and remove the lights from the inset channel **30** by simply sliding the array of lights out from the inset channel **30**.

The array of light emitting diodes **26** is defined by a plurality of light emitting diodes that are electrically connected together in parallel, as shown in FIG. **5**. The electrical parallel connection allows continued operation of light emitting diodes **26** should one or more diodes fail to operate or simply burn out. Power supply **40** is provided to power the array of light emitting diodes **26**, via, an electrical switch **46**. Preferably, electrical switch **46** is enclosed within housing **14**, of the vehicle barrier system **10**, and is operated locally or remotely by an attendant. In one alternative embodiment, electrical switch **46** may be operated remotely via, wireless communication, or over an internet interface connection. Electronic switch **46** may include a relay circuit including a transmitter, receiver or transceiver. Where the power supply **40** includes DC batteries, further enhancements to the electrical circuit could include a solar cell array panel (not shown) that is coupled to recharge the power supply **40** during the day.

Turning to FIG. **6**, there is shown a cross-sectional view of a gate arm **18**, in accordance with one embodiment of the present invention. Gate arm **18** includes a convex top member **48** integrally formed to include a first upper sidewall **50**, and a second upper sidewall **52**. Gate arm **18** also includes a convex bottom member **54** integrally formed to include a first lower sidewall **56** that is aligned coextensively with the first upper sidewall **50**, and a second lower sidewall **58** that is aligned coextensively with the second upper sidewall **52**. Accordingly, first upper and lower sidewalls **50**, **56** and second upper and lower sidewalls **52**, **58** form flat sidewalls **50**, **52**, **56**, **58** of gate arm **18**. Inset channel sidewalls **60**, **62**, and inset channel backwall **64** are integrally formed together, along a longitudinal axis within the interior of gate arm **18**, to define inset channel **30** having an opening. As depicted in FIG. **6**, the first upper and lower sidewalls **50**, **56** terminate partially within the opening of inset channel **30**. Inset channel sidewalls **66**, **68**, and inset channel backwall **70** are also integrally formed together, along a longitudinal axis within the interior of gate arm **18**, to define inset channel **72** having an opening. The second upper and lower sidewalls **52**, **58** terminate partially within the opening of inset channel **72**. In the preferred embodiment, inset channel **30** is aligned opposite inset channel **72**, though inset channels **30**, **72** may be oriented anywhere about gate arm **18**. Also, gate arm **18** may include additional inset channels (not shown) to accommodate additional arrays of light emitting diodes **26**, if desired. Gate arm **18** may be molded as one unit to include inset channels **30**, **72** using well-known injection molding techniques and methods.

A first array of light emitting diodes **26** is inserted within inset channel **30** and cradled within the combination structure of inset channel sidewalls **60**, **62**, and inset channel backwall **64**, as illustrated in FIG. **7**. Terminating ends of both the first upper and lower sidewalls **50**, **56** help retain the first array of light emitting diodes **26** within the inset channel **30** thus eliminating the need for fasteners and allowing quick and easy removal of the array of light emitting diodes **26** if required. The array of light emitting diodes **26** is positioned within inset channel **30** such that light, enumerated from the light emitting diodes passed through the opening of the inset channel **30** when the light emitting diodes are powered.

A second array of light emitting diodes **25** is also inserted within inset channel **72** and cradled within the combination structure of inset channel sidewalls **66**, **68**, and inset channel backwall **70**, as seen in FIG. **7**. Terminating ends of both the second upper and lower sidewalls **52**, **58** help retain the array of light emitting diodes **25** within inset channel **72** thus eliminating the need for fasteners and allowing quick and easy removal of the array of light emitting diodes **25** if required. Light emitting diodes **25** enumerate light through the opening of the inset channel **72** when the light emitting diodes **25** are powered. Accordingly, gate arm **18** includes two inset channels **30**, **72** for accommodating respective arrays of light emitting diodes **26**, **25** on both sides of the gate arm **18** to increase visibility and alert drivers or individuals to the presence of a gate arm **18** when approaching gate arm **18** from either side. This feature proves beneficial where a single vehicle barrier **10** is used to control traffic flow in and out of a designated control access area. In the preferred embodiment, an electrical cable identical to cable **38** also includes an electrical bayonet connector **44** that permits releasable connection to an electrical connector associated with the array of light emitting diodes **25**. The bayonet connector **44** provides quick detachment when removing the array of light emitting

diodes **25** from inset channel **72**. Accordingly, bayonet connector **44** allows a user to quickly and easily disconnect the array of light emitting diodes **25** from the power supply **40** and remove the lights from the inset channel **72** by simply sliding the array of lights out from the inset channel **72**.

Turning to FIG. **8**, there is shown a cross-sectional view of a gate arm **80**, in accordance with another embodiment of the present invention. In the embodiment, gate arm **80** comprises a circular shape and is preferably constructed from aluminum, a durable heavy duty plastic material, or wood. Gate arm **80** may include various lengths ranging from 3 to 15 feet with a preference comprising 12 feet in length. Gate arm **80** may be 3 to 8 inches in diameter, and include a wall thickness of Y2 inch. Gate arm **80** may be designed to include a break-away gate where gate arm **80** breaks apart when engaged by a vehicle **200**. This feature can be employed to deter damage to both the vehicle barrier system **10** and vehicle **200** in the event the vehicle **200** engages gate arm **80**.

In a preferred embodiment, gate arm **80** includes a semi-circular shaped first member **82** joined to a semi-circular shaped second member **84**, via, inset channels **92** and **100**. Inset channel sidewalls **86, 88** and inset channel backwall **90** are integrally formed together, along a longitudinal axis within the interior of gate arm **80**, to define inset channel **92** having an opening. Inset channel sidewalls **94, 96** and inset channel backwall **98** are also integrally formed together, along a longitudinal axis within the interior of gate arm **80**, to define inset channel **100** having an opening. A first and second end of both members **82, 84** terminate partially within the openings of inset channel **92**, and **100** to help retain an array of light emitting diodes within each inset channel **92, 100**. Although inset channel **92** is oriented opposite inset channel **100**, it will be noted that inset channels **92** and **100** may be oriented anywhere along gate arm **80**. Also, gate arm **80** may include additional inset channels (not shown) to accommodate additional arrays of light emitting diodes, if desired.

As illustrated in FIG. **9**, an array of light emitting diodes **26** is inserted within inset channel **92**, of gate arm **80**, and cradled within the combinational structure of inset channel sidewalls **86, 88**, and inset channel backwall **90**. A first end of both the first and second member **82, 84**, respectively, extends partially within the opening to help retain the array of light emitting diodes **26** within the inset channel **92** thus eliminating the need for fasteners and allowing quick and easy replacement of the array of light emitting diodes **26** for repair or replacement. Light generated from the array of light emitting diodes enumerates through the opening of the inset channel **92**. A second array of light emitting diodes **25** is inserted within inset channel **100** and cradled within the combination structure of inset channel sidewalls **94, 96** and inset channel backwall **98**, as better illustrated in FIG. **9**. A second end of both the first and second member **82, 84** terminates partially within the opening to help retain the array of light emitting diodes **25** within inset channel **100** thus eliminating the need for fasteners and allowing quick and easy removal of the array of light emitting diodes **25** if required. Light emitting diodes enumerate light through the opening of the inset channel **100** when the light emitting diodes **25** are powered. Accordingly, gate arm **80** includes two inset channels **92, 100** for accommodating respective arrays of light emitting diodes **26, 25** on both sides of the gate arm **80** to increase visibility and alert drivers or individuals to the presence of a gate arm **80** when approaching gate arm **80** from either side. The array of light emitting diodes **25** also includes an electrical cable, connector and bayonet connector **44** identical to that of the array of light emitting diodes **26** as shown in FIG. **4**.

A lens (not shown) may be provided to help protect the array of light emitting diodes **25, 26** from debris or damage as a result of impact. The lens may comprise a transparent, opaque, tinted, or colored lens, or alternatively include an optical lens providing magnifying, reflective, or light focusing properties. In one non-limiting example, the lens may comprise a Fresnel lens. Preferably each lens comprises an elongated lens that spans the length of each inset channel **30, 72, 92, 100** and may be attached to the gate arm **18, 80** using any bonding agent, or fasteners.

Vehicle barrier system **10** may also include an audible system (not shown) such as an alarm or buzzer that is activated when gate arm **18, 80** is pivoted between horizontal and vertical positions to alert individuals that the gate arm **18, 80** is moving. Vehicle barrier system **10** may also include indicia, media or advertising that is provided anywhere on the housing **14**, or gate arm **18, 80**.

Since many modifications, variations, and changes in detail can be made to the described preferred embodiments of the invention, it is intended that all matters in the foregoing description and shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense. Thus, the scope of the invention should be determined by the appended claims and their legal equivalence.

What is claimed is:

1. A vehicle barrier system comprising:

a gate arm formed from a single piece of material that is generally circular shaped having a distal end and a proximal end defining a longitudinal axis therebetween, said proximal end coupled to a housing having a control system and a power supply to selectively pivot said gate arm between a horizontal position and a vertical position, said gate arm including a first elongated inset channel formed along said longitudinal axis of said circular shaped member, said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced from each other;

a first light strip formed from a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective member, said first light strip cradled entirely within said first elongated inset channel between said backwall and said inset channel sidewalls and retained therein solely by said first upper and said first lower terminating ends;

a first electrical cable connected to said plurality of light emitting diodes; and

an electronic connector electrically releaseably connected to said power supply and said first electrical cable;

wherein said first light strip is positioned within said first elongated inset channel with said plurality of light emitting diodes aligned towards said first opening such that light from said plurality of light emitting diodes enumerates through said first opening between the terminating ends when said plurality of diodes are powered from said power supply.

2. The vehicle barrier system of claim **1** further comprising a second elongated inset channel formed along said longitudinal axis of said gate arm at a position 180 degrees from said first elongated inset channel, said second elongated inset channel having a second pair of inset channel sidewalls integrally joined to a second inset channel backwall, a second upper terminating end and a second lower terminating end

which ends terminate partially within said second opening and spaced from each other, said second elongated inset channel disposed opposite and forming a mirror image of said first elongated inset channel and includes a second removable light strip positioned within said second elongated inset channel with said plurality of light emitting diodes aligned towards said second opening such that light from said plurality of light emitting diodes enumerates through said second opening when said plurality of diodes are powered from said power supply.

3. The vehicle barrier system of claim 1, wherein said light strip is encased within a protective member selected from the group of: a clear rubber material, a clear resin, a clear epoxy, a clear hardened gel, a clear vinyl, or a transparent protective enclosure.

4. The vehicle barrier system of claim 1 including a control system electrically coupled to said first electrical cable to illuminate said first light strip while said barrier is in a horizontal position or a vertical position wherein an N number of light emitting diodes comprise one color and an N number of light emitting diodes comprise another color.

5. The vehicle barrier system of claim 1 wherein said light emitting diodes are coupled to a high-intensity LED flasher unit capable of outputting a luminescence at about 60 flashes per minute.

6. The vehicle barrier system of claim 1 wherein said gate arm is further defined as a circular shaped member formed from a top convex member and a bottom convex member.

7. The vehicle barrier system of claim 1 wherein said single piece of material is aluminum.

8. A method of regulating traffic in a controlled access area, said method comprising the steps of constructing a barrier system comprising:

a housing;

a gate are formed from a single piece of material having a distal end and a proximal end defining a longitudinal axis therebetween, said proximal end coupled to said housing, said gate arm including a first elongated inset channel formed along said longitudinal axis, said first elongated inset channel having a first opening formed by a first pair of inset channel sidewalls integrally joined to a first channel backwall, said inset channel walls including a first upper terminating end and a first lower terminating end, said ends terminate partially within said first opening and spaced apart from each other;

a control system operatively coupled to said gate and including an activation device to selectively pivot said gate arm between a horizontal position and a vertical position;

a first light strip including a plurality of light emitting diodes each electrically connected in parallel and physically disposed adjacent one another in series, and encased within a protective enclosure said first light strip cradled entirely within said first elongated inset channel between said backwall and said inset channel sidewalls and retained therein solely by said first upper and first lower terminating ends;

a control system having an electrical switch selectively operated to couple a power supply to said plurality of light emitting diodes;

wherein said first light strip is removeably retained within said first channel with said plurality of light emitting diodes aligned towards said first opening such that light from said plurality of light emitting diodes enumerates through said first opening between the terminating ends when said plurality of diodes are powered from said power supply;

wherein said first light strip is positioned within said first elongated inset channel with said plurality of light emitting diodes aligned towards said first opening such that light from said plurality of light emitting diodes enumerates through said first opening between the terminating ends when said plurality of diodes are powered from said power supply;

installing said housing and said gate arm near a roadway of said controlled access area;

electrically connecting said power supply to a power source;

activating said electrical switch to power said first light strip; and

operating said control system to pivot said gate arm between a horizontal position and a vertical position to selectively control traffic flow in said controlled access area.

9. The method of claim 8, wherein the step of installing said housing and said gate arm near a roadway includes the step of mounting said housing to a mounting post and attaching said mounting post adjacent said roadway.

10. The method of claim 8, wherein the step of operating said control system to pivot said gate arm includes the step of detecting a presence of a vehicle or individual when positioned near said gate and generating a signal to operate said control system.

* * * * *

PROOF OF SERVICE

I hereby certify that on January 6, 2021, I electronically filed the foregoing Corrected Principal Brief of Plaintiff-Appellant GateArm Technologies, Inc. with the Clerk of the United States Court of Appeals for the Federal Circuit using the CM/ECF filing system, which would ordinarily send notice to all counsel of record and constitutes electronic service pursuant to Fed. Cir. R. 25(e)(1). Counsel of record includes:

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CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 32(a)(7)(B), as extended by Federal Circuit Rule 32(b)(1), because this brief contains 13,986 words, as counted by Microsoft Word, excluding the parts of this brief exempted by Federal Rule of Appellate Procedure 32(f) and Federal Circuit Rules 28(a)(12) and 32(b)(2).

2. This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word 2019 in 14-point, Garamond font.

January 6, 2021

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