ESTTA Tracking number: **ESTTA728164**

Filing date: **02/19/2016**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Proceeding	92062974
Party	Defendant IDQ Operating, Inc.
Correspondence Address	IDQ OPERATING INC 2901 WEST KINGSLEY ROAD GARLAND, TX 75041 UNITED STATES
Submission	Motion to Suspend for Civil Action
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Date	02/19/2016
Attachments	IDQ motion to suspend.pdf(4095775 bytes)

UNITED STATES PATENT AND TRADEMARK OFFICE
TRADEMARK TRIAL AND APPEAL BOARD

AEROSPACE COMMUNICATIONS HOLDINGS CO., LTD., *Petitioner,* v. IDQ OPERATING, INC., *Registrant.*	Cancellation No.: 92062974 Registration No.: 4,244,354 Mark: ASK THE PRO Registration Date: Nov. 20, 2012

MOTION TO SUSPEND PROCEEDING

Without waiving any objection, defenses or counterclaims and without conceding that there is any merit whatsoever to the claims asserted by Petitioner, Registrant IDQ Operating, Inc., located at 2901 West Kingsley Road, Garland, Texas 75041 ("Registrant"), respectfully requests that pursuant to 37 C.F.R. § 2.117(a), the Trademark Trial and Appeal Board ("Board") suspend this cancellation proceeding ("Proceeding") with respect to its Mark ASK THE PRO until after the final disposition of Civil Action No. 6:15-cv-00781, *IDQ Operating, Inc. v. Aerospace Communications Holdings Co., Ltd.* (complaint filed Aug. 17, 2015), which is pending in the United States District Court for the Eastern District of Texas (the "Civil Action"). A copy of the complaint filed in the Civil Action is attached. Suspension is warranted by the fact that Registrant's Mark ASK THE PRO is the subject of both the Civil Action and the current Proceeding, the parties are the same and many of the same issues will be decided.

Registrant, an affiliate of Armored AutoGroup Parent Inc., merged with The Armor All/STP Products Company prior to the filing of the petition for cancellation in this Proceeding.

The merger document for Registrant's ASK THE PRO Mark was recorded on January 22, 2016 (Reel No. 5714, Frame No. 0538) and the assignment document was recorded on February --, 2016 (Reel No. --, Frame No. ---) with the U.S. Trademark Office after the institution by the Board of this Proceeding. Registrant respectfully requests substitution of The Armor All/STP Products Company for IDQ Operating, Inc., in this Proceeding and that the caption in this Proceeding be amended to reflect The Armor All/STP Products Company as Registrant. *See, e.g., Drive Trademark Holdings Lp*, 83 U.S.P.Q. 2d 1433, n.1 (TTAB 2007).

The Board routinely exercises its power to suspend proceedings in order to promote judicial economy, conserve resources and avoid inconsistent outcomes in parallel proceedings. Notably, "the civil action does not have to be dispositive of the Board proceeding to warrant suspension, it need only have a bearing on the issues before the Board." *New Orleans Louisiana Saints LLC v. Who Dat? Inc.*, 99 U.S.P.Q.2d 1550, 2011 WL 3381380, at *2 (T.T.A.B. 2011). Suspension is particularly preferred by the Board because "the decision of the federal district court is often binding upon the Board, while the decision of the Board may not be binding upon the court." TBMP § 510.02(a) (2015).

With this Proceeding at a very early stage and with no answer having been filed, it is appropriate to grant this motion for suspension. Because the Civil Action and this Proceeding involve the same parties and the same Mark ASK THE PRO, the parties will clearly not be prejudiced by such a suspension. Rather a suspension would serve the interests of the parties and the Board to preserve resources and avoid the risk of inconsistent results in the two tribunals.

CONCLUSION

For the reasons set forth above, Registrant therefore respectfully requests that the Board grant its motion to suspend this Proceeding pending the outcome of the Civil Action.

IDQ OPERATING, INC.

By _____
Michael A. Grow
Arent Fox LLP
1717 K Street, NW
Washington, DC 20006
(202) 857 6389

Attorney for Registrant

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing **REGISTRANT'S MOTION FOR SUSPENSION** (re Canc. No. 92062974) is being served upon the Petitioner's attorney by email and first class mail, postage prepaid, on February 19, 2016 at the following address:

Lionel Lavenue
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_____

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

IDQ OPERATING, INC.,

Plaintiff,

v.

AEROSPACE COMMUNICATIONS HOLDINGS CO., LTD.

Defendant.

C.A. No. 6:15-cv-781

JURY TRIAL DEMANDED

COMPLAINT

Plaintiff IDQ Operating, Inc. ("IDQ"), by its undersigned counsel, for its Complaint against Defendant Aerospace Communications Holdings Co., Ltd. ("Defendant"), hereby alleges as follows:

THE PARTIES

1. Plaintiff IDQ is a corporation organized and existing under the laws of the State of New York, with its principal place of business at 2901 West Kingsley Road, Garland, Texas 75041.

2. Upon information and belief, Defendant is a corporation organized and existing under the laws of the People's Republic of China, with its principal place of business at No. 2 AeroCom Building, No. 138 Jiefang Road, Hangzhou, China 310009.

3. On information and belief, Defendant offers for sale products in the United States that are regularly sold by its customers in the State of Texas and in this judicial district.

JURISDICTION AND VENUE

4. This is an action for patent, trademark, and copyright infringement arising under the United States patent, trademark, and copyright laws, Titles 35, 15, and 17 of the United States Code, respectively; for unfair competition under the United States trademark laws, 15 U.S.C. § 1114 (Lanham Act); for unfair competition and unjust enrichment under Texas statutory and common law; for tortious interference with prospective business relations under Texas common law; and for false patent marking under the United States patent laws, 35 U.S.C. § 292.

5. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the United States patent, trademark, and copyright laws, Titles 35, 15, and 17 of the United States Code, respectively. This Court has supplemental jurisdiction over the Texas state law claims pursuant to 28 U.S.C. § 1367 because such claims are so related to the federal claims that they form part of the same case or controversy and derive from a common nucleus of operative facts.

6. On information and belief, this Court has personal jurisdiction over Defendant because Defendant has committed and continues to commit acts of patent, trademark, and copyright infringement and other tortious acts causing harm in this judicial district and elsewhere in Texas by marketing and offering to sell products that infringe IDQ's patent, trademark, and copyright rights, or in a manner that induces infringement of IDQ's patent rights, or in a manner that infringes IDQ's trademarks and copyrights, entitling IDQ to relief.

7. Venue in this judicial district is proper pursuant to 28 U.S.C. § 1391 and 28 U.S.C. § 1400(b).

IDQ'S PRODUCTS AND INTELLECTUAL PROPERTY

8. IDQ originated and is the recognized leader in the category of "do-it-yourself" products for adding refrigerant ("recharging") to vehicle air conditioners that have lost refrigerant over time. Before IDQ's innovations, typically only professional mechanics recharged vehicle air conditioners, which was often time-consuming and expensive.

9. Just over a decade ago, IDQ introduced a revolutionary product including refrigerant in a container, with a delivery hose and a "quick connect" coupler for connection to the vehicle air conditioner. This product enabled consumers to add refrigerant themselves, as needed, without the expense and time of taking the vehicle in for service. Some versions of the product additionally included a gauge for measuring pressure in the vehicle air conditioner.

10. IDQ's recognized brands of do-it-yourself refrigerant kits include A/C PRO®, ARCTIC FREEZE®, SUB-ZERO®, EZ CHILL®, and BIG CHILL® (together, the "All-in-One Products"). IDQ refers to these products as "All-in-One" because they include everything consumers need to service vehicle air conditioners.

11. IDQ's All-in-One Products are marketed throughout the United States by retail establishments such as those operated by AutoZone, Inc., The Home Depot U.S.A. Inc., Advance Auto Parts, Inc., Meijer, Inc., National Automotive Parts Association, O'Reilly Auto Parts, Pep Boys, Wal-Mart Stores, Inc., and Kmart Corporation.

12. IDQ manufactures its All-in-One Products in its facility in Garland, Texas, and stores the products in a warehouse near that facility.

13. As a service to consumers using its products, IDQ maintains a website at www.idqusa.com that presents detailed instructions, videos, product descriptions, news, and other information about the All-in-One Products, and in particular, contains an ASK THE PRO®

section where consumers can obtain access to online help, e-mail assistance, or help over the telephone. Further, IDQ includes numerous videos on its website that demonstrate how to recharge a vehicle air conditioner with IDQ's All-in-One Products.

14. In addition to its website, IDQ provides consumers with printed materials and labels, including detailed instructions, for its All-in-One Products.

15. IDQ has authored and owns all content available on its www.idqusa.com website and all content of its printed materials and labels for its All-in-One Products.

16. IDQ's labels, web site at www.idqusa.com and content, brochures, policies, images, and videos therein constitute copyrightable subject matter under the U.S. Copyright Act of 1976 (the "U.S. Copyright Act"), 17 U.S.C. § 101 *et seq.*, and are entitled to protection thereunder.

17. At all relevant times, IDQ was and is the sole and exclusive owner of all right, title, and interest in and to the copyrights for IDQ's copyrighted works as set forth herein. IDQ is the applicant in pending applications for copyright registrations for the works titled "SUB-ZERO label," "EZ CHILL label" and "Transcript for Video 'How to Recharge Your Car AC with A/C PRO'" electronically filed on an expedited basis on August 13, 2015 and the work titled "IDQUSA.COM website (2012 version)" electronically filed on an expedited basis on August 14, 2015 with the U.S. Copyright Office. These applications were assigned the following Case/SR## 1-2634224422, 1-2634224351, 1-2634224517, and 1-2640414141, respectively (hereinafter individually and collectively referred to as "Copyrighted Works").

18. IDQ has invested significant time and resources in developing and obtaining intellectual property related to the All-in-One Products, including, but not limited to, patents, trademarks, and copyrights.

19. United States Patent No. 7,260,943 (the " '943 patent") titled "Apparatus and Method for Servicing a Coolant System" was duly and legally issued by the United States Patent and Trademark Office on August 28, 2007. A true and correct copy of the '943 patent is attached hereto as Exhibit A.

20. IDQ owns all right, title, and interest in and to the '943 patent.

21. IDQ marks its A/C PRO® and ARCTIC FREEZE® products with the '943 patent number. *See* photographs attached as Exhibit B.

22. On November 20, 2012, the United States Patent and Trademark Office registered the mark ASK THE PRO® for "vehicle air conditioning technological consultation services in connection with the maintenance of vehicle air conditioners; vehicle air conditioning technological consultation services in connection with the repair of vehicle air conditioners; vehicle air conditioning web site consultation in connection with the maintenance of vehicle air conditioners; vehicle air conditioning web site consultation in connection with the repair of vehicle air conditioners" with Registration No. 4,244,354. A true and correct copy of the registered ASK THE PRO® mark is attached as Exhibit C.

23. IDQ owns all right, title, and interest in and to the ASK THE PRO® mark.

DEFENDANT'S ACTS GIVING RISE TO THIS ACTION

24. Upon information and belief, Defendant is in the business of manufacturing and supplying air conditioning refrigerant ("AeroCool R-134a refrigerant"). Defendant offers its AeroCool R-134a refrigerant as part of a vehicle air conditioner recharging system manufactured by Defendant that includes a container for the refrigerant, a trigger dispenser, a hose, a gauge, and a connector (together, the "AeroCool R-134a Product" or the "Product" or "Products"). Upon information and belief, Defendant offers its Products for sale in the United States to one or

more retailers, who in turn sell those Products in this judicial district. Specifically, Defendant's AeroCool R-134a Product can be purchased in this judicial district, in at least, the Tyler Walmart Supercenter located at 6801 S. Broadway Ave., Tyler, Texas, 75703. *See* photograph and receipt attached as Exhibit D.

25. Defendant, through these practices, is unfairly trading on the goodwill, marketing and development efforts, and intellectual property of IDQ.

26. Defendant's website at www.aerocousa.com contains numerous web pages and other content copied directly from IDQ's website. *See* Exhibit E.

27. Defendant uses the phrase "Ask the Pro" on its website in a manner that is confusingly similar to IDQ's mark ASK THE PRO®.

28. Defendant provides on its website an instructional video having a transcript almost identical to that of IDQ's instructional video entitled "How to Recharge Your Car AC with A/C PRO" provided on IDQ's web site. *See* printout of web page displaying link to video on Defendant's web site and printout of web page displaying link to video on IDQ's web site, Exhibit F.

29. Defendant has further copied printed materials, including instructions and labeling, from IDQ's All-in-One Products and has used those copies for its own AeroCool R-134a Product and on its web site.

30. Defendant is aware of the '943 patent, at least because IDQ has marked the '943 patent number on its A/C PRO® and ARCTIC FREEZE® products and because Defendant's Product is substantially identical to the embodiment shown in Figure 11 of the '943 patent.

31. Upon information and belief, Defendant sells its AeroCool R-134a Product to retailers located in the United States and this judicial district knowing and intending that these

retailers will then sell Defendant's AeroCool R-134a Product to consumers in the United States and this judicial district and knowing and intending that these consumers will recharge their vehicle air conditioners using the AeroCool R-134a Product in a manner that infringes the '943 patent and these consumers then use the AeroCool R-134a Product in a manner that directly infringes the '943 patent.

32. Defendant has directly infringed, or induced or contributed to the infringement of the '943 patent by offering for sale in the United States the AeroCool R-134a Product and inducing consumers, through instructions Defendant makes available to those consumers, to use the Product in a manner that infringes the '943 patent in the United States and in this judicial district and these consumers then use the AeroCool R-134a Product in a manner that directly infringes the '943 patent.

33. Defendant's actions have damaged IDQ in an amount yet to be ascertained, and has irreparably harmed, and continues to irreparably harm IDQ, including by usurping IDQ's sales and business opportunities.

COUNT I

(Infringement of the '943 Patent)

34. IDQ realleges paragraphs 1-33 as if fully set forth herein.

35. Defendant has directly infringed and continues to directly infringe one or more claims of the '943 patent, either literally or under the doctrine of equivalents, by offering for sale the AeroCool R-134a Product that embodies each element of at least one claim of the '943 patent, without the authorization, consent, or permission of IDQ with such acts constituting acts of patent infringement under 35 U.S.C. § 271.

36. Since at least May 2015, Defendant has knowingly and intentionally induced, and continues to knowingly and intentionally induce, others throughout the United States and in this judicial district to use, sell, offer for sale, and/or import the AeroCool R-134a Product in a manner that Defendant knows and intends to infringe the '943 patent, including by offering its AeroCool R-134a Product for sale to retailers, and explicitly promoting to consumers and instructing those consumers in the use of its AeroCool R-134a Product with such acts constituting acts of patent infringement under 35 U.S.C. § 271. These consumers then use the AeroCool R-134a Product in a manner that directly infringes the '943 patent.

37. Defendant has contributed to the infringement of the '943 patent and continues to do so by offering its AeroCool R-134a Product for sale to retailers in the United States and this judicial district, knowing that this Product and its use directly infringe the '943 patent, constitute a material part of the invention, were especially made or especially adapted for use in infringement of the '943 patent, and have no substantial non-infringing uses with such acts constituting acts of patent infringement under 35 U.S.C. § 271.

38. Defendant's past and continuing infringement of the '943 patent has damaged IDQ in an amount to be determined at trial.

39. Defendant's past and continuing infringement of the '943 patent has irreparably harmed IDQ, and Defendant's infringement will continue, unless enjoined by this Court pursuant to 35 U.S.C. § 283.

40. Upon information and belief, Defendant's infringement has been, and will continue to be, willful, making this an exceptional case and entitling IDQ to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285. Defendant is aware of the '943 patent, at least because IDQ has marked the '943 patent number on its A/C PRO® and

ARCTIC FREEZE® products. Defendant's knowledge of the '943 patent is also shown by Defendant's copying of the embodiment shown in Figure 11 of the '943 patent. This copying also shows that Defendant is aware that its acts constituted infringement of the '943 patent.

COUNT II

(Trademark Infringement)

41. IDQ realleges paragraphs 1-40 as if fully set forth herein.

42. IDQ is the owner of Federal Trademark Registration No. 4,244,354, which issued on November 20, 2012, on the Principal Register of the United States Patent and Trademark Office. The registration for the mark ASK THE PRO® covers the following services: "vehicle air conditioning technological consultation services in connection with the maintenance of vehicle air conditioners; vehicle air conditioning technological consultation services in connection with the repair of vehicle air conditioners; vehicle air conditioning web site consultation in connection with the maintenance of vehicle air conditioners; vehicle air conditioning web site consultation in connection with the repair of vehicle air conditioners."

43. IDQ first used the mark ASK THE PRO® in commerce on May 1, 2011, and has used it continually since. IDQ has neither canceled nor abandoned the mark ASK THE PRO®. IDQ has invested substantial time, effort, and financial resources promoting the mark ASK THE PRO® and it has become an asset of substantial value as a symbol of IDQ, its goodwill, and its services provided in connection with its products.

44. IDQ's ASK THE PRO® mark is inherently distinctive as used in conjunction with IDQ's services provided in connection with its products.

45. Notwithstanding IDQ's established rights in the mark ASK THE PRO®, Defendant has used and continues to use the ASK THE PRO® mark on Defendant's website in a

manner that is confusingly similar to the use of IDQ's mark on its own IDQ website. *See* web pages from Defendant's web site and IDQ's web site, Exhibit G.

46. Defendant has engaged in its infringing activity despite having constructive notice of IDQ's federal registration rights under 15 U.S.C. § 1072.

47. Upon information and belief, and based on the substantial copying of language on IDQ's website, Defendant has advertised and offered its services and goods for sale using the ASK THE PRO® mark with the intention of misleading, deceiving, or confusing consumers as to the origin of its services and goods and trading on IDQ's reputation and goodwill.

48. Defendant's unauthorized use of the ASK THE PRO® mark constitutes trademark infringement under 15 U.S.C. § 1114(1) and is likely to cause consumer confusion, mistake, or deception.

49. As a direct and proximate result of Defendant's trademark infringement, IDQ has suffered and will continue to suffer loss of income, profits, and goodwill, and Defendant has and will continue to unfairly acquire income and profits.

50. Defendant's acts of infringement will cause further irreparable injury to IDQ if Defendant is not restrained by this Court from further violation of IDQ's rights. IDQ has no adequate remedy at law.

COUNT III

(Copyright Infringement)

51. IDQ realleges paragraphs 1-50 as if fully set forth herein.

52. IDQ is the exclusive owner of all right, title, and interest in and to IDQ's Copyrighted Works. IDQ has applied for registrations with the U.S. Copyright Office for its Copyrighted Works related to its All-in-One Products.

53. Defendant has distributed a web site and content therein, including videos, printed materials, and labels to the public in the United States and this judicial district that are substantially similar to IDQ's Copyrighted Works, in violation of the exclusive rights granted to IDQ under 17 U.S.C. § 106.

54. IDQ's Copyrighted Works are protectable subject matter under the U.S. Copyright Act.

55. Defendant's reproduction and distribution of IDQ's Copyrighted Works (or of content derived from IDQ's Copyrighted Works) and/or content substantially similar to IDQ's Copyrighted Works, constitute infringement of IDQ's copyrights therein in violation of 17 U.S.C. § 501(a).

56. Pursuant to 17 U.S.C. § 504, IDQ is entitled to recover from Defendant the damages it has sustained and will sustain as a result of Defendant's wrongful acts as alleged above in an amount to be established at trial, and IDQ is further entitled to recover from Defendant the profits Defendant made from the wrongful acts.

COUNT IV

(Unfair Competition Under the Lanham Act)

57. IDQ realleges paragraphs 1-56 as if fully set forth herein.

58. Defendant includes on the container for its Product an address for a Post Office Box in Hoover, Alabama allegedly to which a consumer can write in order to obtain assistance in the use of the Product. *See* photographs of relevant portions of AeroCool R-134a Product, Exhibit H.

59. On information and belief, the address that Defendant places on its Product does not correspond to any physical address or facility owned or maintained by Defendant in Hoover, Alabama or in any location anywhere in the United States.

60. Defendant thus places the Hoover, Alabama address on its Product to create in the mind of the consumer the false and erroneous impression that Defendant has a presence in the United States, and particularly in Alabama, when in fact it does not.

61. Defendant is thus using a false or misleading description of fact, or false or misleading representation of fact, which in commercial advertising or promotion, misrepresents the nature, characteristics, qualities, or geographic origin of its goods, services, or commercial activities with such acts constituting acts of unfair competition in violation of 15 U.S.C. § 1125(a).

62. Upon information and belief, Defendant's unfair competition has been willful and malicious, constituting an exceptional case under 15 U.S.C. §1117(a).

63. As a direct result of Defendant's unlawful and unfair competition, IDQ has suffered and continues to suffer damages in the United States and this judicial district.

COUNT V

(Unfair Competition Under Texas Law)

64. IDQ realleges paragraphs 1-63 as if fully set forth herein.

65. Defendant's use of IDQ's mark, misappropriation of IDQ's Copyrighted Works, misrepresentations as to its presence in the United States, and in general free riding on the time, effort, and expense IDQ has invested in creating and supporting the "All-in One" Product category and its brands in that category, constitute acts of unfair competition under the statutory and common law of unfair competition of the State of Texas.

66. Defendant has improperly used and improperly sought to benefit from the efforts, goodwill, and reputation of IDQ.

67. As a direct result of Defendant's unlawful and unfair competition, IDQ has suffered and continues to suffer damages in the United States and this judicial district.

COUNT VI

(Unjust Enrichment Under Texas Common Law)

68. IDQ realleges paragraphs 1-67 as if fully set forth herein.

69. Defendant's use of IDQ's mark, misappropriation of IDQ's Copyrighted Works, misrepresentations as to its presence in the United States, and in general free riding on the time, effort, and expense IDQ has invested in creating and supporting the "All-in One" Product category and its brands in that category, constitute acts of unjust enrichment under the common law of the State of Texas.

70. Defendant has improperly sought to usurp benefit to itself from the efforts, goodwill, and reputation of IDQ.

71. As a direct result of Defendant's unjust enrichment, IDQ has suffered and continues to suffer damages in the United States and this judicial district.

COUNT VII

(Tortious Interference With Prospective Business Relations)

72. IDQ realleges paragraphs 1-71 as if fully set forth herein.

73. IDQ, by and through its use of its ASK THE PRO® mark, was reasonably likely to enter into business relations with prospective consumers.

74. On information and belief, Defendant intentionally interfered with IDQ's prospective, foreseeable business relations by infringing IDQ's patent rights, inducing and contributing to infringement of those patent rights by others, diluting IDQ's trademark, and creating confusion in the market about IDQ's trademark.

75. Defendant's activities were and are independently tortious and unlawful.

76. Defendant's tortious interference has caused injury to IDQ directly and has detrimentally impacted IDQ's ability to consummate its prospective business relations with its customers.

77. As a direct result of Defendant's tortuous interference, IDQ has suffered and continues to suffer damages in the United States and this judicial district.

COUNT VIII

(False Marking Under 35 U.S.C. § 292)

78. IDQ realleges paragraphs 1-76 as if fully set forth herein.

79. Defendant marks and has marked the container of its AeroCool R-134a Product with the term "PAT. NO. PENDING" implying that an application for a U.S. patent has been

made for all or some portion of that Product. *See* photograph of relevant portion of AeroCool R-134a Product, Exhibit I.

80. On information and belief, despite this marking, Defendant has not filed or caused to be filed any patent application in the United States for all or some portion of its AeroCool R-134a Product. Defendant's marking of the container portion of its AeroCool R-134a Product is thus false and misleading.

81. Defendant knew or reasonably should have known that it had not filed or caused to be filed any patent application in the United States for all or some portion of its AeroCool R-134a Product. Defendant knew or reasonably should have known that marking the AeroCool R-134a Product with a term indicating that a patent application was pending was false marking in violation of 35 U.S.C. § 292. Defendant also has control over the false marking of its AeroCool R-134a Product. Defendant is thus acting with the purpose and intent of deceiving the public in violation of 35 U.S.C. §292(b).

82. IDQ has suffered economic damage as a result of Defendant's intentional false marking of the AeroCool R-134a Product.

83. Each time Defendant offers to sell refrigerant dispensing systems containing false patent markings within the United States, such as described above, Defendant commits at least one "offense" as defined in 35 U.S.C. § 292(a).

PRAYER FOR RELIEF

WHEREFORE, IDQ respectfully requests that the Court:

a) Declare that Defendant has directly infringed, induced others to infringe, and/or contributed to the infringement of the '943 patent;

b) Declare that Defendant has willfully infringed IDQ's patent rights, as asserted herein;

c) Declare that Defendant has infringed IDQ's mark ASK THE PRO®, as asserted herein;

d) Declare that Defendant has infringed IDQ's rights in IDQ's Copyrighted Works, as asserted herein;

e) Permanently enjoin Defendant from directly infringing, inducing others to infringe, or contributing to the infringement of the '943 patent, including by specifically prohibiting Defendant and its agents, servants, employees, affiliates, divisions, and subsidiaries, and those in association with them, from manufacturing, using, importing, selling, and offering to sell, in the United States any product that falls within the scope of any claim of the '943 patent and from providing instructions on how to use any product in an infringing manner;

f) Order an accounting for all monies received by or on behalf of Defendant and all damages sustained by IDQ as a result of Defendant's infringements;

g) Order Defendant to recall all infringing Products from its customers;

h) Award IDQ damages in an amount to be demonstrated at trial adequate to compensate IDQ fully for damages caused by Defendant's direct and indirect infringement of the '943 patent, IDQ's trademark ASK THE PRO®, and IDQ's Copyrighted Works;

i) Award IDQ increased damages pursuant to 35 U.S.C. § 284;

j) Award IDQ its reasonable attorneys' fees and litigation expenses, pursuant to 35 U.S.C. § 285;

k) Award IDQ prejudgment interest and costs pursuant to 35 U.S.C. § 284;

l) Permanently enjoin and restrain Defendant and each of its agents, employees, officers, attorneys, successors, assigns, affiliates, and any persons in privity or active concert or participation with any of them from using the mark ASK THE PRO®;

m) Pursuant to 15 U.S.C. § 1116(a), direct Defendant to file with the Court and serve on IDQ within thirty (30) days after issuance of an injunction, a report in writing and under oath setting forth in detail the manner and form in which Defendant has complied with the injunction;

n) Pursuant to 15 U.S.C. § 1118, require Defendant, at its cost, to deliver and destroy all materials in its possession and all web pages and content in its control bearing the infringing mark;

o) Award to IDQ all profits received by Defendant from sales and revenues of any kind made as a result of its infringing actions, said amount to be trebled, after an accounting pursuant to 15 U.S.C. § 1117;

p) Permanently enjoin Defendant from infringing IDQ's Copyrighted Works, including by specifically prohibiting Defendant and its agents, servants, employees, affiliates, divisions, and subsidiaries, and those in association with them, from infringing IDQ's Copyrighted Works;

q) Pursuant to 17 U.S.C. § 503, direct the impoundment and destruction or the complete erasure of all materials made or used by Defendant and its agents in violation of IDQ's exclusive rights in its Copyrighted Works, including, but not limited to, all digital and printed materials, content and products that are substantially similar or incorporate IDQ's Copyrighted Works;

r) Pursuant to 17 U.S.C. § 504(b), award damages to IDQ from Defendant in an amount to be determined by applicable law;

s) Pursuant to 35 U.S.C. § 292, award damages to IDQ from Defendant adequate to compensate IDQ for the commercial and other economic injury suffered by IDQ as a result of Defendant's false marking;

t) Declare this case to be exceptional and award IDQ its reasonable and necessary attorneys' fees and court costs in prosecuting this action; and

u) Award IDQ such other and further relief as the Court may deem just and proper.

REQUEST FOR JURY TRIAL

Pursuant to Fed. R. Civ. P. 38, IDQ hereby demands trial by jury as to all issues so triable in this action.

Dated: August 17, 2015

Respectfully submitted by:

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COUNSEL FOR PLAINTIFF IDQ OPERATING, INC.

EXHIBIT A

US007260943B2

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

(10) **Patent No.: US 7,260,943 B2**
(45) **Date of Patent: Aug. 28, 2007**

(54) **APPARATUS AND METHOD FOR SERVICING A COOLANT SYSTEM**

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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 163 days.

(21) Appl. No.: **10/975,816**

(22) Filed: **Oct. 29, 2004**

(65) **Prior Publication Data**

US 2005/0217285 A1 Oct. 6, 2005

Related U.S. Application Data

(60) Provisional application No. 60/516,552, filed on Oct. 31, 2003.

(51) **Int. Cl.**
F25B 45/00 (2006.01)
F25B 17/00 (2006.01)
F16K 37/00 (2006.01)

(52) **U.S. Cl.** **62/77**; 62/146; 137/229

(58) **Field of Classification Search** 62/77, 62/146, 149, 292, 299, 408, 410; 137/292, 137/315, 315.16, 315.39, 315.14, 229; 73/299
See application file for complete search history.

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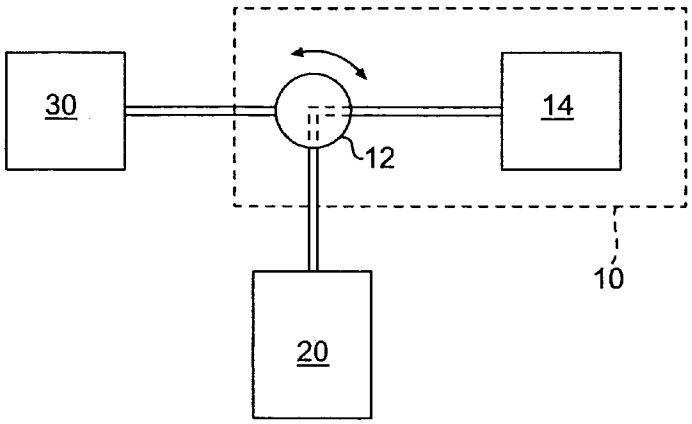
(57) **ABSTRACT**

An apparatus, system and method for servicing a coolant system, such as, an automobile air conditioner are disclosed. In one embodiment, the apparatus may comprise a device for measuring a parameter of the coolant system; and means for selectively switching between providing: (i) communication between the coolant system and said measuring device, and (ii) communication between the coolant system and the coolant supply.

38 Claims, 16 Drawing Sheets



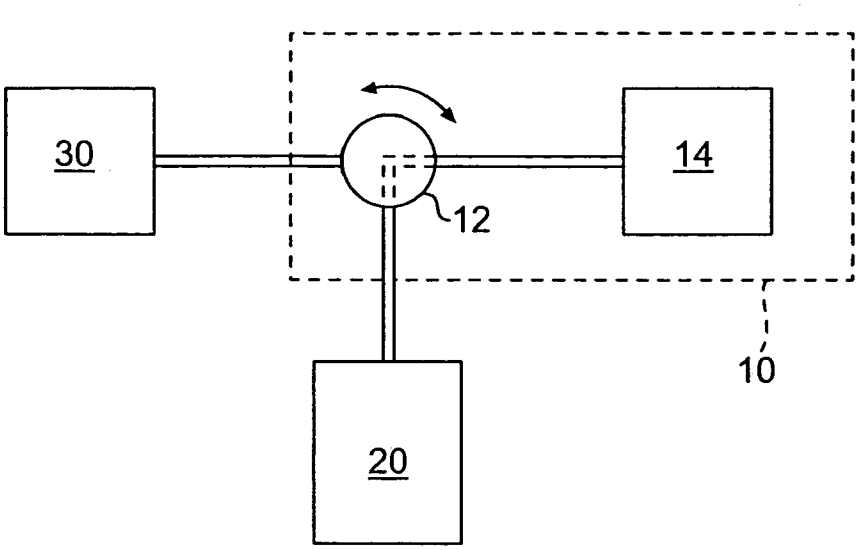


FIG. 1

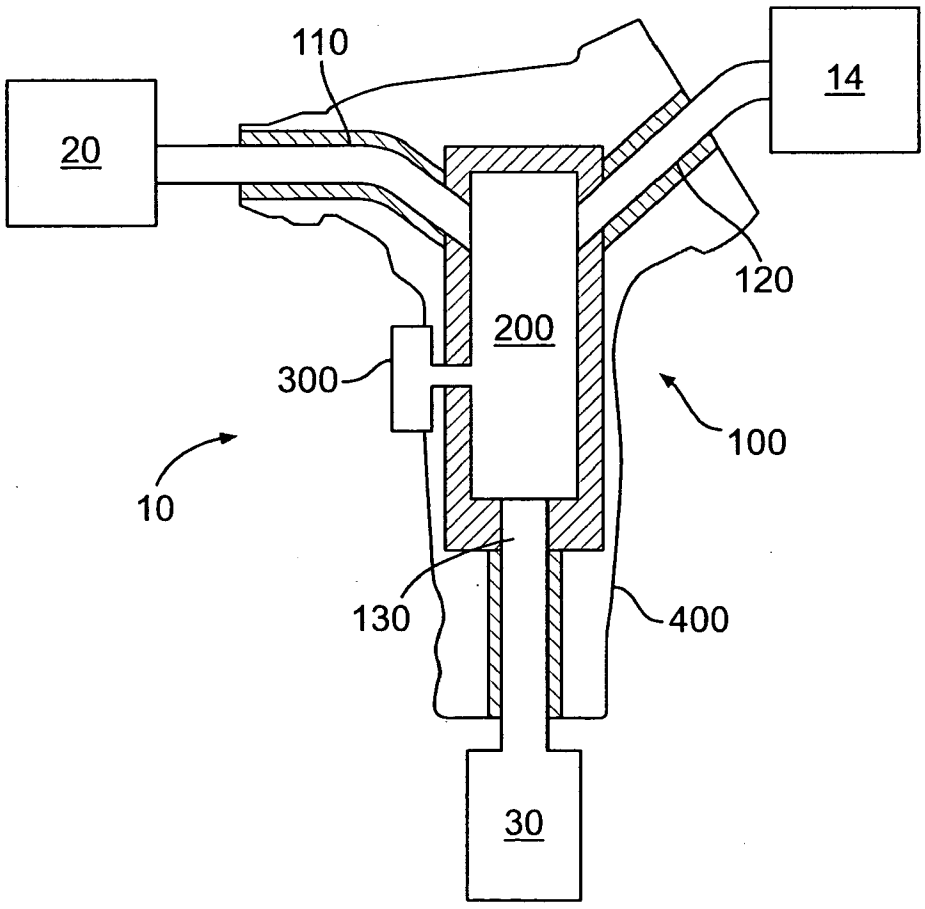
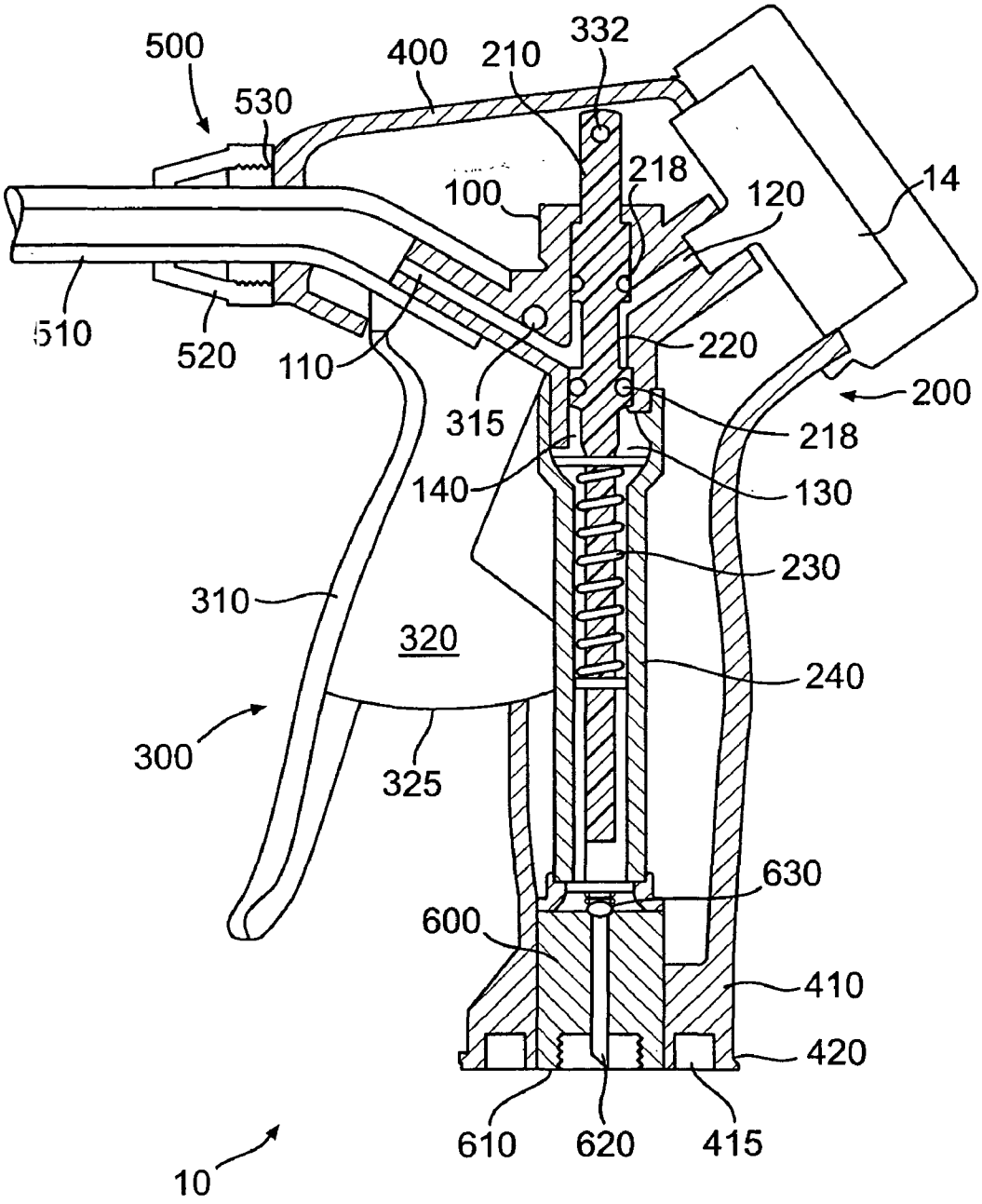


FIG. 2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530
400
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332
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14
510
520
110
220
200
315
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140
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230
310
320
240
300
325
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600
410
420
610
620
415
10

FIG. 3A

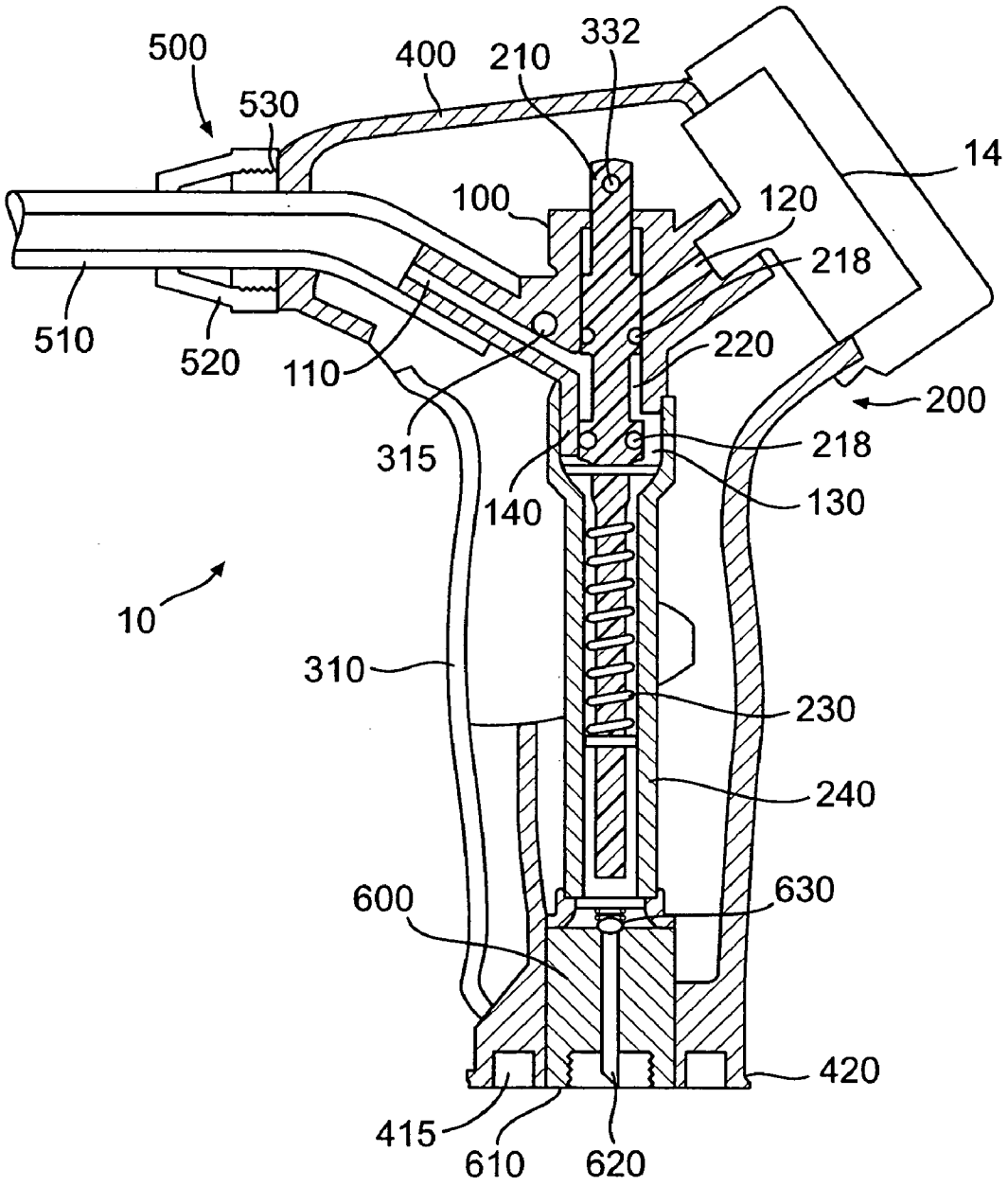
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FIG. 3B

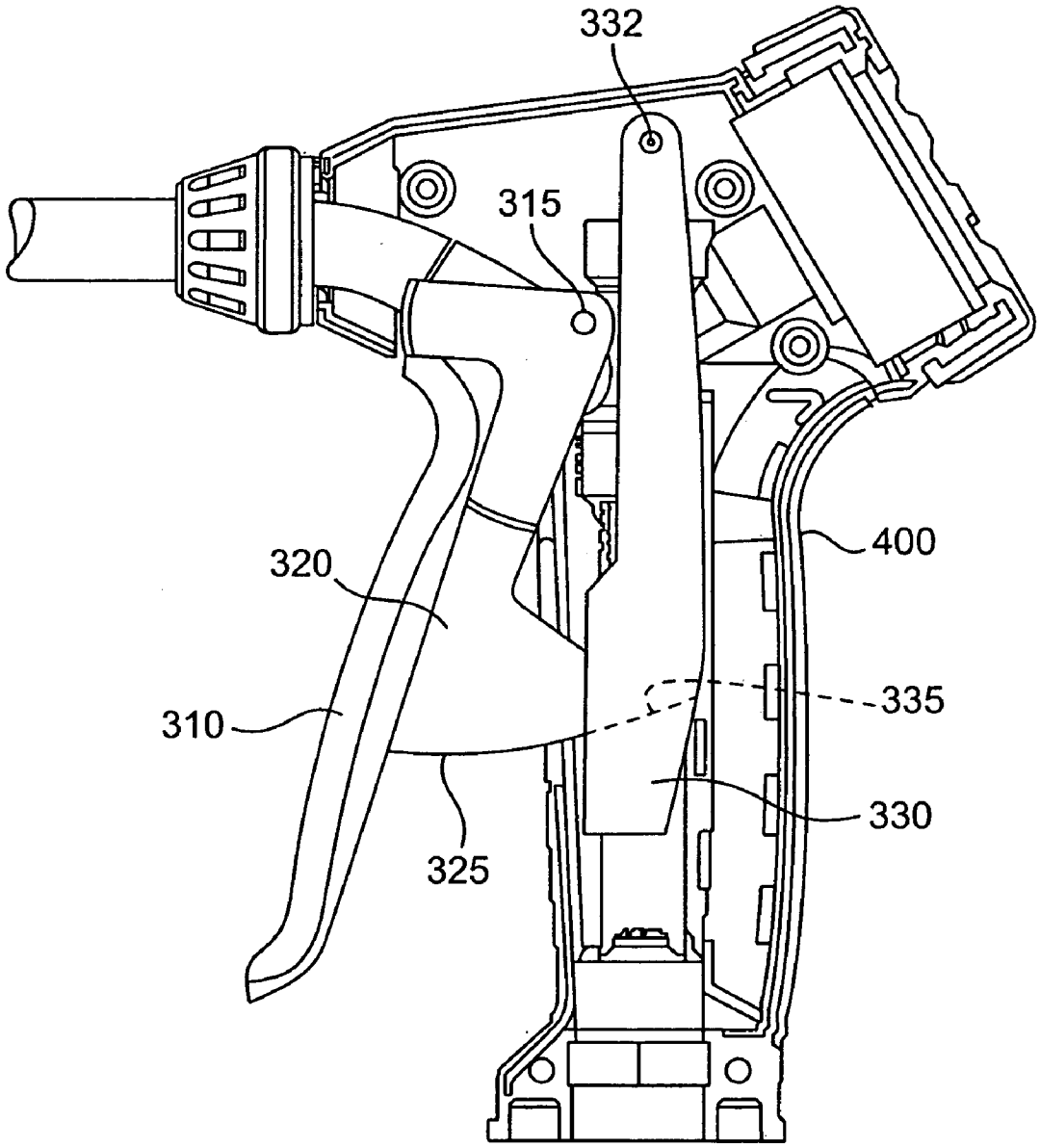


FIG. 3C

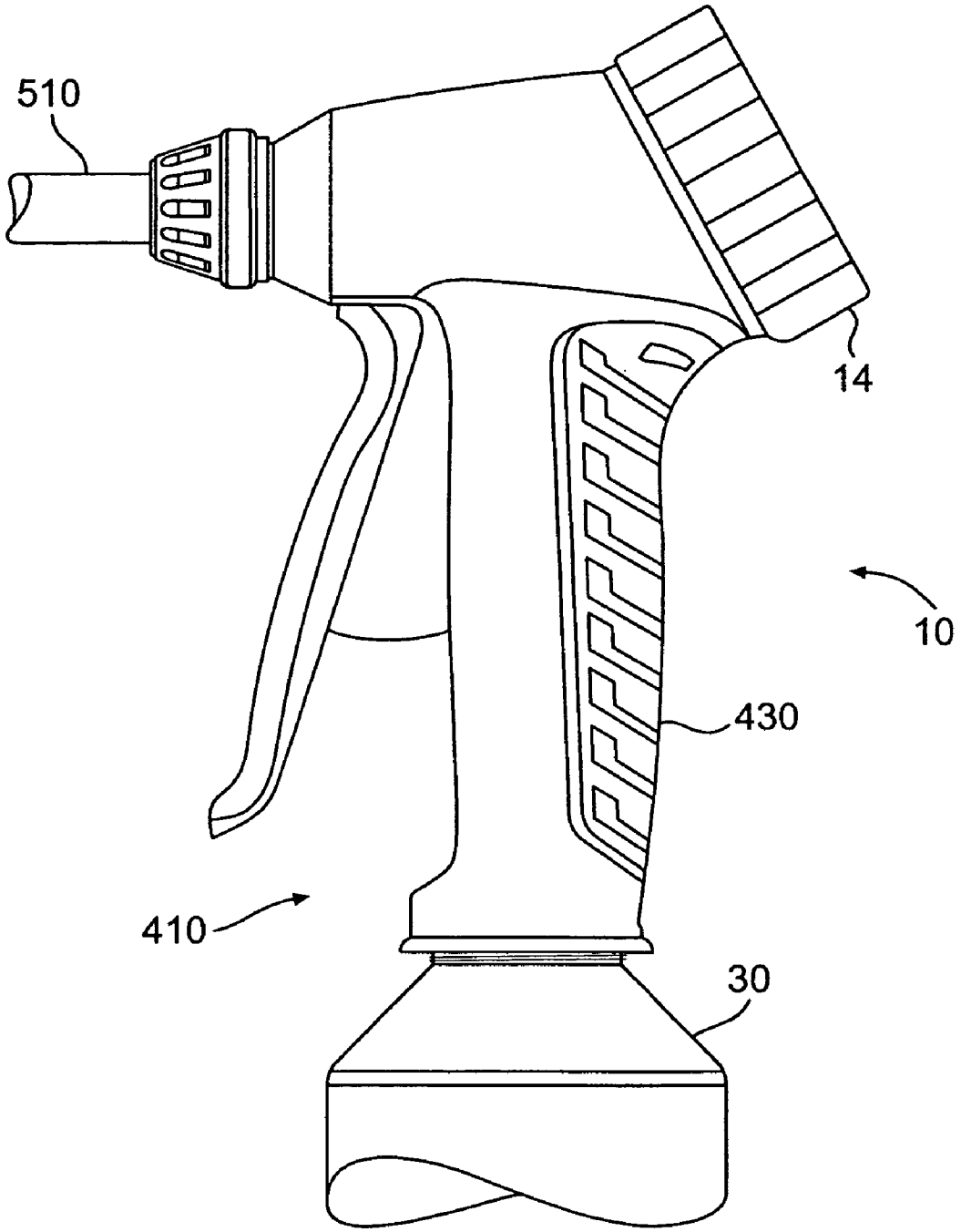


FIG. 4A

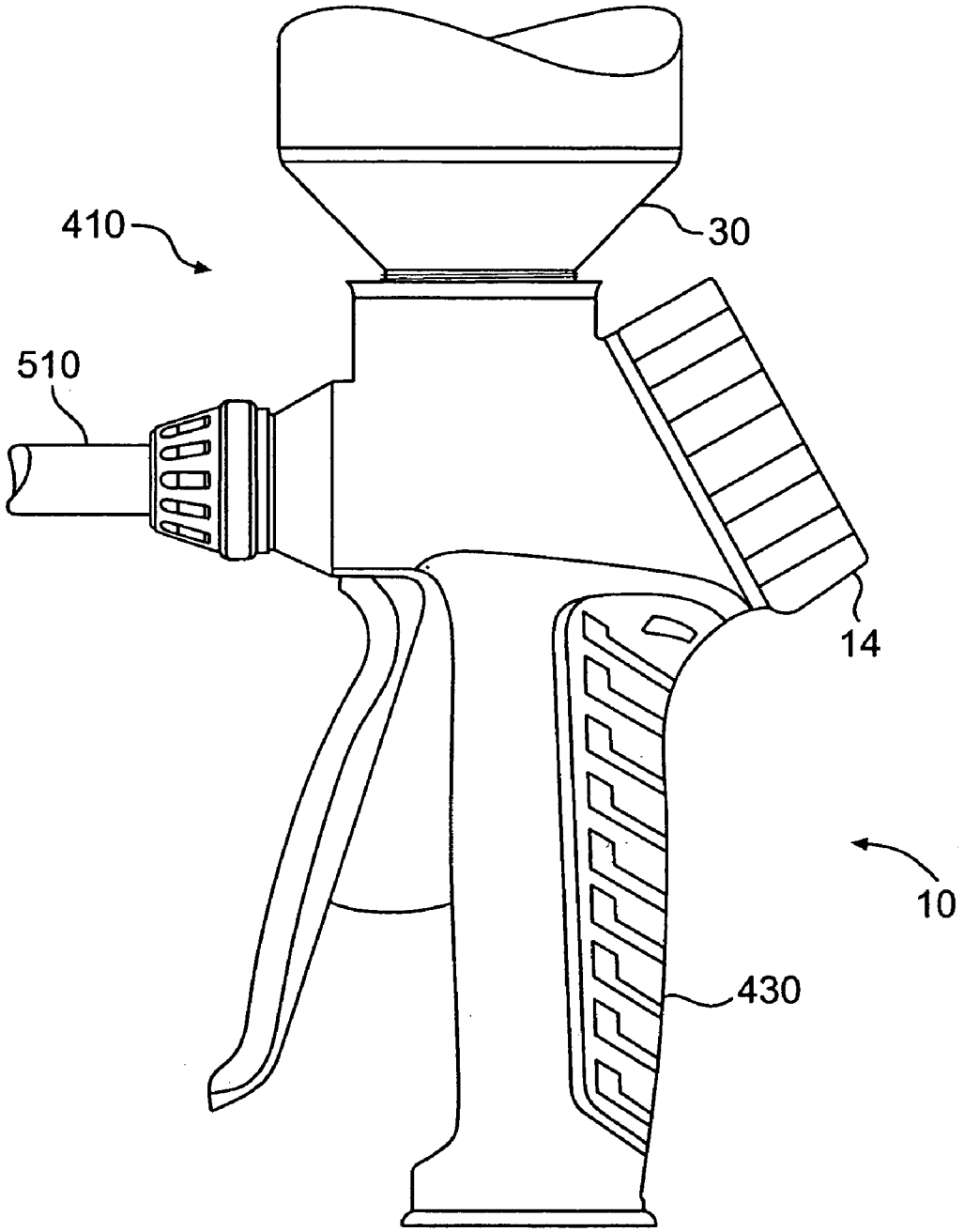


FIG. 4B

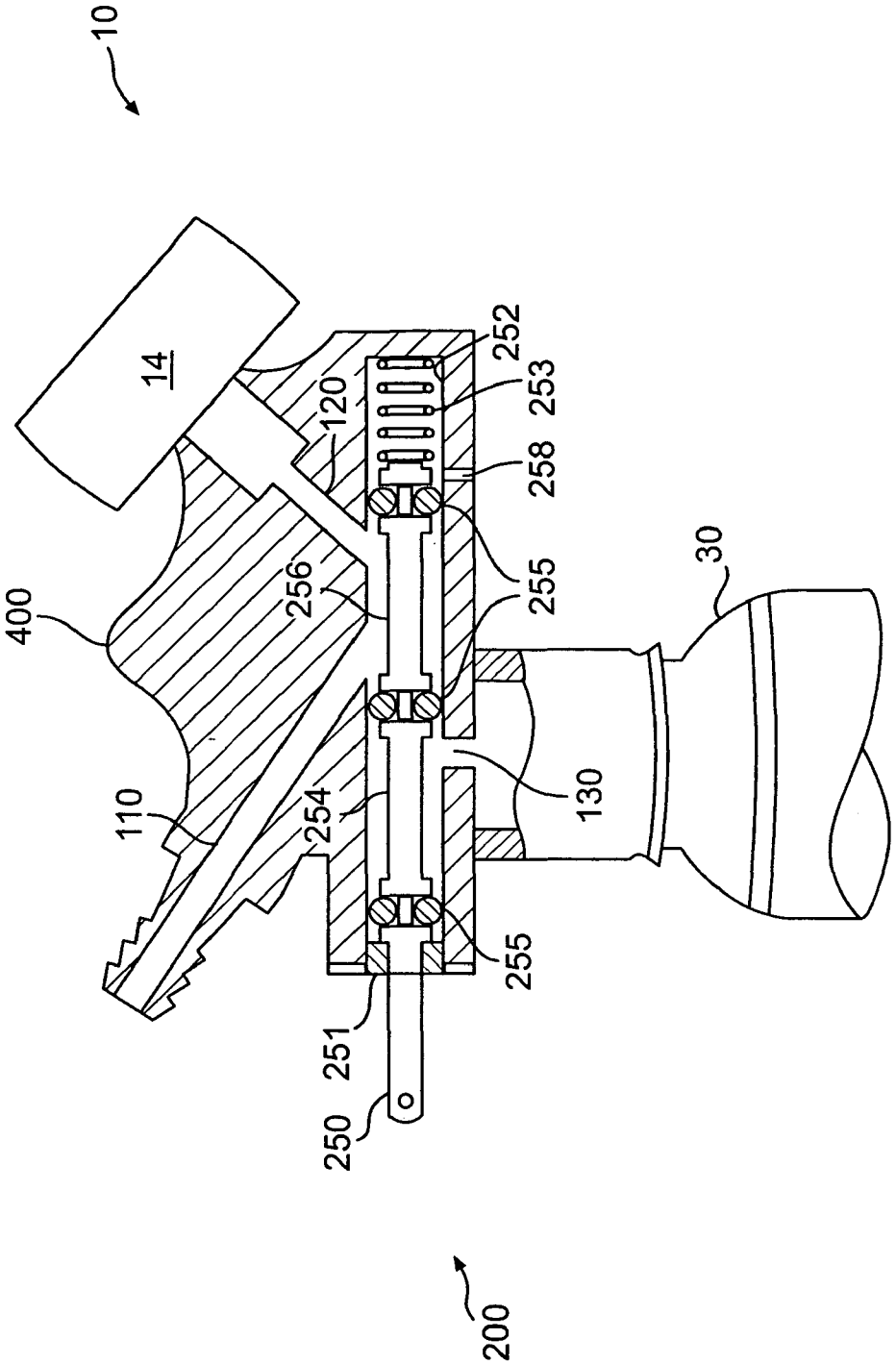
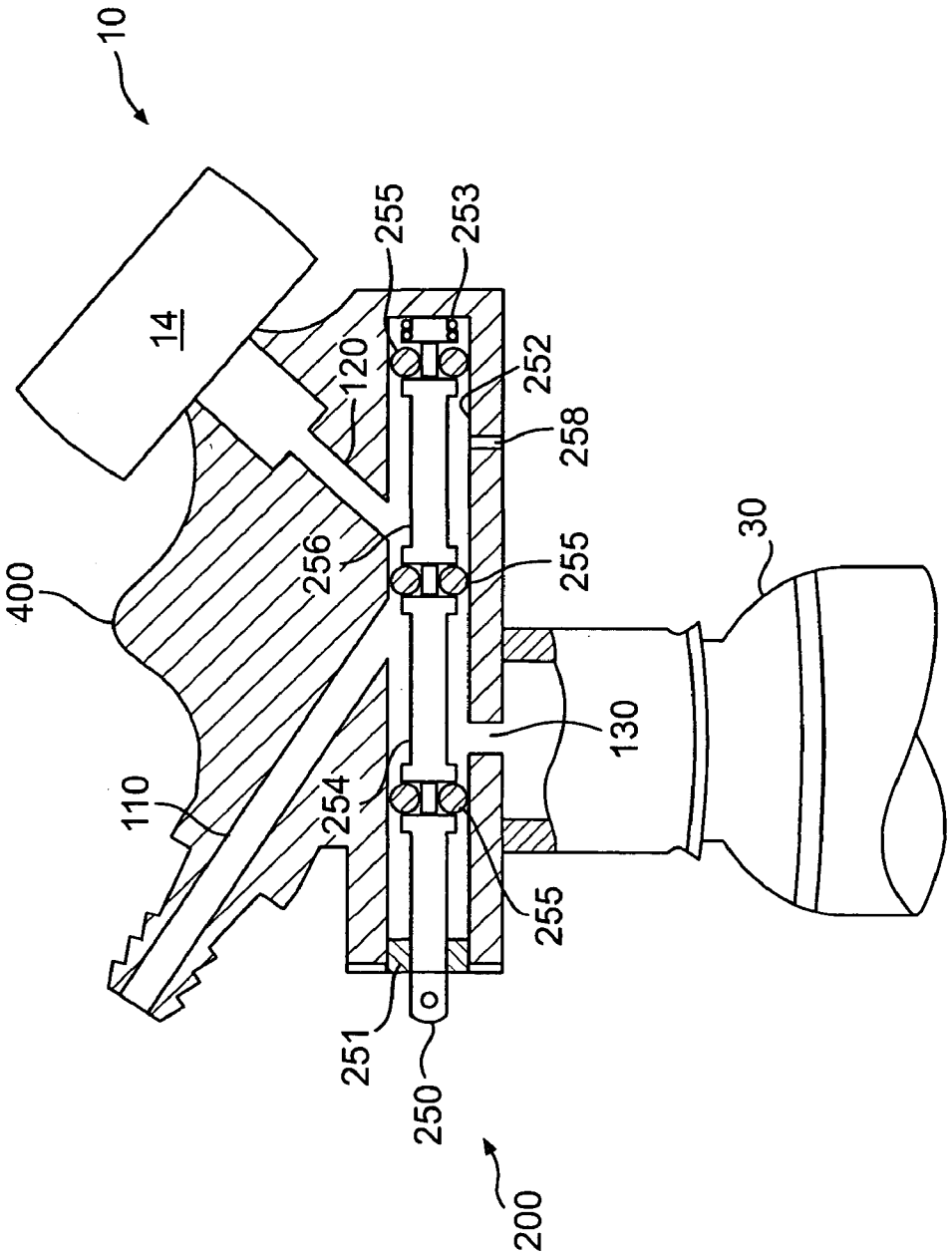


FIG. 5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14
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253
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258
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30
400
130
110
254
255
251
250
200

FIG. 6

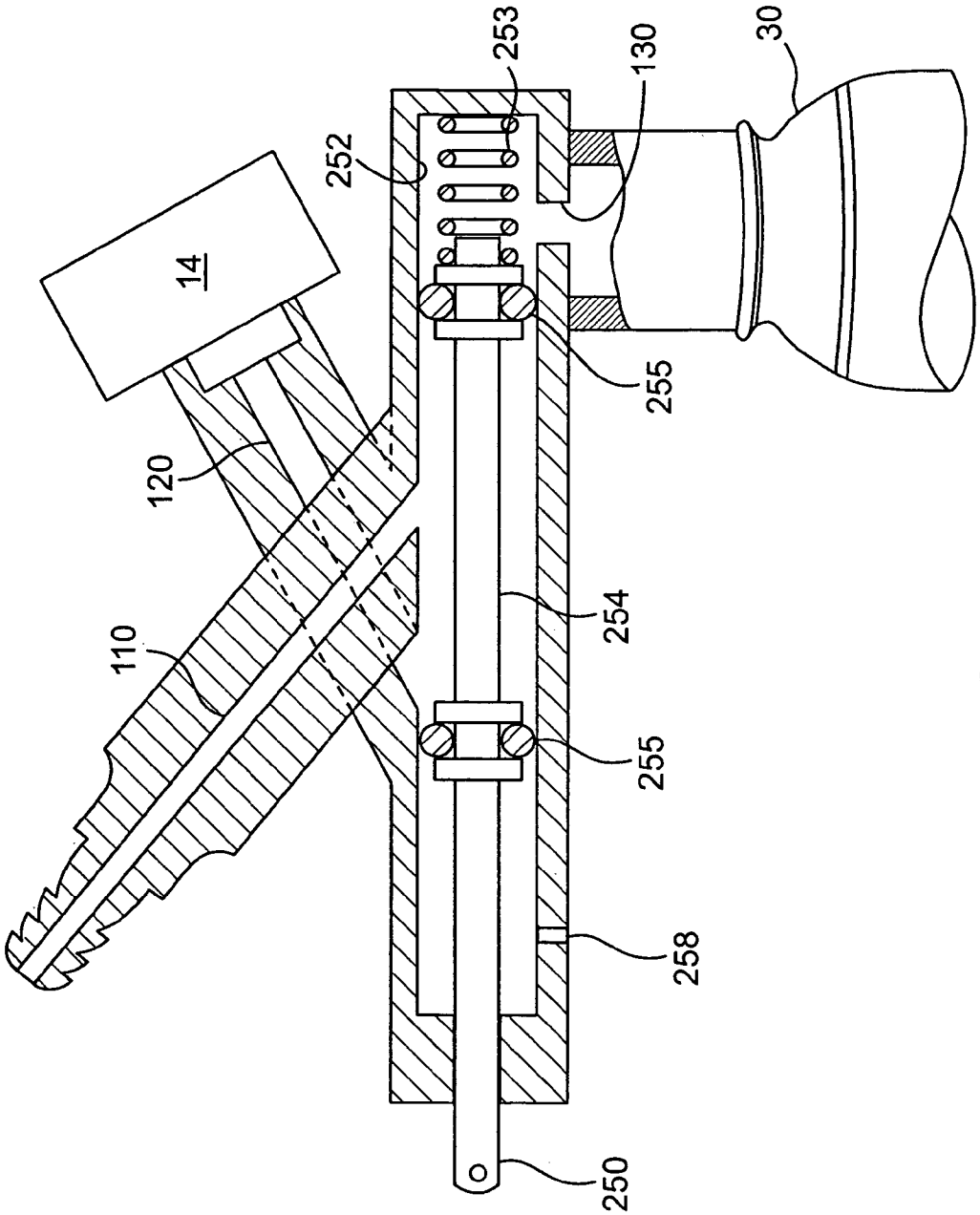


FIG. 7A

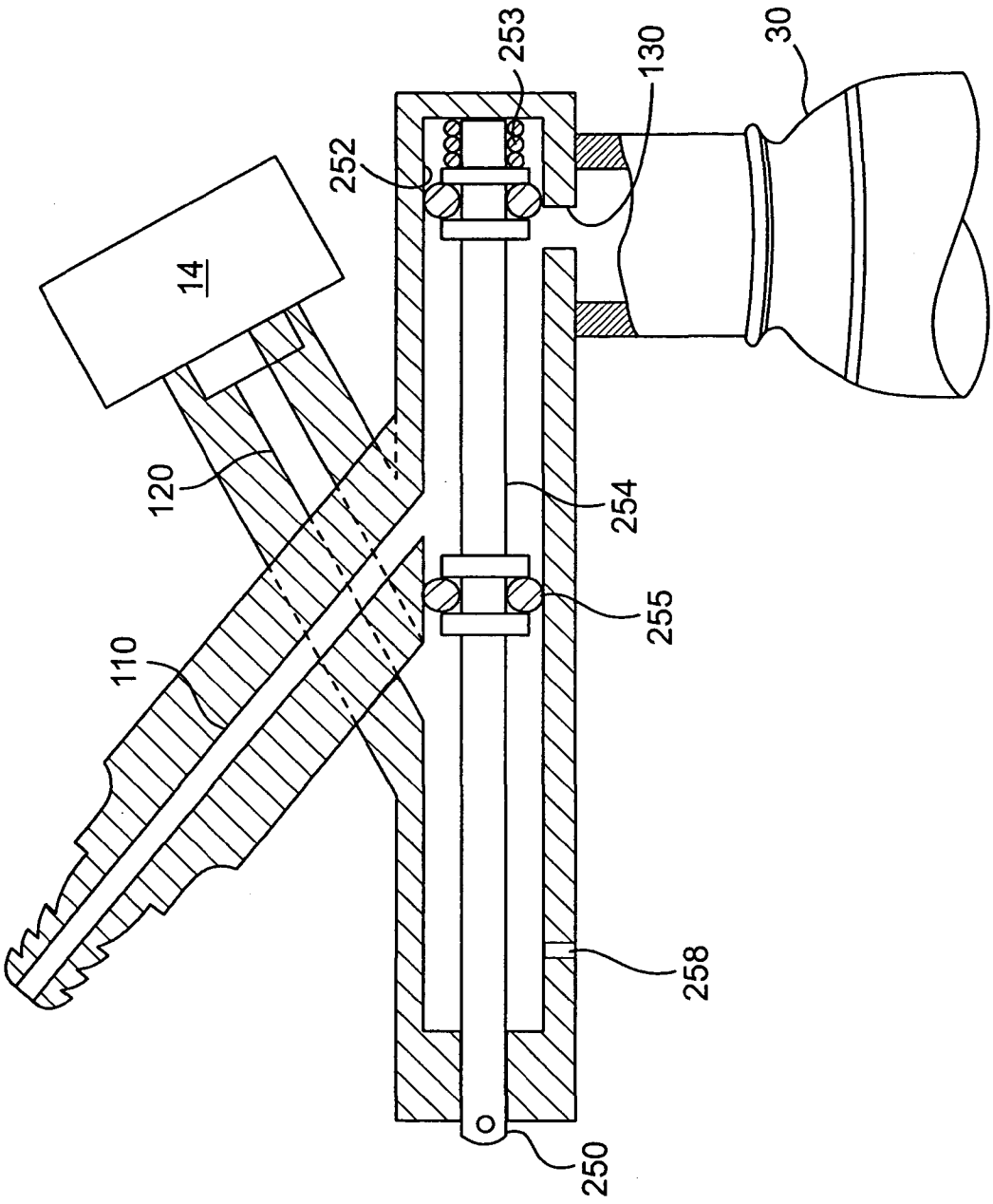
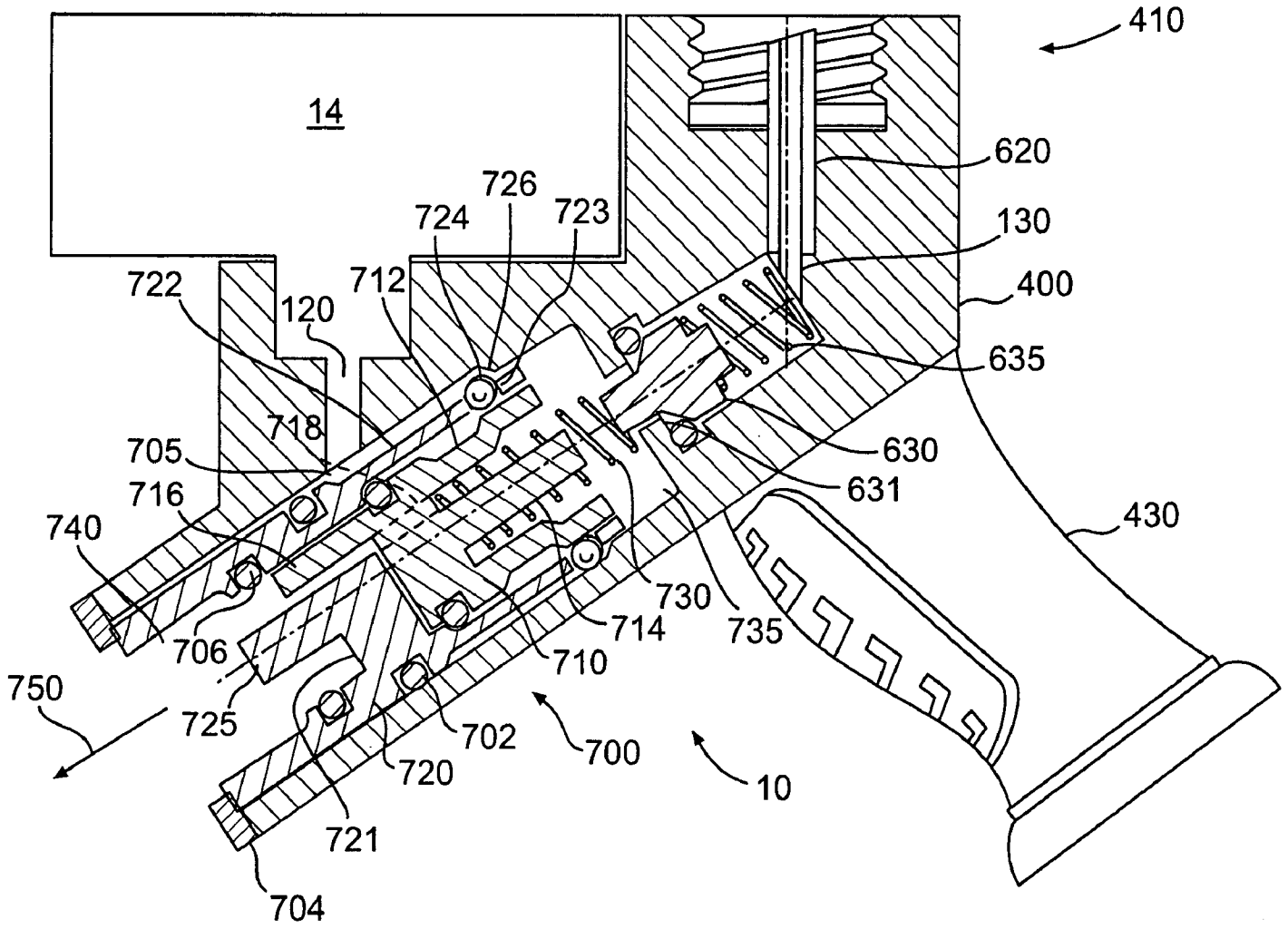


FIG. 7B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14
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635
718
705
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721
704

FIG. 8

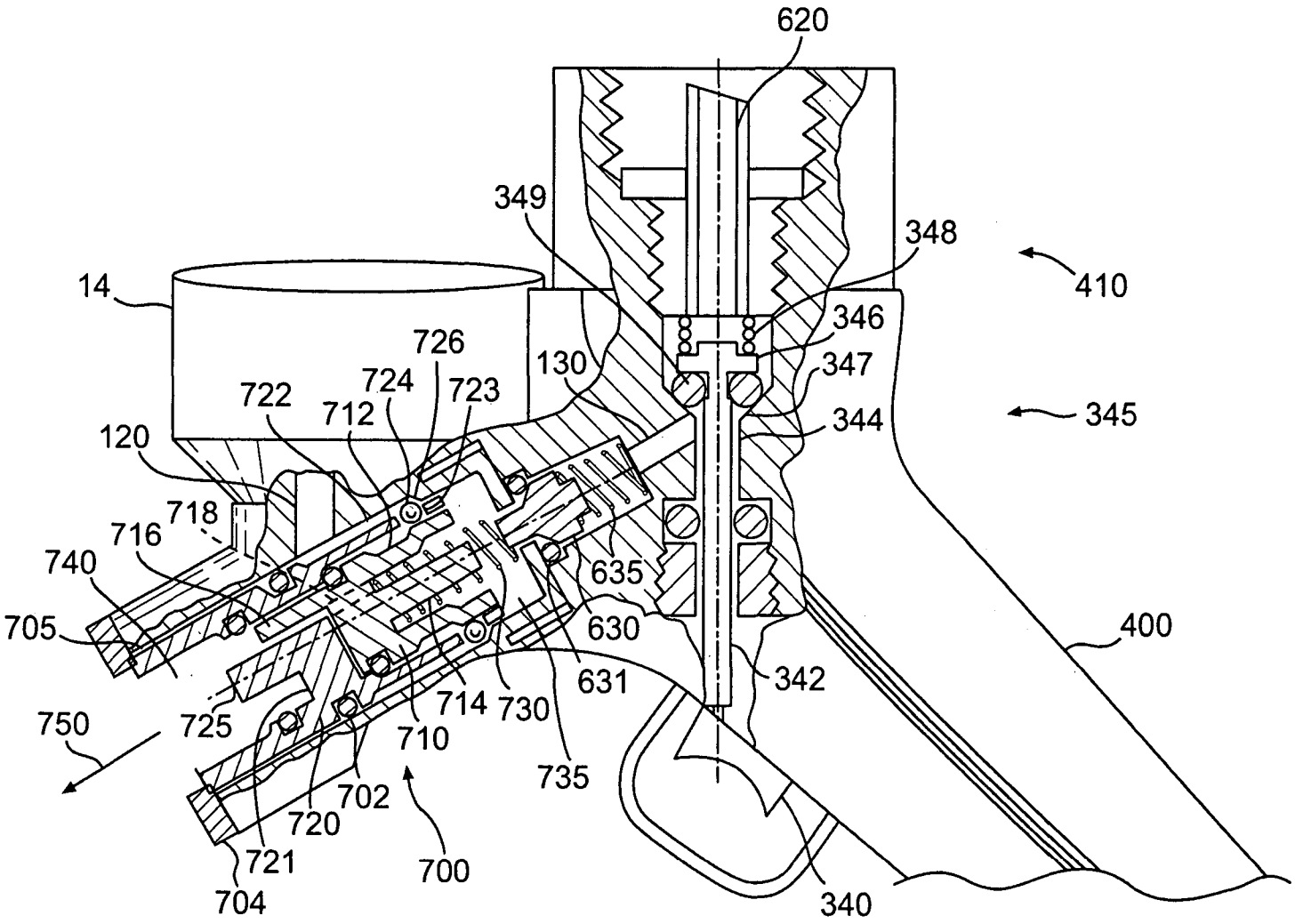
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FIG. 9

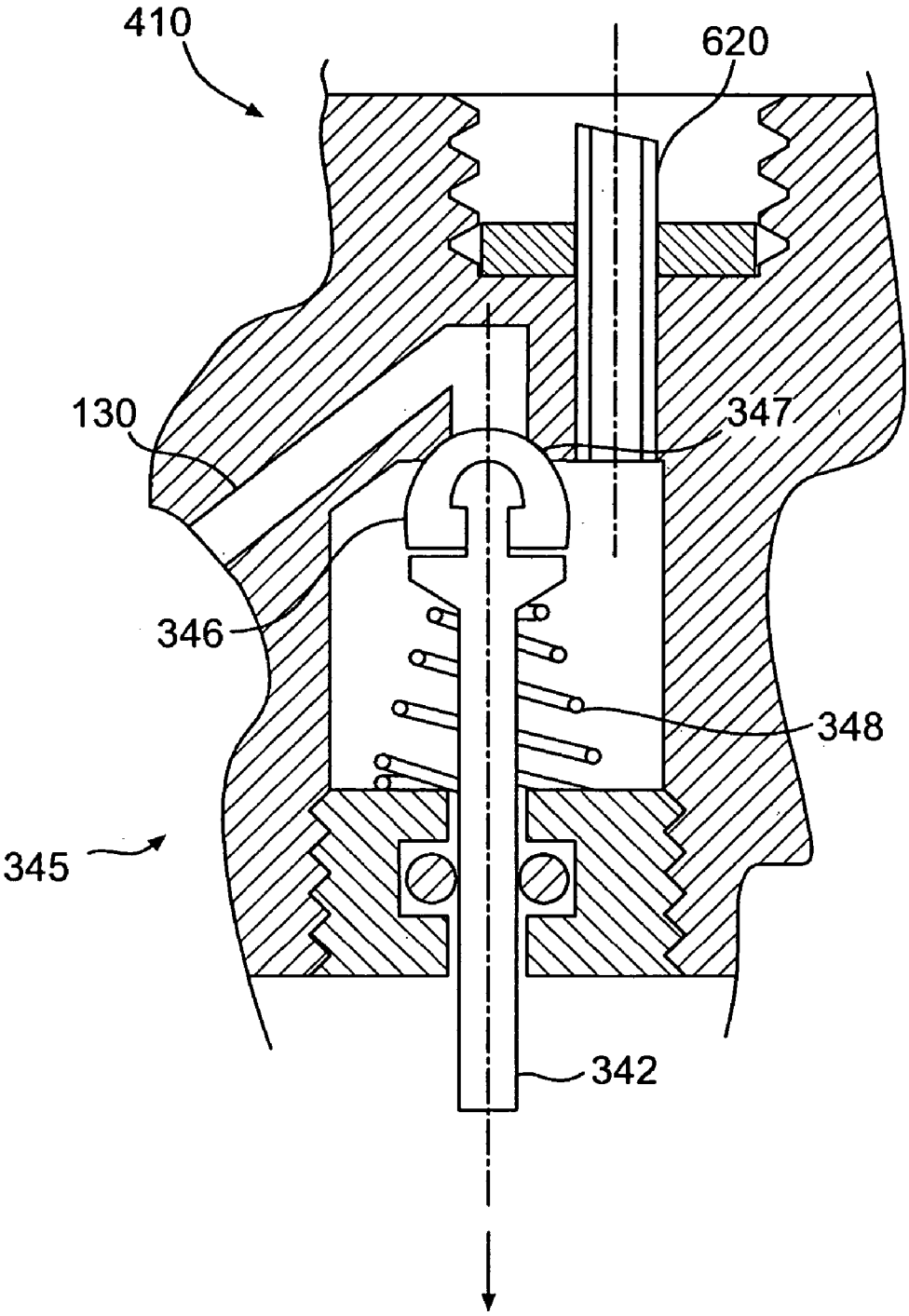
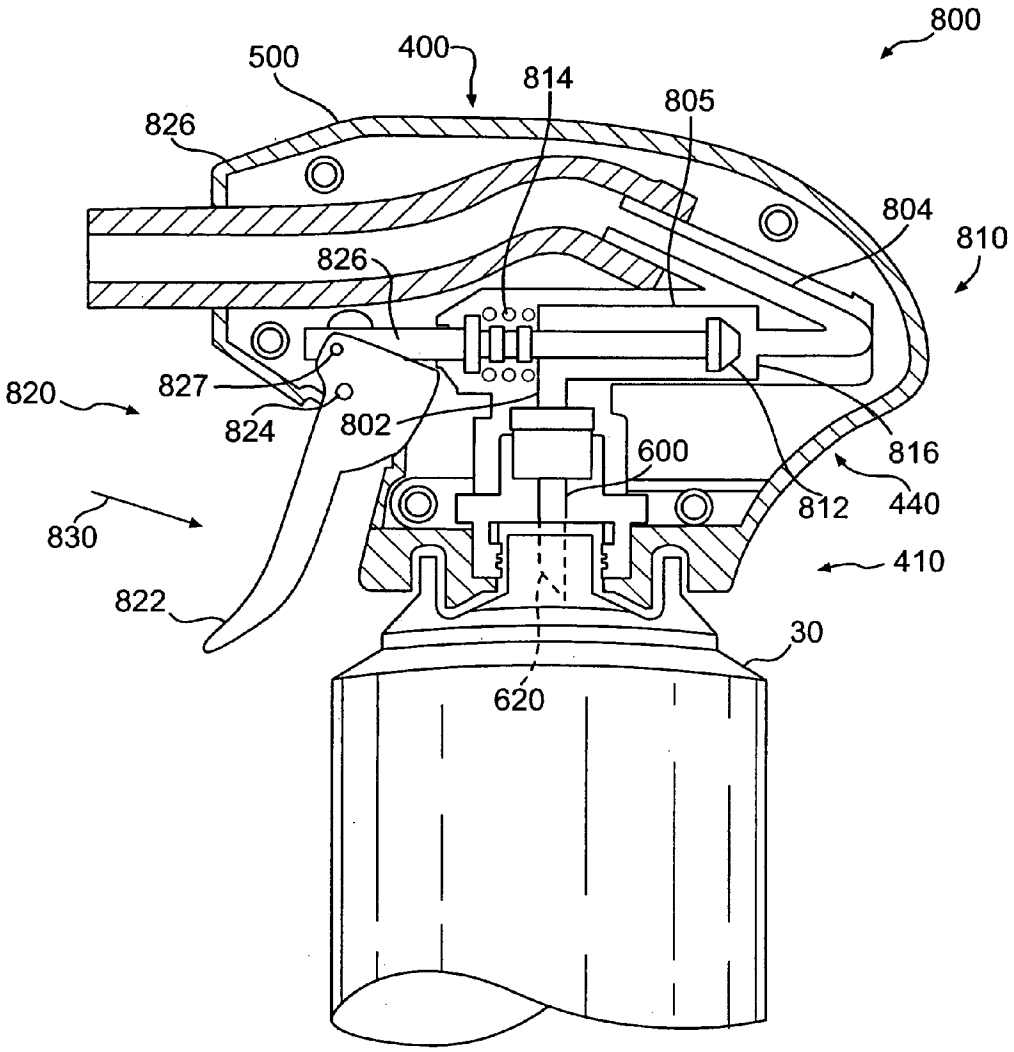


FIG. 10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814
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827
824
802
600
816
440
812
830
410
822
30
620

FIG. 11

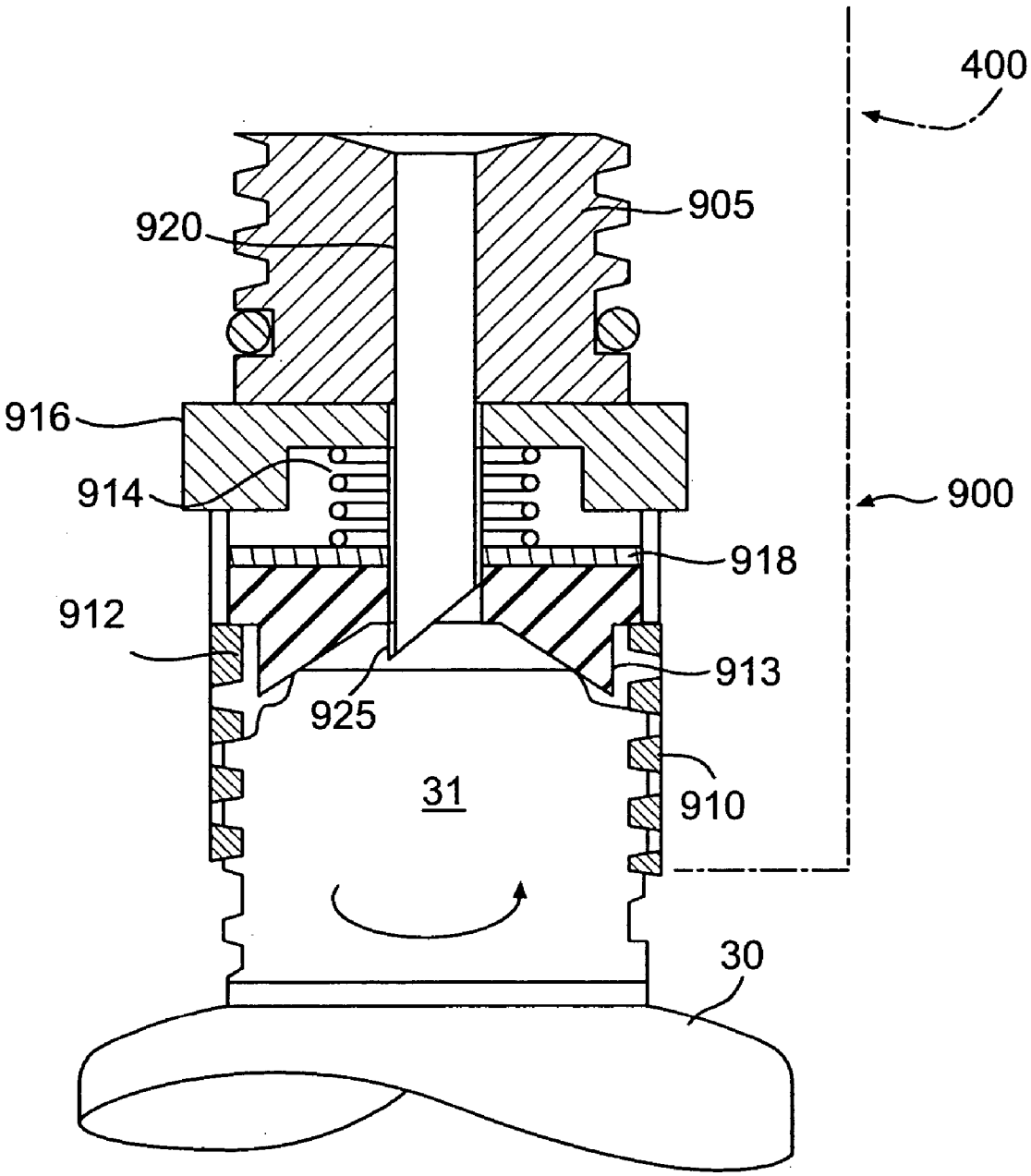

FIG. 12

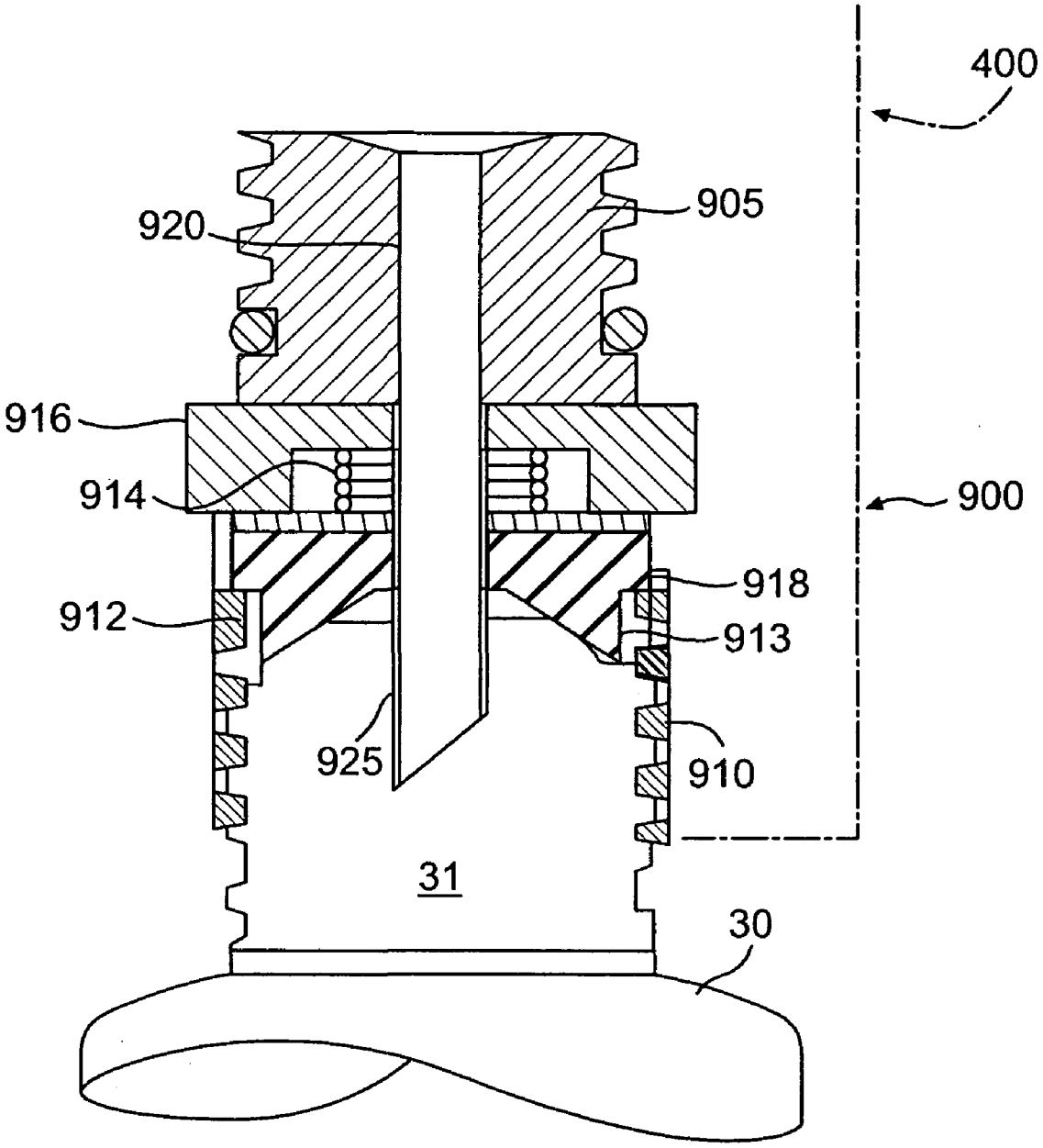

FIG. 13

APPARATUS AND METHOD FOR SERVICING A COOLANT SYSTEM

CROSS-REFERENCE TO RELATED PATENT APPLICATIONS

This application claims priority on U.S. Provisional Patent Application Ser. No. 60/516,552, for Device for Measuring Pressure in Automobile Air Conditioner and Charging Same With Refrigerant, filed on Oct. 31, 2003, the entirety of which is incorporated herein by reference.

FIELD OF THE INVENTION

Embodiments of the present invention relate to an apparatus and method for servicing a coolant system.

BACKGROUND OF THE INVENTION

Many coolant systems, such as, automobile air conditioners, use chemicals called refrigerants to cool air. The refrigerants may be added to the coolant system as liquids, but utilized in the system as gases. These coolant systems operate based on the principle of Gay-Lussac's Law, which is:

$P/T=P'/T'$ where V is constant

and where P=pressure, T=temperature, and V=volume. In accordance with this law, as the pressure of a compressed gas increases, its temperature increases. Conversely, as the pressure of the gas decreases, the temperature of the gas decreases. Expansion of a refrigerant gas in a coolant system acts to cool the system containing the refrigerant. Air blown over the cooled system, in turn may be cooled, and provided to a vent where it can cool an interior space, such as an automobile cabin. This is the basic concept of many refrigeration and air conditioning systems.

The ability to achieve cooling by compressing and expanding a gaseous refrigerant may depend to some degree on the level of liquid refrigerant present in the system. In an automobile air conditioning system, several factors may adversely affect the level of refrigerant in the system. For example, the system may be subject to significant swings in temperature and frequent thermal cycling due to the action of the air conditioner itself and the heat produced by the automobile's engine. Under these conditions, joints and fittings may tend to expand and contract, permitting refrigerant to slowly leak out of the system. In another example, the hoses used may be slightly permeable to the refrigerant, which may also permit the refrigerant to slowly leak out of the hoses. Accordingly, maintenance of an automobile air conditioning system may require monitoring the refrigerant level or pressure and periodic re-charging of the refrigerant as indicated.

Typical automotive air conditioners are provided with at least one service port to allow for the addition of refrigerant and checking on the level of refrigerant in the system. The check of refrigerant level and the addition of refrigerant may be attended to by a professional mechanic, however, there is no requirement that a professional carry out these functions. A growing number of automobile owners choose to perform this type of routine maintenance on their vehicles. This market is commonly referred to as the "do-it-yourself" market.

A standard tool used by professionals for servicing automobile air conditioners includes a set of manifold gauges.

This device usually includes three hoses and two gauges: one hose connects to a low pressure service port; one hose connects to a high pressure service port; and the third hose connects to the source of refrigerant. The two gauges may be used to measure the pressure at the high and low pressure service ports.

Although manifold gauges are the standard tool used by professional auto mechanics for air conditioner service, several disadvantages may reduce their popularity among do-it-yourself consumers. Manifold gauges can be complicated to use. One must know the approximate ambient temperature and look up the pressure readings of the gauges on a chart to determine if there is sufficient refrigerant in the system. In addition, use of manifold gauges may be dangerous. Because these devices require handling of the high pressure service port of the automobile air conditioner, their use may present a risk of injury to inexperienced consumers. Furthermore, manifold gauges may be relatively expensive for a "do-it yourself" consumer considering the relative infrequency of their use for servicing of a single automobile. Accordingly, there is a need for new methods and apparatus for servicing air conditioners, such as those used in automobiles, which do not have the same drawbacks as manifold gauges.

Various method and apparatus embodiments of the present invention may be used to service air conditioners, such as those used in automobiles. Embodiments of the present invention may allow a consumer to measure the refrigerant pressure in an automobile air conditioner, and to add refrigerant as needed. Additional advantages of embodiments of the invention are set forth, in part, in the description which follows and, in part, will be apparent to one of ordinary skill in the art from the description and/or from the practice of the invention.

SUMMARY OF THE INVENTION

Responsive to the foregoing challenges, Applicant has developed an innovative apparatus for servicing a coolant system adapted to receive coolant from a coolant supply. The apparatus may comprise: a device for measuring a parameter of the coolant system; and means for selectively switching between providing: (i) communication between the coolant system and said measuring device, and (ii) communication between the coolant system and the coolant supply.

Applicant has further developed a device for servicing a coolant system, comprising: an outer housing; a central body disposed within the outer housing, the central body having an internal bore and first, second, and third fluid ports communicating with the internal bore; a valve disposed in the internal bore, the valve adapted to attain a first position in which there is communication between the first fluid port and the second fluid port, and a second position in which there is communication between the first fluid port and the third fluid port; and a valve actuator operatively connected to the valve.

Applicant has further developed an innovative system for servicing an automobile air conditioner. The system may comprise: a coolant supply source; means for measuring a parameter of the coolant in the automobile air conditioner; and a device for servicing the automobile air conditioner. The servicing device may comprise a central body; a valve disposed in the central body; and a valve actuator, wherein the valve is adapted to provide selective communication between the automobile air conditioner and (i) the measur-

ing means, and (ii) the coolant supply source, responsive to an actuation force from the valve actuator.

Applicant has developed an innovative method for servicing a coolant system using a servicing apparatus attached to a measuring device and a coolant supply. The method may comprise the steps of: attaching the servicing apparatus to the coolant system; and selectively switching between providing: (i) communication between the coolant system and the measuring device, and (ii) communication between the coolant system and the coolant supply. The step of selectively switching may include the step of providing an actuating force to the servicing apparatus for switching between measuring a coolant system parameter and providing coolant to the coolant system.

Applicant has further developed an innovative method of servicing a coolant system using a servicing apparatus attached to a measuring device and a coolant supply, comprising the steps of: attaching the servicing apparatus to the coolant system; and selectively providing a squeezing force to the servicing apparatus for switching between measuring a coolant system parameter and providing coolant to the coolant system.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only, and are not restrictive of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to assist the understanding of this invention, reference will now be made to the appended drawings, in which like reference characters refer to like elements.

FIG. **1** is a block diagram of a system for servicing a coolant system according to an embodiment of the present invention.

FIG. **2** is a schematic diagram of a coolant system servicing device according to an embodiment of the present invention.

FIG. **3**A is a sectional view of a coolant system servicing device in a measuring mode of operation according to an embodiment of the present invention.

FIG. **3**B is a sectional view of a coolant system servicing device in a charging mode of operation according to an embodiment of the present invention.

FIG. **3**C is a side cross-sectional view of a coolant system servicing device in a measuring mode of operation according to an embodiment of the present invention.

FIGS. **4**A and **4**B are side pictorial views of a coolant system servicing device attached to a pressurized container of coolant according to various embodiments of the present invention.

FIG. **5** is a partial cross-sectional view of a coolant system servicing device in a measuring mode of operation according to a first alternative embodiment of the present invention.

FIG. **6** is a partial cross-sectional view of the coolant system servicing device shown in FIG. **5** in a charging mode of operation.

FIG. **7**A is a partial cross-sectional view of a coolant system servicing device in a measuring mode of operation according to a second alternative embodiment of the present invention.

FIG. **7**B is a partial cross-sectional view of the coolant system servicing device shown in FIG. **7***a* in a charging mode of operation.

FIG. **8** is a partial cross-sectional view of a coolant system servicing device according to a third alternative embodiment of the present invention.

FIG. **9** is a partial cross-sectional view of a coolant system servicing device according to a fourth alternative embodiment of the present invention.

FIG. **10** is a partial cross-sectional view of an alternative trigger arrangement that may be used in accordance with the coolant system servicing device shown in FIG. **9**.

FIG. **11** is a partial cross-sectional view of a coolant system servicing device having a low packaging profile according to an embodiment of the present invention.

FIG. **12** is a partial cross-sectional view of an adapter for connecting a coolant system servicing device to a coolant supply in a sealing mode of operation.

FIG. **13** is a partial cross-sectional view of the adapter shown in FIG. **12** in a piercing mode of operation.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

Reference will now be made in detail to embodiments of the present invention, examples of which are illustrated in the accompanying drawings. In a first embodiment, with reference to FIG. **1**, a device **10** for servicing a coolant system **20**, and a coolant supply **30** are shown. The servicing device **10** may include a measurement device **14** and a switching device **12** for selectively providing communication between the coolant system **20**, the coolant supply **30**, and the measurement device **14**. The servicing device **10** may be adapted to selectively switch between a charging mode of operation, in which coolant from the coolant supply **30** is provided to the coolant system **20**, and a measuring mode of operation, in which a parameter of the coolant system **20** is measured by the measurement device **14**. The depiction of the switching device **12** is intended to be illustrative only, and not limiting. Any means for providing the indicated switching may be used in alternative embodiments of the invention.

The servicing device **10** may be used to determine the level of coolant in the coolant system **20**, and/or add coolant to the coolant system **20** from the coolant supply **30**. In one method embodiment of the present invention, use of the servicing device **10** may be initiated by connecting the servicing device **10** to the coolant system **20** and the coolant supply **30**. The switching device **12** may be oriented at this time to provide communication between the measurement device **14** and the coolant system **20**. In this configuration, the measurement device **14** displays one or more parameters of the coolant system **20**. In one embodiment, the measurement device **14** indicates a pressure level of the coolant system **20**. The user may then read the pressure of the coolant system **20**, for example, to determine whether or not additional coolant should be added to the system. If the addition of coolant is needed, the user may change the orientation of the switching device **12** so that it provides communication between the coolant system **20** and the coolant supply **30**. When the switching device **12** is oriented so, coolant may be provided from the coolant supply **30** to the coolant system **20**. In this orientation, communication between coolant system **20** and the measurement device **14** may be substantially prevented. The user may change the orientation of the switching device **12** as desired to alternate between providing coolant to the coolant system and checking the pressure of the coolant system.

In one embodiment of the present invention, shown in FIG. **2**, the servicing device **10** may include a central body

100, a valve 200, a valve actuator 300, and a housing 400. The central body 100 may include or communicate with a first fluid port 110, a second fluid port 120, and a third fluid port 130. The valve 200 may be adapted to provide selective communication between (i) the first fluid port 110 and the second fluid port 120, and (ii) the first fluid port 110 and the third fluid port 130, in response to an actuation of the valve actuator 300. The valve 200 shown in FIG. 2 may carry out the function of the switching device 12 shown in FIG. 1. The first port 110 may be adapted to connect to the coolant system 20, the second port 120 may be connected to the measurement device 14, and the third port 130 may be adapted to connect to the coolant supply 30. In one embodiment, the measurement device 14 may be incorporated into the housing 400 (as shown in FIG. 3A, for example). With continued reference to FIG. 2, the servicing device 10 may be used to determine the level of coolant in the coolant system 20, and/or add coolant to the coolant system from the coolant supply 30 in the same manner as explained above in connection with the embodiment of the invention shown in FIG. 1.

In the embodiments of the present invention shown in FIGS. 1 and 2, the measurement device 14 is described as preferably being a pressure gauge used to measure the pressure of the coolant in the coolant system 20. It is contemplated that the measurement device 14 may be adapted to measure other suitable parameters of the coolant system 20.

In various embodiments of the present invention, the coolant supply 30 may comprise a pressurized container including at least a refrigerant, as shown in FIGS. 4A and 4B. The container may comprise an Acme threaded container or other suitable container type. The refrigerant may comprise R134a, R12 (i.e., Freon), and/or other suitable coolant system refrigerant. In alternative embodiments of the invention, the coolant supply 30 may further include other suitable chemicals, such as, for example, leak detector and/or system lubricant.

The orientation of the coolant system 20, the coolant supply 30, and the measurement device 14 relative to the servicing device 10, shown in FIG. 2, is intended to be illustrative only, and not limiting. For example, with reference to FIGS. 4A and 4B, it is contemplated that the receiving end 410 of the housing 400 for the coolant supply 30 may be located at either the top or the bottom of the servicing device 10. Other orientations of the coolant system 20, the coolant supply source 30, and the measurement device 14 relative to the servicing device 10 are also considered possible and are within the scope of the present invention.

Another embodiment of the present invention will now be described with reference to FIGS. 3A, 3B, and 3C, in which like reference numerals refer to like elements in other embodiments, and which illustrate the same servicing device 10 in a measuring mode of operation (FIG. 3A), and a charging mode of operation (FIG. 3B), respectively. With respect to FIGS. 3A and 3B, the servicing device 10 may include a central body 100, a valve 200, a valve actuator 300, and a housing 400. The central body 100 may include or communicate with a first fluid port 110, a second fluid port 120, and a third fluid port 130. The valve 200 may be adapted to provide selective communication between (i) the first port 110 and the second port 120, and (ii) the first port 110 and the third port 130, in response to an actuation of the valve actuator 300. The first port 110 may be adapted to connect to a coolant system (not shown), the second port 120 may be connected to a measurement device 14, and the third port 130 may be adapted to connect to a coolant supply (not shown).

The valve 200 may include a plunger 210 slidably disposed in a valve bore 140 formed in the central body 100. The valve bore 140 may be in selective fluid communication with the first port 110, the second port 120, and the third port 130 depending upon the position of the plunger 210. The plunger 210 may include an annular recess 220 provided between first and second grooves. Each of the grooves may be adapted to receive a sealing ring 218. The plunger 210 may be biased within the bore 140 in an upward direction by a spring 230. A tube 240 may extend from the third port 130 of the central body 100.

The servicing device 10 may further comprise a receiving end 410 adapted to secure the device to a pressurized container of the coolant supply (not shown). The receiving end 410 of the housing 400 may include a recess 415 provided in an outer flange 420. The recess 415 and the outer flange 420 may be adapted to receive the hub of the coolant supply container (not shown) and support the servicing device 10 on the container. A pictorial view of the servicing device 10 of FIGS. 3A-C while mounted on a coolant supply container 30 is shown in FIG. 4A. In an alternative embodiment shown in FIG. 4B, the coolant supply container 30 may be mounted on the servicing device 10 in a location closer to the measurement device 14.

An adapter 600 for connecting the servicing device 10 to the coolant supply may be disposed in the housing 400 at receiving end 410. The adapter 600 may include a threaded bore 610 for engaging a threaded nozzle of the coolant supply. A piercing member 620 may be disposed in the adapter 600. The piercing member 620 may include a sharp distal end such that when the adapter 600 engages the coolant supply container, the piercing member 620 pierces the seal of the container. The piercing member 620 is preferably hollow so as to allow the contents of the coolant supply container to exit from the container into the service device 10. In one embodiment, the piercing member 620 comprises a fixed needle.

A check valve 630 may be disposed near or in a lower portion of the tube 240 proximate to the adapter 600. The check valve 630 may be adapted to permit primarily one-way fluid communication between the coolant supply container and the servicing device 10. In this manner, the check valve 630 may prevent undesired flow of coolant from the coolant system and the servicing device 10 back into the coolant supply container 30.

The servicing device 10 may further comprise a valve actuator 300 for selectively applying an actuating force to the valve 200. In one embodiment, the valve actuator 300 may be adapted to receive a squeezing or gripping force.

With reference to FIGS. 3A, 3B, and 3C, the valve actuator 300 may include a handle 310 pivotally attached to the central body 100 by a pin 315. The handle 310 may include a blade portion 320 having a cam edge 325. Detail of the manner in which the blade portion 320 and the cam edge 325 may be used to actuate the valve 200 may be explained in connection with FIG. 3C. With reference to FIG. 3C in particular, the valve actuator 300 may include single or dual arms 330 which may be attached to the plunger 210 (see FIG. 3A) by a pin 332. The arm(s) 330 may extend between the top of the plunger 210 and the cam edge 325. The arm(s) 330 may include a cam engaging surface 335 designed to smoothly and gradually receive the cam edge 325 of the blade 320. When the handle 310 is squeezed (moved towards the housing 400 in the embodiment shown

in FIG. 3C), the cam edge **325** may force the arm(s) **320** downward, overcoming the upward bias of the valve spring **230**, and moving the plunger **210** from a first measuring position in the bore **140** (shown in FIG. 3A) to a second charging position (shown in FIG. 3B). Release of the handle **310** may allow the plunger **210** to return to its measuring position under the influence of the spring **230**. In some embodiments of the present invention, the valve actuator **300** may be adapted for one-handed operation. In some embodiments, the valve actuator **300** may be adapted such that switching the servicing device **10** between a measuring mode of operation and a charging mode of operation may occur without a user having to let go of the device.

It is contemplated that other suitable means for providing an actuating force to the valve **200** are considered to be within the scope of the present invention. For example, means other than the arm(s) **330** for actuating the plunger **210** with the handle **310** are considered within the scope of the present invention, including, but not limited to, hydraulic, mechanical, or pneumatic members that could be used to link the plunger **210** with the handle **310**. In addition, the valve actuator **300** may be adapted to receive other actuation forces, such as, for example, pulling, rotating, and/or pushing forces.

The servicing device **10** may further comprise means for connecting the device to a coolant system (not shown). With renewed reference to FIGS. 3A and 3B, the device **10** may include a hose assembly **500**. The hose assembly **500** may include a hose **510** having a first end attached to the central body **100** in communication with the first port **110**. The hose **510** may be secured to the housing **400** with a nut **520**. In one embodiment, the nut **520** may engage a corresponding connector **530** associated with the housing **400**. A second end of the hose (not shown) may be provided with a coupler adapted to connect to the coolant system **20**. In one embodiment of the present invention, the coupler may comprise a quick-connect coupler adapted to connect to a low pressure service port of an automobile air conditioner.

Operation of an embodiment of the invention shown in FIGS. 3A-C will now be described. The servicing device **10** may be connected to a coolant supply at the receiving end **410** and to an automobile coolant system by the hose **510**. At this time the handle **310** may remain in its extended position, as shown in FIG. 3A. Connection of the servicing device **10** to the coolant supply causes the piercing member **620** to pierce a seal on the top of the coolant supply. As a result, pressurized coolant may pass through the piercing member **620**, the check valve **630**, and the tube **240**. While the servicing device **10** is in the position shown in FIG. 3A, the refrigerant may not be able to flow past the plunger **210** in the central body **100**, and as a result the flow of refrigerant does not extend past the third port **130**.

While the servicing device **10** is in the position shown in FIG. 3A, the device may be used to measure the pressure of the refrigerant in the coolant system. While in this position, the plunger **210** is biased into its upper position by the spring **230**. The annular recess **220** of the plunger **210** may provide communication between the first port **110** (which is connected to the coolant system) and the second port **120** (which is connected to the measurement device **14**). The sealing rings **218** may substantially prevent communication between the third port **130** and either of the first or second ports **110** and **120**. As a result, the second port **120** experiences pressure similar to the pressure of the first port **110**, which, in turn, is similar to the internal pressure of the coolant system. In this manner, the measurement device **14** may measure the coolant system pressure (or other parameter in alternative embodiments).

The user may inspect the measurement device **14** and determine if additional coolant is required. In some embodiments, the measurement device **14** may indicate the need for additional coolant, for example, by displaying a measurement reading. If a need for additional coolant is determined, the user may use the servicing device **10** to charge the coolant system with more coolant from the coolant supply. When charging operation is desired, an actuation force may be applied to the valve **200** using the handle **310**. As shown in FIGS. 3B and 3C, when the handle **310** is squeezed, the cam edge **325** may push down on the cam surface **335**, causing the arm(s) **330** to move downward. The downward motion of the arm(s) **330** may in turn cause the plunger **210** to move downward within the bore **140**. In this position, the sealing rings **218** may substantially prevent communication between the second port **120** and either of the first or third ports **110** and **130**. At the same time, the sealing rings **218** allow communication between the first and third ports **110** and **130**. As a result, coolant from the coolant supply may flow through the piercing member **620**, the tube **240**, and past first port **110** to the coolant system. The user may apply an actuation force to the valve **200** by squeezing the handle **310** as desired to alternate between providing coolant to the coolant system and measuring a parameter of the coolant system.

It is appreciated that the servicing device **10** may be adapted to selectively switch between the charging mode of operation and the measuring mode of operation in alternative ways. For example, it is contemplated that the device **10** may be adapted such that an actuation force is applied for measuring operation, and no actuation force is applied to the valve **200** for charging operation.

Another embodiment of the present invention will now be described with reference to FIGS. **5** and **6**, in which like reference numerals refer to like elements in other embodiments, and which illustrate the same servicing device **10** in a measuring mode of operation (FIG. **5**), and a charging mode of operation (FIG. **6**). With respect to FIGS. **5** and **6**, the servicing device **10** may include a valve **200** comprising a plunger **250** slidably disposed in a bore **252** disposed in a housing **400**. The plunger **250** may include a first annular recess **254** and a second annular recess **256** provided between sealing rings **255**. The plunger **250** may be biased against a stop **251** by a spring **253** disposed in the bore **252**.

In one embodiment, as shown in FIGS. **5** and **6**, the bore **252** may have a substantially horizontal orientation within the housing **400**. The horizontal orientation of the bore **252** may permit a substantially compact arrangement of the first port **110**, the second port **120**, the measurement device **14**, and the plunger **250**. In this manner, the servicing device **10** may have a small height profile. The small height profile may lead to advantages in some embodiments such as, for example, easier packaging and/or shipping of the device **10**.

The servicing device **10** may further include a venting orifice **258** formed in the housing **400**. The orifice **258** is in communication with the bore **252** and may be in selective communication with the second port **120** depending on the position of the plunger **250**. In some cases, pressure may build up in the second port **120** during operation of the device **10**. When the device **10** is in a charging mode of operation, this built up pressure may cause the measurement device **14** to display a reading even though the measurement device **14** is not in communication with the coolant system. The orifice **258** is adapted to vent pressure from the second port **120** to ambient when the orifice **258** is in communica-

tion with the second port **120**. As a result, the measurement device **14** may indicate a measurement reading of substantially zero such that the user does not receive an inaccurate measurement reading during charging operation.

The plunger **250** may be adapted to provide selective communication between (i) the first port **110** and the second port **120**, and (ii) the first port **110** and the third port **130**, in response to an actuation of the plunger **250**. The actuation of the plunger **250** may be provided by a mechanical link, or other suitable means. As discussed above, the first port **110** may be adapted to connect to a coolant system (not shown), the second port **120** may be connected to a measurement device **14**, and the third port **130** may be adapted to connect to a coolant supply container **30**.

Operation of the embodiment of the present invention shown in FIGS. **5** and **6** will now be described with reference to FIGS. **5** and **6**. While the plunger **250** is in the position shown in FIG. **5**, the device **10** may be used to measure the pressure of the refrigerant in the coolant system. While in this position, the plunger **250** is biased against the stop **251** by the spring **253**. The annular recess **254** of the plunger **250** may provide communication between the first port **110** (which is connected to the coolant system) and the second port **120** (which is connected to the measurement device **14**). The sealing rings **255** may substantially prevent communication between the third port **130** and either of the first or second ports **110** and **120**. As a result, the second port **120** experiences pressure similar to the pressure of the first port **110**, which, in turn, is similar to the internal pressure of the coolant system. In this manner, the measurement device **14** may measure the coolant system pressure (or other parameter in alternative embodiments).

The user may inspect the measurement device **14** and determine if additional coolant is required. In some embodiments, the measurement device **14** may indicate the need for additional coolant, for example, by displaying a measurement reading. If a need for additional coolant is determined, the user may use the servicing device **10** to charge the coolant system with more coolant from the coolant supply container **30**.

When charging operation is desired, an actuation force may be applied to the plunger **250**. When the actuation force is applied, the plunger **250** moves within the bore **252** against the bias of the spring **253** (in a rightward direction as shown in the embodiment depicted in FIGS. **5** and **6**). In this position, as shown in FIG. **6**, the sealing rings **255** allow communication between the first and third ports **110** and **130**. As a result, coolant from the coolant supply container **30** may flow around the annular recess **254**, and past first port **110** to the coolant system. At the same time, the sealing rings **255** may substantially prevent communication between the second port **120** and either of the first or third ports **110** and **130**. The second port **120** may, however, communicate with the orifice **258**, and pressure in the second port **120** may be vented to ambient through the orifice **258**. As a result, the measurement device **14** may indicate a measurement reading of substantially zero such that the user does not receive an inaccurate measurement reading during charging operation. The user may apply an actuation force to the plunger **250** as desired to alternate between providing coolant to the coolant system and measuring a parameter of the coolant system. In other respects, the servicing device **10** shown in FIGS. **5** and **6** may operate substantially the same as the device shown in FIGS. **3**A-C.

Another embodiment of the present invention will now be described with reference to FIGS. **7**A and **7**B, in which like reference numerals refer to like elements in other embodiments, and which illustrate the same servicing device **10** in a measuring mode of operation (FIG. **7**A), and a charging mode of operation (FIG. **7**B). With respect to FIGS. **7**A and **7**B, the plunger **250** may include one annular recess **254** provided between sealing rings **255**. The plunger **250** may be adapted to provide selective communication between (i) the first port **110** and the second port **120** (as shown in FIG. **7**A), and (ii) the first port **110** and the third port **130** (as shown in FIG. **7**B), in response to an actuation of the plunger **250**. In this manner, the embodiment of the present invention shown in FIGS. **7**A and B may operate substantially as described above in connection with the servicing device **10** shown in FIGS. **5** and **6**.

Another embodiment of the present invention is shown in FIG. **8**, in which like reference numerals refer to like elements. A valve **700** having an inner piston **710** and an outer piston **720** may be slidably disposed in a bore **705** formed within the housing **400**. An inner annular recess **712** may be formed in the inner piston **710** and an outer annular recess **722** may be formed in the outer piston **720**. A first sealing ring **702** provides a seal between the outer piston **720** and the bore **705**. A first spring **730** disposed in an inner cavity **735** may bias the valve **700** away from a check valve **630**, which is biased against its seat **631** by a second spring **635**. A stop **704** may prevent the valve **700** from falling out of the bore **705** when the device **10** is in the position shown in FIG. **8**.

The device **10** may be adapted to connect to a component of a coolant system (not shown). For example, the device **10** may be adapted to connect to the low pressure service port of the coolant system. The low pressure service port may include a Schrader valve. As will be apparent to those of ordinary skill in the art, the Schrader valve may include a valve stem centrally disposed within a circumferential member. When the Schrader valve stem is actuated, the valve opens and permits substantially one-way communication into the coolant system through the low pressure service port.

An outer cavity **740** may be formed in the outer piston **720** and adapted to connect the device **10** to the coolant system. A first interior protrusion **714** may extend from the inner piston **710** toward the check valve **630**, and a second interior protrusion **716** may extend from the inner piston **710** toward the cavity **740**. An exterior protrusion **725** may extend from the outer piston **720** into the cavity **740**. A detent **721** may be formed in the outer piston **720**. The first interior protrusion **714** may be adapted to selectively contact and open the check valve **630**. The exterior protrusion **725** may be adapted to selectively contact and open an element of the coolant system, such as, for example, the Schrader valve stem disposed in the low-pressure service port. The second interior protrusion **716** and the outer piston detent **721** may be adapted to contact the circumferential member of the low pressure service port. The second interior protrusion **716** may extend into the cavity **740** beyond the outer piston detent **721** such that during operation the circumferential member of the service port contacts the second interior protrusion **716** before contacting the detent **722**. A second sealing ring **706** may be disposed in the cavity **740** and may sealingly engage the circumferential member of the service port during operation. A passage **718** formed in the inner piston **710** may provide communication between the outer cavity **740** and the inner cavity **735**.

The device **10** may further include a locking mechanism comprising a plurality of ball bearings **724** disposed in corresponding holes **723** formed in the outer piston **720**. The balls **724** are adapted to rest against a shoulder **726** formed

in the housing **400** and, in this manner, selectively prevent the upward movement of the outer piston **720** within the bore **705**. As the inner piston **710** moves axially upward within the piston bore **705** toward the check valve **630**, the balls **724** are exposed to the inner annular recess **712**. At this point, the balls **724** are adapted to slide off the shoulder **726** and into the inner recess **712**. With the balls **724** in the inner recess **712**, the balls **724** may clear the shoulder **726**, and the outer piston **720** is able to move axially upward within the piston bore **705**.

The valve **700** may be adapted to switch between a first position (shown, for example, in FIG. **8**) in which the valve provides communication between the coolant system and the measuring device **14**, and a second position in which the valve provides communication between the coolant system and the coolant supply. In this manner, the valve **700** may selectively switch between measuring a fluid parameter of the coolant system and charging the coolant system with coolant.

Operation of the embodiment of the present invention shown in FIG. **8** will now be described. Use of the servicing device **10** may be initiated by connecting the device to the low pressure service port of a coolant system. The device may be connected to the service port such that the exterior protrusion **725** contacts the Schrader valve stem disposed in the service port, and the circumferential member sealingly engages the second sealing ring **706**. Using the grip **430**, a force may be applied to the device **10** in the direction of the arrow **750** shown in FIG. **8**. A level of force may be applied such that the exterior protrusion **725** depresses the valve stem (not shown) disposed in the service port and opens the valve. Because the circumferential member of the service port sealingly engages the second sealing ring **706**, gas from the coolant system is substantially prevented from communicating with ambient. The balls **724** remain abutted against the shoulder **726**, and the outer piston **720** is substantially prevented from moving axially upward within the bore **705**. In this position, as shown in FIG. **8**, the passage **718** may provide communication between the outer cavity **740** and the inner cavity **735**, which, in turn, communicates with the outer recess **722** and the second port **120**. In this manner, the coolant system may communicate with the second fluid port **120**. As a result, the second port **120** experiences pressure similar to the pressure of the outer cavity **740**, which, in turn, is similar to the internal pressure of the coolant system, and the measurement device **14** may measure the coolant system pressure (or other parameter in alternative embodiments).

The user may inspect the measurement device **14** and determine if additional coolant is required. In some embodiments, the measurement device **14** may indicate the need for additional coolant, for example, by displaying a measurement reading. If a need for additional coolant is determined, the user may use the servicing device **10** to charge the coolant system with more coolant from the coolant supply. It should be noted that if the coolant supply **30** is attached to the servicing device **10**, coolant does not substantially communicate with the inner cavity **735**, and correspondingly, the coolant system, because of the check valve **630**.

When the addition of coolant is desired, the coolant supply **30** may be attached to the receiving end **410** of the servicing device **10**, if not already attached. The piercing member **620** pierces the seal of the coolant supply. Because the check valve **630** is biased against its seat **631** by the spring **635**, coolant still does not substantially communicate with the inner cavity **735**, and correspondingly, the coolant system. Using the grip **430**, an additional force may be applied to the device **10** in the direction of the arrow **750** shown in FIG. **8**. A level of force may be applied such that the circumferential member of the low pressure service port acts on the second inner protrusion **716** and overcomes the biasing force of the spring **730**, causing the inner piston **710** to travel upward within the bore **705**. Because the inner protrusion **716** extends into the cavity **740** beyond the outer piston detent **721**, the circumferential member does not initially contact the outer piston detent **721**. As the inner piston **710** travels axially upward within the bore **705**, the balls **724** are exposed to the inner annular recess **712**. The balls **724** slide off the shoulder **726** and into the inner recess **712**. At the same time, the circumferential member of the service port begins to contact the outer piston detent **721**. With the balls **724** in the inner recess **712**, the balls **724** may clear the shoulder **726**, and the outer piston **720** and the inner piston **710** now travel upward together within the bore **705**. The interior protrusion **714** may then contact and unseat the check valve **630**. Coolant from the coolant supply may now flow into the inner cavity **735**, through the passage **718** and into the outer cavity **740**, and, finally into the coolant system. At the same time, as the outer piston **720** travels upward, the first sealing ring **702** travels past the second fluid port **120** and substantially prevents communication between the second port **120** and the inner cavity **735** such that the cavity **740**, and correspondingly the coolant system, no longer communicates with the measuring device **14**.

In one embodiment, pressure in the second port **120** may vent to ambient through space formed between the outer piston **720** and the bore **705**. The space may be small enough such that the travel of the outer piston **720** within the bore is not adversely affected. As a result of the vented pressure, the measurement device **14** may indicate a measurement reading of substantially zero such that the user does not receive an inaccurate measurement reading during charging operation.

When coolant supply is no longer desired, the force applied to the device may be reduced. This may cause the interior protrusion **714** to move out of contact with the check valve **630** under the bias of the spring **730**. The check valve **630** may return to its seat **631** and prevent communication between the coolant supply and the inner cavity **735**. In this manner, the device may return to the measuring position, shown in FIG. **8**. The user may apply an actuation force to the device **10** as desired to alternate between providing coolant to the coolant system and measuring a parameter of the coolant system.

Another embodiment of the present invention is shown in FIG. **9**, in which like reference numerals refer to like elements. The servicing device **10** shown in FIG. **9** is similar to that shown in FIG. **8**, with the addition of a trigger **340** operatively connected to a trigger valve assembly **345**. The trigger valve assembly **345** may include a trigger pin **342** slidably disposed in a second bore **344**, and a trigger valve **346** disposed at one end of the trigger pin **342**. The trigger pin **342** may be operatively connected to the trigger **340** at a second end. The trigger valve **346** may be biased against its seat **347** by a trigger spring **348**. A sealing ring **349** may be disposed between the trigger valve **346** and the trigger valve seat **347**.

The trigger valve assembly **345** may be adapted to move between a first position (shown, for example, in FIG. **9**) and a second position (not shown) in which the trigger valve **346** is pushed off its seat **347** in response to an actuation force from the trigger **340**. In the first position, the trigger spring **348** may bias the trigger valve **346** against its seat, substantially preventing coolant from the coolant supply source **30** from communicating to the coolant system through the third

port **130**. In the second position, when the trigger valve **346** is pushed off its seat **347** in response to an actuation force from the trigger **340**, coolant may communicate with the third fluid port **130**.

Operation of the embodiment of the present invention shown in FIG. **9** is substantially as described above with reference to FIG. **8**, with an additional feature. When the addition of coolant is desired, a level of force may be applied such that the circumferential member of the low pressure service port acts on the second inner protrusion **716** and overcomes the biasing force of the spring **730**, causing the inner piston **710** to travel upward within the bore **705**. Because the inner protrusion **716** extends into the cavity **740** beyond the outer piston detent **721**, the circumferential member does not initially contact the outer piston detent **721**. As the inner piston **710** travels axially upward within the bore **705**, the balls **724** are exposed to the inner annular recess **712**. The balls **724** slide off the shoulder **726** and into the inner recess **712**. At the same time, the circumferential member of the service port begins to contact the outer piston detent **721**. With the balls **724** in the inner recess **712**, the balls **724** may clear the shoulder **726**, and the outer piston **720** and the inner piston **710** now travel upward together within the bore **705**. The interior protrusion **714** may then contact and unseat the check valve **630**. An actuation force may be applied to the trigger **340**, causing the trigger pin **342** to slide upward within the bore **344**, and unseating the trigger valve **346**. In this position, coolant from the coolant supply may flow through the third fluid port **130** past the check valve **630** to the coolant system. In other respects, the device **10** shown in FIG. **9** operates substantially as the device shown in FIG. **8**.

In another embodiment of the present invention, shown in FIG. **10**, in which like reference numerals refer to like elements, the trigger valve assembly **345** shown in FIG. **9** may be adapted to receive a pulling-force instead of a pushing force. When charging operation is desired, a pulling force may be applied to the trigger pin **342** in the direction of the arrow shown. This force may cause the trigger valve **346** to move from its seat **347**. In other respects, the device **10** shown in FIG. **10** operates substantially the same as the device shown in FIG. **9**.

A coolant system servicing device **800** will now be described with reference to FIG. **11**, in which like reference numerals refer to like elements in other embodiments. The servicing device **800** may include a valve **810** having a bore **805** disposed in a housing **400**, and a valve actuator **820**. The valve may be adapted to provide selective communication between a coolant supply passage **802** and a charging passage **804**. The coolant supply passage **802** may be adapted to connect to a coolant supply container **30**, and the charging passage **804** may be adapted to connect to a coolant system (not shown). The device **800** is adapted to switch between a charging mode of operation (as shown in FIG. **11**), in which coolant is supplied to the coolant system, and a non-charging mode of operation, in response to actuation of the valve actuator **820**.

The valve **810** may include a plunger **812** slidably disposed in the bore **805**. A plunger spring **814** biases the plunger **812** against a plunger seat **816**. The valve bore **805** may be in fluid communication with the coolant supply passage **802** and selective communication with the charging passage **804** depending on the position of the plunger **812**.

The servicing device **800** may further comprise a valve actuator **820** for selectively applying an actuating force to the valve **810**. In one embodiment, the valve actuator **820** may be adapted to receive a squeezing or gripping force. The valve actuator **820** may include a trigger **822** pivotally attached to the housing by a pin **824**. Single or dual arms **826** may be attached to the trigger **822** at a first end by a pin **827** and to the plunger **812** at a second end. When the trigger **822** is squeezed in the direction of the arrow **830**, the trigger **822** rotates about the pin **824**. The rotation of the trigger **822** forces the arm(s) **826** leftward, overcoming the rightward bias of the plunger spring **814**, and moving the plunger **812** from a non-charging position in the bore **805** to a charging position (as shown in FIG. **11**). Release of the trigger **822** may allow the plunger **812** to return to its non-charging position under the influence of the spring **814**.

The servicing device **800** may further comprise means **500** for connecting the device to the coolant system (not shown). The connecting means **500** may include a hose assembly **500** having a first end connected to the charging passage **804** and a second end operatively connected to the coolant system. An adapter **600** for connecting the servicing device **800** to the coolant supply container **30** may be disposed in the housing **400**. The adapter **600** may include a piercing member **620** having a sharp distal end such that when the adapter engages the coolant supply container **30**, the piercing member **620** pierces the seal of the container. The servicing device **800** may further comprise a receiving end **410** adapted to secure the device to the coolant supply container **30**.

In one embodiment of the servicing device **800**, the valve bore **805** may have a substantially horizontal orientation within the housing **400**, and may be oriented substantially perpendicular to the supply passage **802**. In this embodiment, the flow of coolant from the valve bore **805** is in a substantially horizontal direction toward the rear of the device, as shown in FIG. **11**. The charging passage **804** may be provided with a switch-back orientation such that the flow of coolant from the valve bore **805** is directed toward the front of the device **800** where the second end of the hose assembly **500** extends from the device and is operatively connected to the coolant system. In this embodiment, the charging passage **804** may include a first portion oriented substantially parallel to the valve bore **805** and a second portion oriented substantially unparallel to the valve bore **805**. In an alternative embodiment, the entire charging passage **804** may be oriented substantially parallel to the valve bore **804**.

The orientation of the valve bore **805** and/or the charging passage **804** may permit a compact arrangement of the servicing device **800**. In this manner, the servicing device **10** may have a small height profile. In some embodiments, the height of the housing **400** may be in the range of about 10% to about 30% of the combined height of the housing **400** and the coolant supply container **30**. The proportional height of the housing **400** may vary depending on the size of the coolant supply container used. The small height profile may lead to advantages in some embodiments such as, for example, easier packaging and/or shipping of the device **10**.

Operation of the servicing device **800** will now be described with reference to FIG. **11**. The servicing device **800** may be connected to the coolant supply container **30** at the receiving end **410** and to an automobile coolant system by the hose assembly **500**. At this time the trigger **822** may be in an extended position (not shown). Connection of the servicing device **800** to the coolant supply may cause the piercing member **620** to pierce a seal on the top of the container. As a result, pressurized coolant may pass through the piercing member **620**, the adapter **600**, and into the valve bore **805**. While the servicing device **800** is in the non-charging position, the refrigerant may not be able to flow

past the plunger **812**, which is biased against its seat **816** by the spring **814**. As a result, the refrigerant may not flow into the charging passage **804**.

If a need for additional coolant is determined, the user may use the servicing device **800** to charge the coolant system with more coolant from the coolant supply **30**. When charging operation is desired, an actuation force may be applied to the valve **810** using the trigger **822**. When the trigger **822** is squeezed in the direction of the arrow **830**, the trigger **822** rotates about the pin **824**, causing the arm(s) **826** to move leftward against the bias of the spring **814**. The leftward motion of the arm(s) **826** may in turn cause the plunger **812** to move leftward within the bore **805**. In this position, as shown in FIG. **11**, the plunger **812** may be moved off its seat **816**, opening communication between the bore **805** and the charging passage **804**. The coolant may then flow from the bore **805** and through the charging passage **804**. As the coolant flows through the charging passage **804**, the coolant may be redirected toward the front of the device, and may flow through the hose assembly **500** and into the coolant system. The user may apply an actuation force to the valve **810** by squeezing the trigger **822** as desired to alternate between providing coolant to the coolant system and not providing coolant.

In some embodiments, the servicing device **800** may be adapted for one-handed operation. In this manner, a user may hold the coolant supply container **30** and apply a gripping force to the trigger **822** with one hand. In some embodiments, as shown in FIG. **11**, the device housing **400** may include a contoured surface **440**. The contoured surface **440** may be adapted to receive the area of the user's hand between the thumb and index finger. With the user's hand in this position, the trigger **822** may be adapted to receive a gripping force from one or more of the user's fingers.

An adapter **900** for connecting a coolant system servicing device **10** to a coolant supply container **30** will now be described with reference to FIGS. **12** and **13**. The adapter **900** may be disposed in a coolant system servicing device housing **400**. The adapter **900** may be used in connection with a servicing device including, but not limited to, those depicted in embodiments of the present invention. The adapter **900** may be used to connect the servicing device **10** to the coolant supply container **30** in a manner that first sealingly engages the device with the container, and then piercingly engages the device with the container. FIG. **12** illustrates the adapter **900** sealingly engaged with the coolant supply container **30**, and FIG. **13** illustrates the adapter **900** piercingly engaged with the container **30**.

The adapter **900** may include a connecting hub **905** for connecting the adapter to the servicing device housing **400**, and a bore **910** for engaging a nozzle **31** of the coolant supply container **30**. In one embodiment, the bore **910** may be threaded for engaging an Acme threaded coolant supply container **30**. A user may rotate the coolant supply container **30** such that the nozzle **31** advances up the threads disposed in the bore **910**. In other embodiments, the bore **910** may be adapted to engage a supply container having a quick connect fitting, and/or any other suitable container fitting.

A sealing member **912** may be slidably disposed in the bore **910**. The sealing member **912** may include a shoulder **913** adapted to sealingly engage the nozzle of the coolant supply container **30**. In one embodiment, the sealing member **912** may comprise a deformable material, such as, for example, rubber. Other suitable materials are considered possible and are well within the scope and spirit of the present invention. A sealing spring **914** may bias the sealing member **912** into the bore **910**. The upward travel of the sealing member **912** within the bore **910** may be limited by a travel stop **916**. A contact plate **918** may be disposed between the sealing member **912** and the sealing spring **914**.

A piercing member **920** having a sharp distal end **925** may be disposed in the connecting hub **905**. The piercing member **920** may be disposed such that, when the adapter is in the position shown in FIG. **12**, the piercing member **920** does not extend into the bore **910** beyond the sealing member **912**. In this manner, the coolant supply container **30** contacts the shoulder **913** of the sealing member **912** before contacting the distal end **925** of the piercing member. When the piercing member **920** engages the coolant supply container **30**, the piercing member **920** pierces the seal of the container. The piercing member **920** is preferably hollow so as to allow the contents of the coolant supply container **30** to exit from the container into the servicing device **10**.

Operation of the adapter **900** will now be described with reference to FIGS. **12** and **13**. A servicing device **10** including the adapter **900** may be connected to an automobile coolant system at a first end (not shown). When charging of the coolant system is required, the nozzle **31** of the coolant supply container **30** may be connected to the bore **910**. A user may rotate the container such that the nozzle **31** advances up the threads disposed in the bore **910**. As the nozzle **31** advances upward within the bore **910**, the nozzle **31** first contacts the shoulder **913** of the sealing member **912**. In this position, as shown in FIG. **12**, the piercing member **920** does not pierce the seal of the container **30**. As the container **30** is further engaged with the bore **910**, the nozzle **31** remains in contact with the sealing member **912**. The nozzle **31** pushes the sealing member **912** in an upward direction within the bore **910** against the bias of the sealing spring **914**. As the sealing member **912** approaches the travel stop **916**, the piercing member **920** engages the coolant supply container **30**, and pierces the seal of the container, as shown in FIG. **13**. As a result, pressurized coolant may pass through the piercing member **620**, through the servicing device **10** and into the coolant system. Because the nozzle **31** remains sealingly engaged with the sealing member **912**, coolant is substantially prevented from communicating with the bore **910** and the ambient environment during operation.

It will be apparent to those skilled in the art that various other modifications and variations can be made in the construction, configuration, and/or operation of the present invention without departing from the scope or spirit of the invention. For example, it is appreciated that the present invention may include a combination of one or more of the servicing device **10**, the measurement device **14**, and the coolant supply source **30** provided as a complete product or kit. The depiction of the housing **400**, the valve actuator **300**, and the valve **200** are intended to be illustrative only, and not limiting. It is appreciated that the size and shape of the housing **400** may vary markedly without departing from the intended scope of the present invention. These and other modifications to the above-described embodiments of the invention may be made without departing from the intended scope of the invention.

What is claimed is:

1. An apparatus for servicing a coolant system adapted to receive coolant from a coolant supply, said apparatus comprising:

a device for measuring a parameter of the coolant system;

means for selectively switching between providing: (i) communication between the coolant system and said measuring device, and (ii) communication between the coolant system and the coolant supply and wherein

said means for selectively switching substantially prevents communication between the coolant system and the measuring device when the coolant system communicates with the coolant supply.

2. The apparatus of claim **1**, wherein the switching means comprises:

a three-way valve; and

a mechanical actuator operatively connected to said three-way valve.

3. The apparatus of claim **2**, wherein said mechanical actuator includes a pivoting element.

4. The apparatus of claim **2**, wherein said mechanical actuator includes a cam element.

5. The apparatus of claim **2**, wherein said mechanical actuator is adapted to receive a squeezing force.

6. The apparatus of claim **2**, wherein said valve actuator comprises: a handle; and a mechanical link connecting said handle to said valve.

7. The apparatus of claim **2**, wherein said handle comprises a pistol grip.

8. The apparatus of claim **2**, wherein the three-way valve comprises: a plunger slidably disposed in a central body; and a spring biasing said plunger into a first position to provide communication between the coolant system and the measuring device.

9. The apparatus of claim **2**, wherein said valve comprises: an outer piston slidably disposed in a bore in the apparatus; an inner piston disposed in said outer piston; and a cavity formed in said outer piston, said cavity adapted to connect to the coolant system.

10. The apparatus of claim **9** further comprising: a check valve disposed near one end of the bore, and wherein said valve comprises: an exterior protrusion extending from said outer piston and adapted to contact the coolant system; and an interior protrusion extending from said inner piston and adapted to engage a check valve provided in the apparatus.

11. The apparatus of claim **1**, wherein said measuring device comprises a pressure gauge.

12. The apparatus of claim **1**, wherein the coolant system comprises an automobile air conditioner.

13. The apparatus of claim **1**, wherein the coolant supply comprises a pressurized container of at least refrigerant.

14. A device for servicing a coolant system, said device comprising:

an outer housing;

a central body disposed within the outer housing, said central body having an internal bore and first, second, and third fluid ports communicating with said internal bore;

the first fluid port configured for fluid communication with a coolant system, the second fluid port in fluid communication with a measuring device, and the third fluid port configured for fluid communication with a coolant supply;

a valve disposed in said internal bore, said valve adapted to attain a first position in which there is communication between said first fluid port and said second fluid port, and a second position in which there is communication between said first fluid port and said third fluid port;

a valve actuator operatively connected to said valve and wherein

the valve substantially prevents communication between the coolant system and the measuring device when the coolant system communicates with the coolant supply.

15. The device of claim **14**, wherein said valve comprises: a plunger slidably disposed in the internal bore; and a spring biasing said plunger into a first position.

16. The device of claim **15**, wherein said plunger provides substantially exclusive communication between said first and second fluid ports when the valve is in the first position.

17. The device of claim **16**, wherein said plunger provides substantially exclusive communication between said first and third fluid ports when the valve is in the second position.

18. The device of claim **14**, further comprising a coolant container connection adapter, said adapter being connected to the central body via a fluid passage.

19. The device of claim **18**, wherein the adapter comprises a piercing member.

20. The device of claim **18**, further comprising a check valve disposed between the central body and the adapter.

21. The device of claim **14**, wherein said valve actuator comprises: a handle; and a mechanical link connecting said handle to said valve.

22. The device of claim **21**, wherein said handle comprises: a blade having a cam edge; and a cam surface on said mechanical link for receiving the cam edge of said blade.

23. The device of claim **22**, wherein said mechanical link comprises one or more arms pivotally attached to the valve.

24. A system for servicing an automobile air conditioner, said system comprising:

a coolant supply source;

means for measuring a parameter of the coolant in the automobile air conditioner; and

a device for servicing the automobile air conditioner, said device comprising:

a central body;

a valve disposed in said central body; and

a valve actuator, wherein said valve is adapted to provide selective communication between the automobile air conditioner and (i) said measuring means, and (ii) said coolant supply source, responsive to an actuation force from said valve actuator; and wherein

said valve substantially prevents communication between the automobile air conditioner and the measuring means when the automobile air conditioner communicates with the coolant supply source.

25. The system of claim **24**, wherein said measuring means comprises a pressure gauge.

26. The system of claim **25**, wherein said coolant supply source comprises a pressurized container of a refrigerant.

27. The system of claim **24**, wherein said valve comprises: a plunger slidably disposed in a bore formed in said central body between a first position and a second position; and a spring biasing said plunger in the first position.

28. The system of claim **27**, wherein when said plunger is in the first position, said measuring means measures a parameter of the automobile air conditioner, and when said plunger is in said second position, at least a portion of the coolant is released from the coolant supply source into the automobile air conditioner.

29. The system of claim **24**, wherein said valve actuator comprises: a handle; and a mechanical link connecting said handle to said valve.

30. The system of claim **29**, wherein said handle comprises: a blade having a cam edge; and a cam surface on said mechanical link for receiving the cam edge of said blade.

31. A method of servicing a coolant system using a servicing apparatus attached to a measuring device and a coolant supply, said method comprising the steps of:

attaching the servicing apparatus to the coolant system; and

selectively switching between providing: (i) communication between the coolant system and the measuring device, and (ii) communication between the coolant system and the coolant supply; and

further comprising the step of substantially preventing communication between the coolant system and the measuring device when the coolant system communicates with the coolant supply.

32. The method of claim **31**, wherein the step of selectively switching comprises the step of: providing an actuating force to the servicing apparatus for switching between measuring a coolant system parameter and providing coolant to the coolant system.

33. The method of claim **32**, wherein the step of providing an actuating force comprises the step of squeezing a handle of the servicing apparatus.

34. The method of claim **32**, wherein the step of providing an actuating force comprises the step of contacting an exterior protrusion of the servicing apparatus against a service port of the coolant system using a first level of force to provide communication between the coolant system and the measuring device and a second level of force to provide communication between the coolant system and the coolant supply.

35. The method of claim **31**, further comprising the step of substantially preventing communication between the coolant system and the coolant supply when the measuring device communicates with the coolant supply.

36. The method of claim **35**, further comprising the step of venting pressure from the measuring device when the coolant system communicates with the coolant supply.

37. The method of claim **35**, further comprising the step of displaying a zero measurement on the measuring device when the coolant system communicates with the coolant supply.

38. A method of servicing a coolant system using a servicing apparatus attached to a measuring device and a coolant supply, said method comprising the steps of: attaching the servicing apparatus to the coolant system; and selectively providing a squeezing force to the servicing apparatus for switching between measuring a coolant system parameter and providing coolant to the coolant system.

* * * * *

EXHIBIT B

electric vehicles with non-belt driven (electric driven) compressor.
para usar en vehiculos hibridos/eléctricos con compresor
accionamiento eléctrico) sin correa de transmisión.

15 oz. Refrigerant R-134a (1,1,1,2 Tetrafluoroethane), 3 oz. Additives

IDQ Holdings, Inc.,Garland, TX 75041 • www.idqusa.com
Assembled in U.S.A. from components of U.S.A. and China
ChillBoost® is a registered trademark of Mainstream Engineering
US Patents 5,826,436, 5,987,902 and 7,260,943.
For tech support call: 888-318-5454

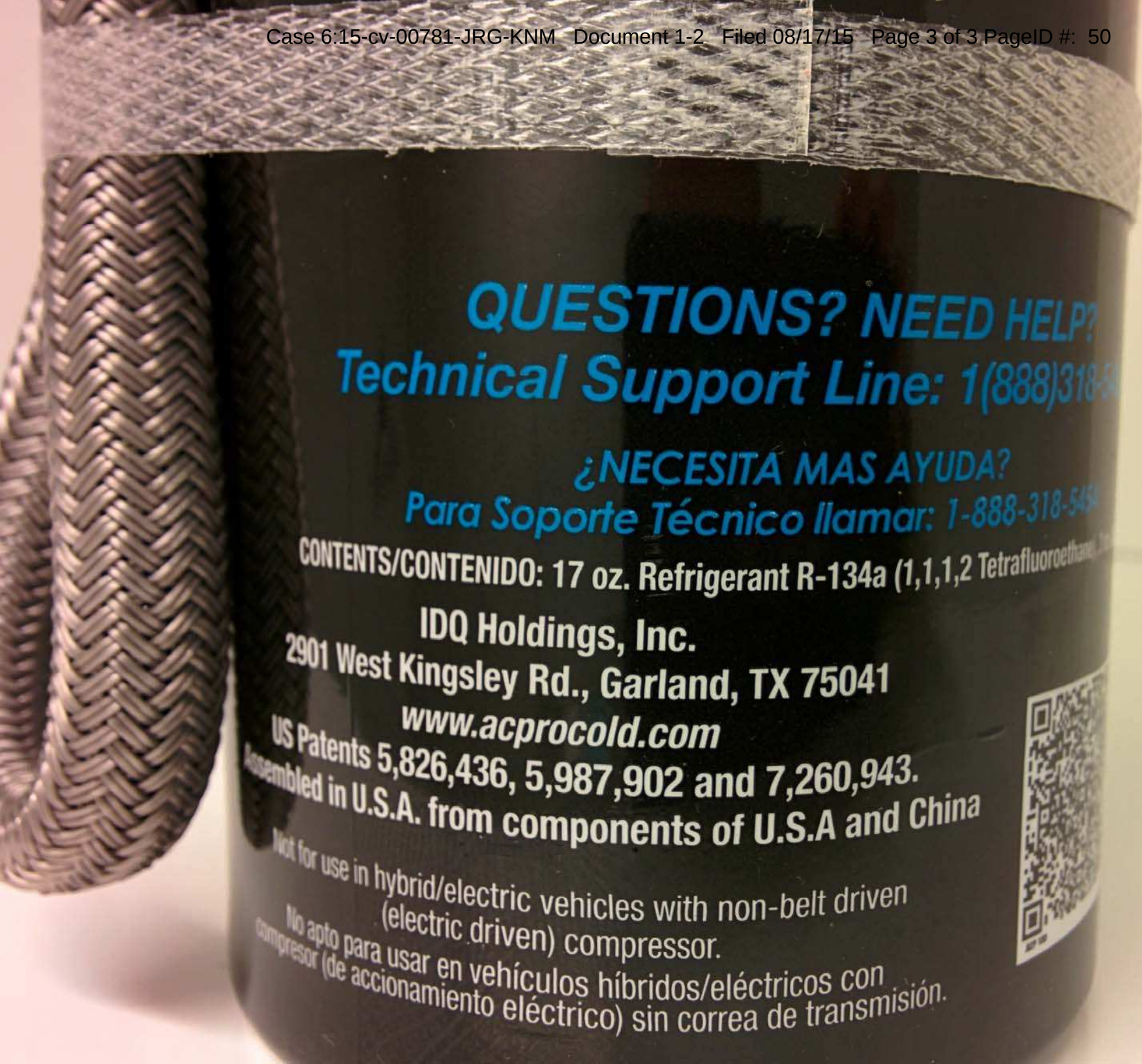
QUESTIONS? NEED HELP?
Technical Support Line: 1(888)318-
¿NECESITA MAS AYUDA?
Para Soporte Técnico llamar: 1-888-318-54
CONTENTS/CONTENIDO: 17 oz. Refrigerant R-134a (1,1,1,2 Tetrafluoroethane)
IDQ Holdings, Inc.
2901 West Kingsley Rd., Garland, TX 75041
www.acprocold.com
US Patents 5,826,436, 5,987,902 and 7,260,943.
Assembled in U.S.A. from components of U.S.A and China
Not for use in hybrid/electric vehicles with non-belt driven (electric driven) compressor.
No apto para usar en vehículos híbridos/eléctricos con compresor (de accionamiento eléctrico) sin correa de transmisión.

EXHIBIT C

United States of America
United States Patent and Trademark Office

ASK THE PRO

Reg. No. 4,244,354

Registered Nov. 20, 2012

Int. Cl.: 37

SERVICE MARK

PRINCIPAL REGISTER

IDQ OPERATING, INC. (NEW YORK CORPORATION)
2901 WEST KINGSLEY ROAD
GARLAND, TX 75041

FOR: VEHICLE AIR CONDITIONING TECHNOLOGICAL CONSULTATION SERVICES IN CONNECTION WITH THE MAINTENANCE OF VEHICLE AIR CONDITIONERS; VEHICLE AIR CONDITIONING TECHNOLOGICAL CONSULTATION SERVICES IN CONNECTION WITH THE REPAIR OF VEHICLE AIR CONDITIONERS; VEHICLE AIR CONDITIONING WEB SITE CONSULTATION IN CONNECTION WITH THE MAINTENANCE OF VEHICLE AIR CONDITIONERS; VEHICLE AIR CONDITIONING WEB SITE CONSULTATION IN CONNECTION WITH THE REPAIR OF VEHICLE AIR CONDITIONERS, IN CLASS 37 (U.S. CLS. 100, 103 AND 106).

FIRST USE 5-1-2011; IN COMMERCE 5-1-2011.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

SER. NO. 85-386,984, FILED 8-2-2011.

DARRYL SPRUILL, EXAMINING ATTORNEY

UNITED STATES PATENT AND TRADEMARK OFFICE · DEPARTMENT OF COMMERCE

David J. Kappos

Director of the United States Patent and Trademark Office

EXHIBIT D


AeroCool
1003107
Auto Air Conditioning
R-134a
Refrigerant
with Reusable
Charging Hose
All-in-One Solution to Restore A/C Cooling
Fills in Minutes with Quick and Easy Trigger Charging Hose
Durable Brass Connection
WARNING:
For 134a Automotive A/C Systems Only. Do Not
Mix With Refrigerant 12 (R12).
Contents under pressure. Read carefully all other
precautions on back panel.
ADVERTENCIA:
Solo Para Sistemas Automotrices A/C 134a. No
Mezclar Con Refrigerante 12 (R12).
Contenido bajo presión. Leer atentamente todas
las demas precauciones en el panel trasero.
NET WT. 18 oz. (510g)

HOW WAS YOUR SHOPPING
EXPERIENCE TODAY?
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de compra hoy?

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NEW SHORTER survey at:
Por favor complete nuestra
breve encuesta en...

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You will need to enter the
following online:

ID #: 7HVZYXC29FB

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Sweepstakes period is shown in
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TYLER TX 75704

ST# 1022 OP# 00004315 TE# 95 TR# 07375

R134A KIT	088634500072	23.44 X
R134A KIT	088634500072	23.44 X
REFRIGRANT	088634500050	6.88 X
	SUBTOTAL	53.76
TAX 1	8.250 %	4.44
	TOTAL	58.20
	CASH TEND	100.00
	CHANGE DUE	41.80

ITEMS SOLD 3

TC# 7374 1685 1623 7033 7140

Low Prices You Can Trust. Every Day.
06/11/15 15:00:42

EXHIBIT E

1. Can I use your products in my hybrid vehicles electric compressor?
2. Can I use R134a in my vehicle?
3. How to recharge or measure pressure with a trigger style recharge hose?
4. How to recharge or measure pressure with a T-handle or Gauge-Handle style recharge hose?
5. How to use an R134a charging hose to add/recharge R134a refrigerant to my auto A/C system?
6. Do I have to use a special tool to add R134a to my auto A/C?
7. How to shake the can during the charging?
8. Can I hold the upside down while charging?
9. What's the purity of Speed Steed Refrigerant R134a?
10. Can I use R134a in my tractor ?
11. How to deal with can with redundant R134a?
12. How to conver from lb(pound) to oz(ounce)?
13. Which lubricant I can add,POE or PAG?
14. If I do not have a piercing stem/puncture pin on my tool, how can I use the can?
15. Refrigerant added to correct pressures but it's still not cooling, why?
16. My A/C is blowing cold but not as cold as I would like it. Will adding additional refrigerant make the air colder?
17. Is there any oil or sealant in the R134a?
18. How much refrigerant should I put in?

We recommend using a pressure gauge to determine an accurate fill. A color-coded gauge indicates whether you should continue filling (charging) or not. If you have just retrofitted from an R-12 system and had all the R-12 refrigerant removed, you should fill a system with R-134a at 80-85% of the original R-12 Volume. (Consult your owners manual or sticker under the hood for original R-12 volume).

F.A.Q.S more>>

Can I use R134a in my vehicle?

How to recharge or measure pressure with

How to recharge or measure pressure with

How to use an R134a charging hose to ad

Do I have to use a special tool to add

If I do not have a piercing stem/punctu

Refrigerant added to correct pressure

Online message

1. Can I use your products in my hybrid vehicles electric compressor?
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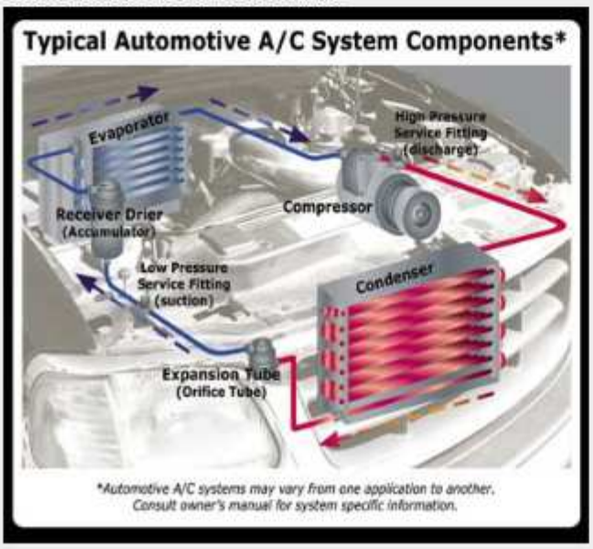
16. My A/C is blowing cold but not as cold as I would like it. Will adding additional refrigerant make the air colder?
17. Is there any oil or sealant in the R134a?
18. How much refrigerant should I put in?
19. How do I locate my low-side service port?

The low side service valve is located in the line that runs from the compressor through the evaporator (firewall) and up to the condenser on the low pressure (suction) side of the system. R134a recharge hoses will only fit on the low side service port on all R134a vehicles and R-12 vehicles that have been converted to R134a.



The only fitting that the standard recharge equipment will fit is the low side service port.

F.A.Q.S
Can I use R134a in my vehicle?
How to recharge or measure pressur
How to recharge or measure pressur
How to use an R134a charging hose
Do I have to use a special tool to
If I do not have a piercing stem/p
Refrigerant added to correct pres
Online message
Contact us
Technical su

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16. My A/C is blowing cold but not as cold as I would like it. Will adding additional refrigerant make the air colder?

The answer here is two fold. It is possible that the system has a small leak, and now is low on refrigerant. This will allow the system to blow cold, but just not as cold as it used to. In this case check the low-side pressure and verify if the system is low on refrigerant. If it is low on refrigerant add refrigerant to the correct pressure. If your pressure is correct adding additional refrigerant will not make the system blow out colder air, but will in fact cause the system become overcharged. This causes the system to work less efficiently and will result in warmer air blowing from the vents.

SPEED STEED

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Confidentiality

| F.A.Q.S more>>

- Can I use R134a in my vehicle?
- How to recharge or measure pressure with
- How to recharge or measure pressure with
- How to use an R134a charging hose to add
- Do I have to use a special tool to add R
- If I do not have a piercing stem/punctur
- Refrigerant added to correct pressures b

Online message

Contact us

Personal Information is that information, which can be used to find you, make contact with you, or determine your identity. Other information when linked to your Personal Information becomes Persona Informl

ation. All personal information, such as your name, postal and e-mail address or telephone number, is considered private and confidential. This personal information is stored in a secure location, is accessible only by designated staff, and is used only for the purposes that you have given us permission for, such as, the provision of services. Aerospace Communications guarantees that no personal information will be released to an individual or corporation except when client authorization is received allowing the information to be released.

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Changing or Removing Information

Since general tracking information is anonymous, we have no way to locate this information obtained by your use of the service. In addition, this information is often aggregated. Therefore, we cannot remove the information obtained from you or as a result of your usage of the website or service.

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We do not encrypt your normal web sessions with the Service using SSL.

We employ reasonable and current security methods to prevent unauthorized access, maintain data accuracy, and ensure correct use of information.

Your personal data will be stored within a database that is located behind a firewall for added security. The server housing the database is physically protected at a secure site and is monitored.

No data transmission over the Internet or any wireless network can be guaranteed to be secure. As a result, while we try to protect your personal information, we cannot ensure or guarantee the security of any information you transmit to us, and you do so at your own risk.

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DO IT YOURSELF

CALIFORNIA

A Guide to Proper A/C System Recharging

Better Recycle Better California!

Refrigerant R-134a is a greenhouse gas. If leaked into the atmosphere, it contributes to global warming!

Effective January 1, 2010, an instant $10 California deposit and return program began. Returned, used containers will be recycled to recover remaining refrigerant.
A new, self sealing valve on cans of R-134a will help you avoid accidental discharges.

It is illegal to destroy or discard used or unused small refrigerant containers under Section 95360 et seq. of the California Code of Regulations.

Helpful tips while recharging:

• Check for and repair leaks before recharging.
• Using a gauge ensures proper fill levels
• Do not overcharge or undercharge the A/C system; both conditions will produce poor cooling performance. Too much refrigerant will raise system pressures and may result in compressor or other component damage.

• Check vent temperatures while charging. Cooler air should result as you're adding refrigerant.
• If you have added a can of refrigerant and are not getting cooler air - STOP! -see a professional! You may have leaks requiring repairs to the system.

1. CONSUMER PAYS DEPOSIT AT PURCHASE.
2. ALWAYS WEAR INSULATED GLOVES & SAFETY GLASSES.
3. IF SYSTEM REQUIRES RECHARGE MORE THAN ONCE A YEAR, IT HAS A LEAK. Diagnose and repair leaks before adding refrigerant.
4. READ THE LABEL and prepare by understanding the instructions.
5. IF NOT PRE-ASSEMBLED, ATTACH CHARGING HOSE TO REFRIGERANT CAN, following hose or can instructions.
6. TO IDENTIFY A/C FILL CAPACITY FOR YOUR SPECIFIC VEHICLE, LOCATE A/C SYSTEM NAMEPLATE in the engine compartment. NOTE THE COMPLETE SYSTEM CHARGE VOLUME. For optimal cooling, NEVER EXCEED MAX CHARGE.
7. LOCATE YOUR VEHICLE'S LOW SIDE A/C SERVICE PORT and remove the blue or black protective cap. It's a "SNAP"; the charging hose will only fit on the low-side port.

8. START THE ENGINE, turn on the A/C to maximum cooling, the fan switch to high and the temperature dial to full blue.
9. ATTACH QUICK CONNECTOR TO LOW-SIDE PORT by pulling back connecting ring or snapping into place. Check to assure it is securely locked.
10. DIAGNOSE A/C SYSTEM BEFORE ADDING REFRIGERANT using a charging hose with a gauge, an electronic meter or manifold gauge set. Compare gauge reading to the chart (*top of right column*). If pressure reading is below chart range, you may add refrigerant.
11. ADD REFRIGERANT by opening dispensing valve or pulling the trigger, as shown in the charging device's instructions
12. WHILE CHARGING, HOLD CAN UPRIGHT, AGITATING FREQUENTLY USING A 12 O'CLOCK TO 3 O'CLOCK MOTION. It takes 5 to 15 minutes to dispense a can of refrigerant.
13. CHECK PRESSURE GAUGE every minute or so. To accurately check pressure, refrigerant cannot be flowing. Follow instructions: release trigger or close dispensing valve to measure pressure.

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NOTE: Ambient temp is the outside atmospheric temperature. Pressure may only be taken when compressor is running.

AMBIENT TEMPERATURE - PRESSURE CHART	
If Ambient Temp (F°/ C°) is:	Low Pressure Gauge Should Read:
65°F (18°C)	25-35 psi
70°F (21°C)	35-40 psi
75°F (24°C)	35-45 psi
80°F (27°C)	40-50 psi
85°F (29°C)	45-55 psi
90°F (32°C)	45-55 psi
95°F (35°C)	50-55 psi
100°F (38°C)	50-55 psi
105°F (41°C)	50-55 psi
110°F (43°C)	50-55 psi

14. REPEAT STEPS 10, 11, & 12 AS NEEDED, until correct pressure is reached, can feels empty, or refrigerant stops flowing. NOTE: If can feels empty, turn upside down for 1 minute to remove all contents. Signs of an empty can include no detectable refrigerant movement and can is no longer cold to the touch.
15. A PROPERLY CHARGED A/C SYSTEM will not only read correct gauge pressure but air exiting all interior vents should be the same approximate cooled temperature. For optimal cooling, DO NOT OVERCHARGE OR UNDERCHARGE!
16. REMOVE QUICK CONNECT FROM LOW-SIDE PORT by pulling connector ring back and straight up from service port. Replace protective cap on Low-Side Port.
17. REMOVE EMPTY CAN FROM CHARGING HOSE unless permanently attached.
18. RETURN ALL USED CONTAINERS WITH PROOF OF PURCHASE TO THE PLACE OF PURCHASE FOR RECYCLING & REFUND OF YOUR DEPOSIT.

Better Recycle Better California!

SPEED STEED

Aerospace Communications Holdings, Co., Ltd

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Search

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Your current location > Home page > About us > California Regulatory Info for Consumers

CALIFORNIA REGULATORY INFORMATION FOR CONSUMERS

According to California regulation signed into law in January 2009, any manufacturer or marketer of "small cans" of refrigerant must be certified by CARB (California Air Resources Board) in order to sell product in the state. The certification requirements include compliant containers with self-sealing valves, new consumer usage instructions, and an approved used can deposit & recycling program. Please click through the links below for additional information regarding the guidelines for both consumers and distributors.

- California Regulations / Deposit & Return
- Global Warming & Refrigerant
- Proper Recharging: Step-by-Step (in Español)
- Proper Recharging: Step-by-Step
- Helpful Tips for Recharging

Guidance Video of How to Recharge you A/C - California

F.A.Q.S more>>

- Can I use R134a in my vehicle?
- How to recharge or measure pressure with
- How to recharge or measure pressure with
- How to use an R134a charging hose to add
- Do I have to use a special tool to add R
- If I do not have a piercing stem/punctur
- Refrigerant added to correct pressures b

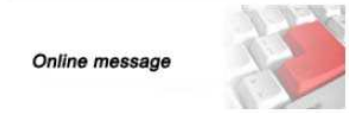

EXHIBIT F

Guidance video of how to recharge your auto A/C


How to Recharge Your Car AC with AC Pro
How to Recharge Your Car AC with AC Pro
A/C PRO

EXHIBIT G

Ask the Pro

Do you have an A/C related question? Feel free to "Ask the Pro" for expert advice about your vehicle's A/C.

Thanks for your question.

Full Name *

Phone *

- -

###

Email Address *

Address (optional)

City

State

Zipcode

Product #

Brief description of problem or question? *

Preferred Method of contact

- Email
- Telephone

Submit reset

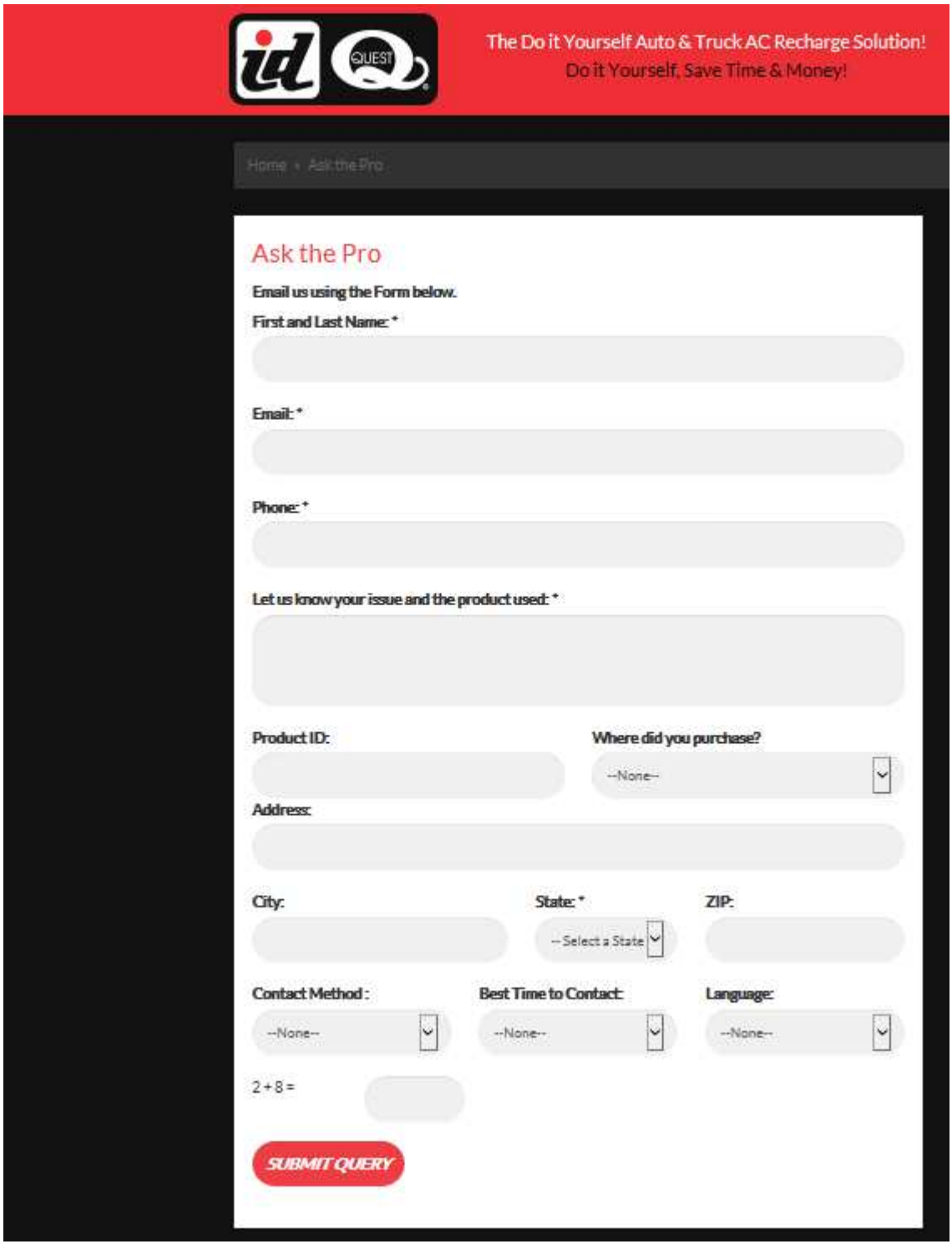
The Do it Yourself Auto & Truck AC Recharge Solution!
Do it Yourself, Save Time & Money!
Home » Ask the Pro
Ask the Pro
Email us using the Form below.
First and Last Name: *
Email: *
Phone: *
Let us know your issue and the product used: *
Product ID:
Where did you purchase?
--None--
Address:
City:
State: *
-- Select a State
ZIP:
Contact Method :
--None--
Best Time to Contact:
--None--
Language:
--None--
2 + 8 =
SUBMIT QUERY

EXHIBIT H

Before Using Product

LOCATE PORT

MEASURE

CHARGE

Scan Here for Instruction Video and More
Utilice este scan para conseguir
videos de instrucción y más

M1119
DOT SP 10232

If you have any questions or comments please contact us at:
Aerospace Communications
PO BOX 361786, Hoover, Al 35236
Toll free number:800-323-0197
E-mail:support@zhonghuico.com
Http://www.aerocousa.com

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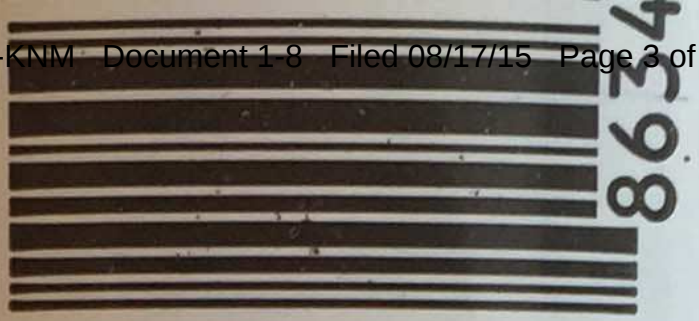

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EXHIBIT I

lectura del medidor y compare con la carta de tempera
presión está por debajo de la lista del Medidor de Baja
SOLUCIÓN DE PROBLEMAS: Si el compresor no se e
producto, espere 3 minutos y puedes vuelva a intentarl
engancha se puede necesitar de reparaciones.

3. CARGÁ: Remueva el acoplador del puerto, sacuda la
gatillo. La lata no se encuentra perforada. No desatornill
encuentre vacía. Reconecte el acoplador rápido para re
gatillo para cargar. Rote la lata entre las 12 en punto y la
mientras la sacude continuamente. Libere el gatillo de m
presión del sistema, los sistemas A/C típicos se cargan a
encuentra en la zona azul. Cuando la lata está vacía, sos
minuto, para remover los contenidos sobrantes, antes de
¡NO SOBRECARGAR!

PELIGRO: NO ALMACENE LA LATA EN EL COMPARTIM
VEHÍCULO (PODRÍA EXPLOTAR). No almacenar en tem
Incinere lata.

ADVERTENCIA: Solo Para Sistemas Automotrices A/C 1
12 (R12). Mantenga fuera del alcance de los chicos: La ex
congelación. Limpie con agua fría. En caso de contacto co
caso de inhalación, tome aire fresco y contacte un médico
tetrafluoroetano (CAS # 811-97-2).

PRECAUCIÓN: SIEMPRE UTILICE GUANTES PROTECT
SIEMPRE ALMACENE LAS LATAS PARCIALMENTE LLEN
MANGUERA DE RECARGA CONECTADA EN UN LUGAR

BOT. VENT. PAT. NO. PENDING 5D1503 Lot #1986

JS 44 (Rev. 09/11)

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. *(SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)*

I. (a) PLAINTIFFS
IDQ Operating, Inc.

(b) County of Residence of First Listed Plaintiff Dallas County
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys *(Firm Name, Address, and Telephone Number)*
Michael E. Jones, Potter Minton, PC, 110 North College, Suite 500, Tyler, Texas 75702; 903-597-8311

DEFENDANTS
Aerospace Communications Holdings Co., Ltd.

County of Residence of First Listed Defendant _____
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys *(If Known)*

II. BASIS OF JURISDICTION *(Place an "X" in One Box Only)*

- ❒ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question *(U.S. Government Not a Party)*
- ❒ 2 U.S. Government Defendant
- ❒ 4 Diversity *(Indicate Citizenship of Parties in Item III)*

III. CITIZENSHIP OF PRINCIPAL PARTIES *(Place an "X" in One Box for Plaintiff and One Box for Defendant)*
(For Diversity Cases Only)

	PTF	DEF		PTF	DEF
Citizen of This State	❒ 1	❒ 1	Incorporated *or* Principal Place of Business In This State	❒ 4	❒ 4
Citizen of Another State	❒ 2	❒ 2	Incorporated *and* Principal Place of Business In Another State	❒ 5	❒ 5
Citizen or Subject of a Foreign Country	❒ 3	❒ 3	Foreign Nation	❒ 6	❒ 6

IV. NATURE OF SUIT *(Place an "X" in One Box Only)*

CONTRACT
- ❒ 110 Insurance
- ❒ 120 Marine
- ❒ 130 Miller Act
- ❒ 140 Negotiable Instrument
- ❒ 150 Recovery of Overpayment & Enforcement of Judgment
- ❒ 151 Medicare Act
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- ❒ 153 Recovery of Overpayment of Veteran's Benefits
- ❒ 160 Stockholders' Suits
- ❒ 190 Other Contract
- ❒ 195 Contract Product Liability
- ❒ 196 Franchise

REAL PROPERTY
- ❒ 210 Land Condemnation
- ❒ 220 Foreclosure
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- ❒ 240 Torts to Land
- ❒ 245 Tort Product Liability
- ❒ 290 All Other Real Property

TORTS

PERSONAL INJURY
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- ❒ 315 Airplane Product Liability
- ❒ 320 Assault, Libel & Slander
- ❒ 330 Federal Employers' Liability
- ❒ 340 Marine
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- ❒ 355 Motor Vehicle Product Liability
- ❒ 360 Other Personal Injury
- ❒ 362 Personal Injury - Med. Malpractice

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- ❒ 368 Asbestos Personal Injury Product Liability

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Habeas Corpus:
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- ❒ 535 Death Penalty
- ❒ 540 Mandamus & Other
- ❒ 550 Civil Rights
- ❒ 555 Prison Condition
- ❒ 560 Civil Detainee - Conditions of Confinement

FORFEITURE/PENALTY
- ❒ 625 Drug Related Seizure of Property 21 USC 881
- ❒ 690 Other

LABOR
- ❒ 710 Fair Labor Standards Act
- ❒ 720 Labor/Mgmt. Relations
- ❒ 740 Railway Labor Act
- ❒ 751 Family and Medical Leave Act
- ❒ 790 Other Labor Litigation
- ❒ 791 Empl. Ret. Inc. Security Act

IMMIGRATION
- ❒ 462 Naturalization Application
- ❒ 463 Habeas Corpus - Alien Detainee (Prisoner Petition)
- ❒ 465 Other Immigration Actions

BANKRUPTCY
- ❒ 422 Appeal 28 USC 158
- ❒ 423 Withdrawal 28 USC 157

PROPERTY RIGHTS
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- ☒ 830 Patent
- ❒ 840 Trademark

SOCIAL SECURITY
- ❒ 861 HIA (1395ff)
- ❒ 862 Black Lung (923)
- ❒ 863 DIWC/DIWW (405(g))
- ❒ 864 SSID Title XVI
- ❒ 865 RSI (405(g))

FEDERAL TAX SUITS
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- ❒ 871 IRS—Third Party 26 USC 7609

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- ❒ 895 Freedom of Information Act
- ❒ 896 Arbitration
- ❒ 899 Administrative Procedure Act/Review or Appeal of Agency Decision
- ❒ 950 Constitutionality of State Statutes

V. ORIGIN *(Place an "X" in One Box Only)*

☒ 1 Original Proceeding ❒ 2 Removed from State Court ❒ 3 Remanded from Appellate Court ❒ 4 Reinstated or Reopened ❒ 5 Transferred from another district *(specify)* ❒ 6 Multidistrict Litigation

VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing *(Do not cite jurisdictional statutes unless diversity)*:
35 USC Sec. 271; 15 USC Sec. 1114; 17 USC Sec. 501; 35 USC Sec. 292

Brief description of cause:
Patent Infringement; Trademark Infringement; Copyright Infringement; False Marking

VII. REQUESTED IN COMPLAINT:

❒ CHECK IF THIS IS A **CLASS ACTION** UNDER F.R.C.P. 23

DEMAND $

CHECK YES only if demanded in complaint:
JURY DEMAND: ☑ Yes ❒ No

VIII. RELATED CASE(S) IF ANY *(See instructions):* JUDGE _____ DOCKET NUMBER _____

DATE
08/17/2015

SIGNATURE OF ATTORNEY OF RECORD
/s/ Allen F. Gardner

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____