



(51) International Patent Classification:
F21S 8/08 (2006.01)

(21) International Application Number:

PCT/US2014/073070

(22) International Filing Date:

31 December 2014 (31.12.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

14/146,431	2 January 2014 (02.01.2014)	US
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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,

[Continued on next page]

(54) Title: ELECTRICAL DEVICE MOUNTING ASSEMBLY

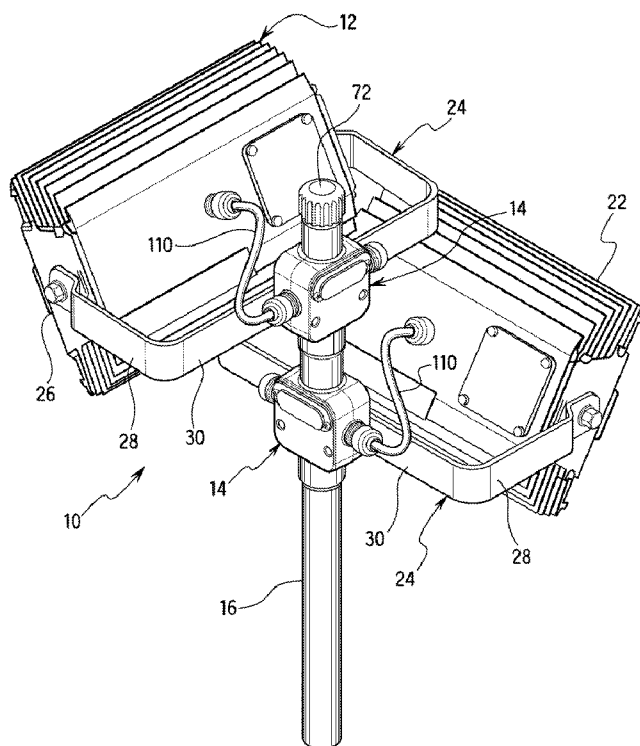


FIG. 1

(57) Abstract: An electrical assembly having a support, a mounting member and an electrical device attached to the mounting member and the support. The mounting member is a one piece integrally formed unit having an interior cavity for receiving electrical wires from the power source and supplying the electrical wires to the electrical device. The mounting member has a coupling at a first end of the mounting member with internal threads having an annular recess receiving a seal member for forming a weatherproof seal with the support while allowing limited rotational adjustment of the mounting member with the support and maintaining the weatherproof seal. The mounting member has a second end with a coupling having external threads complementing the internal threads of the first coupling to enable a plurality of the mounting members to be coupled together and forming a weatherproof connection between the adjacent mounting members.



LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, KM, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))*

Published:

— *with international search report (Art. 21(3))*

ELECTRICAL DEVICE MOUNTING ASSEMBLY

Field of the Invention

[0001] The present invention is directed to a mounting assembly for mounting and supporting an electrical device. The invention is particularly directed to a molded one-piece mounting member for forming a waterproof or weatherproof seal with a support member while allowing rotational movement between the mounting member and the support member.

Background of the Invention

[0002] Mounting brackets and supports for various electrical devices are commonly used for attaching the electrical device, such as a light, to a pole or other support. The mounting brackets often have one end that can be attached to a base and another end attached to the electrical device.

[0003] U.S. Patent No. 1,772,934 to Fish discloses a lighting attachment including a bracket that is slidable on a rod. The mounting bracket has an opening for receiving the electrical wiring and feeding the electrical wiring to the lighting attachment.

[0004] U.S. Patent No. 3,903,409 to Richilano discloses an outdoor light mounting device including a bracket for attaching to a pole. The bracket

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slides onto the end of the pole and is attached by screws. The bracket has a hollow cavity for feeding wires through the conduit to the light.

[0005] U.S. Patent No. 3,928,758 to Osteen et al. now discloses a flood light having a mounting bracket as shown in Figure 1A that attaches to a vertical pole. The mounting bracket has a hollow cavity for feeding the wiring from the conduit to the flood light. The end of the bracket has a female end for receiving the end of the conduit which is secured by screws.

[0006] U.S. Patent No. 4,975,071 to Bedocs et al. discloses a track lighting device for a lamp fitting. The end of the adapter has a hollow body member that slides in a track.

[0007] U.S. Patent No. 5,306,871 to Lai discloses an electrical cord assembly for a lighting fixture which is mounted to a vertical pole. The mounting assembly has a female threaded end at a bottom edge shown in Figure 3 for attaching to the pole and two female threaded openings on the top edge.

[0008] U.S. Patent No. 5,307,255 to Chen discloses a portable lamp mounted to a base by a bracket as shown in Figure 4. The bottom end of the bracket has a threaded opening for receiving a mounting screw and a female threaded end at the top edge for connecting to the conduit 21. The electrical wires are fitted through an opening in the sidewall of the bracket.

[0009] U.S. Patent No. 5,414,607 to Harris et al. discloses an outdoor landscape lighting fixture having an integral wiring compartment with a base connected to a conduit. The wiring compartment supports the lamp which extends from the top end of the compartment.

[0010] U.S. Patent No. 6,536,927 to Lawnicki discloses a light fixture extension adapter. The adapter has a male threaded end for connecting to a fixture shown in Figure 5 and a female threaded end for connecting to the lamp.

[0011] U.S. Patent No. 7,402,074 to LeBlanc et al. discloses a flood light fixture having a bracket with an integral strap tensioning device. The bracket is coupled to a support by the strap.

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[0012] U.S. Patent Publication No. 2006/0274537 to Randazzo discloses a lamp assembly with a rotary adjustable photocell adapter. The adapter includes a housing which is coupled to the top end of the conduit. The top end of the housing has an open end for attaching to the light assembly.

[0013] While these prior devices have generally been suitable for their intended purpose, there is a continuing need in the industry for an improved mounting assembly.

Summary of the Invention

[0014] The present invention is directed to a mounting member for an electrical device to enable adjustment of the position of the electrical device relative to the support. The invention is particularly directed to a mounting member providing a waterproof connection between the mounting member and the support and between two connected mounting members.

[0015] The mounting member of the invention is preferably formed as a one piece, unitary molded device. The mounting member is constructed so that several of the mounting members can be coupled together without the use of separate connectors while providing adjustment or movement between the respective mounting members and between the mounting members and the support. Preferably the mounting member is made of metal that is cast as a one-piece member and machined to the finished form by the cutting threads and other necessary features of the mounting member.

[0016] The mounting member in one embodiment of the invention has a first coupling end and an opposite second coupling end with a wire passage for directing wires to one or more electrical devices. In one embodiment one end is configured for mating with a support for supporting the electrical device. The opposite end is configured for mating with an end of a second mounting member so that a plurality of the mounting members can be coupled end-to-end in a stacked relation for supporting a plurality of

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electrical devices by a single support structure. A cap is also provided to close the open end of the coupling member.

[0017] In one embodiment of the invention, the mounting member has a first coupling with an axial passage having internal threads and a second coupling with an axial passage and external threads that complement the internal threads of the first coupling for coupling a plurality of the mounting members together in series or for attaching the mounting member to a threaded end of a support. The mounting member can be attached to a support by either the first coupling with a second coupling. The support can be a floor mounted support or a ceiling mounted support.

[0018] The mounting member of the invention is a one-piece molded unit having an internal cavity, a first side, and a second side. The first side is provided with an access opening with a dimension sufficient to access the wires contained within the cavity for making suitable electrical connections between a power source and the electrical device. A cover is attached to the first side of the mounting member to close the access opening and form a weatherproof seal to prevent water and dust from entering the cavity of the mounting member.

[0019] The mounting member in one embodiment of the invention has a coupling with an axial passage having internal threads extending from the open end of the coupling to a base portion of the coupling. The inner surface of the coupling has an annular recess at the base portion spaced from the open end. An annular seal member such as an O-ring is received in the annular recess. The internal threads of the coupling mate with the external threads of a support or with the external threads of a second mounting member. The mounting member is threaded onto the external threads of the support so that the seal member contacts the end of the support for forming a weatherproof seal. The seal member has a dimension and sufficient resilience and compressibility to allow some rotational adjustment and movement of the threaded connector of the mounting member on the threaded end of the support while maintaining the

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weatherproof seal. In one embodiment the seal member allows the mounting member to rotate about $\frac{3}{4}$ of a turn while maintaining contact with the axial face of the support to form the weatherproof seal and connection.

[0020] The various features of the invention are basically attained by providing an electrical assembly comprising a support, a mounting member, a first coupling, and an electrical fixture coupled to the mounting member. The support has an open end with a passage for carrying electrical wires where the open end has external threads. The mounting member has a body with a hollow cavity, a first side, a second side, a first longitudinal end, and a second longitudinal end. The first coupling extends from the first longitudinal end of the body and has an axial passage communicating with the cavity in the body. The axial passage has internal threads extending between the outer end of the first coupling to a base portion of the first coupling. The base portion has an annular recess and a seal member received in the annular recess. The internal threads of the first coupling can be coupled to the external threads of the support or to the external threads of another mounting member. The seal member mates with an open end of the support and allows rotational adjustment of the mounting member with respect to the support and forms a weatherproof seal between the mounting member and the support. The axial passage of the first coupling directs the electrical wires to the cavity of the mounting member. The electrical fixture includes wires extending through an opening in the second side of the mounting member and is electrically connected to the electrical wires in the cavity.

[0021] The various features of the invention are also attained by providing an electrical assembly comprising a support and a mounting member. The support has a tubular shaped end with an axial passage for carrying electrical wires. The mounting member has a body with a hollow cavity, a first longitudinal end, second longitudinal end, a first side, and a second side. A first coupling has an axial passage communicating with the cavity in

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the body and an inner surface with internal threads. An annular recess is provided in the axial passage at a base portion of the coupling and the internal threads. A seal member is received in the annular recess. A second coupling extends from the second end of the body and has an axial passage communicating with the cavity. The second coupling has an outer surface with external threads complementing the internal threads of the first coupling for coupling with a first coupling of an adjacent mounting member. The first side of the body has an access opening communicating with the cavity. A removable cover is coupled to the first side for closing the access opening. The second side of the body has at least one collar extending into the cavity and having an axial bore communicating with the cavity and defining a wire outlet where the axial bore has internal threads for receiving a cylindrical guide sleeve.

[0022] The various features of the invention are further attained by providing an electrical assembly comprising a support having a substantially tubular shaped end with an axial passage and an end with external threads. A first and second one-piece unitary mounting member is provided having a body with a first longitudinal end, a second longitudinal end, a first front side and a second rear side. A first cylindrical coupling extends from the first end and has internal threads for coupling with the external threads of the support. A second cylindrical coupling extends from the second end and has external threads complementing the internal threads of the first coupling. The first side has an access opening for accessing wires within the cavity. The second side has a wire outlet opening. An electrical fixture is coupled to the mounting electrically connected to the wires from the wire outlet opening.

[0023] The various objects, advantages and salient features of the invention will become apparent from the annexed drawings and detailed description of the invention which form part of the original disclosure.

Brief Description of the Drawings

[0024] The following is a brief description of the drawings, in which:

[0025] Figure 1 is a perspective view of the electrical assembly mounted to a support in one embodiment of the invention;

[0026] Figure 2 is a side view of the electrical assembly of Figure 1;

[0027] Figure 3 is a top view of the electrical assembly of Figure 1;

[0028] Figure 4 is an exploded view of the mounting member in one embodiment of the invention ;

[0029] Figure 5 is a front view of the mounting member of Figure 4;

[0030] Figure 6 is a side view of the mounting member;

[0031] Figure 7 is a rear view of the mounting member;

[0032] Figure 8 is an end view of the mounting member;

[0033] Figure 9 is a cross-sectional view taken along line 9-9 of Figure 5;

[0034] Figure 10 is a cross-sectional view of the mounting member taken along line 10-10 of Figure 7;

[0035] Figure 11 is a cross-sectional view taken along line 11-11 of Figure 7;

[0036] Figure 12 is an enlarged cross-sectional view of the coupling end of Figure 10;

[0037] Figure 13 is an enlarged cross-sectional view of the coupling of Figure 11;

[0038] Figure 14 is an exploded view of the mounting member in a second embodiment;

[0039] Figure 15 is a front view of the mounting member of Figure 14;

[0040] Figure 16 is a rear view of the mounting member of Figure 14;

[0041] Figure 17 is a side view of the mounting member of Figure 14;

[0042] Figure 18 is an end view of the mounting member of Figure 14;

[0043] Figure 19 is a cross-sectional view of the mounting member taken along line 19-19 of Figure 15;

[0044] Figure 20 is a cross-sectional view of the mounting member taken along line 20-20 of Figure 17;

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[0045] Figure 21 is an enlarged view of the coupling end of the mounting member of Figure 19;

[0046] Figure 22 is a perspective view of the mounting member in another embodiment of the invention; and

[0047] Figure 23 is an exploded side view of the mounting of Figure 22.

Detailed Description of the Invention

[0048] The present invention is directed to an electrical assembly including a mounting member for supporting an electrical device for an electrical fixture such as a lighting device, which can be adjusted relative to a support while providing the weatherproof connection to protect the wires and electrical connectors for the electrical device. The invention is particularly directed to a mounting member that can be coupled in series with other identical mounting members for mounting a plurality of electrical devices on a single support and where the mounting members can be rotated with respect to each other so that the position or orientation each of the electrical devices can be adjusted with respect to each other and to the support.

[0049] Referring to the drawings, the electrical assembly 10 includes an electrical device 12 shown as a flood light connected to a mounting member 14. The mounting member is attached to a support such as a support pole 16 as shown in Figures 1-3 or to a ceiling mounted shown in Figures 22 and 23. The support pole 16 of Figures 1-3 is attached to a suitable base (not shown) for supporting the pole 16 in the upright position and supporting the floodlights 12 or other electrical device. The support pole 16 preferably has a threaded end 82 and a hollow axial passage for supplying wires from a power source to the mounting members and to the electrical device.

[0050] The mounting member of the invention is suitable for mounting various electrical devices. In the embodiment shown the electrical device is a flood light 12 although other electrical devices can be used. The

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floodlights 12 in the embodiment shown have a front face 18 for projecting light in a selected direction and a housing 20 with cooling fins 22. The floodlights 12 have a suitable light source such as a series of LEDs or other suitable lamps. A yoke 24 or other mounting bracket is attached to the sides of the housing 20 by a bolt 26 to allow angular adjustment of the flood light with respect to the yoke 24. The yoke 24 has legs 28 attached to the opposite sides of the housing 20 and a body 30 extending between the legs 28 for attaching directly to the mounting member. Mounting bolts 32 or mounting screws extend through apertures 34 in the body 30 and are threaded into screw holes 58 in the mounting member 14 for mounting the flood light to the respective mounting member.

[0051] As shown in Figures 1-3, the mounting members 14 can be coupled together in series for mounting several floodlights or other electrical devices to a single support pole or to a ceiling mount as shown in Figures 22 and 23. As discussed hereinafter in greater detail, each of the mounting members 14 can be rotated independently of each other and with respect to the support pole 16 or ceiling mount to position the floodlights 12 in various angular directions as needed.

[0052] Referring to Figs. 4-13 a first embodiment of the invention is shown. The mounting member 14 is preferably a one piece, integrally formed member. In preferred embodiments, the mounting member 14 is a cast metal unit having a body 48 with a front wall forming a front face 36, a rear wall forming a rear face 38, a first longitudinal end 40 and a second longitudinal end 42. A first side 44 and a second side 46 extend between the front face 36 and rear face 38.

[0053] The front face 36 has a substantially flat configuration with an access opening 50 to the hollow cavity 52 within the body 48 of the mounting member 14. The cavity 52 preferably has a dimension to receive wires passing through the body 48 from the support 16 and allow electrical connections between the wires from the support and the wires from the electrical device 12. The access opening 50 has a dimension to allow the

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user to make the necessary connections between the wires. A cover 54 is attached to the body 48 by screws 56 received in screw holes 58 in the body 48 to provide a weatherproof seal and protect the wires within the cavity 52 from water and dirt. As shown in Fig. 9, a boss 59 projects into the cavity 52 to form the threaded screw holes 58.

[0054] In the embodiment shown, the front face 36 and the rear face 38 have internally threaded holes 34 for receiving the mounting bolts 32 for mounting the yoke 24 of the electrical device 12 to the mounting member 14. Referring to Fig. 9, the cavity 52 is provided with a boss 60 that extends between the front face 36 and the rear face 38. In the embodiment shown, the internal threads 62 extend through the bore in the boss. Alternatively, the bore can extend part way through either the front face or the rear face so that the bore does not extend completely through the body 48. In this manner the mounting bolts 32 can be attached to either or both the front face or the rear face for selectively mounting the electrical device to the mounting member 14. Alternatively, the apertures 34 can be formed in either the front face or the rear face only.

[0055] A first coupling 64 extends from the first longitudinal end of the body 48. The first coupling in the embodiment shown has a cylindrical shape with an axial passage 66 and an open threaded end 68 with external threads 70. In a preferred embodiment, the threaded end 68 has a slight taper for mating with complementing threads. A cap 72 as shown in Figs. 1-3 is provided to close the open end of the coupling 64 of the mounting member 14. The external threads 70 are configured for coupling end-to-end with an adjacent mounting member as discussed below or for coupling to a suitable support.

[0056] A second coupling member 74 extends from the second longitudinal end of the body 48. The second coupling member has an axial passage 76 communicating with the cavity 52 for supplying the electrical wires from the support pole to the cavity and flood light 12. In a preferred embodiment, the axial passage 66 of the first coupling 74 is aligned with the

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axial passage 76 of the second coupling 74. In the embodiment shown, the coupling members extend from the body from opposite longitudinal ends. Alternatively, the coupling members can extend from different sides perpendicular to each other depending on the desired mounting arrangement of the electrical devices 12.

[0057] Referring to Figs. 10 and 12, the second coupling 74 has an inwardly extending lip 78 at a base portion of the coupling 74 and a cylindrical inner surface having internal threads 80. The internal threads 80 are configured for mating with the external threads 82 of the support pole 16 as shown in Fig. 12 or to the first coupling of a second mounting member. The inner surface of the second coupling 74 has an annular recess 84 at the base of the lip 78 so that the annular recess 84 is positioned between the internal threads 80 and the lip 78. An annular seal member 86 is received in the annular recess 84 as shown in Fig. 12. In one preferred embodiment, the seal member 86 is an O-ring having a dimension to seat in the annular recess 84 and form a seal between the end of the support pole 16 and the lip 78 of the mounting member.

[0058] As shown in Fig. 12 the end of the support pole 16 is threaded into the threaded axial passage of the second coupling member 74 to mount the coupling 74 and the respective electrical device 12 to the pole 16. The threaded end is threaded into the second coupling member so that the axial end of the pole 16 engages the seal member 86 to form a weatherproof seal to prevent water and dirt from entering. In preferred embodiments of the invention the seal member has a dimension and is made of a sufficiently resilient material to compress and form the weatherproof seal and to allow rotational movement and adjustment of the mounting member on the pole 16. In one embodiment of the invention, the seal member 86 has a dimension to allow rotation of about $\frac{3}{4}$ of a turn of the mounting member 14 on the pole 16 and still maintain a weatherproof seal between the mounting member 14 and the pole 16. As shown in Figs. 1-3, the position of the mounting members 14 can be adjusted by rotation of the mounting

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members 14 on the pole 16 while maintaining a weatherproof seal between the mounting member 14 and the pole 16.

[0059] The mounting members 14 are configured so that a plurality of mounting members can be connected together in series as shown in Figs. 1-3. The external threads of the first coupling 64 complement the internal threads of the second coupling 74 so that the coupling members 14 can be screwed together in series in an end-to-end manner as shown. The seal member 86 in the second coupling 74 forms a weatherproof connection between the mounting members to allow rotational adjustment between the mounting members and maintain the weatherproof connection. The seal member preferably enables rotation of about $\frac{3}{4}$ of a turn between the two mounting members and still maintains the weatherproof connection between the mounting members. A set screw 88 extends through a radial hole in the second coupling 74 to lock the position of the second coupling 74 relative to the pole 16. In one preferred embodiment the mounting members 14 are oriented with the first coupling extending upward. Alternatively, the mounting member 14 can be oriented with the second coupling extending upward.

[0060] The body 48 in the embodiment shown has at least one and preferably two wire outlets 90 for directing the electrical wires from the cavity of the mounting members 14 to the electrical device 12. In the embodiment shown, the wire outlets 90 are formed in the sides 44 and 46. Referring to Figs. 11 and 13, the wire outlets 90 are formed by a collar 92 that projects outward from the outer face of the sides 44 and 46 and that extends into the cavity 52. The collar 92 has an axial passage 94 with an inner lip 96 at the base of the collar. The inner surface of the axial passage 94 is provided with internal threads 98 and is open to the cavity 52 to allow the electrical wires 110 to pass from the cavity to the electrical device.

[0061] Referring to Fig. 5, a sleeve 100 having an axial passage and an externally threaded end 102 forms a coupling for the mounting member 14 to direct the electrical wires to the electrical device 12. The sleeve 100 is

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threaded into the collar 92 as shown in Fig. 5. The sleeve 100 has an outer end 104 with an annular rib 106 or recess for mating with a bushing 108 or grommet that forms a waterproof seal between the wires 110 passing through the sleeve to the electrical device. The bushing preferable has a hole 112 with a dimension complementing the outer dimension of the wires 110 to form a seal with the wire and resist water and dirt from entering the mounting member. The bushing 108 preferably slides over the outer surface of the sleeve 100 to form a seal. The bushing 108 is preferably made of an elastomeric or rubber-like material to grip the outer surface of the sleeve 100 and form the waterproof seal.

[0062] In the embodiment shown, a single set of wires 110 extends from one of the wire outlet 90. In other embodiments, wires can extend through each of the wire outlets to one or more electrical devices. In the event one of the wire outlets is not being used, a suitable plug or cap can be coupled to the wire outlet to close the opening.

[0063] Referring to Figs. 14-21 a second embodiment of a mounting member 120 is shown which is similar to the embodiment of Figs. 1-13. The mounting member 120 has a body 122 with a front face 124, a rear face 126, a first longitudinal end 128 and a second longitudinal end 130. The front face 124 of the body 122 has an access opening 132 for accessing the internal cavity 134 and a cover 136 to close the access opening 132 by screws 138 that screw into screw holes 140 in the front face 124.

[0064] A first coupling 142 extends from the first longitudinal end 128 and a second coupling 144 extends from the second longitudinal end 130. As in the previous embodiment, the first coupling 142 has an axial passage 146 and an end with external threads 148 and the second coupling 144 with internal threads 154 that complement the external threads 148. The second coupling 144 has an axial passage 150 with an inwardly extending lip 152, internal threads 154 and an annular recess 156 for receiving an annular seal 158 such as an O-ring as shown in Fig. 19 and Fig. 21. As in the previous embodiment, the annular seal member 158 forms a weatherproof

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connection between the pole 16 and the mounting member 120 to allow rotational movement between the pole and the mounting member while maintaining a weatherproof connection.

[0065] In this embodiment, the rear face 126 includes two spaced-apart wire outlets 160 defined by a collar 162 extending inwardly into the cavity of the body 122 as shown in Fig. 19. The collar 162 has an axial passage 164 with internal threads 166 for mating with the external threads 167 of a sleeve 168. The sleeve 168 is threaded into the collar 162 to form a guide for the wires to the electrical device. The end 170 of the sleeve has a rib 172 for mating with a bushing 108 or grommet as in the previous embodiment.

[0066] The body 122 includes two internal bosses 174 extending between the front face 124 and the rear face 126 as shown in Fig. 20 forming two spaced-apart apertures 176 for receiving the mounting screws to attach the electrical device to the mounting member. As in the previous embodiment, the screw apertures 176 extend through the body and have internal threads for the mounting screws or bolts of the electrical device.

[0067] The mounting member 120 is attached to a support pole in a manner similar to the previous embodiment by screwing the coupling 144 to the threaded end of the support pole. The seal member 158 contacts the axial end of the pole to form a seal while allowing some rotational adjustment of the mounting member 120 with respect to the pole. A set screw can be screwed into a threaded aperture 178 in the coupling 144 to lock the mounting member in place. A plurality of the mounting members can be coupled in series as in the embodiment of Figs. 1-3 for mounting various electrical devices to a single support pole and allow adjustment of each of the mounting members with respect to each other and to the support pole while maintaining a weatherproof connection between the different components.

[0068] In another embodiment shown in Figures 22 and 23 the mounting member 14 can be attached to a ceiling support 180 so that the mounting members are suspended and extend downward. In the embodiment shown,

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the ceiling support 180 has a housing 182 that is fixed to a ceiling or other support surface. The housing 182 has a downwardly extending sleeve 184 with internal threads that complement the external threads of the first coupling of the mounting member 14. The mounting member 14 is screwed into the sleeve 184 and positioned orient the flood light in a selected direction. As in the previous embodiments, a plurality of the support members 14 can be connected together in series so that several floodlights or other electrical wiring devices can be suspended and electrically connected to the power source. As shown in Figures 22 and 23 a second coupling of the mounting member can be closed by a plug 26. The plug can be an elastomeric material and coupled by a friction fit or can be provided with suitable threads for screwing into the internal threads of the second coupling.

[0069] While various embodiments have been chosen to illustrate the invention, it will be understood by those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention as defined in the appended claims.

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WHAT IS CLAIMED IS:

1. An electrical assembly comprising:
 - a support having an open end with a passage for carrying electrical wires;
 - at least one mounting member having a body with a hollow cavity, a first side, a second side, a first longitudinal end, and a second longitudinal end;
 - a first coupling extending from said first longitudinal end and having an open end with external threads and an axial passage communicating with said cavity;
 - a second coupling extending from said second end and having an axial passage communicating with said cavity, said axial passage having internal threads extending between an outer end of said second coupling and a base portion of said second coupling, said base portion having an annular recess and a seal member received in said annular recess, said internal threads of said second coupling complementing the external threads of said first coupling, said seal member configured for mating with said support or with the first coupling of a second mounting member and allowing rotational adjustment of said mounting member with respect to said support or second mounting member and forming a weatherproof seal between said mounting member and said support or second mounting member, said axial passage of said first coupling or said second coupling directing said electrical wires to said cavity of said mounting member; and
 - an electrical fixture coupled to said mounting member and having electrical wires extending through a wire opening in said mounting member, and electrically connected to said electrical wires in said cavity.
2. The electrical assembly of claim 1, wherein
 - said first side of said mounting member has an access opening for accessing said cavity, and a cover coupled to said mounting member closing said access opening.

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3. The electrical assembly of claim 1, wherein
a first of said at least one mounting members is coupled to said support and the first coupling of a second of said mounting member is configured for coupling to the second end of the first of said at least one mounting members.
4. The electrical assembly of claim 1, wherein
said mounting member, said first coupling, and second coupling are integrally formed one piece unit.
5. The electrical assembly of claim 4, wherein
said body has at least one internally threaded mounting hole, and said electrical fixture has a mounting screw received in said mounting hole for supporting said electrical fixture.
6. The electrical assembly of claim 5, wherein
said body has a boss extending from at least one wall into said cavity, and where said mounting hole extends between said first side and said second side and through said boss.
7. The electrical assembly of claim 4, further comprising
a collar extending into said cavity from at least one wall of said body, said body having a wire opening defining an axial passage extending through said at least one wall and said collar, said axial passage having internal threads receiving a threaded sleeve having an axial passage for directing electrical wires from said cavity to said electrical fixture.
8. An electrical assembly comprising:
a support having a cylindrical end with an axial passage for carrying the electrical wires;

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at least one mounting member having a body with a hollow cavity, a first longitudinal end, a second longitudinal end, a first side, and a second side;

a first coupling extending from said first longitudinal end of said body and having an axial passage communicating with said cavity, and an outer surface with external threads;

a second coupling having an axial passage communicating with said cavity and having an inner surface with internal threads and an annular recess with a sealing member received therein, internal threads complementing the external threads of said first coupling for coupling with a first coupling of an adjacent mounting member;

one of said first coupling or said second coupling being coupled to said support;

said first side of said body having an access opening communicating with said cavity, and having a removable cover coupled to said first side closing said access opening; and

said at least one collar extending into said cavity from said second side of said body and having an axial passage communicating with said cavity, said axial passage having internal threads.

9. The electrical assembly of claim 8, further comprising an electrical fixture coupled to said mounting member.

10. The electrical assembly of claim 8, further comprising a cylindrical sleeve having external threads and an axial passage, said cylindrical sleeve coupled to said internal threads of said axial passage in said second side of said body.

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11. The electrical assembly of claim 8, wherein said second side has at least one threaded mounting hole, said electrical fixture having a screw threaded into said mounting hole for coupling said electrical fixture to said mounting member.

12. The electrical assembly of claim 11, wherein said body has a boss extending into said cavity from a side wall, and where said threaded mounting hole extends through said boss and between said first side and second side.

13. The electrical assembly of claim 8, wherein said body has two spaced apart wire openings having internal threads, each of said wire openings receiving a threaded sleeve for directing wires from said body to said electrical fixture.

14. The electrical assembly of claim 13, further comprising a bushing coupled to each of said threaded sleeves forming a weatherproof seal around the electrical wires.

15. The electrical assembly of claim 8, further comprising at least two of said mounting members supporting a respective electrical device, a first coupling of a first of said mounting members being coupled to said support, and a first coupling of a second of said mounting members being coupled to a second coupling of said first of said mounting members, each of said mounting members being rotatably adjustable with respect to each other while maintaining a weatherproof seal between the respective mounting members.

16. An electrical assembly comprising:
a support having cylindrical shaped end with an axial passage for directing electrical wires;

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a first one-piece unitary mounting member having a body with a first longitudinal end, a second longitudinal end, a first side and a second side, a first coupling extending from said first longitudinal end and having external threads, and a second coupling extending from said second longitudinal end and having internal threads complementing the external threads of the first coupling, said first side having an access opening for accessing wires within the cavity and said second side having a wire outlet opening for the electrical wires, said first mounting member being coupled to said support;

a second one-piece unitary mounting member having a body with a first longitudinal end, a second longitudinal end, a first side and a second side, a first coupling extending from said first longitudinal end and having external threads, and a second coupling extending from said second longitudinal end and having internal threads complementing the external threads of the first coupling, said first side having an access opening for accessing wires within the cavity and said second side having a wire outlet opening for the electrical wires;

a first electrical fixture coupled to said first mounting and electrically coupled to said electrical wires extending through said wire outlet opening;

a second electrical fixture coupled to said second mounting member electrically coupled to said electrical wires extending through said wire outlet opening of said second mounting member; and

said first mounting member being coupled to said second mounting member to enable rotational adjustment between said mounting members and to maintain a waterproof seal between said mounting members.

17. The electrical assembly of claim 16, wherein

said first coupling of each of said mounting members includes an annular recess formed in said axial passage for receiving an annular seal member for forming a weatherproof seal, said annular seal of said first mounting member allowing rotational adjustment of said first mounting member with respect to said support, and said annular seal of said first

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coupling of said second mounting member allowing rotational adjustment of said second mounting member with respect to said first mounting member .

18. The electrical assembly of claim 17, wherein
said body has at least one internally threaded mounting hole, and said respective electrical fixture has a mounting screw received in said mounting hole for supporting said electrical fixture.

19. The electrical assembly of claim 18, wherein
said second wall of each of said mounting members has an inner surface and an outer surface, a collar extending from said inner surface into said cavity of said body, and an internally threaded bore extending through said second wall and said collar defining said wire outlet opening; and a sleeve having a threaded end and an axial passage, said threaded end of said sleeve being received in said threaded bore of the respective mounting member.

20. The electrical assembly of claim 19, further comprising
a bushing coupled to said sleeve forming a waterproof seal between said electrical wires and said sleeve.

21. The electrical assembly of claim 16, wherein
said first coupling of said first mounting member is coupled to internal threads of said support.

22. The electrical assembly of claim 16, wherein
said second coupling of said first mounting member is coupled to external threads of said support.

23. The electrical assembly of claim 16, wherein
said support is a floor mounted support or a ceiling support.

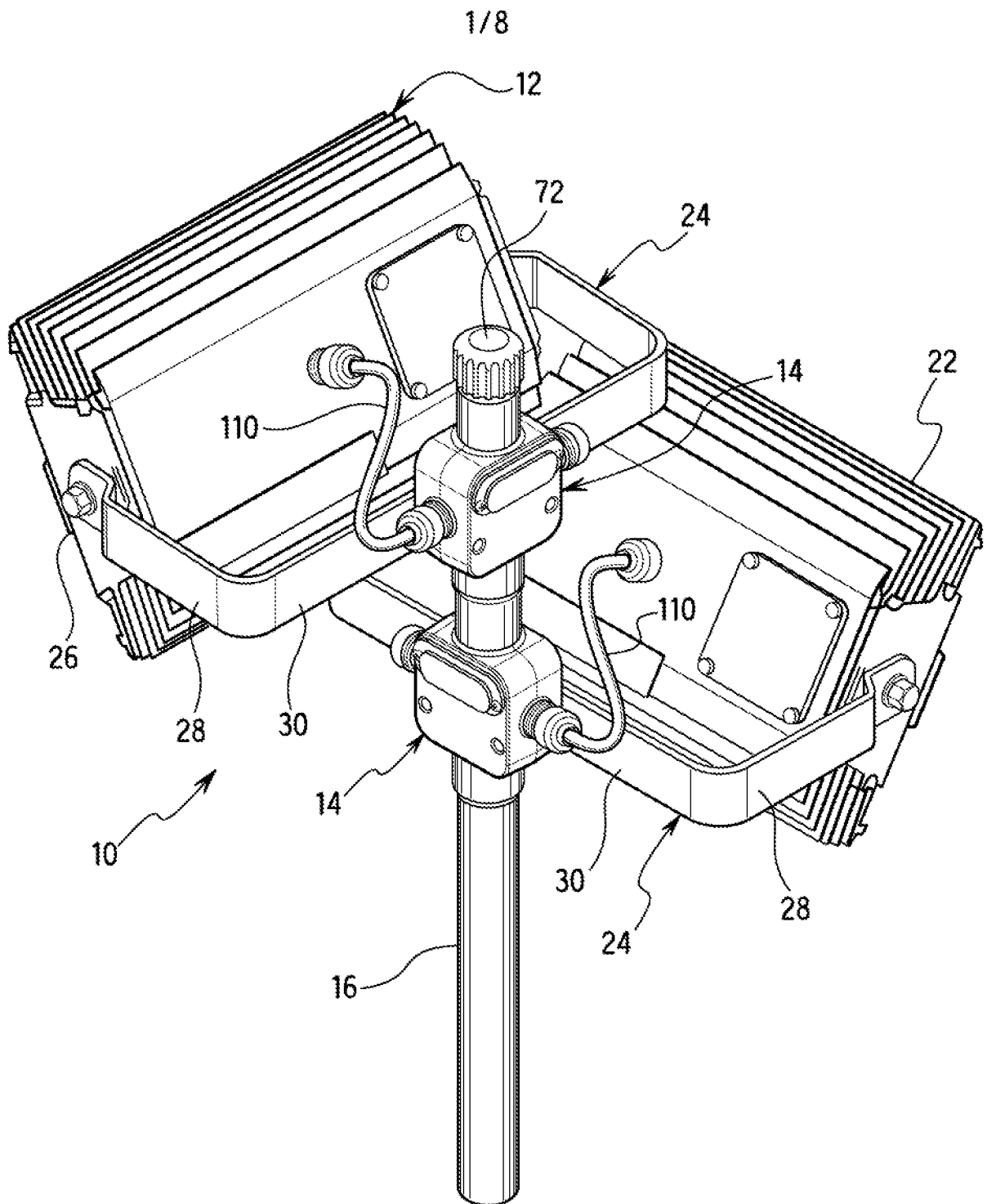


FIG. 1

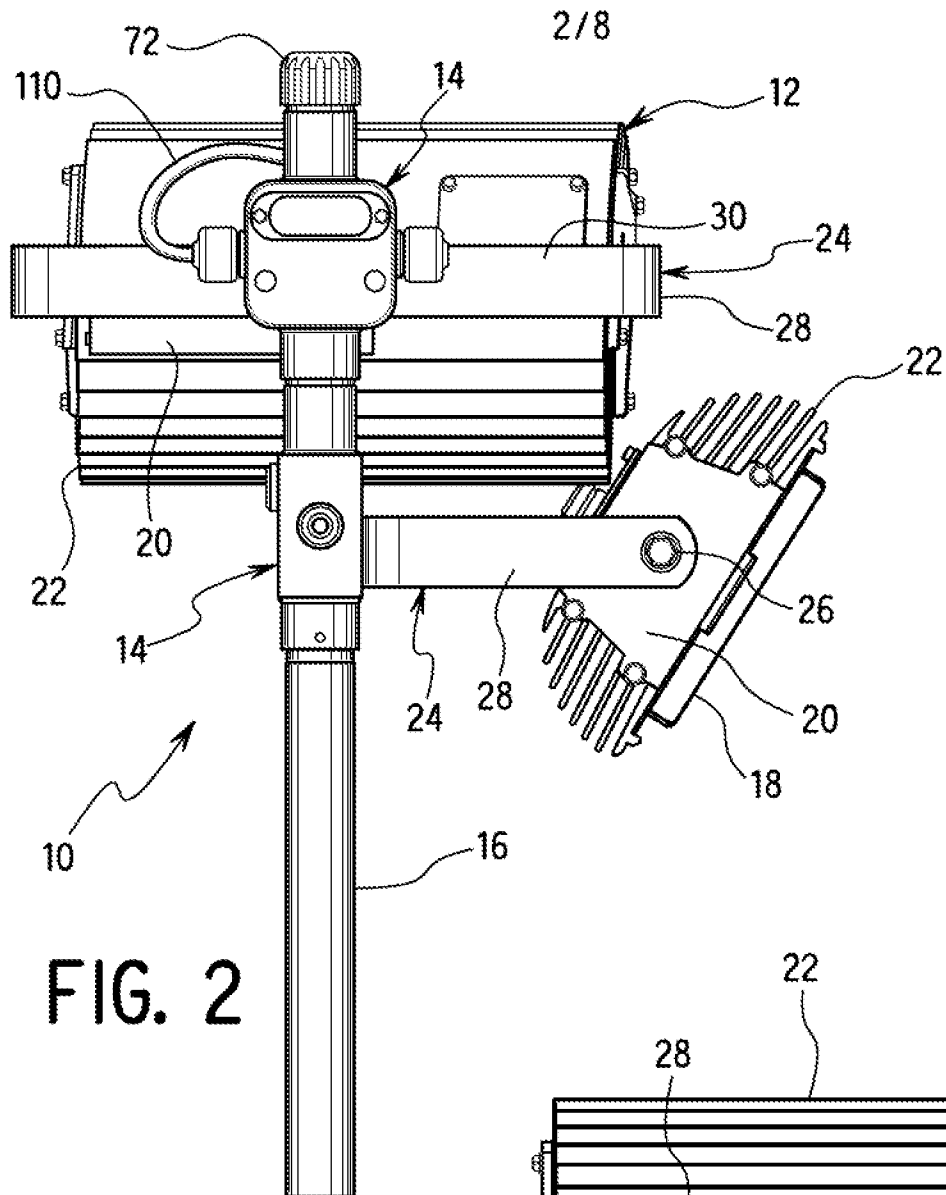


FIG. 2

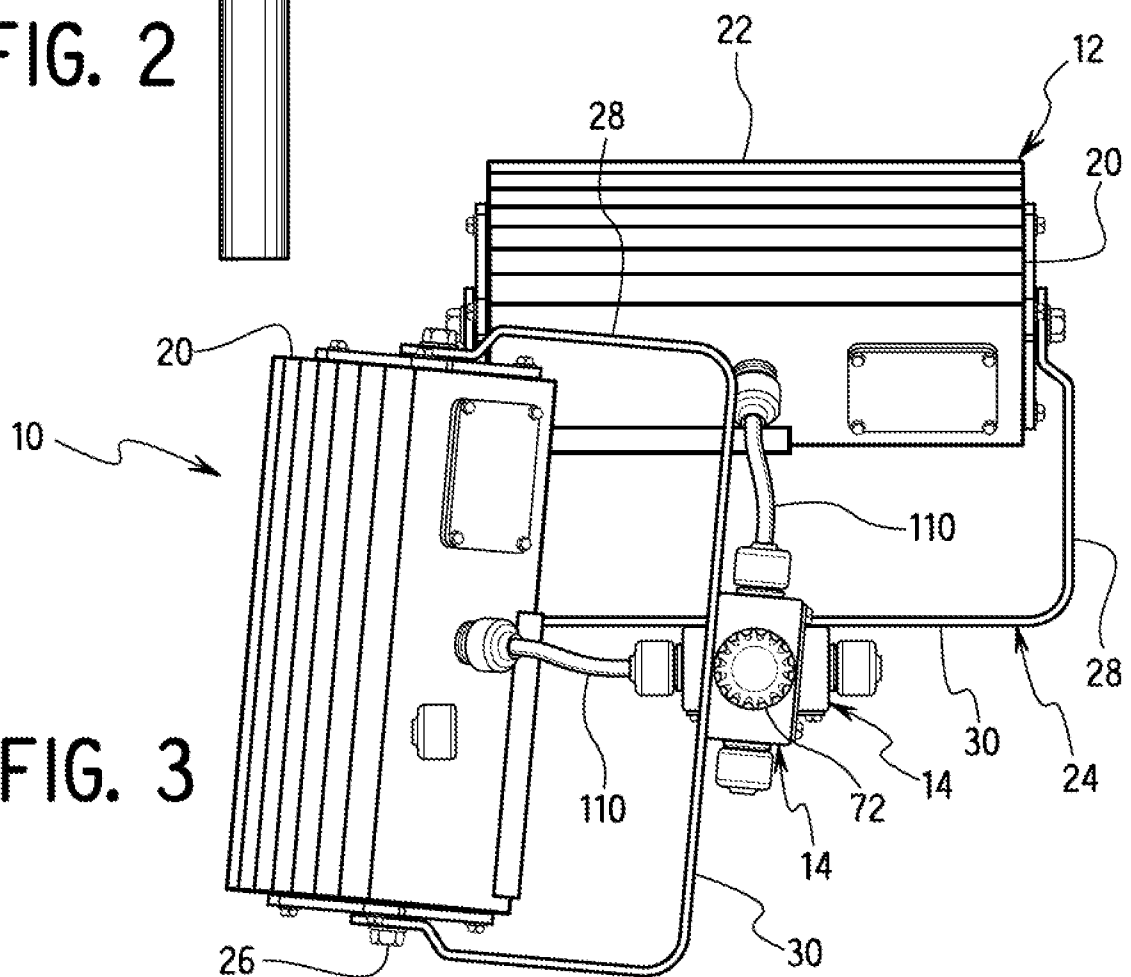
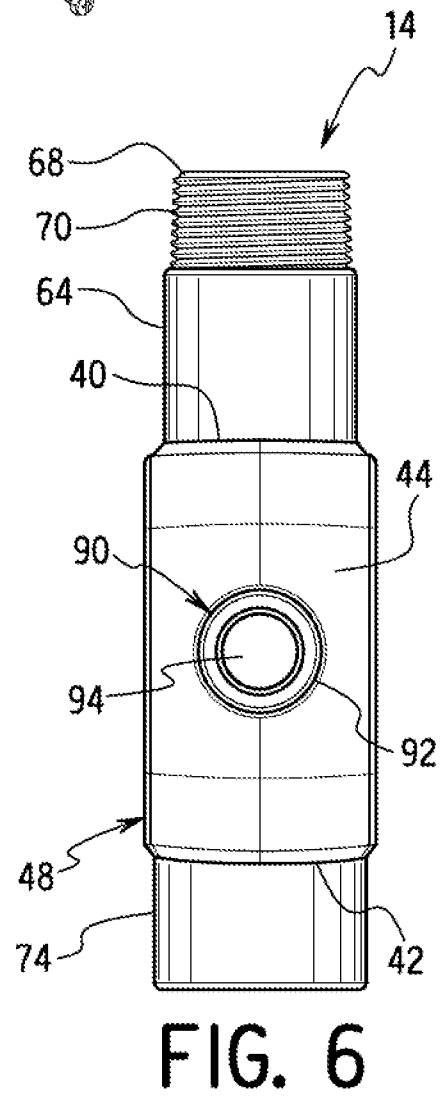
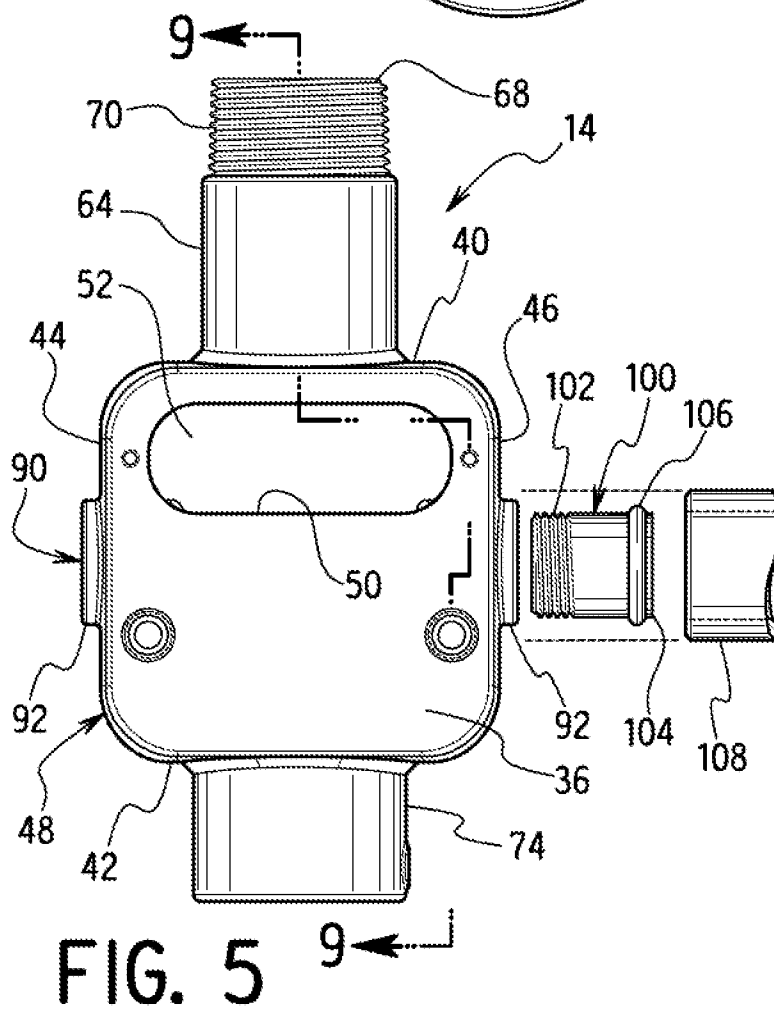
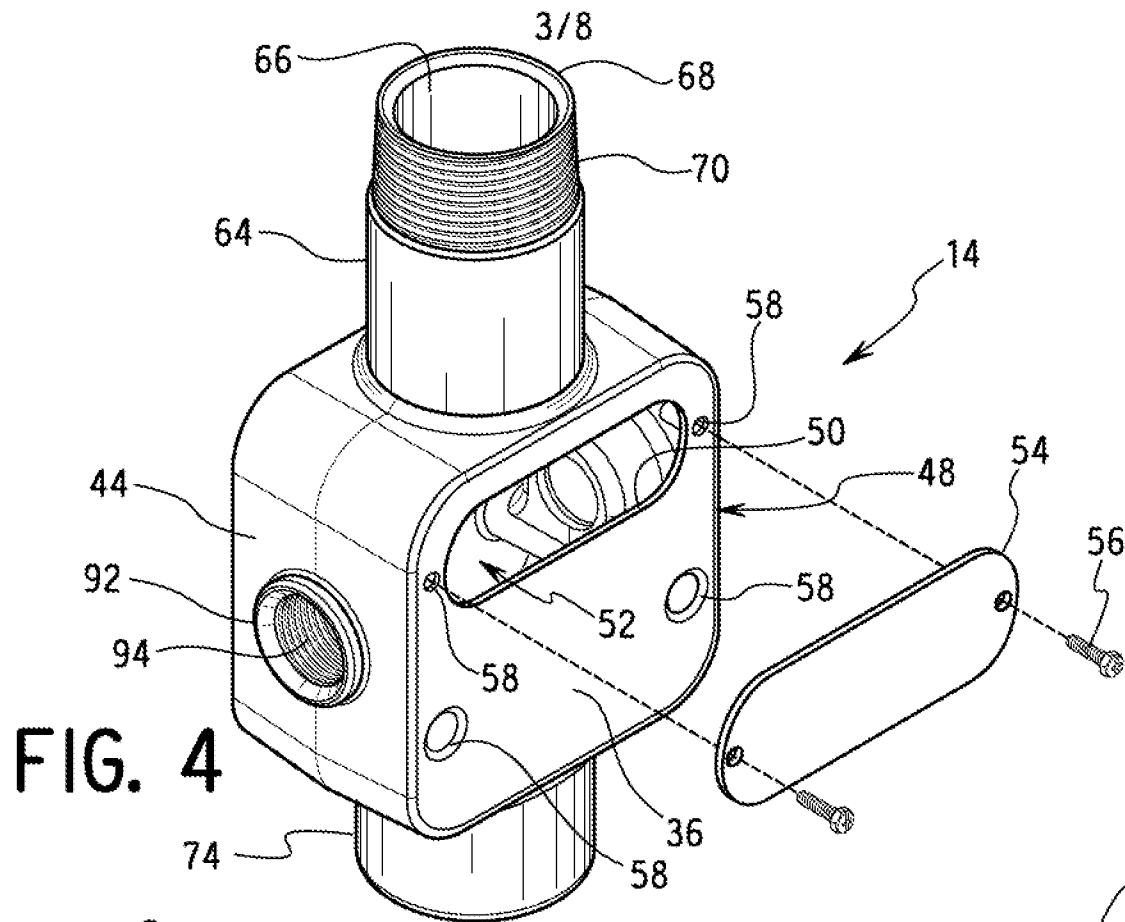
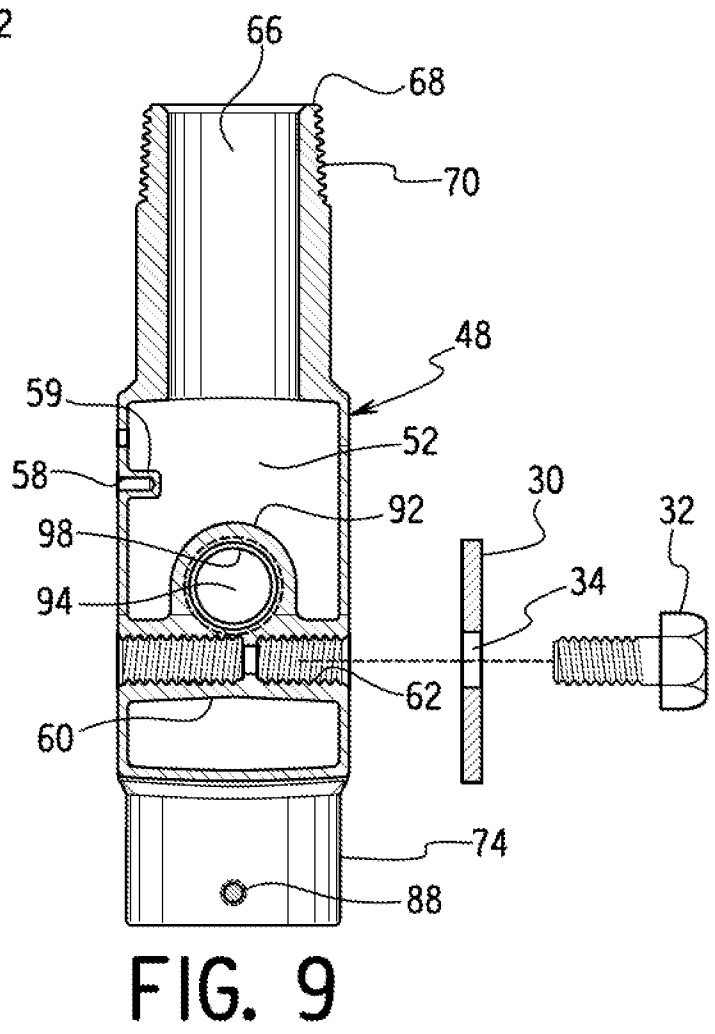
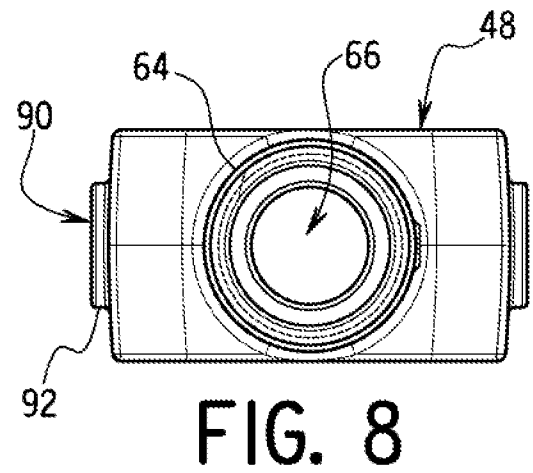
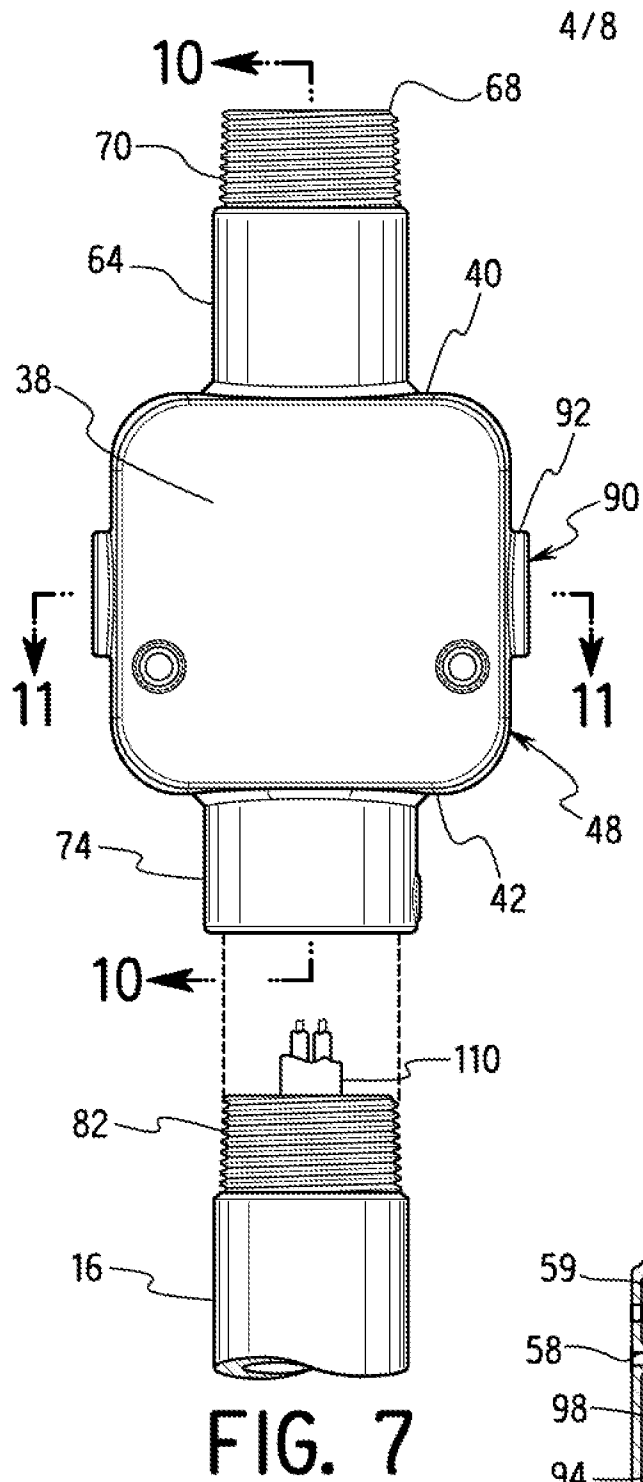


FIG. 3





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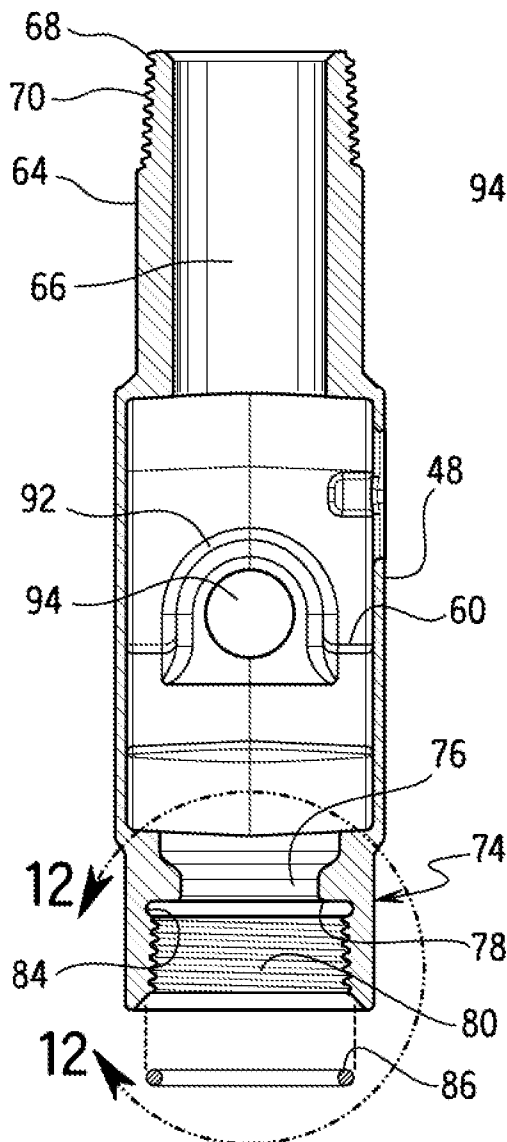


FIG. 10

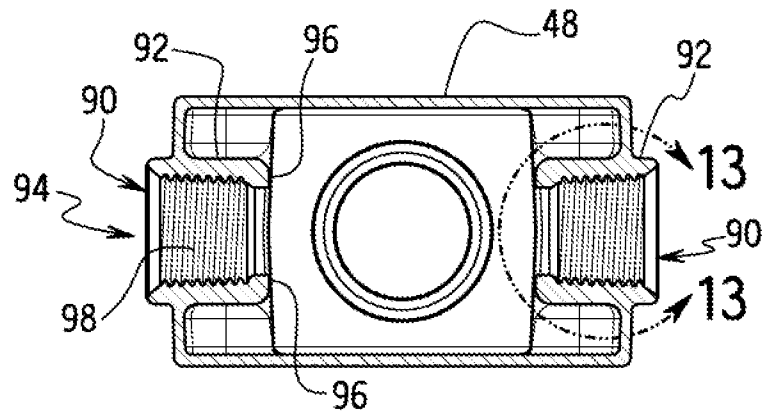


FIG. 11

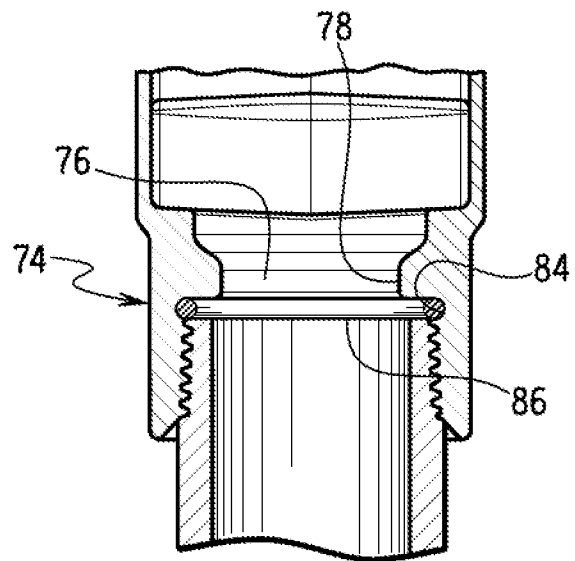


FIG. 12

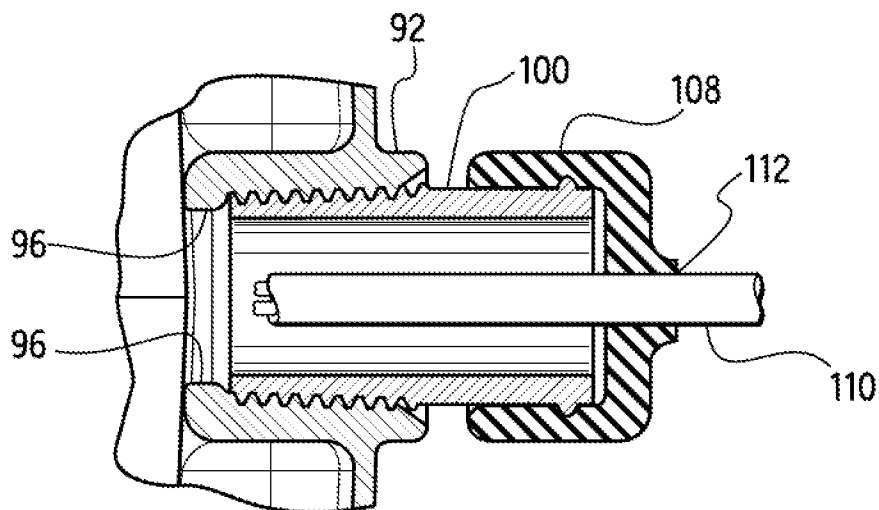


FIG. 13

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FIG. 14

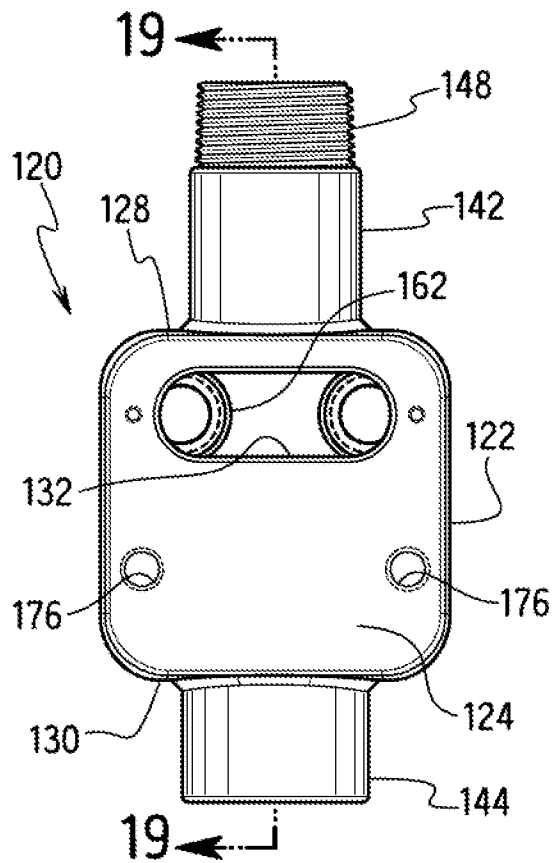
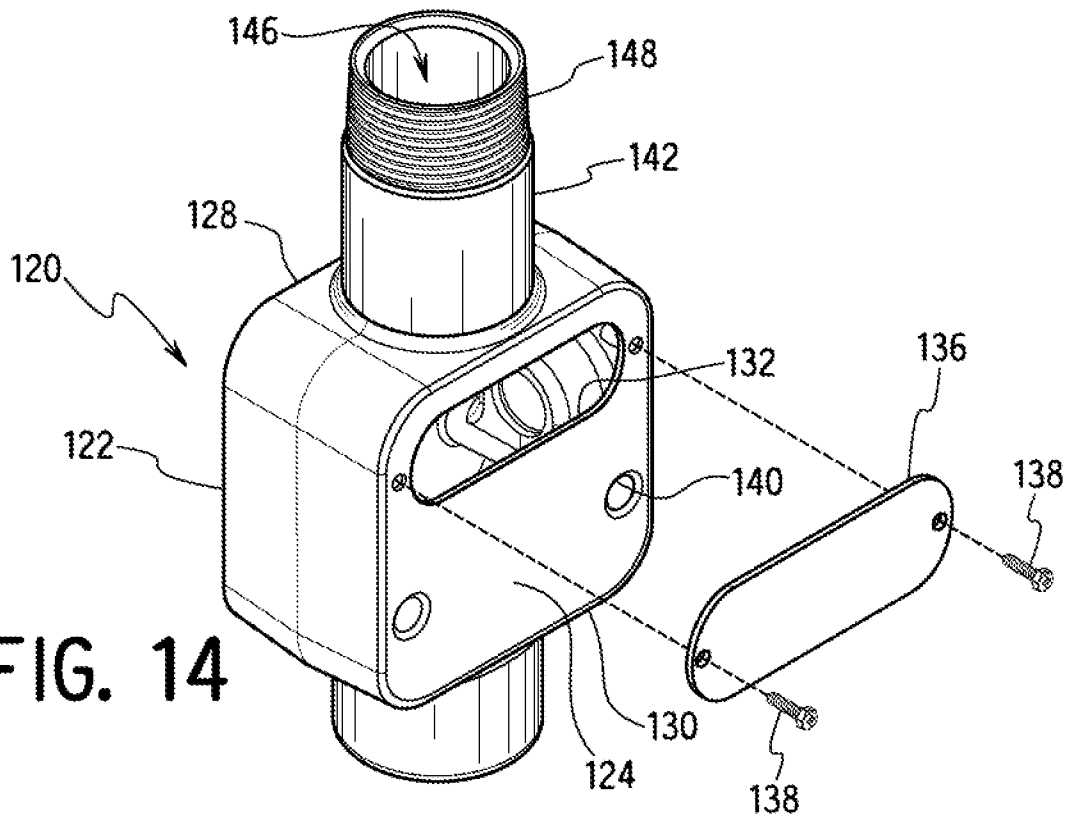


FIG. 15

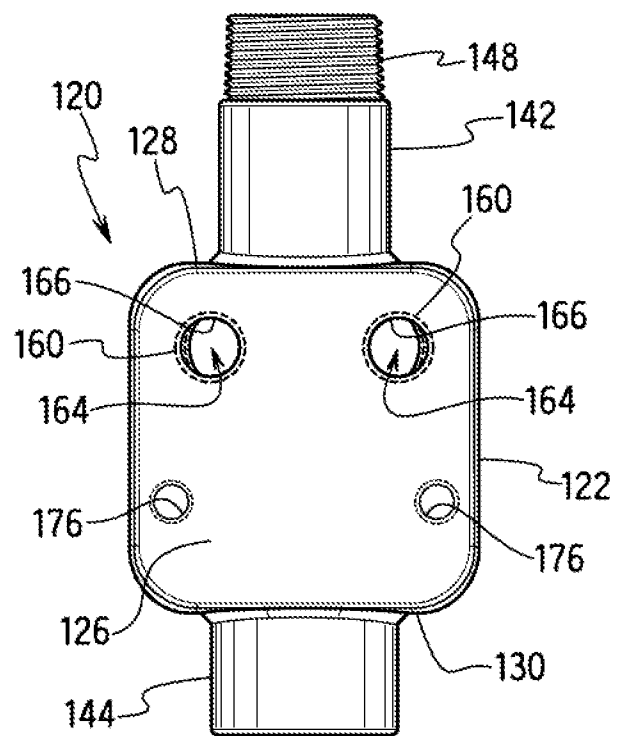


FIG. 16

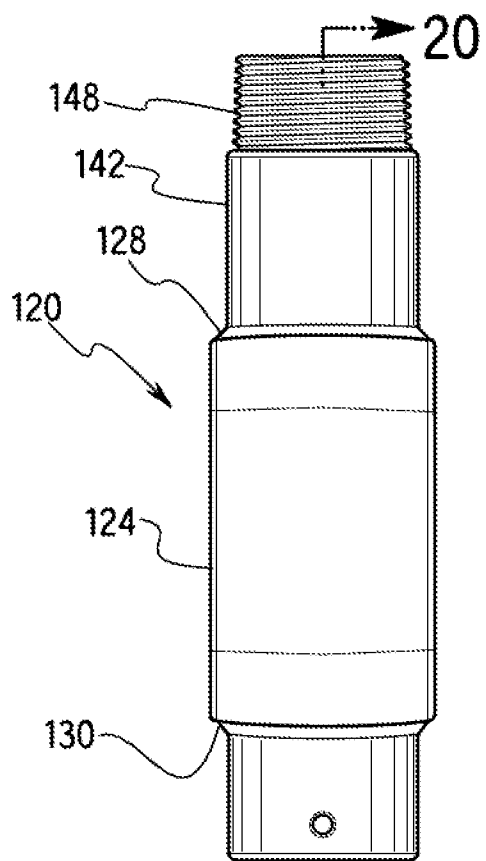


FIG. 17

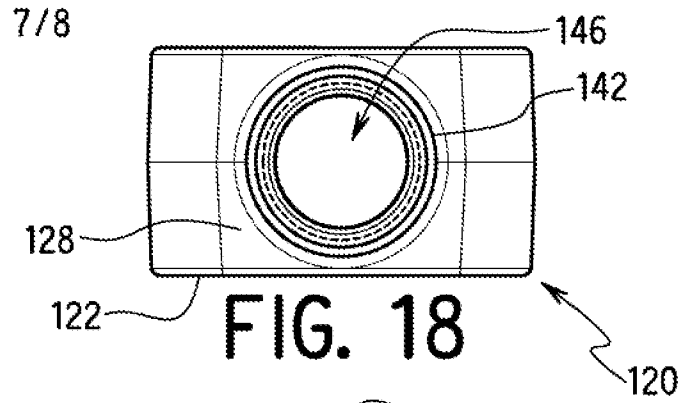


FIG. 18

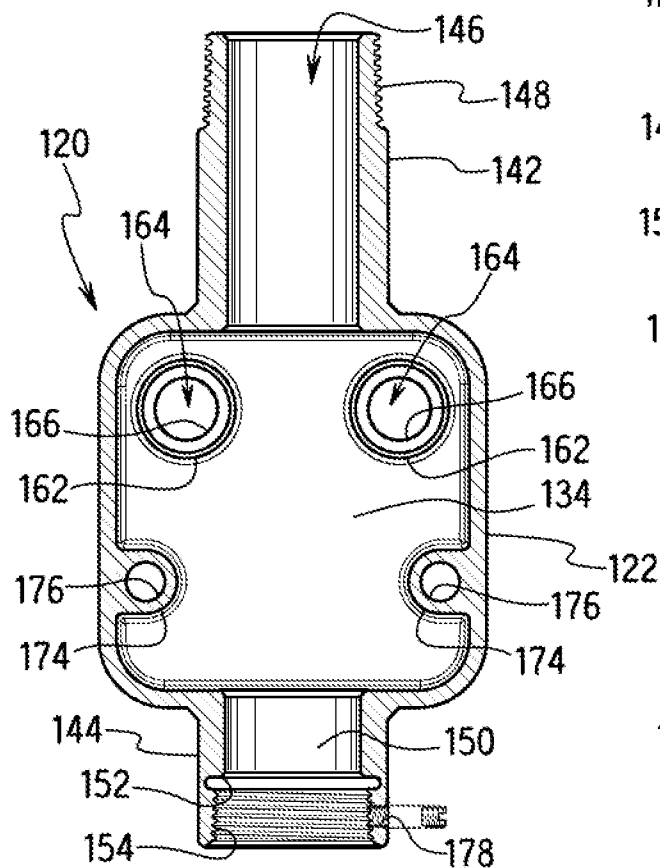


FIG. 20

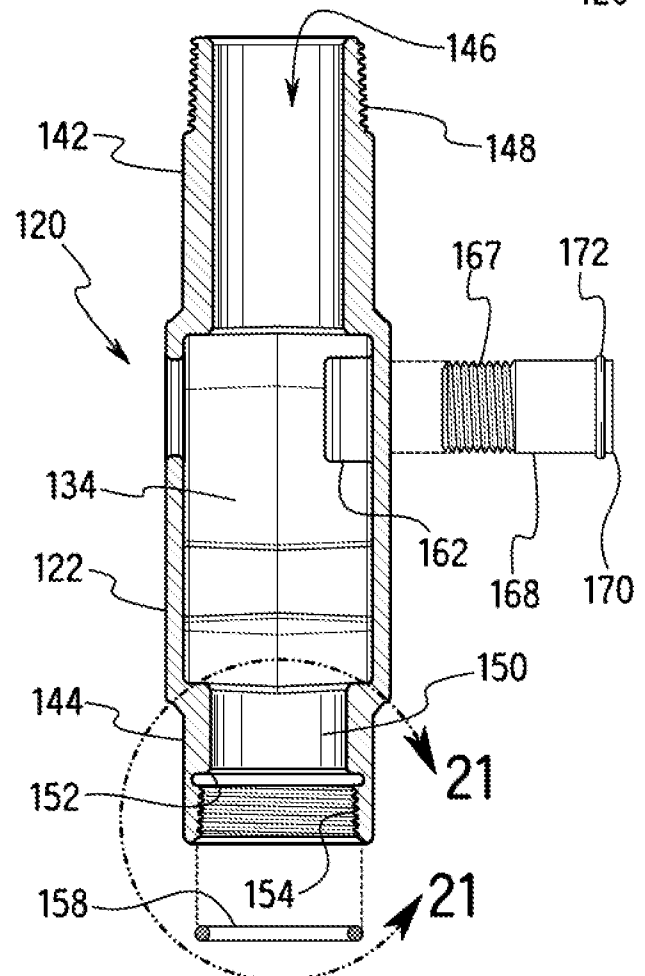


FIG. 19

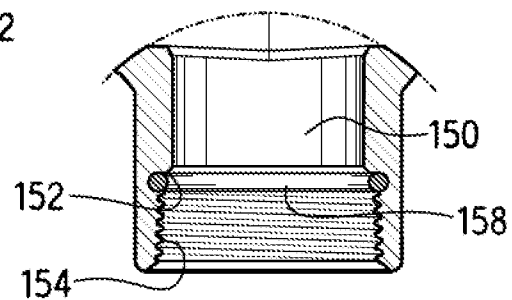


FIG. 21

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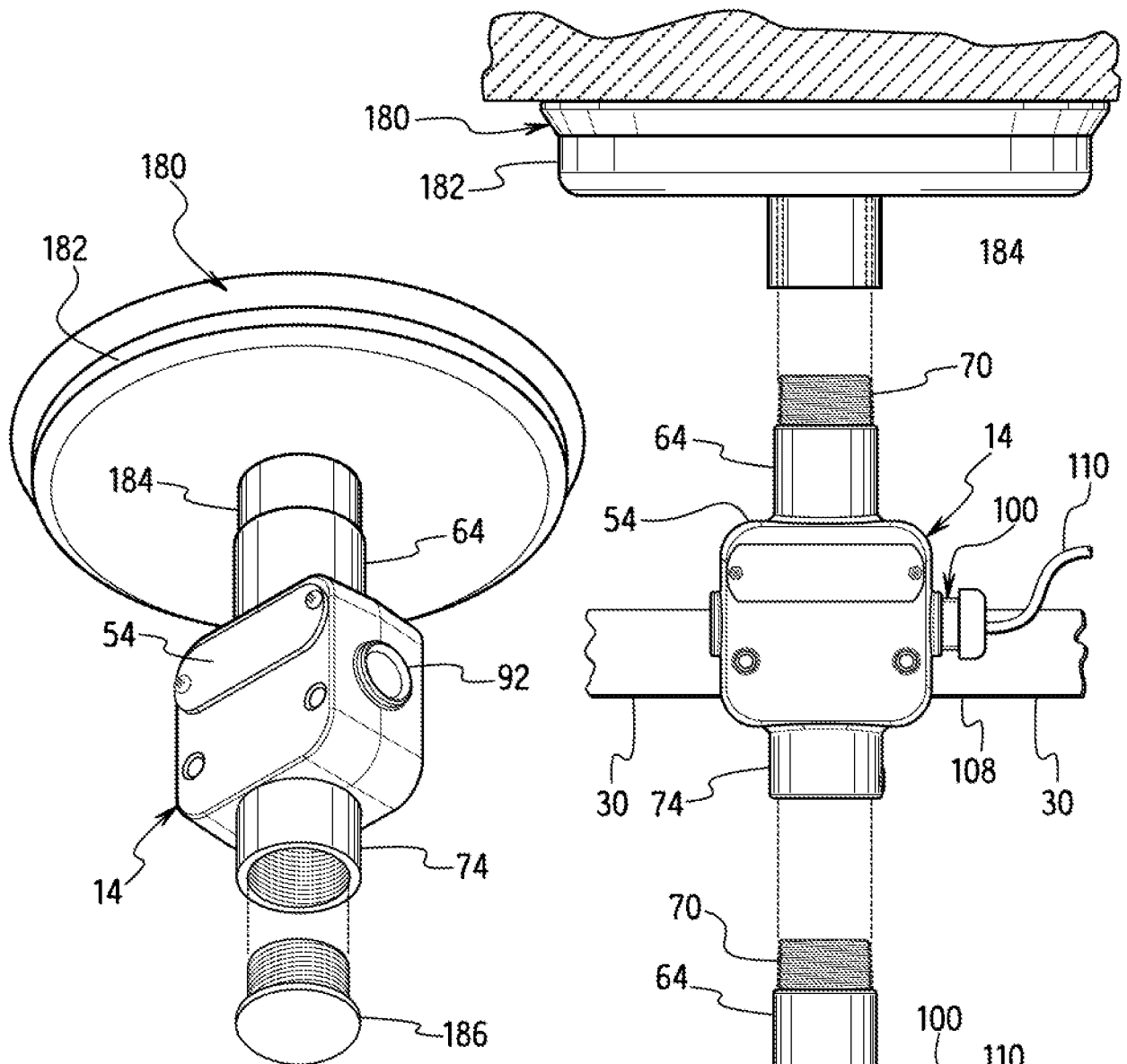


FIG. 22

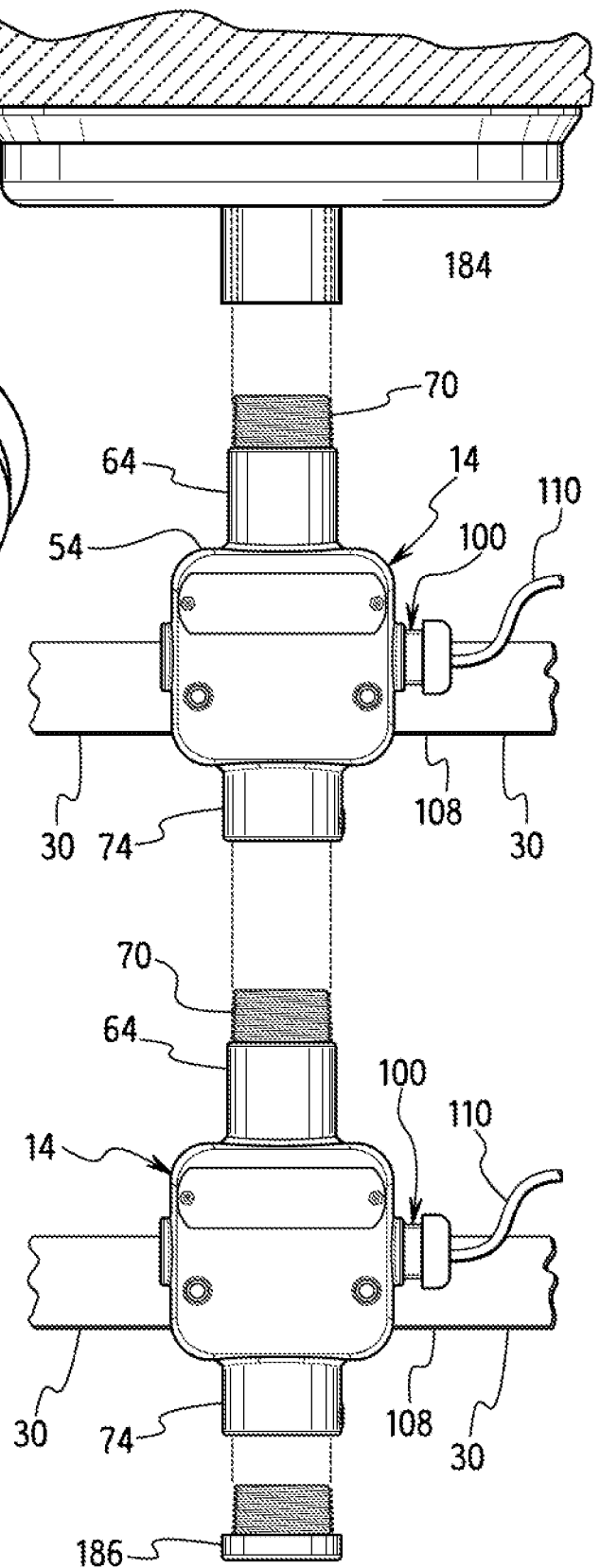


FIG. 23

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2014/073070

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F21S 8/08 (2015.01)

CPC - F21S 8/08 (2015.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - F21S 8/04, 8/08; F21V 21/02, 21/10, 21/116, 23/00, 23/06, 31/00; H02G 3/00, 3/06, 3/08, 3/18, 15/08, 15/10 (2015.01)

CPC - F21S 8/04, 8/08; F21V 21/02, 21/10, 21/116, 23/00, 23/06, 31/00; H02G 3/00, 3/06, 3/08, 3/18, 15/08, 15/10 (2015.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 174/50, 50.5, 61, 64, 135, 650; 220/3.2, 3.8, 3.9; 285/149.1; 362/249.01, 249.03, 249.07, 382, 413, 431; 439/210, 534, 535 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Orbit, Google Patents, Google

Search terms used: seal, thread, coupl, pole, electric, external, male, outer, internal, female, inner, junction, support, mount, wire

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,342,511 A (GALLOWAY) 19 September 1967 (19.09.1967) entire document	1-23
A	US 4,042,291 A (MORIYAMA) 16 August 1977 (16.08.1977) entire document	1-23
A	US 5,169,013 A (LAMMENS, JR.) 08 December 1992 (08.12.1992) entire document	1-23
A	US 2011/0057440 A1 (NEWBY) 10 March 2011 (10.03.2011) entire document	1-23
A	US 6,527,302 B1 (GAULT et al) 04 March 2003 (04.03.2003) entire document	1-23

☐ Further documents are listed in the continuation of Box C.


* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

05 March 2015

Date of mailing of the international search report

28 APR 2015

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