July 27, 1965 E. M. DETERS ETAL 3,197,085

HEADER CONSTRUCTION WITH INTERLOCK ELECTRICAL DISCONNECT

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Fig. 1

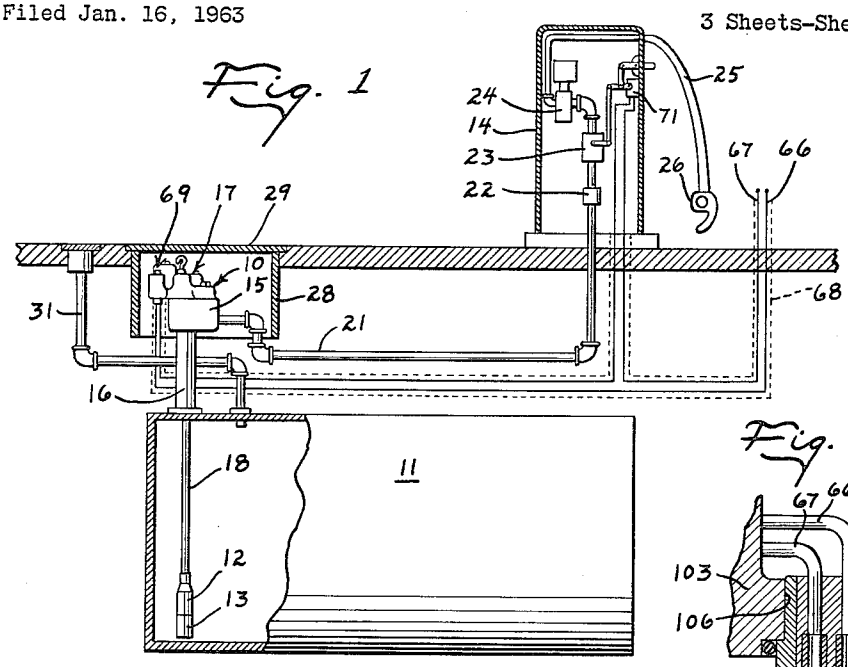



Fig. 7

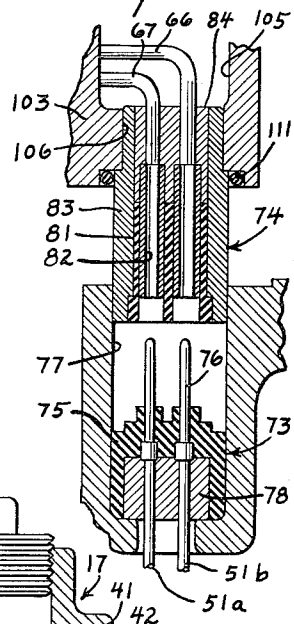



Fig. 2




Inventors

Elmer M. Deters
Joseph E. Youch

By McCanna, Morsbach & Pillote
Atty's

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HEADER CONSTRUCTION WITH INTERLOCK ELECTRICAL DISCONNECT

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Fig. 3

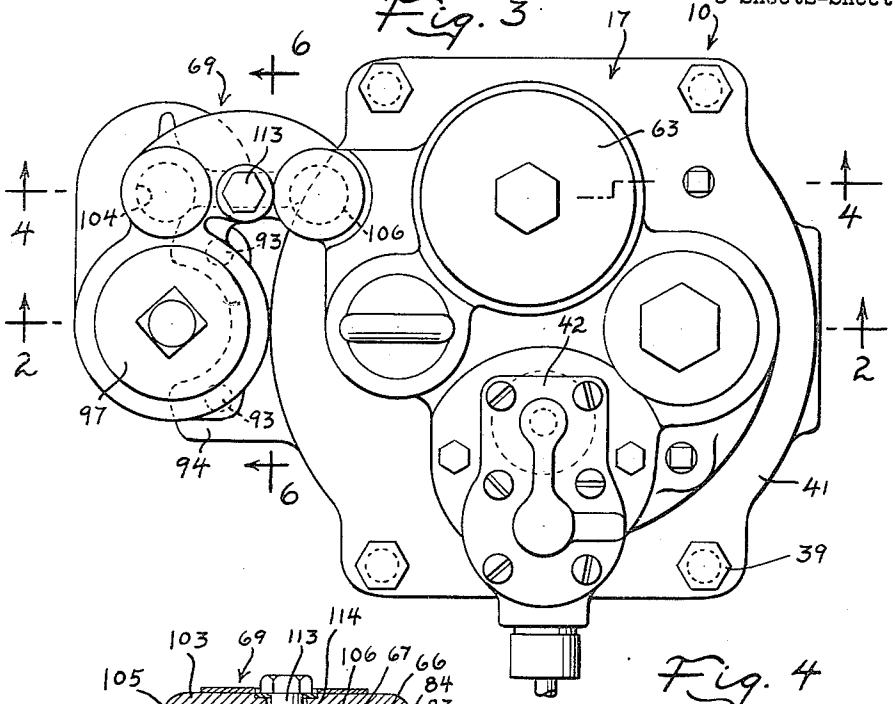
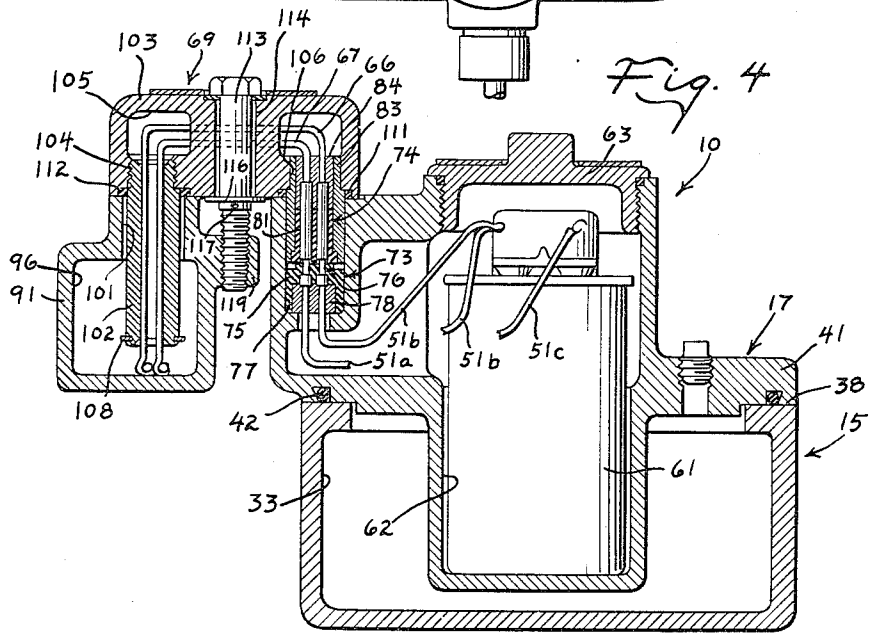



Fig. 4




Inventors
Elmer M. Deters
Joseph E. Youch
By McCanna, Morsbach & Pillote
Atty's

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HEADER CONSTRUCTION WITH INTERLOCK ELECTRICAL DISCONNECT

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Fig. 5

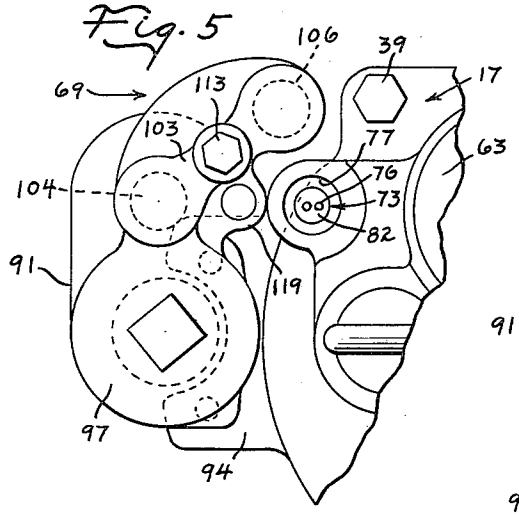



Fig. 6

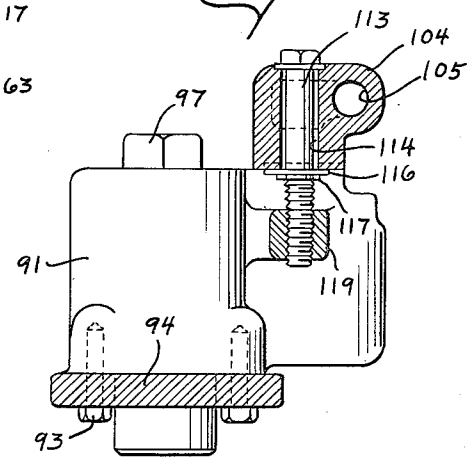
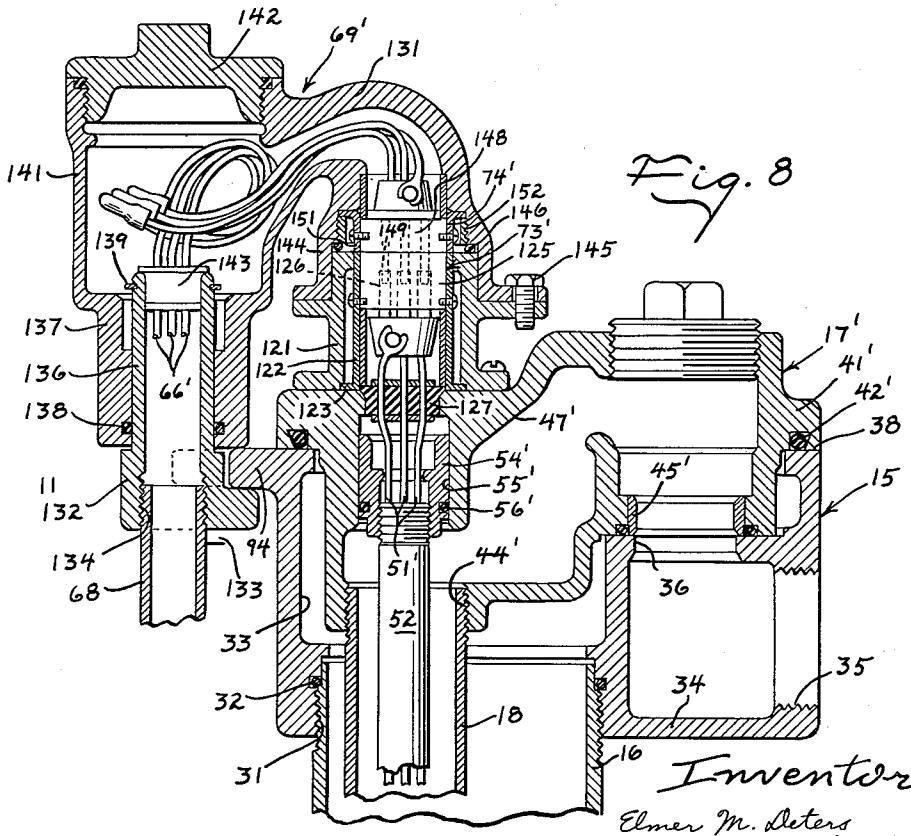



Fig. 8




Inventors

Elmer M. Deters

Joseph E. Youch

By McCanna, Morsbach & Pillote

Atty's.

United States Patent Office 3,197,085 Patented July 27, 1965

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3,197,085

# HEADER CONSTRUCTION WITH INTERLOCK ELECTRICAL DISCONNECT

Elmer M. Deters and Joseph E. Youch, Davenport, Iowa, assignors to Red Jacket Manufacturing Company, Davenport, Iowa, a corporation of Iowa

Filed Jan. 16, 1963, Ser. No. 251,964
11 Claims. (Cl. 222—333)

This invention relates to a header construction for a submerged motor-pump unit and particularly to a header construction having an electrical disconnect for the power conductors leading to the submerged motor-pump unit.

The header construction is specifically designed for use in gasoline dispensing systems, such as in service stations and the like, and in general includes a stationary manifold which is mounted on a tank to form an access passage that communicates with the tank, and a packer which is removably mounted on the manifold and has the motor-pump unit attached thereto for removal with the packer. An electrical disconnect is provided at the header to enable quick connection and disconnection of the power conductors leading to the motor-pump unit. With a disconnect at the header, there is some danger of arcing of the contacts of the disconnect if the main power supply to the pump is not shut off before the contacts on the disconnect are separated. An exposed arc at the header is undesirable even when the gasoline dispensing lines are closed, since there may be an explosive accumulation of gasoline vapors in the area around the header. However, an exposed arc at the header is even more serious if it occurs when the gasoline dispensing lines are opened, as occurs when the packer is withdrawn from the manifold.

An important object of this invention is to provide a header construction for a submerged motor-pump unit having an electrical disconnect which facilitates insertion and removal of the packer from the manifold, and connection and disconnection of the power conductors to the motor-pump unit.

Another object of this invention is to provide a header construction for a motor-pump unit having an improved electrical disconnect which maintains an explosion proof enclosure around the contacts until they are completely separated, to avoid fire or explosion when handling explosive liquids such as gasoline.

Yet another object of this invention is to provide a header construction for a motor-pump unit having an improved electrical disconnect for the power conductors leading to the motor-pump unit, and which electrical disconnect is interlocked with the packer and manifold to prevent withdrawal of the packer from the manifold until after the electrical disconnect is separated.

Still another object of this invention is to provide a header construction for a motor-pump unit having an electrical disconnect at the header, and which disconnect enables selective connection and disconnection of the power supply to the motor-pump unit without removing the packer from the manifold, to facilitate servicing of those components at the header which are accessible without removing the packer.

These, together with other objects and advantages of this invention will become apparent from a study of the following specification and the accompanying drawings wherein:

FIG. 1 is a diagrammatic view of a gasoline dispensing system employing the invention;

FIG. 2 is a fragmentary vertical sectional view through header, taken on the plane 4—4 of FIG. 3;

FIG. 3 is a top plan view of the header;

FIG. 4 is a fragmentary sectional view through the header, taken on the plane 4—4 of FIG. 3;

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FIG. 5 is a fragmentary plan view of the header illustrating the electrical disconnect in a moved position;

FIG. 6 is a fragmentary vertical sectional view taken on the plane 6—6 of FIG. 3;

FIG. 7 is a fragmentary view of the electrical disconnect illustrating the connector members separated from each other; and

FIG. 8 is a fragmentary vertical sectional view through a header having a modified form of electrical disconnect.

The header construction **10** of the present invention is illustrated in FIG. 1 applied to a gasoline dispensing system for use in service stations and the like. In general, the dispensing system includes an underground tank **11** for storing a quantity of gasoline and a motor-pump unit **13** disposed in the tank for pumping fluid from the tank to a remote dispenser **14**. The header **10** includes a manifold body **15** which is attached to the tank by a large diameter pipe or nipple **16** and which defines an access passage with the nipple. A packer **17** is removably mounted on the manifold and has a drop pipe **18** attached thereto and which extends downwardly through the nipple **16** to the discharge outlet of the motor-pump unit **12, 13**. The nipple and manifold are dimensioned to receive the motor-pump unit to permit insertion and removal of the motor-pump unit therethrough, and the packer **17** supports the motor-pump unit on the manifold and connects the drop pipe **18** with the discharge or delivery pipe **21** leading to the pedestal **14**. The pedestal, as is conventional, has check and interlock valves **22** and **23**, a meter **24** and a hose **25** leading to a valved nozzle **26**. The header **10** is located just below ground level in a manhole **28** covered by a suitable removable cover **29**, and the tank is filled through a filler pipe **31** which extends to ground level.

The manifold body **15** is best shown in FIGS. 2 and 4 and includes a downwardly facing opening **31** which is attached as by threaded engagement with the upper end of the nipple **16**, and which is sealed thereto as by an O-ring **32**. The body has a large internal cavity **33** which defines an access passage therethrough having a size sufficiently large to permit insertion and removal of the motor-pump unit. An outlet passage **34** is formed in the manifold **15** and terminates in a lateral discharge opening **35** which communicates with delivery or discharge pipe **21** leading to the remote dispensers. In the header construction illustrated, the discharge passage **34** in the manifold has a generally horizontally disposed opening **36** and a seat **37** around the opening and the upper edge of the manifold terminates in an annular rim **38**. The packer **17** is removably mounted on the manifold and, as shown, is secured in assembled relation on the manifold by fasteners **39**. The packer has a generally horizontal flange portion **41** that overlies the rim **38** on the manifold and which is sealed thereto as by an O-ring positioned in a groove in the packer. The packer has a downwardly facing inlet opening **44** which is connected, as by threaded engagement with the upper end of the drop pipe **18**, and an outlet opening **45** which registers with the opening **36** in the manifold, and which is sealed thereto by an O-ring **46**. A transfer passage including chambers **47***a* and **47***b* is formed in the packer and communicates the inlet opening **44** with the outlet opening **45** to pass the liquid from the drop pipe **18** through the outlet passage **34** to the delivery line **21**. A check valve assembly **42** (FIG. 3) is advantageously provided in the packer to control the flow of liquid from the chamber **47***a* to the chamber **47***b* and is arranged to open for flow from the drop pipe **18** to the delivery pipe **21**, and to close to prevent return flow.

The motor conductors, herein shown three in number and designated **51***a*–**51***c*, are preferably enclosed in a conduit **52** to seal the same from the gasoline or other fluid being pumped. As shown in FIG. 2, the conduit **52**

conveniently extends downwardly through the drop pipe 13. The lower end of the conduit section 52 is attached to the motor 12 in such a manner as to seal the conductors from the fluid being pumped, and the upper end of the conduit has a fitting 54 attached thereto, as by threaded engagement, and which fitting is slidably received in a passage 55 in the packer and is sealed to the packer by an O-ring 56. The conductors 51*a*–51*c* extend upwardly into a junction chamber 58, and the wires extend through a sealing gland 59, formed of a suitable dielectric material. In the embodiment shown, the motor capacitor 61 is advantageously located at the header and, as best shown in FIG. 4, the packer body 17 is formed with a capacitor receiving cavity 62 having a removable closure cap 63. The power supply conductors 66 and 67 are conveniently enclosed in a conduit 68 which extends to the header 10, and an electrical disconnect 69 is provided at the header to enable ready connection and disconnection of the power supply conductors from the motor conductors at the header. As is conventional switches 71 are provided at each of the pedestals for controlling operation of the pump-motor 12.

The electrical disconnect 69 includes first and second connector members 73 and 74 (see FIGS. 4 and 7) for selectively connecting and disconnecting the power supply conductors such as 66 and 67 from the motor conductors 51*a* and 51*b* leading to the condenser 61 and motor 12. One of the connector members 73 includes a connector body 75 formed of a dielectric material having prong type contact elements 76 therein which are connected to the conductors 51*a* and 51*b*. The connector member 73 is disposed in a bore 77 in the packer body 17, and which bore extends upwardly and opens at the upper face of the packer body. The prongs are advantageously sealed to the connector body 75 by an insulating material 78, after the wires 51*a* and 51*b* are attached to the prongs. The other connector member 74 comprises a body 81 of dielectric material having socket type contact elements 82 therein arranged to receive the prong 76. For reasons set forth hereinafter, the insulating body 81 is enclosed in a rigid sleeve 83 which is slidably received in the bore 77, and a body of insulating material 84 fills the end of the sleeve around the conductors 66 and 67 and the tubular contacts 82 to seal the same. As will be seen from FIG. 4, the prong contacts 66 extend into the tubular contacts 82 to form an electrical circuit between the power conductors 66 and 67 and the motor conductors such as 51*a* and 51*b*. The prong contacts 76, however, are spaced below the outer end of the bore 77 so that the tubular contacts 82 completely separate from the prong contacts before the sleeve 83 has been removed from the bore 77, to thereby provide and maintain an explosion-proof enclosure around the contacts, until the contacts have been separated.

In accordance with the present invention, the electrical disconnect is so arranged as to mechanically interlock with the packer and manifold, to prevent removal of the packer from the manifold until after the plug-in connectors have been disconnected. For this purpose, the connector member 74 is mounted on the manifold body 15 and is movable relative thereto into and out of interlocked relation with the packer body. As best shown in FIG. 2, a fitting 91 is provided on the manifold body and is connected as by threaded engagement at 92 with the conduit 68 which encloses the power supply conductors. The fitting 91 defines a conduit box and is preferably formed separate from the manifold body and attached thereto by bolts 93 which extend through laterally extending ears 94 on the manifold body. The conduit box conveniently rests on the rim 38 on the upper end of the manifold body, to be vertically located by the rim, and the openings in the ears 94 are preferably enlarged slightly to permit limited lateral adjustment of the conduit box, for reasons described hereinafter. The conduit box defines an internal cavity 96 which is



closed by a removable cap 97, and the power supply conductors 66 and 67 extend upwardly from the conduit 68 and through a sealing gland 98 into the cavity 96. The sealing gland is conveniently of the type which includes a resilient dielectric body which is clamped between plates 99 to press the resilient body into sealing engagement with the conductors and the conduit box. The conduit box has an upwardly extending passage 101 which is laterally offset from the conduit 68, and which passage slidably and rotatably receives a sleeve 102. A hollow arm 103 is attached, as by threaded engagement at 104 with the upper end of the sleeve 102 and defines a conductor passage 105 which extends from the sleeve 102 to a downwardly facing opening 106 (FIG. 4) at the other end of the arm. The sleeve 83 of the connector member 74 is mounted in the opening 106 and rigidly secured to the arm for movement therewith. As will be seen, the sleeve 102, arm 103 and sleeve 83 form a yoke which interconnects the conduit box 91 with the bore 77 in the packer body.

The arm 103 is movable relative to the packer body in a direction axially of the plug-in type contacts 76 and 82 to enable movement of the connector member 73 and 74 into and out of contact with each other. For this purpose, the sleeve 102 is formed with a length that is greater than the length of the bore 101 by an amount at least equal to the distance that the sleeve 83 projects beyond the arm 103, and a stop, herein shown in the form of a split ring 108 mounted in a groove on the end of a sleeve, is provided for limiting upward movement of the arm. Gaskets, conveniently in the form of O-rings 111 and 112 are provided around the sleeves 83 and 102 and arranged to engage the upper end of the packer body and conduit box respectively to seal the interface therebetween when the connector members are assembled. Provision is made for positively moving the connector members into and out of assembled relation and, as shown, a bolt 113 extends through a bore 114 in the arm 103. The bolt is constrained against axial movement relative to the arm by the head on the upper end of the bolt and a washer 116 which is attached to the bolt at the underside of the arm by a pin 117. The bolt is arranged to be threadedly received in an ear 119 on the conduit box, to positively draw the connector members into assembled relation when the bolt is tightened, and to positively separate the connector members when the bolt is turned in the other direction. As is apparent from FIG. 4, the bolt 113 draws the arm 103 firmly down against the upper side of the packer body and not only holds the connector member 74 in assembled relation with the connector member 73, but also prevents removal of the packer body 17 from the manifold. However, when the bolt is turned in the opposite direction until it disengages the ear 119, the arm is pulled upwardly to disconnect the connector members 74 from the member 73. At that time, the arm can be swung laterally to the position shown in FIG. 5, out of the path of movement of the packer body so that the latter can be withdrawn after the bolts 39 are removed. As will be seen, the arm 103 must be moved upwardly and the connector member 74 disconnected from the member 73, before the packer body can be removed. Moreover, the sleeve 83 on the arm forms an explosion-proof enclosure with the bore 77 in the packer body when the members 73 and 74 are in assembled relation, and also during separation of these members until the contacts 76 and 82 are completely separated.

In the modified form of header illustrated in FIG. 8, the manifold body 15 is the same as that illustrated and described in FIGS. 1–6 and like numerals are used to designate the same parts. The packer body 17′ has a modified construction and includes a flange portion 41′ that overlies the rim 38 of the manifold body and which is sealed thereto by an O-ring 42′. The packer body has

a downwardly facing inlet opening 44' which is connected to the drop pipe 18 and an outlet opening 45' which registers with the outlet passage in the manifold. A transfer passage 47' extends between the downwardly facing inlet opening 44' and the outlet opening 45' to pass fluid from the pump to the discharge passage. The conduit 52 for the motor conductors is connected to the packer in sealed relation thereby a fitting 54' which is disposed in a bore 55' in the packer body and which is sealed thereto by an O-ring 56'.

A modified form of electrical disconnect 69' is provided for selectively connecting and disconnecting the power supply conductors 66' from the motor conductors 51'. In this embodiment, the electrical disconnect 69' includes axially separable plug-in type connector members 73' and 74'. The connector body 73' is mounted in a fitting 121 attached to the packer body and, as shown, is enclosed in a tubular shell 122 which is anchored to the packer body by a flange 123 at its lower end. The connector member 73 includes a body 125 of dielectric material having a socket type contact element 126 embedded therein and connected to the motor conductors 51'. The motor conductors preferably extend through a sealing gland 127 which forms a seal between the packer body and the conductors, to prevent entrance of liquid into the connector chamber. The other connector member 74' is mounted on an arm 131 which is supported on the manifold body 15. For this purpose, a fitting 132 is attached in fixed relation to the manifold body, as by fasteners 133 which extend into the flange 94 on the manifold body, and which fitting is connected as by threaded engagement at 134 to the conduit 68 for the power supply conductors. The fitting 133 has an upwardly extending tubular portion 136 which extends generally parallel to the contact elements 126 and 149 and the arm 131 has a boss 137 which is slidably and rotatably supported on the portion 136. An O-ring seal 138 is preferably provided between the boss 137 and the tubular portion 136 to prevent the entrance of ground water and a stop 139 is mounted on the upper end of the tubular portion to limit upward movement of the arm. The arm also has an enlarged portion 141 above the boss 137 defining a junction chamber which is closed by a cap 142. A sealing gland 143 is mounted in the upper end of the tubular portion 136 to form a seal between the power supply conductors 66' and the fitting 132. The arm 131 extends laterally from the junction chamber 141 and terminates in a downwardly facing end portion 144 which telescopically fits over the fitting 121 and which is detachably secured thereto by fasteners 145. An O-ring 146 is provided between the fitting 121 and the end portion 144 of the arm 131 to seal the arm to the fitting 121. The connector member 74' is mounted on the arm and includes a dielectric body 148 having prong type contact elements 149 imbedded therein and connected to the power conductors 66'. As shown, the body 148 is enclosed in a flanged sleeve 151 and the flange on the sleeve is anchored to the arm 131 by a ring 152.

In the above described arrangement, the arm 131 has a telescopic fit with the fitting 121 on the packer body to form an explosion-proof enclosure around the connector members 73' and 74'. As will be seen, the arm overlies the packer body to prevent removal of the packer body until the arm is detached from the packer body to disconnect the connector members 73' and 74'. The arm can then be swung laterally about the axis of the fitting 132 out of overlying relation with the packer body to enable removal of the packer body from the manifold body.

We claim:

1. A packer manifold unit for a submerged motor-pump apparatus comprising a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus therethrough, a packer body removably mounted in said manifold body and having a downwardly facing inlet opening adapted for connection to a pump delivery pipe and a fluid transfer passage communicating with said inlet opening, an electrical connector including a first connector member mounted on said packer body and sealed from said transfer passage, a second connector member mounted on said manifold body, said connector members each having electrical contacts thereon adapted to engage to form an electrical circuit therebetween, one of said connector members being mounted for movement relative to its body into and out of electrical engagement with the connector member on the other body, mechanical interlock means for preventing removal of said packer body from said manifold body until said one of said connector members is moved relative to its body a distance at least sufficient to effect disengagement of the electrical contacts on said members, and means on said packer body and manifold body defining an explosion-proof enclosure around said connector members when the contacts on said connector members are in electrical engagement and at least until said one connector element is moved relative to its body a distance sufficient to effect disengagement of the electrical contacts on said members.

2. A packer-manifold unit for a submerged motor-pump apparatus comprising, a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus therethrough, said manifold body having a discharge passage therein, a packer body removably mounted in said manifold body, said packer body having a downwardly facing inlet opening adapted for connection to a pump delivery pipe; an outlet opening registering with said discharge passage in the manifold body; and transfer passage means in the packer body extending between the inlet opening and the outlet opening for passing liquid from the pump delivery pipe to the discharge passage, a plug-in type electrical connector including a first connector member mounted on said packer body and sealed from said transfer passage, a second connector member mounted on said manifold body, said connector members having plug-in type electrical contacts thereon adapted to interfit to form an electrical circuit therebetween, said packer body and manifold body having telescopically interfitting parts defining an explosion-proof enclosure around said connector members, said telescopically interfitting parts having a length such that the telescoping parts disengage during relative axial movement of said connector members but only after the contacts on the connector members disengage to assure electrical disconnection of the connector members in an explosion-proof housing.

3. A packer-manifold unit for a submerged motor-pump apparatus comprising, a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus therethrough, said manifold body having a discharge passage therein, a packer body removably mounted in said manifold body, said packer body having a downwardly facing inlet opening adapted for connection to a pump delivery pipe; an outlet opening registering with said discharge passage in the manifold body; and transfer passage means in the packer body extending between the inlet opening and the outlet opening for passing liquid from the pump delivery pipe to the discharge passage, a plug-in type electrical connector including a first connector member mounted on said packer body and sealed from said transfer passage, a second connector member mounted on said manifold body, said connector members having plug-in type electrical contacts thereon

adapted to interfit to form an electrical circuit therebetween, one of said connector members being mounted for movement relative to its body along a path paralleling the plug-in type contacts a distance at least sufficient to effect disengagement of the contacts on the connector members without disassembling the bodies, mechanical interlock means for preventing removal of said packer body from said manifold body until said one of said connector members is moved relative to its body a distance at least sufficient to effect disengagement of the plug-in type contacts on said members, said packer body and manifold body having telescopically interfitting parts defining an explosion-proof enclosure around said connector members, said telescopically interfitting parts having a length such that the telescoping parts disengage during relative axial movement of said connector members but only after the contacts on the connector members disengage to assure electrical disconnection of the connector members in an explosion-proof housing.

4. A packer-manifold unit for a submerged motor-pump apparatus comprising, a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus therethrough, said manifold body having a discharge passage therein, a packer body removably mounted in said manifold body, said packer body having a downwardly facing inlet opening adapted for connection to a pump delivery pipe; an outlet opening registering with said discharge passage in said manifold body; and transfer passage means in the packer body communicating the inlet opening with the outlet opening for passing fluid from the pump delivery pipe to the discharge passage, an electrical connector including a first connector member mounted on said packer body and sealed from said transfer passage, means defining a fitting for receiving power supply conductors disposed in fixed relation to said manifold body, an arm mounted on said fitting for swinging movement relative thereto, a second connector member mounted on said arm and movable therewith into and out of registry with the first connector member on the packer body, said connector members having interfitting electrical contacts adapted to engage and establish an electrical circuit therebetween, said arm engaging said packer body when said contacts on said first and second connector members are in engagement to prevent removal of the packer body from the manifold body, said arm having a conductor receiving passage extending from said second connector member to said fitting.

5. A packer-manifold unit for a submerged motor-pump apparatus comprising, a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus therethrough, said manifold body having a discharge therein, a packer body removably mounted in said manifold body, said packer body having a downwardly facing inlet opening adapted for connection to a pump delivery pipe; an outlet opening registering with said discharge passage in said manifold body; and transfer passage means in the packer body communicating the inlet opening with the outlet opening for passing fluid from the pump delivery pipe to the discharge passage, a plug-in type electrical connector including a first connector member mounted on said packer body and having a first set of plug-in type contacts, means defining a fitting for receiving power supply conductors disposed in fixed relation to said manifold body, an arm defining conductor receiving passage, means mounting the arm on said fitting for sliding and swinging movement about an axis generally parallel to the plug-in contacts on said first connector member, a second connector member mounted on said arm and having a second set of plug-in type contacts adapted to interfit with the contacts of the first set, said second connector member being swingable with said arm to enable alignment of the contacts of said first and second sets and said arm being slidable along said axis to enable axial interfitting of the first and second sets of plug-in connectors, said arm being arranged to engage said packer body when said first and second sets of contacts are in engagement to prevent removal of the packer body from the manifold body.

6. The combination of claim 5 wherein said arm and said packer body have telescopically interfitting parts defining an explosion-proof enclosure around said connector members when the contacts are in engagement and until said connector members have been separated.

7. A packer-manifold unit for a submerged motor-pump apparatus comprising, a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus therethrough, said manifold body having a discharge passage therein, a packer body removably mounted in said manifold body, said packer body having a downwardly facing inlet opening adapted for connection to a pump delivery pipe; an outlet opening registering with said discharge passage in said manifold body; and transfer passage means in the packer body communicating the inlet opening with the outlet opening for passing fluid from the pump delivery pipe to the discharge passage, a plug-in type electrical connector including a first connector member mounted on said packer body and having a first set of plug-in type contacts generally paralleling the direction of movement of the packer body into and out of the manifold body, means defining a fitting for receiving power supply conductors disposed in fixed relation to said manifold body, an arm defining a conductor receiving passage, means mounting the arm on the fitting for sliding and swinging movement about an axis generally parallel to said direction of movement of said packer, a second connector member mounted on said arm and having a second set of plug-in type contacts adapted to interfit with the contacts of said first set, said second connector member being swingable with said arm into and out of axial alignment with said second connector member and being movable with said arm in a direction parallel to said axis into interfitting relation with said first connector member, said arm having a portion in overlying engagement with said packer body when said connector members are in engagement to prevent withdrawal of the packer body from the manifold body, said arm being swingable out of overlying relation to the packer body after separation of said connector members to allow removal of the packer body.

8. The combination of claim 7 wherein said packer body and said arm have telescopically interfitting parts defining an explosion-proof enclosure around said connector members, said telescopically interfitting parts maintaining said explosion-proof enclosure during separation of said connector members and until the contacts are completely separated.

9. The combination of claim 7 including fastener means extending between said arm and said fitting for clamping said arm in overlying relation to said packer body.

10. The combination of claim 7 including a bolt non-slidably and rotatably connected to said arm and threadedly engageable with a part on one of said bodies, said bolt extending generally parallel to said axis and being operative when turned in one direction to draw the arm toward the packer body to positively force the connector members together and being operative when turned in the other direction to move the arm away from the packer to separate the connector members.

11. A packer-manifold unit for a submerged motor-pump apparatus comprising, a manifold body having an upright passage extending therethrough dimensioned sufficiently larger than the motor-pump apparatus to enable insertion and removal of the motor-pump apparatus

therethrough, said manifold body having a discharge passage therein, a packer body removably mounted in said manifold body, said packer body having a downwardly facing inlet opening adapted for connection to a pump delivery pipe; an outlet opening registering with said discharge passage in said manifold body; and transfer passage means in the packer body communicating the inlet opening with the outlet opening for passing fluid from the pump delivery pipe to the discharge passage, said packer having a socket extending into the top thereof, a plug-in type electrical connector including a first connector member mounted in said socket on said packer body and having a first set of plug-in type contacts disposed inwardly of the outer end of the socket and generally paralleling the direction of movement of the packer body into and out of the manifold body, means defining a fitting for receiving power supply conductors disposed in fixed relation to said manifold body, an arm defining a conductor receiving passage, means mounting the arm on the fitting for sliding and swinging movement about an axis laterally offset from said packer and generally parallel to said direction of movement of said packer, a second connector member mounted on said



arm and having a second set of plug-in type contacts adapted to interfit with the contacts of said first set, said second connector member being swingable with said arm into and out of axial alignment with said second connector member, said second connector member having an outer wall portion telescopically receivable in said socket to form an explosion-proof enclosure therewith and being movable with said arm in a direction parallel to said axis into interfitting relation with said first connector member, said arm having a portion in overlying relation with said packer body when said connector members are in engagement, said arm being swingable out of overlying relation to the packer body after separation of said connector members to allow removal of the packer body.

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LOUIS J. DEMBO, *Primary Examiner.*

RAPHAEL M. LUPO, *Examiner.*