March 28, 1961 I. F. SCHRECK 2,976,945

EXPLOSION PROOF INDUSTRIAL TRUCK

Filed Oct. 23, 1958 5 Sheets-Sheet 1

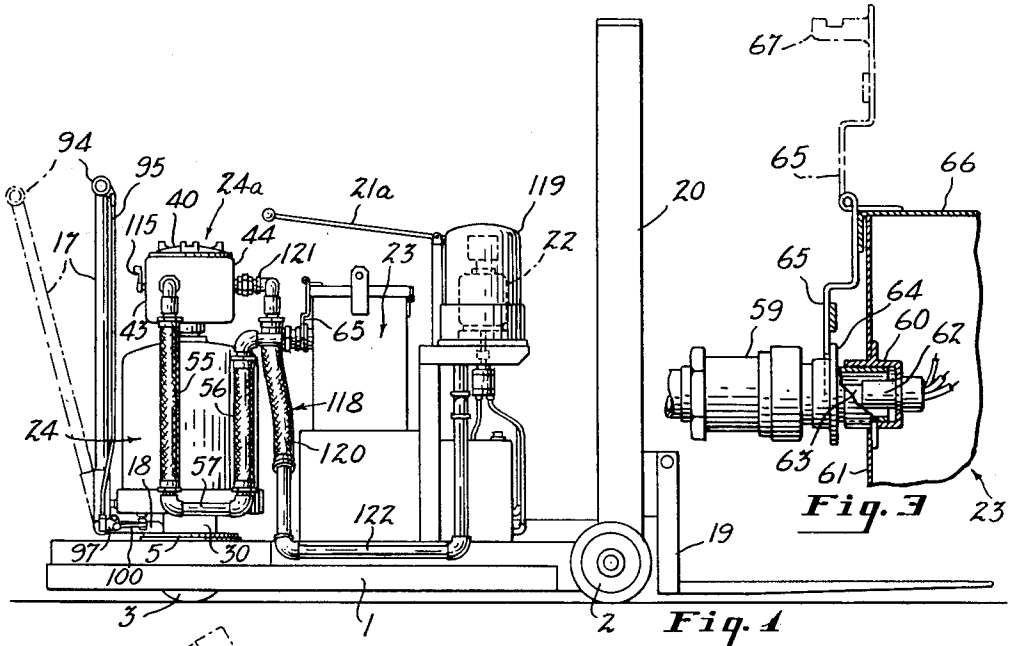

Fig. 3

Fig. 1

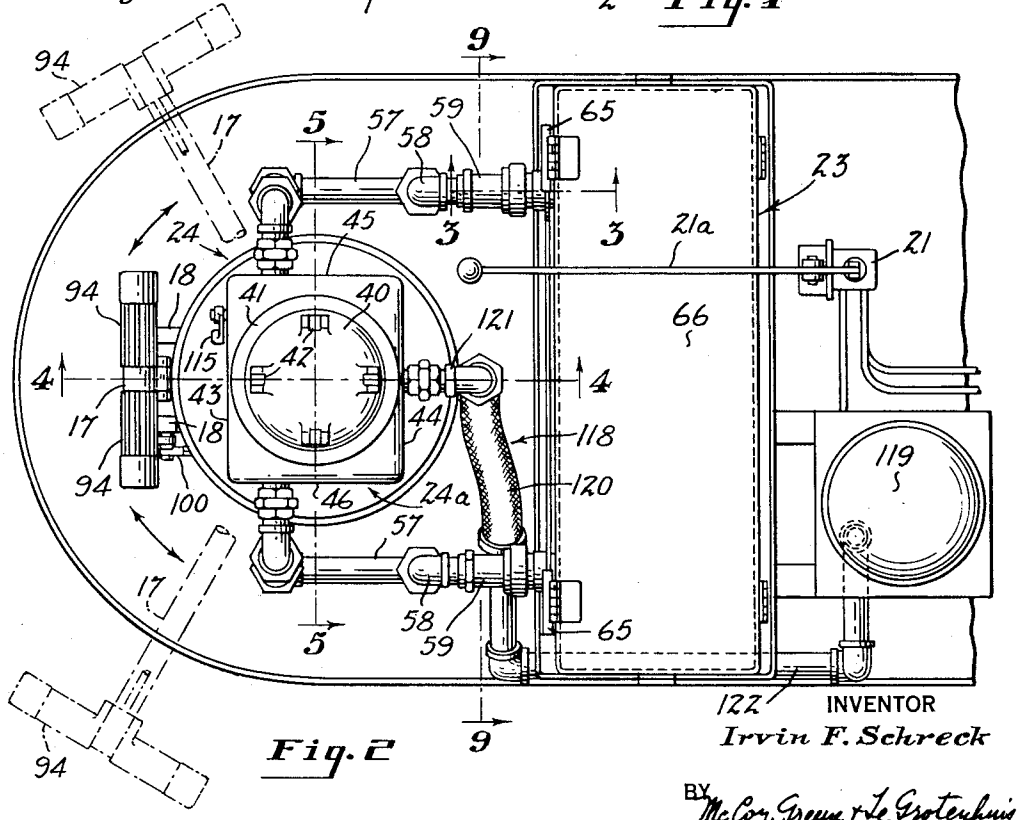

Fig. 2

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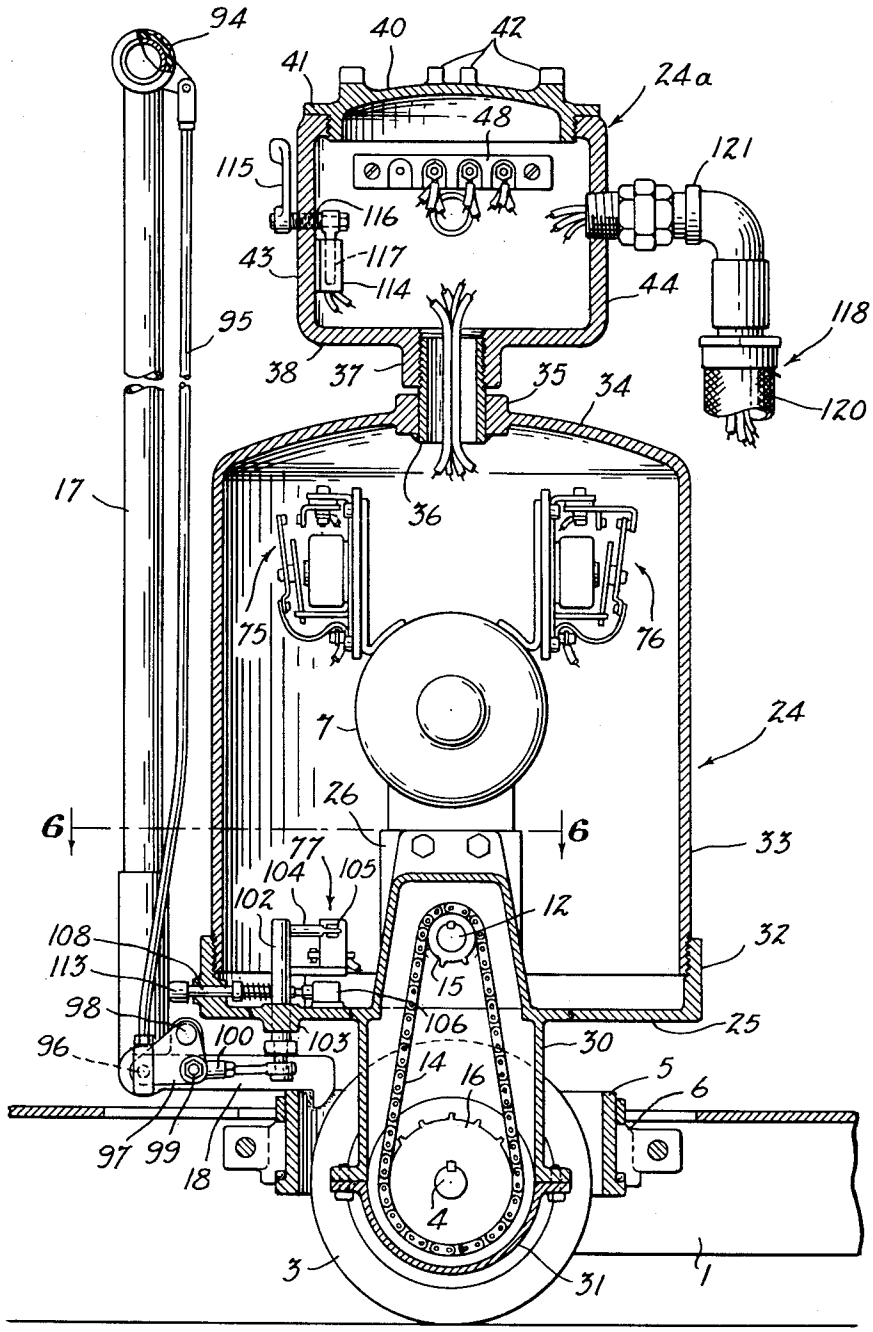

Fig. 4

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EXPLOSION PROOF INDUSTRIAL TRUCK

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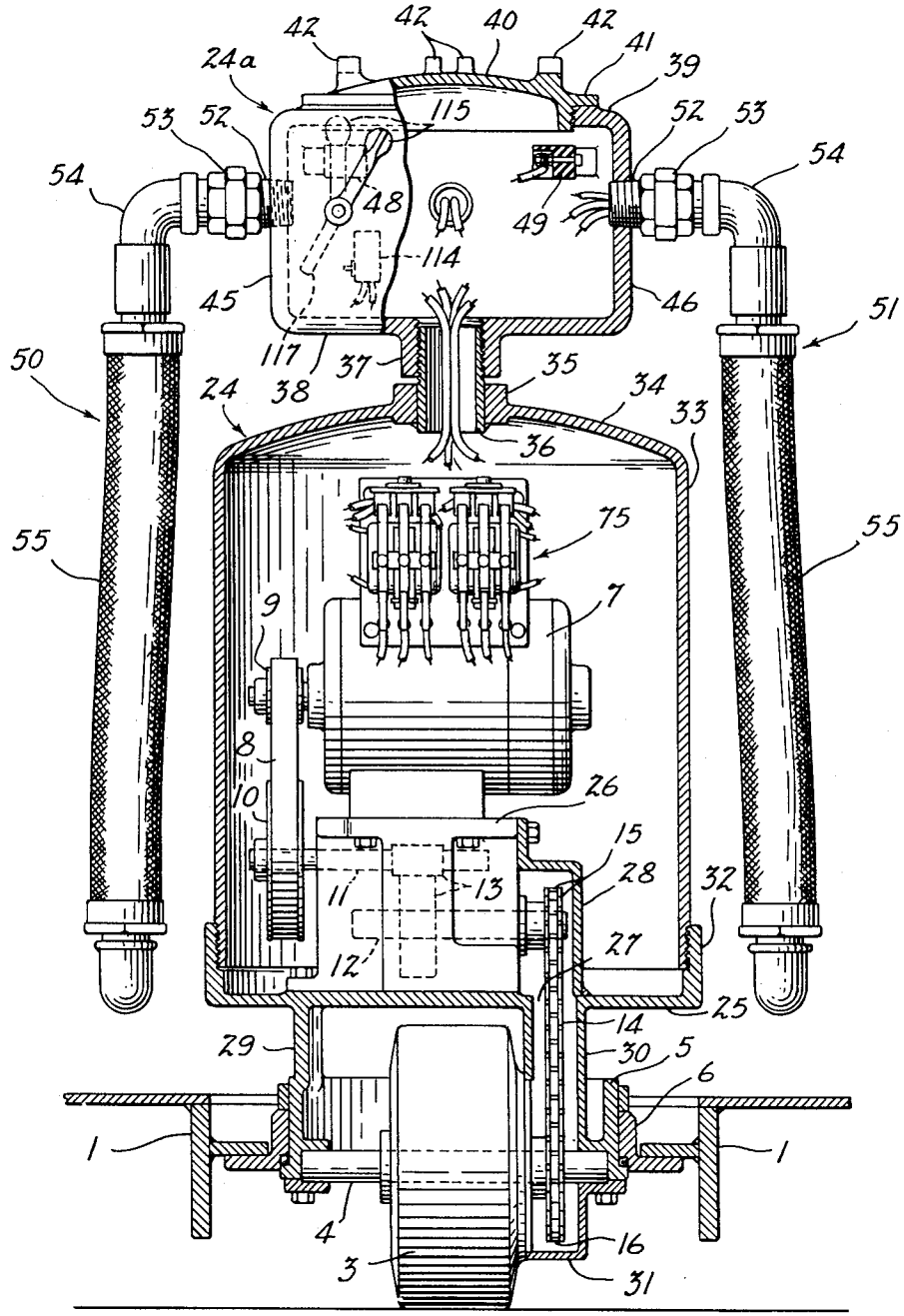

Fig. 5

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EXPLOSION PROOF INDUSTRIAL TRUCK

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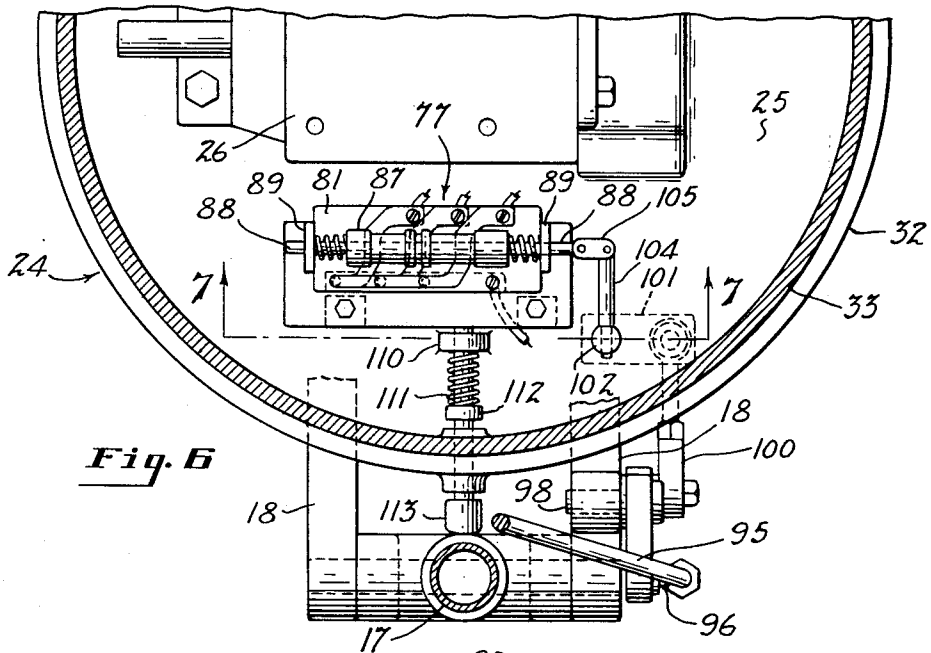

Fig. 6

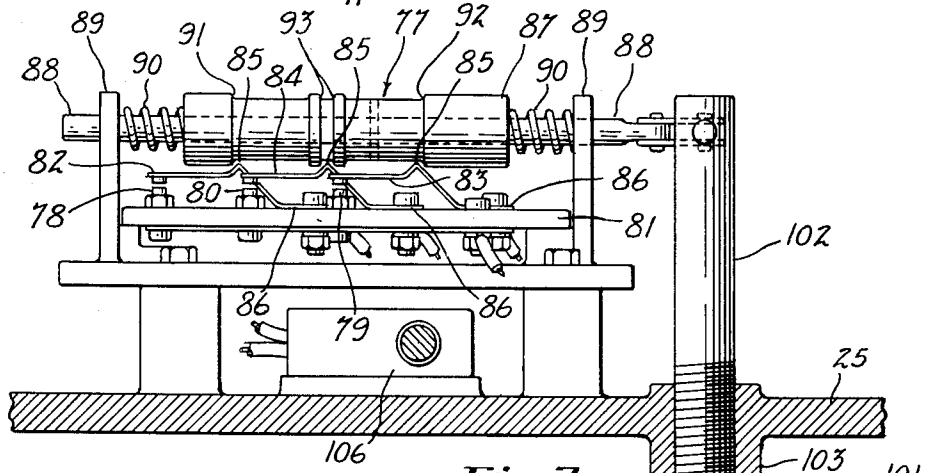

Fig. 7

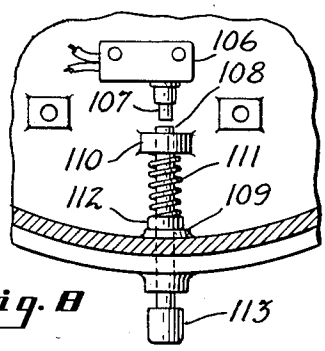

Fig. 8

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EXPLOSION PROOF INDUSTRIAL TRUCK

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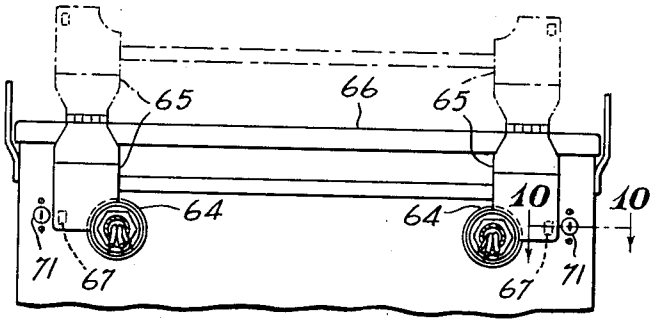

Fig. 9

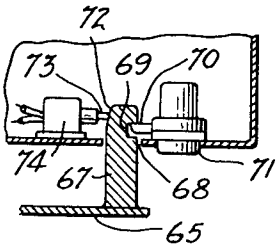

Fig. 10

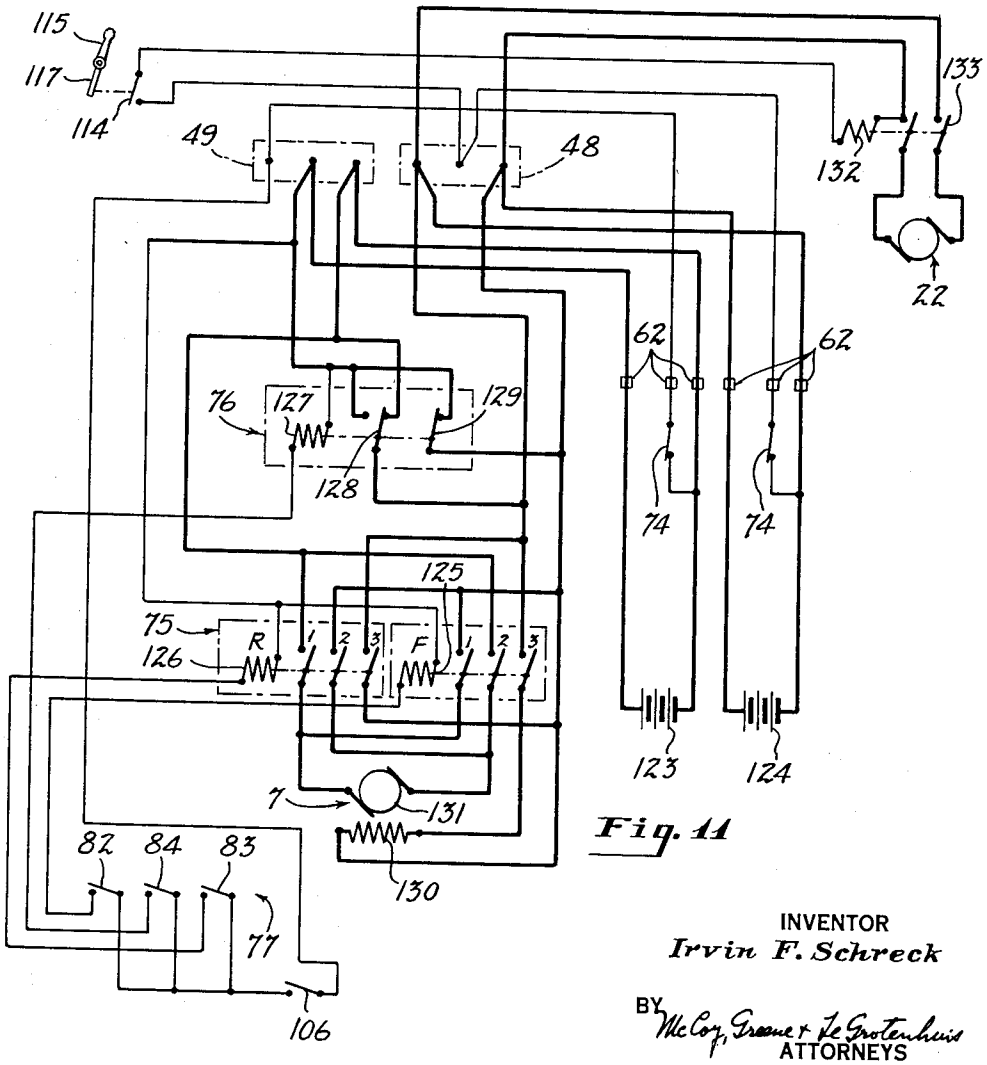

Fig. 11

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2,976,945

EXPLOSION PROOF INDUSTRIAL TRUCK

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Filed Oct. 23, 1958, Ser. No. 769,208

7 Claims. (Cl. 180—19)

This invention relates to industrial trucks of the type that are provided with a propelling and steering unit that includes a traction wheel and electric driving motor and that is mounted to turn about a vertical axis with respect to the truck body. Such trucks are powered by means of suitable current delivering means mounted on the truck body such as one or more storage batteries that are connected to the motor and its control switches to deliver electric current thereto.

The present invention relates particularly to a structure affording protection against explosions when trucks of the character referred to are operated in an atmosphere containing combustible vapors or gases.

Trucks of the character referred to are designed to make short turns and the steering and propelling unit is usually so mounted in the truck body that it can be turned substantially 90° to the right or to the left from a straight ahead position and the conductors leading from the motor and controlling switches to the current delivering means on the truck body must permit such turning movements. Heat sufficient to ignite a highly combustible vapor or gas may be generated by arcing between switch contacts or upon separation of a conductor from a terminal or upon rupture of a conductor, the breaking of the circuit causing arcing due to the passage of electric current through an air gap. Heating may also be caused by short circuits which may be caused by the wearing away of insulation on flexible conductors which are being continually flexed and twisted due to turning movements of the steering and propelling unit.

To prevent explosions due to any of the causes above mentioned the steering and propelling unit is provided with an enclosure for the driving motor and control switches which is of sufficient strength to withstand explosion of gases within the housing and which is so constructed that combustion gases can escape from the interior of the enclosure only through restricted passages with heat absorbing walls which cool the gases to below the ignition temperature before they reach the outside atmosphere. The passages for escape of gases from the housing include openings in the housing walls through which movable members forming parts of the switch actuating and wheel driving means extend, such openings providing restricted passages surrounding the movable members which are surrounded with a mass of heat absorbing material and which are of a length sufficient to effectively cool any combustion gases created by ignition of vapor or gases within the housing before such gases reach the outside atmosphere.

As further protection against explosions, all conductors extending from the motor housing to the truck body are enclosed in conduits extending from the housing on the steering unit to a closed compartment on the truck body where they are connected to current delivering means and, in order to protect conductors against damage due to turning movements of the steering unit, the housing is provided with an upper section that is mounted on the lower motor enclosing section to turn about a vertical axis

with respect thereto, the upper section communicating with the lower section through a central opening. The conductor conduits extending to the truck body are connected to the upper section and the conductors connected to the motor and the motor control switches extend through the central opening. The conductor conduits connecting the housing on the steering unit with the truck body are preferably flexible enough to permit the upper section to turn with the lower section when the steering unit is turned through small angles but causing the upper section to turn relative to the lower section when the steering unit is turned through large angles. To reduce the wear and tear on conductors due to continual turning movements of the steering unit, the upper housing section is preferably provided with fixed terminals to which the conductors extending into the housing from the conduits are attached and suitable flexible conductors extend from these terminals through the central opening to the motor and switches mounted in fixed positions within the lower section of the housing.

In order to prevent an operator of the truck from obtaining access to conductors or switches while the truck is being operated in an inflammable atmosphere, the main housing is provided with a closure that requires special tools to operate it and the battery compartment on the truck body is provided with a key operated closure. The closure locking means also serves to lock the conductor conduit or conduits to the battery compartment and a safety switch or switches controlled by such locking means serves to break all control circuits leading from the battery compartment whenever the locking means is moved to releasing position, so that all circuits are dead whenever the locking means is released.

Objects of the invention are to provide an electrically operated industrial truck of the character described in which the conductor cables are protected against wear and breakage, to provide a truck in which all electrical connections which are capable of arcing or which might become heated to a temperature high enough to ignite combustible gases are enclosed in a flame proof enclosure capable of withstanding explosions due to ignition of gases within it, to provide means for preventing unauthorized access to the battery, and to provide means for automatically deenergizing all circuits prior to disconnection of conductor cables from the source of current.

Reference should be had to the accompanying drawings in which:

Figure 1 is a side elevation of a truck embodying the invention;

Fig. 2 is a fragmentary top plan view of the forward portion of the truck showing the battery compartments and motor housings;

Fig. 3 is a fragmentary vertical section through the upper portion of the battery compartment taken on the line indicated at **3—3** in Fig. 2 and showing the connection of the conductor conduit to the compartment and the plug and socket connection between the conductors in the conductor conduits and the conductors within the battery compartment;

Fig. 4 is a vertical section taken longitudinally of the truck through the steering and driving unit, with the unit in a straight ahead position, the section being taken on the line indicated at **4—4** in Fig. 2;

Fig. 5 is a vertical section through the steering and driving means taken at right angles to the section shown in Fig. 4 as indicated by the line **5—5** in Fig. 2;

Fig. 6 is a fragmentary horizontal section through the lower portion of the main motor housing as indicated by the line **6—6** in Fig. 4;

Fig. 7 is a fragmentary vertical section through the base portion of the main motor housing, taken on the line

indicated at 7—7 in Fig. 6 and showing the main motor control switches;

Fig. 8 is a fragmentary horizontal section showing the main motor deenergizing switch that is controlled by the steering handle;

Fig. 9 is a fragmentary vertical section taken on the line indicated at 9—9 in Fig. 2 and showing the means for locking the conductor conduits to the wall of the battery compartment;

Fig. 10 is a fragmentary section taken on the line indicated at 10—10 in Fig. 9 and showing one of the key locks and one of the safety switches that serves to deenergize all circuits before separation of the plug and socket connecting the external conductors to the battery leads; and

Fig. 11 is a wiring diagram showing one way in which storage batteries may be connected to the motors and control switches.

In the accompanying drawings the invention is shown applied to a truck of the lift fork type having a body 1 supported on rear wheels 2 and upon a front steering and propelling unit which has a traction wheel 3. As shown in Figs. 4 and 5 of the drawings, the traction wheel 3 is mounted on an axle 4 that is mounted in an annular bearing member or ring 5 that turns about a vertical axis in an annular bearing 6 fixed to the truck body 1. The traction wheel 3 is driven by an electric motor 7 supported on the ring 5 and a driving connection is provided between the wheel 3 and a motor 7 through a belt 8 running over pulleys 9 and 10 mounted on the motor shaft and on a countershaft 11 beneath the motor, through a second countershaft 12 driven from the shaft 11 through reduction gears 13 and through a sprocket chain 14 running over a small sprocket 15 on the shaft 12 and over a large sprocket 16 that rotates with the wheel 3. The steering unit is turned by means of a steering handle 17 that is pivoted at its lower end to a bracket 18 fixed to the supporting ring 5. The handle 17 swings vertically and provides means for turning the steering unit to steer the truck.

The present invention is applicable to trucks designed for various purposes but is illustrated as applied to a truck of the lift fork type which is provided at its rear end with a fork 19 that is mounted for vertical movement on a standard 20. As is the usual practice, the fork is operated by means of a suitable fluid pressure motor (not shown) to which fluid is delivered through a valve 21 controlled by a lever 21*a* by means of an electric pump operating motor 22.

A suitable compartment 23 is mounted on the truck body 1 immediately to the rear of the steering unit and suitable current delivering means such as one or more storage batteries is mounted within the compartment 23.

A sectional housing is provided on the steering unit that is composed of a lower section 24 that encloses the motor 7 and an upper section 24*a* that is mounted to turn upon a vertical axis with respect to the lower section 24. The sections 24 and 24*a* are coaxial with the supporting ring 5 and communicate with each other through a central opening. The lower section 24 is mounted on a base 25 that may be cast integrally with the ring 5 and which is disposed immediately over the traction wheel 3.

A gear housing 26 is mounted on the base 25 centrally thereof and an opening 27 is provided in the base 25 at one side of the housing 26. The sprocket 15 on the shaft 12 directly overlies the opening 27 which provides a passage for the sprocket chain 14. A closure member 28 which may be integral with the base 25 engages with one side of the housing 26 and closes the opening 27. The base 25 is connected to the supporting ring 5 by means of integral legs 29 and 30 which are positioned over opposite ends of the axle 4. The supporting leg 30 is tubular in form and provides a housing for the chain 14 and sprocket 16, a cover plate 31 being provided at the lower end of the tubular ring to enclose the chain 14 and sprocket 16 below the axle 4. The shaft 11 projects through one wall of the housing 26 to support the pulley 10 within the housing section 24 but outside the housing 26. The shaft 12 projects through the opposite wall of the housing 26 and supports the sprocket 15 outside the housing. Any gases escaping from the housing 24 through the housing 26 must first pass through the bearing of the shaft 11 and then through the bearing of the shaft 12 and, since the metal of the housing is heat conductive, any combustion gases ignited within the housing 24 would be cooled below the danger point before escaping through the passages required for the drive shafts 11 and 12.

The base 25 is provided with an internally threaded upwardly projecting cylindrical flange 32 which receives the threaded lower end of a cylindrical wall 33 which forms the upright wall of the housing section 24. The housing section 24 has a top 34 that is integral with the cylindrical wall 33 and this wall is provided with a central opening that is surrounded by a boss 35. A short pipe section 36 is secured by suitable means such as welding in the boss 35 and is externally screw threaded. The upper section 24*a* has a centrally downwardly projecting boss 37 surrounding a central opening in its bottom 38 and this boss is internally threaded to screw onto the pipe 36. The screw threaded connection between the housing sections 24 and 24*a* permits the section 24*a* to turn with respect to the lower section 24. The screw threaded connection between the wall 33 and the base 25 and the screw threaded connection between the boss 37 and the pipe 36 provide restricted passages for escape of combustion gases under pressure and the metal forming the walls of such passages provides ample heat absorption to insure lowering of the temperature to below ignition temperature before such gases pass into the surrounding atmosphere. The housing section 24*a* has a top wall 39 provided with a large circular opening that receives a circular screw threaded cover 40 that has a sealing flange 41 that engages the top wall 29 around the opening. The cover 40 is provided with wrench lugs 42 for engagement with a special wrench suitable for unscrewing the cover.

The section 24*a* is preferably rectangular in horizontal cross section, having a front wall 43, a rear wall 44 and side walls 45 and 46. A terminal bar 48 is mounted within the housing section 24*a* adjacent the side wall 45 and a similar terminal bar 49 is mounted therein adjacent the opposite side wall 46.

One or more conductor conduits connect the upper section 24*a* to the compartment 23. As herein shown, two conductor conduits 50 and 51 which may be of identical construction, connect opposite side walls 45 and 46 of the housing section 24*a* to the compartment 23. As shown in Figs. 1, 2 and 5, each conduit is connected to the housing section 24*a* by means of a short pipe 52 that is connected by a union 53 to an elbow 54 to which a vertically disposed flexible section 55 is attached. Each of the conduits is provided with a second vertical flexible section 56 connected at its lower end to the lower end of the section 55 by a rigid horizontally disposed section 57. The upper ends of the flexible sections 56 are connected by elbows 58 to a short horizontal pipe section 57 which, as shown in Fig. 3, has telescopic fit in a sleeve 60 mounted in the front wall 61 of the compartment 23. Each sleeve 60 is provided with a concentric socket 62 which receives a plug 63 attached to the conduit end section 59. The plug 63 and sockets 62 serve to electrically connect the conductors mounted within the compartment 23 with the conductors that extend through the conduits 50 and 51. Locks are provided for securing the conduits 50 and 51 to the compartment 23. Each of the end sections 59 has a flanged collar 64 that is engaged by a locking plate 65. The conduits 50 and 51 are attached to the wall 61 adjacent opposite ends thereof and the locking plates 65 are hinged to the free edge of the compartment lid 66 so that when the plates 65 are secured in a position to lock the conduits against

separation from the battery compartment, the lid **66** is also locked in closed position.

As shown in Figs. 9 and 10, each plate **65** has a rigidly attached locking pin **67** that projects through an opening **68** in the front wall **61** when the locking plate is swung down to conduit engaging position. Each locking pin **67** is provided with a notch **69** that receives the bolt **70** of a key operated lock **71** to retain the locking plates **65** in their locking positions. The combined conduit and lid lock serves to prevent unauthorized access to the compartment **23** and to prevent separation of the conduits from the compartment. Safety switches are also provided to insure deenergization of all external circuits before the plugs **63** are withdrawn from the sockets **62**. As shown in Fig. 10, each locking pin **67** is provided with a beveled end **72** that engages with a pin **73** to close the contacts of a normally open safety switch **74** so that whenever the lock bolt **70** is released and the lock plate **65** is swung to releasing position, the switches **74** are automatically opened so that all external circuits are opened and there will be no current flowing through the plug **62** and socket **63** when they are pulled apart. This prevents ignition of any combustible gases in the housings and conduit when the battery compartment is opened in the repair shop.

A directional switch assembly **75** and a series-parallel speed control switch assembly **76** are mounted on the motor **7** within the housing section **24** and a control switch indicated generally at **77** is mounted within the housing section **24** on the base **25**. The switch **77**, as shown in Figs. 6 and 7, is provided with contacts **78**, **79** and **80** secured to a horizontal supporting bar **81** and normally open spring contact members **82**, **83** and **84** are engageable with the switch contacts **78**, **79** and **80**, respectively. The contact members **82**, **83** and **84** are in the form of spring bars each provided with a V-shaped ridge **85** and with a flanged end **86** bolted to the supporting bar **81**. The contacts **82**, **83** and **84** are actuated by means of a horizontally sliding actuating member **87** that has reduced end portions **88** that slide in supporting posts **89** fixed to the base. Springs **90** normally hold the actuating member **87** in a central neutral position. The actuating member **87** has shoulders **91** and **92** that engage with the ridges **85** of the movable contact members **82** and **83** to move the contact **82** into engagement with the contact **78** upon movement of the member **87** to the right from the position shown in Fig. 7 and closing the contact member **83** when moved to the left from the position shown in Fig. 7. The member **87** is provided with intermediate shoulders **93** which move the central contact members **84** to closed position upon movement of the actuating member **87** in either direction. Movement of the member **87** in one direction causes the motor **7** to be driven in a direction to propel the truck forwardly and movement in the opposite direction causes the motor to be driven in a reverse direction. The central contact **84** controls the series-parallel switch **76** to move the same to its series position to start the motor slowly in either direction. Since the raised portions forming the shoulders **93** are short, they move past the ridge **85** of the contact member **84** to permit the same to move to open position to permit the switch **76** to move to its parallel position to drive the motor at a higher speed.

The switch actuating member **87** is operated by a control sleeve **94** at the outer end of the handle **17**, the sleeve **94** being mounted on the handgrip so that the operator can turn it in either direction to the extent desired. As shown in Fig. 4, the sleeve **94** is connected to the switch operating member through a rod **95** extending from the outer end of the handle **17** to adjacent the pivotal connection of the handle to the bracket **18** where it is connected by a pivot **96** to a bell-crank lever **97** that is pivoted at **98** to the bracket **18** and that has a pivot **99** connecting it to a horizontally movable rod **100** that is attached at its inner end to an arm **101** fixed to the lower end of a vertical shaft **102** that extends vertically through the base **25** and that has a screw bearing in a boss **103** in the base. Within the housing section **24** the shaft **102** has a horizontal arm **104** fixed to its upper end and connected by a link **105** to one end of the actuating member **87**. By turning the control sleeve **94** in one direction or the other the switch **77** may be operated to drive the motor and control the speed in either direction. The screw bearing of the shaft **102** provides an elongated restricted passage and the boss **103** provides a heat absorbing wall for the passage to cool any gases forced through the bearing.

Means is preferably provided for automatically deenergizing the driving motor whenever the steering handle **17** is moved to vertical position. The motor circuit is opened by means of a normally closed switch **106** mounted on the base **25** that has a contact actuating pin **107** in the path of a pin **108** slidably mounted in a boss **109** in the flange **32** of the base **25**. The pin **108** is also guided by a bearing member **110** on the base **25** inwardly of the flange **32** and is normally held in retracted position by means of a spring **111** interposed between the bearing member **110** and a flange **112** on the pin **108** which is normally held by the spring in engagement with the inner face of the boss **109**. The pin **108** has a head **113** at its outer end that is in the path of the handle **17** and that is engaged by the handle as the handle approaches its vertical position. The elongated bearing provided by the boss **109** serves to cool any gases forced under pressure through the bearing in the boss **109**.

A control switch **114** for the pump motor is mounted in the upper housing section **24***a* and is operated by means of a handle **115** journaled in the front wall **43** of the housing section **24***a*. The handle **115** is attached to a screw threaded shaft **116** that has a threaded bearing in the wall **43** and inside the housing the shaft **116** has an actuating arm **117** attached thereto for closing the switch **114**. The motor **22** is enclosed in a housing **119** and a conductor conduit **118** extends from the rear wall **44** of the housing section **24***a* to the motor housing **119**. The conduit **118** includes a downwardly extending flexible section **120** that is connected at its upper end through an elbow **121** to the housing section **24** and at its lower end to a rigid section **122** that extends past the underside of the battery compartment **23**.

Fig. 11 shows the general arrangement of controlling and operating circuits energized by electric storage batteries **123** and **124** mounted in the compartment **23**. Leads from the battery **123** are connected to terminals on the bar **49** in the upper housing section **24***a* and leads from the battery **124** are connected to terminals on the bar **48**. The sockets **62** through which the battery leads are connected to external circuits are indicated diagrammatically and normally open switches **74** are shown adjacent the sockets **62** to interrupt all control circuits when the locking plates are moved out of engagement with the wall of the battery compartment.

The directional switch assembly **75** includes solenoids **125** and **126** that are energized by contacts **82** and **83** of the control switch **77** and that operate contacts F–1, F–2 and F–3 and R–1, R–2 and R–3 of forward and reverse switches. The series-parallel switch assembly **76** includes a solenoid **127** that is energized by the contact **84** of the control switch **77** to shift the contacts **128** and **129** from their normal position shown in full lines in Fig. 11. Contacts F–3 or R–3 complete the circuit through the field **130** of the motor **7** and F–1 and F–2 or R–1 or R–2 complete the circuit in opposite directions through the motor armature **131**. In their normal position the contacts **128** and **129** connect the batteries **123** and **124** in parallel to the armature **131** and when the solenoid **127** is energized the contacts **128** and **129** are moved out of their normal position to a position where the contact **128** connects the batteries in series to the armature **131** to start the motor at slow speed. When

moved in one direction the slide 87 closes contact 82 to operate the forward switch F and when moved in the opposite direction closes the contact 82 to operate the reverse switch R. Upon initial movement in either direction, the solenoid 127 is energized to shift the contact 128 to its series position for starting the motor. Continued movement of the slide 87 moves the shoulder 93 engaging the contact 94 past the contact 94, allowing it to open, deenergizing the solenoid 127 and allowing the contacts 128 and 129 to move to the position shown in Fig. 11, where the armature 131 is connected in parallel to the batteries 123 and 124 to drive the motor at a higher speed. The control switch 114 in the upper housing section 24*a* controls a solenoid 132 that closes a normally open switch 133 to operate the pump motor 22.

It is to be understood that in accordance with the provisions of the patent statutes, variations and modifications of the specific devices herein shown and described may be made without departing from the spirit of the invention.

What I claim is:

1. An explosion proof industrial truck comprising a wheel supported body, a steering and propelling unit mounted to turn about a vertical axis with respect to said body and including a traction wheel and an electric motor, means for turning said unit to steer the truck, a flame proof housing of heat conductive material enclosing said motor, driving means connecting said motor to said wheel including a movable member extending to the exterior of the housing, means for controlling said motor comprising a switch in said housing and a movable switch actuating member extending from the exterior to the interior of said housing, means providing restricted passages with heat absorbing walls around said movable members for escape of combustion gases from said housing, a compartment in said truck body, current delivering means in said compartment, a flexible conduit connecting said housing to said compartment, means connecting said switch and said motor to said current delivering means, a conductor in said conduit, a conductor in said compartment and a plug and socket connection in a wall of said compartment between said conductors, means for locking said conduit to said compartment, and means controlled by said locking means for breaking the connection between said current delivering means and said conduit conductor independently of said plug and socket.

2. An explosion proof industrial truck comprising a body having rear supporting wheels, a steering and propelling unit supporting the front end of said body and mounted to turn with respect to said body about a vertical axis, said unit including a traction wheel and an electric motor, means for turning said unit to steer the truck, a flame proof housing forming an enclosure for said motor and having a bottom wall above said wheel, a gear box mounted on said base and having a side wall with an exterior face outside said enclosure and an opposite side with its exterior face within said enclosure, shafts extending through bearings in said side walls which are the only openings to the interior of said gear box, a driving connection from said motor to one of said shafts, gearing in said box connecting said shafts and a driving connection from the other of said shafts to said traction wheel outside said enclosure, a motor control switch in said housing, means for actuating said switch, a battery compartment on said body, a flexible conduit connected at one end to said compartment and at the other to said housing, and means for supplying current to said switch and said motor including conductors extending through said conduits.

3. An explosion proof industrial truck comprising a body having rear supporting wheels, a steering and propelling unit supporting the front end of said body and mounted to turn with respect to said body about a vertical axis, said unit including a traction wheel and an electric motor, a flame proof housing forming an enclosure for said motor and having a base forming the bottom wall thereof, means for turning said unit to steer the truck comprising a vertically swinging handle pivoted to said base, means including a movable member extending through a wall of said housing for driving said traction wheel from said motor, a motor control switch in said housing, a movable control member on said handle, an upright shaft extending through said base and journaled therein, means within the enclosure connecting said shaft to said switch to actuate the same upon turning movement of said shaft and means outside the enclosure connecting said control member to said shaft to impart turning movements thereto, a battery compartment on said body, a flexible conduit connecting said compartment to said housing, and means including conductors extending through said conduit for supplying electric current to said switch and to said motor.

4. An explosion proof truck according to claim 3 in which the upright switch operating shaft is mounted to turn in a screw threaded bearing in said base.

5. An explosion proof industrial truck comprising a wheel supported body, a steering and propelling unit mounted to turn about a vertical axis with respect to said body and including a traction wheel and an electric motor, means for turning said unit to steer the truck, a flame proof housing of heat conductive material enclosing said motor, said housing having a lower section in which said motor is mounted and an upper section opening to said lower section at said vertical axis and mounted for turning movements with respect to said lower section about said vertical axis, means for driving said traction wheel from said motor including a shaft extending through a wall of said lower section, means for controlling said motor comprising a switch within said housing and a movable actuating member extending through a wall of said housing, bearings for said shaft and said actuating member and said upper and lower sections that provide restricted passages for escape of combustion gases from said housing, a closed compartment mounted on said body, a flexible conduit attached at one end to said upper section and at its other end to said compartment, said conduit being closed at the end connected to said compartment and opening to the interior of said upper section, an electric battery in said compartment, and means for connecting said battery to said switch and motor comprising terminals in said upper section, flexible conductors connecting said terminals to said motor through said opening, flexible conductors connected to said terminals and extending through said conduit conductors within said compartment connected to said battery and a plug and socket connection between the conductors in said conduit and the conductors in said compartment.

6. An explosion proof industrial truck comprising a body having rear supporting wheels, a steering and propelling unit supporting the front end of said body and mounted to turn with respect to said body about a vertical axis, said unit including a traction wheel and an electric motor, means for turning said unit to steer the truck, a flame proof housing enclosing said motor, said housing comprising a lower section containing said motor and an upper section mounted on the lower section to turn with respect thereto about said vertical axis and communicating therewith through an axial opening, a motor control switch in said housing, means providing a driving connection from said motor to said traction wheel including a rotatable driven member extending through a wall of said lower section, means for operating said switch including a movable actuating member extending through a wall of said housing, means forming restricted passages with heat absorbing walls surrounding said movable members for escape of combustion gases from the interior of said housing, a battery compartment on said body, two conduits connecting said upper section to said compartment, said conduits being attached to and

opening into opposite sides of said upper section and at laterally spaced points to said compartment and being closed at the ends connected to said compartment, an electric battery in said compartment, and means for supplying current to said switch and said motor comprising terminals within said upper section, flexible conductors attached to said terminals and extending through said axial opening to said switch and said motor, flexible conductors connected to said terminals and extending through said conduits to the closed ends thereof, conductors in said compartment connected to said battery and means connecting the conductors within the compartment to the conductors in said conduits.

7. An explosion proof industrial truck according to claim 6 in which the conductors within the battery compartment and the conductors in said conduits are connected by plug and socket connections, in which means is provided for locking the plugs and sockets against

separation, and in which safety switches controlled by said locking means open the control circuits independently of said plug and socket connections prior to separation of the plugs and sockets.

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