

No. 743,836.

PATENTED NOV. 10, 1903.

O. G. DOBERT.
ELECTRIC PUMP.

APPLICATION FILED JULY 17, 1903.

NO MODEL.

Fig. 1.

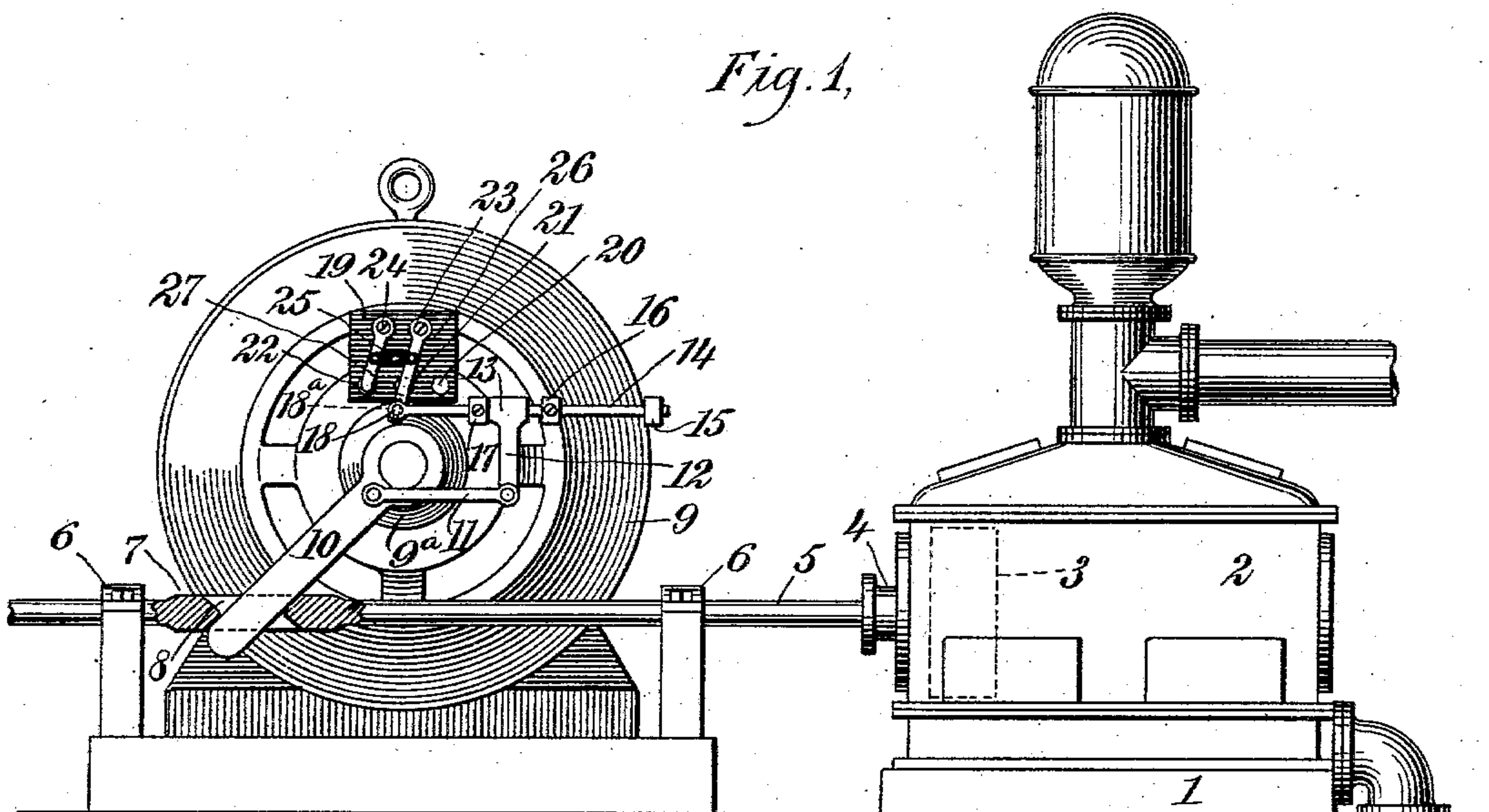
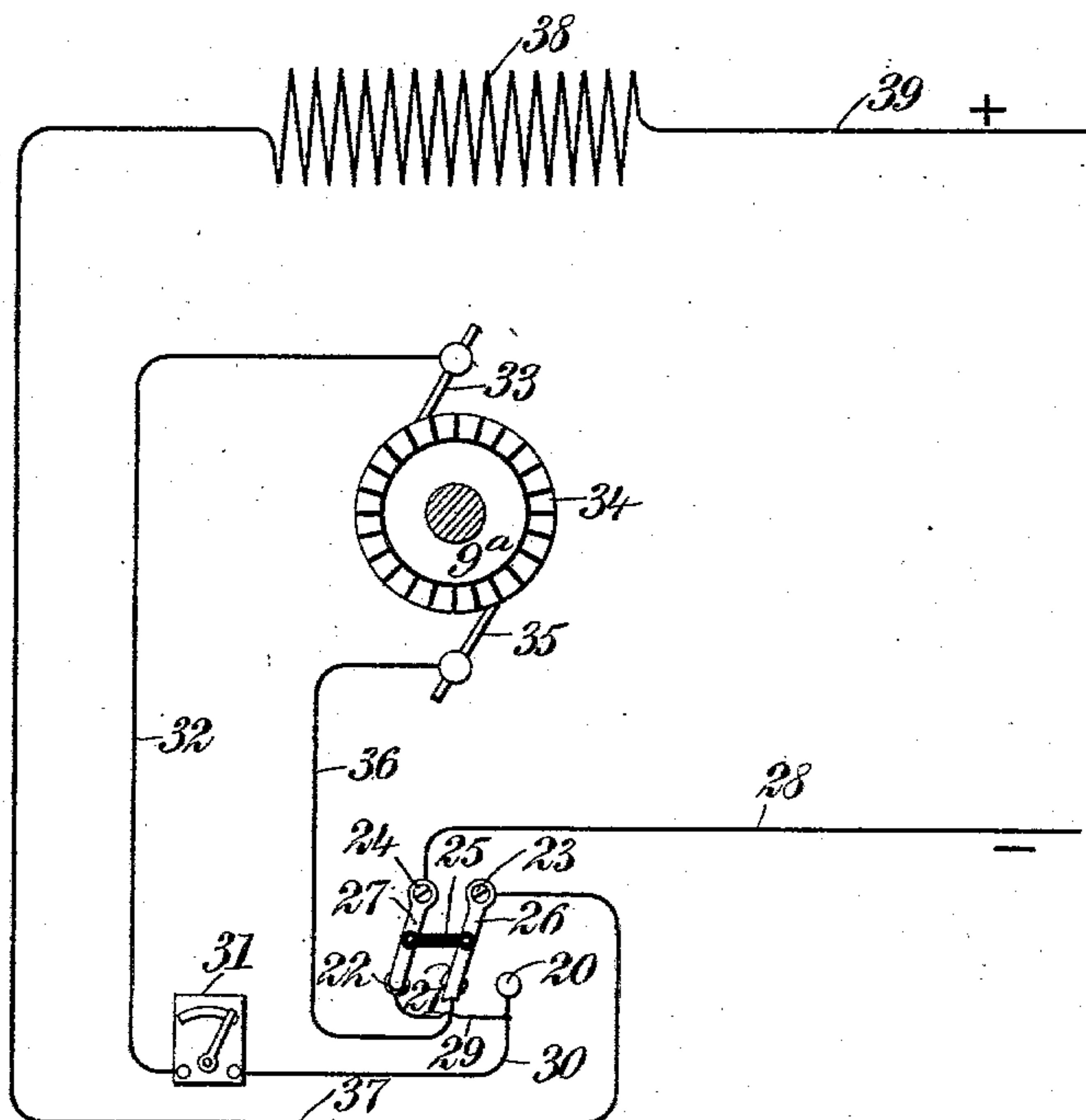


Fig. 2.



WITNESSES:

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ELECTRIC PUMP.

SPECIFICATION forming part of Letters Patent No. 743,836, dated November 10, 1903.

Application filed July 17, 1903. Serial No. 165,955. (No model.)

To all whom it may concern:

Be it known that I, OTTO G. DOBERT, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Electric Pump, of which the following is a full, clear, and exact description.

My invention relates to electric pumps, my more particular object being to produce a type of electric motor and connections therefor so as to render the same suitable for operating a reciprocating pump.

My invention may be used upon new machinery, but is also particularly adapted for service in supplanting steam machinery with electric machinery without disturbing a reciprocating pump already in use.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation, partly in section, showing my invention in use; and Fig. 2 is a diagram of the wiring.

Upon a base 1 is mounted a reciprocating pump 2, provided with a piston 3 and a stuffing-box 4, these parts being of the usual or any desired type. Connected with the piston 3 is a piston-rod 5, which is slidably mounted in bearings 6 and is provided with a head 7, this head being provided with an aperture 8 of the shape indicated in Fig. 1. A motor 9 is provided with an armature 9^a, and to this armature is rigidly connected a radial arm 10. Pivoted upon this arm is a pitman 11, which is connected with a depending arm 12 of a cross-head 13. Passing through this cross-head 13 is a sliding rod 14, mounted in bearings 15, 16, and 17. Upon one end of the rod 14 is a pivot 18, which engages a slot 18^a in the lower end of the switch-arm 26. A switchboard 19 is provided with contact-buttons 20 21 22 and with pivots 23 24. An insulating-link 25 connects the switch-arms 26 27, so that the latter are free to rock upon the pivots 23 24. A supply-wire 28 is connected with the pivot 24, and from the switch-button 22 a wire 29 is connected with a wire 30, which is in turn connected with the switch-button 20.

At 31 is a rheostat for the purpose of regu-

lating the current, said rheostat being connected by a wire 32 with a brush 33, which brush, together with a brush 35, engages sectors 34 of the armature 9^a. From the brush 35 a wire 36 leads to the contact-button 21. From the pivot 23 of the switch-arm 26 a wire 37 leads to the field 38, to which is connected a supply-wire 39. The supply-wires 28 39 therefore constitute the terminals of the electric motor.

My invention is used as follows: The motor and pump being connected, as indicated in Fig. 1, the current passes serially through the field 38, wire 37, switch-arm 26, contact-button 21, wire 36, brush 35, armature 9^a, brush 33, wire 32, rheostat 31, wire 30, wire 29, switch-arm 27, and wire 28. This causes the armature 9^a to rock in a contraclockwise direction from the view point of Fig. 1. This carries the piston 3 and the arm 10 to the right. Just before reaching the end of the stroke the cross-head 13 engages the bearing 16 and causes the rod 14 to travel abruptly to the right. By this means the pole-changer, comprising the arms 26 27, engages the respective buttons 20 21. Owing to the momentum of the rocking armature the movement of the pole-changer is rendered complete before the armature comes to a seat of rest. The pole-changer being reversed, the course of the current is as follows: wire 39, field 38, wire 37, arm 26, wire 30, rheostat 31, wire 32, brush 33, armature 9^a, brush 35, wire 36, switch-arm 27, and wire 28. This again reverses the direction of movement of the armature, causing it to rock back into the position indicated in Fig. 1. The motion of the armature therefore continually reverses the direction of the current passing through the armature and maintains the direction of the current passing through the field. This causes the armature to rock back and forth incessantly, thereby operating the reciprocating pump.

It will be noted that the piston 3 is always in step with the rocking motion of the armature. It will also be noted that the pole-changer maintains a fixed position in full engagement with two of the contacts immediately before the piston reaches the end of its stroke, whereupon the pole-changer is reversed suddenly and is left in complete en-

gagement with the appropriate contact-button. By this arrangement sparking is reduced to a minimum.

As above stated, my pump is peculiarly adapted for use where it may be desirable to remove a stationary engine and to employ instead an electric motor, so as not to disturb the reciprocating pump where such has been used in connection with a reciprocating engine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric pump, the combination of a switchboard provided with contacts, a pole-changer mounted thereon, an electric motor provided with a rocking armature, the movements of which are controllable by movements of the pole-changer, a reciprocating pump connected with said rocking armature and free to move in step therewith when actuated, and mechanism controllable automatically by movements of said armature for reversing said pole-changer.

2. In an electric pump, the combination of a switchboard provided with contact-buttons, a pole-changer mounted upon said switchboard and free to engage said contact-buttons, a sliding rod connected with said pole-changer and provided with limiting-stops, a cross-head engaging said sliding rod and free

to engage said limiting-stops one at a time, for the purpose of sliding said rod, a rocking armature provided with a radially-movable arm, means for connecting said radially-movable arm with said cross-head, and a motor-circuit connected with contact-buttons, the arrangement being such that in any part of said motor-circuit the current is reversed by movements of said pole-changer.

3. In an electric pump, the combination of a switchboard provided with contacts, a pole-changer mounted upon said switchboard, an electric motor provided with a rocking armature, the movements of which are controlled by said pole-changer, a rocking shaft for supporting said armature, a radial arm connected with said shaft, a reciprocating pump connected with said radial arm, a pitman connected with said radial arm and actuated by the movements thereof, a cross-head provided with a portion engaging said pitman, a sliding rod connected with said cross-head and movable thereby, and mechanism connecting said sliding rod with said pole-changer.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

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Witnesses:

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