

1,004,010.

2 SHEETS--SHEET 1.



Witnesses
J. R. Smith.
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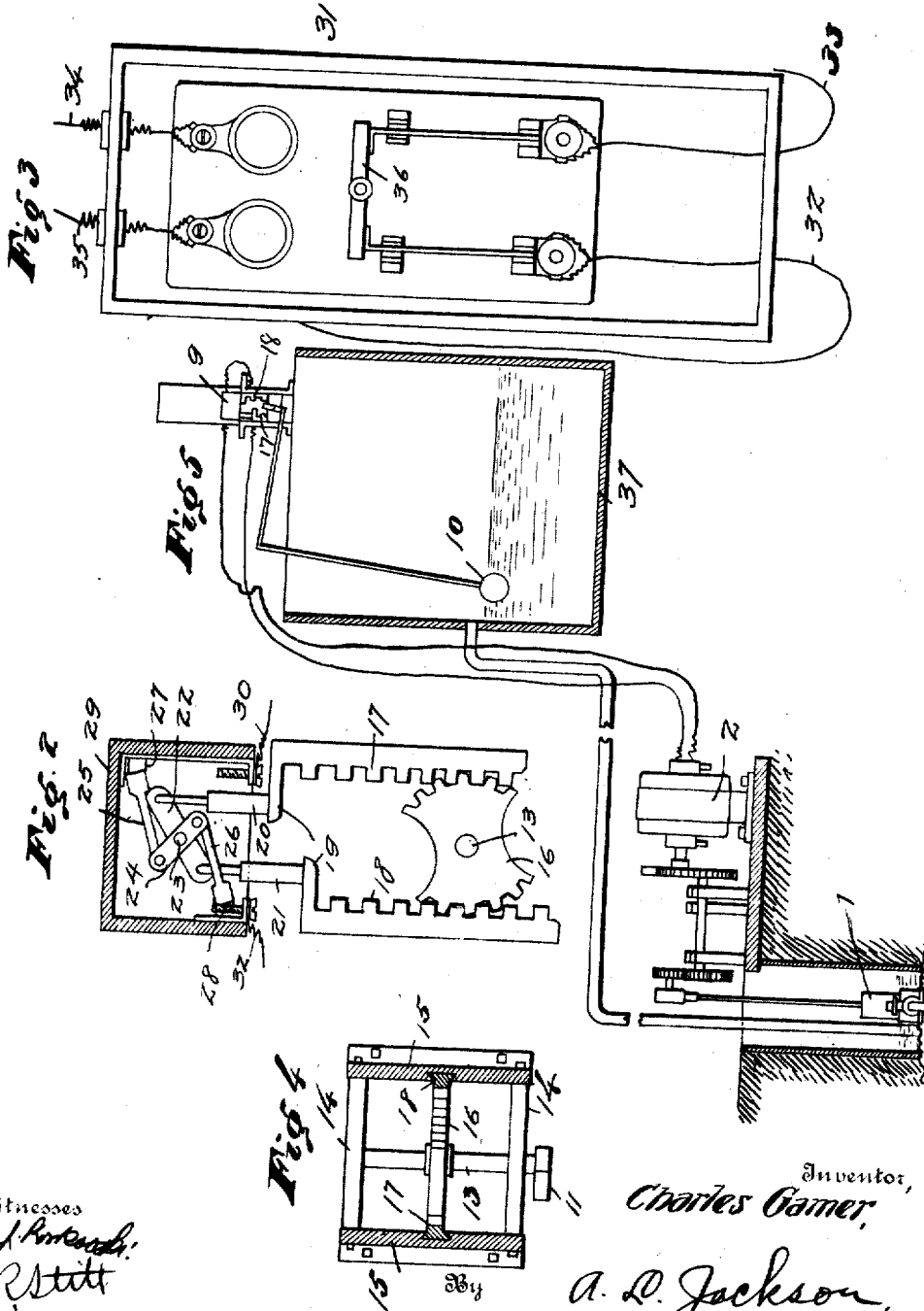
Inventor
Charles Gomer

By A. L. Jackson Attorney

C. GAMER.
PUMP CONTROLLING SWITCH.
APPLICATION FILED MAY 31, 1910.

1,004,010.

Patented Sept. 26, 1911.
2 SHEETS—SHEET 2.



Witnesses
B. J. Arnold
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UNITED STATES PATENT OFFICE.

CHARLES GAMER, OF FORT WORTH, TEXAS.

PUMP-CONTROLLING SWITCH.

1,004,010.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed May 31, 1910. Serial No. 564,316.

To all whom it may concern:

Be it known that I, CHARLES GAMER, a citizen of the United States, residing at Fort Worth, Tarrant county, Texas, have invented a new and Improved Pump-Controlling Switch, of which the following is a specification.

My invention relates to switches and more particularly to electric switches for automatically controlling a pump, and the object is to provide a switch which will be automatically closed and opened by the rise and fall of water. Cellars or basements of buildings frequently need draining. It becomes necessary to pump the water out of such places, and as water might accumulate in sufficient quantity to do considerable damage it is necessary to provide means to prevent the accumulation of water. It has been found to be advantageous to provide a pump and a motor to drive the pump.

The object of this invention is to provide a switch which will be closed by the rising of the water to start the motor to running and thus pump the water out of the basement or other place and which switch will be automatically opened when the water is pumped out so that the motor will stop running.

Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application and specification.

Figure 1 is an elevation of a pump and a motor for driving the pump and a switch for starting and stopping the motor. Fig. 2 is a detail view of the automatically actuated switch. Fig. 3 is an ordinary switch which is used in connection with the switch shown in Fig. 2. Fig. 4 is a horizontal section on the line $x-x$ of Fig. 1. Fig. 5 shows a variation in the application of the switch.

Similar characters of reference are used to indicate the same parts throughout the several views.

A motor 2 drives a pinion 8 which drives a cog wheel 7. Cog wheel 7 drives a shaft 6 which drives the pinion 5. Pinion 5 drives the cog wheel 4 and cog wheel 4 actuates the pump rod 3 of the pump 1. The pump 1 is located in an off-set or cavity in the basement so that the pump will be

automatically primed by the water. A switch 9 is used for starting and stopping the motor 2. A float 10 is provided and connected to a crank 11 by a rod 12. The crank 11 actuates a shaft 13 which is journaled in a bearing 14. The bearing 14 is supported in uprights 15. A cog wheel or double sector 16 is rigid with the shaft 13. This double sector drives two racks 17 and 18 which are mounted in and move vertically in grooves in the uprights 15. The racks 17 and 18 have arms 19 at their upper ends. The arms 19 lift alternatively the plungers 20 and 21 of switch 9. The plungers 20 and 21 are pivotally connected with a rocking bar 22 which is rigid with shaft 23. The switch 9 is a knife switch. A rocking bar 24 is rigid with shaft 23. Arms 25 and 26 are rigid with the bar 24. Contacts 27 and 28 are attached to the interior of casing 29. The contact 27 is electrically connected to the motor 2 by a wire 30. A cooperating switch 31 is connected in circuit with the switch 9. The switch 31 is also a knife switch. Switch 31 and switch 9 are electrically connected by a wire 32. The other arm of the switch 31 is electrically connected to the motor 2 by a wire 33. The switch 31 is connected to a supply source of electricity by wires 34 and 35. The switch 31 is opened and closed by an ordinary key 36. The advantage of the switch 31 is that the switch can be located at any distance from the switch 9, as in an office, and the circuit can be opened and remain open when there is no necessity of operating the pump and thus save the expense of an electrician in connecting and disconnecting the circuit.

The operation is as follows: As the water rises in the cavity or offset 36, the float 10 will be elevated. By the time the water rises high enough to prime the pump, the rod 12 will raise the rack 17 by means of crank 11 and close the circuit and thus start the motor. As the water is pumped out, the float 10 will descend and the rack 18 will be raised and will break the circuit and thus stop the motor.

Fig. 5 illustrates a different application of the switch 9. The pump 1 may be used to pump water from a well or cistern to a tank 37, using the same motor 2. The switch in this application would be made to open the circuit when the water should rise to stop the pumping of water. As the water in the tank 37 would be used the float would grad-

nally descend until the water would reach a point low enough for the float to close the circuit. This would start the motor and thus pump more water into the tank.

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

1. In a pumping apparatus; an electric switch and means for opening and closing said switch consisting of vertically movable racks, segmental gearing for operating said racks, and a float operatively connected with said gearing for opening and closing said switch.

2. In a pumping apparatus; an electric switch provided with depending plungers, alternatively movable racks for operating said plungers to open and close said switch, segmental gearing for operating said racks, and a float operatively connected with said gearing for opening and closing said switch.

3. In a pumping apparatus; an electric switch provided with depending plungers, alternatively movable racks adapted to engage said plungers to open and close said switch, guides for said racks, segmental gearing for actuating said racks, and a float operatively connected with said gearing for opening and closing said switch.

4. In a pumping apparatus; an electric switch having two arms and a plunger pivotally connected to each arm, alternatively movable racks for actuating said

plungers, a frame having grooves therein for guiding said racks, segmental gearing for operating said racks provided with a shaft journaled in said frame, and a float operatively connected to said gearing.

5. In a pumping apparatus; an electric switch having two arms and a plunger pivotally connected to each arm, alternatively movable racks having arms for engaging said plungers, a frame having grooves therein for guiding said racks, segmental gearing for operating said racks having a shaft journaled in said frame, and a float operatively connected to said shaft.

6. An electric switch having a casing, a shaft journaled in said casing, rocking bars rigid with said shaft, contacts mounted in said casing, contact making arms rigid with one of said bars and adapted to close circuits with said contacts, plungers pivotally connected with one of said bars, vertically reciprocating racks for actuating said plungers, segmental gearing for reciprocating said racks alternatively, and means for operating said gearing.

In testimony whereof, I set my hand in the presence of two witnesses, this 25th day of May, 1910.

CHARLES GAMER.

Witnesses:

A. L. JACKSON,
E. W. GREENLEE.