

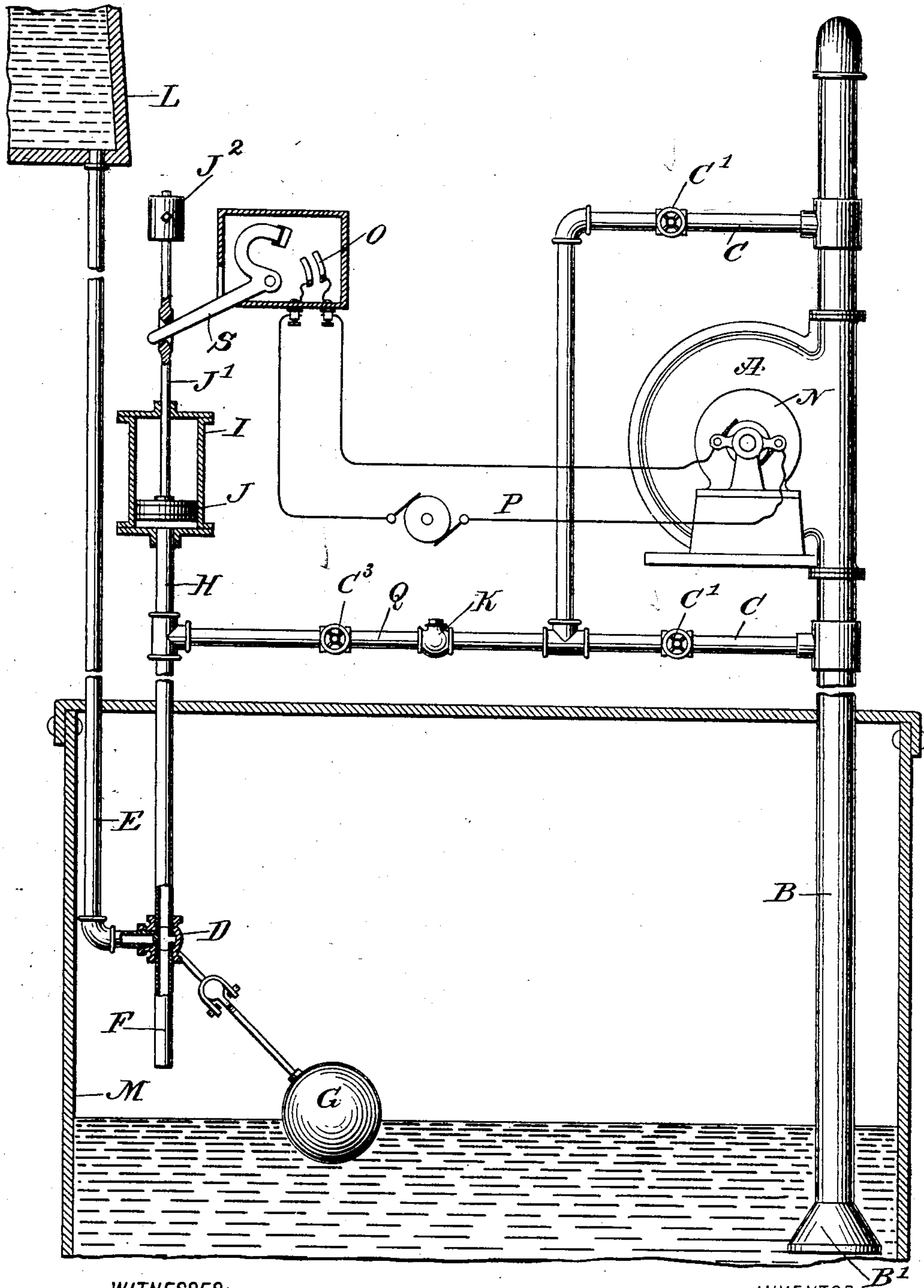
No. 763,741.

PATENTED JUNE 28, 1904.

G. V. ELLIS.
PUMP CONTROLLING APPARATUS.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.



WITNESSES:

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GEORGE V. ELLIS, OF NEW YORK, N. Y., ASSIGNOR TO THE ELLIS COMPANY, OF NEW YORK, N. Y.

PUMP-CONTROLLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 763,741, dated June 28, 1904.

Application filed January 18, 1904. Serial No. 189,500. (No model.)

To all whom it may concern:

Be it known that I, GEORGE V. ELLIS, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Pump-Controlling Apparatus, of which the following is a full, clear, and exact description.

This invention relates to a novel apparatus for automatically priming and starting pumps, particularly centrifugal pumps used for lifting sewage, bilge-water, and the like. By means of my invention as the level of the water rises to a height requiring its discharge a liquid-pressure is opened to prime or fill the pump and simultaneously to throw the pump-controller, whereby to start the operation of the pump.

The present invention represents a further adaptation of the automatic starting apparatus forming the subject of my prior patent, No. 681,048, dated August 20, 1901.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawing, forming a part of this specification, which shows diagrammatically my invention applied to an electrically-driven centrifugal pump.

A indicates the pump, and N the electric motor for driving the pump. According to the embodiment of the invention here illustrated this pump is of the centrifugal type; but the form of the pump and the motor for driving it have no special reference to my invention. The pump is in connection with a pipe B, which passes upward from the tank or other place from which the liquid is to be taken. The pipe B has a foot-valve B' at its bottom, as is usual in this class of apparatus. To the pipe B tubes C pass to prime the pump, said pipes having each a globe or other form of hand-operated valve C'. The tubes C branch from a tube Q, which in turn leads from a pipe H. The pipe Q has a globe-valve C³ and a check-valve K, which latter prevents flow in the pipe Q toward the pipe H. The

pipe H communicates with a three-way cock D, similar, for example, to the three-way cock described in my copending application above referred to.

E indicates a pipe leading to the cock D from the source L of water or other fluid supply.

F indicates the exhaust of the cock D, and G indicates any suitable means for automatically operating the cock D—for instance, a float. The pipe H extends to the cylinder I of a fluid-pressure-operated device. This device comprises, according to the form of the invention here shown, a piston J, the rod J' whereof carries a weight J², and is suitably joined to the switch or other controlling device S of the circuit P of the motor N.

In the operation of the apparatus when the water rises sufficiently to open the cock D it throws the tubes E and H into communication with each other, cutting out the exhaust F. Assuming that the valves C³ and C' are open, the water will pass into the pipe B, priming the pump, as explained. The water will simultaneously pass into the cylinder I, lifting the piston J and throwing the switch S, thereby starting the operation of the motor and the pump. As the water falls and the float G drops with it the cock D will be thrown to close communication between the tubes E and H and open communication between the exhaust F and the tube H and cylinder I. The piston J will then fall, and the switch or controller S will be thrown open, thus stopping the movement of the motor and pump. During this period the check-valves C' and K prevent the return of the fluid from the pipes C and the pump, thus avoiding any back pressure on the piston J. It will thus appear that the pump is automatically started and stopped according to the height of the water in the tank or other receptacle. It is also important to note that electricity need not necessarily be the motive power and that fluids under pressure other than water may be employed to operate the controller.

Various changes in the form, proportions, and minor details of my invention may be resorted to without departing from the spirit

and scope thereof. Hence I consider myself entitled to all such variations as may lie within the scope of my claims.

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

1. The combination with a motor-driven pump and a motor-controller, of a fluid-supply communicating with the pump, a fluid-pressure-operated means connected to the controller and communicating with said fluid-supply, and means controlling the fluid-supply communication with the pump and fluid-pressure-operated means.

2. The combination with a motor-driven pump and a motor-controller, of a fluid-supply communicating with the pump, a fluid-pressure-operated means connected to the controller and communicating with said fluid-supply, means controlling the fluid-supply communication with the pump and fluid-pressure-operated means, and means for automatically operating the said means controlling the fluid-supply communication.

3. The combination with a motor-driven pump and a motor-controller, of a fluid-supply communicating with the pump, a fluid-pressure-operated means connected to the controller and communicating with said fluid-supply, and means controlling the fluid-supply communication with the pump and fluid-pressure-operated means, the said fluid-pressure-operated means comprising a cylinder and a piston, the former receiving the fluid and the latter having connection with the motor-controller.

4. The combination with a motor-driven pump and a motor-controller, of a fluid-supply communicating with the pump, a fluid-pressure-operated means connected to the controller and communicating with said fluid-supply, and a cock controlling the fluid-supply and having three ports for the purpose specified.

5. The combination with a motor-driven pump and the motor-controller, of a source of fluid-supply leading to the pump, a check-valve preventing backflow from the pump, a

fluid-pressure-actuated device connected to the source of fluid-supply, and a valve controlling the fluid-pressure supply. 50

6. The combination with a motor-driven pump and the motor-controller, of a source of fluid-supply leading to the pump, a check-valve preventing the backflow from the pump, a fluid-pressure-actuated device connected to the source of fluid-supply, and a valve controlling the fluid-pressure supply, said valve having three ports and one of said ports exhausting the fluid-pressure-actuated device into the atmosphere. 60

7. The combination with a motor-driven pump and the motor-controller, of a source of fluid-supply leading to the pump, a check-valve preventing backflow from the pump, a fluid-pressure-actuated device connected to the source of fluid-supply, a valve controlling the fluid-pressure supply, and means for automatically operating the valve. 65

8. The combination with a motor-driven pump and the motor-controller, of a source of fluid-supply leading to the pump, a check-valve preventing backflow from the pump, a fluid-pressure-actuated device connected to the source of fluid-supply, a valve controlling the fluid-pressure supply, said valve having three ports and one of said ports exhausting the fluid-pressure-actuated device into the atmosphere, and means for automatically operating the valve. 75

9. The combination with a motor-driven pump and the motor-controller, of a source of fluid-supply leading to the pump, means for preventing the return of fluid from the pump, a fluid-pressure-actuated device connected to the controller and to the fluid-supply, and means for controlling the fluid-supply and exhausting the fluid-pressure-actuated device. 85

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

GEORGE V. ELLIS.

Witnesses:

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JNO. M. RITTER.