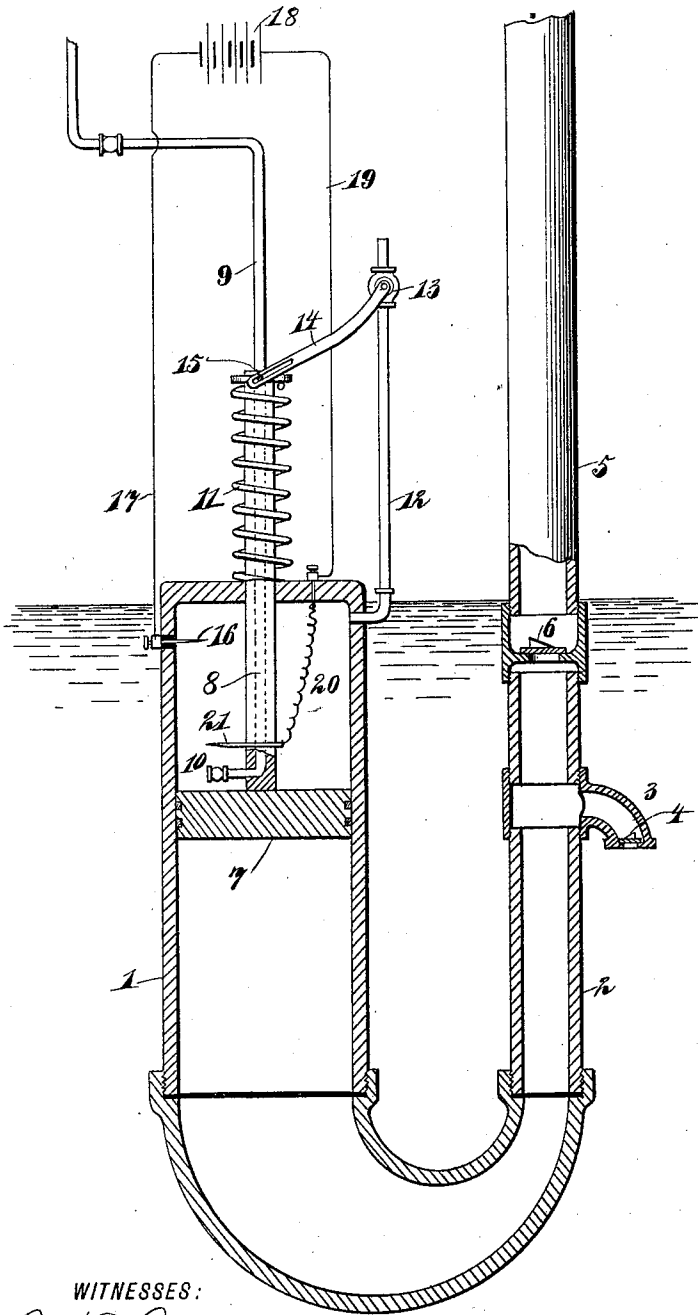


(No Model.)

R. W. ELLIOTT.
PUMP.

No. 583,795.

Patented June 1, 1897.



WITNESSES:

L. N. Legendre
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UNITED STATES PATENT OFFICE.

RALPH W. ELLIOTT, OF BRENTWOOD, CALIFORNIA, ASSIGNOR OF ONE-HALF TO FRED R. TURTON, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 583,795, dated June 1, 1897.

Application filed May 22, 1896. Serial No. 592,530. (No model.)

To all whom it may concern.

Be it known that I, RALPH W. ELLIOTT, of Brentwood, in the county of Contra Costa and State of California, have invented new and useful Improvements in Pumps, of which the following is a full, clear, and exact description.

This invention relates particularly to pumps for forcing water from wells to any desired distance from the well; and the object is to provide a mechanism substantially automatic in its operation by means of which water may be lifted or forced from deep wells or to a high level.

I will describe a pump embodying my invention and then point out the novel features in the appended claims.

The drawing shows a vertical section of a pump embodying my invention.

The pump comprises a cylinder 1, closed at its top and having communication with an inlet-pipe 2, having an inlet 3, controlled by an upwardly-opening valve 4. This pipe 2 communicates with a discharge-pipe 5, leading to the surface or to any desired point, and the communication between the pipes 2 and 5 is controlled by an upwardly-opening valve 6. The cylinder 1 and pipe 2 are designed to be located below the surface of the water, as indicated.

Operating in the cylinder 1 is a piston 7, having a tubular stem 8 extended upward through the top wall of the cylinder, and this tubular stem connects with a valve-controlled tube 9, designed to convey gas or gasoline from a tank placed in any desired location. The tubular stem has an outlet 10, leading into the cylinder 1 above the piston, and a spring 11 surrounds the stem and abuts at one end against the upper end of the cylinder and at the other end against a collar on the upper end of the stem.

An exhaust-pipe 12 communicates with the upper portion of the cylinder 1, and it is provided with a valve 13, the stem of which is engaged by a lever 14, provided with a slot-opening at its free end, the walls of said slot engaging with a pin 15, extended from the piston-stem or from the collar thereon.

The portion of the cylinder 1 above the

piston may be termed a "combustion-chamber," and into this chamber a contact-point 16 extends. This contact-point extends through the wall of the cylinder, but is insulated therefrom, and the contact-point has a connection 17 with one pole of a source of electricity, here shown as a battery 18. From the other pole of the source of electricity a wire 19 leads to a binding-post on the cylinder 1, and from this binding-post a wire 20 leads to a contact-point 21, carried by the stem 8 and adapted to engage with the first-named contact-point. It is to be understood that the wire 20 may be omitted and the current carried to the point 21 through the cylinder and piston-stem.

In operation the spring 11 will draw the piston 7 upward, and this upward movement of the piston will draw water through the inlet 3, and at the same time the explosive material will be admitted to the explosion-chamber. When the contact-points 16 21 make and break connection, an electric spark will be formed, and this spark will ignite the explosive, the force of which will drive the piston downward, causing it to force the water through the opening controlled by the valve 6 into the pipe 5. When the piston reaches nearly to its lower position, the lever 14 will be operated to open the valve 13 and thus allow the exhaust of the products of combustion from the chamber above the piston 7.

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

1. A pump, comprising a cylinder having a closed top, a water-inlet and an outlet for said cylinder, a piston operating in the cylinder and provided with a tubular stem having an outlet in the cylinder between the piston and the closed top, a connection between the said tubular stem and a source of supply of combustion material and means for igniting the combustion material in the cylinder, substantially as specified.

2. A pump, comprising a cylinder having a closed top, a valve-controlled inlet for said cylinder a valve-controlled outlet, a piston operating in the cylinder, and provided with a valve-stem extending through the top of

the cylinder, a spring for drawing the piston upward in the cylinder, means for conveying a combustion material to the cylinder above the piston, electrical means for igniting the same, and an exhaust leading from the upper portion of the cylinder, substantially as specified.

3. A pump, comprising a cylinder, a valve-controlled inlet therefor, a valve-controlled outlet therefor, a piston operating in the cylinder, an upwardly-extending tubular stem for the piston having connection with a valve-controlled pipe for combustion material, the said stem also having an outlet in the cylinder, a spring for moving the piston upward, a contact-point carried by the stem, a fixed contact-point extending into the cylinder, and a source of electricity having connection

with the contact-points, substantially as specified.

4. A pump, comprising a cylinder having a valve-controlled inlet and a valve-controlled outlet, a piston operating in the cylinder and provided with an upwardly-extending tubular stem having an outlet in the said cylinder, a pipe for conveying combustion material and connected with the tubular stem of the piston, electrical means for igniting the combustion material in the cylinder, and an exhaust leading from the cylinder, substantially as specified.

RALPH W. ELLIOTT.

Witnesses:

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