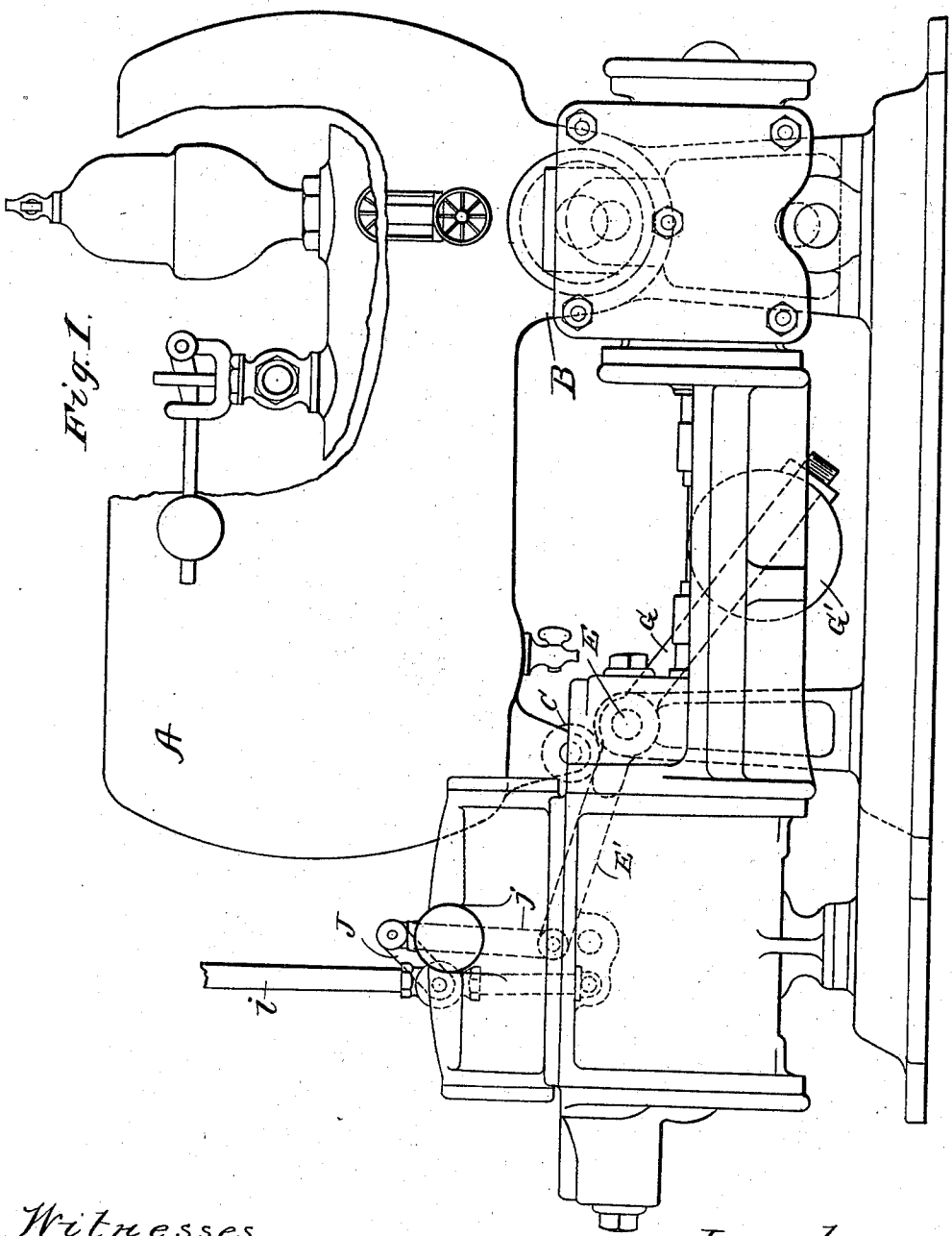
No. 638,960. Patented Dec. 12, 1899.

E. M. CORYELL.

AUTOMATIC PUMP AND RECEIVER.

(Application filed Sept. 29, 1899.)

(No Model.) 2 Sheets—Sheet 1.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 2.

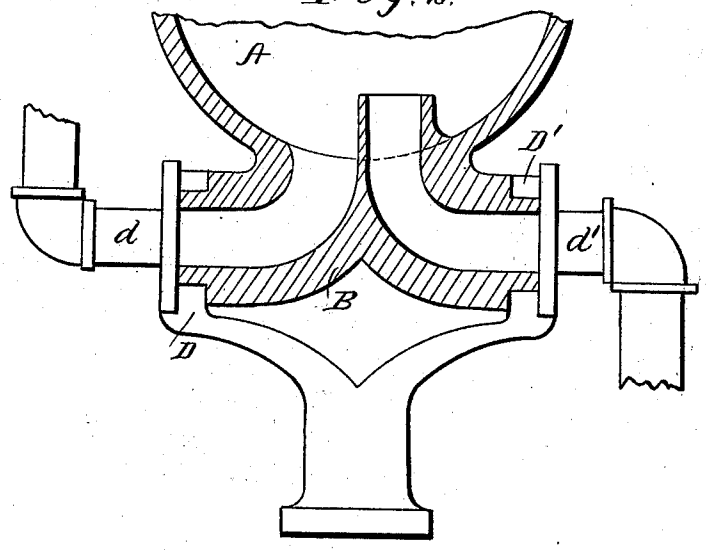
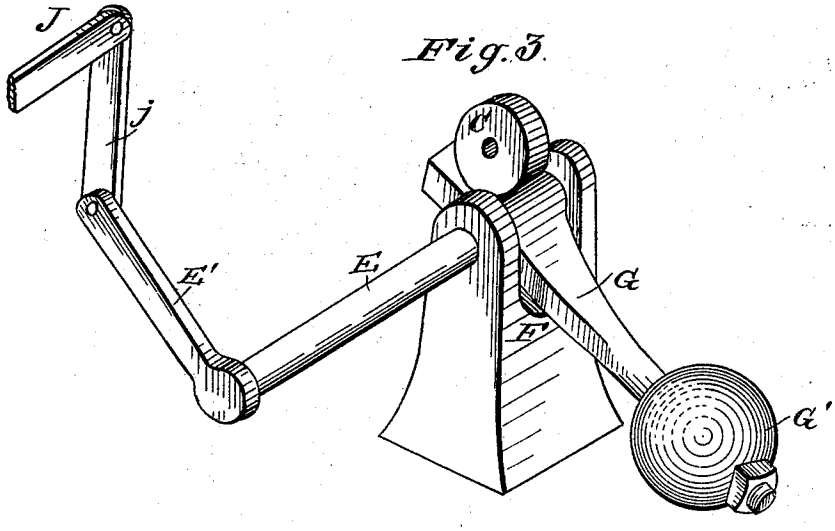


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWIN M. CORYELL, OF NEW YORK, N. Y., ASSIGNOR TO JULIA E. CAMERON, OF SAME PLACE.

AUTOMATIC PUMP AND RECEIVER.

SPECIFICATION forming part of Letters Patent No. 638,960, dated December 12, 1899.

Application filed September 29, 1899. Serial No. 732,082. (No model.)

To all whom it may concern:

Be it known that I, EDWIN M. CORYELL, of the city and State of New York, have invented a new and useful Automatic Pump and Receiver, which is fully set forth in the following specification.

The presence of condensed steam, water, &c., in coils, lengths of pipe, radiators, and other receptacles in which steam is liable to become condensed is exceedingly objectionable and sometimes dangerous. Receptacles are employed to receive the condensed steam and have been supplied with devices, such as floats, so that when the proper amount of water is collected a lever or some connecting means serves to admit steam into the steam-cylinder and thus pump out the accumulation. These receivers are faulty because the lever or other connecting device has to pass through the walls of the receiver, which necessitates a large opening covered by a plate or bonnet, besides entailing leakage and wear. Moreover, there is always trouble in connection with a float—as, for instance, its liability to become ultimately filled with water and its lack of power, which causes it to fail to work when the frictional resistance has been increased to such an extent that it exceeds the lifting power of the float.

My receiver is a closed vessel, preferably cast in one piece and with but two holes (inlet and outlet) unless a safety-valve be desired. It is supported eccentrically, so that it would topple unless some additional support were provided, and this additional support is the short arm of a lever on whose long arm is a counterweight to balance the receiver. The additional weight of the water collected in the receiver destroys the balance and the resulting movement of the receiver (transmitted by suitable means) admits the motive power to the pump.

In the drawings, Figure 1 is a side elevation. Fig. 2 shows the manner of pivoting or supporting the receiver, being a detail in section. Fig. 3 is a detail showing the lever, &c.

A is the receiver. At one side of its center of gravity is the depending piece B, formed at its outer corners into trunnions, and at the other end of the receiver are depending lugs carrying the roller C. The trunnions are hollow and communicate with the interior of the receiver, as indicated in Fig. 2. Bearings D D′ support the trunnions and carry pipes *d d′*, communicating with the interior of the receiver, pipe *d* admitting the condensed steam through one trunnion and pipe *d′* receiving it from the other trunnion and emptying it into the pump. Stuffing-boxes or other means prevent leakage at either of these pipe connections, while allowing the pipes to remain stationary during the exceedingly-slight turning of the trunnions. A transverse shaft E is journaled in a suitable standard F beneath the free (heavy) end of the receiver and has fast thereon the lever G. The long arm of this lever carries the adjustable counterweight G′, while on the short arm rests the roller C, already referred to. The counterweight and the relative lengths of the arms of the lever are so arranged that when the receiver is empty the counterweight is depressed, but when sufficient condensed steam and water have gathered in the receiver the additional weight depresses its free end, lifting counterweight G′. The water-cylinder H and steam-cylinder I of a steam-pump are arranged by the side of the receiver, as shown. Steam is admitted to the steam-cylinder through pipe *i*, which is provided with a valve or stop-cock having a handle J. A crank E′ is fast on the adjacent end of transverse shaft E and is connected to valve-handle J by link *j*.

The operation is as follows: As the steam and water gather in the receiver the additional weight depresses its free end, carrying down the short end of the lever G and thereby turning the shaft E. This through crank E′, link *j*, and handle J opens the valve and admits the steam to the steam-cylinder, whereupon the accumulated water and condensed steam is pumped out and carried back to the boiler.

The shape of the receiver is immaterial. By shifting the position of the counterweight G′ on the lever varying amounts of water will suffice to depress the receiver and turn handle J. I am enabled to employ a much

smaller receiver than is now in use, as a very small quantity of water will cause it to drop, and thus admit steam to the pump.

This device is applicable to any service where it is desired that a predetermined amount is to be removed by any controlled motive power—steam or electricity, &c.—as the spirit of my invention consists in doing away with large openings, bonnets, &c., hitherto regarded as unavoidable, and in having the movement of the receiver itself set in motion the desired operation.

Having thus described my invention, I claim—

1. In the herein-described automatic feed-pump and receiver, the combination of an eccentrically-pivoted receiver, a steam-pump communicating therewith, and a lever supporting the heavier end of said receiver and operating to admit steam to said pump, substantially as described.

2. An eccentrically-pivoted receiver having an inlet through one trunnion and an outlet through the other, and a steam-pump whose water-chamber is connected with said outlet, in combination with a weighted lever supporting the heavier end of said chamber, and means actuated by said lever to admit steam to said pump, substantially as described.

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

EDWIN M. CORYELL.

Witnesses:
C. A. L. MASSIE,
JOHN DEVINE.