

(No Model.)

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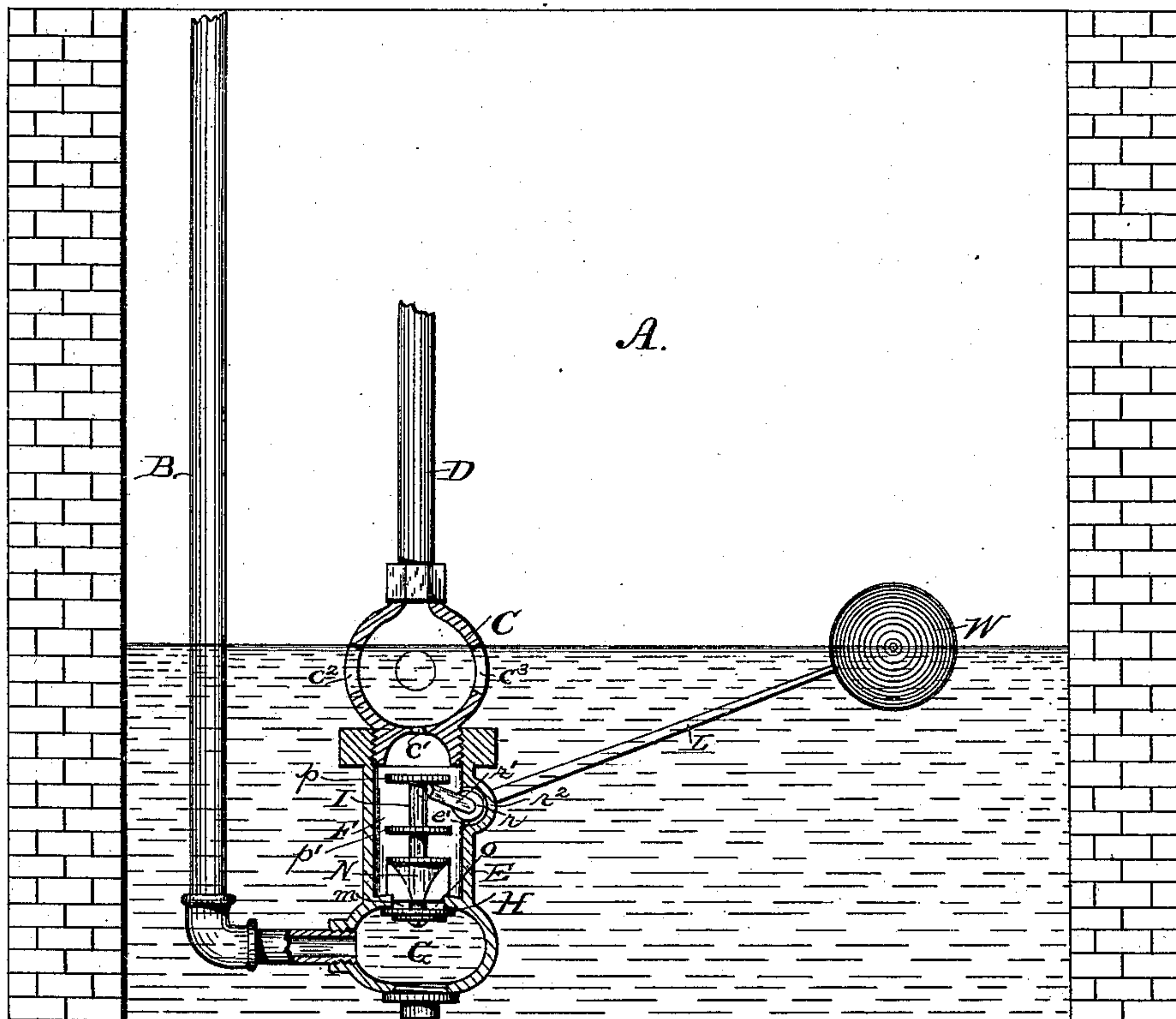
C. M. & C. E. KEMP.

FLUID EJECTOR.

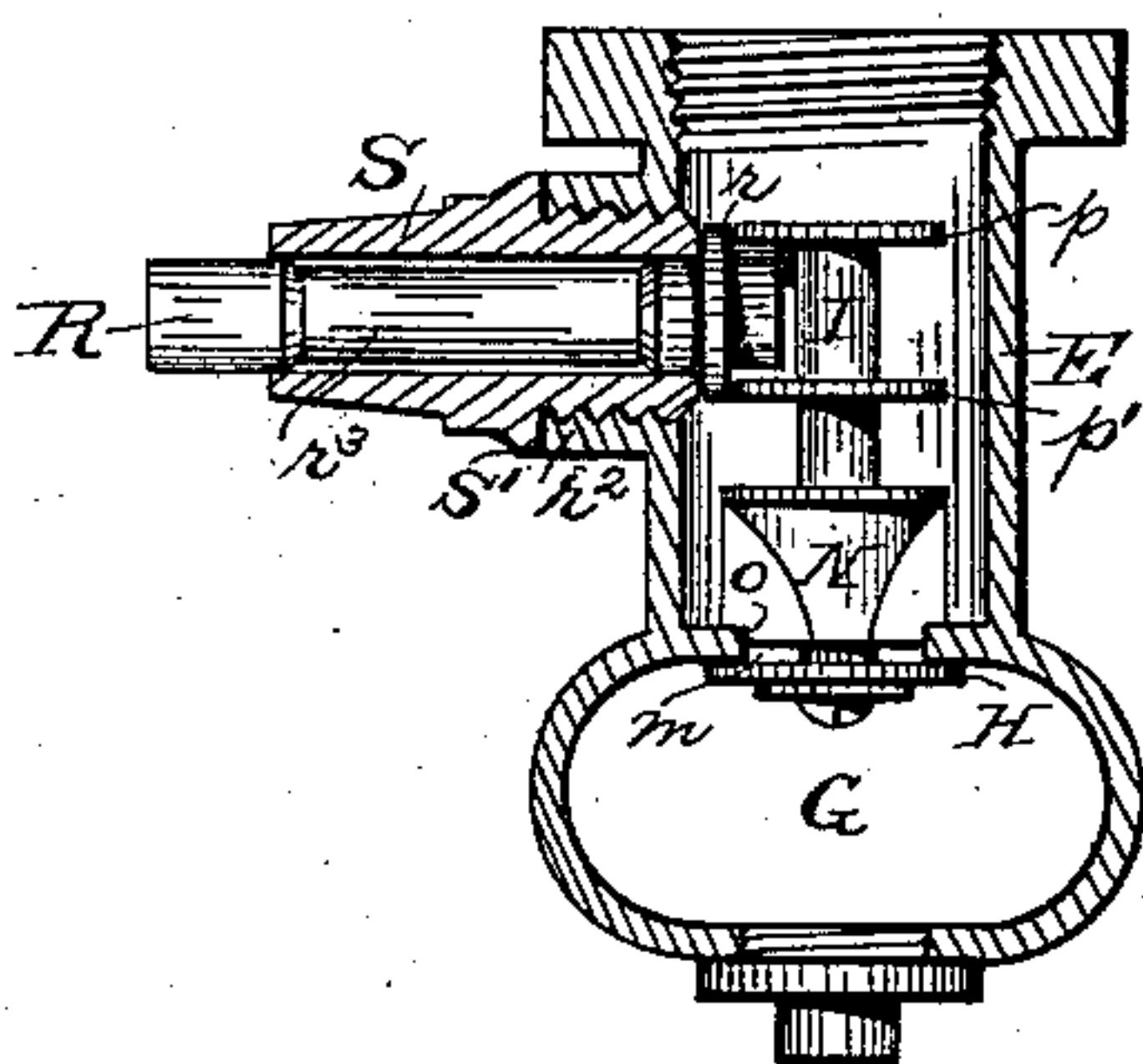
No. 372,024.

Patented Oct. 25, 1887.

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Fi 3.



Witnesses;

Josh Blackwood.
Albany, N.Y.

Inventors
Charles M. Kemp
& Charles E. Kemp
By their Attorney
Wm. R. Poolittle

(No Model.)

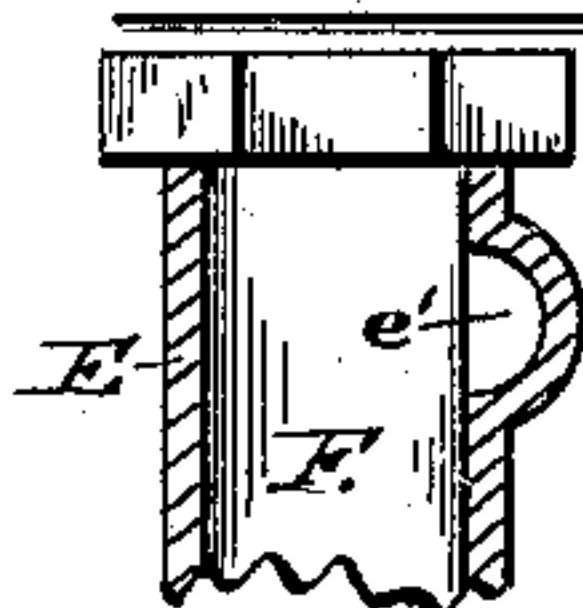
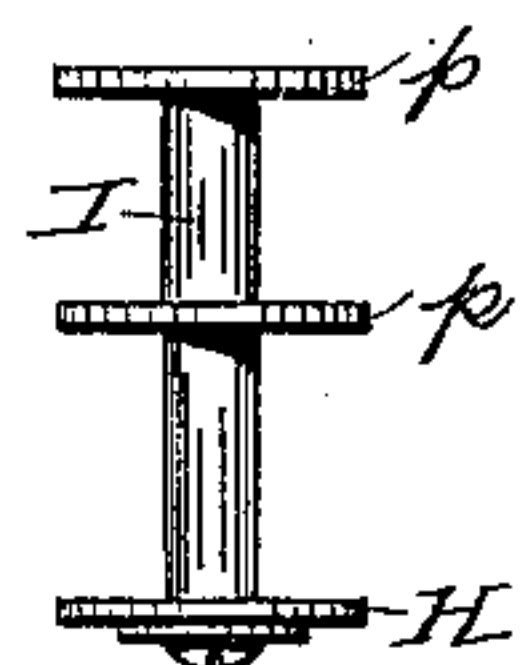
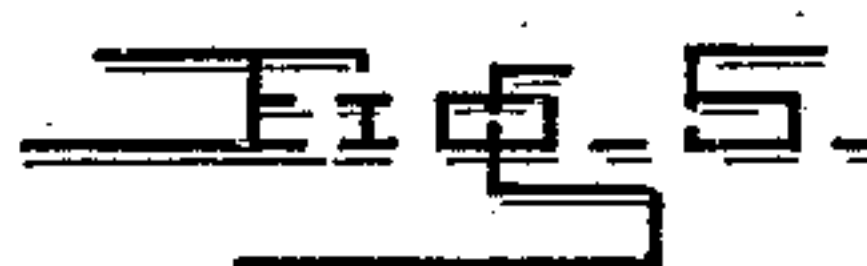
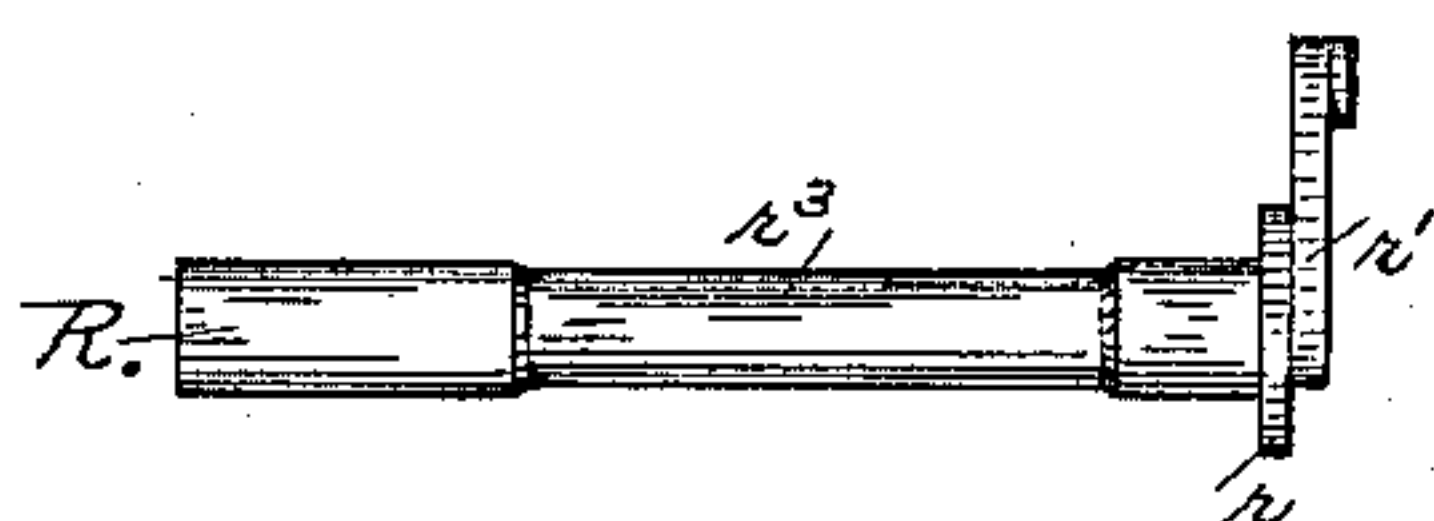
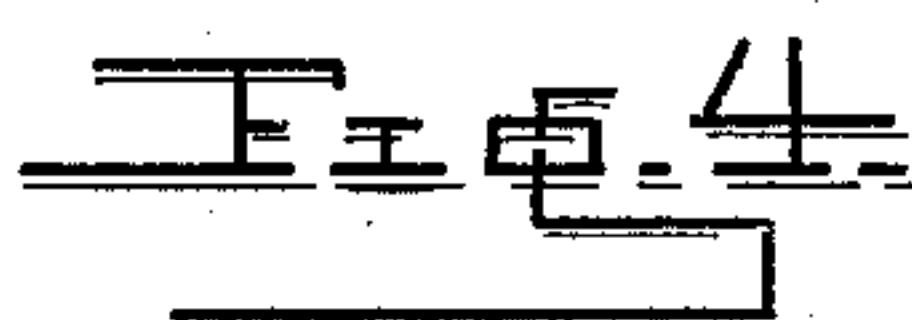
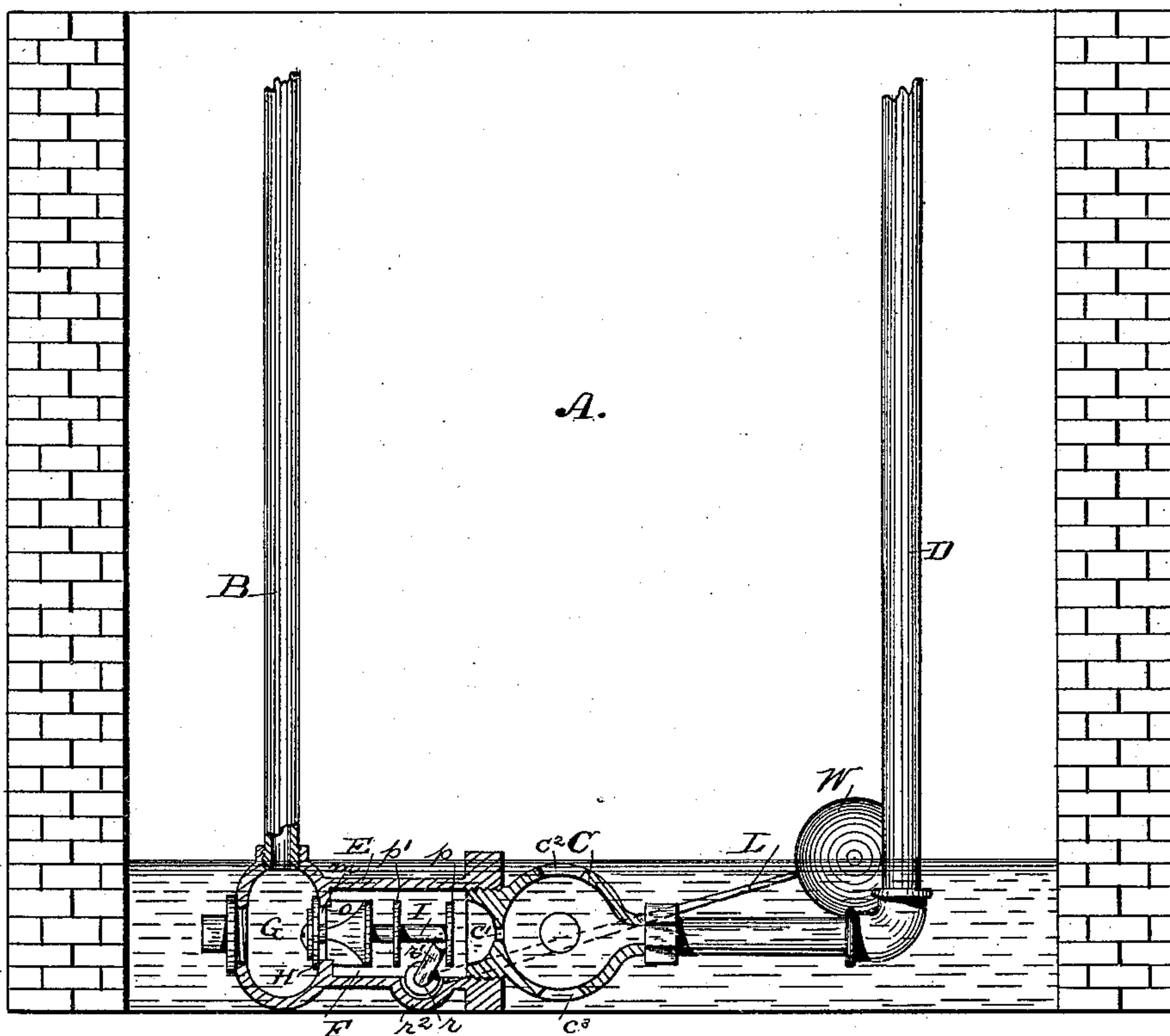
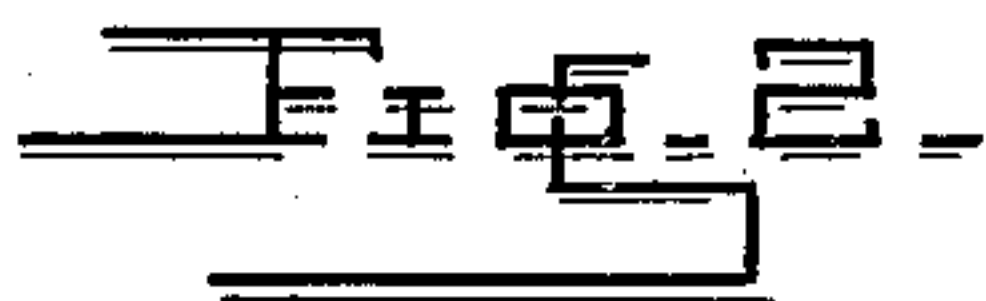
2 Sheets—Sheet 2.

C. M. & C. E. KEMP.

FLUID EJECTOR.

No. 372,024.

Patented Oct. 25, 1887.



Witnesses;

Just Blackwood
R. H. W. Davis

Inventors

By their Attorney *Clarence M. Kemp*
Charles E. Kemp
Wm. Woodruff

UNITED STATES PATENT OFFICE.

CLARENCE M. KEMP AND CHARLES E. KEMP, OF BALTIMORE, MARYLAND.

FLUID-EJECTOR.

SPECIFICATION forming part of Letters Patent No. 372,024, dated October 25, 1887.

Application filed March 5, 1887. Serial No. 220,842. (No model.)

To all whom it may concern:

Be it known that we, CLARENCE M. KEMP and CHARLES E. KEMP, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Fluid-Ejectors; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to that class of fluid-ejectors illustrated and described in Letters Patent No. 356,647, granted to us January 25, 1887, in which a valve is located in the supply-pipe leading from a main, and the valve-operating mechanism is given a quick movement to produce a sudden pressure through the ejector, and thus give an effective momentum to the static water.

Our improvements consist in changes in the form of the valve and connecting parts, whereby it can be located and operated in the pressure-pipe without being in immediate connection with the ejector and set in any direction, vertically, horizontally, or at an angle, without changing its parts or operation. It is illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partly in section, in position in a well or tank; Fig. 2, a view when used in a horizontal position; Fig. 3, a detail partly in section, and Figs. 4, 5, and 6 details.

In the drawings, A is a well or other receptacle from which water or other liquid is to be ejected; B, a pressure pipe; C, an ejector, and D the discharge-pipe.

In the form illustrated in the drawings, the valve and valve mechanism are located on a vertical line with the ejector and discharge-pipe, but below the ejector. The valve portion is composed of an outside casing, E, a central chamber, F, and a lower water-chamber, G. The pressure-pipe is connected to this water-chamber. To one end of the valve-casing is connected the ejector C, which at its opposite end is connected to the discharge-pipe.

H is a valve on a stem, I. It is located in the water-chamber G, and closes the passage between that chamber and the chamber F.

N is a guide, which may be cast on the valve-seat o, or otherwise connected therewith. The

stem I is passed through this guide, and is directed and steadied thereby so as to hold the valve squarely to the under side of the seat o. The guide is channeled to permit the liquid to pass up around it. The valve-stem is provided with an upper collar, p, and a lower collar, p'.

R is a spindle, provided with a flange, r, to which is attached a crank-arm, r'. It is passed through a boss, r², on the valve-casing. The crank extends between the collars p p'. The crank acts as a lever, as hereinafter described, and a cam or other suitable mechanism may be substituted therefor. The boss r² is screw-threaded internally, into which is inserted a screw-cap, S, through which the spindle R is passed. The inner end of the cap, when screwed into the boss, forms a seat for the flange r of the spindle and also a tight joint at that point. A collar, s', on the cap fits snugly against the boss. The spindle R turns in cap S and boss r, and it is cut out a little at its central portion, r³, in order that it may turn the more freely.

L is a lever, keyed to the end of spindle R and provided with a float, W. Instead of a cap, S, a lug can be used, bored for the spindle with an opening and plug on opposite side of casing for the introduction of spindle.

The ejector C and the valve-casing, as before suggested, may be placed vertically, horizontally, or at an angle, or the valve-casing may be placed in one direction and the ejector in another.

In Fig. 2 the valve and casing are shown in a horizontal position and the ejector and discharge-pipe at a right angle therewith.

The operation of the apparatus is as follows: Before the valve is operated the water or other liquid from the pressure-pipe fills the chamber G, thus increasing the head-pressure, which acts against the valve H, aiding to hold the valve against its seat. As the water or liquid in the receptacle or cellar rises above or surrounds the ejector, it flows therein through ports c' c², and as it continues to rise it lifts the float and lever until the spindle R is made to revolve, which movement actuates the crank or cam, turning it against the lower collar, p', of the valve-stem and forcing the valve from its seat. At that moment the water from the pressure-pipe and water-chamber

rushes in above the valve, giving to the valve a quicker throw, continues on through the central chamber, giving to the water in the ejector such momentum as to create a vacuum, whereby the water in well A is discharged through discharge-pipe D, until the water in well A has subsided, and the float and lever, falling therewith, the crank-lever r' is carried against the upper collar, p , partially closing the valve, when the rushing water from chamber G to E through orifice m carries the valve the balance of its throw and seats it.

The operation is automatic and the receptacle can be almost or altogether drained, according to the situation of the valve-casing and ejector.

It will be seen by our improvements that little or no packing is required, the valve when closed being made water-tight not only by the weight of the float, but by the pressure of the water—the greater the pressure the more tightly is it held closed. As the crank-lever working the valve is within the valve-chamber and acts directly upon the valve and is located on the discharge side thereof, the parts are free from friction and respond quickly and freely to the action of the float-lever and the water-pressure. By the water-pressure against the rim or flange on the spindle a tight joint is also formed at the point of connection of screw-cap and spindle head, thus avoiding the use of packing there. By our improvements, also, the ejector need not be immediately connected with valve, but may be placed at any desired distance from the valve, and two or more ejectors may be employed, if desired, and set in any desired position.

What we claim is—

1. In a device for ejecting liquids, the combination of the pressure-pipe, discharge-pipe, and ejector with a valve receiving motion from a float and lever, with connections ex-

tending into interior of valve-frame and there engaging with valve.

2. The combination of ejector and pressure and discharge pipes with a valve receiving motion from a float and lever, with connections extending into interior of valve-frame and there engaging with valve on discharge side of same.

3. In combination with the valve and its connections, the spindle or lever provided with a flanged head or collar and placed within the valve-casing, and forming a seat or joint against the inner part of casing or cap, and a float lever for operating the said spindle.

4. The combination of the pressure-pipe, discharge pipe, and ejector with a valve located in the pressure-pipe, receiving its movement through a float or diaphragm, and connections making a turning or revolving movement.

5. The combination of a pressure-pipe with a float and connections, a valve moved positively a certain distance by means of the float and connections, and the balance of its throw quickly by the fluid-pressure and the detachable ejector, whereby the ejector can be placed at any desired point on the pressure-pipe away from the valve, substantially as described.

6. In combination with the valve-chamber and fluid-chamber, the valve mechanism composed of the valve, valve-stem, guide-plate, and collars on the valve-stem, and the spindle carrying the crank-arm to operate between said collars, substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

CLARENCE M. KEMP.
CHARLES E. KEMP.

Witnesses:

S. T. SHUMAKER,
J. M. HAZEL.