

No. 629,577.

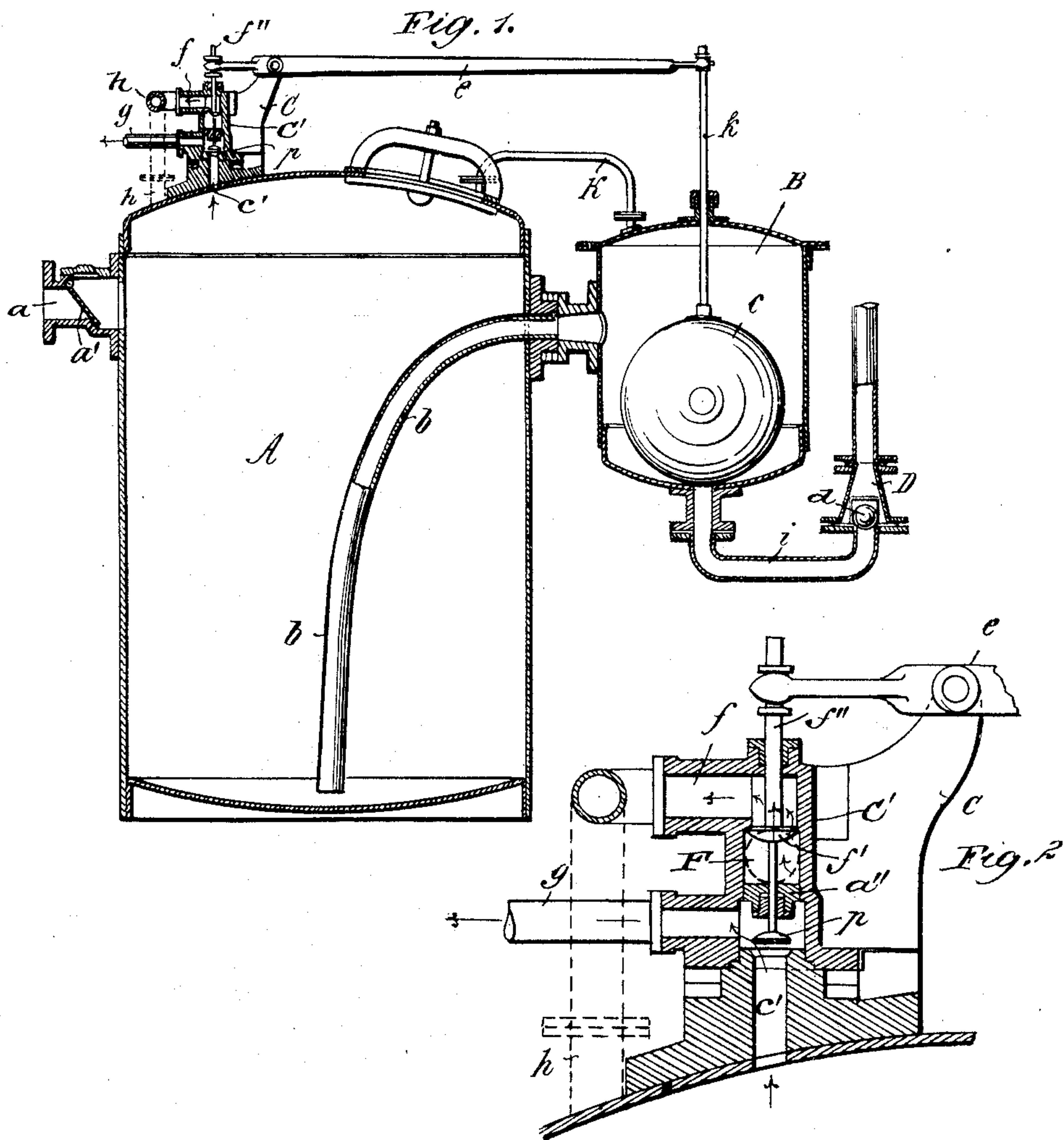
Patented July 25, 1899.

R. LUHN.

PUMP.

(Application filed May 4, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

RICHARD LUHN, OF HASPE, GERMANY.

PUMP.

SPECIFICATION forming part of Letters Patent No. 629,577, dated July 25, 1899.

Application filed May 4, 1899. Serial No. 715,627. (No model.)

To all whom it may concern:

Be it known that I, RICHARD LUHN, a subject of the King of Prussia, Emperor of Germany, residing at Haspe, in Westphalia, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Pumps, (for which I have applied for a patent in Germany, dated February 28, 1898,) of which the following a specification.

My invention is an improved monte-jus—that is to say, an improved automatic apparatus for raising liquids—the same being adapted to alternately take in and eject a body of liquid by the action of a due and continued pressure of air or steam, which is intermittently admitted and cut off by an automatic valve and float mechanism.

It is my object to simplify the construction of this class of inventions.

My improved apparatus is composed of a tank or main working vessel of simple construction and exterior float and valve attachments secured to the side and top of said tank and having certain peculiarities of construction, arrangement, and operation.

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

Reference is to be had to the accompanying drawings, forming a part of the specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a vertical section of a pump embodying my invention, and Fig. 2 is a sectional elevation showing a valve mechanism employed.

Referring to the drawings, A designates the main or working vessel of the pump, having an inlet *a* at its upper portion, within which is arranged a flap-valve *a'*. At one side of the working vessel A is a regulator B, having a capacity very much less than the vessel A. The vessel B has communication with the vessel A through a pipe *b*, which extends nearly to the bottom of the vessel A. The two vessels have a simple construction and are connected by a casting bolted to each, so that the vessel A supports the other, B.

Arranged in the vessel B is a float *c*, having a rod *k* extended upward through the top of the vessel B, where it is connected to a lever

e, fulcrumed on a standard C, supported on the top of the vessel A. The valve attachment of vessel A is composed of a casing C', attached to the standard C, into which steam is admitted through a pipe F, from which steam may pass through the outlet *f* and through the pipe *h* into the vessel A and onto the top of liquid that may be contained therein. The valve *f'* controls the passage of steam from the inlet F to the outlet *f*, and from this valve *f'* a stem *f''* extends upward and has connection with the lever. A partition *a''* in the valve-casing separates the steam-inlet portion of the valve-casing from a chamber below the partition through which exhaust passes. This exhaust-chamber is connected by a port *c'* with the vessel A, and the exhaust will discharge through a pipe *g*. The exhaust through the port *c'* is controlled by a valve *p*, having connection with the valve *f'*, and therefore the two valves are movable together—that is, when one valve is in its closed position the other valve will be in its fully-opened position.

Extended from the bottom of the vessel B is a delivery-pipe *i*, in which is a valve *d'*, which is shown in the form of a ball-valve located in a valve-casing D. This delivery-pipe *i* is of smaller area than the tube *b*, for a purpose to be hereinafter described.

The operation is as follows: The liquid to be elevated flows through the inlet *a* into the working vessel A. As it rises in the working vessel it also rises in the tube *b* and enters the regulator vessel B. When the liquid in the vessel B reaches to a proper height to float the valve *c*, the said valve will commence to rise and operate the lever *e* to force the valve *f'* away from its seat, and at this time the valve *p* will be forced onto its seat. Steam will now enter and pass into the working vessel A and by its pressure will force all of the water through the tube *b* into the vessel B. While this is going on, liquid will be forced out through the pipe *i*; but as this outlet or delivery pipe *i* is of less area than the tube *b* it is obvious that the vessel B will be kept substantially filled with liquid until all of the liquid shall have been discharged from the working vessel A, and as soon as this occurs—that is, the emptying of the vessel A—the water will pass out of the vessel B and through

the pipe *i*, and obviously the steam-pressure will be maintained in the vessel B and force out the water. This pressure will continue until the float *c* moves sufficiently downward
5 to close the steam-controlling valve *f'* and open the valve *p*. At this time the pressure medium will exhaust through the port *c'* as a new supply of water enters the working vessel. Air will escape from the vessel B into
10 the working vessel through a pipe *k*, which connects the two vessels.

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

15 The improved apparatus hereinbefore described, consisting of the tank, or working vessel, A, the float-chamber arranged exteriorly and secured to the side and upper portion of

said tank, and having the induction-pipe *b*, the float *c* in said chamber, having stem *k*,
20 and the valve attachment, also arranged exteriorly to the tank, the same comprising the casing *C'*, having the partition *a''*, outlet-passage *c' g*, and the inlet-pipe *h*, the valve
25 mechanism proper composed of two vertically-aligned and rigidly-connected valves *f' p* arranged respectively above and below said partition, and the pivoted lever *e*, directly connecting the valve and float stems, all as shown
30 and described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

RICHARD LUHN.

Witnesses:

Q. E. JAHN,
OTTO KÖNIG.