

T. J. JONES.
WATER EJECTOR.

No. 64,539.

Patented May 7, 1867.

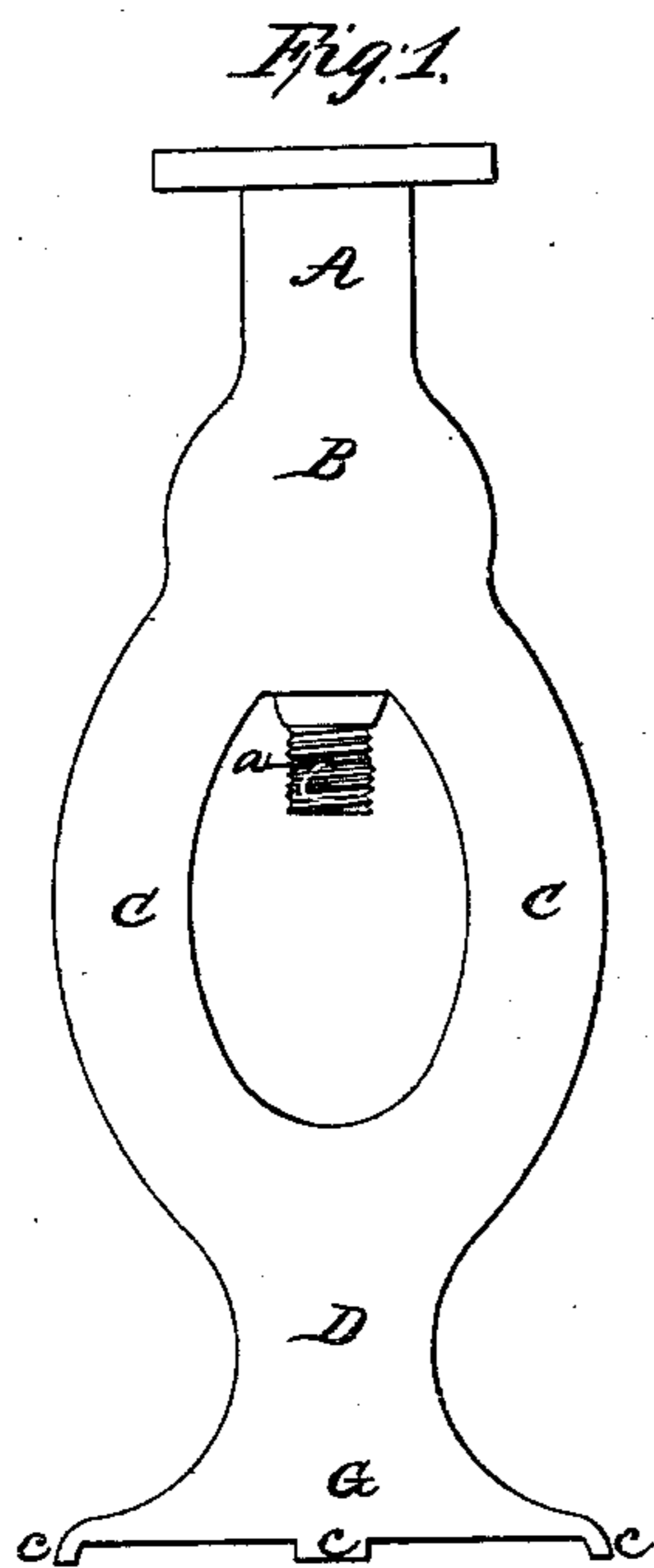


Fig. 2.

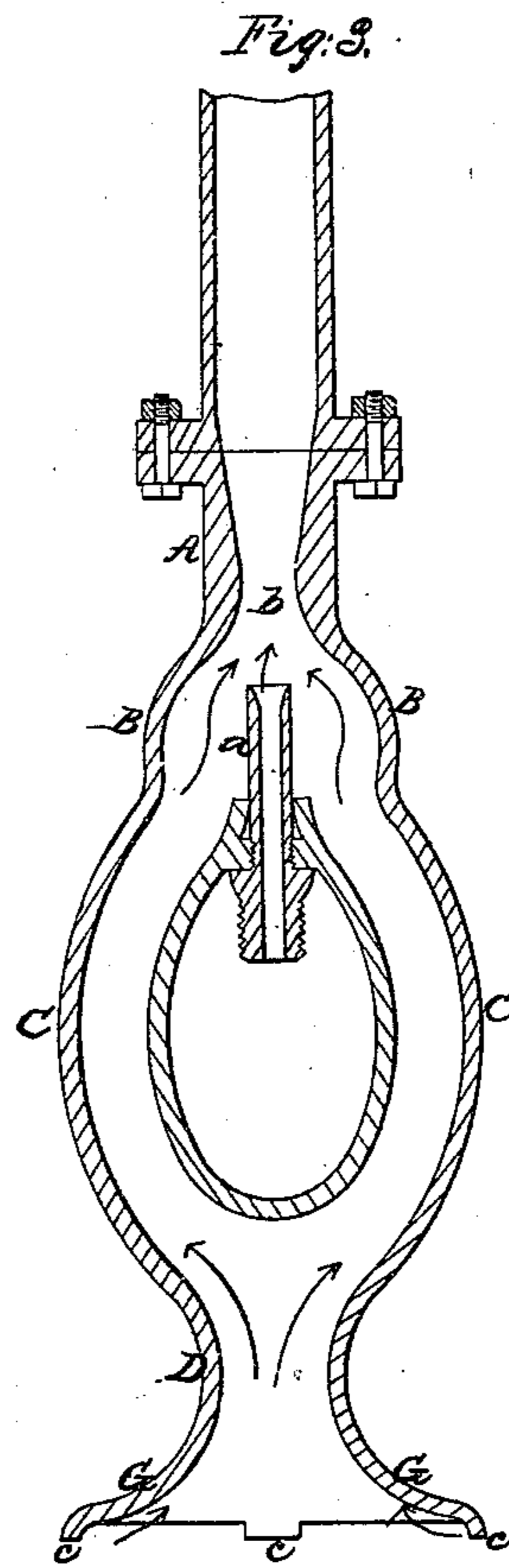
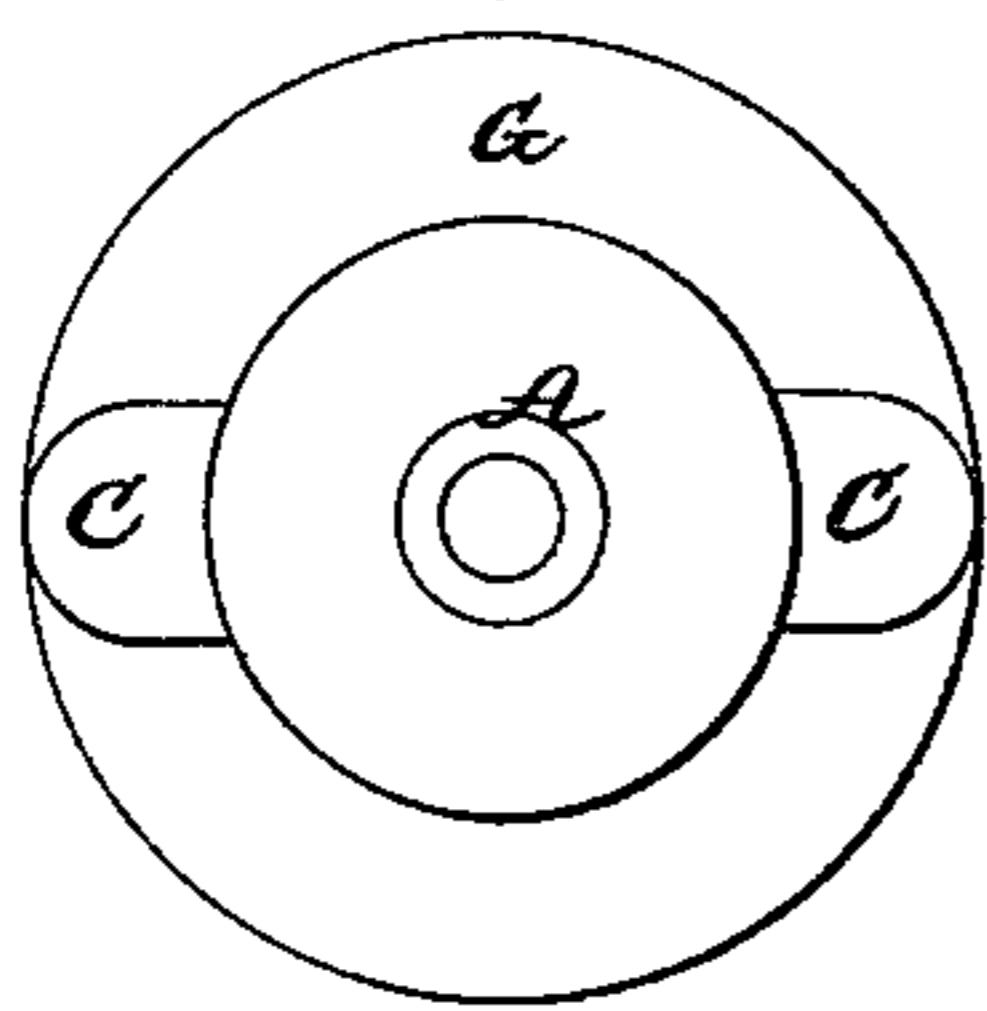
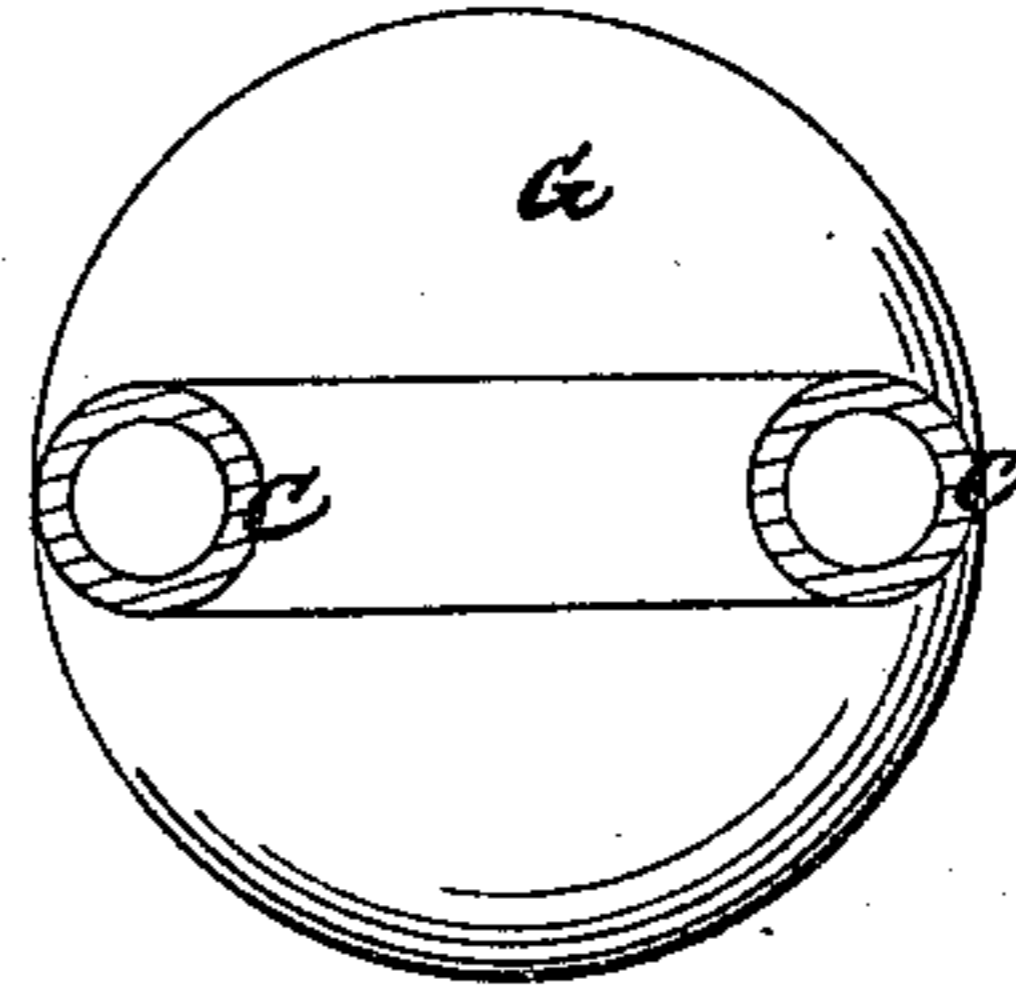


Fig. 4.



Witnesses,
R. T. Campbell
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Inventor,
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United States Patent Office.

THOMAS J. JONES, OF MADISON, NEW JERSEY.

Letters Patent No. 64,539, dated May 7, 1867.

IMPROVEMENT IN WATER EJECTORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS J. JONES, of Madison, in the county of Morris, and State of New Jersey, have invented a new and improved Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of the pump.

Figure 2 is a top view of the pump.

Figure 3 is a vertical section of the pump, showing the interior of the pump.

Figure 4 is a horizontal section of the pump.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a novel improvement on that class of pumps in which water is elevated to considerable heights by the action of steam directed upward in the delivery pipe so as to force the column of water before it, and create in the "suction" pipe a partial vacuum, thereby obtaining a continual supply of water by the pressure of the surrounding atmosphere. The nature of my invention consists in forming, between the upper termination of the "suction" pipe and the lower termination of the delivery pipe, branch connections in such manner that the nozzle of the steam pipe can be arranged in a line with the axis of the delivery pipe without forming a break or obstruction to the ascending currents of water, and without being so exposed to the water as to cause a condensation of steam in the steam pipe, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the lower termination of the delivery or discharge pipe, which is capped with a flange by which sections of pipe can be secured to it. B represents a flaring enlargement in which the steam nozzle *a* is arranged so as to direct a current of steam into the pipe A and through the contracted throat *b* leading thereto, as shown in fig. 3. C C represent two branch pipes bent somewhat in the form of an ellipse, and forming two communications between the upper end of the "suction" pipe D and the discharge pipe A. This leaves a space between the pipes C C, around which the water flows in its passage from the pipe D to the pipe A through said branch pipes. The pipe which conducts steam from the boiler is attached by a suitable coupling to the lower end of the steam nozzle *a*, and by means of this nozzle the steam is conducted through the upper crotch of the branch pipes into the enlargement B, and thence forced upward into the pipe A. This force of steam will cause the water, into which the lower end of the "suction" pipe D should be immersed, to flow upward through the branch pipes and through the discharge pipe A. It will be seen that the water is not obstructed in its upward passage through the pipes, nor does it cause a cooling and condensation of the steam before it leaves the steam nozzle. The pipe A, branch pipes C C, and "suction" pipe D are all cast in one piece, so as to avoid the loss of time and expense and other objections to having said parts cast separately and afterward bolted together.

In figs. 1 and 3 I have represented a flaring foot-piece, G, formed on the lower end of the suction pipe, from the edge of which short studs *c c* project, which support the pump so as to leave a narrow space for the influx of water beneath this foot-piece, which will prevent the passage of foreign substances into the pump. The area of the opening into the pipe D should be sufficiently large to allow of a full supply of water to the pump as long as the level of the water is above the lower edge of the foot-piece G. Instead of casting the foot-piece upon the lower end of the pipe D it may be cast separate, and afterward suitably secured thereon.

In pumping out vessels or other places where the foot-piece is liable to become clogged with foreign substances, these may be expelled and the inlet passage cleared by injecting steam downward through the pipe D whenever such obstruction of the pump is found to exist. For this purpose a steam pipe should be inserted through the lower crotch of the pump-stock, similar to the arrangement of the nozzle *a*.

I am aware that in a patent dated February 20, 1866, for a pump operating upon the general principle herein explained, the lower end of the delivery pipe terminates in two branches, with the steam nozzle arranged at the junction of these branches. But in such pump the lower ends of the branch pipes do not communicate with a suction pipe, and thus terminate in a single inlet pipe having a flaring foot-piece formed on or applied to it as I have herein described and shown. If desirable, more than two branch pipes C may be employed, but for all ordinary purposes two will be found sufficient.

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

The pump, constructed as herein described and shown, as a new article of manufacture.

THOS. J. JONES.

Witnesses:

A. H. FISHER,

JOHN PURDY.