J. KNIBB.

PUMP.

No. 42,920. Patented May 24, 1864.

Fig. 1.

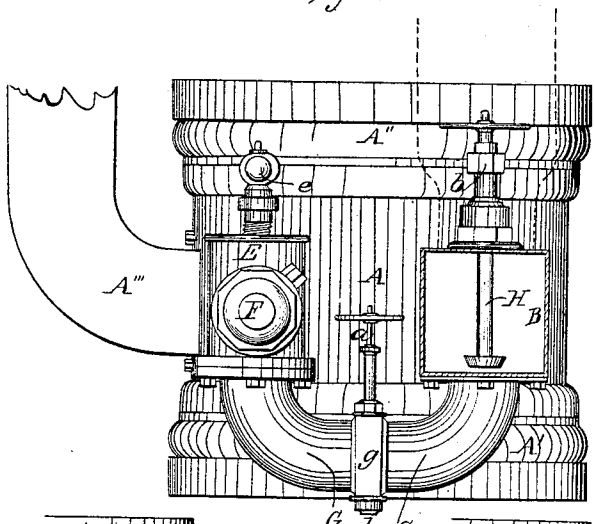


Fig. 2.

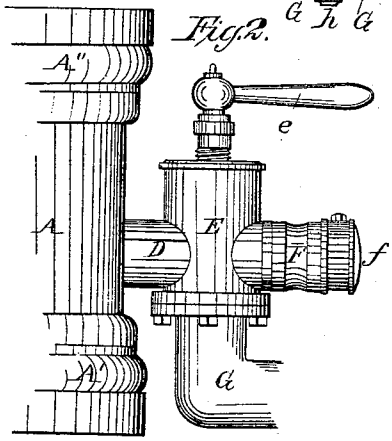
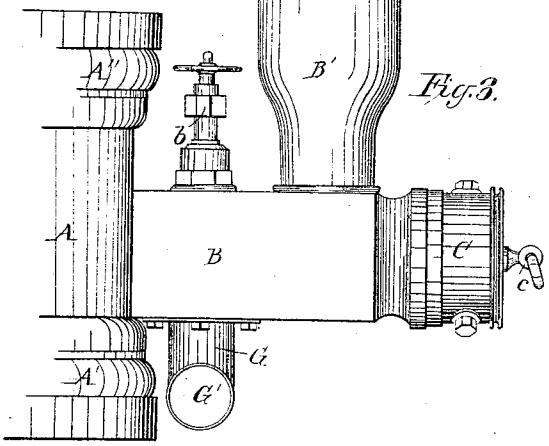


Fig. 3.



Witnesses:

C. E. Sattern

A. MacGregor

Inventor:

James Knibb

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

UNITED STATES PATENT OFFICE.

JAMES KNIBBS, OF TROY, NEW YORK, ASSIGNOR TO HIMSELF AND MARCUS P. NORTON, OF SAME PLACE.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **42,920**, dated May 24, 1864.

To all whom it may concern:

Be it known that I, JAMES KNIBBS, of the city of Troy, county of Rensselaer, and State of New York, have invented new and useful Improvements in Pumps for Steam Fire and other Engine Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being hereby had to the accompanying drawings, and to the letters of reference marked thereon, which said drawings make a part of this specification.

Like letters represent and refer to like or corresponding parts.

Figure 1 is a front view of the pump, and showing my invention and improvements hereinafter described and set forth. Fig. 2 is a vertical and sectional side view, showing the discharge pipe or tube and other parts hereinafter described and set forth. Fig. 3 is also a vertical and sectional and side view, showing the suction or supply pipe or tube and other parts connected therewith, and hereinafter described and set forth.

The nature of my invention and improvements consists in the employment of a pipe or tube or its equivalent, by means of which the force or discharge part of said pump is connected to and with the suction or supply part of said pump, so that one, two, three, or more discharge pipes or hose may throw streams of water at the same time and stroke of the piston or operation of said pump, without any waste of water, by the opening of a valve or discharge-pipe, to enable the pump to work successfully and without injury in throwing of streams of water at fires, &c.

Heretofore in steam fire-engine pumps constructed for the purpose of throwing two, three, four, or more streams of water at one and the same stroke of the piston, there has been a great difficulty attending the practical and successful working of the same whenever it has been desirable to throw but one or two, or perhaps three, streams of water when the pump is constructed to throw four or more streams of water, for the suction or supply of water would in that case be greater than the discharge through the hose pipes or tubes, as the case may be, in which one of the remaining discharge-pipes with the hose-pipe disconnected, or else a waste-water valve, would have to be kept open during the operation of the pump, so as to make the discharge of water the same in quantity as that received through and by means of the supply or suction part of the pump, for if the discharge be not the same, or nearly so, as that of the supply, the pump would become somewhat strained and flooded, and would not, after awhile, work or operate. The boiler would also become somewhat flooded, and the engine would cease to work. By the opening of a discharge-pipe or waste-water valve the discharge would become more equal to that of the supply; but here is a great waste of water as well as the flooding of the street when such engine is used, which is not only very inconvenient to those who operate the said engine at fires, &c., but is also, to some extent, injurious to such steam fire-engine. By my said invention or improvements all these difficulties are fully obviated. The force part or section of the said pump being connected to and with the suction or supply part or section in the manner and by the means substantially as herein described and set forth, no discharge-pipe or water-valve is required to be open during the operation of the engine throwing but one or two streams of water at one operation or stroke of the piston. The extra quantity of water thrown into the force or discharge part or section of the pump from the suction or supply part or section, and not discharged through the discharge or hose pipes connected therewith, because the same are closed, with one or more exceptions, is conducted, by the means hereinafter described, from the said force part or section of the said pump back into the supply or suction tube or pipe connected to and with the said suction or supply part or section of the said pump, and thus the force or discharge part or section of the pump is relieved from any excessive quantity of water, and the waste of water and the flooding of the street prevented, while at the same time the engine and the said pump perform all their respective functions in the most perfect and satisfactory manner without hinderance or obstruction, and the said pump will throw one, two, three, four, or more streams of water at the same time, the same being regulated by means of a valve hereinafter described and set forth.

To enable others skilled in the art to which my said invention and improvements relate to make and use the same, I will here proceed to describe the construction and operation of the same, which is as follows, to wit:

A is the pump-cylinder.

A′ is the lower cylinder-head.

A″ is the upper cylinder-head.

B is the suction or supply tube.

C is a screw-cap, which must be removed when the main hose-pipe leading from the hydrant is to be connected therewith for the purpose of supplying the pump and engine with water The said supply hose-pipe will be of the required capacity to supply water sufficient for all the discharge-hose pipes, be the number thereof more or less.

D is a tube connecting the force or discharge section of said pump to the vertical valve-tube E.

F is a discharge-tube, to which the discharge hose-pipe is connected, which is done in the same manner as described in relation to the said suction or supply pipe or hose.

G G is a tube or pipe connecting the force or discharge part or section to and with the suction or supply part or section of the said pump, for the purposes herein described and set forth.

H is the valve to regulate the excessive quantity of water to be returned from the force section through the said tube G G to the said suction or supply pipe B. If all the hose-pipes are discharging water at the same time, this valve will remain closed. If, however, but one, two, or three of the hose-pipes are discharging water at the same time or stroke of the piston, then this valve must be open sufficient to allow of the return of the excessive quantity of water which cannot be discharged by reason of some one or more of said discharge hose-pipes being closed because not required in use.

B′ is an air-chamber.

e is the handle by which the water is shut off or from the discharge-pipe F, in the usual manner and means.

g is a valve to let water out at *h*, if desirable, in the cleaning of the engine.

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

1. The returning of any excessive water in the force part or section of a steam fire or other engine pump to the suction part or section thereof, substantially as herein described and set forth.

2. The connecting of the discharge or force part or section of a steam fire or other engine pump to and with the suction or supply section thereof by means of the tube G G and the regulating-valve H, or any equivalent therefor, substantially as and for the purposes herein described and set forth.

In testimony whereof I have, on this 27th day of April, A. D. 1864, hereto set my hand.

JAMES KNIBBS.

Witnesses:

C. E. PATTERSON,

B. MACGREGOR.