A. S. Cameron,

Steam Pump.

No. 54,291 Patented May 1, 1866.

Fig 2.

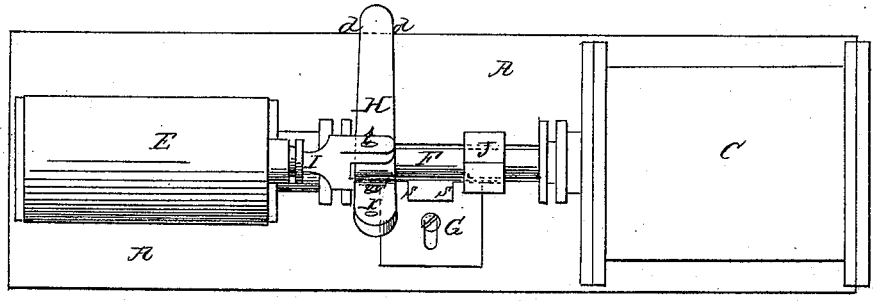
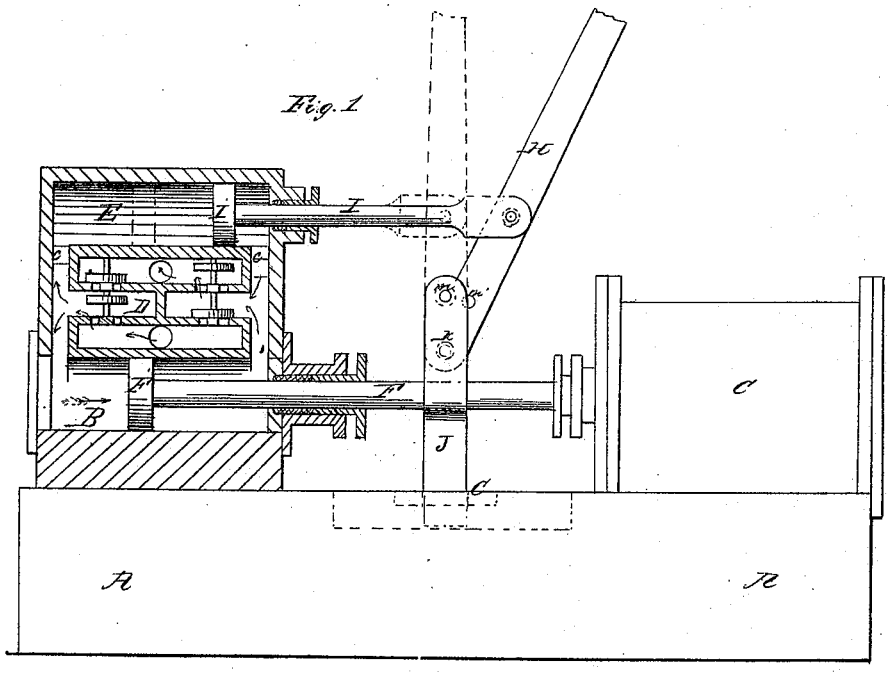


Fig. 1



Witnesses
J. W. Coombs
A. Le Clerc

Inventor
A. S. Cameron

UNITED STATES PATENT OFFICE.

ADAM S. CAMERON, OF NEW YORK, N. Y.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **54,291**, dated May 1, 1866.

To all whom it may concern:

Be it known that I, ADAM S. CAMERON, of the city, county, and State of New York, have invented certain new and useful Improvements in Pumps, whereby steam or other power pumps of any capacity can be operated by hand, whatever their construction or size may be; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal elevation, partly in section, of a direct-action steam-pump fitted with my improvement. Fig. 2 is a plan view of the same.

Similar letters of reference indicate corresponding parts in both figures.

On board of steam-vessels and in other places where steam-pumps are used it has been generally impossible to dispense entirely with the hand-pump, for there are many circumstances under which a pump is required when steam is not up, as in the case of a steamship in port, when it is required to pump bilge, wash decks, extinguish a fire, or fill or discharge boilers. In order to dispense with a separate hand-pump with all its valves, pipes, and other appurtenances, steam-pumps have been arranged to work by hand, as may be seen by reference to the patent granted to Wm. Sewell and myself, dated May 10, 1864. This has been accomplished by disconnecting the steam and pump pistons one from the other and working the pump-piston by hand, which is a very excellent arrangement, and has met with the most decided success; but very large pumps can seldom be operated in this way, inasmuch as the power required to operate them is greater than can be conveniently applied by hand; and, furthermore, there are other pumps of such construction that this principle of disconnecting the piston cannot be successfully embodied in them.

The object of my invention is to overcome all of these difficulties; and my invention, which may be applied to any power-pump of any size or construction, consists, principally, in attaching an additional cylinder and piston to the main cylinder of a power-pump in such a way that the valves and pipes of the said main cylinder also act in conjunction with the piston of the additional cylinder in working the same by hand.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A represents the bed-plate, C the steam-cylinder, and B the water-cylinder, of a steam-pump fitted with my improvement. D is the valve-chamber of the pump-cylinder B, with the additional cylinder E placed outside of it provided with passages *c* at either end common to the one set of induction and eduction valves of the main cylinder B. J is a cross-head secured on the piston-rod F of the main pump B. G is a slide attached to the bed-plate, and arranged to be adjusted transversely to the movement of the piston, for holding the said cross-head stationary when desired, being provided for the purpose with a notch, *s*, in its inner edge. H is a lever to operate the piston I′ of the additional cylinder when working the pump by hand, at which time the said lever is attached to the said cross-head J by its fulcrum-pin *k*, and to the piston-rod I of the pump E by a pin, *t*.

When it is desired to operate the piston I′ by hand the cross-head J is moved opposite the slide C, that the notch *s*, in its forward end, may, by pushing in the said slide, be made to receive the cross-head and thus secure the main piston F″ from moving. The cross-head having been thus secured, the lever H is placed in a proper position and its lower end pivoted to the cross-head J by the fulcrum-pin *k*, as shown in black outline in Fig. 1. When, by moving the lever H to and fro in a plane parallel with the axis of the cylinder, the pump formed by the additional cylinder E, its piston I′, and the valves of the main cylinder is worked by hand, it will be seen that the cross-head J serves two purposes—viz., that of securing the main piston F′ against any movement produced by the pressure upon it of the water set in motion by the piston I′ and as a support for the fulcrum of the hand-pump lever H.

When it is desired to increase the capacity of the pump both pump-pistons can be operated together by the steam-piston in this way: Insert a pin through holes in the cross-head J and lever H at *m m′*, as well as the pin at *k*, as shown in red outline in Fig. 1, thus securing the lever H rigidly to the cross-head J; then move the slide G back to release the hold upon the cross-head, apply steam to set

the steam-piston in motion, and the piston I′ of the additional or hand-pump cylinder will be carried back and forth with the main piston F′. The same set of valves in this operation serves for both pump-cylinders. When it is desired to work the steam-pump alone the pin at *m m′* and the pin *k* are both removed and the lever H is turned over sidewise to bring its upper end, resting in a notch, *d d*, in the side of the bed-plate, as shown in Fig. 2, and the said lever, being firmly held in this notch, prevents the piston I′ of the hand-pump from being moved by the pressure of the water set in motion by the main piston F′.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a steam or power pump and an independently-operating hand-pump with one set of valves which is common to both pumps and capable of operating with either, as may be required, substantially as herein specified.

2. In combination with a power-pump and a separate hand-pump having one set of valves common to both, a cross-head which serves both the purpose of holding the power-pump piston stationary and of a support for the fulcrum of the hand-pump lever when the latter pump is at work, substantially as herein described.

A. S. CAMERON.

Witnesses:
JAMES A. WHITNEY,
GEO. W. REED.