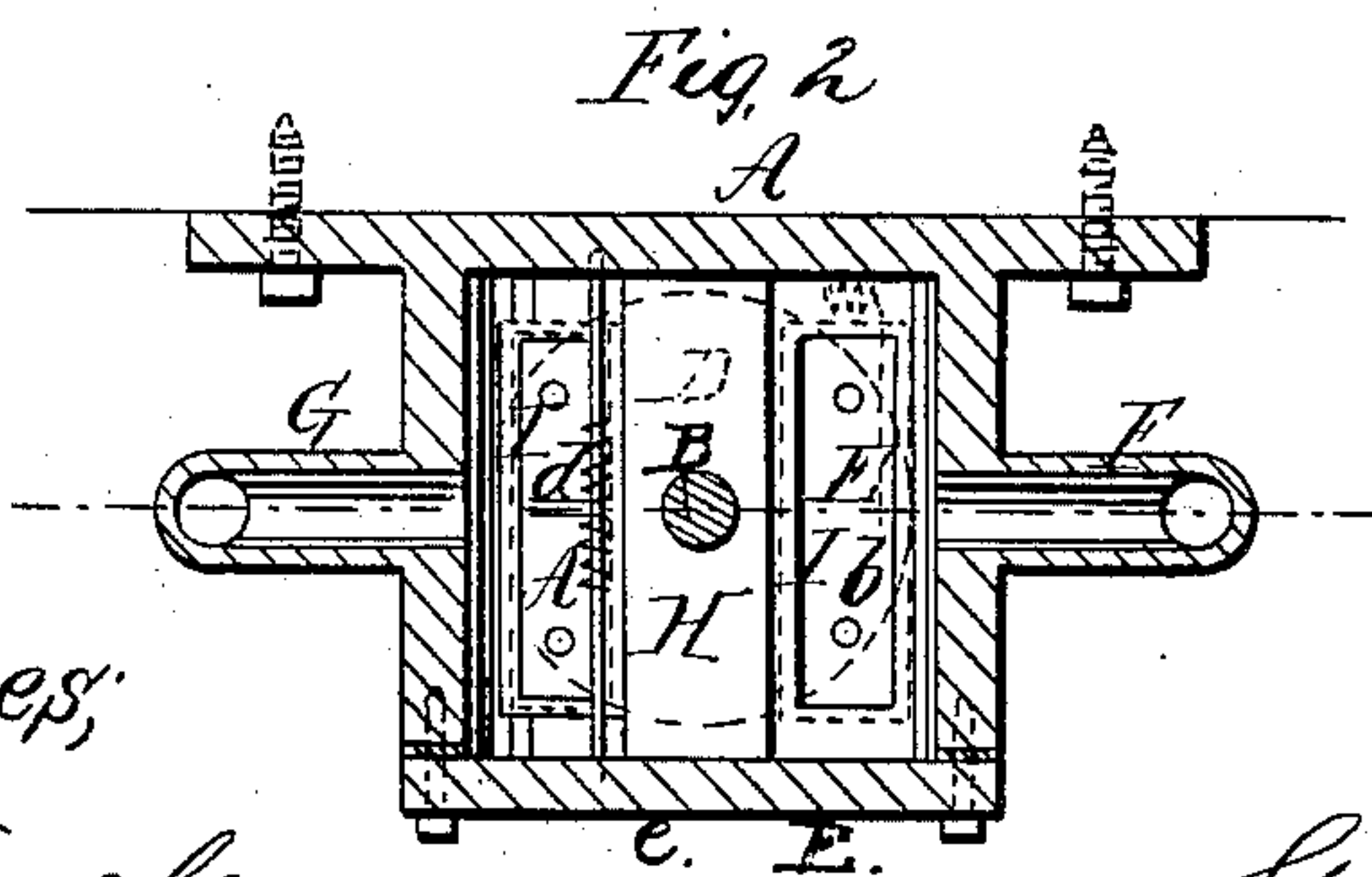
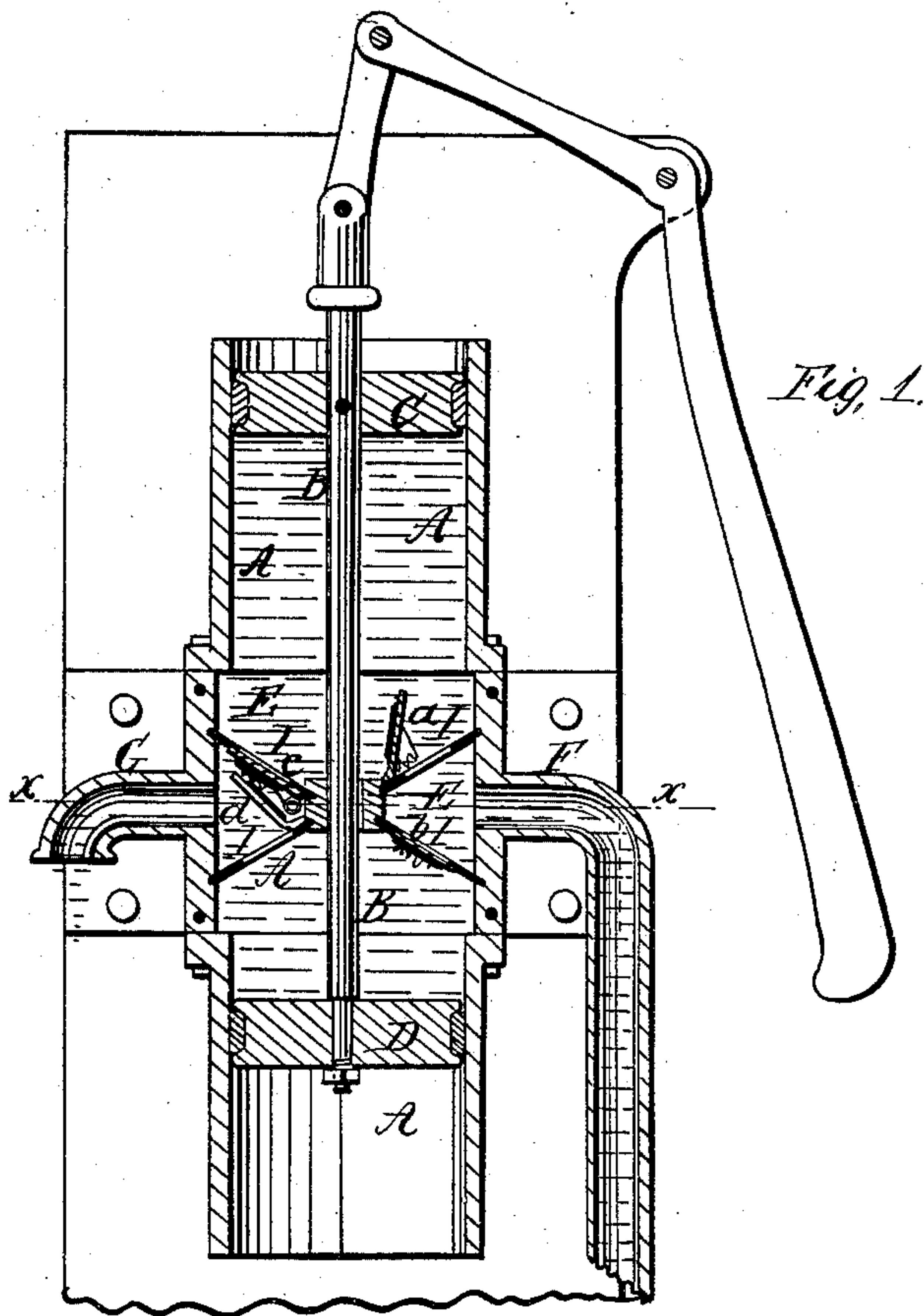


*G. M. Cole,*

*Pump Lift,*

*No. 69,183.*

*Patented Sept 24, 1867.*



*Witnesses;*

*Theo Inseke*  
*W. Jewin*

*Inventor;*

*G. M. Cole*  
*Per Munn & Co*  
*Attorneys*

# United States Patent Office.

GILBERT M. COLE, OF FOLSOM CITY, CALIFORNIA.

*Letters Patent No. 69,183, dated September 24, 1867.*

## IMPROVEMENT IN PUMPS.

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, GILBERT M. COLE, of Folsom City, in the county of Sacramento, and State of California, have invented a new and useful Improvement in Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of my improved pump.

Figure 2 is a horizontal sectional view of the same, the plane of section being indicated by the line  $xx$ , fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new double-acting pump, which is provided with double pistons sliding in a cylinder, the valves being arranged stationary in the cylinder between the pistons, and the suction and discharge pipes being arranged on the sides of the cylinder in such a manner that the water or other liquid to be pumped enters the cylinder between the valves, and passing in a straight or nearly straight line through the cylinder, it is discharged. All turning of corners of the water in the pump is thus avoided, and a great deal of power is thus saved. The valves are so arranged that they can easily be removed and replaced for repairing purposes.

A represents the pump-cylinder, which is arranged stationary in an upright, horizontal, or inclined position, as may be desired. B is the piston-rod, which is provided with two pistons, C and D. Between the pistons is or may be arranged in the cylinder a rectangular portion, E, into the opposite sides of which the suction pipe F and the discharge pipe G enter. Between the entrances of these pipes is arranged in the cylinder a stationary cross-bar, H, through which the piston-rod passes, as shown, and which forms a support for the four valve-seats I I, which may be bolted or otherwise secured between the sides of the cylinder and the bar H, but which may also be fitted into grooves, which are provided for that purpose in the outside of the cylinder (or portion E) and in the bar H, as shown. The valve-seats are arranged in inclined positions, so that the suction-valves  $a b$  enclose the entrance of the suction pipe, and the discharge-valves  $c d$  that of the discharge pipe, as is clearly shown in fig. 1. The valves are fitted upon the valve-seats by means of hinges, as shown.

The operation is easily understood when it is seen that one suction and one discharge-valve is on the side of the piston C, and another pair on that of the piston D. The water being drawn into one part of the cylinder is held there until the piston in that part moves towards the valves, when the water will be forced out through the discharge pipe. One side of the portion E can be made removable, as seen at  $e$  in fig. 2. The valves can then be easily got at, and if themselves removable from the cylinder, can be easily repaired and replaced.

A great advantage of this pump is, that it combines the simplicity and strength of a single-acting pump with the power and continuation of operation of a double-acting pump.

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

The combination of the valves  $a b c d$ , valve-seats I, pistons C D, bar H, chamber E, and cylinder A, substantially as described for the purpose specified.

The above specification of my invention signed by me this 26th day of June, 1867.

GILBERT M. COLE.

Witnesses:

WM. F. McNAMARA,

ALEX. F. ROBERTS.