J. W. Douglas,

Pump Valve.

No. 102,664 Patented May 3. 1870.

Fig: 1.

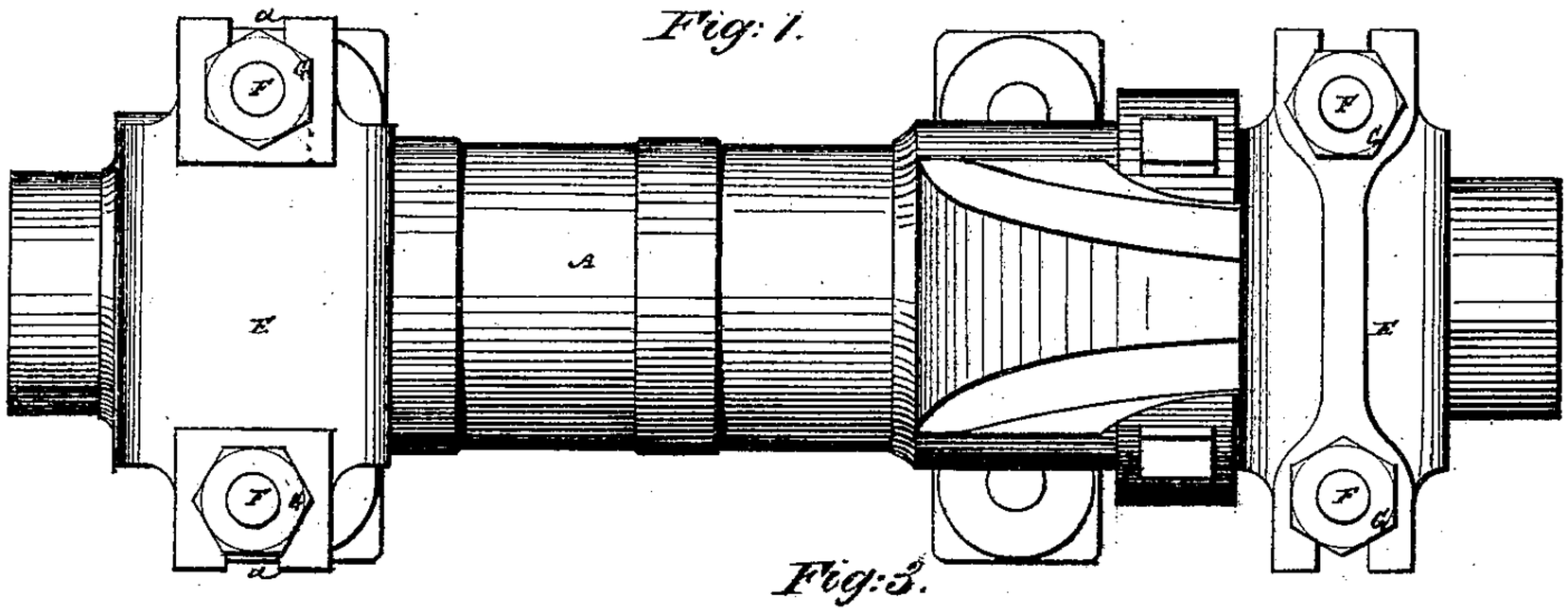


Fig: 3.

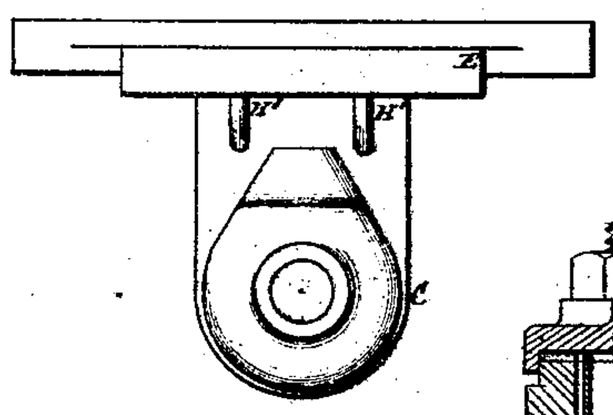


Fig: 4.

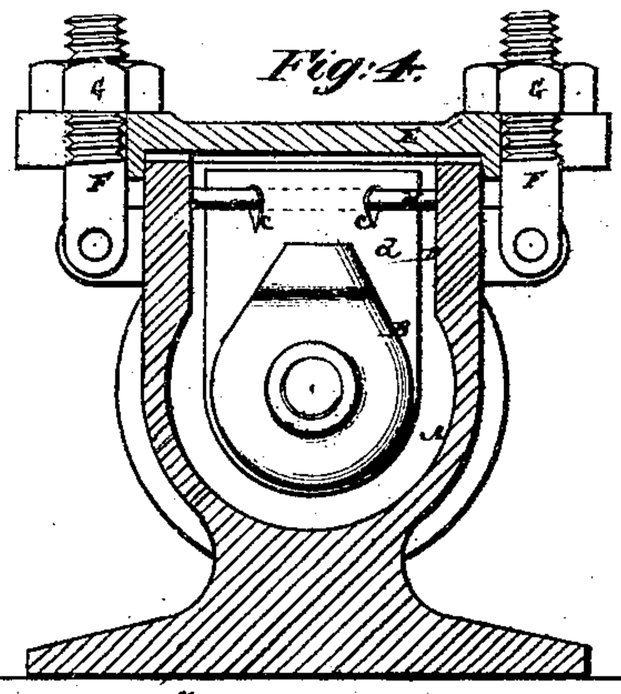
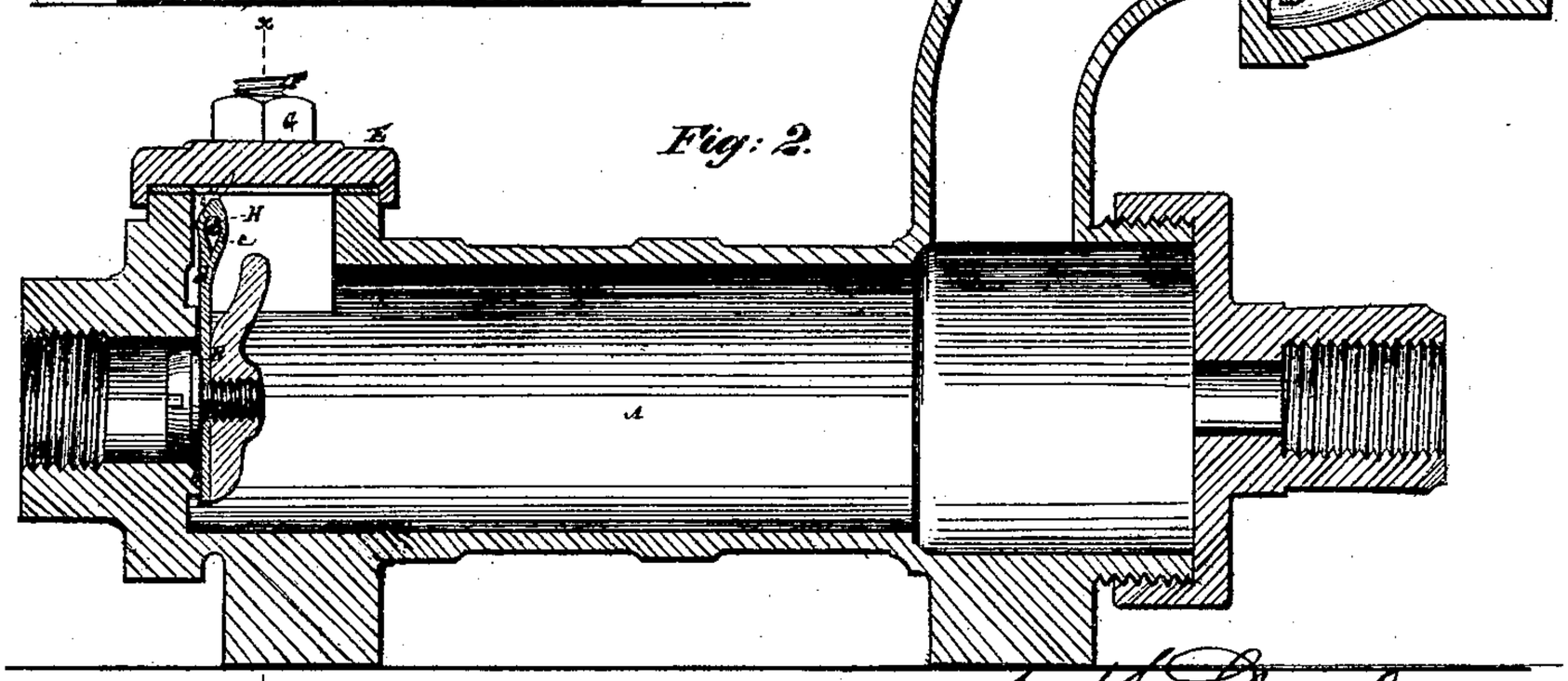


Fig: 2.



Witnesses:
Fred. Haynes
R. E. Babcock

per J. W. Douglas
Brown Coombs & Co. Atts.

United States Patent Office.

JOSEPH W. DOUGLAS, OF MIDDLETOWN, CONNECTICUT; ASSIGNOR TO W. & B. DOUGLAS, OF SAME PLACE.

Letters Patent No. 102,664, *dated May* 3, 1870.

IMPROVEMENT IN PUMP-VALVES.

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, JOSEPH W. DOUGLAS, of Middletown, in the county of Middlesex, and State of Connecticut, have invented a new and useful Improvement in Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a longitudinal view of a pump constructed in accordance with my invention, and

Figure 2, a central longitudinal section of the same, taken at right angles to fig. 1.

Figure 3 is a back view of one of the valves of the pump, in illustration of its attachment by means of bent pins or hooks, and

Figure 4, a transverse section through the line *x x* in fig. 2, showing a modification of the pin attachment of the valve or valves.

Similar letters of reference indicate corresponding parts.

This invention, which is applicable to either suction or force-pumps, or to common lift-pumps, consists in a novel attachment of the valve to its place in the pump-cylinder or valve-box, connected therewith at either or both ends of the pump, by means of a wire pin or pins, loosely projected through holes in the flexible portion of the valve, and serving as a free hinge or fulcrum for the valve to swing on, with every facility for detaching said valve when required, by slipping it from off the said pin or pins, that may either be straight or in the form of hooks.

Also, the invention includes a certain arrangement of side-plates, to facilitate access to the valves.

By these improvements, the cost of constructing the pump is lessened, by dispensing with joints at the ends of the pump-cylinder or barrel, inasmuch as the cylinder and valve-seats at the two ends thereof may be cast in one piece; also, leather is economized in the construction of the valves, and the liability to leakage, or imperfection in the working of the pump, reduced.

Referring to the accompanying drawing—

A represents the cylinder or barrel of the pump, and B the inlet and C the outlet-valves thereto, said valves being arranged at opposite ends of the cylinder, or in boxes, D D, connected therewith.

Access is had to the valves by means of side-plates, E E, arranged to fit on or over the mouths of the boxes D D, and secured by means of hinged bolts, F F, entering slots or openings *a a* in the ends of the plates, and provided with nuts G G, for holding down the plates to their places.

By slackening these nuts, the hinged bolts, which are more clearly seen in fig. 4, may be swung out of the slots in the plates, to admit of the latter being removed.

This construction allows of the valve-seats *b b*, at opposite ends of the pump, being cast in one piece, thereby dispensing with the usual joints at the ends of the cylinder for such purpose, and cheapening the construction of the pump.

Furthermore, the liability to leakage and imperfection in the working of the pump is reduced; also, I economize the leather in the construction of the valves, and facilitate their attachment and detachment by hitching or hinging the valves, in a free or loose manner, on pins arranged to project through holes in the leather, and which form the working pivots or fulcra of the valves.

Thus, as represented in figs. 2 and 4, either valve may be hung on a straight wire pin, H, passed, so as to run in front and in rear, through slits or holes, *c c*, made in the leather *d* of the valve; and said pin, with the valve on it, let at its ends into grooves *e* made in the ends of the valve-box, in such a manner as that, on taking off the side-plate which covers the latter, the valve and its hinge-pin may be drawn out, and, when necessary, said pin drawn out of the leather. Or, instead of there being a single straight pin, bent pins or hooks, H′ H′, as shown in figs. 2 and 3, may be used, the same being attached to the plate that covers the valve-box, and made to project through holes punched in the leather, which establishes a like loose attachment of the valve, free from any binding or bearing down of the leather at the hinge-portion of it, and allowing of the valve's ready detachment on lifting of the side-plate which covers the mouth of the valve-chamber or box.

What is here claimed, and desired to be secured by Letters Patent, is—

The valves of a pump suspended by pins passing through holes in the flexible portion, whereby the advantages of a swinging joint are combined with the flexibility of the material, substantially as set forth.

JOS. W. DOUGLAS.

Witnesses:

DANL. W. RAYMOND,

GEO. M. SMITH.