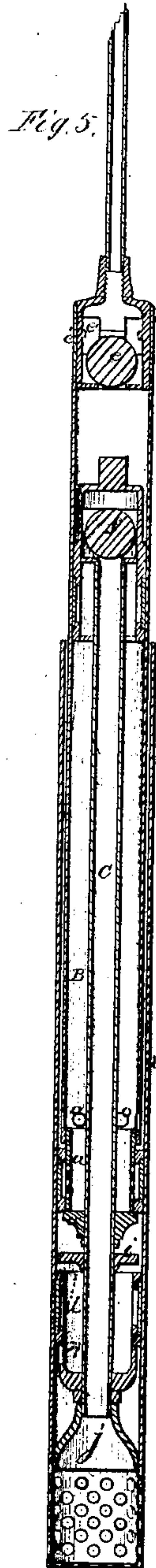
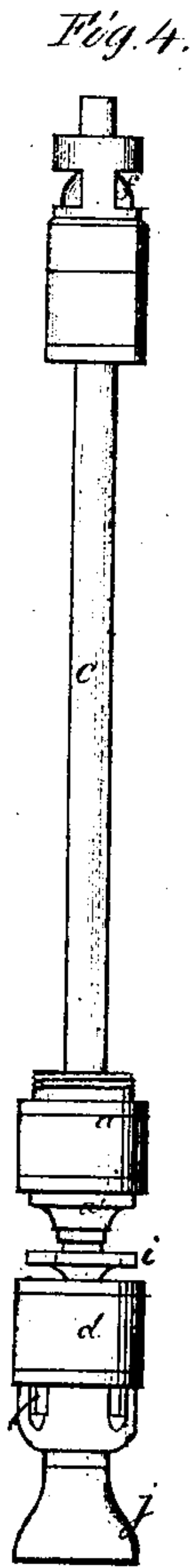
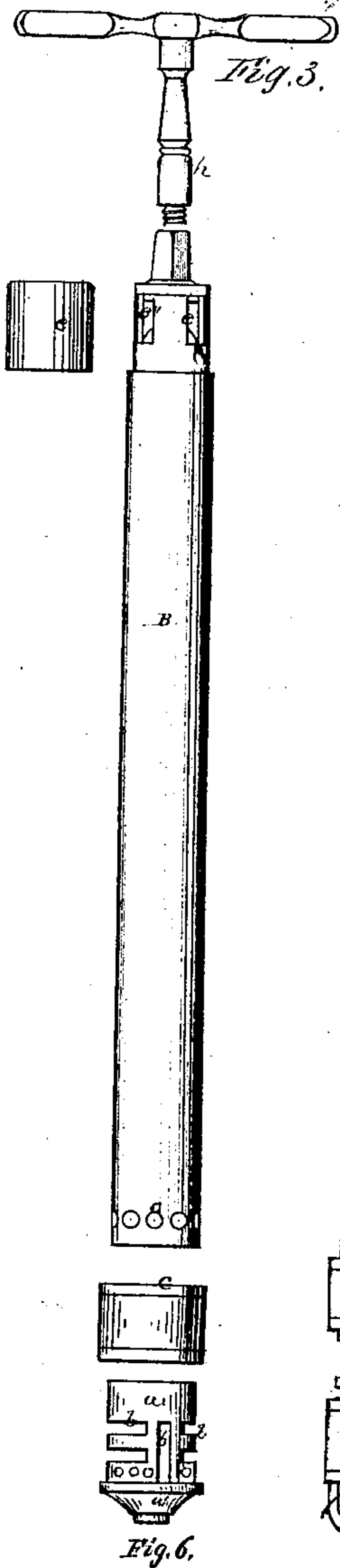
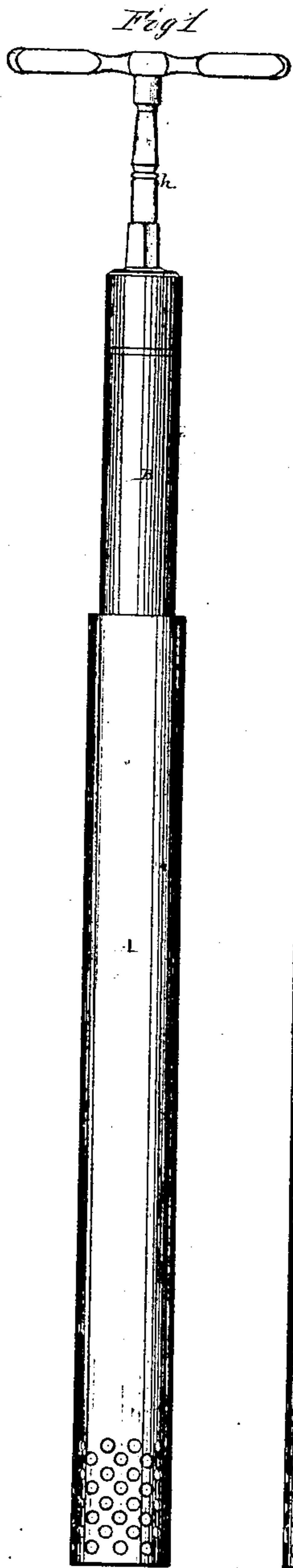


J. S. Fish,

Oil Pump.

No. 102241.

Patented Apr. 26. 1870.



Geo. W. Tibbitts
J. Holmes. } *Witness.*

John S. Fish

United States Patent Office.

JOHN S. FISH OF CLEVELAND, OHIO.

Letters Patent No. 102,241, dated April 26, 1870; antedated April 22, 1870.

IMPROVEMENT IN OIL-WELL 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, JOHN S. FISH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Oil-well Pumps; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side view.

Figure 2 is a view of the outer tube or case.

Figure 3 is a view of the pump, having the outer case removed.

Figure 4 is a detached view of the pump-rod or pipe, with the valves attached.

Figure 5 is a vertical half section.

Figure 6 is a detached section of the valve.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to an improvement in the construction and arrangement of devices for a pump for pumping oil from wells, by which a steady and continuous stream is the result.

A, figs. 1, 2, and 5, represents a tube or barrel, which is placed in the bore of an oil-well, the lower end of said tube being closed, and is perforated a short distance from the end.

B is a second or inner tube, somewhat smaller than the tube A, to provide a space between them.

C is a smaller tube or pipe, and placed within the tube B.

To the lower end of the tube B is secured a valve, *a*, which is constructed as follows:

A short tube *a*, having a bottom, *a'*, and is provided with slots, *b b*, and a row of holes near the bottom.

A sleeve, *c*, is placed on the tube *a*, and also has slots and a packing-band of leather around on the outside, fitted in a suitable groove. This sleeve closely fits in the barrel A. The object of the slots is to have the oil press against the packing to keep it against the barrel.

The bottom of the valve has a hole through which the tube C fits and slides.

To the lower end of the tube C is secured a cup, *d*, provided with a fixed collar or packing, below which are slots, as shown more clearly in fig. 4. These slots are always open. This valve is capable of a sliding movement on the rod C, between the disk *i* and a stop, *j*, both fixed to said rod.

To the top of the tube B is secured a ball-valve, *e*. There is also a sleeve, *e'*, fitted to cover openings, *e''*, in the upper end of the tube B.

There is also a ball-valve, *f*, secured to the top of

the tube C, and is also provided with packing like the valves *a* and *d*.

The lower end of the tube B is perforated just above the valve *a*.

To the top of the tube B is attached a rod, *h*, by which the pump is to be operated. This may be removed, however, and a pipe attached, and by closing the openings *e''* in the tube B the well would be permitted to flow, should it be so inclined.

The operation of this pump is as follows:

When the rod *h* is drawn upward, the tube C is also elevated, and thus the disk *i* is lifted a short distance from the mouth of cup *d*; the friction of the latter with the barrel A allowing this.

At the same time the valve *a* is closed, the friction of the collar *c* with the barrel causing the said collar to cover the holes above *a'*. The ball-valve *e* is also closed.

Thus the space between the valves *a* and *d* is filled with fluid, as is also the space between the valves *e f*, the valve *f* being forced open by the suction, and fluid passing up through the tube C.

When the rod is returned or forced downward, the valve *d* immediately closes, the valve *a* opens by the sleeve uncovering the holes *a'*, the valve *f* closes, and the valve *e* opens. The fluid contained in the space between the valves *a d* passes through the holes above *a'* into the space between the tubes B C, and that fluid in the tube B, above the valve *f*, through the openings *e''*, the valve *e* opening for that purpose.

The fluid is then in the outer barrel A, whence it is discharged in the usual manner.

When the rod *h* is again drawn up, the fluid contained in the tube B passes out through the holes *o* into the outer barrel freely.

The peculiar advantages gained by the use of this improvement are, that the pump has a double-working capacity over the ordinary pump; that is, the flow is continuous, and not intermittent, the piston forcing oil both in its upward and downward action, and the valves *a d* are not affected by action of gas to prevent their operating, as they do not depend upon suction to work them, but by the friction in bearing against the barrel.

By the working of the pump the oil is agitated, and gas is generated, which has sufficient force to keep ball-valves open and prevent their working, which is overcome by the use of the valves *a d*, as herein constructed and applied.

Should there be sufficient gas to cause a flow of oil, a hollow rod will be found to facilitate the operation, when there would be a direct passage through the tube C and pipe, the ball-valves *e f* being opened by the force of the flowing oil.

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

1. The tubes B C, with the valves *a d*, in combination with and arranged within the barrel A, all constructed and arranged to operate substantially as described.

2. In combination with the parts mentioned in the above claim, the valves *e f*, arranged and operating substantially as described.

3. In combination with the barrel A, cylinder B, tube C, and valves *a d e f*, the solid or hollow rod *h*, substantially as described.

JOHN S. FISH.

Witnesses:

GEO. W. TIBBITTS,
GEO. HESTER.