(No Model.)

J. H. BRANSON.

PUMP.

No. 398,220. Patented Feb. 19, 1889.

Fig. 1.

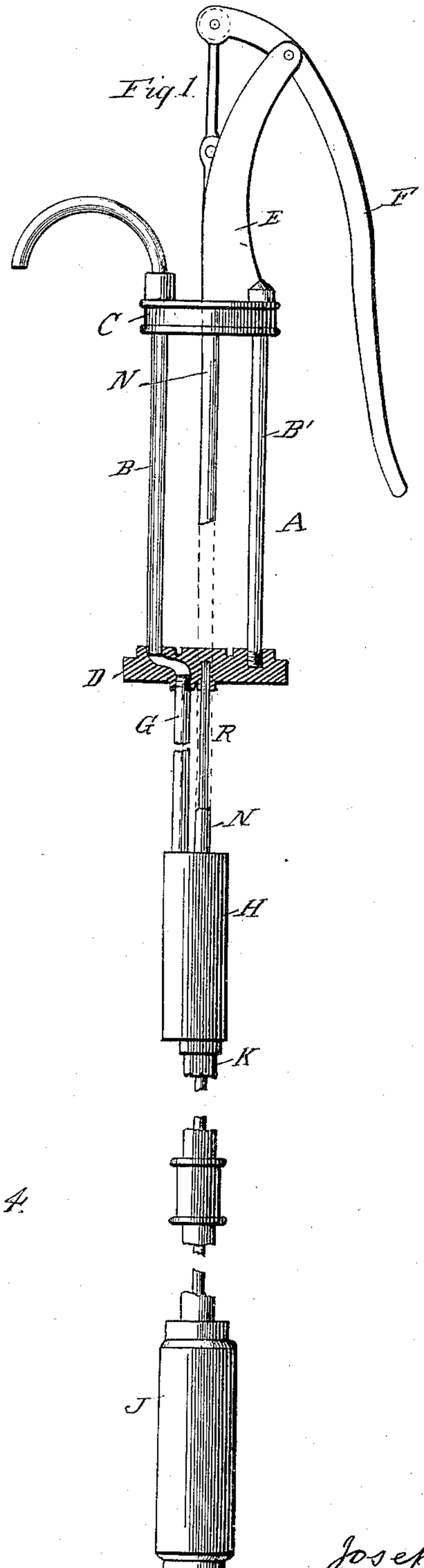


Fig. 2.

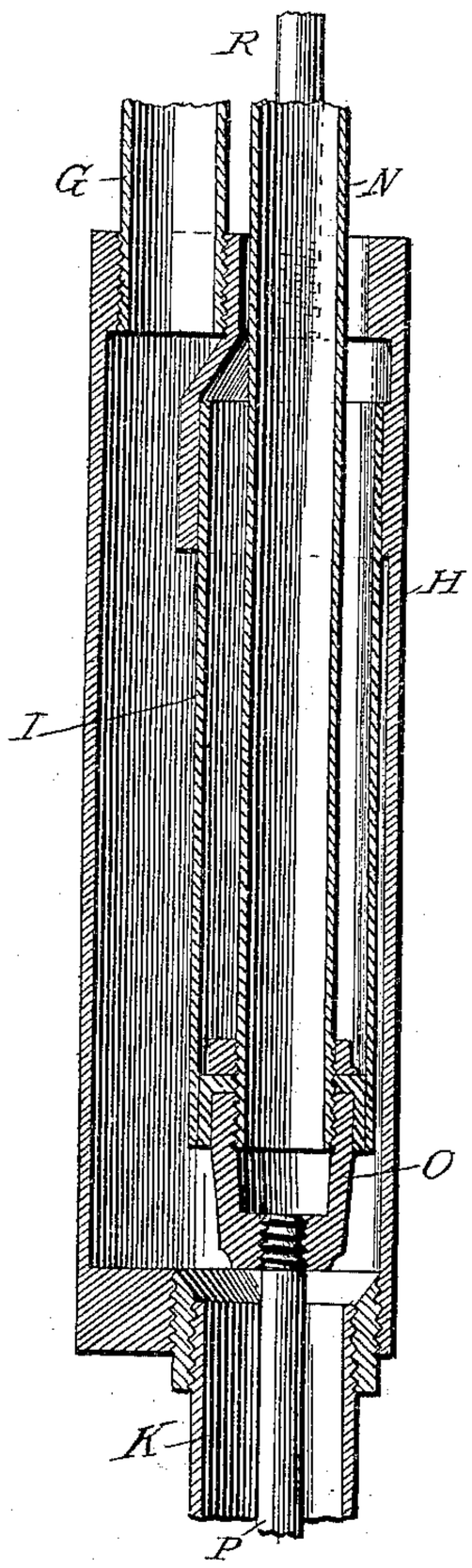


Fig. 3.

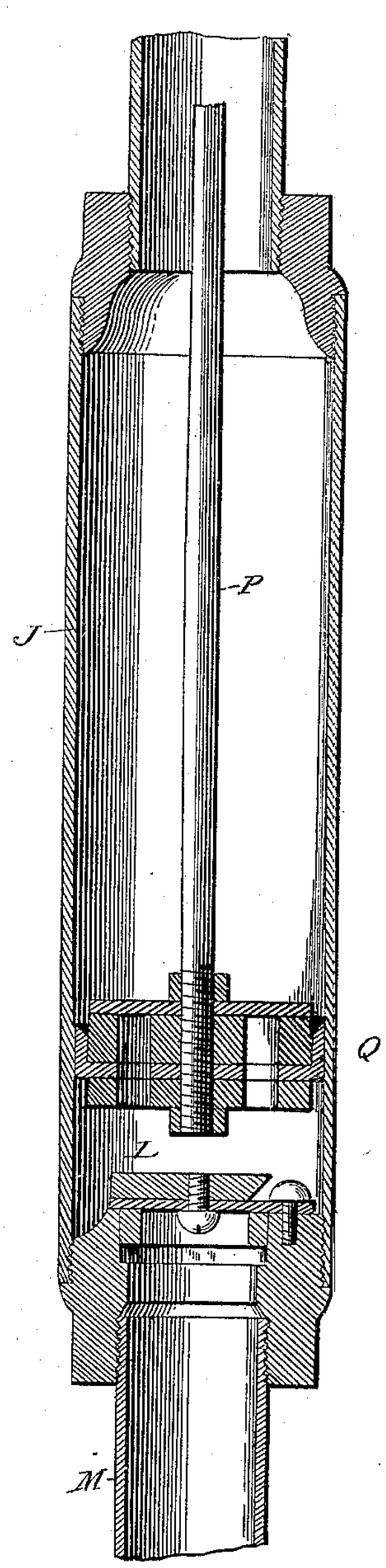
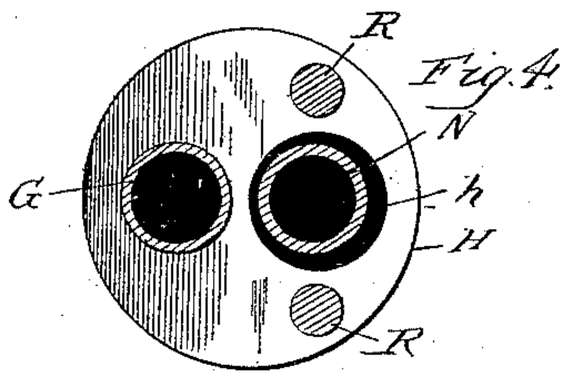


Fig. 4.



WITNESSES:

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PUMP.

SPECIFICATION forming part of Letters Patent No. 398,220, dated February 19, 1889.

Original application filed September 7, 1885, Serial No. 176,412. Divided and this application filed May 11, 1888. Serial No. 273,643. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. BRANSON, a citizen of the United States, residing at Belmont, in the county of Allegany and State of New York, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a side elevation, partly in section, of a pump constructed according to my improvement; Fig. 2, a vertical central section of the upper cylinder and shell; Fig. 3, a similar section of the lower cylinder, and Fig. 4 a plan of the top of the shell.

This invention relates to an improvement in that class of pumps shown in the patent, No. 249,885, granted jointly to myself and brother, and is designed to adapt such pumps for use in drilled wells of small bore, and the invention claimed herein is shown but not claimed in my application No. 176,412, of which this application is a division; and it consists in the peculiar combinations and the construction and arrangement of parts hereinafter more particularly described and claimed.

Referring now by letter to the details of construction, as shown in the drawings, A represents the standard, which may be of any desired form, but preferably similar to that shown in the patent, No. 249,885, before referred to, and well known among pump-manufacturers as the "four-post standard." It consists of four rods or pipes (only two of which, B and B′, are shown in the drawings) connected to castings C D at top and bottom, the upper casting, C, carrying the support E for the lever F, by which the pump is operated. The pipe B, which is screwed into the base D and passes through the cap C, has the curved discharge-spout secured to its top, and communicates through a curved passage in the base D with the main discharge-pipe G, which is screwed into the base D and carries at its lower end a shell or casing, H, into which it is firmly screwed or otherwise secured. This shell carries the upper cylinder of the pump I, which may be either cast therein or formed of seamless tubing and screwed or otherwise secured therein. Below this is suspended the lower cylinder, J, by a pipe, K, of any desired length—say from twenty-five to one hundred feet—which cylinder may be made in any suitable manner and of any convenient material, and should be provided with a foot or valve, L, and it may also have a suction-pipe, M, although this is not necessary, as the cylinder J may be submerged.

Depending from the lever F is a rod or pipe, N, which passes loosely through the cap C, base D, and an aperture, *h*, in the top of the shell H, and carries the upper piston, O, from which piston depends a rod, P, connected to the lower piston, Q, by any suitable coupling. As a further means of support for the shell H, I prefer to screw small rods into its top, as shown at R, which rods are secured in any convenient manner to the base D.

In setting my pump into a bored well having a bore but little larger than the shell, the lower cylinder being connected to the upper only by a comparatively small pipe of considerable length, the latter will bend so that the lower cylinder will be substantially in line with the shell and eccentric to the upper pumping-cylinder.

The operation of the pump is as follows: Motion being given to the pistons by the lever F, the upward motion thereof causes the water to enter the lower part of the lower cylinder, J, and the downward movement causes the water below said lower piston to pass through it, and thus fill the upper part of said cylinder. The next upward movement of the pistons forces a portion of the water above the lower piston out through the discharge-pipe and another portion into the upper cylinder. The next downward movement of the piston forces the water in the upper cylinder out of the same into the shell and discharge-pipe, and a corresponding quantity of the water already contained therein must of course pass out of the discharge-pipe. It will thus be seen that a continuous stream of water will be discharged from the spout, as the lower piston forces out water when going up, the upper piston when going down, and the air-chamber formed by the hollow piston-rod tends to equalize the stream at the instant when the stroke is changing. By this construction a force-pump double-acting in discharge may be readily made that will enter

the casing of a drilled well of very small bore, and this is facilitated by setting the upper cylinder eccentric within the shell. I do not, however, limit myself to this feature; nor do I intend to limit myself to the exact construction shown in the drawings.

I deem it important that the heads or ends of the shell shall be as small in diameter as the body thereof, in order that the pump may enter a well of small bore. If the caps or ends of the shell and cylinders project beyond the outside of the shell or the lower cylinder, the bore, and consequently the capacity, of the cylinders must be lessened. I also deem it important that there shall be independent openings for the discharge and the piston-rod, because the pipe for the discharge may be made much smaller than when the piston-rod passes through it.

It is essential that the piston-rod and discharge-pipe shall be close together below the lower edge of the pump-base, in order that they may pass into the casing up to the base; but these pipes must be separated above the base-line in order to allow play or vibration of the piston-rod, and also to communicate with the discharge-spout, which must be outside of the casting or bearer that supports the pump-handle.

If the water-passage were offset below the base, the pipes would not enter the casing to the platform-line, and it would be immaterial whether I use a continuous pipe curved or offset above the platform-line or whether I show the pipes screwed into the base and communicating through an oblique passage.

In constructing these pumps I have had them made both ways.

What I claim as new is—

1. In a double-piston pump, an outer case or shell having the upper cylinder depending therein, and provided with separate openings at its upper end for the discharge-pipe and piston-rod, in combination with a pump-standard having a passage for the piston-rod, and a connection for the discharge-pipe, the discharge-pipe being turned outwardly from the piston-rod above the base-line of the pump-standard, substantially as shown and described.

2. In a double-piston pump, an outer case or shell having the upper cylinder depending therein, and provided with separate openings at its upper end for the piston-rod, discharge-pipe, and supporting-rods, in combination with a pump-standard having a passage for the piston-rod, and connections for the discharge-pipe and supporting-rods, whereby the case or shell is suspended, the discharge-pipe being turned outwardly from the piston-rod above the base-line of the pump-standard, substantially as shown and described.

3. In a double-cylinder pump, an outer case or shell having the upper cylinder depending therein, and suspended below the platform by a discharge-pipe, and provided at its upper end with separate openings for the piston-rod and discharge-pipe, in combination with a pump-standard having a passage for the piston-rod and a separate opening for the discharge-pipe, the discharge-pipe communicating with the pump-spout through a passage cast in the pump-standard, substantially as shown and described.

4. In a double-cylinder pump, an outer case or shell having the upper cylinder depending therein, and suspended below the platform by a discharge-pipe, and provided at its upper end with separate openings for the piston-rod, discharge-pipe, and supporting-rods, in combination with a pump-standard having a passage for the piston-rod, a separate opening for the discharge-pipe, and connections for the supporting-rods, the discharge-pipe communicating with the pump-spout through a passage cast in the pump-standard, substantially as shown and described.

5. In a double-piston pump, an outer case or shell having the upper cylinder depending therein, and suspended below the platform by a discharge-pipe, said shell having separate openings at its upper end for the piston-rod and discharge-pipe, the discharge-pipe and piston-rod being substantially parallel with each other to the bottom line of the pump-base, the discharge-pipe communicating with the discharge-spout above said bottom line of base through a passage leading outwardly from said piston-rod, substantially as shown and described.

6. In a double-piston pump adapted for drilled wells, an outer case or shell having the upper cylinder depending therein and suspended below the platform by a discharge-pipe, said shell having separate openings for the piston-rod, discharge-pipe, and supporting-rods, the discharge-pipe, piston-rod, and supporting-rods being substantially parallel with each other below the bottom line of the platform, the discharge-pipe communicating with the discharge-spout above the said platform line through a passage leading outwardly from said piston-rod, substantially as shown and described.

In testimony whereof I affix my signature, in presence of two witnesses, this 9th day of May, 1888.

JOSEPH H. BRANSON.

Witnesses:
CHAS. W. SMITH,
A. E. SMITH.