

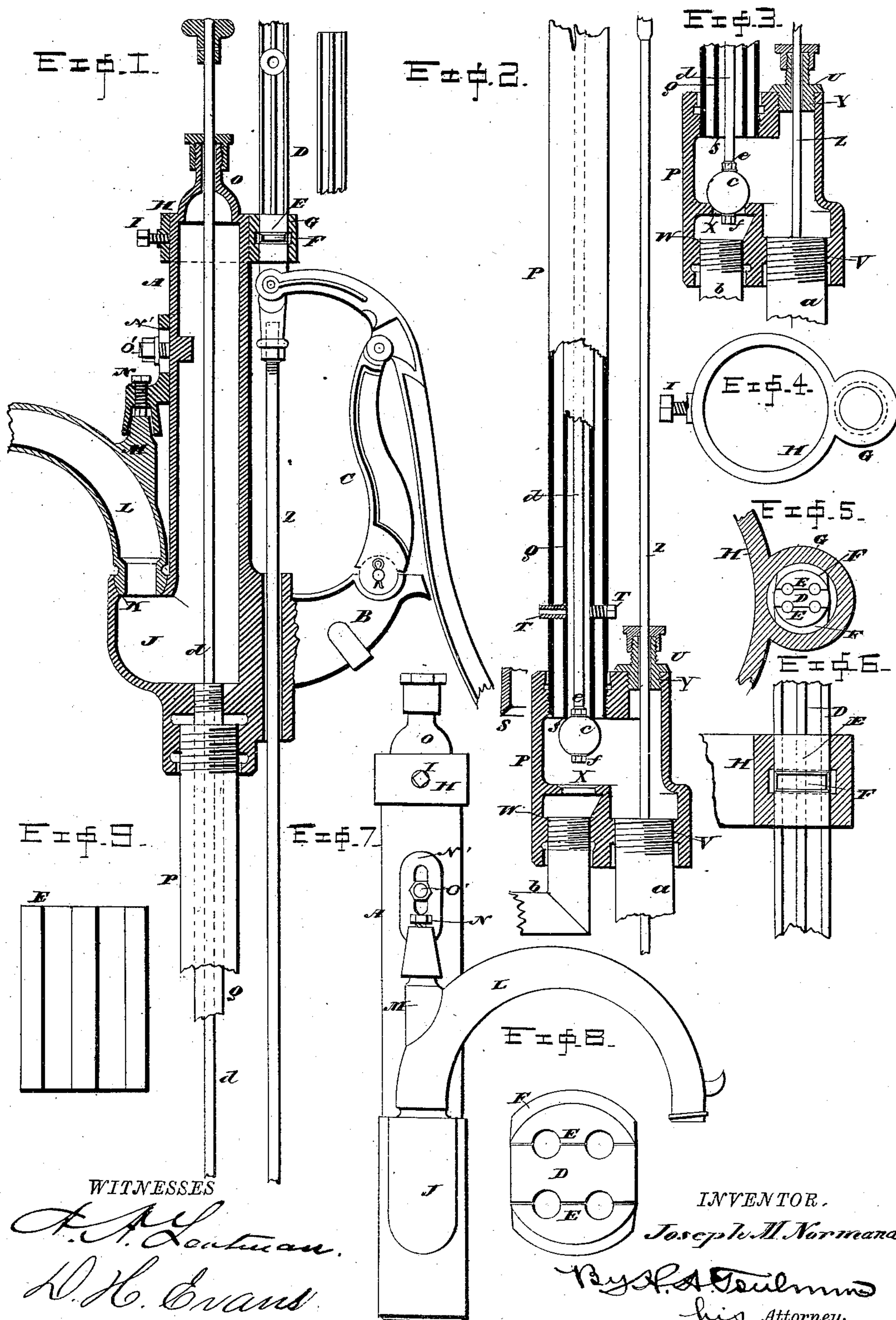
(No Model.)

J. M. NORMAND.

DOUBLE ACTING FORCE PUMP.

No. 381,885.

Patented Apr. 24, 1888.



UNITED STATES PATENT OFFICE.

JOSEPH M. NORMAND, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF TO
JACOB K. MOWER, OF SAME PLACE.

DOUBLE-ACTING FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 381,885, dated April 24, 1888.

Application filed June 23, 1887. Serial No. 242,216. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. NORMAND, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Double-Acting Force-Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in pumps, being specially intended for use in connection with double-acting force-pumps.

The invention consists, first, of a three-way shell or chamber connected with the pump-cylinder and pump-stock and having another water-discharge opening and a valve operated by a stem leading up to within convenient reach of the well-platform, and arranged to cut off the water either from entering said discharge-opening or from entering the stock after leaving the cylinder, or leaving the means which convey it from the cylinder to the three-way chamber, whereby the water may be delivered for use at the platform, or 25 may be delivered at some distant point and be conducted underground and below freezing altitude from the pump to such delivery point.

The invention further consists of the stock or barrel which depends from the platform, the three-way shell or chamber secured thereto and having a valve-seat in convenient relation to the lower end of the stock, a pipe within the stock, the interior of which forms a discharge-conduit, and the space between the exterior of which and the interior of the stock forms an air-chamber, and of a valve-stem which leads down from convenient reach of the platform to the shell and is connected 40 with a valve, which, by said stem, is placed either upon its seat in the shell or against the lower end of the said inner pipe, according to the direction in which or the place at which it is desired to deliver the water.

45 The invention still further consists of a hollow head into which the water is discharged, constructed with a spout-seat, and having a device to hold the spout in said seat, and the spout itself fashioned at one end to fit the seat

and engaged at a convenient point by said device, the arrangement permitting of turning the spout more or less round to either side, so as to deliver the stream at different places on the platform, as occasion or location may require.

50 The invention yet further consists of two rotatable guiding-blocks mounted in an eye at the upper end of the pump-head and of an extension to the plunger-rod which passes through said eyes and between the blocks, 55 whereby a guide is formed for the upper end of the rod that keeps it in a vertical position and adapts it to use with a handle or with a wind-engine, the latter case sometimes requiring that the rod be more or less rotated before a connection thereof can conveniently be 60 formed with the engine-pitman.

The invention also further consists of certain details of construction and arrangement, as will hereinafter be pointed out. 70

In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding features, Figure 1 represents a vertical sectional view of the pump-head and spout and a side elevation of the connecting-stock, discharge-pipe, valve-stem, plunger-rod, and handle, &c.; Fig. 2, a vertical sectional view of the three-way shell or chamber, a partial side and sectional view of the lower portion of the stock and discharge-pipe, and an elevation of the valve, valve-stem, plunger-rod, and the adjacent parts, showing the lateral discharge open; Fig. 3, a similar view showing the upward or platform discharge open; Fig. 4, a 85 plan view of the detachable ring carrying the eye in which the guide-blocks fit; Fig. 5, a horizontal sectional view of the eye, on a larger scale, showing the blocks and rod-extension in plan; Fig. 6, a sectional view of the same parts; Fig. 7, an elevation of the head and spout detached, showing the latter turned to one side; Fig. 8, an enlarged plan view of the guide-blocks and plunger-rod extension, and Fig. 9 a side elevation of one of the guide- 95 blocks.

The letter A refers to the pump-head, being that portion which stands above the platform,

from which the stock and the lower mechanism generally are suspended, and to which the handle is fulcrumed in the present instance by a stout lug, B, through a pivoted standard, C. The shorter end of the handle is pivoted to the extension D of the plunger-rod, which itself connects with the rod by a screw-thread, as shown. The rod passes through a hole in the lug B and is guided between two guide-blocks, E E, having heads F, which fit an annular groove in an eye, G, projecting from a ring or band, H, secured to the head A, as by a set-screw, I; or, if preferred, the eye may be formed integrally with the head. The blocks and extension are grooved, as shown, to lighten them, being preferably made of cast-iron. The blocks are free to rotate in either direction in the eye, yet always keep the extension, and therefore the plunger-rods also, in the proper vertical plane, and render its movement free. When the handle is removed or detached from the extension, a wind-engine pitman may be connected therewith, and the freedom of the blocks to turn without causing the rod to bind renders the extension easily accommodated to the condition or position of the pitman.

Referring back to the head A, I would observe that it is hollow, and preferably of cast-iron.

At J is an elbow, in which is formed a curved seat, K, adapted to receive the similarly-shaped end of a discharge-spout, L, and to form a smooth water-tight joint. A boss, M, formed on the spout, receives pressure from a set-screw, N, carried by a bracket, N', which guides the boss, as seen in Fig. 1. The bracket is vertically adjustable on the head, and is held by a screw, O', passing through a slot therein. (See Figs. 1 and 7.) By these several devices the spout is capable of being turned to various positions round about the head—a capability of much convenience. A cap, O, closes the upper end of the head and guides that end of the valve-stem.

Referring now to the lower part of the structure, the letters P and Q designate, respectively, the pump stock or barrel and the discharge-pipe, one being within the other and both secured to the platform-head A, and extending down a suitable distance, where the stock connects with the three-way shell or chamber R, and where the discharge-pipe terminates and forms a valve-seat, as at S. This pipe is held centrally with respect to the stock by the screws T, one of which is bored out to form a drip-hole, to allow all water above the freezing-point to run out.

The three-way shell or chamber is preferably made of cast-iron, and is provided with apertures U, V, and W, and with a valve seat, X, and into these apertures, respectively, are secured the stuffing-box Y, of any approved construction, for the plunger-rod Z, the cylinder *a*, (or the pipe which leads to it, as the case may be,) and the lateral discharge-pipe

b, by which the water is conducted to any desired point of delivery when not discharged from the spout L. The letter *c* refers to the three-way valve, which is of spherical form, and is preferably of soft material, as india-rubber, and is secured on the stem *d* by nuts *e* and *f*. The pressure of the water flowing into the shell or chamber maintains the valve against whichever of the seats X or S that it may have been adjusted to in connection with the friction between the valve-stem and its stuffing-box. When in the position shown in Fig. 2, the water entering the shell or chamber from the cylinder *a* (or the pipe leading upward from the cylinder, as it may be) passes downward through the seat X, and by way of the lateral discharge-pipe off to any desired point, the long annular space between the pipe Q and the stock or barrel forming an air-chamber. When, however, the valve is against the seat X, the water flows upward to the spout through the pipe Q, which now becomes the discharge-pipe proper. These entire improvements are applicable to single-acting pumps, and all the features above the three-way shell or chamber to double-acting pumps, and as the plunger or the plungers and the check and other valves constituting necessary parts of either of these classes of pumps form no part of the present invention they are not shown.

It should be observed that the head, being hollow, forms an air-chamber, and which chamber is above the spout. Thus I provide an air-chamber above the spout and another below it, as already described. The piston-rod and its extension of themselves are not claimed herein, but are claimed in an application filed of even date herewith for pumps, Serial No. 242,215.

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

1. In a pump, the combination, with a platform-head and a detachable ring secured thereto and having an eye with an interior groove, of two guide-blocks each forming less than one-half of the area of the eye and having beads which enter said groove, a piston or plunger-rod, and an extension therefor which works between said blocks and fills the area of the eye in the ring not occupied by the blocks themselves, substantially as shown.

2. In a pump, the combination, with a stationary hollow head having a spout-seat formed therein, of a spout above the seat fitted into said seat and adapted to be turned partially round the head in either direction and an adjustable holding device secured to said head and engaging with said spout to take up the wear occasioned by adjusting the spout to different positions.

3. In a pump, the combination, with a hollow head having an elbow in whose upper end a spout-seat is formed, a vertically-adjustable bracket having a recess in the lower end, and a set-screw, of a spout having one end

constructed to smoothly fit said seat and having a lug extending into said recess and engaged by said set-screw.

4. In a pump, the combination, with a stock
5 or barrel, of a discharge-pipe therein and a screw which enters the walls of the stock or barrel and the pipe, and which is hollow and communicates with the exterior space to form a drip.

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH M. NORMAND.

Witnesses:

WILBER COLVIN,
A. A. YEATMAN.