

(No Model.)

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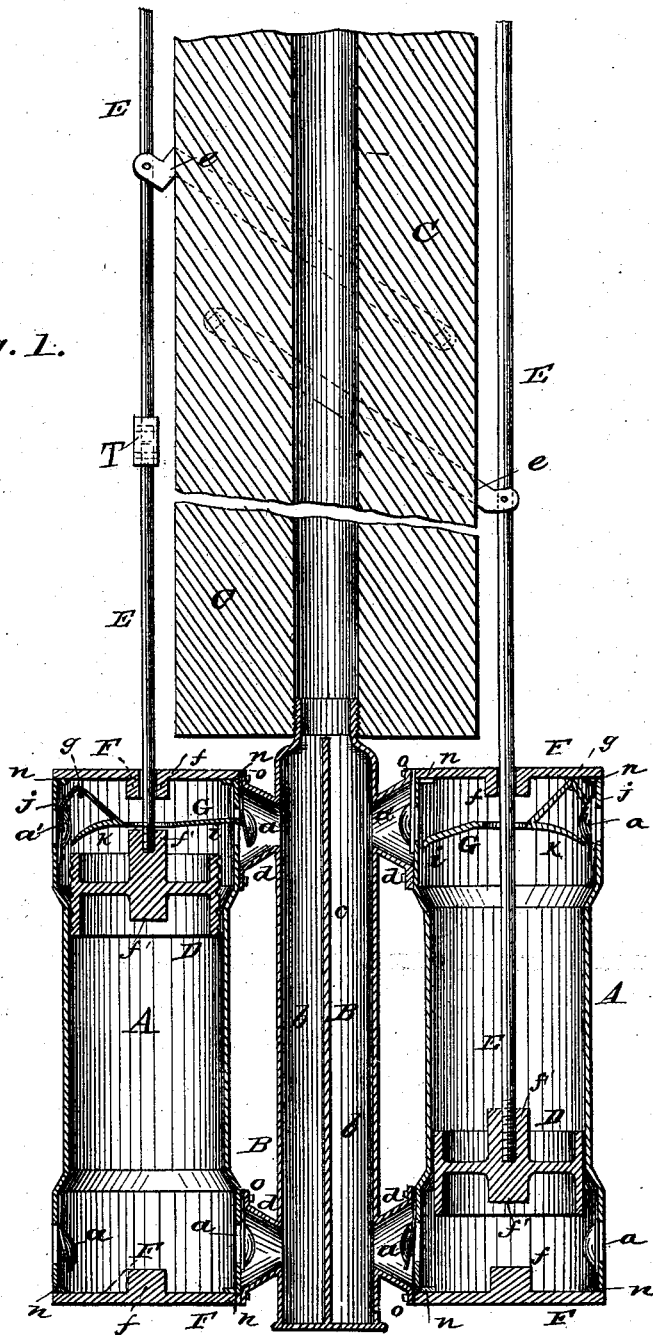
M. F. McNELLY.

DOUBLE ACTING SUBMERGED FORCE PUMP.

No. 261,622.

Patented July 25, 1882.

Fig. 1.



WITNESSES

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(No Model.)

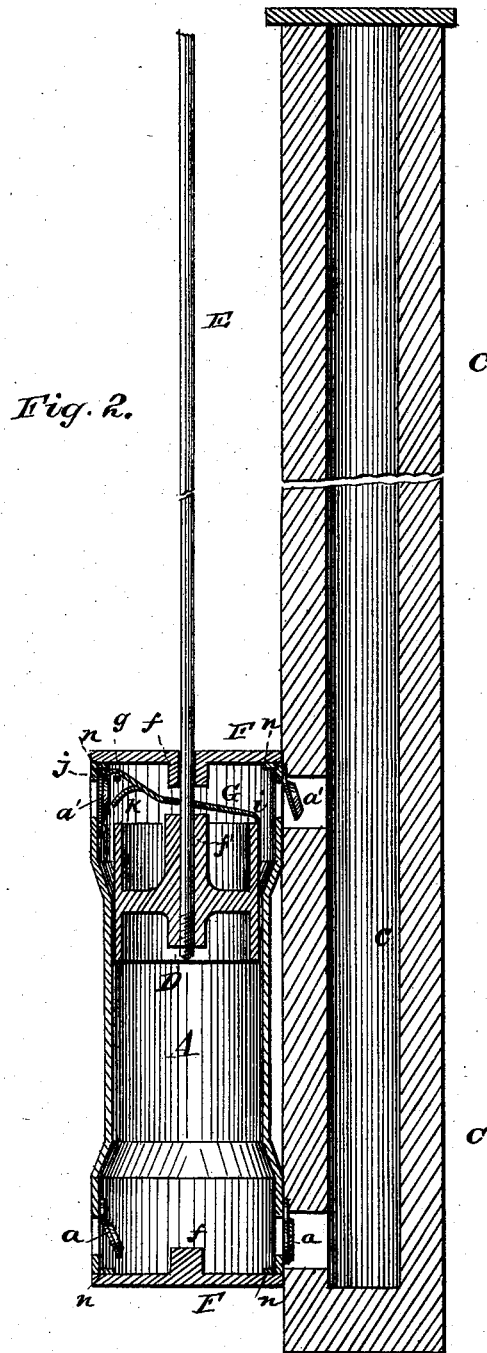
2 Sheets—Sheet 2.

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No. 261,622.

Patented July 25, 1882.



WITNESSES

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UNITED STATES PATENT OFFICE.

M. FRANK MCNELLY, OF STERLING, ILLINOIS, ASSIGNOR OF ONE-HALF TO
WILLIAM A. McCUNE, OF SAME PLACE.

DOUBLE-ACTING SUBMERGED FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 261,622, dated July 25, 1882.

Application filed February 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, M. FRANK MCNELLY, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Double-Acting Submerged Force-Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to that class of pumps called "submerged force-pumps;" and it consists essentially of two cylinders, with their appropriate valves, attached to a central core bisected longitudinally, forming two water-chambers—one for the discharge from each cylinder—which partition in said core is to prevent the opposing columns of water from antagonizing each other on their way from the cylinder to the pump-stock. Each of my cylinders is in itself double-acting, and employing the two cylinders, as I do, gives a quadruplex flow of water into the ordinary pump-stock under great force, making my pump very desirable as a fire-extinguisher, particularly for dwelling-houses.

In the drawings, Figure 1 is a vertical sectional view of a pump embodying my invention. Fig. 2 is a vertical sectional view of my invention when used with a single cylinder.

Similar letters indicate corresponding parts.

In the drawings, A A represent the cylinders of my improved pump, which are cast with an enlarged chamber at each end, extending beyond the part traversed by the piston or plunger, in which chambers the inlet and outlet valves are seated. When cheapness of construction is desired the narrower portion of the cylinders only, being that part in which the pistons move, should be bored or turned smooth. The ends of the cylinders are closed by the heads F, formed with the inwardly-projecting stops *f*, against which the pistons may strike at the end of their longest stroke, and thus be prevented from leaving the narrower part of the cylinders and interfering with the action of the valves. The heads F are secured

to the ends of the cylinders in any desired manner, and by the use of a gasket, *n*, of elastic material, placed between the heads and ends of the cylinders, a tight joint is obtained without the necessity for planing all the parts.

The plunger or piston D is formed with the central projection or boss, *f'*, extending above and below, which, coming into contact with the projections *f* on the inside of the cylinder-heads, prevents the plungers from being too far withdrawn from the narrow portion of the cylinders.

The rods E pass through the upper heads, F, and are connected with any suitable source of power.

B is a pipe or core placed between the two cylinders, which, by means of the partition *c*, forms two chambers, into each of which one of the cylinders discharges. A continuation of the pipe B forms the delivery-pipe. The core B is formed with the annular wings *d*, placed opposite the valve-chambers at the ends of the cylinders, to which they are secured.

The outlet-valves *a* are formed from separate pieces of leather or similar material large enough to form a gasket, which, being inserted between the flange O' of the annular wing *d* and the cylinders, makes a tight joint. The central part of the leathern disk is cut through on three sides, and the partially-detached piece, being provided with a weight, constitutes an ordinary flap-valve.

In order to be able at any time to let the water in the delivery-pipe down to the level of the supply, and thus prevent freezing, I provide each cylinder with the three-armed lever G, which is suspended on a pivot in the upper end of the cylinder. It is formed with a central aperture, through which the piston-rod E passes, and it is so constructed that when the plunger D is raised to its extreme height the boss *f'* will come in contact with and lift the lever G, which, when raised into a horizontal position, will push out and open the outlet-valve *a'* by means of its arm *i*, and by means of its hooked upper arm, *j*, draw in the opposite inlet-valve, thus affording free passage through the cylinders to the superincumbent water. The piston will not ordinarily be raised to its fullest height, and the lever G, being suspended by an eyebolt, *g*, and held in a nearly-horizon-

tal position by the arm K, which abuts against the side of the cylinder, it will not interfere in any manner with the operation of the other parts, nor will it be subject to much wear or danger of breakage.

5 C is the ordinary pump-stock, to which the core or pipe B is attached. *ee* are guide-rods pivoted to the stock and to the piston-rods E. The piston-rods E are provided with flexible joints, one of which is shown at T. Said joints are placed near the cylinders to prevent injury or excessive strain from the bending or vibration of the piston-rods. When one cylinder only is used the partition *c* is dispensed with.

10 In all other particulars the construction should be the same.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The cylinder A, constructed as shown, with the portion swept by the plunger D made narrower than where the valves are seated, provided with the heads F and projections *f*, the valves *a a* and *a' a'*, and the three-armed lever *g*, all arranged as and for the purpose specified.

2. The core B, bisected by the partition *c*, and provided with the annular wings *d* and flanges *o*, in combination with cylinders A and valves *a a'*, substantially as shown, and for the purpose described.

3. The cylinders formed with enlarged end sections, in which inlet and outlet valves are seated, and the heads F, formed with the stops *f*, in combination with plungers D, formed with bosses *f'*, the piston-rods E, and operating mechanism, as shown and described.

4. In a cylinder-pump having a reciprocating piston, the pivoted three-armed lever G, adapted to operate the inlet and outlet valves, whereby the contents of said pump may be discharged, substantially as shown and described.

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

M. FRANK McNELLY.

Witnesses:

WM. A. McCUNE,
W. S. WINDOM.