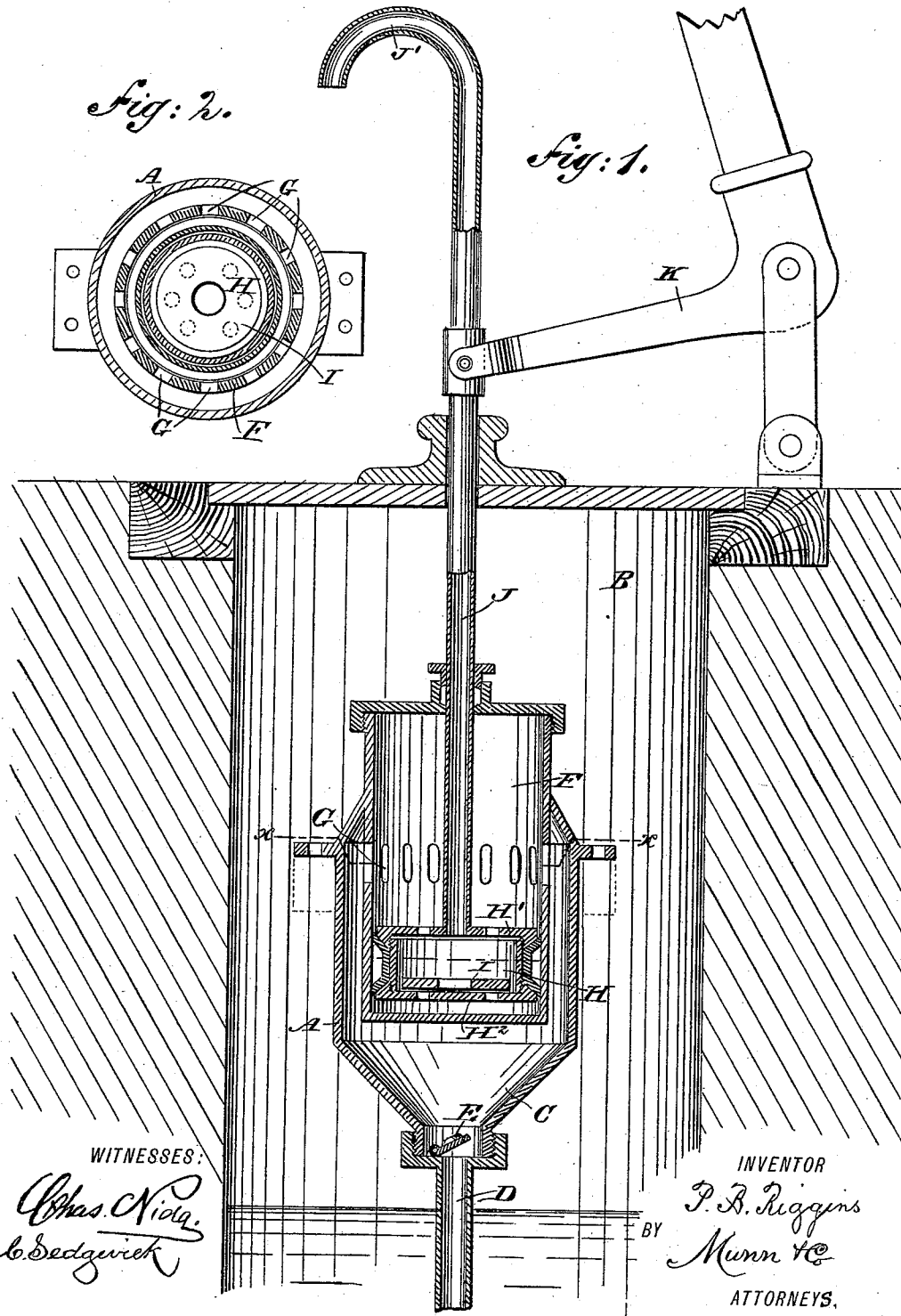


(No Model.)

P. B. RIGGINS.
PUMP.

No. 473,345.

Patented Apr. 19, 1892.



UNITED STATES PATENT OFFICE.

PADEN B. RIGGINS, OF SHEFFIELD, IOWA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 473,345, dated April 19, 1892.

Application filed July 23, 1891. Serial No. 400,477. (No model.)

To all whom it may concern:

Be it known that I, PADEN B. RIGGINS, of Sheffield, in the county of Franklin and State of Iowa, have invented a new and Improved Pump, of which the following is a full, clear, and exact description.

The invention relates to double-acting force-pumps; and its object is to provide a new and improved pump which is simple and durable in construction, very effective in operation, and not liable to get out of order.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement, and Fig. 2 is a sectional plan view of the same on the line *x x* of Fig. 1.

The improved pump is provided with a shell or casing A, held in the well B and provided at its lower reduced end C with a suction-pipe D, extending into the water to be drawn, the upper end of the pipe supporting a valve E, opening upward in the lower end C of the casing A. Within the latter and concentric with the same is arranged a cylinder F, closed at both ends and provided at or near its middle with openings G, connecting the interior of the cylinder with the interior of the casing. Within the cylinder F is fitted to slide vertically a piston H, provided with an apertured top H' and a similarly-apertured bottom H². Between the apertured top and bottom H' and H², respectively, and within the hollow piston H is held loosely a disk-valve I, adapted to be alternately seated on the top and bottom H' and H² of the piston H. The top H' of the piston is rigidly connected with the lower end of a pipe J, opening into the hollow piston H and passing through suitable stuffing-boxes held in the upper head of the cylinder F. The pipe J extends to the top of the well and is provided at its upper end with the usual outlet-pipe J'. The pipe J above the top of the well is connected with a lever K or other suitable mechanism for imparting a vertical sliding motion to the said pipe J, and consequently to the piston H in

the cylinder F. The piston H slides up and down the cylinder between the heads of the latter, so as to alternately pass above and below the inlet-openings G. When the piston H moves downward from the openings G, water is drawn into the cylinder F, and a like operation takes place at the time the piston moves upward from the openings G. Thus at each up or down stroke of the piston water is drawn into the cylinder F.

When the piston H is in its lowermost position, having drawn in water, as above mentioned, and the piston then moves upward, water flows through the apertures in the top H', the valve I being seated on the bottom. On the further upward movement of the piston the water is forced upward through the pipe J and through the outlet or discharge pipe J', it being understood that the slightest pressure on the water in casing A seats the valve E. When the piston has passed the openings G, water is drawn into the lower part of the cylinder F, as above described. When the piston moves downward and water has been drawn into the lower part of the cylinder, as above described, during the time the piston moves upward above the openings G, then the water, pressing upon the valve I, raises the latter and seats the same on the under side of the top H'. The water in the lower part of the cylinder F is now forced through the openings in the apertured bottom H² into the piston H and up through the pipe J and spout J' to the bucket or receptacle to be filled. The above-described operation is repeated—that is, water is sucked into the cylinder F at each up or down stroke, and likewise water is forced out through the pipe J at each stroke in the manner described.

It will be seen that a pump constructed in this manner is composed of but a few parts not liable to get out of order. The cylinder F and the casing A may be cast in one piece, the upper end or top of the casing then extending to the wall of the cylinder F above the openings G, as shown in Fig. 1.

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

1. In a pump, the combination, with a closed casing, a suction-pipe held in the lower end of the said casing, and a valve in the said

suction-pipe, of a cylinder held within the said closed casing and formed with openings at or near the middle of the same, a hollow piston fitted to slide within the said cylinder
5 and provided with an apertured top and bottom, and a valve held loosely in the said hollow piston and adapted to be alternately seated on the apertured top and bottom of the said piston, substantially as shown and described.
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2. In a pump, the combination, with a closed casing, a suction-pipe held in the lower end of the said casing, and a valve in the said suction-pipe, of a cylinder held within the
15 said closed casing and formed with openings at or near the middle of the same, a hollow

piston fitted to slide within the said cylinder and provided with an apertured top and bottom, a valve held loosely in the said hollow piston and adapted to be alternately seated
20 on the apertured top and bottom of the said piston, and a discharge-pipe mounted to slide vertically and rigidly connected with the said piston to form a piston-rod for the same, the lower end of the said pipe opening into the
25 said hollow piston, substantially as shown and described.

PADEN B. RIGGINS.

Witnesses:

D. LOOMIS,
J. G. KNESEL.