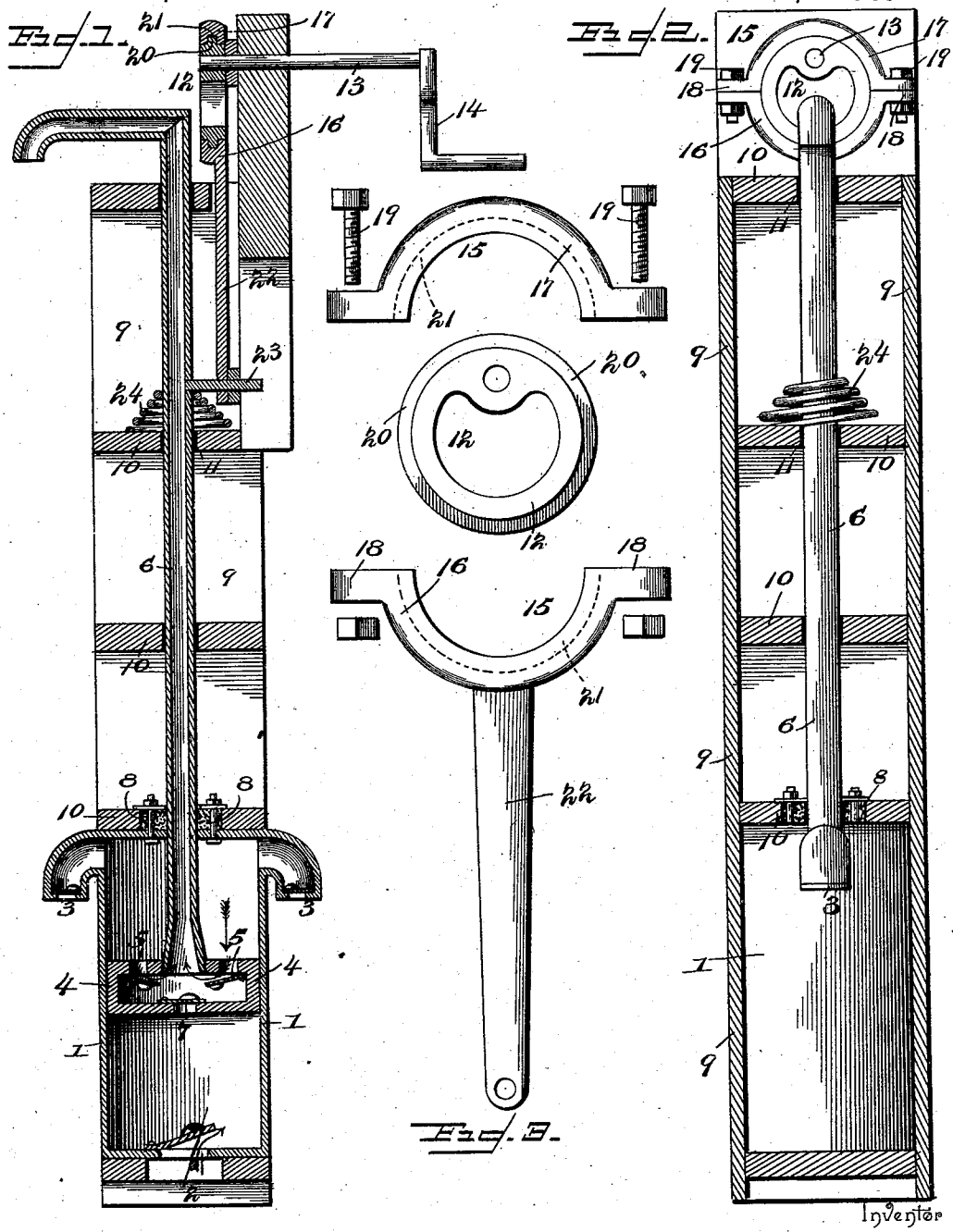
(No Model.)

R. H. HORTON.

PUMP.

No. 533,955. Patented Feb. 12, 1895.



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ROBERT H. HORTON, OF ABATTIS, MISSOURI.

PUMP.

SPECIFICATION forming part of Letters Patent No. 533,955, dated February 12, 1895.

Application filed July 5, 1893. Serial No. 479,627. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. HORTON, a citizen of the United States, residing at Abattis, in the county of Warren and State of Missouri, have invented a new and useful Pump, of which the following is a specification.

My invention relates to a force pump of the class in which a tubular piston-rod is employed, and the objects in view are to provide a simple, inexpensive, and efficient construction and arrangement of cylinder, valves, &c.; and furthermore, to provide simple and direct means for operating the piston-rod.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings: Figure 1 is a vertical sectional view of a pump embodying my invention. Fig. 2 is a sectional view at right angles to Fig. 1. Fig. 3 is a detail view of the yoke.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a submerged cylinder having a flat perforated top portion, which is provided at its bottom with an inlet valve 2, and at its top with upwardly opening inlet valves 3 which are arranged in outward and downward curved arms at the upper end of the cylinder. The hollow plunger head 4 is connected to the tubular piston-rod or tube 6, and is provided with inwardly-opening valves at the top 5 and a single inwardly opening bottom valve 7, which valves operate successively to admit water to the interior said piston-rod being flared or enlarged at its point of connection with the plunger. A stuffing-box 8 is arranged at the upper end of the cylinder to receive the piston-rod and is secured in position at the top of the cylinder by the same bolts that serve to bolt the latter to one of the horizontal braces or guides 10 of the frame work 9.

In operation when the plunger ascends the valves 2 and 5 are opened, the valves 7 and 3 remaining closed, and when the plunger descends, the valves 7 and 3 are opened and the valves 2 and 5 are closed.

It will be seen that all of the valves of the pump, with the exception of those at the upper side of the plunger, open against and close with the action of gravity, thus insuring accurate closing without the use of actuating springs. The flared lower end of the plunger-rod facilitates the passage of the water thereinto from the cavity of the plunger.

The cylinder is supported in a framework 9, which is provided with spaced horizontal braces or guides 10, having guide-openings 11, through which the hollow plunger-rod extends, and the guide opening 11, in one of the horizontal braces or guides 10, is somewhat enlarged to accommodate the packing that essentially comprises the stuffing box 8, and such packing is inclosed within the enlarged opening by means of a plate secured in position by the bolts referred to, as clearly illustrated in the drawings.

12 represents an eccentric carried by an operating-shaft 13, provided with a crank or handle 14, and surrounding this eccentric is a divided yoke 15, comprising the separable sections or halves 16 and 17, which are provided with lateral parallel perforated ears 18, engaged by the bolts 19. The eccentric is provided with a peripheral web 20, which engages a corresponding groove or channel in the inner surfaces of the sections or halves of the yoke, such channel being shown at 21. Connected rigidly to the lower section or half 16 of the yoke is a pitman 22, which is pivotally connected at its lower end by means of a pivot-bolt or pin 23 to an intermediate point of the hollow plunger-rod, whereby as the eccentric is turned by means of the crank or handle and the yoke is thereby swung in a vertical plane, the pitman will communicate motion to the plunger-rod and cause the latter, and hence the attached plunger, to reciprocate vertically.

Bearing at its lower end upon one of the guides 10, and at its upper end against the pivot-bolt by which the pitman is connected to the plunger-rod, and surrounding the latter, is an actuating spring 24, which resists the downward movement of the plunger-rod and assists the upward movement of the same, thus equalizing the stroke and enabling the operator to apply the same power at all points in the operation of the crank or handle.

It will be understood that the detachability of the upper member or half of the yoke en-

ables the parts of the operating mechanism to be readily disconnected for the purpose of repairing, cleaning, &c.

Having described the invention, what I claim is—

In a pump, the combination of an upright supporting frame provided with a horizontal brace having an enlarged opening therein; of a valved cylinder having a flat perforated top portion resting flat against the under side of said frame brace, the piston rod working through the perforation in the top of the cylinder and the enlarged opening of said frame brace, a stuffing box packing arranged within said enlarged opening of the frame brace and on top of the cylinder, a plate fitted on top of the frame brace over the enlarged opening therein, and a single set of bolts engaging the upper end of the cylinder and said plate to secure the latter on top of the packing and also to provide for the support of the cylinder, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT H. HORTON.

Witnesses:
GEO. W. LAW,
THOS. H. HESS.