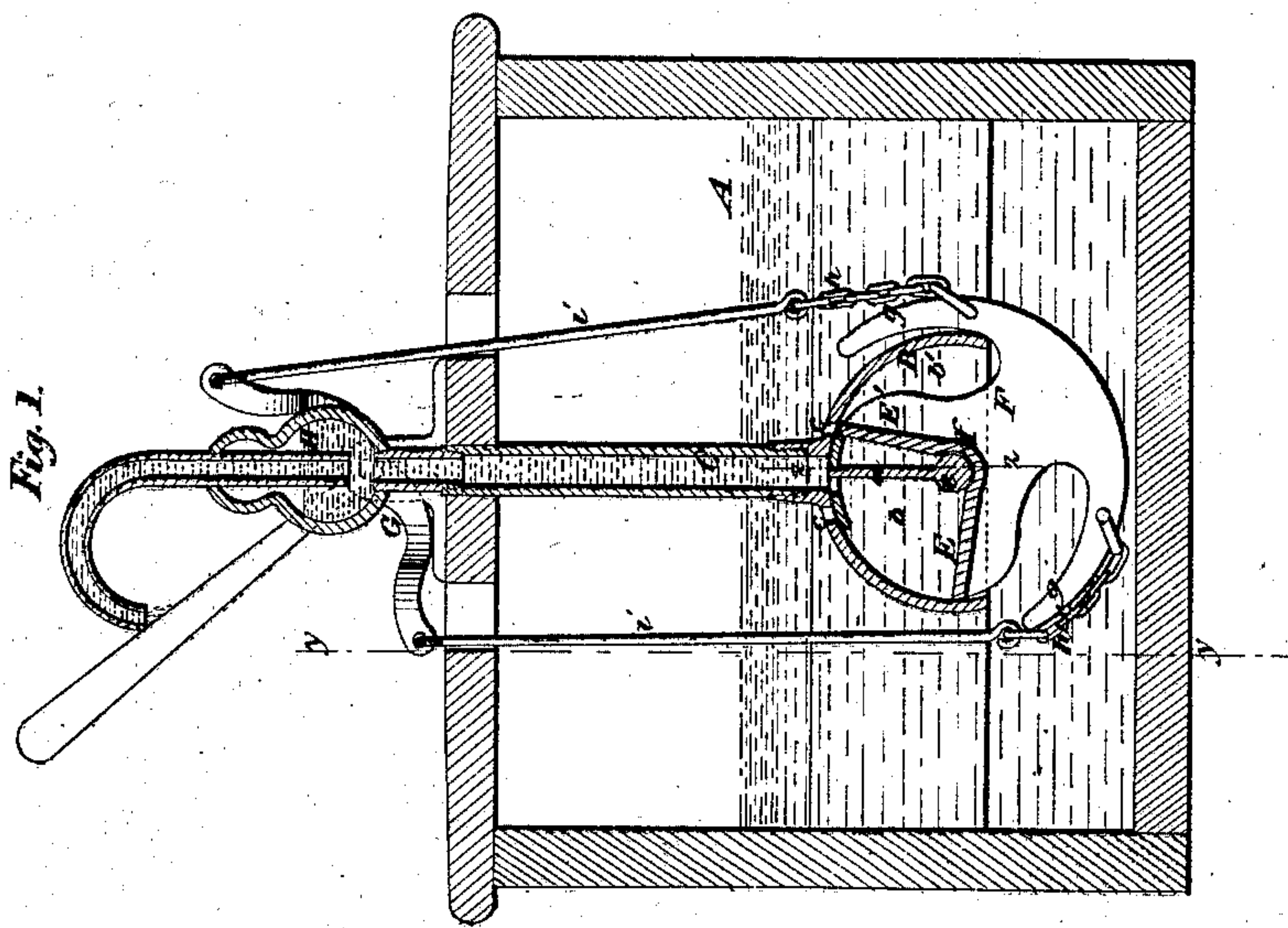
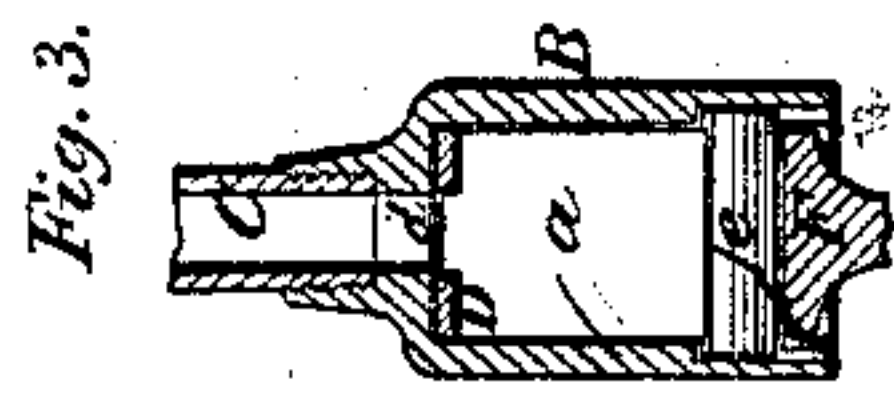
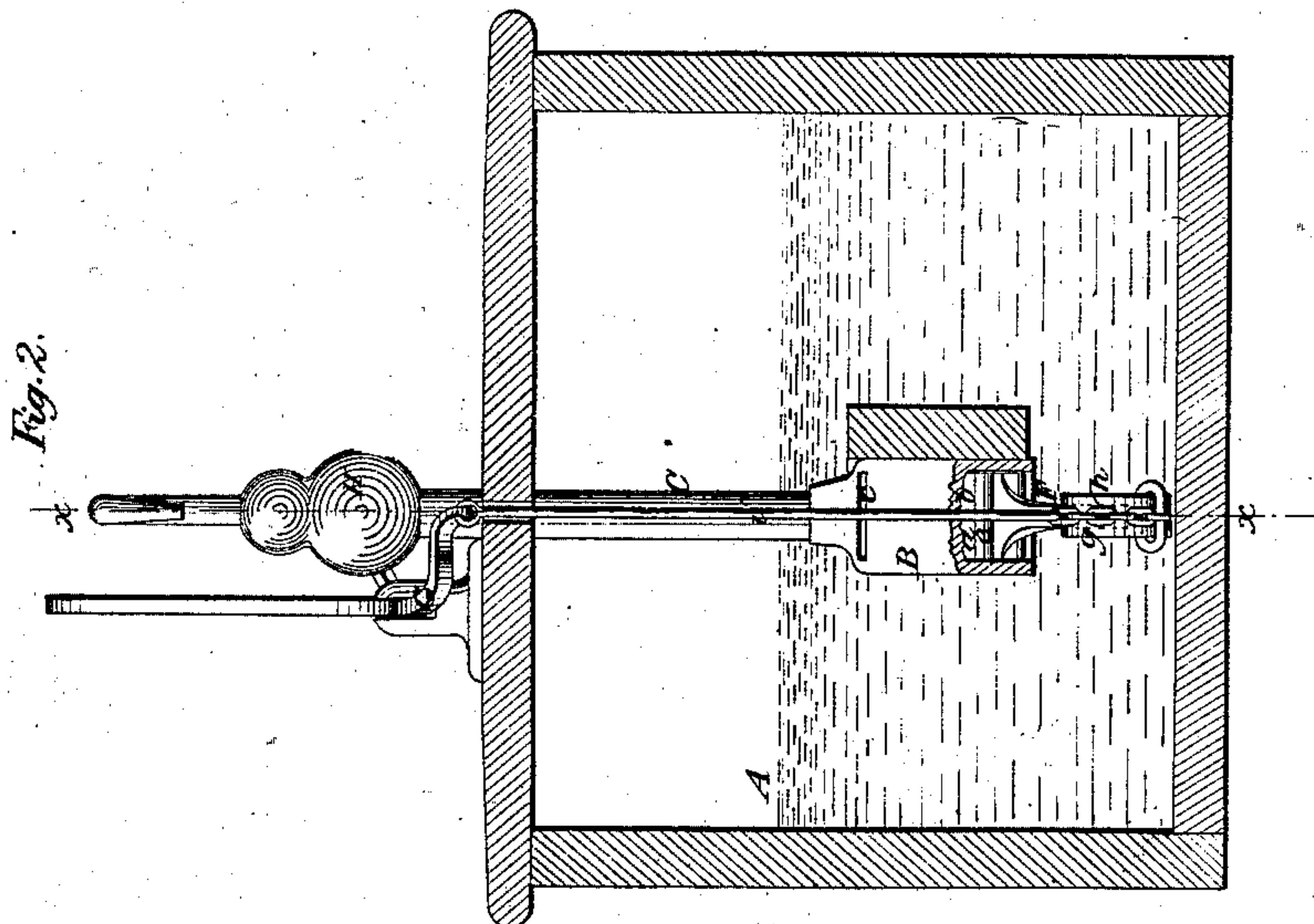


Hunt & Devin, Oscillating Pump,

N^o 36,837.

Patented Nov. 4, 1862.



Witnesses,
J. W. Rind

Inventor,
H. C. Hunt & H. N. Devin
by M. M. F. Atty.

UNITED STATES PATENT OFFICE.

H. C. HUNT AND G. W. DEVIN, OF OTTUMWA, IOWA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 36,837, dated November 4, 1862.

To all whom it may concern:

Be it known that we, H. C. HUNT and G. W. DEVIN, of Ottumwa, in the county of Wapello and State of Iowa, have invented a new and Improved Force-Pump; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of our invention, taken in the line $x x$, Fig. 2. Fig. 2 is a vertical section of the same, taken in the line $y y$, Fig. 1. Fig. 3 is a vertical section of the same, taken in the line $z z$, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a force-pump which will be simple in construction, capable of being operated with but a small expenditure of power, and of being manufactured at a reasonable cost, and not liable to get out of repair nor become deranged by use.

To this end the invention consists in the employment or use of a stationary semi-cylindrical shell, provided with a partition or an abutment, with induction-openings and an eduction-tube, and also provided with a slide-valve and oscillating pistons, all arranged to operate as hereinafter fully set forth.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents a well or reservoir from which the water is to be drawn or pumped, and B is a semi-cylindrical cast-metal case, which is secured in any proper way in the lower part of the well. The case B may be cast in one piece, and it is provided with a vertical partition or abutment, a , which divides it into two equal compartments, $b b'$, as shown clearly in Fig. 1. Each compartment $b b'$ of the case B has an induction-opening, c , and between these induction-openings an eduction-pipe, C, communicates with the interior of the case, the partition a being in line with the center of the pipe C, as shown in Fig. 1.

D is a slide-valve, which is of curved form, corresponding to the curvature of the case B and equal to it in width. This valve is provided with a central opening, d . The valve D is placed between the upper end of the par-

tion a and the inner side of the case B, and is allowed to work freely to the right and left, so that its opening d may be shifted first into one compartment, b , of the case B, and then into the other one, b' , and form a communication alternately between said compartments and the eduction-pipe C.

E E' represent two pistons, which work in the compartments $b b'$ of the case B. These pistons are equal in width to the interior of the case B, and they form radii of a semicircular plate, F, which works against a cylindrical projection, e , at the lower end of the partition a , said projection fitting in a recess, f , between the inner parts of the pistons E E'. The plate F is not solid, but is provided with projecting arms $g g$, which form the principal part of the exterior of the plate F, and are at the outer side of the case B, as shown in Fig. 1. The ends of the pistons E E' are rounded to correspond to the curvature of the inner side of the case B. The pistons E E' and plate F are all cast in one piece.

To each arm g of the plate F there is attached a chain, h , which forms a connection between the arms g and a lever, G, at the upper part of the well A. The chains h may extend up to the lever G, or they may be connected to rods i , the latter being connected to the ends of the lever, as shown in Fig. 1. The lever G is of T form, and by moving it back and forth it will be seen that an oscillating movement will be communicated to the plate F and pistons E E'. Different forms of levers, however, may be used for operating the pistons, and we do not confine ourselves to any particular kind or arrangement of the same for effecting the purpose.

The eduction-pipe C, near its upper end, is provided with an air-chamber, H.

The operation is as follows: As the pistons E E' work or oscillate in their respective compartments $b b'$ in the case B, the water is forced alternately from each compartment into the eduction-pipe C through the opening d in the slide-valve D, and just previous to the termination of each upward movement of the pistons the slide D is shoved along in consequence of the piston coming in contact with it, and the opening d made to pass into the compartment of the piston which is at the termination of its downward movement, and the induction-opening c of said compartment

is closed by the valve, while the induction-opening of the other compartment containing the elevated piston is not closed by the valve, and hence forms a communication between said compartment and the well. It will be seen, therefore, that as the lowest piston ascends, the water in its compartment will be forced up through the opening *d* in the valve D into the pipe G, while the compartment containing the descending piston will be filled with water passing through its induction-opening *e*, which opening is closed by the valve D at the termination of the movement of the rising piston, and the opening *d* at the same time made to form a communication between the compartment of the lowest piston and pipe C. Thus a continuous stream is forced through the pipe C, and it will be seen that the leverage-power is the same throughout the whole operation, as the chains *h* always work from the periphery of the arms *g*. The pump may be constructed at a small cost, and

there are no parts liable to get out of repair or become deranged by use, as there is but one valve and no packing, and all the force applied acts directly on the water to be raised.

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

The stationary semi-cylindrical case B, provided with the slide-valve D, abutment or partition *a*, and induction-openings *e e*, with the eduction-pipe C, placed between them, in combination with the oscillating plate F, having the pistons E E' attached and placed, respectively, in the compartments *b b'*, and provided with the arms *g g*, which are connected to a suitable lever, G, all arranged to operate as and for the purpose herein set forth.

H. C. HUNT.

G. W. DEVIN.

Witnesses:

H. CLAY GRIMES,
THOS. J. DEVIN.