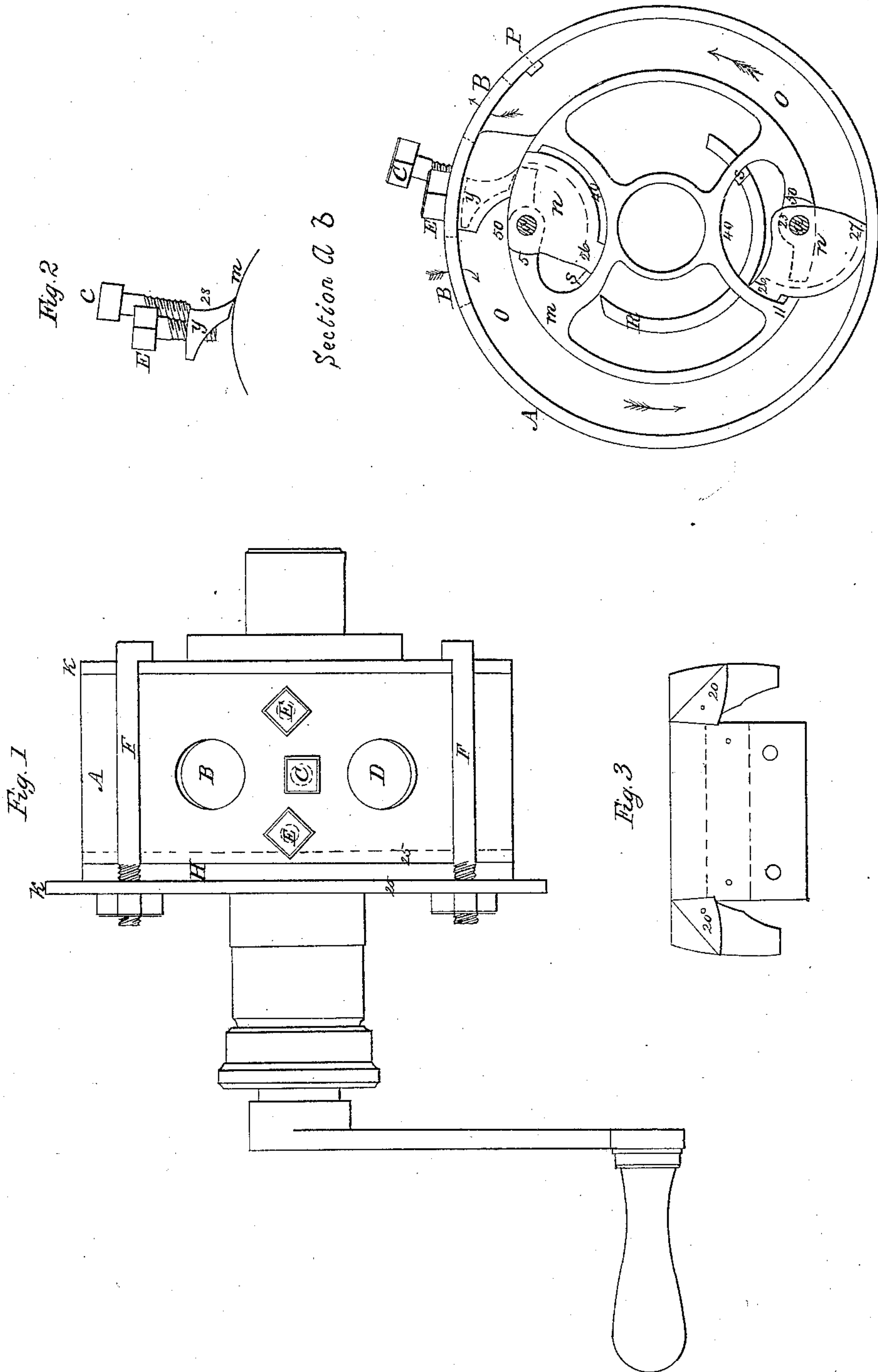


H. Pease, Rotary Pump.

N^o 18488.

Patented Oct. 20, 1857.



UNITED STATES PATENT OFFICE.

HENRY PEASE, OF BROCKPORT, NEW YORK, ASSIGNOR TO ECKLER, BUSWELL AND CO.

ROTARY PUMP.

Specification of Letters Patent No. 18,488, dated October 20, 1857.

To all whom it may concern:

Be it known that I, HENRY PEASE, of Brockport, in the county of Monroe and State of New York, have invented new and useful Improvements in Rotary Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view, Fig. 2 is a detached end view of the abutment, Fig. 3 is a view of the packing for abutment. *a b* is a sectional view (which is obtained by moving the end cap).

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

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

"A" main cylinder or shell, F F F F bolts, K K caps, B suction passage, D discharge aperture, H ring packings, E E screw bolts, C set screw, *m* inside driving cylinder, Y abutment, *n n* pistons, R segment, *a a* pin shafts, P stop or trip.

Fig. 1 represents the pump as put together without the induction and eduction pipes.

F F F F are bolts made with a hook head to facilitate removing cap 20 as represented at Fig. 1 and hook into a groove (not shown in the drawings) at one end of the pump and pass through the cap at the other end and then supplied with suitable nuts. These bolts answer for two purposes in my pump.

The first object that I now mention is in common use, that is: to form a tight or firm joint between the caps and shell.

The second object is to screw up the cap 25 against the cylinder, *m*, as it wears away by use, which could not be done without the lead ring H (or its substitute) which gives way as the cap 25 is screwed up to the cylinder *m* as shown at the dotted line in Fig. 1. The cap 25 is made to fit the inside diameter of the shell A Fig. 1, and of sufficient depth to allow it to enter the shell A Fig. 1 as far as the dotted lines and against the cylinder *m*, and projecting outward far enough for the lead ring H Fig. 1.

Section *a b* with cap 25 removed shows the inside construction of this pump.

n n are reciprocating rotary pistons. The pistons are made of metal and represent a portion of a cylinder as shown by dotted

lines from 26 to 27 section *a b* and capped at each end with metal caps of sufficient thickness to give the proper strength and shape and to serve as hangers or heads, the whole being the exact length of the cylinder *m* as represented in the drawings. The cylinder *m* has slots cut lengthwise to receive the cylindrical portion of the pistons as shown at 11 section *a b* and a portion of the cylinder is cut away at 50 50 50 50 section *a b* so as to allow the hangers to pass down on each end of cylinder and receive the pin shaft *a*, on which the pistons turn. These pistons are made to fit against the shell A at 27 and the cylinder *m* at 26 in the piston chamber 40. One feature or object of this piston is to keep a tight joint at 27 without packing which is accomplished by making the piston as represented in the drawings, that is, the distance from the center of pin *a*²³ (section *a b*) to 26 greater than the distance from the same center (of pin *a*²³ section *a b*) to the point 27 and explained thus: As motion is given to the cylinder *m* section *a b* in the direction of the arrows the pistons are worked up against the water (which fills the water way O) and piston chamber 40 (the water finds its way into chamber 40 through joints left loose for that purpose) and the balance of pressure being in favor of the long side 26 keeping the piston tight to the shell at 27 and will continue to keep it tight until the piston wears away enough to let the long side 26 up to the cylinder at 11.

Y section *a b* represents the abutment and its peculiarities and is shown very plain at Y Fig. 2. The front part at 28 is of a concave form which gives an extended sharp point to the abutment for the purpose of preventing stone or gravel being drawn under the abutment by the action of the cylinder or pressure of the water when in operation preventing thereby the possibility of breakage or stoppage of the pump from such causes.

C set screw shown at Fig. 2 at section *a b*. The object of this screw is to set the abutment Y down to the cylinder as it wears away by use thereby keeping a good joint without packing and which can be set down when the pump is in operation thereby preventing the necessity of stopping the pump to put in new packing.

Figure 3 is leather packing used for the abutment to pack between the shell A, caps

K K and abutment. When cut as shown at Fig. 3 the split corners are riveted to the main part at the small holes as represented and put into its proper place (the screwbolts 5 E E passing through the large holes as represented at F and into the abutments) and form a sort of bell mouthed packing the object of which is to allow the abutment to be made a little short of the distance between 10 the two caps K K for the purpose of allowing the cap 25 Fig. 1 to be screwed down in case of wear.

Operation: When motion is given to this pump in the direction of the arrows the piston 15 23 draws the water in at B and drives the water out at P as represented by the arrows. When the piston has moved around far enough to come in contact with the stop P which drives the piston down into 20 the chamber 40 or nearly so when it also comes in contact with the abutment which insures its going as far as necessary for the purpose of passing the abutment it is then thrown out to the shell again or nearly so 25 by means of the segment R always keeping one piston in full operation.

The valves are constructed in such a manner as to compensate for their natural wear which I obtain by hanging them eccentrically as follows: Measuring on a line 30 from 26 to pin *a*, then on a line to 27, the

short side to work against the shell and the long side to work in the chamber 40. The hangers are made in such proper shape as to close the valves before the cylindrical 35 portion reaches the abutment thereby preventing injury or obstruction to the valves by the introduction of stone, gravel or other foreign substance. By cutting off a portion of the outside diameter of the valves *n*, *n*, 40 at 27 in a proper shape to fit the inside of the shell I make a large wearing surface, and when closed in the valve chamber it is secure from wear while passing the abutment. 45

What I claim as new and desire to secure by Letters Patent is—

The valve *n*, *n*, constructed substantially as above described, that is, hanging the valve eccentrically on the pin *a*, to compensate for the natural wear, the hanger portion or heads of the valve constructed as described, to close the valve before the cylindrical portion reaches the abutment, the construction of the wearing surface of the 50 valve as described for the purpose of obtaining a large wearing surface and securing it from injury while passing the abutment. 55

HENRY PEASE.

Witnesses:

PLATT BELDEN,
HORACE BELDEN.