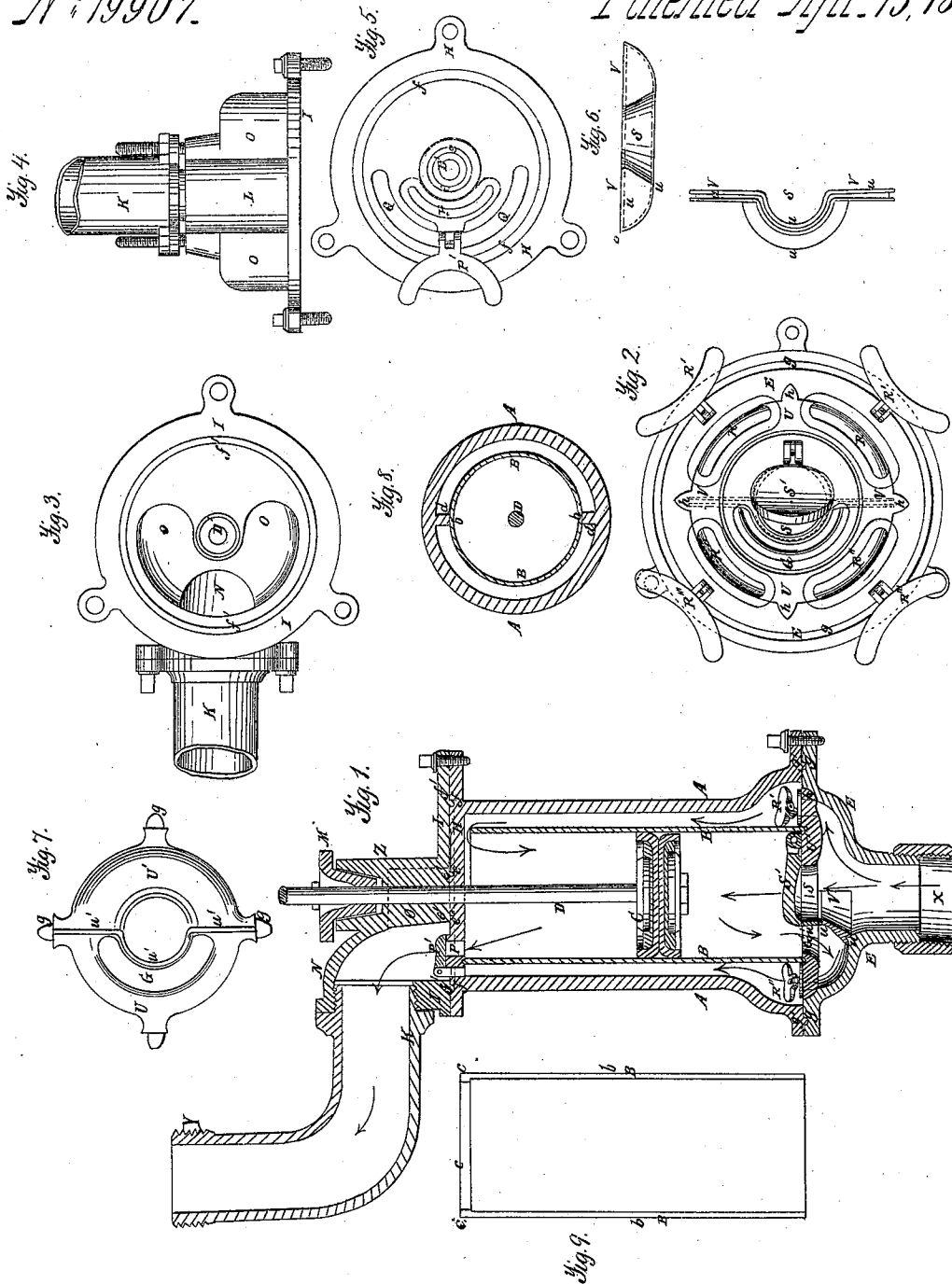


E. Bellamy,

Double-Acting Pump.

N^o 19907.

Patented Apr. 13, 1858.



UNITED STATES PATENT OFFICE.

E. BELLAMY, OF ST. LOUIS, MISSOURI.

DOUBLE-ACTING FORCE-PUMP.

Specification of Letters Patent No. 19,907, dated April 13, 1858.

To all whom it may concern:

Be it known that I, EUGENE BELLAMY, of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Double-Acting Force-Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, in which drawings—

Figure 1 is a vertical section. Fig. 2 is a cross section showing the lower valves, the cylinders being removed. Fig. 3 is an inverted view of the top chamber. Fig. 4 is a side view of the top detached from the cylinder. Fig. 5 is a section through the top of the cylinder showing the upper valve open, and the valve seat. Fig. 6, is a plan view, and also a side view of the division-piece in the lower chamber, to prevent the return of the water from the pump on the down stroke. Fig. 7, is a view of the lower side of the lower valve seat detached from its position in the lower chamber. Fig. 8 is a cross section through the cylinders above the piston. Fig. 9 is a view of the inner movable cylinder.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In Fig. 1 in the construction of my invention A is the outside cylinder, B the inner cylinder C the piston, D the piston rod, E the lower chamber, G the slot or opening in the adjustable plate, H the rim of the cylinder A, I the rim of the top chamber, K the discharge pipe, L the upper chamber, M stuffing box, N the outer portion of the chamber through which the water passes, P the opening for the passage of the water, P' the valve, R' valve, R''' valve, S water passage, S' valve, V division piece, U and U' the adjustable piece or valve seat, u' and u' the division piece made with grooves above and below, v' water chamber for the entrance of water on the down stroke, y the underside of division piece, v' h, h the lower side of the adjustable piece, g and g' the groove and flange in the outer case A.

In Fig. 2 E the outer cylinder of lower chamber, G water passage, R openings, R' valves, R'' openings, R''' valves, S opening, S' valve, V division piece, U adjustable piece or valve seat, h bearing points of same, g groove.

In Fig. 3, I the rim or outer flange, O

the upper chamber, N the discharge opening, K discharge pipe, f' flanch, D' hole for piston rod.

In Fig. 4, I the rim or outer top cylinder, K discharge pipe, o, o upper water chamber.

In Fig. 5, H, the flange on the upper end of cylinder A, f, groove in same, into which flange f', Fig. 3, fits, D' hole for piston rod to play through, P opening of valve, p' valve, Q opening for upward flow of water at the down stroke of the piston, e groove for flanch to rest in.

In Fig. 6 V the division piece, u u the grooves in same, S the water passage, V division piece, u showing the grooves in dotted lines, S the water passage, or curve in the piece, for the water to pass up.

In Fig. 8 A the outside cylinder, B the inner cylinder, D piston rod, b flange on inner cylinder, d groove into which it fits.

In Fig. 9, B the inner cylinder, b flanches on outside of same, c, c, c showing a projection on one half of cylinder B, which fits into a groove on the lower side of the upper valve seat, and is made watertight.

In putting my pump together in order to make the joints water or air tight I place in all the grooves into which the flanches fit, mastic or any similar compound so that when the parts are brought together the joints are all water tight, and the different chambers and compartments are made to perform their own designed functions.

Having it thus constructed its operation is herewith described: As the piston is made to draw up the valves R' and R''' are all closed by the pressure of the atmosphere, while the valves S', and P' are opened, thus carrying the water into chamber B. As the piston makes its down stroke, the valves S' and P' are closed, and the valves R' and R''' are opened, the water passing from below the piston out at opening G into lower chamber which is formed by division piece v, and then through the valves R''' up between the cylinders A and B, and out at opening Q, Fig. 5, shown in dotted lines in Fig. 1. The water passes by suction at the same time through valve R' from the cistern up between the two cylinders and enters into the cylinder B at the top, as seen in Fig. 1, where one side of said cylinder is lower than the other for said purpose, so that by this arrangement by means of the suction and pressure each stroke enables me to throw

off a like proportion of water, and for efficiency I have found it of great value. It is also a pump of cheap construction and of great utility, because of its great ease in construction and repairing if broken.

Having thus fully described its construction and operation, what I claim as new and desire to secure by Letters Patent is—

1. The division piece *b* as constructed, with top and bottom grooves *u* fitting on corresponding flanches *u'* on the lower chamber,

and on the adjustable piece *w* for the purpose set forth.

2. I claim the cylinder B as constructed with flanches *b* fitting into grooves *d* in cylinder A, as a removable cylinder easily removed, so that another can be replaced in case of breakage.

E. BELLAMY.

Witnesses:

T. G. CLAYTON,
JOHN MATHYS.