J. BANKS.

ROTARY PUMP.

No. 36,500. Patented Sept. 23, 1862.

Fig. 1.

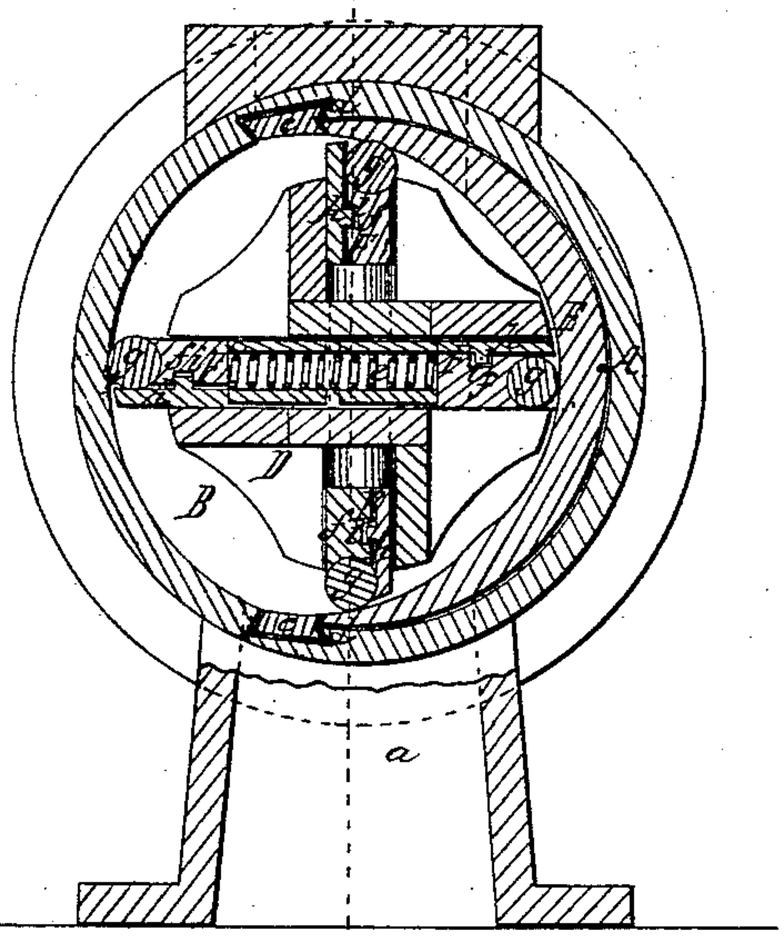
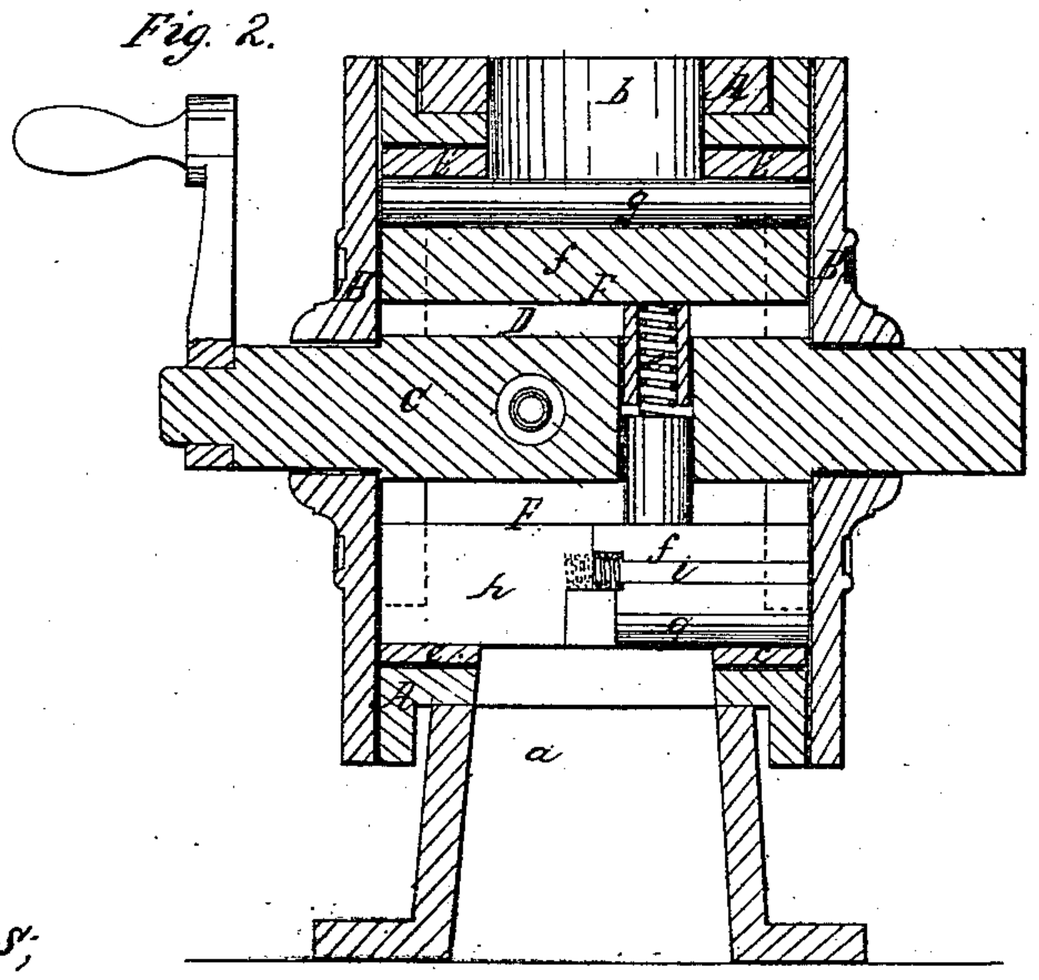


Fig. 2.



Witnesses;
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UNITED STATES PATENT OFFICE.

JOSEPH BANKS, OF NEW YORK, N. Y.

ROTARY PUMP.

Specification of Letters Patent No. 36,500, dated September 23, 1862.

To all whom it may concern:

Be it known that I, JOSEPH BANKS, of the city, county, and State of New York, have invented a new and Improved Rotary Pump; and I 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, represents a transverse vertical section of my invention. Fig. 2, is a longitudinal vertical section of the same.

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

This invention relates to certain improvements in that class of rotary pumps, in which a piston wheel containing a series of sliding spring pistons moves in the interior of an eccentric case or cylinder, the eccentricity being produced by inserting on one side of said cylinder an inner case of such a shape, that on rotating the piston wheel one piston after the other is gradually forced in and gradually let out.

The invention consists in the application of keys with dovetailed edges in combination with the cylinder and with the inner case in such a manner that said keys catch over the edges of the inner case and hold it firmly in its place leaving the outer surface of said case perfectly smooth and in such a condition that the same can be turned on a lathe to a true circle and fitted into the cylinder with perfect accuracy.

It consists further in the arrangement of two spring valves in combination with the sliding spring pistons in such a manner that by said valves a perfect and yielding joint on the heads of the cylinder is produced.

It consists finally in the combination of rollers, slides and spring valves for the purpose of producing tight and easy moving pistons.

To enable those skilled in the art to make and use my invention I will proceed to describe it with reference to the drawing.

The cylinder A, is made of cast iron or any other suitable material with two openings *a*, *b*, one to connect with the suction pipe and the other with the ascension pipe. The inner surface of this cylinder is bored out to a perfectly true circle and the heads B, which are secured to the cylinder by means of screws or in any other desirable manner, are provided with central holes which form the bearings for the shaft C, to which the piston wheel D, is rigidly attached.

E, is the inner case which covers a little over one half of the inner surface of the cylinder as clearly shown in Fig. 1 of the drawing. The outer surface of this inner case is turned off to a true circle fitting nicely to the inner surface of the cylinder and it is retained by four keys *c*, which are inserted into V-shaped seats in the body of the cylinder and which are provided with dovetailed edges *d*, which catch over the V-shaped ends of the inner case and retain the same firmly in its place. The inner surface of the keys corresponds to the inner surface of the case and of the cylinder and by the application of these keys with the dovetailed edges the ends of the inner case can be left thick enough to allow of turning said case in a turning lathe. By these means I am enabled to fit in the case perfectly tight and with less trouble than it takes to fit the inner case of the ordinary shape, such case being generally made of two parts and so formed that it can not be turned off and that it has to be fitted entirely by the use of chisel and file.

The piston wheel D, is provided with four (more or less) sliding spring pistons E, which are forced out in a radial direction by means of springs *e*, one spring being applied so that it acts simultaneously on two pistons. These pistons are constructed of slides *f*, the outer edges of which form semi-circular seats for rollers *g*, whereby the friction of the pistons on the inner surface of the cylinder is diminished. Each of the slides *f*, is provided with two valves *h*, which are guided in grooves *i*, in the sides of said slides and which are forced by means of springs *j*, (Fig. 2) in a lateral direction toward the heads of the cylinder. By the application of these valves a tight and yielding joint is produced between the ends of the pistons and the cylinder heads and a pump provided with one of my piston wheels works easy, it gives an excellent result and it is not liable to stick by a change in the temperature so that it can be employed with equal advantage for hot and cold liquids.

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

1. The application of the keys *c*, provided with dovetailed edges *d*, in combination

with the inner case E, and cylinder A, constructed and operating substantially as and for the purpose shown and described.

2. The arrangement of the laterally sliding spring valves *h*, in combination with the pistons F, as and for the purpose specified.

3. The arrangement and combination of the slides *f*, spring *e*, rollers *g*, valves *h*, and piston wheel D, all constructed and operating as and for the purpose set forth.

JOSEPH BANKS.

Witnesses:
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