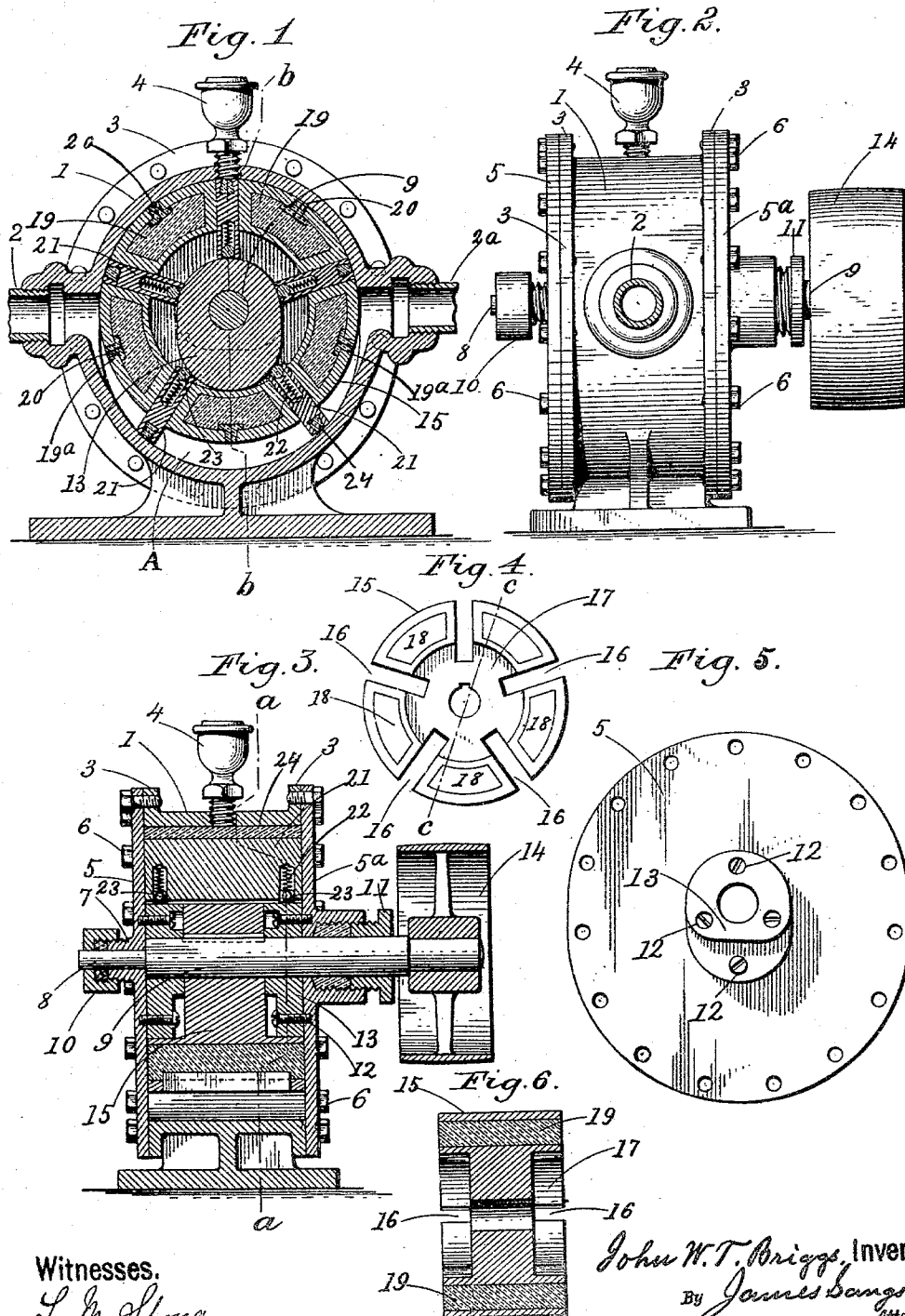


(No Model.)

J. W. T. BRIGGS.
ROTARY PUMP.

No. 556,721.

Patented Mar. 17, 1896.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN W. T. BRIGGS, OF BUFFALO, NEW YORK, ASSIGNOR TO WILLIAM H. SLADE, OF SAME PLACE.

ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 556,721, dated March 17, 1896.

Application filed August 24, 1895. Serial No. 560,346. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. T. BRIGGS, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

My invention relates to certain improvements whereby the construction of the pump is simplified and its effectiveness and durability increased, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a front sectional elevation cutting through the pump-case and operating parts on or about line *a a*, Fig. 3. Fig. 2 represents a side elevation of the pump complete. Fig. 3 is a vertical longitudinal central section on or about line *b b*, Fig. 1. Fig. 4 is a detached side elevation of the slotted cylindrical portion that carries the sliding plates, on a reduced scale. Fig. 5 represents an inside face view of one of the pump-covers, showing a face view of one of the operating-cams. Fig. 6 represents, on a reduced scale, a central section through the slotted drum or cylindrical portion that carries the sliding plates, the section being on or about line *c c*, Fig. 4.

Referring to the drawings in detail, 1 represents the outside cylindrical case. It is provided with an inlet-pipe 2 at one side and directly opposite is the outlet or exhaust pipe 2^a. The outside case 1 is also provided with flanges 3, to which the covers are secured, and at the top is an ordinary oil-cup 4.

5 and 5^a represent the covers. They are secured by bolts 6 in the usual way. In the cover 5 is a box 7, in which the reduced end 8 of the driving-shaft 9 is mounted. It is also provided with a stuffing-box 10, to keep the joint tight at that point. (See Fig. 3.) The opposite cover 5^a is also provided with a box in which the other end of the driving-shaft 9 is mounted. It is also provided with a stuffing-box 11, to keep the joint tight at that point. On the inner side of each of the covers 5 and 5^a is secured by screws 12 an oblong cam 13, both cams being exactly alike in shape, the upper and lower portions being in the form of a semicircle, each half-circle being sepa-

rated far enough to allow for the movement of the sliding plates, as will more clearly hereinafter appear.

On one end of the driving-shaft is secured, by a key or other well-known means, the driving-pulley 14, and inside of the case 1 is rigidly and centrally secured to the driving-shaft a sliding-plate cylinder 15. This cylinder 15 is provided with a series of open slots 16, (see Fig. 4,) in which the sliding plates operate, and on each side of the cylinder 15 is a circular depression 17, in which the cams 13 are located when the covers 5 and 5^a are put on.

Between each sliding-plate slideway or opening 16 is a transverse opening 18, (shown in Fig. 4,) in each of which is closely fitted a soft-rubber portion 19, and through the periphery of the cylinder centrally between the sliding plates is a long narrow opening 19^a, (see Fig. 1,) in which is fitted a packing of leather 20. The object of this leather packing is to keep a tight joint between the cylinder and the upper semicircular portion of the inside of the case 1, and the object of the rubber portions 19 is to force the leather packing outward. It will be noticed that the case 1 is also oblong—that is, the upper semicircular portion is separated from the lower semicircular portion the same distance that the semicircular portions of the cams are separated.

The sliding plates 21 are fitted so they can slide easily in the slideway-openings 16 as the cylinder rotates.

At the back of each sliding plate 21 are drilled openings in which are fitted spiral springs 22, each having a steel ball 23 at the ends of the springs. (See Figs. 1 and 3.) The balls 23 are forced by the springs against the cams 13.

At the outer end of each sliding plate is inserted in an opening made for it a packing of leather or other equivalent material 24. The packing 24 is preferred, but the pump may be used either with or without it.

The operation of the pump is as follows: The driving-shaft 9 being mounted in the center of a circle of which the upper semicircular portion of the pump-case is a part, the upper half of the cylinder 15 fills and turns water or gas tight, or substantially so, in said semicircular portion of said case 1, thereby

leaving a continuous opening A at the bottom of said case. (See Fig. 1.) The sliding plates 21 being supported in the slideways 16 and between the inner sides of the case 1 and the periphery of the cams 13, it will be seen that as they are rotated around the said cams 13 by the turning of the driving-shaft and the cylinder 15 they will be moved back and forth in their slideways, and that the ends of the sliding plates will thus be kept in contact with the lower inside semicircular portion of the case 1 and thereby cause a vacuum behind them as they move forward sufficient to draw in air or water and eject it through the outlet.

The construction of this pump is such that by reversing its action the inlet and outlet will be reversed, the suction being always behind the movement of the sliding plates.

This device is also well adapted to be used either as a hydraulic motor or as a steam-engine, nothing more being required than to connect it with a source of water or steam, or gas pressure.

I claim as my invention—

1. In a rotary engine or pump, the combination with an oblong outer case, having inlet and outlet openings, and its upper and lower sides in the form of a semicircle, of a circular slideway-cylinder, its upper portion fitting the upper semicircular portion of the case and mounted on the driving-shaft so as to fit and turn in said semicircular portion, circular depressions located centrally in each flat side of said cylinder, a stationary corresponding oblong cam secured to the inner side of each cover for the case and located in each circular depression, and means for securing the covers to the case, the cams being in the form of a semicircle at the top and bottom,

and a series of sliding plates fitted to slide radially in the slideway-cylinder and interposed between the inner sides of the case and periphery of the cams, substantially as described.

2. In a rotary pump, the combination with the cylinder carrying the sliding plates, of a series of rubber packing portions inclosed transversely within said cylinder, a series of transverse openings in the periphery of the cylinder located over said rubber portions, and a series of leather packing-strips in said openings having their lower or base portions resting against said rubber portions, substantially as described.

3. In a rotary pump, the combination with an oblong outer case, having inlet and outlet openings, and its upper and lower sides in the form of a semicircle, of a circular slideway-cylinder, its upper portion fitting the upper semicircular portion of the case and mounted on a driving-shaft so as to fit and turn in said semicircular portion, circular depressions located centrally in each flat side of said cylinder, a stationary oblong cam having the form of a semicircle at the top and bottom, and secured to the inner side of each cover and located in each circular depression, a series of sliding plates fitted to slide radially in the slideway-cylinder, and spiral springs fitted in the inner ends of each sliding plate, each spring having a ball interposed between it and the cams around the peripheries of which the ends of the sliding plates travel, substantially as described.

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Witnesses:

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