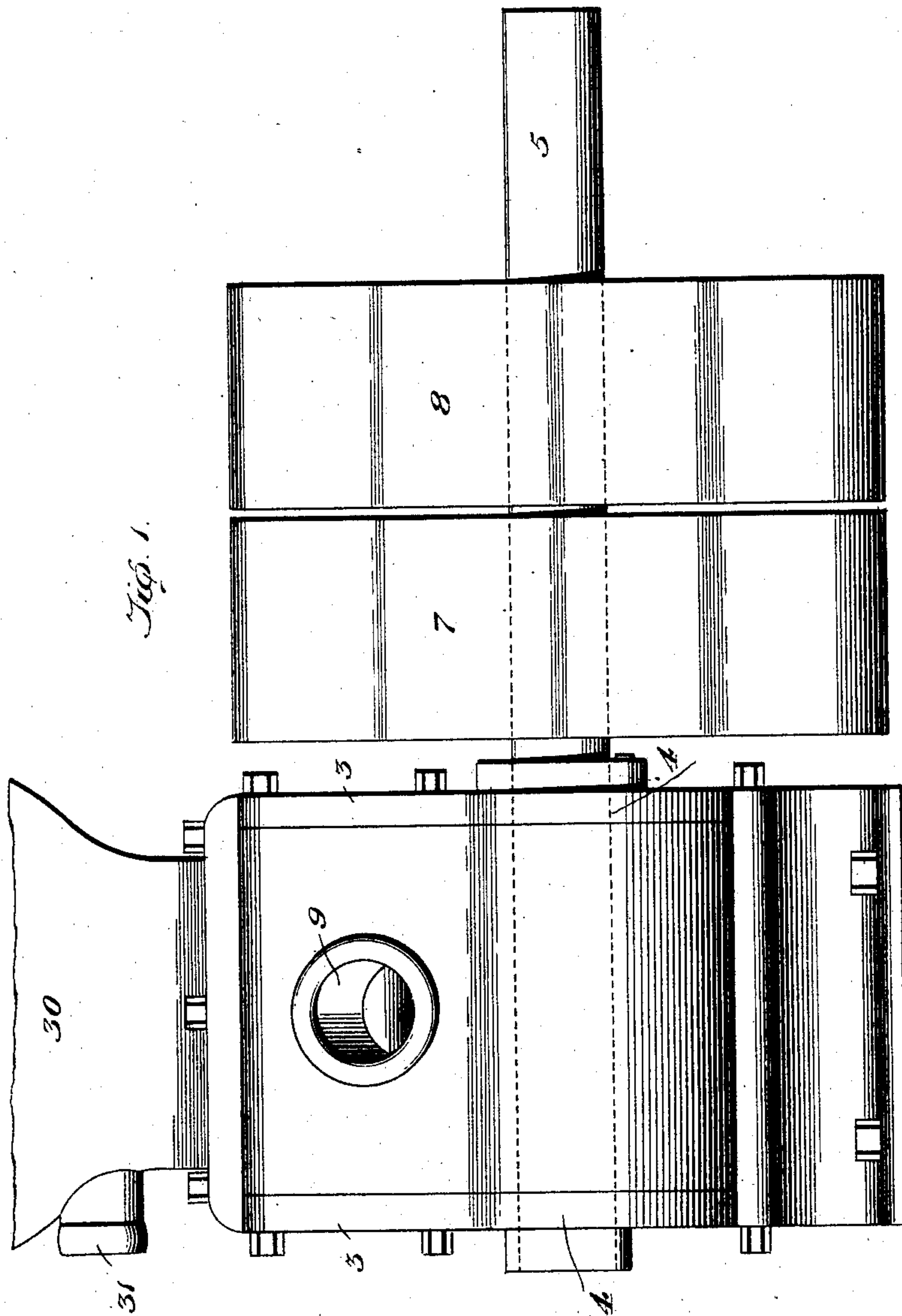


R. B. TEACHOUT.
ROTARY FORCE PUMP.
APPLICATION FILED MAR. 5, 1907.

907,097.

Patented Dec. 15, 1908.

2 SHEETS—SHEET 1.



Inventor

Witnesses

W. C. Dashiell
R. C. Braddock.

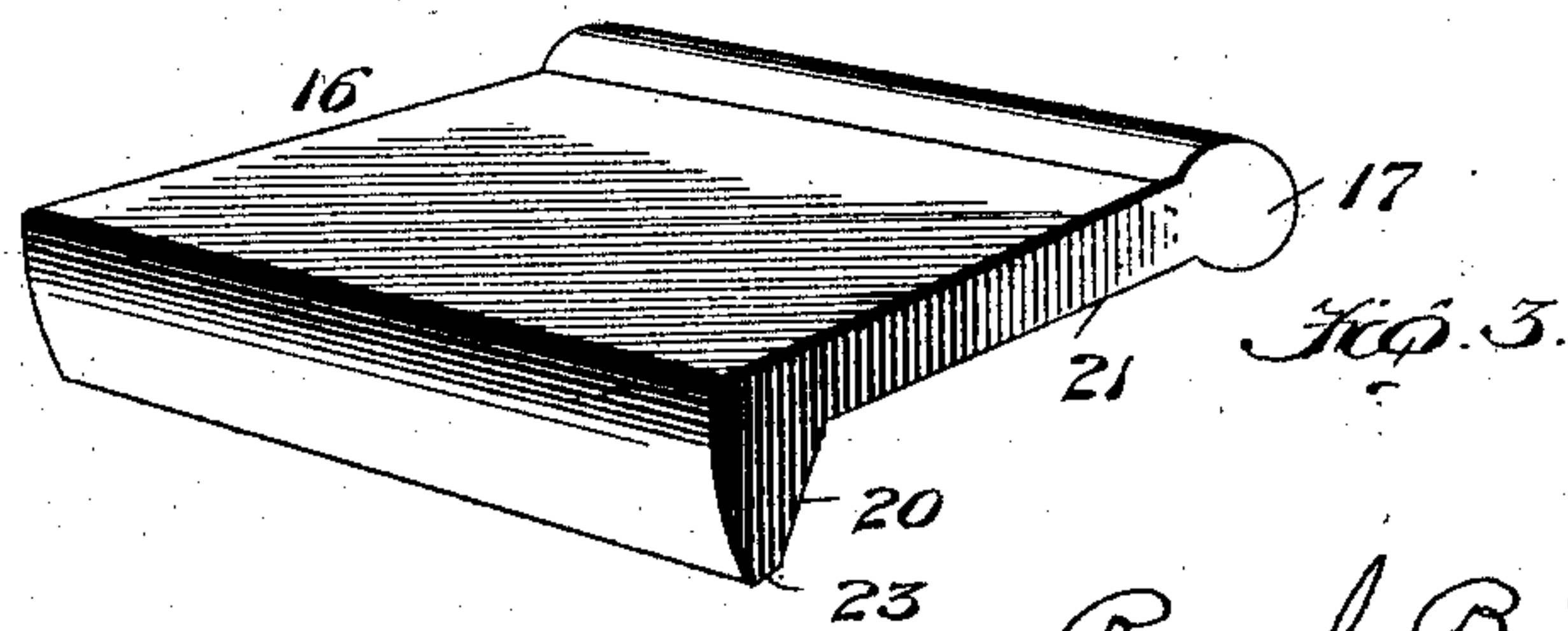
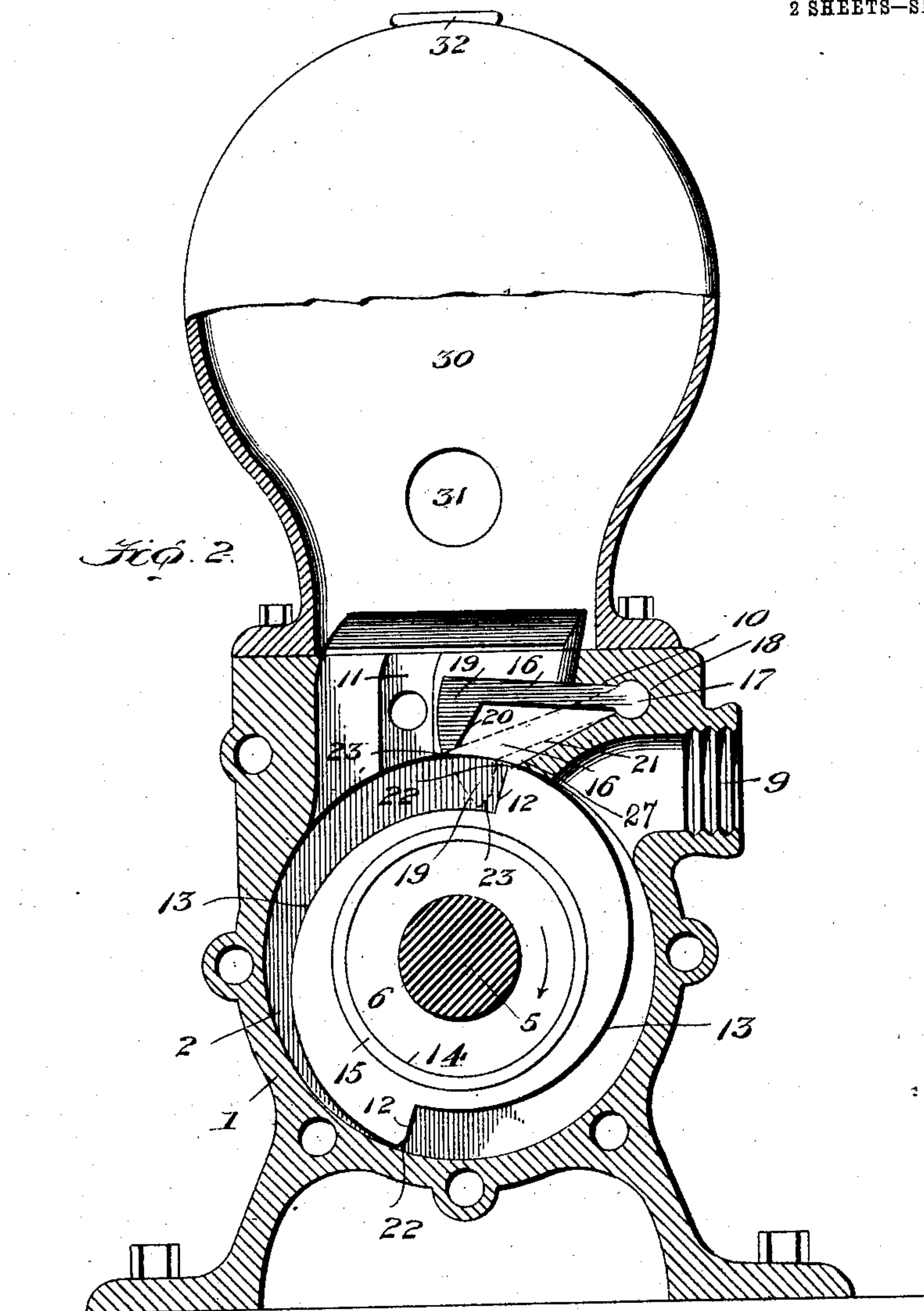
By

Royal B. Teachout
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ROYAL B. TEACHOUT, OF PETOSKEY, MICHIGAN, ASSIGNOR OF ONE-THIRD TO WILLIAM R. KILBORN AND ONE-THIRD TO OLIVER S. HEYDEN, OF PETOSKEY, MICHIGAN.

ROTARY FORCE-PUMP.

No. 907,097.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed March 5, 1907. Serial No. 360,646.

To all whom it may concern:

Be it known that I, ROYAL B. TEACHOUT, citizen of the United States, residing at Petoskey, in the county of Emmet and State of Michigan, have invented certain new and useful Improvements in Rotary Force-Pumps, of which the following is a specification.

My invention relates to rotary force pumps and analogous mechanical devices; and its object is to provide a rotary force pump which in proportion to its size is possessed of great capacity, is adapted to be driven at a high rate of speed with the expenditure of but a minimum amount of power, and is simple and inexpensive in construction and embodies no springs or other delicate parts such as are liable to become deranged after a short period of use.

The preferred embodiment of my invention will be fully understood from the following description and claim when the same are considered in connection with the accompanying drawings, forming a part hereof, in which:

Figure 1 is an elevation of the rotary force pump. Fig. 2 is a vertical section taken in a plane at a right angle to Fig. 1. Fig. 3 is an enlarged perspective view of the gravitating abutment of the pump, removed.

Similar numerals designate corresponding parts in all of the views of the drawings, referring to which:

1 is the cylinder body of the pump, in which is formed a circular chamber 2, and 3, 3 are heads bolted or otherwise connected to said body and provided with central openings 4 to receive a shaft 5 which is provided in the chamber 2 with a piston 6, and at points outside of the cylinder with fast and loose pulleys 7 and 8 to receive a band from a steam engine or other approved motor. The piston chamber 2 is provided at a point above its horizontal median line and at one side of its vertical median line with an induction port 9, preferably threaded as shown for the connection of a conduit (not shown) leading from a suitable source of water supply; and it is also provided in its upper portion adjacent to the induction port 9 with a sub-chamber 10, and in its upper portion at the opposite side of its vertical median line, with reference to the induction port 9, with a vertically disposed education port 11. The piston 6 is fixed on the shaft 5 in any manner compatible with my invention, and is provided with diamet-

rically opposite offsets 12, and peripheral portions 13, each of which latter extends from the inner extremity of one offset to the outer extremity of the other offset, for a purpose presently set forth. In its ends the piston has circular grooves 14, and in these grooves are arranged elastic packing rings 15, of rubber or other suitable material, which extend beyond the piston ends and bear against the inner sides of the cylinder heads 3, whereby it will be apparent that when the pump is in operation, water will be prevented from finding its way to and escaping through the openings 4 in the heads 3.

16 is the gravitating abutment which is located and adapted to swing vertically in the sub-chamber 10. The said abutment is of a length corresponding to the width of the piston 6, and is provided along one edge with a trunnion portion 17, journaled in a correspondingly shaped recess 18 in the cylinder body at a point above the induction port 9, and at its opposite edge has a comparatively heavy portion 19. This comparatively heavy portion is shaped as shown so that its underside 20 in connection with the underside 21 of the remainder of the abutment describes an obtuse angle. At this point it will be noticed that the outer corners of the piston offsets 12 are beveled, as indicated by 22, and hence it will be apparent that after an offset passes the abutment 16 and said abutment falls, the underside portion 21 of the abutment bears on the beveled corner 22 of said offset and also against the inclined bottom wall 27 of the sub-chamber 10, when the abutment reaches its lowermost position, with the result that the lower edge 23 of the abutment portion 20 rests snug against the following peripheral portion 13 of the piston and in that way enables the abutment to effectually prevent the passage of water between it and the said peripheral portion 13 of the piston so as to contribute to the capacity of the pump, and this without the creation of undue friction between the peripheral portion 13 and the abutment.

In virtue of the construction described in the foregoing, rapid rotation of the piston 6 in the direction indicated by the large arrow in Fig. 2 causes the creation of a partial vacuum below the inner end of the induction port 9 and between said end and the lower offset 12. Into this partial

vacuum water is drawn, and, as the piston continues to rotate, such water will obviously be forced ahead of the peripheral portion 13 immediately in advance of the other or upper offset 12. When this volume of water reaches the abutment 16 it is checked by said abutment, and consequently the said peripheral portion 13 of the piston is enabled to forcibly discharge it through the eduction port 11. This operation is repeated after each offset 12 of the piston 6 passes the abutment 16, and consequently when the piston is rotated at a high rate of speed the volume of water forced through the eduction port 11 is practically continuous, as is desirable.

Above the piston cylinder I prefer to employ, with a view of increasing the efficiency of the pump, an air and water chamber 30. This chamber is preferably dome-shaped and is provided with a lateral discharge 31 and an upper vent 32 for air. Said air and water chamber is preferably bolted to the piston cylinder as illustrated, and consequently it may be readily removed when necessity demands.

It will be appreciated from the foregoing that in addition to being highly efficient, my improved rotary force pump is simple and compact and is so constructed that it is well adapted to withstand the usage to which devices are ordinarily subjected.

The construction herein shown and described constitutes the preferred embodiment of my invention, but it is obvious that in practice various changes in the form, construction and relative arrangement of the parts may be made without involving departure from the scope of my invention as claimed.

Having described my invention, what I claim and desire to secure by Letters Patent, is:

In a rotary force pump, the combination with a cylinder having a circular piston chamber, an induction port leading into the chamber and directed toward the center thereof, an eduction port, and a sub-chamber communicating with the piston chamber and arranged between the eduction port and the adjacent wall of the induction port and having an inclined bottom wall disposed above the induction port; of a rotary piston arranged in the piston chamber and having diametrically opposite offsets and peripheral portions each of which extends from the base of one offset to the outer end of the other offset, and a vertically swinging, gravitating abutment pivoted at one end to the cylinder at a point above an intermediate point in the length of the induction port and movable to and from said inclined bottom wall and having at its free end a depending portion for cooperating with the offsets and peripheral portions of the piston; the outer corners of the offsets on the piston being beveled and the underside of the portion of the abutment in rear of the depending portion thereof being arranged to bear on said inclined bottom wall and said beveled corners to permit the end of said depending portion to bear on the peripheral portions of the piston in rear of the abutments thereof, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROYAL B. TEACHOUT.

Witnesses:

W. A. SEEGMILLER.

A. B. KRIEGER.