

No. 630,426.

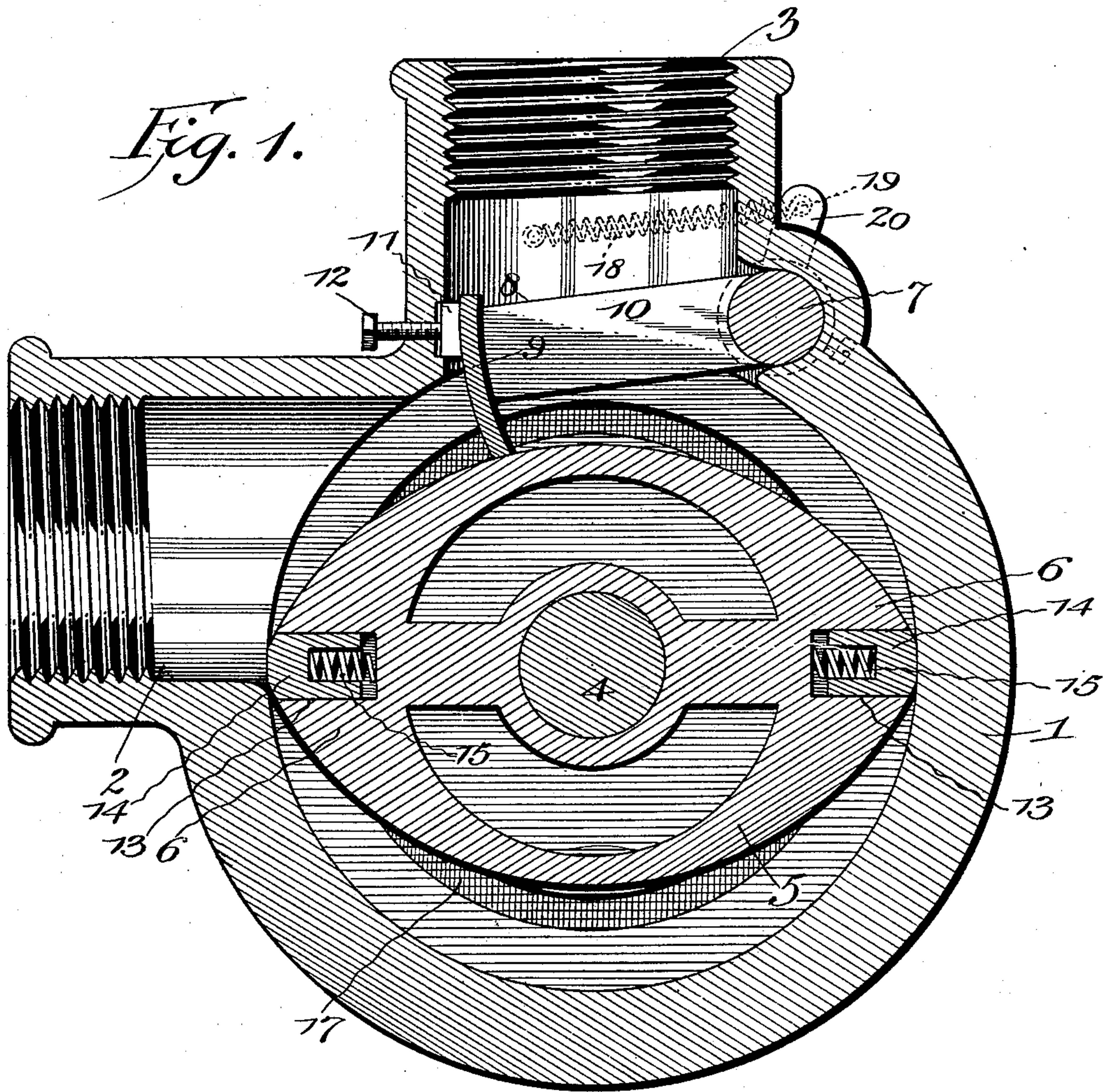
Patented Aug. 8, 1899.

C. F. THURBER.  
ROTARY PUMP.

(Application filed Apr. 1, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

*A. Roy Appleman*  
*O. E. Taylor*

By *His*

*Charles F. Thurber*, Inventor.

Attorneys.

*Cashnow & Co.*

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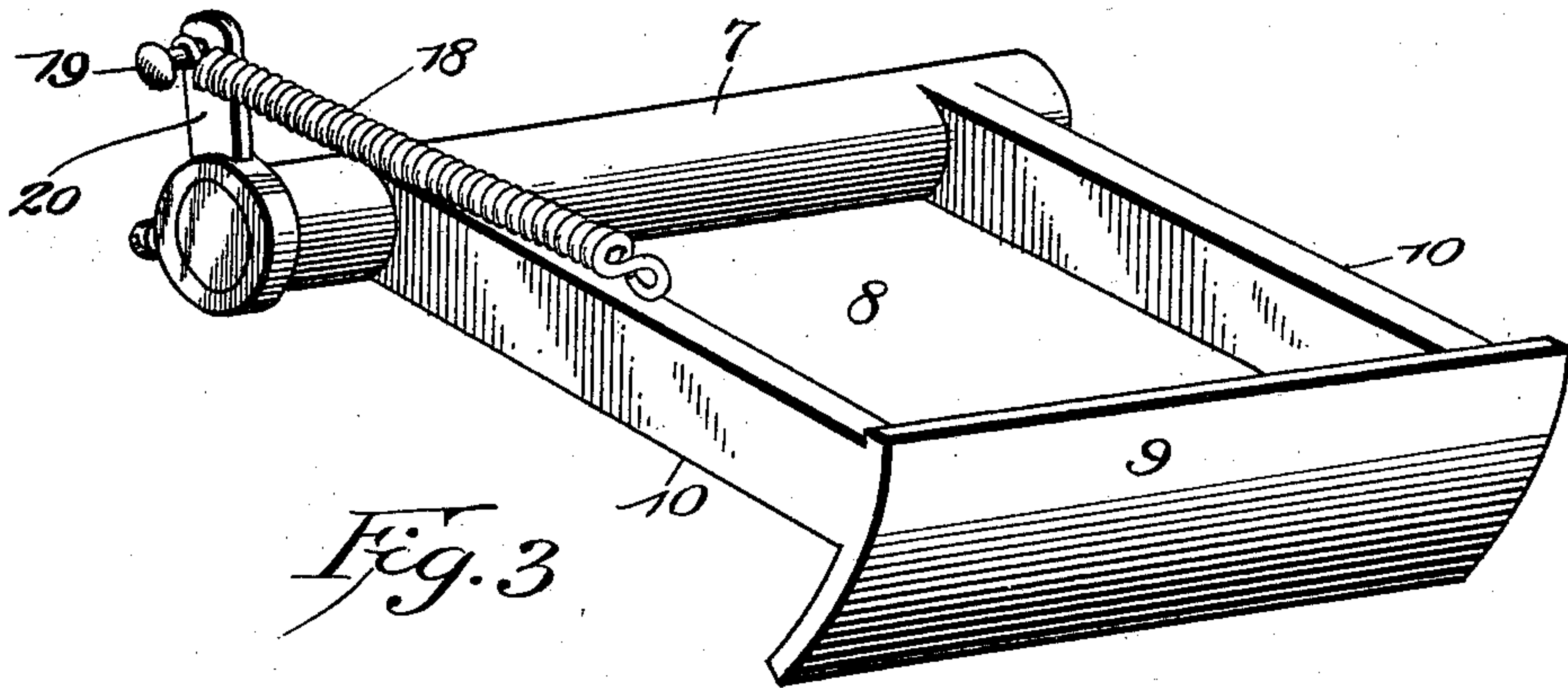
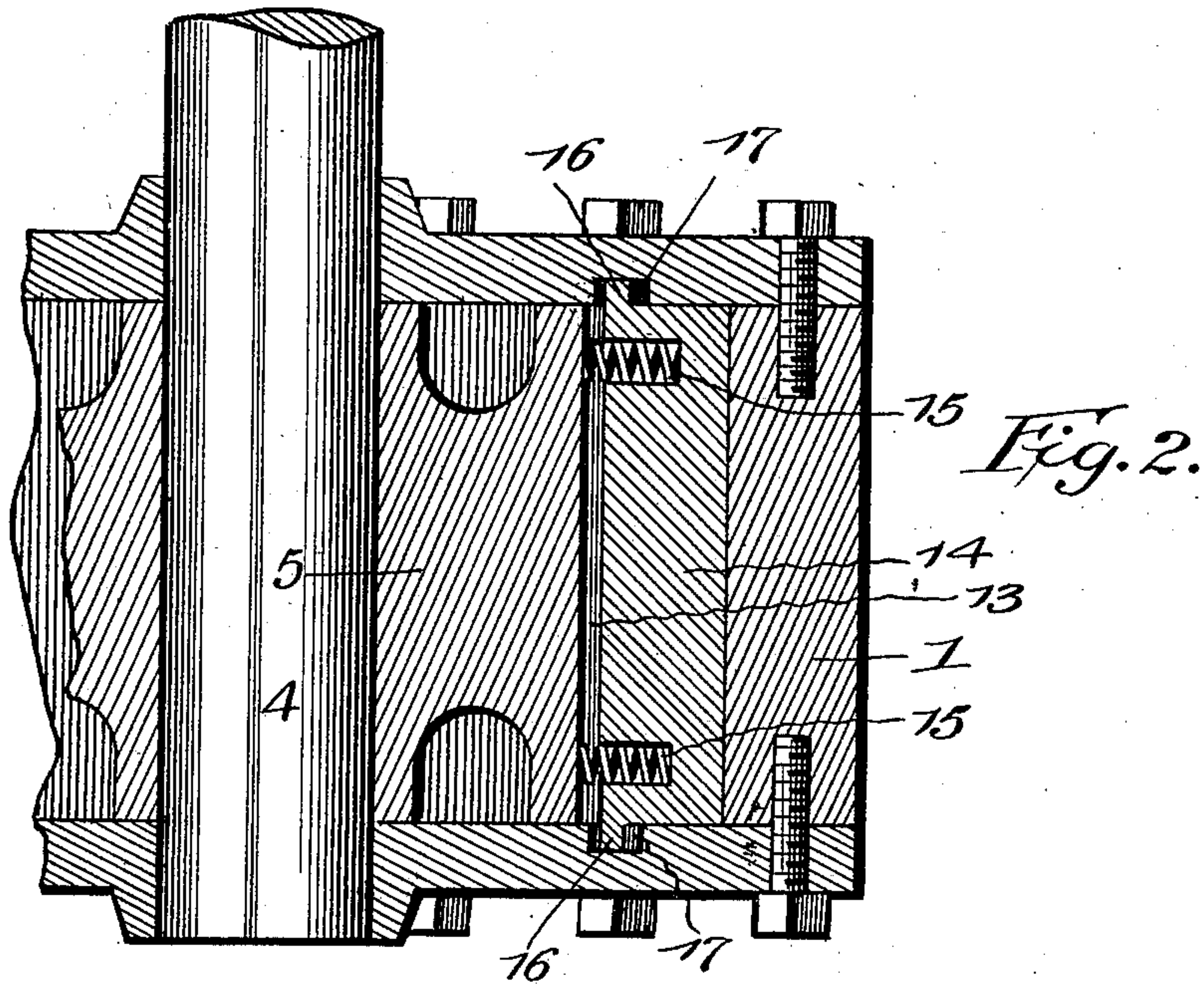
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*A. Roy Appleman*  
*J. B. Taylor*

*Charles F. Thurber,* Inventor  
By *his* Attorneys,

*Cash & Co.*



# UNITED STATES PATENT OFFICE.

CHARLES F. THURBER, OF OLEAN, NEW YORK.

## ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 630,426, dated August 8, 1899.

Application filed April 1, 1899. Serial No. 711,349. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. THURBER, a citizen of the United States, residing at Olean, in the county of Cattaraugus and State of New York, have invented a new and useful Rotary Pump, of which the following is a specification.

My invention relates to pumps, and has for its object to provide a device of this class of such construction as to adopt it to pump a liquid containing sediment and foreign substances—such as grain, tanbark, wood-pulp, soap, &c.—or to pump thick or heavy liquid without clogging, and particularly to provide a pump having a simple and efficient construction of cut-off and means for maintaining a uniform contact of the piston-wings with the wall of the cylinder.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a sectional view of a pump constructed in accordance with my invention. Fig. 2 is a detail section taken at right angles to the plane of Fig. 1 through a portion of the apparatus to show the construction of the bearing-strips of the piston-wings and means whereby the same are mounted. Fig. 3 is a detail view in perspective of the cut-off.

Similar reference characters indicate corresponding parts in all the figures of the drawings.

1 designates the cylinder of the pump, having an inlet-port 2 and an exhaust-port 3, and mounted in the cylinder by means of a shaft 4 is a piston 5, having cam-faced wings 6. Also mounted by means of a spindle 7 in suitable bearings in the heads of the cylinder is a cut-off 8, having a segmental or concavo-convex face-plate 9, of which the inner edge is adapted for contact with the surface of the piston, said face-plate being connected, by means of parallel side bars or arms 10, with the said spindle 7. This cut-off is arranged to span the exhaust-port 3; but the space bounded by the side arms 10, the spindle 7, and the face-plate 9 allows free communication between the interior of the cylinder and said exhaust, while the exterior surface of

the face-plate 9 bears against a packing-strip 11, which is adjustable toward and from the fulcrum of the cut-off by means of a set-screw 12, which is accessible exteriorly of the cylinder. The object of this packing-strip is to insure a fluid-tight contact between the face-plate and the wall of the cylinder, and thus prevent liquid in advance of a piston-wing from passing the cut-off. Said face-plate is curved concentrically with the axis of the spindle 7. Also the piston-wings are cut away upon transverse lines to form seats 13, in which are fitted bearing-strips 14 for contact at their outer edges with the inner surface of the wall of the cylinder to preserve a fluid-tight contact between the piston-wings and said walls. These bearing-strips are yieldingly held in their advanced positions by means of actuating-springs 15 and are held from displacement by means of said springs as the bearing-strips successively pass the ports 2 and 3 by means of terminal lugs 16, which operate in retaining-grooves 17 in the heads of the cylinder, said retaining-grooves being of a radial width which is greater than the lugs to allow radial play of the bearing-strips without allowing displacement thereof.

It will be understood that in a device for pumping liquids either of a thick or heavy quality or containing solid materials in suspension the construction must be such as to offer no obstruction to the material, must have no pockets in which said materials can accumulate, and thus choke or otherwise interfere with the passage from the inlet-port to the outlet-port, and in the construction illustrated it will be seen that as the liquid advances from the inlet-port to the outlet-port it comes in contact with no such obstructions and is effectually deflected from its circular path into the outlet or exhaust port by means of the concave surface of the face-plate 9, which forms an inward extension or continuation of the outlet-port. The cut-off is yieldingly held in such a position as to maintain the inner edge of its face-plate in contact with the surface of the piston by means of an actuating-spring 18, connected with a wrist-pin 19 on a crank-arm 20 at one end of the cut-off spindle 7. It will be understood, furthermore, that in practice various changes in



the form, proportion, size, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

5 Having described my invention, what I claim is—

1. In a rotary pump, the combination of a cylinder having inlet and exhaust ports, a piston mounted in the cylinder and having cam-  
10 faced wings, recessed at their centers to form seats, bearing-strips mounted for radial movement in said seats and yieldingly held in contact at their outer edges with the surface of the wall of the cylinder, said bearing-strips  
15 being provided with terminal lugs for engagement with retaining-grooves in the heads of the cylinder, to limit the outward movement of the strips with relation to the piston-wings, and a yielding cut-off arranged adjacent to the exhaust-port and provided with

a face-plate for contact at its inner edge with the surface of the piston, substantially as specified.

2. In a rotary pump, the combination of a cylinder having inlet and exhaust ports, a piston mounted therein and having wings recessed to form seats, and bearing-strips yieldingly mounted in said seats, and provided with terminal lugs for engagement with retaining-grooves in the cylinder-heads to limit  
25 the outward movement of the strips with relation to the piston-wings, substantially as described. 30

In testimony that I claim the foregoing as my own I have hereto affixed my signature in  
35 the presence of two witnesses.

CHARLES F. THURBER.

Witnesses:

F. L. GLEASON,  
MEYER BOCK.