Nov. 18, 1924.

1,515,961

R. J. MEYER

ROTARY PUMP

Filed Oct. 4 1923

2 Sheets-Sheet 1

Fig. 1.

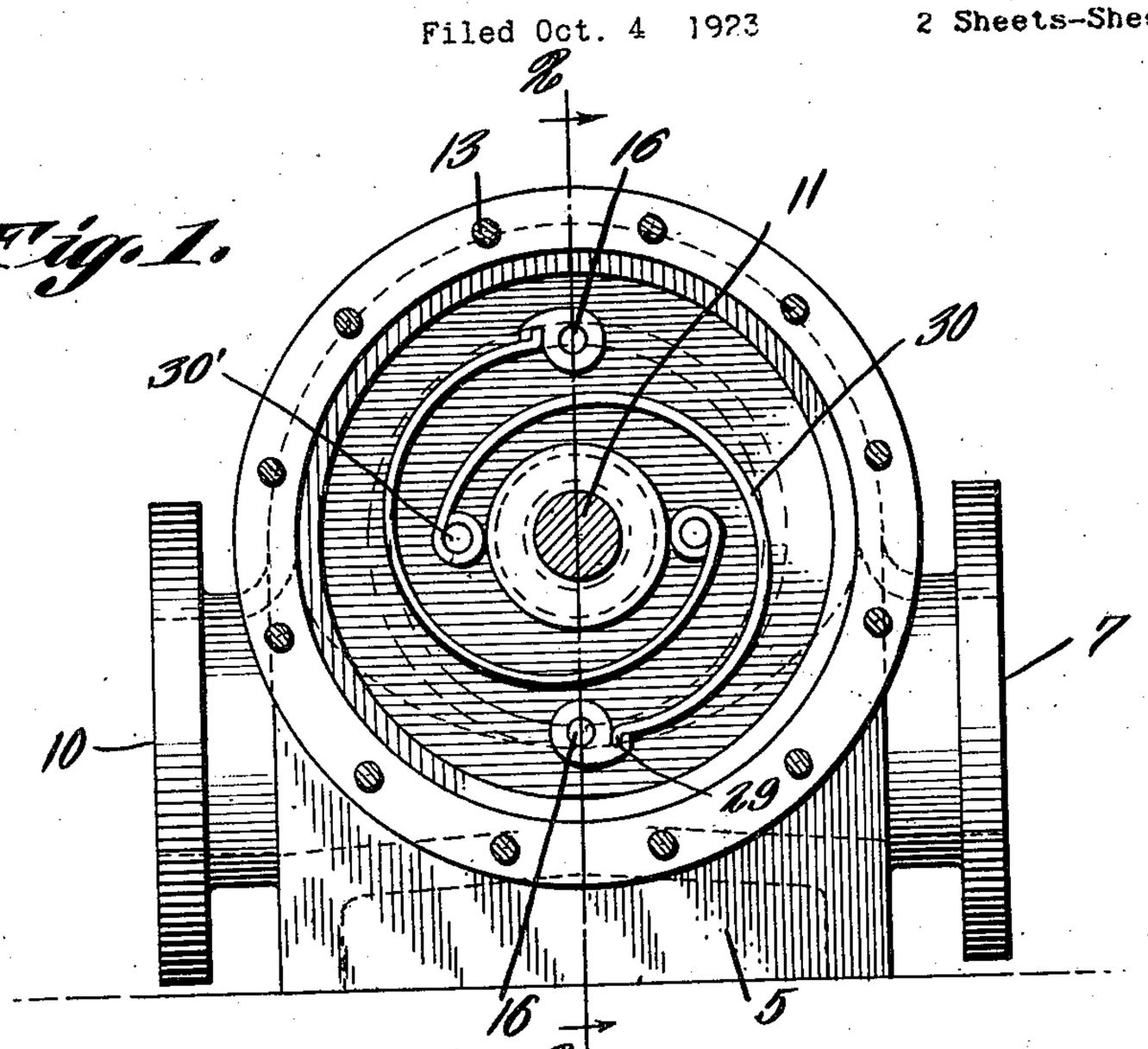
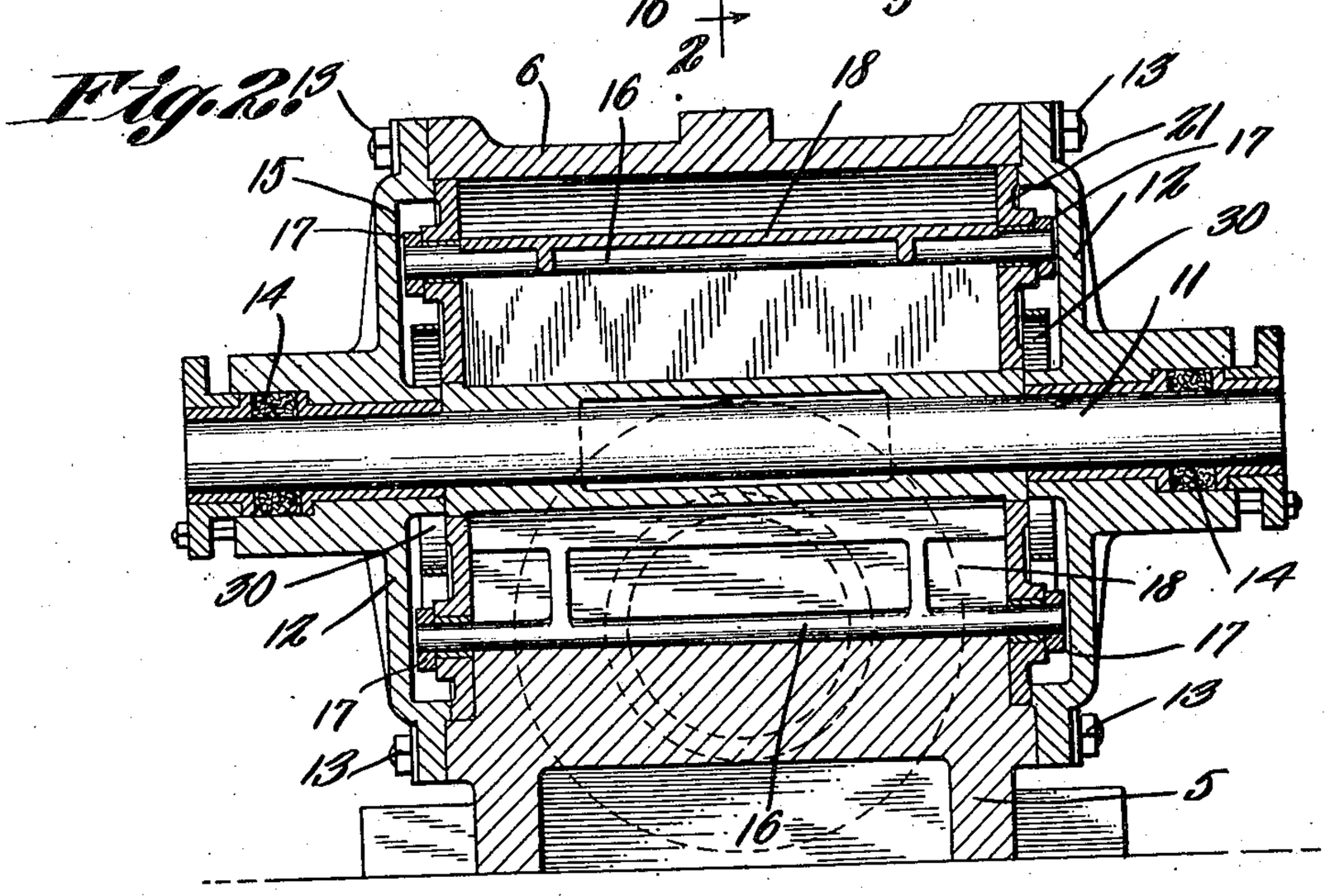


Fig. 2.



Inventor,

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Fig. 3.

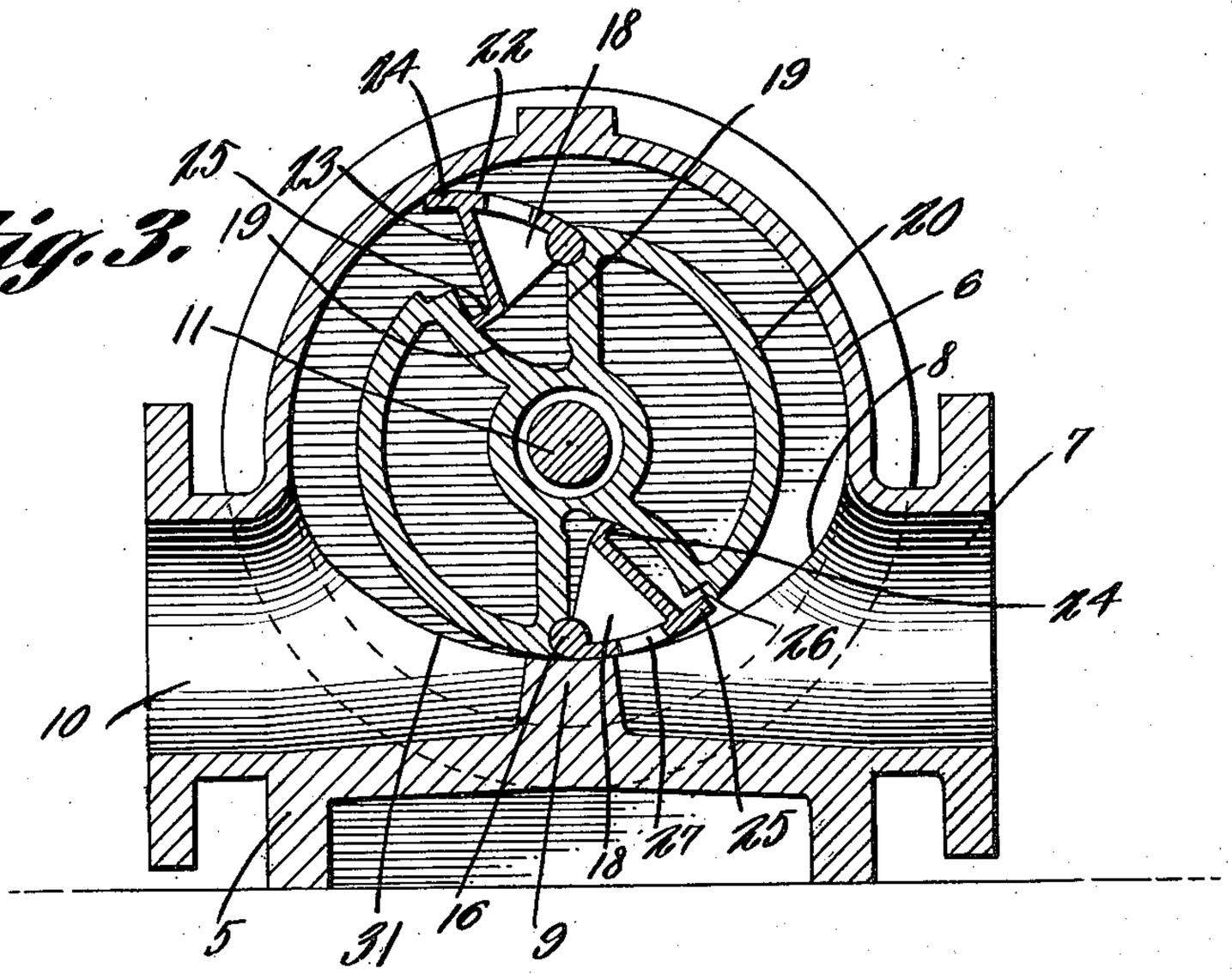


Fig. 4.

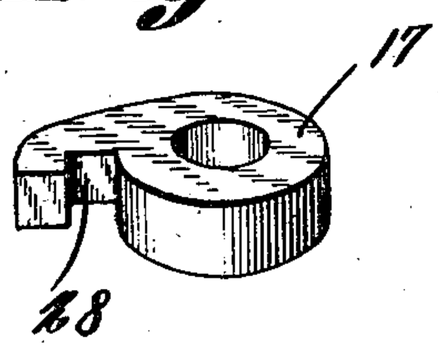
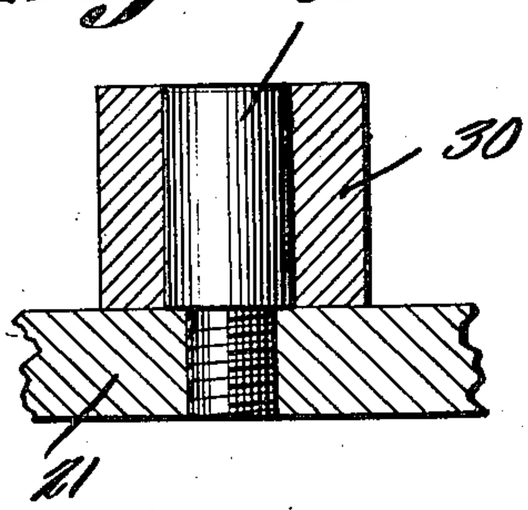


Fig. 5.



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Patented Nov. 18, 1924. 1,515,961

UNITED STATES PATENT OFFICE.

RALPH J. MEYER, OF DENVER, COLORADO.

ROTARY PUMP.

Application filed October 4, 1923. Serial No. 666,571.

To all whom it may concern:

Be it known that I, RALPH J. MEYER, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented a new and useful Rotary Pump, of which the following is a specification.

This invention relates to pumps and more particularly fluid pumps of the rotary type, the primary object of the invention being to provide means to insure the positive operation of the pistons and eliminate leakage between the pistons and walls of the chamber in which the rotor operates.

Another object of the invention is to provide means for cushioning the movements of the pistons as they move within their pockets, thereby reducing friction between the pistons and walls of their pockets to the minimum.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:—

Figure 1 is an end elevational view of a pump constructed in accordance with the present invention, one of the heads being removed.

Figure 2 is a sectional view taken on line 2—2 of Figure 1.

Figure 3 is a transverse sectional view.

Figure 4 is a perspective view of one of the spring securing members, and

Figure 5 is a securing member employed for anchoring the spring to its support.

Referring to the drawings in detail, the reference character 5 designates the base of the pump, and the reference character 6 designates the circular chamber disposed above the base, and forming a part thereof.

An inlet pipe is indicated at 7 and communicates with the chamber through the port 8, there being provided a vertical wall 9 to restrict passage of fluid directly through the base.

The outlet pipe is indicated at 10 and also communicates with the circular chamber to permit fluid to pass from the chamber after the fluid has been drawn into the chamber through the inlet opening 7.

Eccentrically mounted in the circular chamber is a supporting shaft 11 that has its ends journaled in the removable heads 12 that are bolted to the ends of the circular chamber, by means of the bolt 13, suitable packing indicated at 14 being provided to insure against leakage between the heads and shaft.

These heads 12 are formed with recessed portions 15 that accommodate the ends of the shafts 16 and the spring securing members 17 that are mounted thereon, which shafts are formed integral with the pistons indicated generally by the reference character 18. The pistons 18 are also mounted to operate in the pockets 19 of the rotor 20, which rotor includes annular flanges 21 through which the ends of the shafts 16 pass. Each of the pistons comprises an arcuate plate 22 and a head 23, flanges 24 and 25 respectively, being provided to engage one wall of the pockets to insure a true operation of the pistons within the rotor.

Cut out portions 26 are formed in the outer surface of the rotor and provide shoulders for the reception of the flanges 25 to restrict inward movement of the pistons. Formed in each arcuate plate of the respective pistons is an opening 27 that provides communication between the circular chamber and pockets in which the pistons move, allowing a quantity of fluid to enter the pockets and cushion the movements of the pistons within their pockets.

Each spring securing member is formed with a hook portion 28 that engages the lug 29 formed on the spring 30 associated therewith, the springs being curved around the supporting shaft 11, one end of each spring being anchored to the head 12 supporting the same, at 30′ so that the springs will normally exert a pressure on the pistons to throw them outwardly into contact with the inner surface of the circular chamber.

In the operation of the device, assuming that the rotor is operating in the direction of the arrow as shown by Figure 3 of the drawings, it is obvious that the piston shown adjacent to the inlet pipe, being in contact with the inner surface of the circular chamber, will force the fluid contained in the circular chamber, upwardly. It is obvious

that upon continued rotation of the rotor, the fluid will be forced from the circular chamber through the outlet pipe 10.

It might be further stated that the wall 31 formed at the base of the circular chamber, is offset with respect to the upper wall of the circular chamber to cam the pistons to their inactive positions when they reach the lower portion of the circular chamber.

As the fluid passes into the inner chamber, it will be obvious that quantities of the liquid will enter the piston pockets through the openings 18 of the pistons, trapping quantities of fluid in the pockets to cushion the inward movements of the pistons.

What is claimed as new is:—

1. In a rotary pump construction, a base, a circular chamber disposed above the base and having an inlet opening and an outlet opening, a rotor within the circular chamber, said rotor having pockets formed therein, pistons having shafts, pivotally supported adjacent to the pockets, said shafts extending beyond the ends of the rotor, spring securing members mounted on the extended ends of the shafts and having hook portions, spring members having one of their respective ends secured to the ends of the rotor, the opposite ends of the spring members being extended at right angles and engaged within the hook members of the securing members to normally move the pistons to their active positions, and said pistons adapted to move within the pockets of the rotor.

2. In a rotary pump construction, a base, a circular chamber disposed above the base, a rotor within the chamber, said rotor having pockets, pistons disposed within the pockets, said pistons including shafts extending beyond the ends of the rotor, and spring members secured to the rotor and having connection with the extended ends of the shafts for normally urging the pistons to their active positions.

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

RALPH J. MEYER.

Witnesses:
G. F. Cox,
Anna Rand.