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Patented Nov. 16, 1909.
 2 SHEETS—SHEET 1.

Fig. 1.

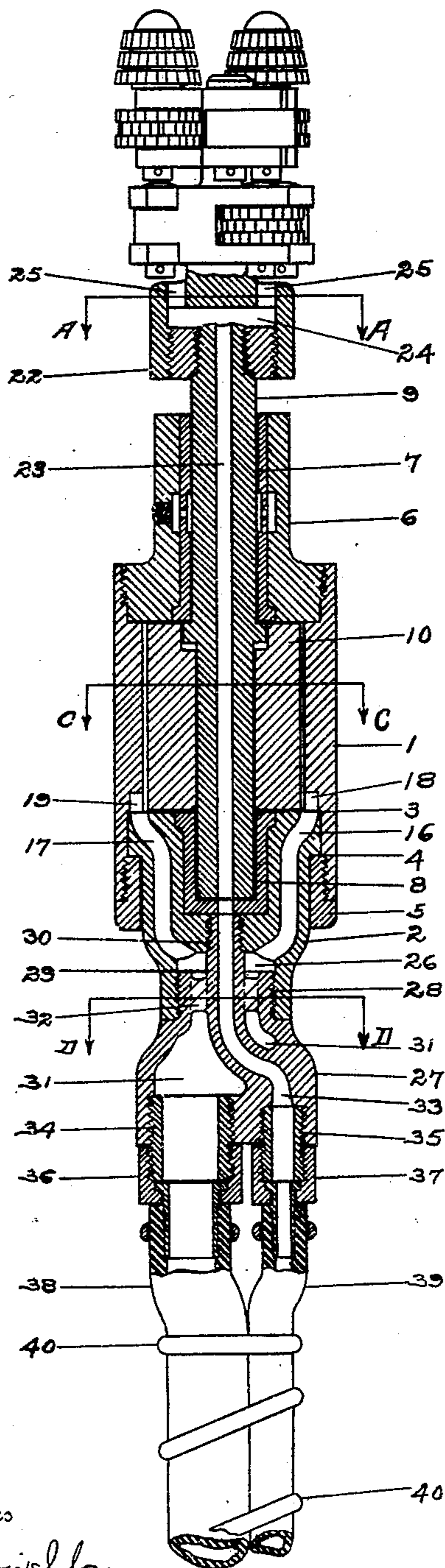
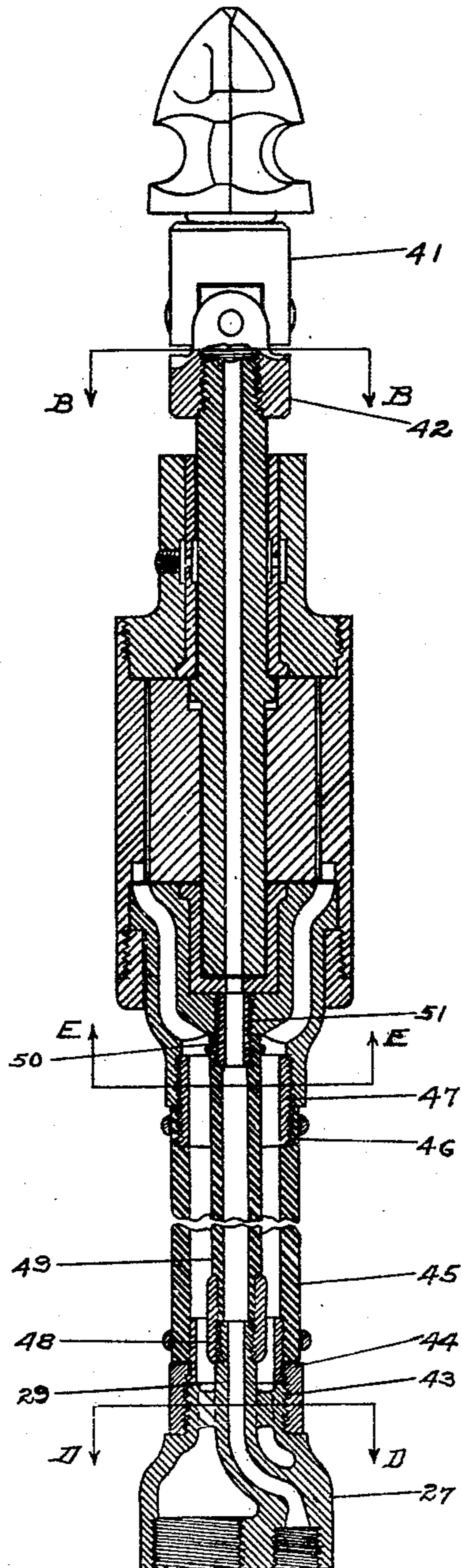


Fig. 2.



Witnesses

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ROTARY MOTOR.

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2 SHEETS—SHEET 2.

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Fig. 3.

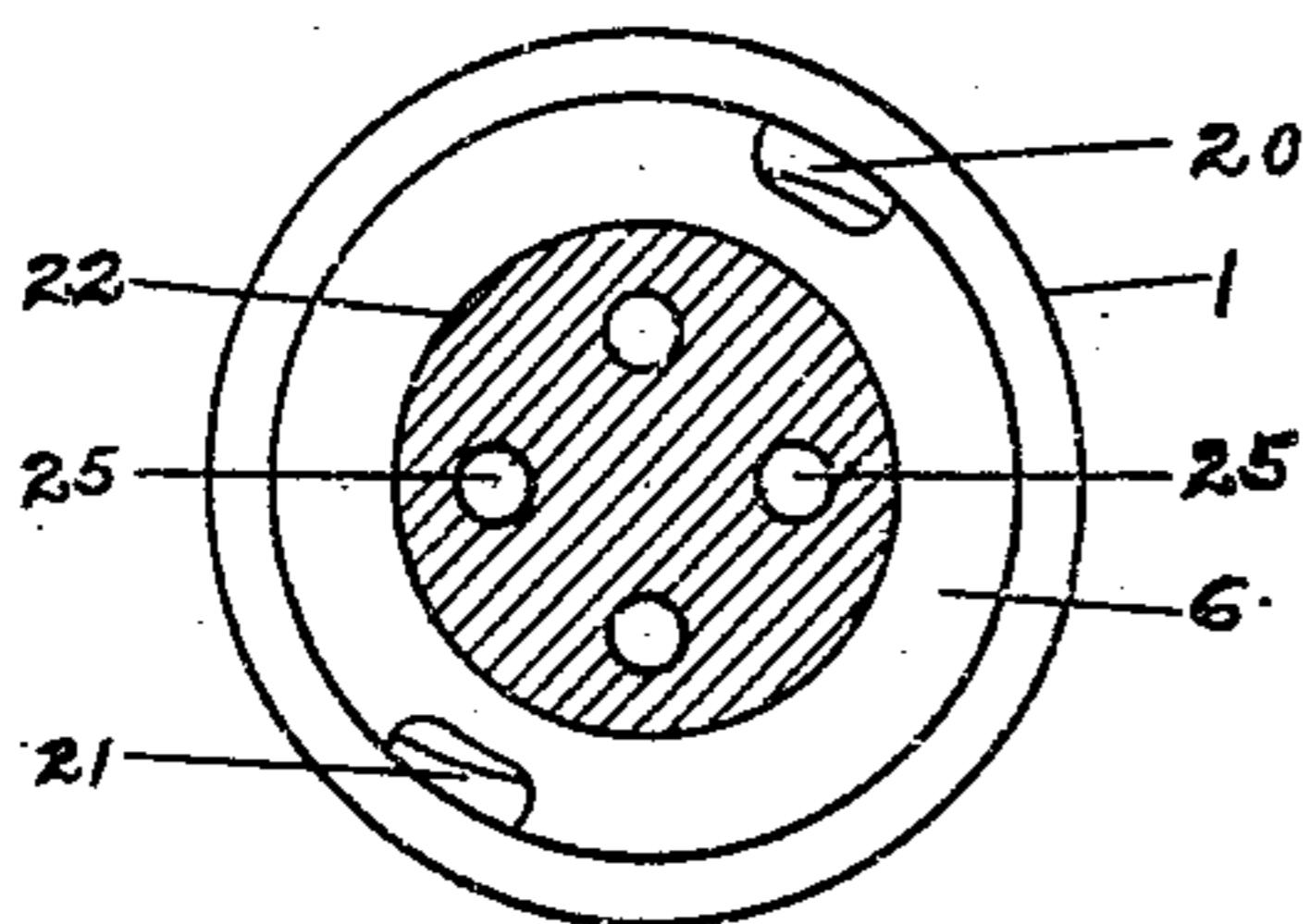


Fig. 4.

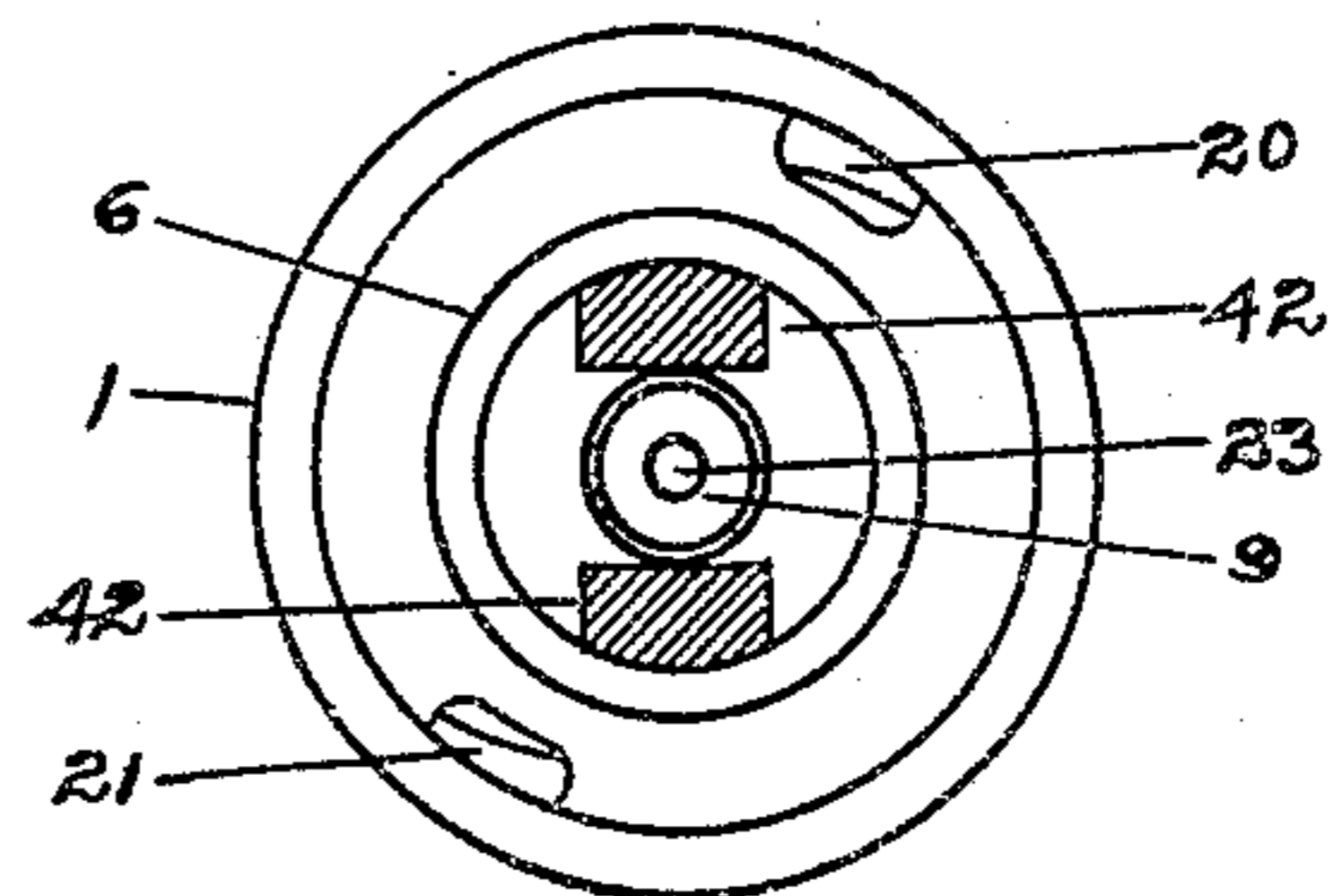


Fig. 5.

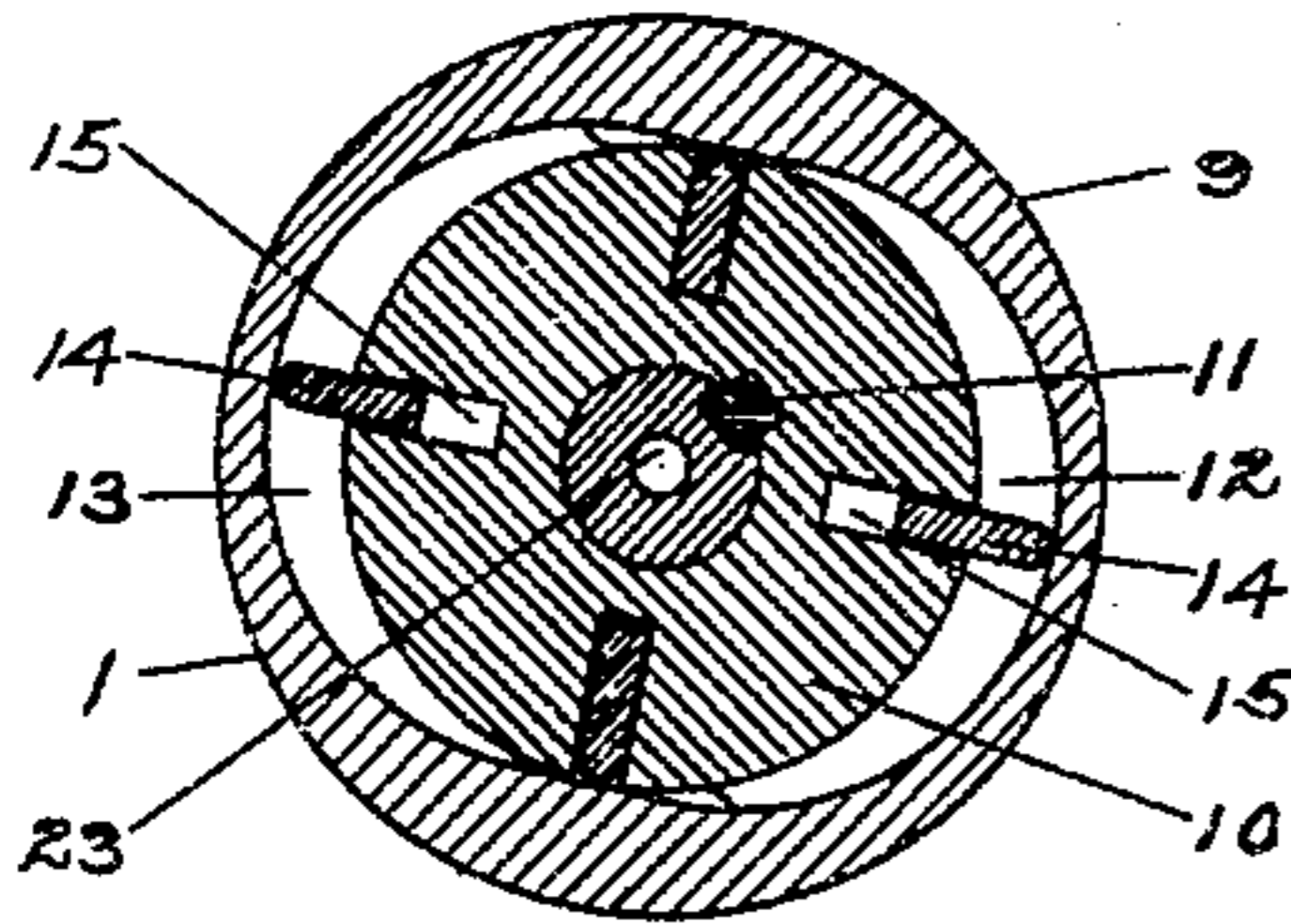


Fig. 6.

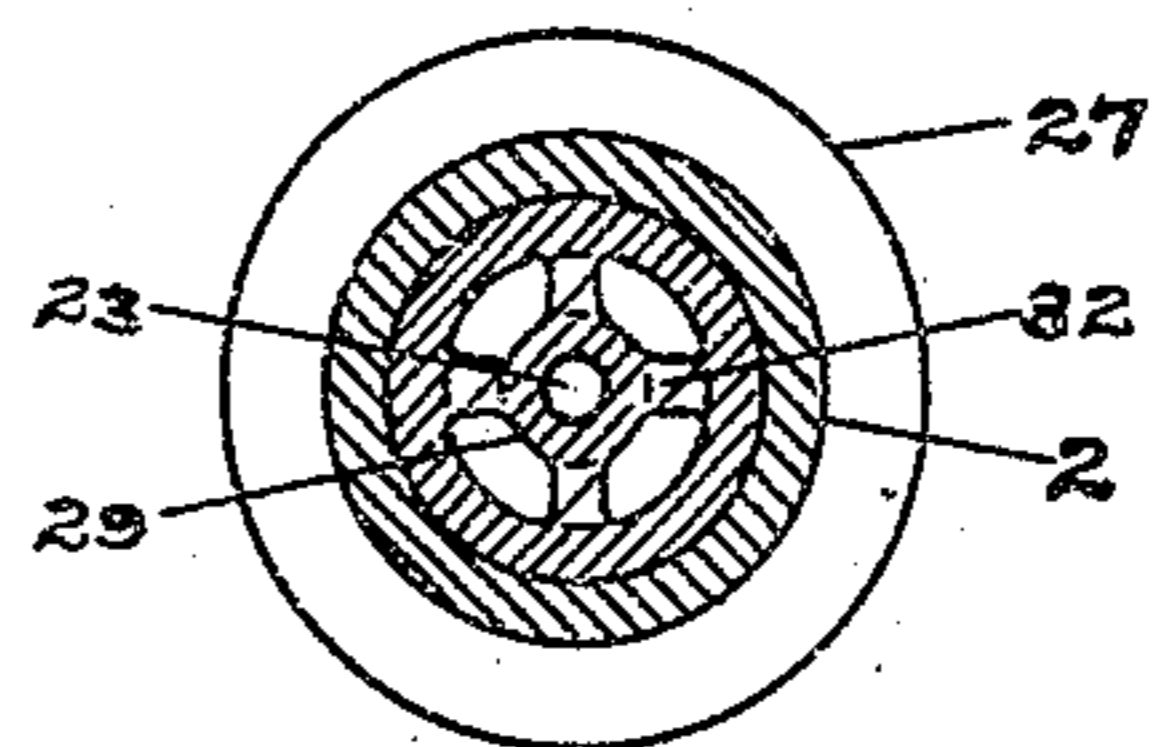
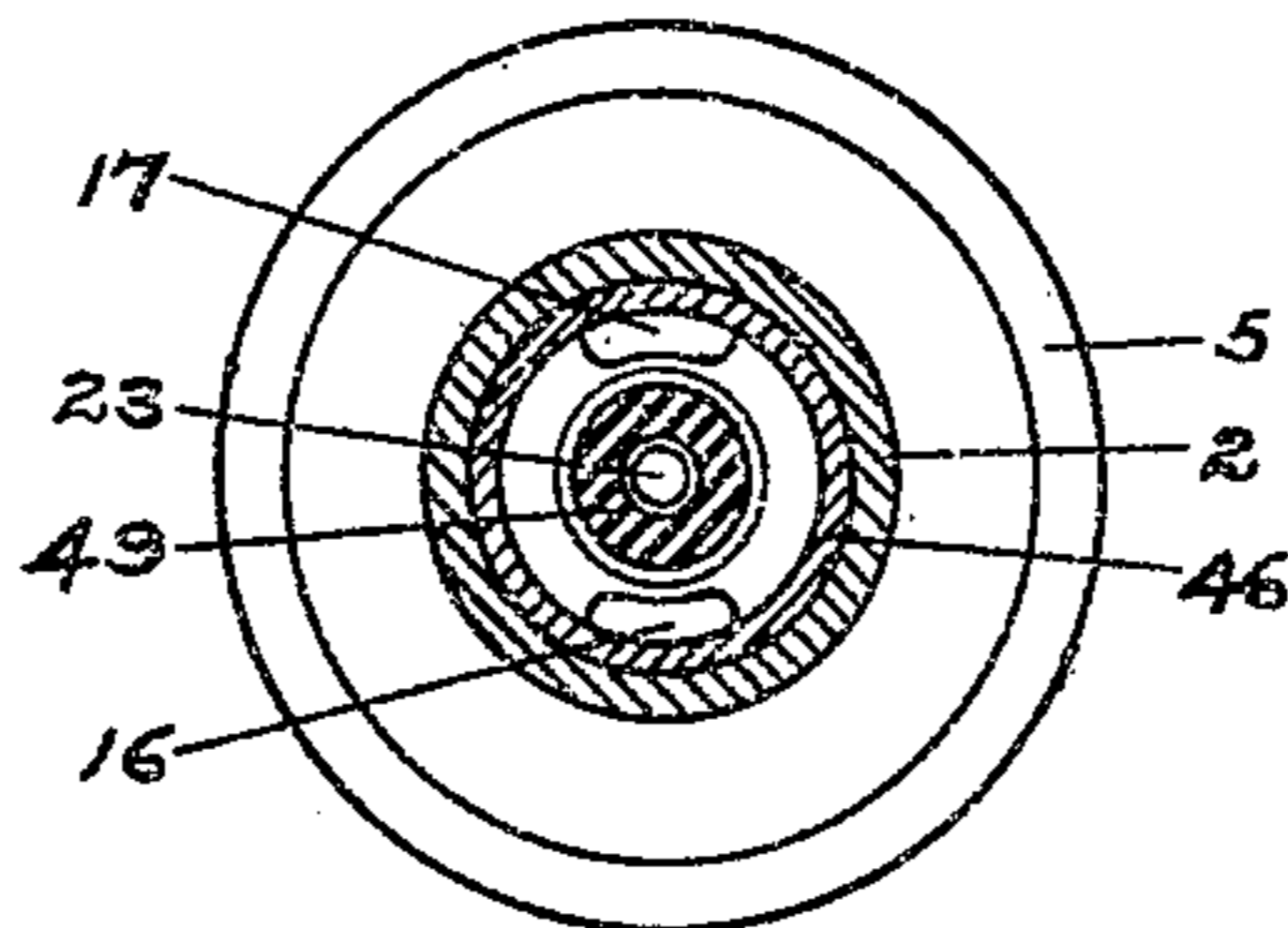


Fig. 7.



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UNITED STATES PATENT OFFICE.

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ROTARY MOTOR.

940,150.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed December 21, 1908. Serial No. 468,676.

To all whom it may concern:

Be it known that I, ELMER E. HAUER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Rotary Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to rotary motors for driving tube cleaners and more particularly to motors of this class that follow the cleaner through the tube and are driven by air or steam.

The object of my invention is to provide means for introducing a stream of water or other suitable liquid through the motor, independent of the motive agent channels or ports and deliver the same in front of the motor. The support for the cleaner head is usually secured directly to the motor or through an independent coupling or connection, such as a universal joint, and the means or conduit which I employ to deliver the stream of water in front of the motor may be continued through the cleaner head or support or the connection or both, the purpose of my invention being to deliver a stream of water in front of the motor to assist the cleaner in disintegrating the incrustations of a tube and to remove the same from the tube.

A further object is to so combine the water supply hose and the motive agent supply hose that they may be readily handled as one; and further to provide a suitable coupling for same.

With these and other objects in view, my invention consists of the constructions and combinations hereinafter described and set forth in the claims.

In the accompanying drawings Figure 1 is a longitudinal section of a rotary motor embodying my invention, the two supply hose being shown in elevation bound together, and one form of cleaner head is shown attached to the motor shaft, Fig. 2 is a like view with the two supply hose shown, one disposed within the other, and another form of cleaner head is shown attached to the motor shaft, Fig. 3 is a cross section on the line A A of Fig. 1, Fig. 4 is a cross section on the line B B of Fig. 2, Fig. 5 is a cross section on the line C C of Fig. 1, Fig. 6 is a cross section on the line

D D of Figs. 1 and 2 and Fig. 7 is a cross section on the line E E of Fig. 2.

In the drawings 1 represents the casing of a motor having a removable feed head 2 seated against an internal shoulder 3 of the casing, the head being made with a shoulder 4 against which a ring 5 screw threaded into the casing as shown is adapted to bear to hold the head in place. An exhaust head 6 is screw threaded directly into the casing as shown; and bushings 7 and 8 are preferably provided in the respective heads in which a driving shaft 9 is journaled.

For the purpose of illustrating my invention I have shown a two stage motor in which a chamber of such form and dimensions is provided in the casing 1 that when the runner 10 which is secured to the shaft 9 by a key 11, is mounted therein it will contact the walls of the chamber in two places opposite each other forming the oppositely disposed crescent shaped chambers 12 and 13 as particularly shown in Fig. 5. Paddles 14 are seated in recesses 15 of the runner and are adapted to move radially into the chambers 12 and 13 in a well known manner. Inlet ports 16 and 17 extend from a chamber 26 through the feed head to ports 18 and 19 in the casing, said last named ports opening into the casing chambers; and exhaust ports 20 and 21 extend from the casing chambers through the exhaust head as indicated in Figs. 3 and 4. The operation of the motor will be readily understood, the actuating medium being introduced through the ports 16 and 17, moves the paddles through the chambers and escapes through the exhaust ports 20 and 21, the paddles successively operating through each of the chambers in like manner to rotate the runner.

In Fig. 1 I have shown a well known form of cleaner head having its support 22 secured to the driving shaft 9. A conduit 23 extends through the feed head 2 bushing 8 and shaft 9 and opens into a chamber 24 in the support 22, said chamber being provided with openings 25 that discharge upon the cutting tools of the head. A coupling 27 is shown in Fig. 1, screw threaded at 28 into the head 2 and has a central extension 29, screw threaded at 30 into said head, the threads at 28 and 30 being of like pitch so that the coupling can be secured to the head in the manner shown. The coupling is pro-

vided with a chamber 31 which communicates with the chamber 26 through the openings in a spider 32, said spider being particularly shown in Fig. 6. Said coupling and its extension 29 is also provided with an inlet 33 which registers with the conduit 23. Nipples 34 and 35 threaded at one end into the coupling 27 and at the other in hose couplings 36 and 37 of the hose 38 and 39 form the means of introducing the actuating medium to the chamber 31 and the independent liquid supply to the conduit 23 as shown in Fig. 1. It is essential for the convenient handling of the hose 38 and 39 that they be united and in Fig. 1 I have shown them bound together by a band 40. This may be done for a suitable length and then the separated hose can be connected to their respective sources of supply.

The motor I have shown in Fig. 2 is identical with that shown in Fig. 1, and having described said motor with the cleaner head and supply connections of that figure I will now proceed to describe the attachment of another form of cleaner head and supply connections as shown in Fig. 2. In this figure I have shown another form of cleaner head having a universal coupling, the respective halves of which are numbered 41 and 42, the cleaner head being secured to 41 and 42 being secured to the motor shaft 9, the construction being such that the conduit 23 discharges through the opening between the halves of the coupling.

In the supply connection shown in Fig. 2 I employ identically the same coupling 27 shown in Fig. 1; but instead of its being secured directly to the motor head 2, it is screw threaded at 43 into a coupling 44 of a hose 45; the other end of said hose being provided with a coupling 46 threaded at 47 in the motor head 2; and the projection 29 of the coupling 27 is screw threaded into a coupling 48 of a hose 49, the other end of said hose being provided with a coupling 50 screw threaded at 51 into the motor head 2. It will be seen that by this arrangement one hose is disposed within the other and may be combined in this way for any length desired. Additional hose can be attached to the coupling to reach suitable sources of supply.

Having thus described my invention, I claim:

1. In a rotary motor for driving a tube cleaning device, means independent of the motor operating means to conduct a stream of liquid through the motor for the purpose specified.

2. In a rotary motor for driving a tube

cleaning device, a conduit through the motor independent of the motive agent channels for the purpose of discharging a stream of liquid in front of the motor.

3. A motor for driving a tube cleaning device, said motor adapted to be driven by air or steam and having a separate conduit to deliver a stream of water through the motor for the purpose specified.

4. In a rotary motor such as described, a driving shaft with a conduit to deliver a stream of liquid in front of the motor for the purpose specified.

5. A rotary motor and a tube cleaning device secured thereto and driven thereby and a conduit through said motor and device to deliver a stream of liquid for the purpose specified.

6. In a rotary motor such as described, having an inlet and discharge for the motive agent and a separate inlet and conduit to deliver a stream of liquid in front of the motor, a double combined hose to supply the respective inlets, substantially as described.

7. In a rotary motor such as described, having an inlet and discharge for the motive agent and a separate inlet and conduit to deliver a stream of liquid in front of the motor, a supply hose for each inlet and means to unite said hose, substantially as described.

8. In a rotary motor such as described, having an inlet and discharge for the motive agent and a separate inlet and conduit to deliver a stream of liquid in front of the motor, a two way coupling to connect each inlet with its source of supply, substantially as described.

9. In a rotary motor such as described, having an inlet and discharge for the motive agent and a separate inlet and conduit to deliver a stream of liquid in front of the motor, a two way coupling and a double combined hose to connect each inlet with its source of supply, substantially as described.

10. In a rotary motor such as described, having an inlet and discharge for the motive agent and a separate inlet and conduit to deliver a stream of liquid in front of the motor, a hose for each inlet, means to unite said hose and a two way coupling to connect each with its source of supply, substantially as described.

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

ELMER E. HAUER.

Witnesses:

W. T. HAMILTON,
CARL CASKEY.