E. E. HAUER.

ROTARY MOTOR.

APPLICATION FILED JUNE 2, 1911.

Patented July 7, 1914.

1,102,742.

2 SHEETS—SHEET 1.

Fig. 1.

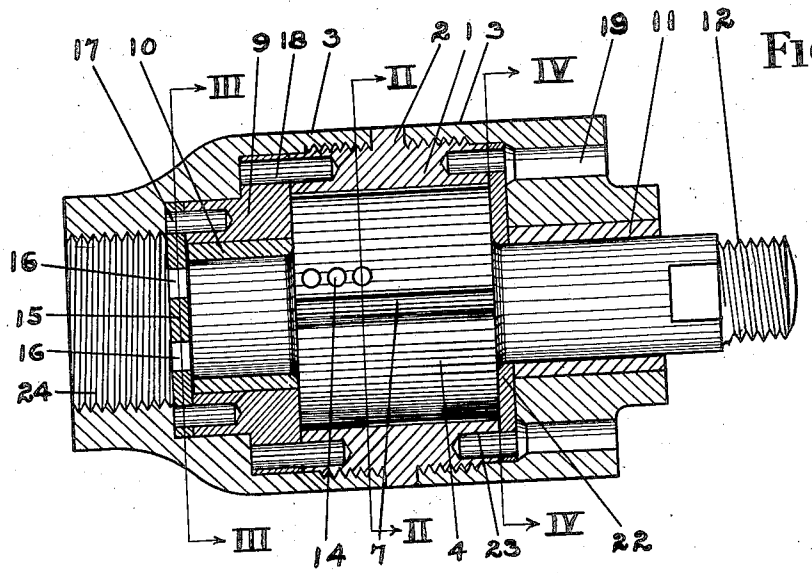


Fig. 2.

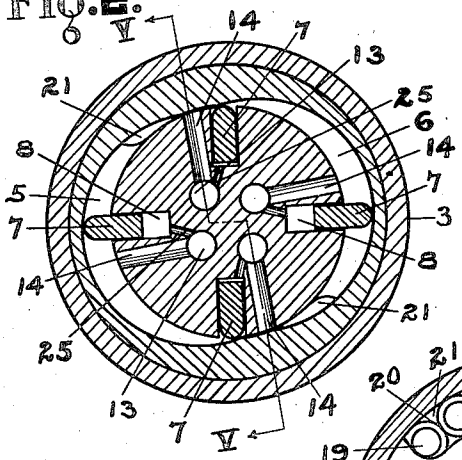


Fig. 3.

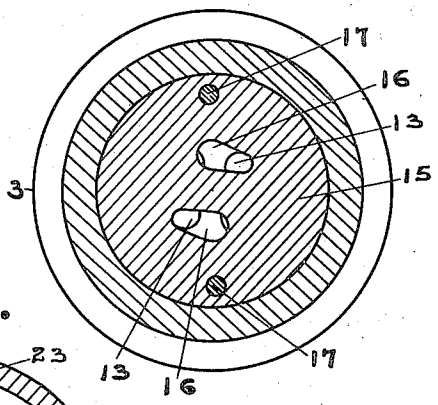
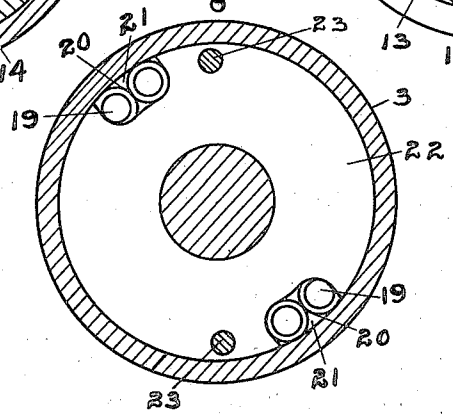


Fig. 4.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

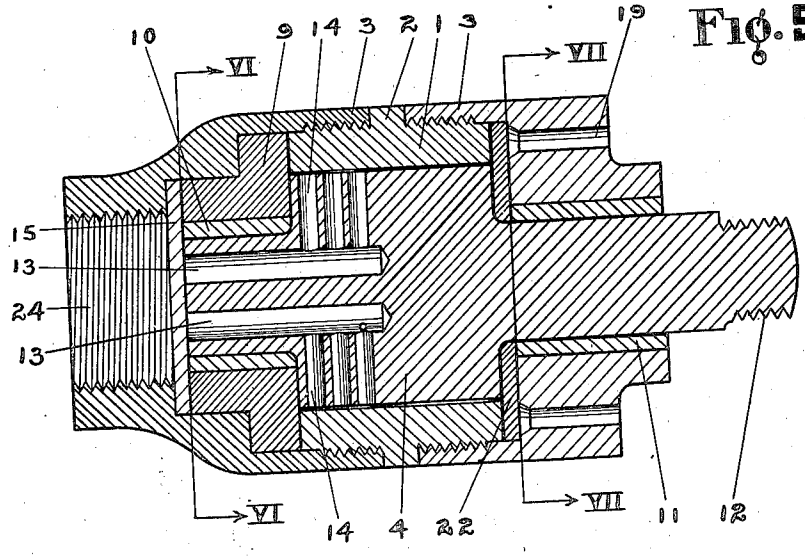


Fig. 6.

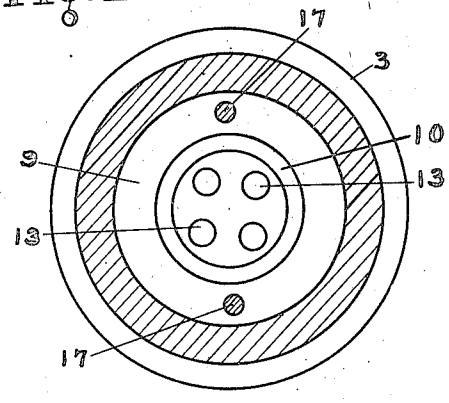


Fig. 7.

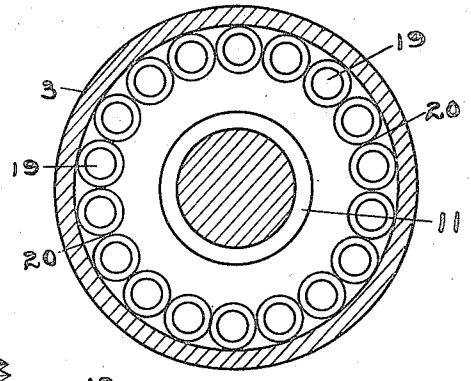
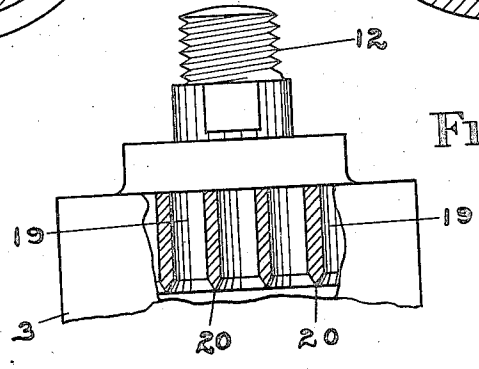


Fig. 8.



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UNITED STATES PATENT OFFICE.

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ROTARY MOTOR.

1,102,742. Specification of Letters Patent. Patented July 7, 1914.

Application filed June 2, 1911. Serial No. 630,787.

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 and more particularly to a motor of this type adapted to drive a tube cleaner and to follow the cleaner in the tube although it may be used for other purposes.

The object of my invention is to provide a simple, compact, strong and efficient motor, easily assembled and readily taken apart for renewal or repairs. It is designed to be driven at a high speed by compressed air or steam although other fluid motive agents may be employed.

A further object is to provide improved means for introducing and delivering the motive agent to the motor or working chamber.

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 sectional view of a motor embodying my invention. Figs. 2, 3 and 4 are cross-sections on the lines II—II, III—III and IV—IV respectively of Fig. 1. Fig. 5 is a longitudinal section on the broken line V—V of Fig. 2. Figs. 6 and 7 are cross-sections on the lines VI—VI and VII—VII respectively of Fig. 5 and Fig. 8 is a detail showing the discharge openings at one end of the casing.

In the drawings 1 represents a motor cylinder having an outwardly projecting ring 2 forming an abutment. A two-part casing 3 having heads at its outer ends preferably formed integrally therewith, extends over and is screw-threaded to said cylinder with its inner ends tightened against said abutment. Tightening the inner ends of the casing against said abutment forms a strong construction and prevents the casing from jarring loose.

In the present instance I have shown the motor cylinder forming a chamber of such dimensions that when the rotary motor member 4 is mounted therein it will contact with the walls of the chamber in two places opposite each other forming two oppositely disposed chambers 5 and 6 as particularly shown in Fig. 2. Piston blades 7 are seated in recesses 8 of the rotary motor member and are adapted to move radially into the chambers 5 and 6 in a well known manner. The rotary motor member may be mounted upon a shaft; but I preferably form said member with front and rear journals integrally therewith of less diameter than the body thereof as shown. A motor journal bearing member 9 is seated in one part of the casing 3 and a removable bushing 10 is preferably provided to carry the rear journal of the rotary motor member; and a removable bushing 11 seated in an opening in the head of the other part of said casing is provided to carry the front journal of said rotary motor member. Said front journal portion projects through said head and is screw-threaded at 12 to attach a tube cleaner or other tool to be driven.

Inlet ports 13 extend through the rear journal of the rotary motor member into the body of said member and intersect cross ports 14 which open into the working chamber in the rear of the piston blades. Both the longitudinal and cross ports may be drilled from the outer surface of the rotary motor member to the point of intersection. A ported plate 15 seated against the rear end of the motor bearing member 9 is provided with ports 16 adapted to register with the ports 13 of the rotary motor member. Said plate is secured by dowel-pins 17 to the motor bearing member 9 and said bearing member is secured to the cylinder 1 by dowel-pins 18 so that the ports 16 and 13 will be held in proper relation to admit the motive agent, said port 16 being made oblong in cross-section and of greater width at one end than the other, each of the ports 13 passing the ports 16 from the enlarged to the narrow end.

A plurality of discharge openings 19 are arranged in a circle through the front end of the casing 3 and the walls between said openings are beveled or tapered and terminate in sharp receiving edges 20 as particularly shown in Figs. 7 and 8 so that said discharge openings will receive and discharge the exhaust from the ports 21 in a plate 22 seated between said head and the cylinder, in any position to which said head may be

turned. Said plate 22 is secured by dowel-pins 23 to the cylinder so as to hold the exhaust ports in proper relation to the cylinder.

A screw-threaded opening 24 in the rear head of the casing is provided to attach a conduit to supply the motive agent. Openings 25 extending from the supply ports in the rotary motor member to the rear end of the recesses 8 admit the motive agent to keep the blades 7 in contact with the inner walls of the motor cylinder.

The constructions shown but not claimed herein are claimed in my application Serial Number 666,517, filed Dec. 18, 1911.

Having thus described my invention, I claim:

1. In a rotary motor, a rotary motor member with a rear journal of less diameter than the body thereof and having an inlet port entering through the rear end of said journal portion, a stationary member having an opening therethrough with a removable bushing therein forming a bearing for said journal, and a stationary ported plate abutting the rear end of said journal portion of the rotary motor member.

2. In a rotary motor, a motor cylinder, a rotary motor member with a rear journal of less diameter than the body thereof and having an inlet port entering through said journal portion, a casing removably secured to said cylinder having an integral head, a removable bearing for said journal inserted through the open end of said casing and means to supply the motive agent to said port.

3. In a rotary motor, a motor cylinder, a rotary motor member with a rear journal of less diameter than the body thereof and having an inlet port entering through the rear end of said journal portion, a casing secured to said cylinder and having an integral rear head with an opening for the motive agent supply, a bearing member having an opening therethrough with a removable bushing therein for said journal, and a ported plate abutting the rear end of said journal.

4. In a rotary motor, a motor cylinder, a rotary motor member with a rear journal of less diameter than the body thereof and having an inlet port entering through the rear end of said journal portion, a casing secured to said cylinder and having an integral head at its rear end with a supply opening, a bearing member secured against rotation to said cylinder and having a removable bushing for said journal, a ported plate secured against rotation to said bearing member and abutting the rear end of said journal portion.

5. In a rotary motor, a motor cylinder, a rotary motor member with a rear journal of less diameter than the body thereof and having an inlet port entering through the rear end of said journal portion, a casing having a head at its outer end with a supply opening parallel to the axis of the motor, a bearing for said journal having a ported plate at its rear end, said bearing and plate being seated in said casing against said head, said plate forming the inner wall of said supply opening and the port therethrough being adapted to periodically register with the port in said journal, the inner end of said bearing terminating outside of said cylinder and forming an end wall of the cylinder chamber, the inner end of said casing extending beyond said bearing over said cylinder and being screw-threaded thereto, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

ELMER E. HAUER.

Witnesses:
OLIVER H. HAUSE,
GROVER ILGEN.