

E. E. HAUER.
 ROTARY MOTOR FOR DRIVING TUBE CLEANERS.
 APPLICATION FILED OCT. 15, 1909.

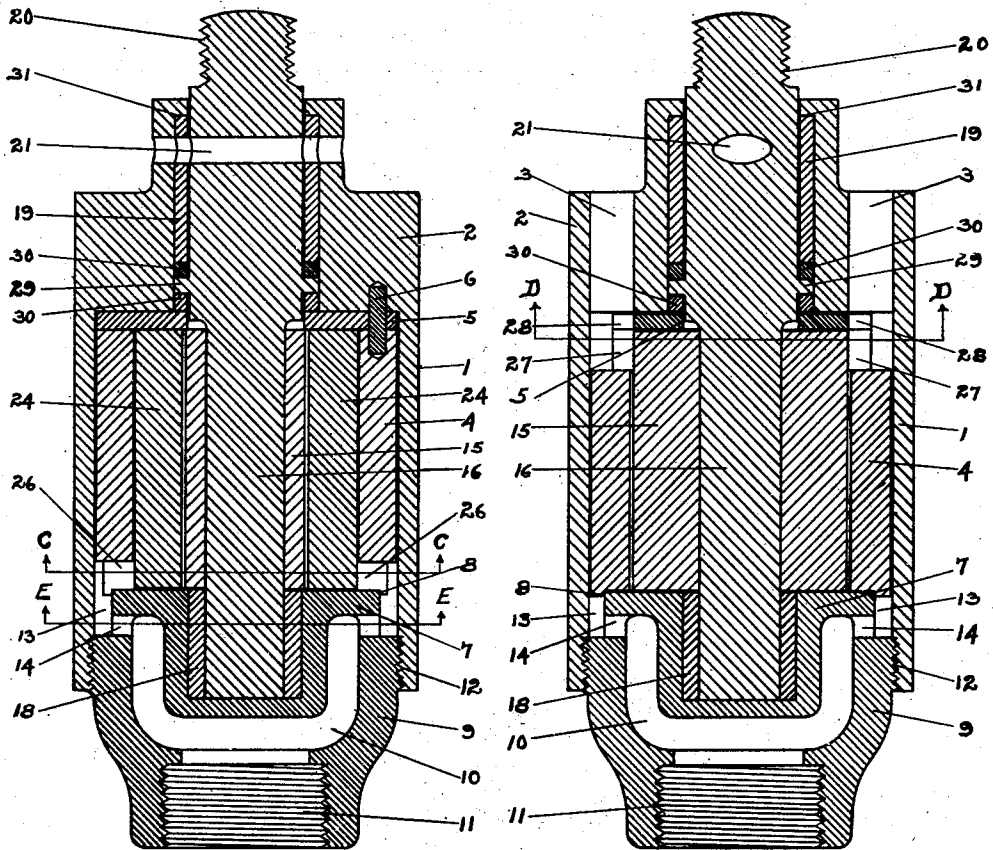
994,393.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.



Inventor

Witnesses

H. J. Hamilton

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334

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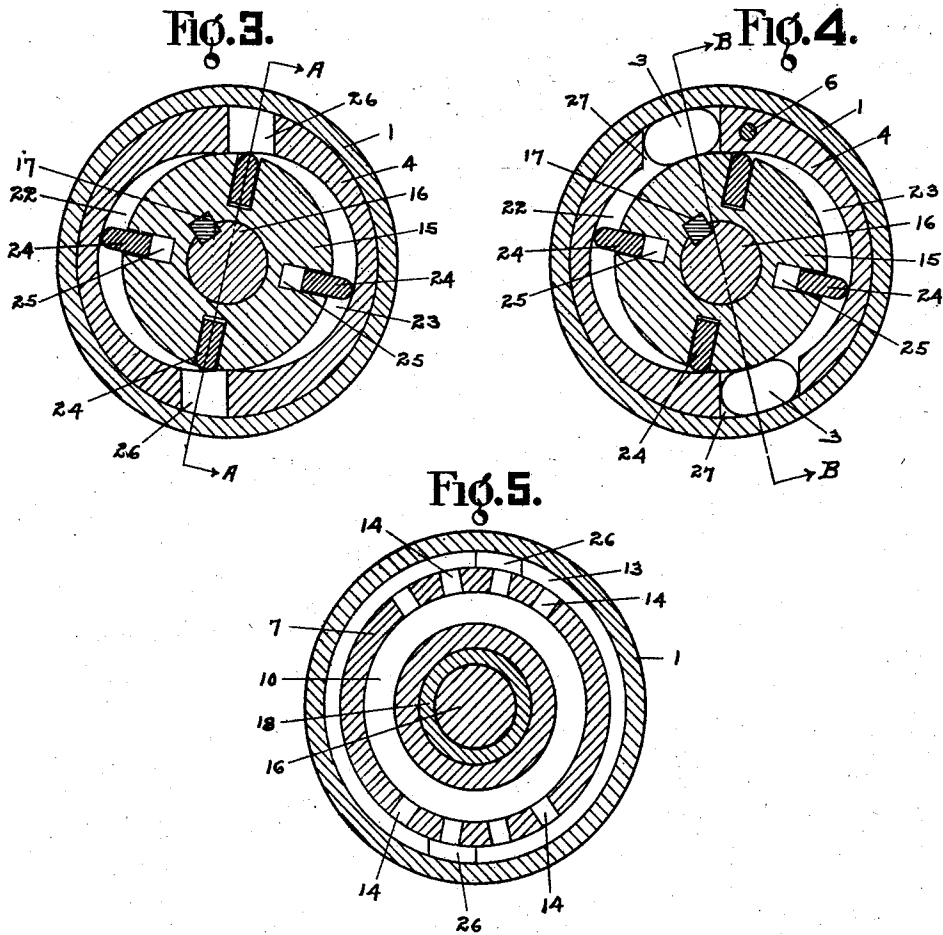
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Witnesses

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UNITED STATES PATENT OFFICE.

ELMER E. HAUER, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE LAGONDA MANUFACTURING COMPANY, OF SPRINGFIELD, OHIO, A CORPORATION OF OHIO.

ROTARY MOTOR FOR DRIVING TUBE-CLEANERS.

994,393.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed October 15, 1909. Serial No. 522,894.

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 for Driving Tube-Cleaners, of which the following is a specification, reference being had therein to the accompanying 10 drawings.

This invention relates to rotary motors and more particularly to a rotary motor operated by air or steam or like actuating medium for driving tube cleaners although it 15 may be used for other purposes.

The object of my invention is to provide an improved motor of this class simple, durable and efficient that will withstand the shocks and jars incident to its use.

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

In the accompanying drawings Figure 1 25 is a longitudinal section of a motor embodying my invention taken on the line A A of Fig. 3 through the inlet ports, Fig. 2 is a longitudinal section of the motor taken on the line B B of Fig. 4 through the exhaust 30 ports, Fig. 3 is a cross section taken on the line C C of Fig. 1. Fig. 4 is a cross section taken on the line D D of Fig. 2, and Fig. 5 is cross section taken on the line E E of Fig. 1.

35 Like numerals represent the same parts in the several views.

In the drawings 1 represents a cylinder with a head 2 preferably formed integrally therewith as shown, having exhaust openings 3. A sleeve 4 and a wearing plate 5 40 are held from turning in said cylinder by a dowel pin 6; and a removable head 7 is seated in an annular recess 8 of the sleeve and has formed integrally therewith, an enlarged rearwardly extending hollow portion 9 forming a chamber 10 with a screwthreaded opening 11 suitable to attach a feed conduit. Said head 7 is of less diameter than 45 the bore of the cylinder and its enlarged portion is screw-threaded thereto at 12 forming an annular chamber 13 and is provided with inlet openings 14 from the chamber 10 to the chamber 13.

A rotary piston 15 is mounted on a shaft 55 16 and secured thereto by a key 17, said

shaft being journaled at its rear end in the head 7, a bushing 18 being preferably provided to form a bearing therefor. Said shaft has an enlarged portion projecting forwardly through the head and journaled therein, a bushing 19 being preferably provided to form a bearing therefor; and the 60 front end 20 of the shaft is screw-threaded to attach the tool to be driven. An opening 21 through the head 2, bushing 19 and shaft 16 is provided to insert a bar to hold the shaft stationary while the tool to be driven is being attached. 65

The sleeve 4 forms a chamber of such dimensions that when the piston 15 is mounted therein it will contact the walls of the chamber in two places opposite each other forming two oppositely disposed crescent shaped chambers 22 and 23 as particularly shown in Figs. 3 and 4. Paddles 24 are 70 seated in recesses 25 of the piston and are adapted to move radially into the chambers 22 and 23 in a well known manner. Said sleeve is formed with inlet recesses 26 opening from the chamber 13 to the piston chamber, the cylinder 1 forming the outer walls of said openings; and said sleeve is further provided with exhaust recesses 27 adapted to register with exhaust ports 28 in the 75 wearing plate 5, the cylinder 1 forming the outer walls of said exhaust openings, said openings also registering with the exhaust openings 3 of the head 2. 80

A thrust collar 29 on the shaft 16, preferably provided with spacing rings 30 on 85 each side thereof, is located between the head 2 and wearing plate 5; and the bushing 19 is preferably interposed between said collar and a shoulder 31 in said head.

The operation of the motor will be readily understood; the actuating medium being introduced through the inlets 26, moves the paddles through the chambers 22 and 23 and discharges through the exhaust openings 27 and 28 and escapes through the 90 openings 3 of the exhaust head, the paddles 24 successively operating through each of the cylinders 22 and 23 to rotate the piston. 95

By providing a sleeve the piston chamber with its inlet and exhaust openings can be 100 more easily and accurately formed and hardened to receive the wear of the piston paddles and being removable can be renewed at the minimum of expense; and it will be further seen that by providing the 105 110

annular chamber 13 the head 7 can be screwed to the cylinder 1 without reference to having the inlets of the head and sleeve in register.

5 Having thus described my invention, I claim:

1. In a rotary motor, a cylinder with a sleeve therein forming a piston chamber having inlet ports, a head seated against
10 said sleeve, said head being of less diameter than the bore of the cylinder, the head forming the inner wall and said cylinder the outer wall of an annular chamber into which said inlet ports open, said head further
15 having an enlarged portion formed integrally therewith screw-threaded to the cylinder with an admission chamber therein having openings to said annular chamber, substantially as described.

20 2. In a rotary motor, a rotary piston having a shaft, a cylinder having inlet and ex-

haust heads with bearings for said shaft, a sleeve forming a chamber for said piston having inlet ports at one end and exhaust
25 ports at the other end thereof, a ported plate between said sleeve and exhaust head, means to fix said sleeve and plate to the cylinder, said inlet head being seated against
said sleeve and forming the inner wall and
30 said cylinder forming the outer wall of an annular chamber into which said inlet ports open, said inlet head further having an enlarged portion screw-threaded to said cylinder with an admission chamber therein hav-
35 ing openings to said annular chamber, substantially as described.

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

ELMER E. HAUER.

Witnesses:

GROVER ILGEN,

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
