T. ANDREWS.

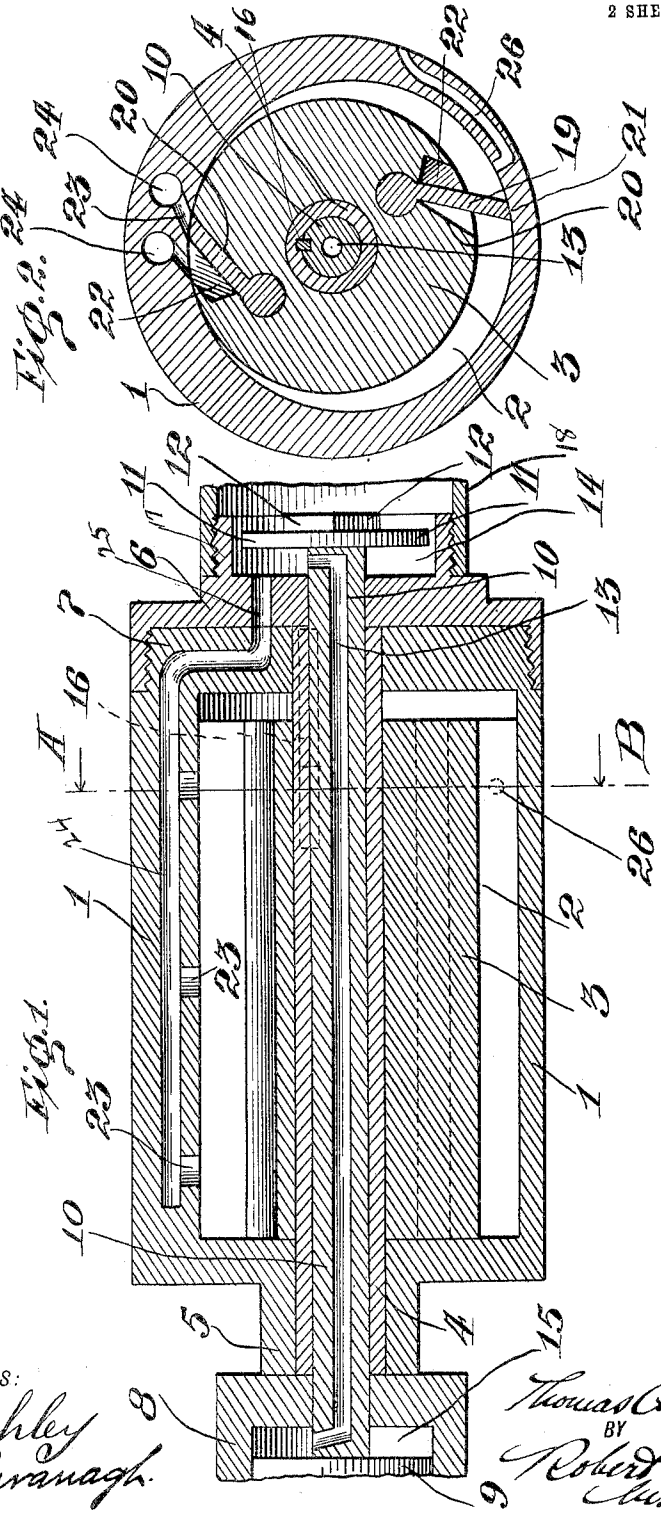
ROTARY MOTOR FOR TUBE CLEANERS.

APPLICATION FILED OCT. 27, 1909.

1,068,293.

Patented July 22, 1913.

2 SHEETS—SHEET 1.



WITNESSES:

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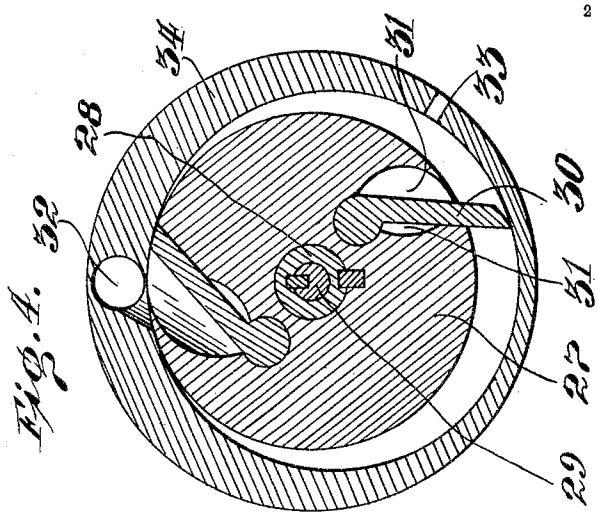


Fig. 4.

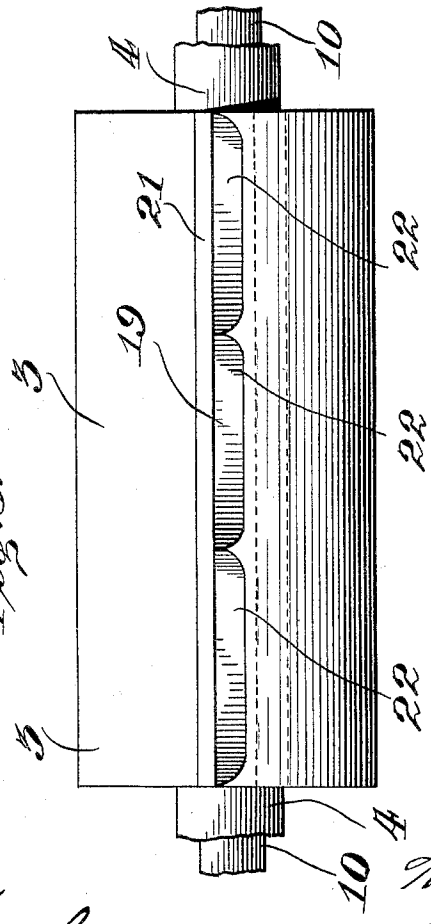


Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS ANDREWS, OF ROCKAWAY, NEW JERSEY, ASSIGNOR TO THOMAS ANDREWS MANUFACTURING COMPANY, OF ROCKAWAY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ROTARY MOTOR FOR TUBE-CLEANERS.

1,068,293. Specification of Letters Patent. Patented July 22, 1913.

Application filed October 27, 1909. Serial No. 524,914.

To all whom it may concern:

Be it known that I, THOMAS ANDREWS, a citizen of the United States, and residing at Rockaway, county of Morris, and State of New Jersey, have invented certain new and useful Improvements in Rotary Motors for Tube-Cleaners, of which the following is a specification.

The invention relates to improvements in rotative motors and has particular reference to that type of motor utilized in connection with automatic tube cleaners driven and controlled by means of the application thereto of fluid under pressure.

One object of the invention is the providing of a casing having formed therein an eccentric chamber adapted to receive a concentric motor core carrying a plurality of wings, the objects of said wings being to assist in the rotation of said motor, and means whereby said wings during the rotation of the same utilize said fluid under pressure expansively.

Another object of the invention is the providing of means associated with the rotative or operative parts of a tube cleaner and particularly with the supporting structure of the rotative motor adapted to control the admission of fluid to said tube cleaner parts and the fluid passageways supplying said rotative core, the object thereof being to automatically control the admission of fluid in said cleaner, said controlling means being so arranged that it controls the instantaneous starting and stopping of said motor.

In the following is described in connection with the accompanying drawings one embodiment of the invention, the features thereof being more particularly pointed out hereinafter in the claims.

In the drawings, Figure 1 is a longitudinal sectional view of the motor and of the casing therefor and of the fluid supply or feed controlling means; Fig. 2 is a cross sectional view on the line A—B of Fig. 1; Fig. 3 is a plan elevation of the rotative motor core illustrating in connection therewith the relative positions of the driving wings as associated with the fluid supply passageways; and Fig. 4 is a cross sectional view of a modified form of the invention.

Similar numerals of reference indicate similar parts throughout the several views.

In the drawings, 1 indicates a casing having formed therein an eccentric bore or chamber 2 adapted to receive the rotative motor core 3 mounted on sleeve 4 which finds bearing in boss 5 at one end of said casing 1, the other end thereof being supported in fluid receiving head 6 which is fastened to threaded boss 7. Said sleeve 4 extends substantially the full length of the casing and has mounted thereon a rotative cylinder 8 adapted to receive piston head 9 on one end of shaft 10, said shaft 10 carrying at its other end a shut-off disk 11 held in place thereon by means of nut 12. Said shaft 10 has suitably cut therein a fluid port or passageway 13 forming a suitable means of communication between the fluid receiving chamber 14 in said head 6 and chamber 15 in said rotative cylinder 8 at which point the fluid when under pressure is impinged against piston 9, the object of impinging a smaller amount of fluid against piston 9 is for the purpose of causing an auxiliary structure that is supported thereby to be actuated. Said core 3 is mounted on said sleeve 4 in any suitable manner and said sleeve 4 is keyed to shaft 10 at 16 for rendering the connection between said core and sleeve substantially a unit. Fluid receiving head 6 has formed thereon a threaded nipple 17 adapted to receive a hose coupling 18 forming part of a suitable fluid pressure supply source.

Rotative core 3 has mounted therein wings 19 resting on diagonally inclined surfaces 20 and provided with a circular surface 21 conforming to the inner surface of bore 2. Said wings 19 receive the fluid from ducts 23 which in turn communicate with ports 24 formed in the wall of said casing 1. Said ports 24 connect with fluid duct 25 in head 6 which communicates with fluid chamber 14, said duct 25 being adapted to receive the initial fluid pressure supply from any suitable source (said source is not shown herein as it does not form an essential part of the invention as any fluid generator may be readily utilized). After the fluid has expanded or caused the motor core 3 to rotate at a high rate of speed said fluid passes from said bore or chamber 2 through exhaust port 26 in said casing 1.

Referring to Fig. 4 of the drawings motor core 27 is shown as mounted on sleeve 28 which is in turn mounted on shaft 29 to limit

the longitudinal movement of said shaft in said casing, said shaft carrying the shut-off disk 11 providing a means of controlling the admission of fluid under pressure into said fluid expansion casing 1. Said core 27 has pivotally mounted therein wings 30, the object of said wings being to provide means adapted to receive the fluid under pressure and assist in the rotation of said core. 32 indicates the fluid supply port and 33 the fluid exhaust port suitably located in the walls of casing 34.

The operation of the device is as follows: When the device is inserted within the walls of a tube part of an auxiliary attachment hereto engages said walls which causes piston 9 to open shut off disk 11 and permit fluid to enter ports 13 and 26, port 13 permitting said fluid pressure to be impinged against piston 9, and port 26 permits fluid to pass through ports 24 to the internal recesses of the motor casing, the function thereof causing the instantaneous rotation of the motor and all parts rotatively associated therewith. The movement of the piston 9 draws shaft 10, which carries disk 11, with it thereby sealing port 25 which at this point causes the instantaneous stoppage of the rotative parts of the apparatus.

It is obvious that the device may be varied in many ways without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A device of the character described comprising a casing, a fluid expansion reception chamber formed therein, a fluid head, a shaft mounted in said casing and head, bearings for said shaft, a concentric core mounted on said shaft in said cylinder having cut therein a fluid passageway, wings pivotally mounted in said core, an auxiliary rotative shaft, a piston head carried by said shaft, a chamber in said rotary head, and means actuated by said piston adapted to control the admission of fluid under pressure to said fluid expansion reception chamber.

2. A device of the character described including a fluid supply controlling means for rotary motor driven cleaners comprising a casing, a fluid expansion chamber therein, a core mounted in said chamber, bearings formed in said casing, wings pivotally mounted in said core, fluid passageways cut in said casing forming a means of communication between said aforesaid ports and said fluid expansion chamber, means formed on said head adapted to receive the hose end connection of a fluid supply, a shaft mounted in said bearings, a piston head carried by said shaft and mounted in a recess formed in said casing, a shut-off disk mounted on the inner end of said shaft, and means actuated from said piston adapted to adjust the position of said cut-off disk with relation to said fluid passageways in said head.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THOMAS ANDREWS.

Witnesses:
EDW. T. SNOOK,
R. W. ASHLEY.

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