No. 692,202. Patented Jan. 28, 1902.

C. R. KLINE & J. KELLER.

PNEUMATIC MOTOR.

(Application filed July 6, 1901.)

(No Model.)

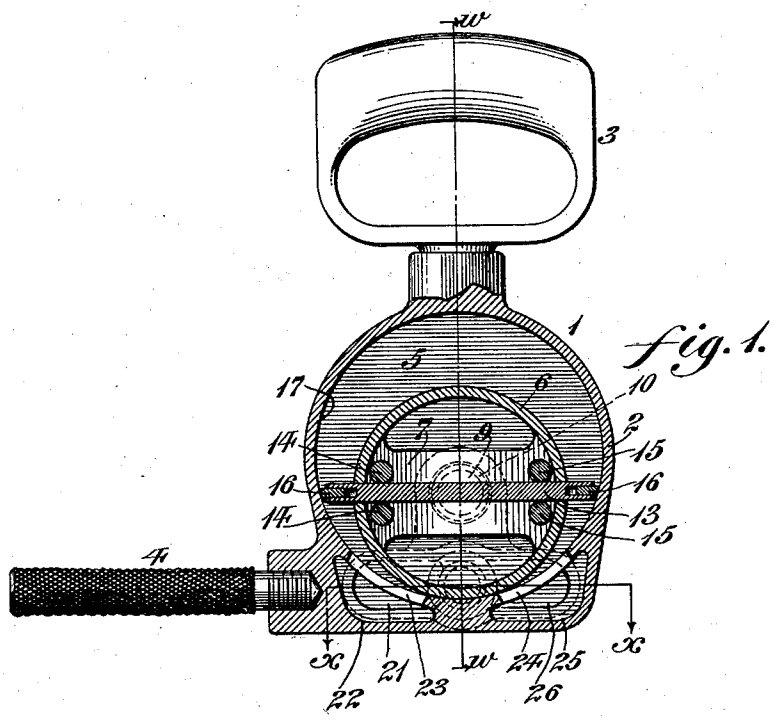


fig. 1.

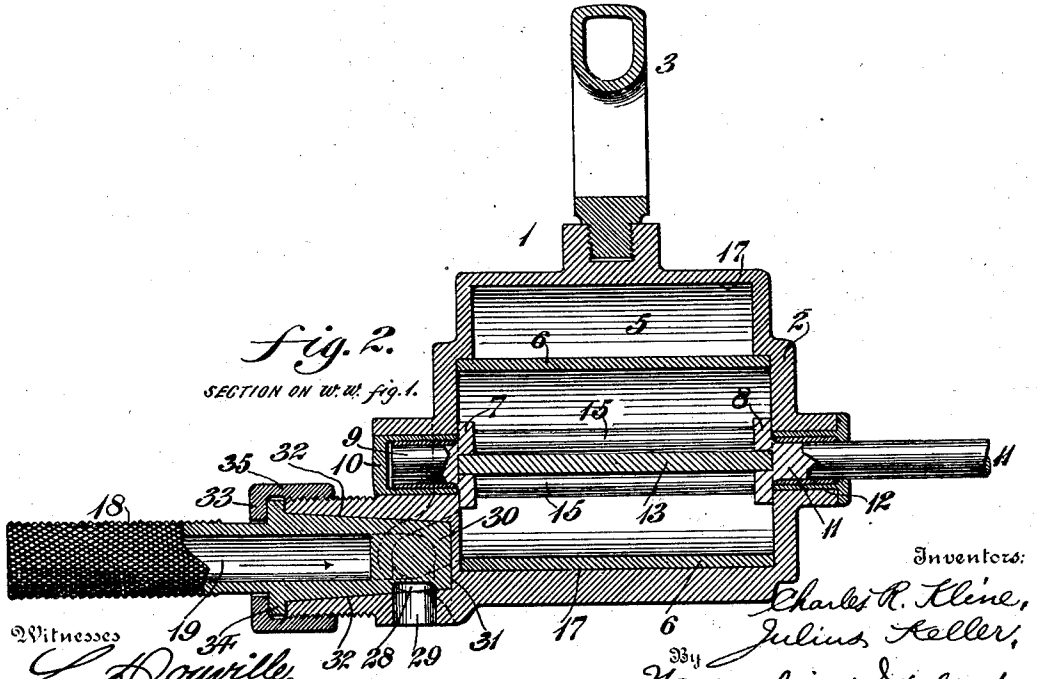


fig. 2.

SECTION ON W. W. fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES R. KLINE, OF BEECHWOOD, AND JULIUS KELLER, OF PHILADELPHIA, PENNSYLVANIA.

PNEUMATIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 692,202, dated January 28, 1902.

Original application filed April 29, 1901, Serial No. 57,882. Divided and this application filed July 6, 1901. Serial No. 67,281. (No model.)

To all whom it may concern:

Be it known that we, CHARLES R. KLINE, residing at Beechwood, in the county of Cameron, and JULIUS KELLER, residing in the city and county of Philadelphia, State of Pennsylvania, citizens of the United States, have invented a new and useful Improvement in Pneumatic Motors, of which the following is a specification.

Our invention consists of a novel construction of a rotary engine which can be cheaply manufactured, is effective and economical in operation, and will not readily get out of order, the present case being a division of an application filed by us April 29, 1901, Serial No. 57,882, and entitled "Pneumatic barker."

It further consists of novel details of construction, all as will be hereinafter more fully described, and pointed out in the claims.

Figure 1 represents a vertical sectional view of a rotary engine embodying our invention. Fig. 2 represents a section on line *w w*, Fig. 1.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a rotary engine having the casing 2, to the upper portion of which is attached the handle 3, while from the lower portion thereof projects the handle 4 at an angle to said handle 3, whereby the engine can be readily manipulated or transported.

5 designates the piston-chamber, within which is eccentrically located the piston, consisting of the cylinder 6, which has the diametrically-extending plates 7 and 8 located at the opposite ends thereof, said plate 7 having its journal 9 extending therefrom and rotating in a suitable box or bearing 10, while the plate 8 has the journal 11 projecting therefrom and mounted also in a suitable bearing 12, it being evident that power may be transmitted from the journal 11 to any desired point.

13 designates a blade diametrically mounted in the cylinder 6 and held in position by the pairs of rollers 14 and 15, between which said blade passes, the ends of said blade being provided with packing-strips 16, which contact with the inner periphery 17 of the piston-chamber 5, it being also noted that the piston is freely movable relative to the blade 13, since the edges of said blade are mounted in suitable recesses in the inner faces of the plates 7 and 8, as will be understood from Fig. 2. It will of course be understood that the piston 12 is reduced at the sides to permit its revolution within the chamber 5, or, if desired, said chamber 5 can be made longer than shown in Fig. 2, as will be apparent.

The motive fluid enters through the rotatable handle or pipe 18, which serves the double function of an inlet and a reversing valve for the motive fluid, and it passes through the port 19 and passage 21, which leads to the chamber 22, and thence through the port 23 to the piston-chamber below the blade 13, whereupon the piston is caused to rotate in the manner known to those skilled in this art, the exhaust taking place through the port 24, chamber 25, and passage 26 to the atmosphere through the exhaust-port 29. When it is desired to reverse the direction of rotation of the piston, the valve 18 is turned, whereupon the function of the various ports and passages becomes reversed, the port 24 now being the inlet-port and 23 the exhaust-port, as is evident. The extremity 30 of the valve 18 rests in a suitable seat 31, the walls 32 of which are preferably tapered, Fig. 2, said valve being held in position by the contact of the flange 33 of the nut 35 with the flange 34 of said valve. It will thus be seen that the reversing devices are very simple in construction and operation and not likely to get out of order.

It will be apparent that slight changes may be made by those skilled in the art which will come within the scope of our invention, and we do not therefore desire to be limited in every instance to the exact construction herein shown and described.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates

and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers located in said casing in opposite portions thereof, said chambers having ports leading therefrom to said piston-chamber, and said chambers and ports being adapted to be utilized as inlet or exhaust for the motive fluid according to requirements.

2. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers located in said casing in opposite portions thereof, said chambers having ports leading therefrom to said piston-chamber, and said chambers and ports being adapted to be utilized as inlet or exhaust for the motive fluid according to requirements.

3. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, a plurality of chambers located in said casing in opposite portions thereof, said chambers having ports leading therefrom to said piston-chamber, and said chambers and ports being adapted to be utilized as inlet or exhaust for the motive fluid according to requirements, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a handle on said casing, and a second handle on said casing and projecting therefrom at an angle to said first-mentioned handle.

4. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers situated in said casing, and ports leading from said chambers to the piston-chamber at opposite sides thereof, one of said ports serving as an inlet for the motive fluid and the other as an exhaust therefor.

5. In a rotary engine, a casing, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers situated in said casing on opposite sides thereof, ports leading from said chambers to the piston-chamber at the opposite sides thereof, and means for causing either of said ports to act as inlet or exhaust at will.

6. In a rotary engine, a casing, a piston-chamber, a piston therein, a plurality of chambers in said casing and on opposite sides thereof, a plurality of ports leading from said chambers to said piston-chamber, an inlet-pipe for the motive fluid, a plurality of passages leading from said inlet to said chambers, and a reversing-valve for controlling said passages, said valve being formed on said pipe.

CHARLES R. KLINE.
JULIUS KELLER.

Witnesses:
E. HAYWARD FAIRBANKS,
C. D. MCVAY.

Correction in Letters Patent No. 692,202.

It is hereby certified that Letters Patent No. 692,202, granted January 28, 1902, upon the application of Charles R. Kline, of Beechwood, and Julius Keller, of Philadelphia, Pennsylvania, for an improvement in "Pneumatic Motors," was erroneously issued to said "Kline and Keller as owners" of said invention; whereas said Letters Patent should have been issued to said *Charles R. Kline* as owner of the entire interest in said invention, as shown by the assignments of record in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 18th day of February, A. D., 1902.

[SEAL.]

F. L. CAMPBELL,
Assistant Secretary of the Interior.

Countersigned:

F. I. ALLEN,
Commissioner of Patents.