G. WALLIN.

MOTOR.

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1,049,181. Patented Dec. 31, 1912.

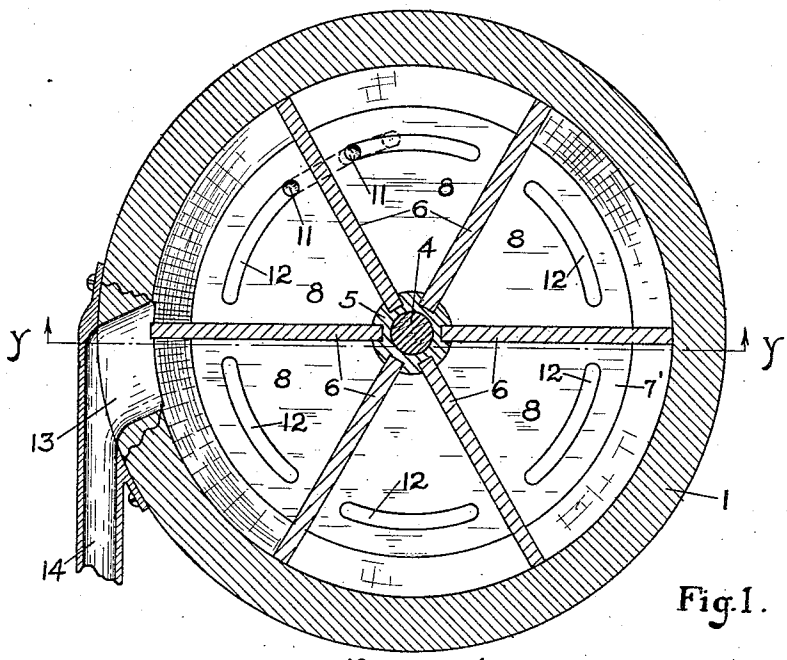

Fig. 1.

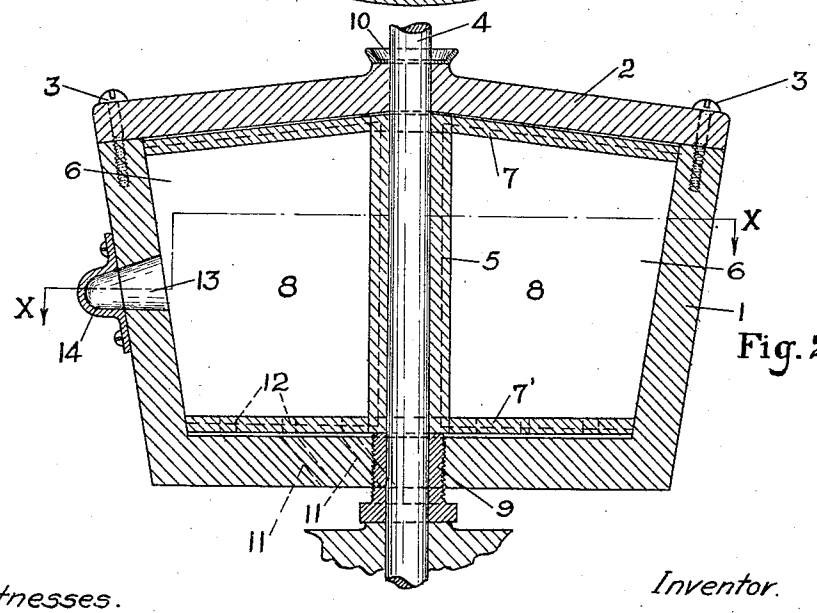

Fig. 2.

Witnesses.

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MOTOR.

1,049,181. Specification of Letters Patent. Patented Dec. 31, 1912.

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To all whom it may concern:

Be it known that I, GUSTAV WALLIN, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Motors, of which the following is a specification.

My invention relates to motors, and more specifically to a device of this character designed especially for use in automatic pianos or piano players, for employment in driving the music sheet rollers.

The object of my invention is the production of a motor of the character mentioned, which will be of improved construction and efficient in operation.

Other objects will appear hereinafter.

With these objects in view, my invention consists in the combinations and arrangements of parts hereinafter described and claimed.

My invention will be more readily understood by reference to the accompanying drawing forming a part of this specification, and in which—

Figure 1 is a horizontal section of a motor embodying my invention, the section being taken on substantially line x x of Fig. 2, and Fig. 2 is a central vertical section taken on substantially line y y of Fig. 1.

The preferred form of construction, as illustrated in the drawing, comprises a casing consisting of a body 1 which is conical in form, the head 2 thereof being secured in position by bolts or other securing devices 3. Rotatably mounted in the casing 1 is a shaft 4 which, when the motor is in use, is suitably connected with the mechanism which it is desired to drive. Arranged within the casing 1 and secured to the shaft 4 is a rotor comprising a hub 5, a plurality of radially disposed blades 6, and heads 7 and 7′, the construction being such that a plurality of radially extending outwardly opening pockets 8 are constituted in the rotor. Said rotor is of a form corresponding with that of the casing 1, and so that the outer edges of the blades 6 will be positioned in close proximity with the peripheral wall of the casing to prevent leakage from one compartment to the other. Threaded in the lower head of the casing 1 is a sleeve 9 the inner or upper end of which engages against the lower side of the rotor and more specifically with the lower end of the hub 5 thereof. The arrangement is such that the rotor will be rotatably supported upon the upper end of the sleeve 9, and so that axial adjustment of said rotor in the casing in order to take up wear, may be effected by simply adjusting said sleeve. Axial adjustment of the rotor serves to take up wear at the periphery thereof, as just mentioned, by reason of the conical form of the casing and rotor, as will be readily understood.

The head 2 of the casing 1 is conical or convex in form and supported centrally thereon is an oil cup 10. With this arrangement, effectual lubrication of the working parts is secured, the oil supplied to the cup 10 passing down the bearing opening in the head 2 and running down the inclined under side of said head to the inner surface of the peripheral wall of the casing, as will be readily understood, thus serving to effectually distribute the oil to the surfaces where the same is needed. The head 2 is of conical form in order that the oil passing through the bearing opening therein to the under side of said head will move by gravity toward the periphery of said head for lubrication of the peripheral wall of the casing. Such distribution of the oil would not be secured were the head 2 formed perfectly flat.

Formed in the lower head of the casing 1 are compressed fluid inlet openings 11 which are inclined, as shown, the same extending in a plane perpendicular to the blades 6 or tangential to the direction of movement thereof. Formed in the head 7′ of the rotor are elongated arcual slots 12 which communicate with the pockets or compartments 8, as shown, said slots being arranged for successive registration with the inlet openings 11 when the rotor is rotated. Provided in the peripheral wall of the casing is a fluid outlet opening 13 from which leads an exhaust pipe 14.

In the operation of the machine, compressed fluid and preferably compressed air is supplied to the openings 11. The air passes through said openings and is directed thereby to impinge upon the blades 6, the impact of said impingement serving to drive the rotor, as will be readily understood. The compressed air which is thus successively admitted to the compartments 8 is exhausted therefrom upon registration of said compartments with the opening 13. Supposing that the rotor is in the position indicated in

Fig. 1, when it is desired to start the motor, compressed air is allowed to enter the openings 11 and the compressed air entering the opening 11 farther from the pipe 13 will impinge on blade 6 which is adjacent said opening and cause the rotor to turn until said blade is in position to be impinged by the compressed air entering through the other opening 11, which is nearer the outlet opening 13. The compressed air which entered the opening 11 nearer the pipe 13 would pass out through the partially opened outlet 13 and upon expanding at such outlet would exert force on the blade 6 which is passing such outlet 13. In this manner force is obtained both by the direct impact of the compressed air against the blade 6 and by expansion of such air at the opening 13.

A motor of the construction set forth is durable and economical, the same is exceptionally light running and is of high efficiency in use.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the exact details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A motor comprising a conical casing; and a rotor rotatably mounted in said casing, said rotor having a plurality of radially disposed blades, the outer edges of said blades being inclined to correspond with the form of said casing, there being a fluid inlet opening in one of the heads of said casing, and a fluid outlet opening in the peripheral wall of said casing, substantially as described.

2. A motor comprising a conical casing; and a rotor rotatably mounted in said casing, said rotor having a plurality of radially disposed blades, the outer edges of said blades being inclined to correspond with the form of said casing, there being an inclined fluid inlet opening in one of the heads of said casing adapted to direct the compressed fluid to impinge upon said blades, and a fluid outlet opening in the peripheral wall of said casing, substantially as described.

3. A motor comprising a conical casing; a rotor rotatably mounted in said casing, said rotor having a plurality of radially disposed blades, the outer edges of said blades being inclined to correspond with the form of said casing, there being an inclined fluid inlet opening in one of the heads of said casing adapted to direct the compressed fluid to impinge upon said blades, and a fluid outlet opening in the peripheral wall of said casing; and means for axially adjusting said rotor in said casing, substantially as described.

4. A motor comprising a conical casing; a rotor rotatably mounted in said casing, said rotor having a plurality of radially disposed blades, the outer edges of said blades being inclined to correspond with the form of said casing, there being an inclined fluid inlet opening in one of the heads of said casing adapted to direct the compressed fluid to impinge upon said blades, and a fluid outlet opening in the peripheral wall of said casing; and a sleeve threaded in the lower end of said casing and engaging said rotor for axially adjusting the latter in said casing, substantially as described.

5. A motor comprising a circular casing; a rotor rotatably mounted in said casing, said rotor having a plurality of radially disposed blades, there being a fluid inlet opening in one of the heads of said casing, and a fluid outlet opening in the peripheral wall of said casing, one of the heads of said casing being of inclined formation; and an oil cup provided centrally upon said last mentioned head, substantially as described.

6. A motor comprising a circular casing; and a rotor rotatably mounted in said casing, said rotor having a plurality of radially opening pockets, there being a fluid inlet opening in one of the heads of said casing, and arcual slots in the adjacent walls of said pockets for registration with said opening, and a fluid outlet opening in the peripheral wall of said casing adapted to register with the outer ends of said pockets, substantially as described.

7. A motor comprising a circular casing; and a rotor rotatably mounted in said casing, said rotor having a plurality of radially opening pockets, there being a plurality of inclined fluid inlet openings in one of the heads of said casing, and elongated arcual slots in the adjacent walls of said pockets for registration with said openings, and a fluid outlet opening in the peripheral wall of said casing adapted to register with the outer ends of said pockets, substantially as described.

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

GUSTAV WALLIN.

Witnesses:
JOSHUA R. H. POTTS,
BRAYTON G. RICHARDS.