

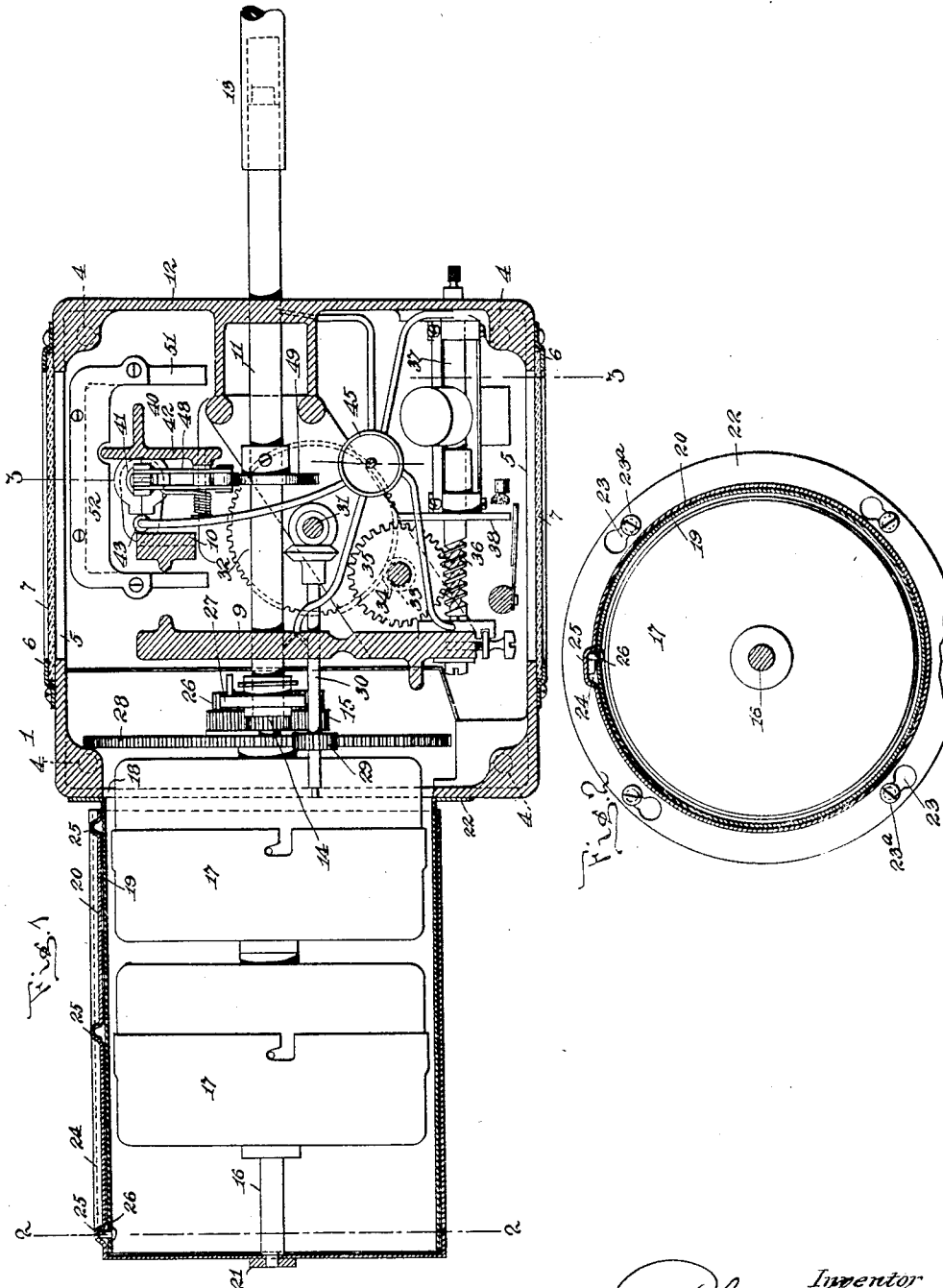
P. CATUCCI.
 SPRING MOTOR.

APPLICATION FILED JUNE 8, 1918.

1,387,589.

Patented Aug. 16, 1921.

2 SHEETS—SHEET 1.



Inventor
P. Catucci
 by *Scheghtenbach*
 his Attorneys

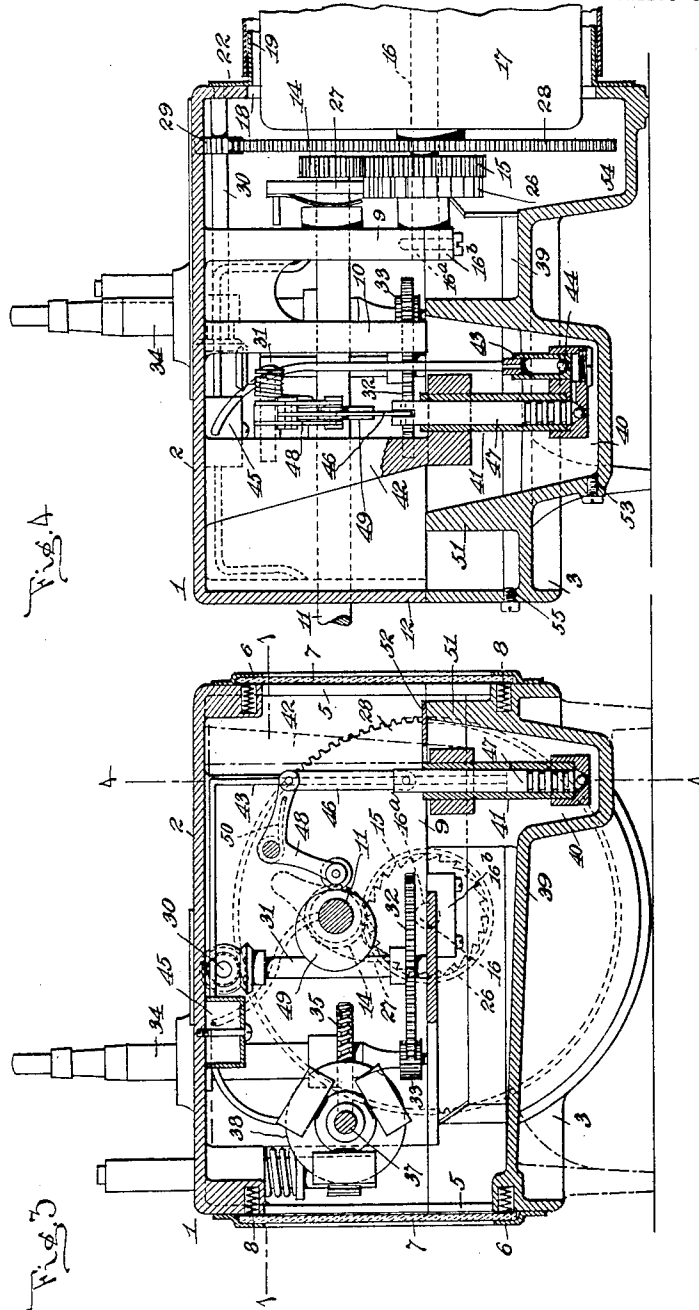
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Inventor
Pliny Catucci
 by *Schuchter & Hatch*
 Attorneys

UNITED STATES PATENT OFFICE.

PLINY CATUCCI OF NEWARK, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
HARRIMAN NATIONAL BANK OF THE CITY OF NEW YORK, TRUSTEE.

SPRING-MOTOR.

1,387,589.

Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed June 8, 1918. Serial No. 238,982.

To all whom it may concern:

Be it known that I, PLINY CATUCCI, a citizen of the United States, and a resident of Newark, county of Essex, and State of New Jersey, have invented a certain new and useful Spring-Motor, of which the following is a specification.

My invention relates to spring motors, and more particularly to motors for talking machines, of the disk record type, and has for its objects to provide a motor wherein the bearings may be automatically lubricated; which will carry a sufficient quantity of lubricant to last a great length of time; which can be readily supplied with additional lubricant when necessary or desired; which will be entirely inclosed; which is provided with transparent panels through which the operation of the motor may be observed; and wherein the power may be increased or diminished without dismantling the device.

A further object of the invention is the provision of means for a spring motor, of the character herein described, which are extremely simple in construction, neat and attractive in appearance, thoroughly reliable and efficient in its purpose, and economical to manufacture.

With these and other objects in view to be more fully set forth hereinafter, the invention consists in the novel construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter described in the specification and illustrated in the accompanying drawings considered together or separately.

A further object of my invention is to produce a spring motor having automatic lubricating means which will be simple in construction, and effective in operation, thereby producing a structure in which the lubricant is being constantly supplied to all the moving parts with the result that an easy and noiseless running motor is produced, thereby greatly increasing the efficiency, quality and usefulness of the apparatus.

The inventive idea involved is capable of receiving a variety of mechanical expressions, one of which for the purpose of illustrating the invention, is shown in the accompanying drawings.

The invention will be first described in

connection with the accompanying drawings, wherein similar reference characters are used to designate corresponding parts throughout the several views, and then more specifically defined and indicated in the appended claims.

In the drawings,—

Figure 1 is a horizontal sectional view taken partly on the axial line of the spring drum shaft, and partly on the line 1—1 of Fig. 3;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a transverse section on the line 3—3 of Fig. 1; and

Fig. 4 is a longitudinal section on the line 4—4 of Fig. 3.

In carrying out my invention, I provide a frame 1, in which all of the operating parts of the device are carried. The frame is a rectangular, box-like structure having a top 2, by means of which it is secured to the motor board (not shown) of a cabinet. The bottom of the frame is open, and secured to this open bottom is a box-like base or tray 3 which closes the opening and forms an inclosed structure containing the motor mechanism. The base is secured to the frame 1 by means of bolts 4 one at each corner of the structure. The frame and base constitute the inclosure for the motor proper.

The front and rear sides of the inclosure are provided with openings 5, 5, around each of which is secured a frame 6, and carried in each frame is a glass panel 7. A series of springs 8 carried in sockets in the inclosure bear against the panels and hold them in intimate contact with the frames, thereby rendering the inclosure dust and moisture proof and preventing rattling of the glass.

Depending from the underside of the top 2 are supplemental frame members 9 and 10, which provide bearings for various rotary parts of the motor.

A winding shaft 11 has bearings in the members 9 and 10, and extends through the end 12 of the inclosure. The projecting end of the shaft 11 is adapted to be engaged by a winding crank 13. The inner end of the shaft carries a pinion 14 which is in mesh with a spur gear 15 on a spring shaft 16. The shaft 16 carries a plurality of spring

barrels 17, each of which contains a spring for rotating the shaft 16 and the motor. The spring shaft projects through a large circular opening 18 in the end of the inclosure opposite the end 12. In the inner end of the shaft 16 is carried a box 16^a, having a removable cap 16^b, and carried on the frame 9.

A cylindrical shell 19 is secured to the end of the inclosure in axial alinement with the shaft 16. A cylindrical casing 20 telescopes over the shell 19, and the head of the casing carries a bearing 21 for the outer end of the spring shaft 16. The shell 19 has a flange 22 provided with a series of key-holes 23 which engage bolts 23^a in the end of the inclosure. By slacking upon the bolts the shell may be given a partial turn until the enlargements of the key-holes are in alinement with the heads of the bolts and the casing may be removed by a longitudinal movement.

The shell 20 is provided with a longitudinal struck-up recess 24 which extends from the open end thereof to within a short distance of the head thereof. The recess has short peripheral branches 25 and a pin 26 is adapted to engage the recess or the branches. If it is desired to have a more powerful motor, the casing 20 is given a partial rotation until the pin 26 is in the recess 24; the casing may then be withdrawn. The shaft 16 and spur gear 15 may then be withdrawn from the bearing 16^a and the shaft and spring barrels removed. A new shaft of greater length and carrying additional springs is now inserted in place, the casing 20 is returned to position, and the pin 26 is caused to engage the second or third branch 25 if a third or fourth spring is inserted.

The inner end of the shaft 16 carries a ratchet wheel 26^a which is engaged by a spring pawl 27. This will prevent backward movement of the winding shaft under the influence of the unwinding main spring. The inner spring barrel carries a spur gear 28 which drives a pinion 29 on a shaft 30 which is connected to a vertical shaft 31 by miter gears. The shaft 31 carries a spur gear 32 which drives a pinion 33 on the turn-table shaft 34 which projects through the top 2 and the motor board, and carries the usual turn-table (not shown). The turn-table shaft carries a worm wheel 35 which drives a worm 36 on a governor shaft 37 carrying the usual disk 38.

The bottom 39 of the base or tray 3 slopes toward one side of the inclosure and communicates with a sump 40. A pump 41 is located within the sump with its base near the bottom of the sump. The pump is supported by means of an arm 42 depending from the top 2 of the frame. The pump is provided with a ball valve and the valve

chamber communicates with an uptake or supply pipe 43 in which there is an upwardly opening ball valve 44. The uptake communicates with a chamber 45 secured to the underside of the top 2 at a point higher than any of the horizontal bearings. The chamber 45 is in communication with the bearings of the winding shaft and governor shaft, so that oil may be automatically supplied to such bearings.

The pitman 46 of the pump plunger 47 is secured to one arm of a bell-crank lever 48, the other arm of which carries a roller bearing against a cam 49 carried by the winding shaft 11. A spring 50 tends to hold the roller in engagement with the cam and the plunger in its lowermost position.

A dam 51 surrounds three sides of the sump, and a shelf 52 projects entirely over one side of the dam. The sump is provided with a draw-off or drain opening 53.

A recess 54 is formed in the base or tray in proximity to the end of opening 18, and any oil or grease escaping from the spring barrel 17 will collect in said recess. When it is desired to replenish the oil supply, the same may be accomplished by means of the oil hole 55 which may also be used to drain the tray if desired.

When the motor is assembled, the sump is partially filled with oil. When the device is placed in the cabinet, it must be inclined, and the dam 51 and shelf 52 will prevent the oil from spilling or flowing out of the sump. When the shaft 11 is rotated to wind the spring, the cam thereon will rock the bell crank, reciprocate the pump plunger and oil will be forced up to the chamber 45, through the uptake or supply pipe, and when a certain quantity of oil is in the chamber, it will be distributed through the various oil pipes, and to the respective bearings. When the winding operation ceases, the pump will be inoperative. Any leakage from the bearings will run down to the floor 39 of the tray and will find its way to the sump and be again used.

Instead of forcing the oil to the bearings from the oil chamber, the oil may be fed by gravity by connecting the conduits to the bottom thereof and admitting air to the chamber.

While in the present embodiment of the invention I have shown the oil conduits from the chamber 45 leading to the bearings of the winding and governor shafts only, it will be understood that the bearings of the spring shaft 16, the shafts 30 and 31, the turn-table shaft and the brake shaft, may be similarly lubricated.

In accordance with the provisions of the patent statutes, I have described the principle of my invention together with the apparatus which I now consider to represent the best embodiment thereof, but I desire it un-

derstood that my invention is not confined to the particular form of apparatus herein shown and described, the same being merely illustrative, and that the invention can be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which objects of my invention are attained, and the new results accomplished, as herein set forth, as it is obvious that the particular embodiment herein shown and described is only one of many that can be employed to attain these objects and accomplish these results.

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

1. A talking machine motor, means for storing power in said motor, an oil chamber so situated as to supply oil to the bearings of the motor, and means for supplying said chamber with oil upon operation of the power storing means.

2. A spring motor for a talking machine, having an oil chamber so situated as to supply oil to the bearings of the motor, and means operated upon the winding of the motor for supplying said chamber with oil.

3. A spring motor, means for winding the spring, and a pump actuated by the winding mechanism for supplying oil to the bearings of the motor.

4. A talking machine motor, a casing for the motor, there being an oil reservoir in the casing, a pump within the reservoir for removing oil therefrom, and means for distributing the oil to the bearings of the motor.

5. A talking machine motor having a frame, an oil reservoir in the frame, a pump adapted to remove oil from the reservoir, there being passages connecting the pump and the bearings of the motor.

6. A spring motor for a talking machine, a shaft for winding the spring, a casing, an oil reservoir in the casing, a pump communicating with the reservoir, connections between the winding shaft and pump whereby the latter will be operated to deliver oil to the shaft bearings of the motor.

7. A spring motor for a talking machine, a shaft for winding the spring, a casing, an oil reservoir in the casing, a pump communicating with the reservoir, connections between the winding shaft and pump whereby the latter will be operated to deliver oil to the shaft bearings of the motor during the winding operation.

8. A spring motor for a talking machine, a casing therefor, a shaft for winding the spring, an oil reservoir in the casing, a pump communicating with the reservoir, a lever connected to the pump, and a cam on the

shaft for engaging the lever for operating the pump to distribute oil to the bearings of the motor during the winding operation.

9. Operating mechanism for a talking machine comprising driven mechanism, a casing therefor, spring means for driving said driven mechanism, said means being located outside of the casing, and a sectional covering for the driving means, said covering being removably attached to the casing.

10. Operating mechanism for a talking machine comprising driven mechanism, a casing therefor, spring means for driving said driven mechanism, said means being located outside of the casing, and an extensible covering for the driving means, said covering being removably attached to the casing.

11. Operating mechanism for a talking machine comprising driven mechanism, a casing therefor, removable spring means for driving said driven mechanism, said means being located outside of the casing, and a sectional extensible covering for the driving means, said covering being removably attached to the casing.

12. In a talking machine, a motor, a covering therefor, the dimensions of said covering being variable to house variably dimensioned motors.

13. In a talking machine, driving means comprising one or more units, a covering for said driving means, the dimensions of said covering being variable with the number of power units used.

14. Driving mechanism for a talking machine comprising a spring motor, a casing inclosing part of said mechanism, and an extensible casing inclosing the spring motor, whereby the power of the motor may be varied without dismantling the driving mechanism.

15. A spring motor, means for winding the spring, said winding means being inoperative during the unwinding of the spring, a casing inclosing the motor, there being a sump within the casing, a pump located in the sump, connections between the pump and the bearings of the motor whereby oil from the sump will be conveyed to said bearings, and connections between the spring winding means and pump for operating the pump during the winding of the spring.

16. A motor having a driving spring, means for winding the spring, said winding means being inoperative during the unwinding of the spring, a casing inclosing the motor, there being a sump within the casing, a pump located in the sump, an auxiliary reservoir in the casing, connections between the pump and the reservoir and between the reservoir and the bearings of the motor whereby oil from the sump will be conveyed to said bearings, and connec-

tions between the spring winding means and pump for operating the pump during the winding of the spring.

5 17. A motor having a driving spring, a shaft for winding the spring, said winding shaft being stationary during the unwinding of the spring, a casing inclosing the motor, there being a sump in the bottom of the casing, a pump located in the sump, 10 connections between the shaft and the pump for operating the latter during the winding of the spring, an auxiliary reservoir in the upper part of the casing, a conduit between the pump and reservoir, and conduits be- 15 tween the reservoir and the bearings of the motor whereby oil delivered by the pump to the reservoir will be fed to the said bearings by gravity.

20 18. A motor having a driving spring, a shaft for winding the spring, said winding shaft being stationary during the unwind-

ing of the spring, a casing inclosing the motor, there being a sump in the bottom of the casing, a pump located in the sump, said pump having a piston, a lever pivoted 25 in the casing, connections between the piston and the lever, a cam carried by the shaft and cooperating with the lever for operating the pump during the winding of the spring, an auxiliary reservoir in the 30 upper part of the casing, a conduit between the pump and reservoir, and conduits between the reservoir and the bearings of the motor whereby oil delivered by the pump to the reservoir will be fed to the said bear- 35 ings by gravity.

This specification signed and witnessed this 6th day of June, 1918.

PLINY CATUCCI.

Witnesses:

JOHN L. LOTSCH,
M. JONES.