

D. E. WALL.
 SPRING MOTOR.

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1,059,414.

Patented Apr. 22, 1913

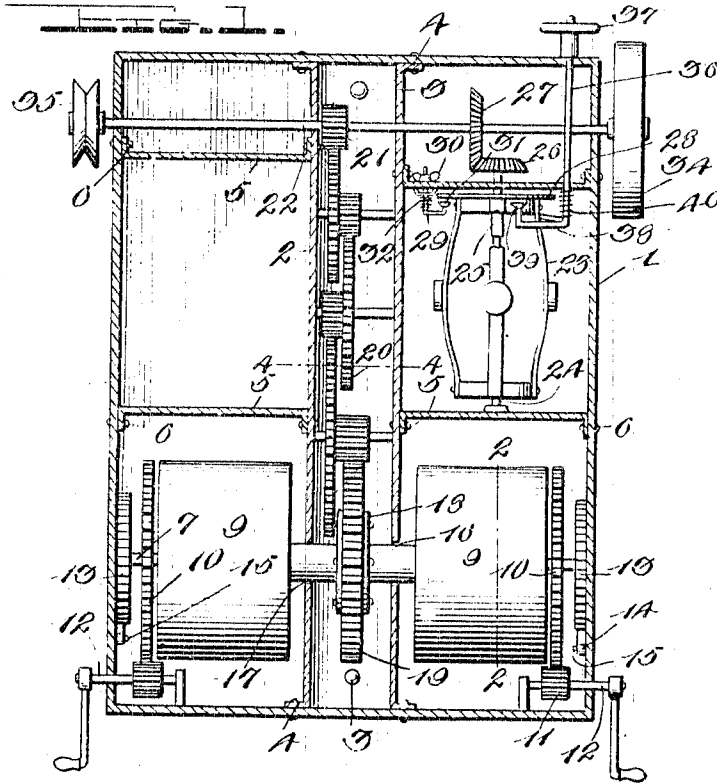


Fig. 2.

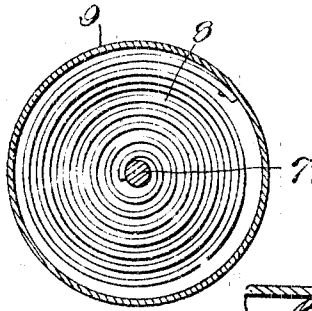


Fig. 3.

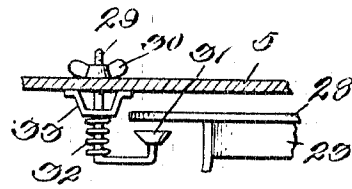
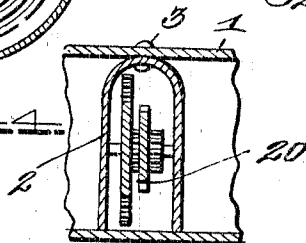


Fig. 4.



Witnesses

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DAVID EDGAR WALL, OF CUMBERLAND FURNACE, TENNESSEE.

SPRING-MOTOR.

1,059,414.

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To all whom it may concern:

Be it known that I, DAVID EDGAR WALL, a citizen of the United States, residing at Cumberland Furnace, in the county of Dickson and State of Tennessee, have invented certain new and useful Improvements in Spring-Motors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to new and useful improvements in spring motors and has for its object to provide a motor of this character made for heavy work of its kind such as running an overhead fan, sewing machine, churn, washing machine or anything where a light power is required.

Another object of the device is to provide a spring motor which will possess advantages in points of efficiency, and durability, is inexpensive of manufacture and at the same time is simple in construction and operation.

With the above and other objects in view, the invention consists in the novel features of construction and the combination and arrangement of parts hereinafter more fully described, pointed out in the claim and shown in the accompanying drawings, in which—

Figure 1 is a vertical sectional view; Fig. 2 is a sectional view on the line 2—2 of Fig. 1; Fig. 3 is an enlarged detail sectional view. Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring more particularly to the drawings 1 indicates the casing which is preferably rectangular in shape and made from heavy sheet metal or any other desired material. Centrally arranged in this casing is a U-shaped gear housing 2 securely fastened therein by means of the rivets 3 passing through the bottom of the housing and through the back side of the casing, said housing having flanges 4 formed on each end and riveted to the top and bottom of the casing.

Disposed between the outer walls of the casing and the gear housing are the brace bars 5 having their ends bent at right angles and securely fastened by means of the rivets 6. Mounted in the lower end of the casing is the main shaft 7 upon which is mounted the springs 8, said springs having their inner ends secured to the shaft and their outer ends secured to the circular spring casings 9. Mounted on the shaft 7

adjacent said spring casings are the winding gears 10 operated by means of the small cogs 11 mounted on the crank shafts 12, said crank shafts being provided with handles on the outside of the casing to operate said winding gears and wind up said springs. Ratchet wheels 13 are mounted on the shaft 7 adjacent the gears 10 and pawls 14 are mounted on the pins 15 and adapted to engage said ratchet wheels to prevent backward movement of the winding gears.

One end of the spring casings 9 is provided with a reduced sleeve 16 which is disposed through an opening 17 formed in each side of the housing 2. An annular flange 18 is formed on the ends of said sleeves and secured to the sides of the main gear 19 which is loosely mounted on the shaft 7, said gear 19 being connected by means of a train of gears 20 to the gear 21 on the operating shaft 22 disposed in the upper end of the casing.

Disposed in the casing above one of the springs 8 and mounted between two of the brace bars 5 is a governor 23, said governor having its lower end keyed to the shaft 24 and the upper end is provided with an inwardly extending sleeve 25 which is loosely mounted on said shaft. A gear 26 is mounted on the upper end of said shaft and adapted to mesh with the gear 27 on the operating shaft.

A disk 28 is mounted on the upper end of the governor and a regulator is mounted on one of the brace bars 5 and disposed adjacent said disk, said regulator comprising a rod 29 mounted in said brace bar, having its upper end screw threaded and a winged nut 30 is mounted thereon. The lower end of said rod is bent twice at right angles and a friction tip 31 is placed on the upwardly extending end of the bent portion of the rod to engage the lower face of the disk 28 and regulate the speed of the governor. A coil spring 32 is mounted on said rod and disposed between the bracket 33 and the lower end of the rod so that when the nut 30 is turned to release the governor the spring will expand and force the tip 31 away from the disk and thus it will be seen that by the turning of the winged nut 30 the governor can be regulated to run fast or slow.

A fly wheel 34 is mounted on one end of the operating shaft and a pulley 35 is mounted on the opposite end; said pulley can be

replaced by a gear or any other desired means.

A starting and stop device is provided which comprises a vertically disposed shaft 36 having one end disposed through the upper side of the casing and a hand wheel 37 threaded thereon. Formed on the lower end of said shaft are two arms 38 extending at right angles therefrom and provided on their outer ends with the friction tips 39 adapted to engage the lower face of the disk 28. A coil spring 40 is mounted on the lower end of the shaft and disposed between the brace bar 5 and the arms 38 so that when the wheel 37 is turned to release the governor the spring will expand and force the tips 39 away from the disk 28 allowing the governor to rotate.

In constructing my improved motor the gears 19 and 21 may be replaced by pulleys if so desired and the train of gears 20 may be replaced by a belt to connect said gears.

It will be obvious that when the springs 8 are wound up and the governor is released the springs will turn the casing 9 which in turn will rotate the gear 19 and impart motion to the operating shaft 22 by means of the train of gears 20, the speed of said operating shaft being regulated by means of the governor 23.

While I have shown and described the preferred form of my invention it will be obvious that various changes in the details

of construction and in the proportion may be resorted to for successfully carrying my invention into practice without sacrificing any of the novel features or departing from the scope thereof.

Having thus described the invention what is claimed is:—

A spring motor comprising a casing, a U shaped gear housing centrally arranged and secured therein, a shaft mounted in the lower end of said casing, circular spring casings mounted on said shaft and arranged upon each side of the housing, springs arranged in said casings and having one end secured thereto and the other end secured to the shaft, inwardly extending reduced sleeves formed on said casings, a gear wheel mounted on said shaft, annular flanges formed on the inner ends of said sleeves and adapted to be secured to the gear wheel, an operating shaft mounted in the upper end of the first casings, means for connecting said gear wheel with the operating shaft, means for placing the said springs under tension for rotating said casings and imparting motion to the operating shaft, and means for regulating the speed of said operating shaft.

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

DAVID EDGAR WALL.

Witnesses:

A. B. CARROLL,
G. L. WALL.