C. A. ELTON.

SPRING ACTUATED MOTOR.

APPLICATION FILED OCT. 28, 1907.

920,120. Patented May 4, 1909.

Fig. 1.

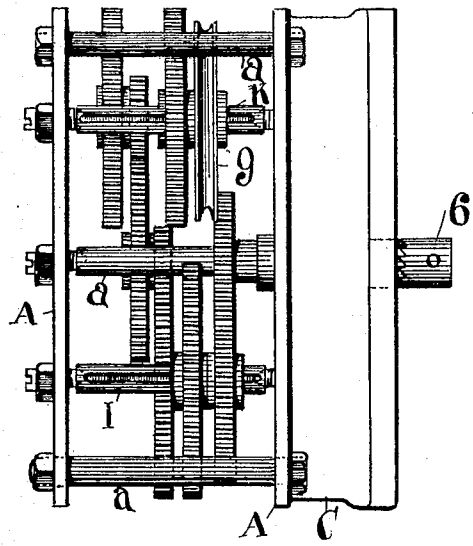


Fig. 2.

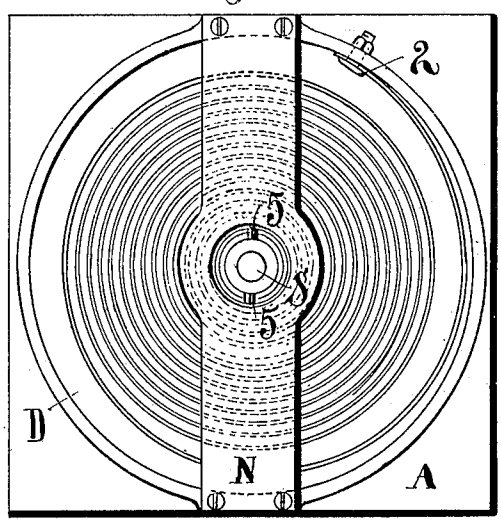


Fig. 3.

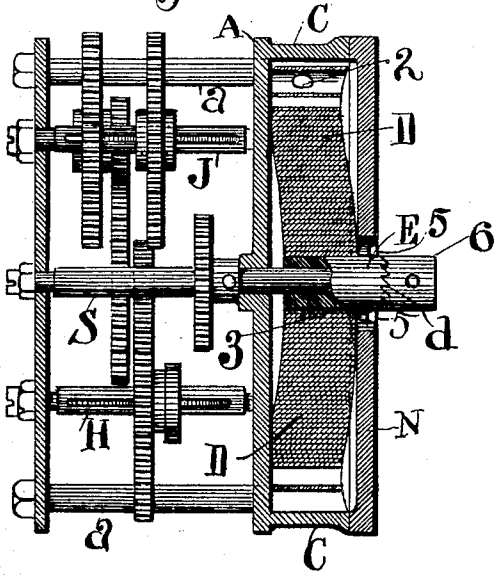
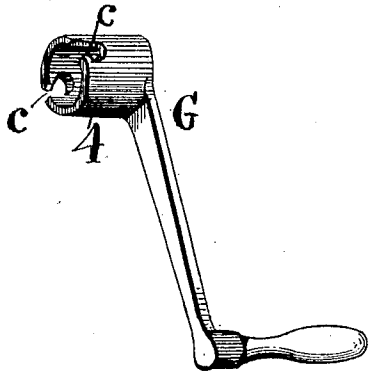


Fig. 4.



ATTEST
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UNITED STATES PATENT OFFICE.

CLARENCE A. ELTON, OF AKRON, OHIO.

SPRING-ACTUATED MOTOR.

No. 920,120. Specification of Letters Patent. Patented May 4, 1909.

Application filed October 28, 1907. Serial No. 399,528.

To all whom it may concern:

Be it known that I, CLARENCE A. ELTON, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Spring-Actuated Motors, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to spring actuated motors, and the invention consists in a motor having novel and original winding mechanism for the power spring and connection through said mechanism with the drive shaft, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the motor, and Fig. 2 is a front elevation thereof. Fig. 3 is a central cross section on the axis of the motor, and Fig. 4 is a perspective view of a hand crank to wind the motor.

As thus shown, the invention comprises a motor adapted for various uses wherein a limited amount of power will do the work and serve as a substitute for hand power, such as is employed in washing machines, churns, sewing machines, and many other machines of like character, the use thereof being limited only by its adaptability to particular machines.

To these ends the invention consists in a motor having a suitable supporting frame A, which may be built for either stationary or portable purposes, so that it may be taken to the work or have the work brought thereto, and is constructed in this instance with front and rear plates connected by sleeved rods *a*. Different sizes may be built having more or less power according to the service wanted.

C represents a casing or drum rigid with frame A on one side thereof and adapted to carry and inclose main or power spring D. Said spring is affixed to said drum or inclosure at its outer end 2 and to sleeve E at its inner end 3, and said sleeve is slidably mounted within limits on drive shaft S. The said spring D is narrower than the depth of drum C in which it is confined, and being fixed in the drum close to the inner wall thereof and to the sliding sleeve E at its inner end, the spring naturally exerts an outward pressure axially on said sleeve in its effort to escape confinement, and this causes the spring to bulge outward at its middle against cross-piece N and brings the ratchet teeth on the outer end of sleeve E into engagement with the ratchet teeth on head 6 fixed on shaft S. Therefore the said sleeve E is held normally in engagement with said head through said ratchet teeth and prevented from rotating and unwinding the spring. However, the said sleeve is also employed for winding up the spring, and to do this is turned reversely to its engagement on or with head 6 by a suitable winding crank G having an engaging head 4. Said head 4 is of a tubular pattern adapted to slide or sleeve over head 6 on shaft S and has open slots *c* of substantially bayonet joint pattern oppositely arranged to engage opposite pins or projections 5 on said sleeve. Then as said crank G is pressed inward and at the same time turned in the reverse direction to ratchet *d* it will turn sleeve E independently of shaft S and wind the spring to any desired tension within its own limits, and, when wound, the said sleeve springs outward and takes up and holds the rotation thus given by engagement with ratchet head 6. In this operation shaft S of course stands still and the power of the spring is exerted upon said shaft through sleeve E and head 6 fixed on the shaft. The bayonet or more or less shouldered form of slots *c* helps to give the sleeve an outward sliding start when the crank is withdrawn.

Power may be taken from shaft S by any suitable kind of gear or equivalent mechanism, such as is usually defined as clock mechanism or the like, and as to this, I do not care to be particularly specific. As shown I have several shafts, such as H, I, J, and K, suitable gear connections between shafts which at last deliver the power to belt, cord, or band wheel or pulley 9. In fact, any suitable power transmitting mechanism, with or without a governor or its equivalent, may be coupled up with the main shaft.

A cross bar or piece N extends across the center of the motor outside spring D, and is affixed to the edge of casing C at its ends and adapted to form a stop for the bulge of the spring.

What I claim is:—

1. A spring motor comprising a casing, a drive shaft, a sleeve slidably mounted on said shaft, a spirally coiled power spring fixed at one end to said casing and at the other end to

said sleeve, a fixed head on the end of said shaft next outside said sleeve and said head and sleeve having interlocking teeth, the said spring being narrower than the depth of the casing containing the same and affixed at the outer end near the inner wall of the casing, whereby an outward bulge is given to the spring at its point of connection with said sleeve.

2. In a spring motor, the combination of a casing, a spirally wound spring secured at one end to said casing, a drive shaft, a sleeve mounted thereon and having the other end of said spring affixed thereto, said sleeve being slidable on said shaft and provided with teeth on its outer end, a head fixed on the outer end of said shaft having teeth adapted to be engaged by the teeth on said sleeve, said sleeve having a lateral projection behind the teeth thereon, and means adapted to sleeve over said head and to engage said projection and thereby disengage said sleeve from said head and wind said spring.

In testimony whereof I sign this specification in the presence of two witnesses.

CLARENCE A. ELTON.

Witnesses:
E. M. FISHER,
R. B. MOSER.