J. H. HOLZHAUSEN.

SPRING MOTOR.

APPLICATION FILED NOV. 10, 1917.

1,308,712.

Patented July 1, 1919.

3 SHEETS—SHEET 1.

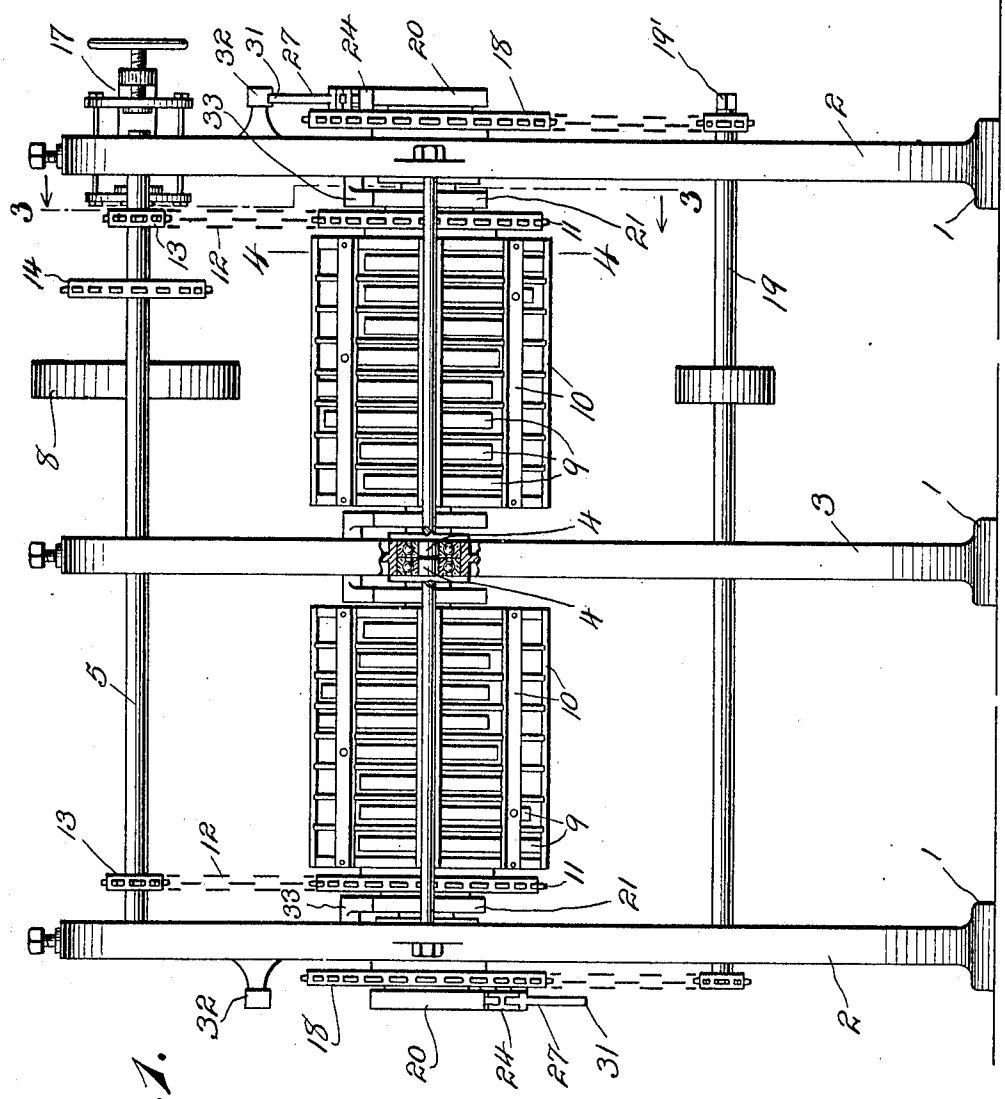


Fig. 1.

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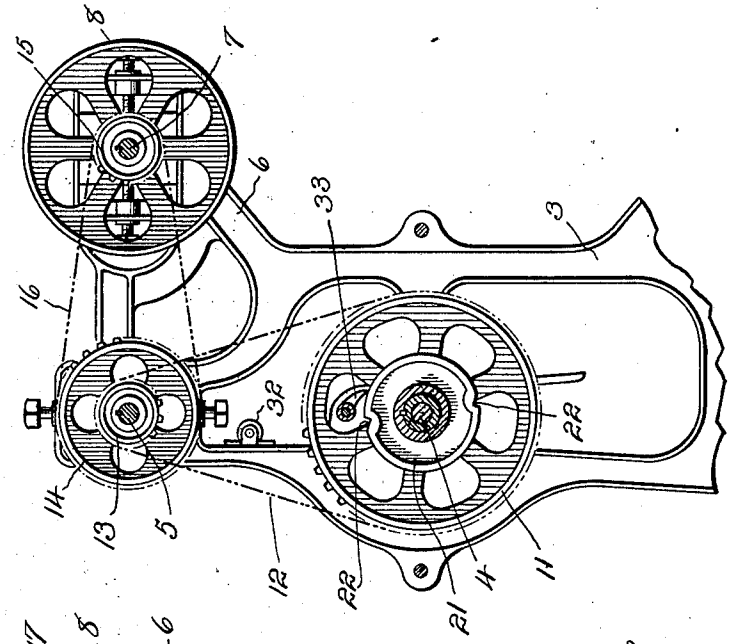


Fig. 3.

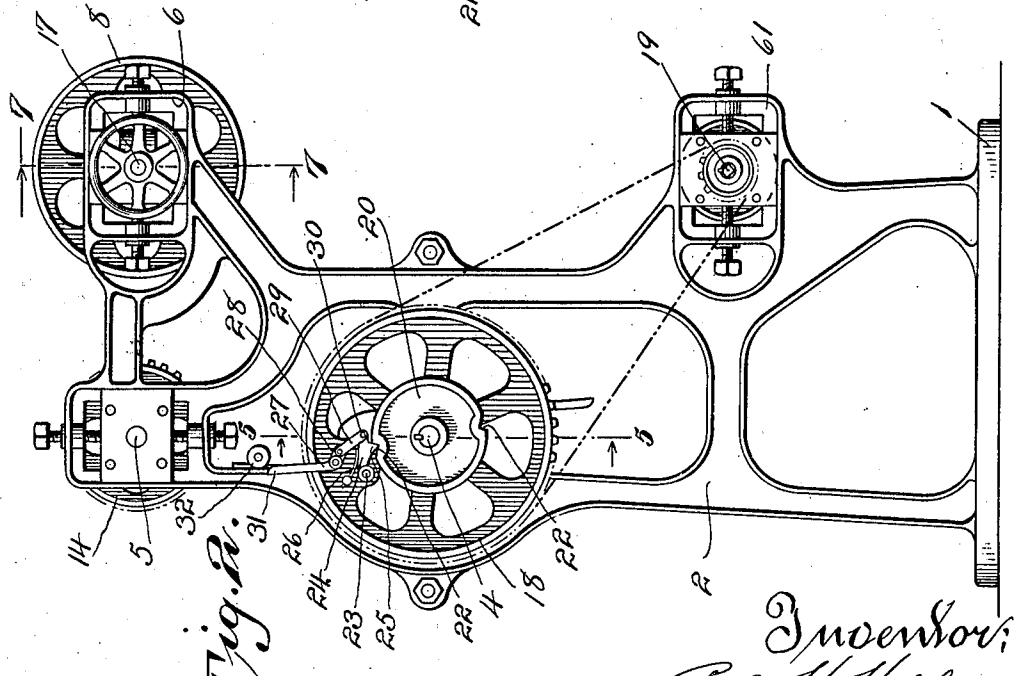


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 4.

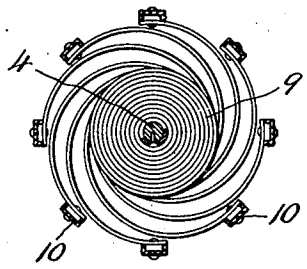


Fig. 5.

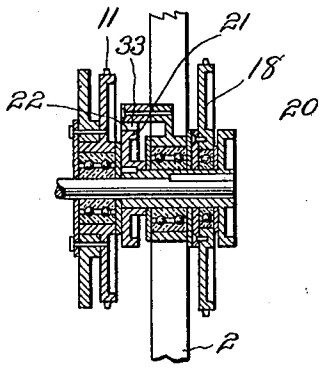


Fig. 6.

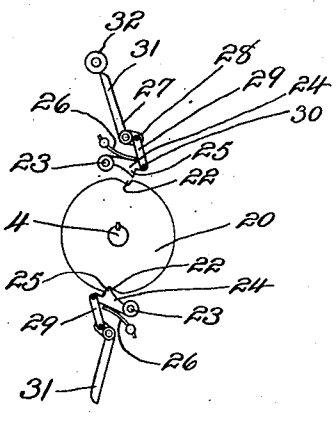
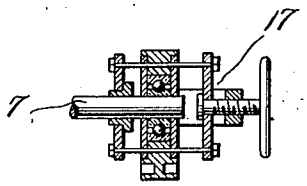
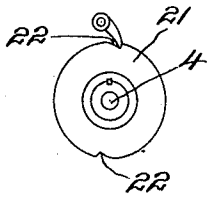


Fig. 7.





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UNITED STATES PATENT OFFICE.

JOHN H. HOLZHAUSEN, OF MILWAUKEE, WISCONSIN.

SPRING-MOTOR.

1,308,712. Specification of Letters Patent. Patented July 1, 1919.

Application filed November 10, 1917. Serial No 201,238.

To all whom it may concern:

Be it known that I, JOHN H. HOLZHAUSEN, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Spring-Motors; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to the subject of spring motors, of that type exemplified in Letters Patent No. 1188449, granted to me June 27, 1916, and refers particularly to the novel device I employ for rewinding the motor.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and formation of parts substantially as hereinafter described and particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the invention herein disclosed may be made as come within the scope of the claims.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical applications of the principles thereof, in which:—

Figure 1 is a front elevational view of the spring motor with parts broken away to more clearly define the manner of journaling the spring arbors in the standards.

Fig. 2 is a side elevational view thereof.

Fig. 3 is a transverse sectional view taken on the plane indicated by line 3—3 of Fig. 1.

Fig. 4 is a view taken transversely through one of the spring motors on the plane indicated by line 4—4 of Fig. 1.

Fig. 5 is a longitudinal sectional view taken on line 5—5 of Fig. 2.

Fig. 6 is a diagrammatic view of the notched wheels and pivoted dogs and pawls which I employ for rewinding the motor, and

Fig. 7 is a longitudinal sectional view taken on the line 7—7 of Fig. 2.

The improved spring motor comprises in its general organization, a base or foundation 1 provided with end standards 2 and a centrally located standard 3, the standards being positioned for the reception of two independent motors, to be later described.

The lower portions of the standards 2 and 3 have two longitudinally alined arbors 4 journaled therein and at a point above the arbors 4, the said standards having the transmission shaft 5 journaled therein. Upper and lower bracket arms 6 and 6′ respectively, project laterally from the standards, and journaled in the arms 6 is a power shaft 7 having mounted thereon a suitable pulley 8 for transmitting the energy of the motors.

These shafts 4, 5 and 7 are arranged in substantially parallel relation and each arbor has mounted thereon intermediate the standards, a series of springs 9 coupled together by means of angle bars 10 to form the two motor units as described in my aforementioned patent. Driven from each motor unit is a sprocket wheel 11 connected by suitable chains 12 with sprocket wheels 13 mounted upon the transmission shaft 5, and the shaft 7 is coupled with the shaft 5 by means of sprocket wheels 14 and 15 and chains 16, and for governing the motors, a suitable break 17 is employed engaging the shaft 7 as more clearly shown in Figs. 1 and 7.

The foregoing described construction is old and shown in my previous patent, and hence constitutes no part of this invention which resides essentially in the device I employ for rewinding the motors.

The ends of the arbors 4 projecting outwardly of the standard 2 have loosely mounted thereon sprocket wheels 18 adapted to be rotated by means of sprocket and chain connections with a driven shaft 19 journaled in the arms 6′ of the standard. Fixed to the arbors 4 are the two pairs of like wheels 20 and 21, provided in their outer periphery with the notched recesses 22 as clearly shown in Figs. 2, 3, and 6, the wheels 20 being fixed to the arbors 4 outwardly of sprocket wheel 18 and the wheels 21 being fixed to the arbors 4 intermediate standards 2 and sprocket wheels 11.

Pivoted at 23 to each sprocket wheel 18 is a pawl or detent 24 having a tongue portion 25 adapted to engage the notches 22 of wheel 20, and normally urged to engagement with the wheel 20 by means of suitable spring means 26. The pawls 24, as before mentioned, are carried by sprocket

wheels 18 and are adapted to wind the motor units with which they are associated and to provide for the alternately winding of said motor units in steps, or successively, a trip device is employed for selectively disengaging the pawls 24 from notches 22 as clearly shown in Fig. 6.

This tripping device comprises an annular lever 27 pivoted to each sprocket wheel 18 and having pivoted to its shorter arm 28 a toggle link 29 pivoted at 30 to the outer end of pawl 24, and the upstanding arm 31 of said lever is adapted for engagement with a roller 32 pivoted to each standard 2 above the sprocket wheel 18.

Thus it will be seen that this device provides for the rewinding of the springs at every half revolution of the sprocket wheel 18, in that the pawl 24 will engage the lower notch of wheels 20 and then carry with it in the revolution said wheel 20 to the position illustrated in Fig. 2 when the same is tripped and releases said wheel, and pivoted dog 33 preventing retrograde movement of the springs, this operation being shown diagrammatically by Fig. 6.

It is understood that these motor units are rewound alternately by applying power to their respective winding shafts. The shaft 19 is adapted to be revolved in any suitable manner, and to provide for the manual operation thereof its end 19′ is squared in order to provide for the reception of a suitable crank arm, not shown.

What is claimed is:—

1. The combination with a spring motor, of means secured to the arbor thereof, for rewinding the motor comprising a pair of notched wheels, the notches thereof being alined, a dog pivoted to a stationary part and adapted for engagement with one of said wheels to prevent retrograde movement thereof, a driven sprocket wheel loosely journaled on said arbor, and juxtaposed the other notched wheel, a pawl pivotally carried by said sprocket wheel and engageable with the last named notched wheel for advancing the same to rewind the spring, and means for tripping said pawl when it has traveled a determined distance.

2. A device of the character described comprising a driven shaft, a sprocket wheel loosely journaled upon the arbor of a spring motor and adapted to be rotated from said driven shaft, notched wheels disposed one on each side of the sprocket wheel, a pivoted dog pivoted to a stationary part adapted to engage one of the notched wheels to prevent retrograde movement thereof, a pawl pivoted to the sprocket wheel and engaging the other notched wheel for advancing the same to rewind the motor, and means for tripping the pivoted pawl in order to provide for the rewinding of the spring at every one-half revolution of said sprocket wheel.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

JOHN H. HOLZHAUSEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."