H. S. BECKER.

SPRING MOTOR.

APPLICATION FILED MAR. 4, 1915.

1,144,581. Patented June 29, 1915.

Fig. 1.

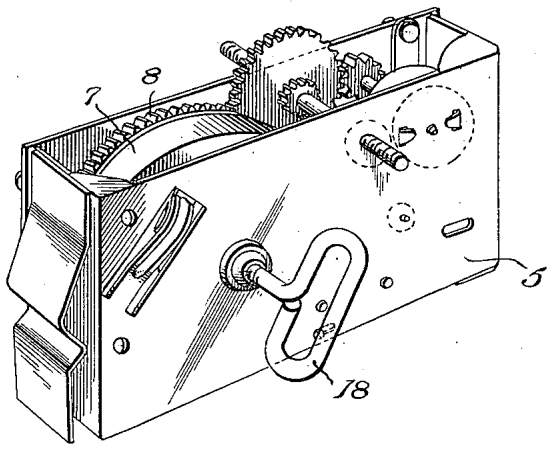


Fig. 2.

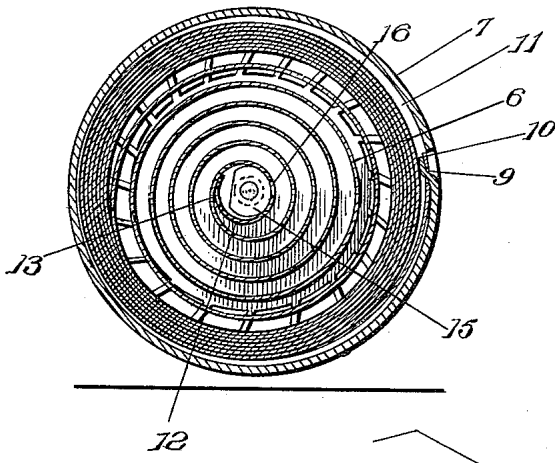


Fig. 3.

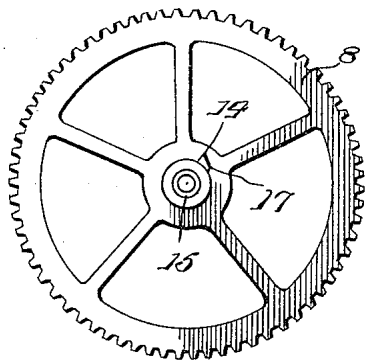
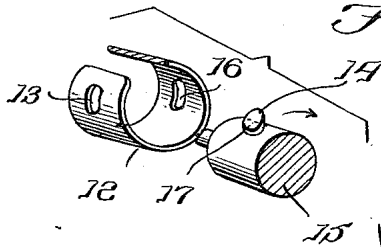


Fig. 4.



Witnesses

Dudley Browne.

P. A. Blair

Inventor

Harry S Becker

by Frank J Reed &

Edward S Rogers

By

Attorneys

UNITED STATES PATENT OFFICE.

HARRY S. BECKER, OF RIVER FOREST, ILLINOIS, ASSIGNOR TO AMERICAN FLYER MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SPRING-MOTOR.

1,144,581. Specification of Letters Patent. Patented June 29, 1915.

Application filed March 4, 1915. Serial No. 12,106.

To all whom it may concern:

Be it known that I, HARRY S. BECKER, a citizen of the United States, residing at River Forest, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Motors, of which the following is a specification.

This invention relates to spring motors and more particularly to that class of such devices especially adapted for use in toy mechanical trains or the like.

In the operation of mechanical trains, children frequently become tired of winding the clock work and pull the train about on the floor or on the track with a detrimental effect upon the motor mechanism, and often causing the spring to become freed from the rest of the mechanism, with the result that the spring cannot be rewound, thus rendering the motor inoperative.

The primary object of this invention is to construct a motor of the class described in which the spring is so connected with the other clock work parts as to permit of the train being operated either mechanically or manually, without danger of rendering the motor inoperative.

A further object of this invention is to provide a means of connection between the spring and the drive-wheel spindle which may be released to operate the train manually but which upon rewinding will automatically reëngage the spring.

With these and other objects in view as will hereinafter appear, this invention consists in the peculiar arrangement and combination of the various parts of a spring motor as described in the following specification and more particularly set forth in the appended claims.

Referring to the accompanying drawings illustrating the preferred embodiment of this invention and in which similar reference characters indicate similar parts wherever used, Figure 1 is a perspective view of the motor embodying this invention; Fig. 2 is a section through the spring and casing therefor; Fig. 3 is an elevation of the drive wheel, and Fig. 4 is a detail perspective of the spring end and a portion of the drive wheel spindle showing the parts in separated position.

5 designates the motor as a whole comprising the usual clock work adapted to be driven by a spring 6 inclosed in a casing 7 and driving a wheel 8 which imparts movement to the mechanism. One end of the spring 6 is provided with an opening 9 engaged by a tongue 10 struck down from the casing 7. The projection of the tongue 10 into the interior of the casing causes a slight displacement of the coil of the spring 6 as at 11, so that the center end 12 of the spring 6 coils eccentrically with relation to the center of the spring casing. In the construction now in use the end 12 of the spring 6 is provided with an opening 13 on the portion of the end coil 12 farthest away from the tongue 10, this opening 13 being adapted to receive a pin 14 upon the spindle 15 of the wheel 8, thus forming the drive connection between the spring and the wheel. With this construction, when the spring 6 has become unwound, pulling the train along the track or floor will cause the clock work mechanism to move, including the wheel 8 attached to the spindle 15, carrying the pin 14, which further unwinds the spring with the result that the pin 14 becomes disengaged from the hole 13 and when the train is desired to be operated by winding it up, it cannot be wound because the pin is disengaged and the spring cannot be put under tension.

In accordance with the present invention a hole 16 is placed in the coil 12 at a point on the side of the coil 12 near the tongue 10 when the spring is not under tension, and consequently near the center of the casing 7. The hole 13 is difficult to engage by the pin 14 on account of the distance away from the spindle 15, which of necessity operates in the center of the casing 7. The hole 16 is much nearer to the center of the casing and therefore will be engaged by the pin 14.

A bevel 17 on the pin 14 permits the spindle 15 to disengage the hole 13 or 16, as the case may be, and to turn freely in a counter-clockwise direction within the coil 12 when the train is being operated manually, any winding movement of the spring 6 by the key 18 or otherwise causing the pin 14 to engage the spring coil 12 by means of one of the holes 13—16 in order to wind the spring. While I have shown the spring as provided with two openings, 13—16, it is evident that the opening 16 is the only essential opening, and that if desired the opening 13 may be omitted. That is to say the opening should be on the side of the spring 12, which, be-

cause of the eccentric mounting of the spring in the casing will press against the pin 14.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made, without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

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

1. In a motor the combination with a spring, of a cylindrical casing therefor, said casing having a projection struck inwardly to engage an opening in the end of the spring to hold the same, a pivot in the center of the casing for the spindle of the drive wheel, a pin on said spindle, the inner end of said spring having an opening substantially in line with said fastening projection and at a point nearest the center of the casing when the spring is not under tension, said opening being adapted to receive said pin in order to form a driving connection between said spring and said spindle.

2. In a motor the combination with a spring, of a cylindrical casing therefor, said casing having a projection struck inwardly to engage an opening in the end of the spring to hold the same, a pivot in the center of the casing for the spindle of the drive wheel, a bevel pin on said spindle, the inner end of said spring having an opening substantially in line with said fastening projection and at a point nearest the center of the casing when the spring is not under tension, said opening being adapted to receive said bevel pin in order to form a driving connection between said spring and said spindle.

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

HARRY S. BECKER.

Witnesses:
W. O. COLEMAN, Jr.,
G. G. CUDDY.