E. R. IVES.

GOVERNOR FOR TOY RAILWAY CARS.

APPLICATION FILED OCT. 6, 1908.

988,940. Patented Apr. 4, 1911.

Fig. 1.

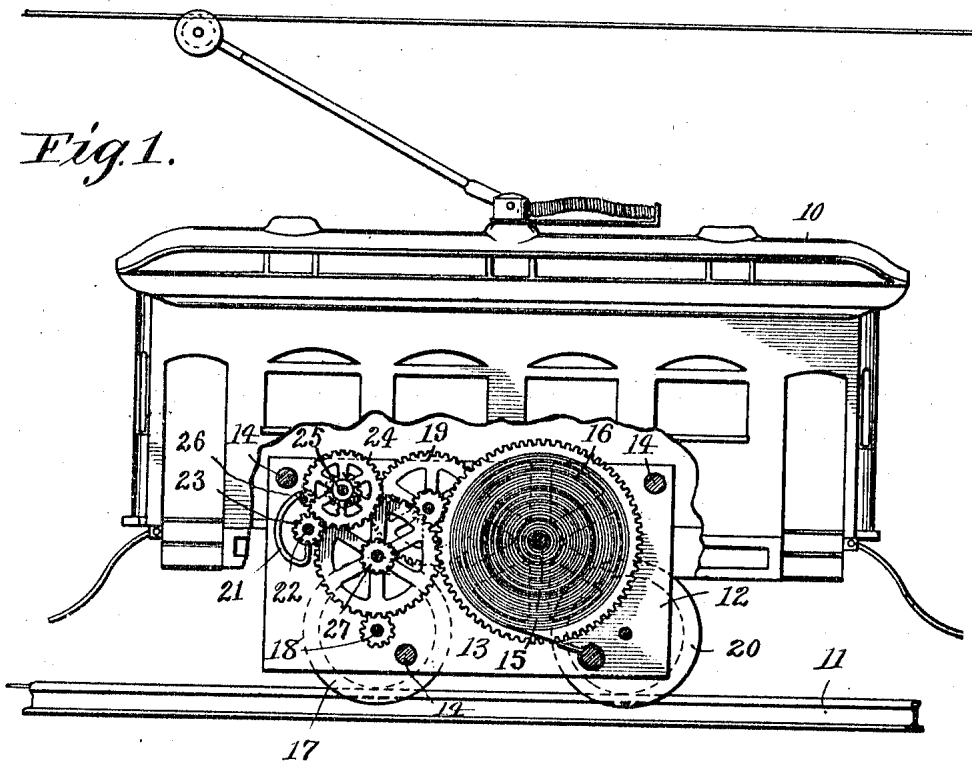


Fig. 2.

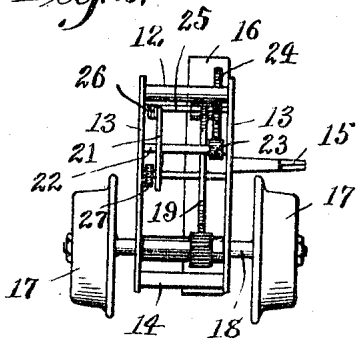


Fig. 3.

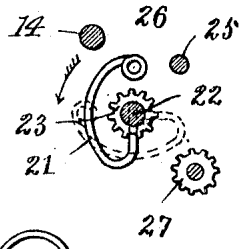


Fig. 4

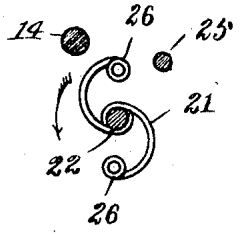
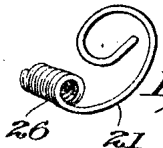


Fig. 5.



WITNESSES

Ruth Raymond.

V. Hall Root.

INVENTOR

Edward R. Ives

BY

Chamberlain & Newmarc

ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD R. IVES, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE IVES MANUFACTURING CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

GOVERNOR FOR TOY RAILWAY-CARS.

988,940. Specification of Letters Patent. Patented Apr. 4, 1911.

Application filed October 6, 1908. Serial No. 456,417.

To all whom it may concern:

Be it known that I, EDWARD R. IVES, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Governors for Toy Railway-Cars, of which the following is a specification.

This invention relates to governors for spring actuated movements, such as are employed for operating toys as for instance toy railway engines or cars, and is designed to regulate the speed of such movements and toys.

It is the purpose of the invention to produce a simple and inexpensive form of governor of the above class which will prevent cars from jumping the track, and to make it simple, durable and practicable; to design it so that it may readily be attached to the commercial types of movements now in use and further so that it can be easily adjusted to cause the car to travel at different speeds.

With the above objects in view my invention resides and consists in the novel construction and arrangements of parts shown upon the accompanying drawing forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures and of which,

Figure 1, shows a side elevation of a spring actuated toy railway car partially broken away and illustrating in sectional elevation, an attached spring actuated movement for driving the car, and to which movement my improved governor is shown applied. Fig. 2, is a detached end elevation of the spring movement shown in Fig. 1. Fig. 3, is an enlarged detail view of my improved governor for regulating the speed of the movement shown in Figs. 1 and 2, Fig. 4, is a modified form of the governor, and Fig. 5 is a perspective view of the governor shown in Figs. 2 and 3.

Referring in detail to the characters of reference marked upon the drawings 10 represents a toy railway car which as will be noted is designed after the fashion of a trolley car and is intended to be run upon a track 11 of any suitable design. Within the car is attached a movement 12 which includes suitable side plates 13 secured together by means of studs 14 in the usual way, and intermediate of which is mounted upon a shaft 15, the spring 16 designed to be wound by a key (not shown) and connected to drive the car wheels 17 fitted to the rails and secured to the axle 18.

19 represents a train of gearing connected intermediate the spring shaft 15 and the rear axle 18 in a manner to drive the axle, and its wheels and the forward wheels 20 at a comparatively rapid rate of speed when the spring is properly wound.

My improved governor 21 is mounted upon a shaft 22 journaled in the side plates 13 of the movement and bears a small pinion 23 which meshes with and is driven by a larger idler gear 24 upon a shaft 25 that is rotatably mounted and connected to be operated by the intermediate train of gears 19 before mentioned.

The governor is shown in all of the figures and especially Fig. 3, wherein it is drawn upon a somewhat larger scale. This governor is formed of a single piece of wire bent to desired form, the inner end being rigidly attached to the before mentioned shaft 22 while the outer end is curled around against itself to form an enlarged head 26. The intermediate portion of the governor forms a yieldable arm which permits the outer end or head to be thrown out by centrifugal force when the governor is rotated and the speed of the same increases, and again retracts with the decreasing of the speed. I have arranged and formed this arm of a proper length and proportion to engage the before mentioned idler shaft 25 with each complete turn of the governor so that with the rotation and expansion of the governor the head will strike the said shaft with more or less force according to the rapidity of the movement of the governor and in a way to check its travel and likewise the speed of this entire train of mechanism. I may further arrange the yieldable governor with relation to the pinion 27 so as to also engage it with each turn of the governor, thus affording a double engagement for the governor with each turn, which of course is more effective than with a single engagement, or if preferred I may employ a double arm governor as shown in Fig. 4, wherein two expansible wires 21 with heads 26 on their outer ends are arranged in opposite relation to each other, each head adapted to strike an obstacle or two for the

purpose of retarding the speed of the movement as will be understood. It will also be apparent that the head 26 may be filled with a lump of solder if desired to weight the same.

From the foregoing it will be noted that the governor may be adjusted to allow the movement to run faster or slower by simply bending the arm toward or from its shaft. This may be done by engaging the head and forcing it in or out to or from, the shaft as desired. It being understood of course that the closer the head is set to the shaft the tighter its tension and the greater the speed required to throw it out in engagement with its striking point, while on the other hand the farther out it is set from the shaft the more readily it will expand and the sooner and oftener it strikes its obstruction thus more readily limiting its action.

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

1. A centrifugal speed governor comprising a spring arm having an inner curved portion and an outer spiral portion, the spiral portion extending at a right angle to the plane of the curved portion and presenting an extended surface for engagement with a stop device.

2. In a centrifugal speed governor for a spring motor mechanism, the combination with a driven shaft of said mechanism, of an expansible wire arm having its inner end rigidly fixed to said shaft, an intermediate curved portion and an outer spiral portion, said spiral portion extending at a right angle to the plane of the curved portion and providing an extended surface adapted to engage a fixed stop.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 2nd day of October, A. D., 1908.

EDWARD R. IVES.

Witnesses:
C. M. NEWMAN,
EMMA J. NEWMAN.