

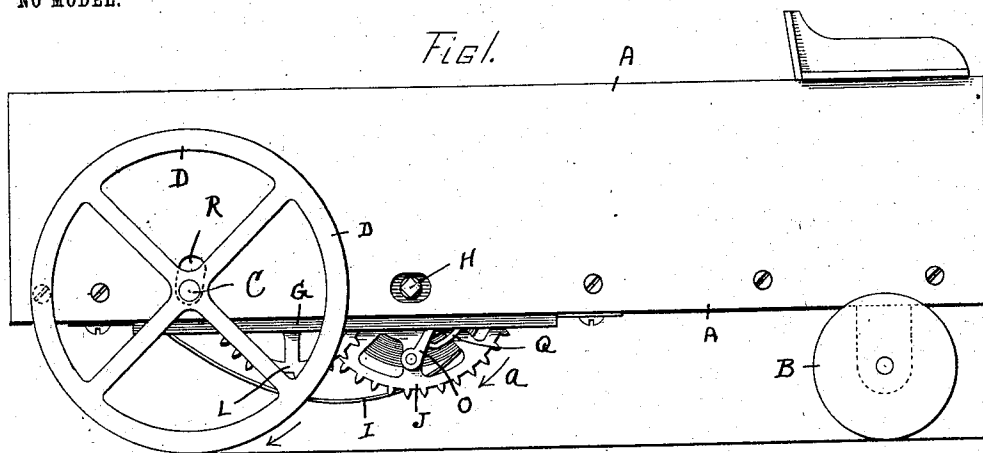
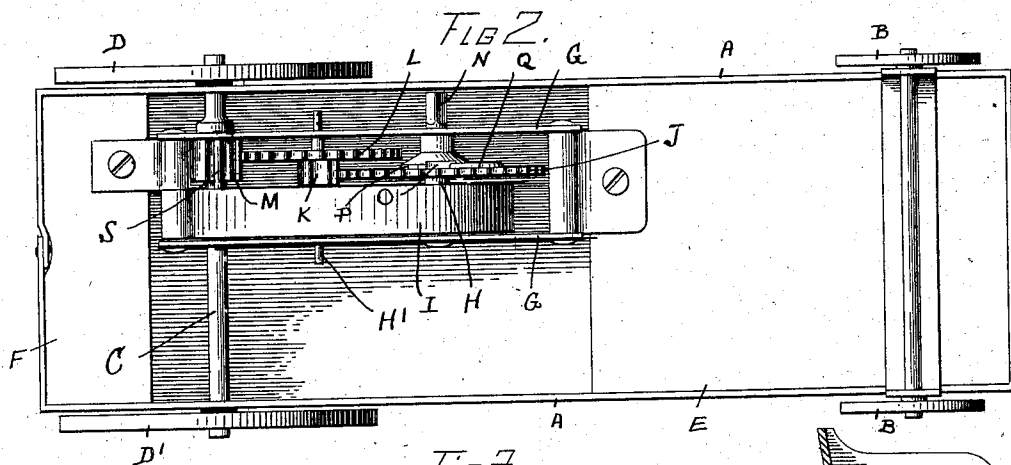
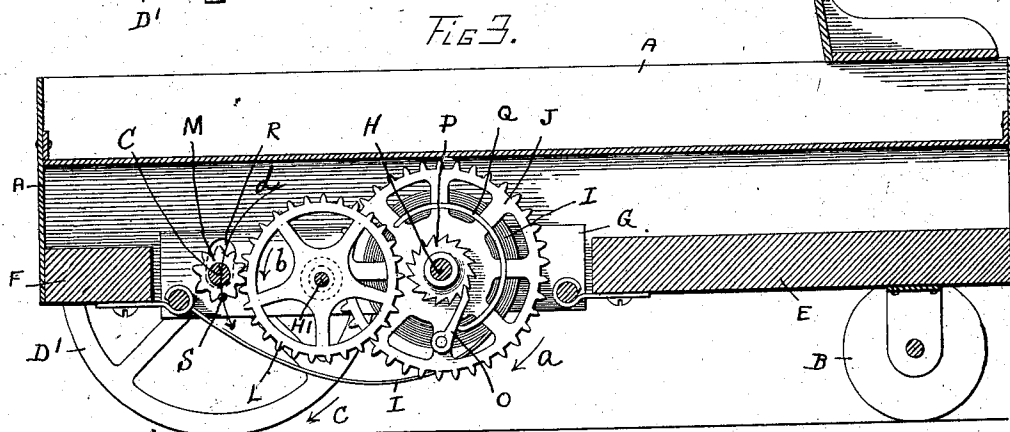
No. 728,286.

PATENTED MAY 19, 1903.

H. N. PARKER.
TOY VEHICLE.

APPLICATION FILED NOV. 16, 1901.

NO MODEL.



Witnesses.

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TOY VEHICLE.

SPECIFICATION forming part of Letters Patent No. 728,286, dated May 19, 1903.

Application filed November 16, 1901. Serial No. 82,516. (No model.)

To all whom it may concern:

Be it known that I, HOMER NEWTON PARKER, a citizen of the United States, residing at Winchendon, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Toy Vehicles, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same, in which—

Figure 1 represents a side view of a toy vehicle embodying my invention. Fig. 2 is a bottom view of the same; and Fig. 3 is a vertical sectional view on line 3 3, Fig. 2.

Similar reference-letters refer to similar parts in the different views.

My present invention relates to vehicles which are propelled by a spring-motor; and it has for its object to provide means for stopping the action of the motor, so as to bring the vehicle to a state of rest when in its normal position upon the floor or other supporting-surface, for releasing the motor when it is desired to start the vehicle, and for automatically stopping the action of the motor whenever the vehicle is upset or is raised from the floor, and I accomplish these results by means of the construction and arrangement of parts, as hereinafter described, and set forth in the annexed claims.

Motor-driven vehicles have been constructed heretofore in which the motor-driven axle has been provided with a projection adapted to engage a fixed stop, and thereby check the rotation of the motor-driven axle and stop the vehicle. In this class of toy vehicles the motor-driven axle when the body of the vehicle is raised from the floor is made to fall by gravity and carry its projection into engagement with the fixed stop; but when the vehicle is placed upon the floor the weight of the body is sufficient to carry the fixed stop out of the path of the projection on the axle and allow the latter to turn. In toy vehicles of this construction the movement of the axle is produced by gravity, which is capable of acting in a vertical plane only. The motor, therefore, is not stopped in case the vehicle is upset or turned over on its side; neither is the motor stopped if the vehicle is removed from the floor and held in an inverted position, for in such a position

the weight of the axle will act to carry its projection away from the fixed stop. In a gravity-controlled stopping mechanism the spring-motor is always applied to propel the vehicle whenever it rests upon the floor, for in that position the weight of the body carries the fixed stop out of the path of the projection on the axle.

By my present invention I provide a motor-stopping mechanism by which I am enabled to bring the vehicle to a state of rest when it is supported in its normal position upon the floor and also to start the same in motion when desired, so that the vehicle may be made to stop at different points along its line of movement and again put in motion without being lifted from the floor, or if the toy vehicle containing my invention be tipped over upon its side the action of the motor is instantly stopped, and it is also stopped in case the vehicle is lifted from the floor and held in an inverted position, which is the most convenient position for winding the spring of the motor. The above results cannot be obtained by a motor-stopping device which depends for its operation upon the action of gravity for the reason that gravity will only act in a vertical direction.

Referring to the accompanying drawings, A denotes the body of a toy vehicle embodying my invention; B, the forward wheels; C, the motor-driven axle provided with the driving-wheels D D', attached to the axle.

Supported by the body of the vehicle are cross-bars E and F, which when the vehicle-body is made of sheet metal may be conveniently formed of wooden strips securely attached to the sides of the body in any suitable manner to form a support for the motor-frame G, in which are journaled spindles H H'. The spindle H is driven by a coiled clock-spring I in the direction of the arrow a, and it carries a gear-wheel J, engaging a pinion K on the spindle H'. The rotation of the spindle H' is communicated by a gear L to a pinion M on the driving-axle C, thereby propelling the vehicle. The spindle H is elongated on one side of the motor-frame G and is provided with a squared end N to receive a key for winding the spring I, and the spindle H is held from reverse movement by a retaining-pawl O, attached to the motor-frame and

held in engagement with the teeth of the ratchet-wheel P by a spring Q. The motor-driven axle C is preferably inclosed in slots R in the fixed framework or body of the vehicle, said slots being curved concentrically with the axle of the spindle H' in order to restrain the movement of the motor-driven axle within the framework to a path concentric with the spindle H'. When the motor is in operation, the spindle H and gear J rotate in the direction of the arrow *a*, driving the gear L in the direction of the arrow *b* and rotating the pinion M and driving-wheels D D' in the direction of the arrow *c*. The force of the spring I in rotating the gear L in the direction of the arrow *b* tends to carry the pinion M around the gear-wheel L in the direction of the arrow *d* and against a fixed bar S, held in the motor-frame G and in the path of the pinion M as it is carried around the axis of the gear-wheel L, causing the axle C to travel in the curved slot R until the teeth of the pinion M are brought into engagement with the fixed bar S, thereby checking the rotation of the axle C and stopping the motor. The teeth of the pinion M are slightly rounded or tapered at their ends, so that the pinion M is not fully stopped until the fixed bar S is crowded between the teeth of the pinion M. In case the tips of the pinion-teeth simply strike the fixed bar S they will act as cams to lift the axle C until the pinion-teeth clear the bar S. The instant the vehicle is raised from the floor the force of the motor-spring G will cause the pinion M to roll around the periphery of the gear-wheel L until the teeth of the pinion M are carried into engagement with the fixed bar S, when the motor will be stopped, whatever the position of the vehicle. If the vehicle is inverted in order to wind the motor-spring or for any other purpose, the force of the motor-spring G will continue to hold the pinion M in close engagement with the fixed bar S.

When the vehicle is lightly placed upon the floor, it is retained in a state of rest until a slight downward pressure is applied to the body in order to push the fixed bar S downward out of engagement with the teeth of the pinion M, when the vehicle will be set in motion, and in case the tips of the teeth on the pinion M strike the fixed bar S they will act as cams to raise the axle and the motion of the vehicle will continue. Whenever it is desired to stop the movement of the vehicle on the floor, the body is slightly raised to allow the pinion M to again be carried into engagement with the bar S, which will be crowded into the angular space between the bases of two adjacent teeth, when the vehicle will be brought to a state of rest until again started by a downward pressure upon the body of the vehicle.

To render it more convenient to wind the motor-spring with the key held in the right hand and the vehicle in the left, the vehicle may be inverted, and when in this position a

gravity-actuated motor-stopping mechanism would be inoperative. Also a gravity-operated mechanism for checking the motor which would operate when the body of the vehicle was in an upright position would fail to operate when the body was lying on its side.

The above-described construction operates equally well whatever the position of the vehicle-body may be, and it also enables the vehicle to be stopped and started when supported in its normal position on the floor by a slight lifting of the body of the vehicle or by a slight pressure thereon, as the case may be, for the reason that when the driving-wheels D' are supported on the floor and their rotation is thereby checked the movement of the pinion M around the periphery of the gear-wheel L and into operative engagement with the bar S requires to be slightly aided by either lifting or depressing the body of the vehicle, and this condition enables the user to stop the vehicle in any desired position on the floor.

I am aware it is not new to employ a spring-actuated motor for propelling a toy vehicle in which the force of a clock-spring is applied through a train of gears to one of the axles of the vehicle carrying a pinion; but in my present construction I utilize the force of the motor-spring to carry the axle toward a fixed bar arranged to engage the teeth of the axle-pinion independently of the action of gravity, and I round or taper the ends of the teeth in the axle-pinion, so they will exert a cam action to raise the axle whenever the tips of the teeth strike the fixed bar.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a motor-driven toy vehicle the combination of a motor-driven axle provided with a pinion, a driving-gear connecting said pinion with the motor, whereby the axle is rotated, slots inclosing said axle whereby said axle is capable of a slight movement in a curved line concentric with said driving-gear and a fixed stop in the path of said axle as it is moved concentrically with said driving-gear and in the direction of its rotation, whereby the force of the motor is utilized to carry the pinion on said axle into engagement with said fixed stop, substantially as described.

2. In a motor-driven toy vehicle the combination of a motor, a motor-driven axle, slots inclosing said axle, means for connecting said axle and said motor, whereby said axle is rotated and moved in an arc of a circle in said slots toward a fixed stop, and a fixed stop arranged in the path of said axle, and a pinion on said axle arranged to engage said fixed stop, substantially as described.

3. In a toy vehicle the combination with a body portion, a motor-frame held in a fixed position in said body portion, a motor supported in said frame, a motor-driven axle, slots inclosing said axle whereby said axle is

capable of a slight movement toward or away from a fixed stop, a fixed stop, and means for operatively connecting said axle with said motor, whereby said axle is rotated and also carried toward said fixed stop, substantially as described.

4. In a toy vehicle, the combination of a frame held in a fixed position and provided with slots inclosing a motor-driven axle, a motor-driven axle inclosed in said slots, a pinion on said axle, a fixed stop adapted to check the rotation of said axle, and a motor operatively applied to said axle to rotate the same and also to carry it in said slots toward said fixed stop, substantially as described.

5. In a toy vehicle the combination with a motor-driven axle and a fixed stop adapted to engage said axle and stop its rotation and a motor-spring applied to rotate said axle with the force of said spring also applied to

carry a projectile on said axle into engagement with said fixed stop, substantially as described.

6. The combination with a body A of a frame G held in a fixed position in said body, a motor-spring I held in said frame, an axle C provided with a pinion M operatively connected with said motor-spring, whereby said axle is rotated, slots R inclosing said axle, whereby said axle is capable of a slight movement, a fixed stop S arranged to engage said pinion M, and means for connecting said pinion M and said motor-spring to rotate said axle and also to carry it into engagement with said stop, substantially as described.

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Witnesses:

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W. S. THOMAS.