No. 676,421. Patented June 18, 1901.

D. P. CLARK.

LOCOMOTIVE TOY.

(Application filed Sept. 27, 1900.)

(No Model.)

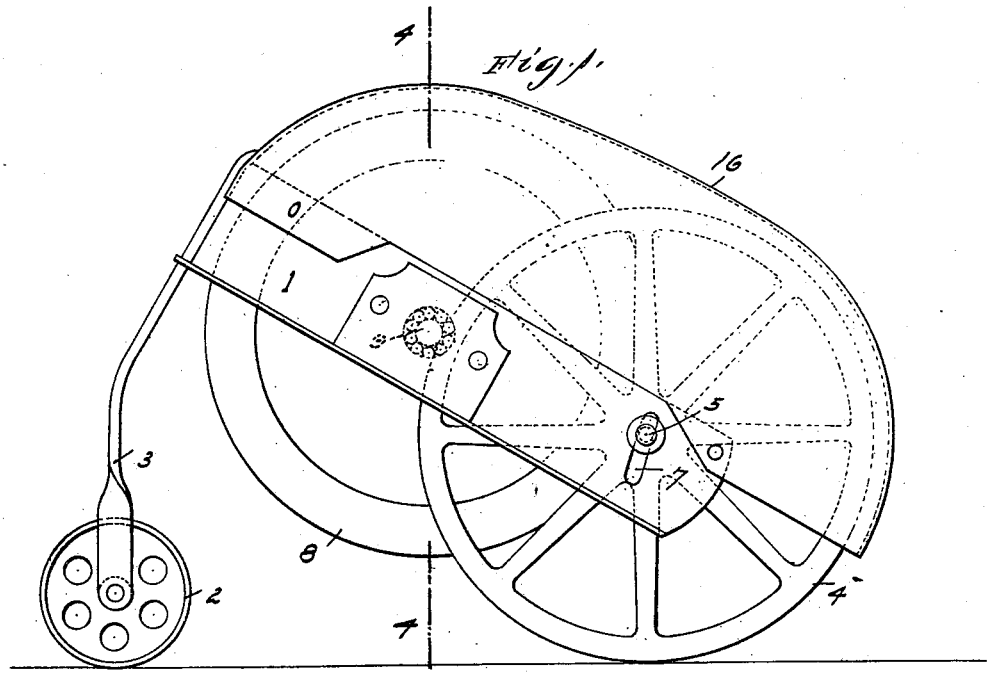

Fig. 1.

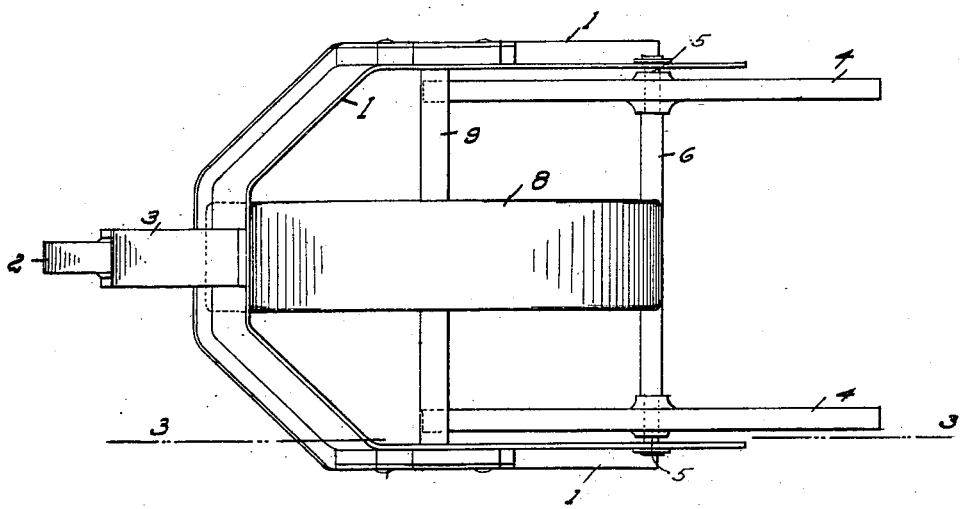

Fig. 2.

WITNESSES:

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LOCOMOTIVE TOY.

SPECIFICATION forming part of Letters Patent No. 676,421, dated June 18, 1901.

Application filed September 27, 1900. Serial No. 31,219. (No model.)

To all whom it may concern:

Be it known that I, DAVID P. CLARK, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Locomotive Toys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in locomotive toys, and more particularly to that class of locomotive toys set forth in an application filed by me February 19, 1900, Serial No. 5,675, in which an inertia-wheel is employed to impart movement to the ground or running wheels, by means of which the toy is propelled over the surface on which it rests.

It is the object of my present invention to produce a toy of this character of superior simplicity and efficiency; and to this end my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a structure embodying my invention in one form, and Fig. 2 is a plan view of the same.

In the said drawings, 1 indicates a suitable frame on which the various portions of the device are mounted. This frame is preferably constructed of approximately U shape, as shown, and may be supported by any suitable number and arrangement of ground or running wheels. In the present instance I have shown this frame as supported at its forward end by means of a single central ground or running wheel 2, connected with the front end of the frame 1 by means of an arm or standard 3. At its rear end the frame 1 is supported by a pair of running-wheels 4, mounted loosely on an axle 5, which may be provided with a sleeve 6, mounted thereon between the running-wheels 4, so as to space these latter apart and hold them in proper position. The ends of the axle 5 extend through slots 7, formed in the frame 1 and arranged and located therein in the manner hereinafter described.

8 indicates the inertia-wheel, which is constructed of considerable weight in the usual manner and which is secured on an axle 9, mounted in suitable bearings in the frame 1. These bearings are preferably ball-bearings—such, for instance, as indicated in Fig. 1—although any suitable bearings may be employed, their construction forming no part of my present invention.

When the parts of the apparatus are in their normal position, which is that shown in the drawings, the axle 9 of the inertia-wheel rests upon the peripheries of the running-wheels 4, and the direction of the slots 7 is such that any upward movement of the axle 5 of the running-wheels in said slots or any downward movement of the frame 1 relatively to said axle 5 causes the inertia-wheel axle 9 to impinge upon the peripheries of the running-wheels 4 at a comparatively acute angle, and thereby causes a wedging or binding action between the two meeting surfaces, which results in a maximum frictional contact between the parts. This results from the fact that the upper ends of the slots 7 are at a less distance from the inertia-wheel axle 9 than the lower ends of said slots.

The toy is operated in the usual manner by exerting a strong downward pressure upon the frame 1 and at the same time moving the toy rapidly over a suitable surface, so that a rapid movement of revolution is imparted from the running-wheels 4 to the inertia-wheel 8. After this preparatory action if the toy is released upon a suitable surface the momentum of the inertia-wheel will be imparted through its axle to the running-wheels and the toy will automatically move over said surface for a considerable length of time and to a considerable distance. By reason of the construction which I have devised, and owing to the biting or wedging action referred to as resulting therefrom, I am enabled to obtain a much greater efficiency of contact between the parts than is obtainable in similar structures where the action of the inertia-wheel is movable radially toward and from the running-wheels, and I am thereby enabled to produce a much higher initial speed of revolution of the inertia-wheel and a much longer period of automatic operation of the device, this increase being due not only to the greater initial speed of the inertia-wheel, but also to the more efficient transmission thereof to the running-wheels.

In the present instance I have shown in

Fig. 1 a protective covering 16, attached to the frame 1 and extending over the operative parts of the device. It will be understood, however, that the frame 1 may serve as a support for any suitable vehicle-body or other device—such, for example, as a human figure with articulated limbs, the body of a toy vehicle, or any other suitable object. The device is, moreover, susceptible of modification in various ways without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself to the structural details hereinbefore described and shown in the drawings.

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

1. A locomotive toy comprising a frame, an inertia-wheel having an axle mounted in fixed bearings in said frame, and running-wheels and their axle vertically movable relatively to the frame, said frame being provided with slots through which the running-wheel axle passes, said slots being located laterally relatively to the inertia-wheel axle, and said last-mentioned axle being adapted to bear against the rims of the running-wheels, said slots being arranged to press the said rims and inertia-wheel axle together laterally proportionally to the pressure applied to the frame, substantially as described.

2. A locomotive toy comprising a frame having a running-wheel support at one end, a pair of running-wheels and their axle located at the other end of said frame, said frame being provided with upwardly-extending slots to receive the axle of said last-mentioned running-wheels, and an inertia-wheel having an axle mounted in fixed bearings in said frame between the ends thereof and adapted to bear against the peripheries of the said running-wheels at an acute angle, the frame-slots being closer to the inertia-wheel axle at their upper ends than at their lower ends, whereby a wedging or biting action between the inertia-wheel axle and running-wheels is produced when pressure is applied to the frame, substantially as described.

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

DAVID P. CLARK.

Witnesses:

R. BLACKBURN ESTERLINE,

IRVINE MILLER.