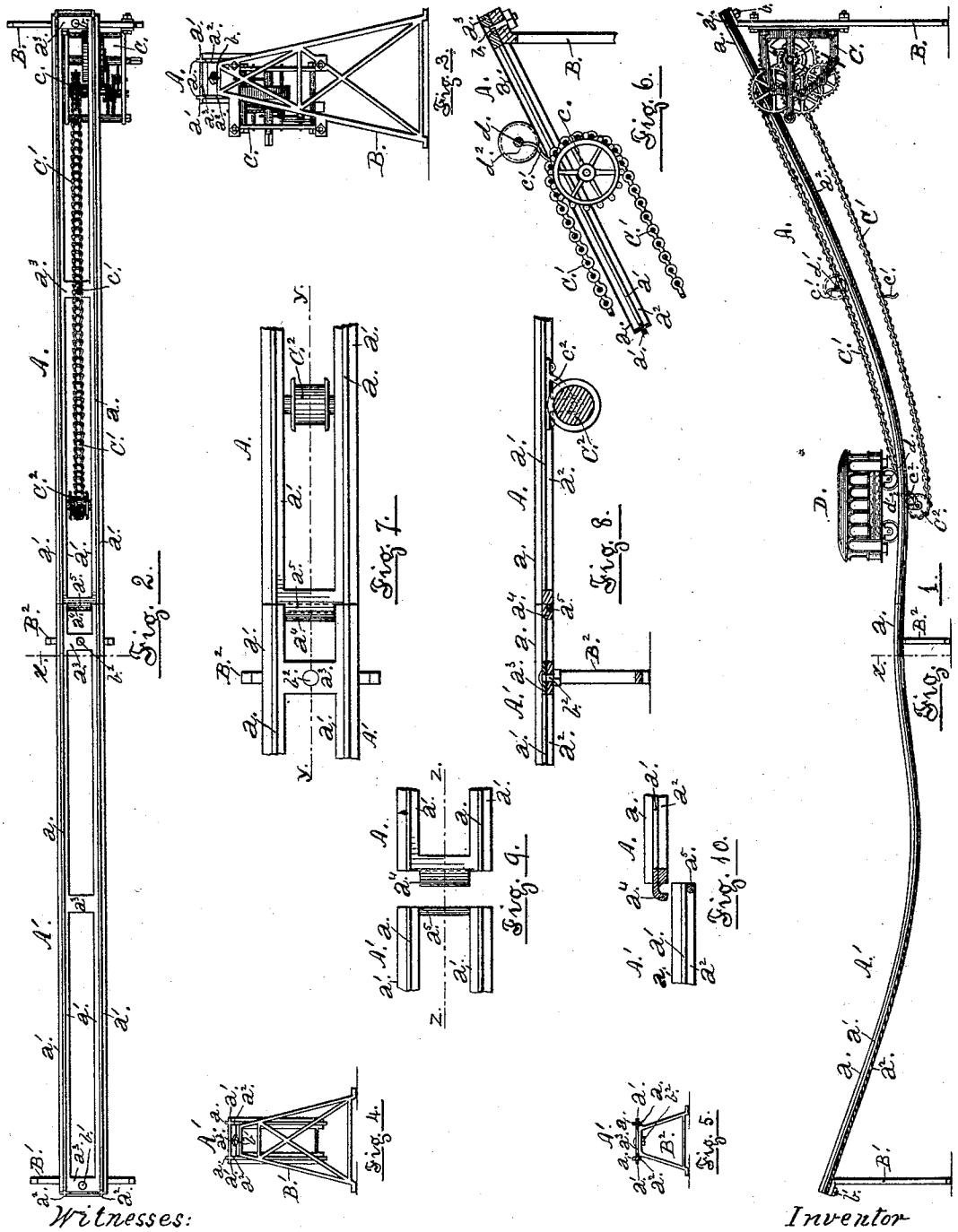
(No Model.)

J. E. HUBLEY.

MECHANICAL TOY.

No. 495,185. Patented Apr. 11, 1893.



Witnesses:

S. Grant Johnston

M. Brosius

Inventor

John E. Hubley

By Daniel K. Kerr.

his Attorney.

UNITED STATES PATENT OFFICE.

JOHN E. HUBLEY, OF LANCASTER, PENNSYLVANIA.

MECHANICAL TOY.

SPECIFICATION forming part of Letters Patent No. 495,185, dated April 11, 1893.

Application filed May 24, 1892. Serial No. 434,128. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. HUBLEY, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in a Mechanical Toy; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in a mechanical toy of that class in which a railway track is elevated on top of standards and supported thereby; said track having an inclined plane, upwardly extending, at each end, forming a hollow or depression between the planes, one of which is considerably steeper and higher than the other, and said depression having a slight elevation or rise at the center thereof; and a car or other vehicle, adapted to run on said track, is drawn up the higher one of said planes, automatically released near its top and by gravitation made to run down said plane, acquiring sufficient momentum to carry the car across the central depression, up the other inclined plane to near its top and, again by gravitation, down to its base and over the slight central elevation to the base of the first inclined plane, where the car stops, only to be again drawn up and released to repeat the same movement to the end.

The object of the invention is two-fold: First, to combine a mechanical movement with the principles of gravitation so as to produce a working toy that is easily operated; and, second, to construct it in such a manner that it may be readily set up, and conveniently taken apart and packed for shipment or storage.

The purposes of the invention are attained by the mechanism and devices illustrated in the accompanying drawings, in which similar letters of reference designate like parts throughout the several views, and in which:—

Figure 1 is a side elevation of a mechanical toy embodying the elements of this invention; Fig. 2, a top view of Fig. 1, the car omitted; Figs. 3 and 4, views showing respectively the right and left hand ends of Fig. 1; Fig. 5, a cross section through the line $x\,x$ in Figs. 1 and 2, showing the central track support in elevation; Fig. 6, an enlarged longitudinal vertical section of a portion of the right hand end of the track, showing the driving sprocket wheel and chain in place, and a front car wheel in the position of being released; Fig. 7, an enlarged plan of the central portion of the track; Fig. 8, a sectional elevation from below of the portion above the line $y\,y$ in Fig. 7; Fig. 9, an enlarged plan of the joint ends of the track sections separated; and, Fig. 10, a vertical section through the line $z\,z$ in Fig. 9, showing said ends in position for jointing.

In the drawings A and A′ designate track sections consisting of two upwardly projecting parallel rails a and a, having side flanges a' and a' at their bases, and underneath, downwardly projecting strengthening ribs a^2, the rails being bound together at intervals by cross pieces or beams a^3 having their extremities integral with the edges of the inner side flanges; the lower end of one section, as A, being provided with a hook a^4, filling the space between the rail-flanges and adapted to engage a rounded bar a^5 at the adjacent end of the other section, A′, for jointing. The sections may be made of any suitable material, and may be pressed, rolled, cast or otherwise given the required shape. The track-sections, when joined, form a railway track, having the higher and steeper inclined plane at the right hand, which is upheld by a bracket or braced trestle B having its inclined top-plate secured thereto by a bolt and nut b; the left hand end of the track is upheld by a similar but lower trestle B′ having its inclined top-plate secured thereto by a bolt and nut b'; and the center of the track is supported by a trestle B^2 having its practically level top-plate secured thereto by a bolt and nut b^2; all of which bolts and nuts being readily removable when it is desired to take track apart.

To the bracket B is attached a clock-work motor C adapted to turn upward between the rails a sprocket wheel c having mounted thereon an endless chain C′ provided at equal intervals with outwardly projecting bars or arms c' to engage the car axle; and the chain, extending down to a point beyond the foot of the inclined plane, is mounted on a flanged pulley C^2 placed between the rails and having its spindles journaled in the bearings of

hangers c^2 secured to the rail flanges. A clock-work motor is here shown to drive the sprocket wheel and chain, but this may be dispensed with, and some other motor or source of power used instead, without involving any new invention.

D designates a car or other vehicle, adapted to run on the track just described, and it has a point, as the axle d, adapted to be engaged by either of the hooks c' as shown at d' in Fig. 1, to be drawn up the inclined plane, and to be released near the top of said plane as shown at d^2 in Fig. 6. It is evident that the car, having been released as just mentioned, will run, by gravitation, down said plane, acquiring in its course sufficient momentum to carry it across the central depression, up the other inclined plane and back to the starting point over the pulley C^2, to be again drawn up, go over the same course and so continue till the end.

It will be observed that the foot of the inclined plane on the left is somewhat lower than is that of the one on the right, but this is not absolutely essential, though it gives variety to the motion of the car and serves to bring it more readily to a stand at the starting point.

It will also be observed that the device just described has been applied to the production of a mechanical toy only; but it is evident, however, that the same may be constructed on a much larger scale, the car adapted to carry passengers, and that the same may be erected at places of resort and used for pleasure purposes by the guests, and this without involving any new invention.

Having now described the invention and shown its operation, what is considered new, and desired to be secured by Letters Patent, is—

1. In a mechanical toy, the herein described track sections comprising the two parallel rails having side flanges at their bases and strengthening ribs integral with their under sides, cross bars or ties having their extremities secured to the edges of the inner ones of said side flanges, a hook at one end and a rounded bar to engage said hook at the adjacent end, of the contiguous track sections, whereby said sections are joined to form a railway track having an inclined plane at each end, and a hollow or depression between said planes, substantially as described and for the purpose set forth.

2. The combination in a mechanical toy, with a railway track comprising the track sections A and A′, composed of the parallel rails a and a, having the side flanges a' and a' at their bases, and the strengthening ribs a^2 underneath said rails, the cross bars a^3 having their extremities secured to the edges of the inner ones of said side flanges, the hook a^4 at the lower end of the section A, and the bar a^5 at the lower end of the section A′, said sections jointed to form said track, the track having the inclined planes at the ends thereof, and the hollow or depression having a slight central elevation between said planes, of the brackets or trestles B, B′ and B^2, having their top plates respectively secured to the right and left hand ends and to the central portion of said track, and the bolts and nuts b, b' and b^2 to removably secure the top plates of said trestles to the respective portions of said track, substantially as described and for the purpose set forth.

3. The combination in a mechanical toy, with a trestle supported railway track having an upwardly and outwardly sloping inclined plane at each end, a depression with a slight central elevation between the planes, of a sprocket wheel and a flanged pulley mounted to rotate midway between the rails of the track, the sprocket wheel near the top and the pulley beyond the foot of one of the said planes, an endless chain mounted upon said sprocket wheel and pulley, and mechanism, provided to rotate the said sprocket wheel so as to move the upper side of said chain up the slope of said inclined plane substantially as described and for the purpose set forth.

4. The combination in a mechanical toy, of a trestle supported railway track having an inclined plane at each end, a depression with a slight central elevation between said planes, and a car adapted to run back and forth throughout the length thereof, a sprocket-wheel and a flanged pulley mounted to be rotatable between the rails of the track, the sprocket wheel near to the top and the pulley beyond the foot of one of said planes, and a clock-work motor provided as shown to rotate said sprocket-wheel upward of said plane, with an endless chain mounted on said wheel and pulley, and outwardly projecting wings or arms having one end, at equal intervals secured to the body of said chain, said arms adapted to engage an axle of the car to move the same, all substantially as described and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JOHN E. HUBLEY.

Witnesses:
EDWIN BOOKMYER,
DANL. H. HERR.