June 11, 1946. N. KINGSON 2,401,937

WHEELED TOY VEHICLE

Filed Feb. 22, 1944 2 Sheets-Sheet 1

Fig. 1

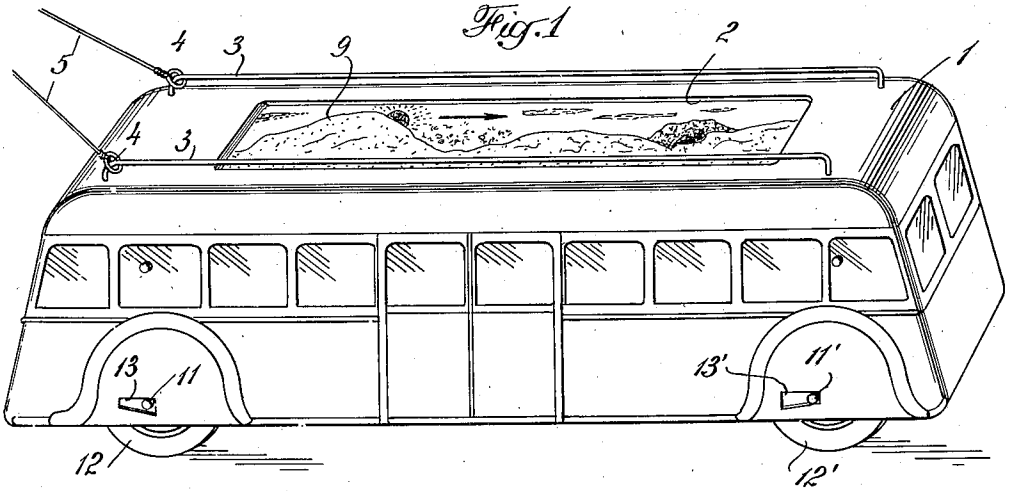


Fig. 2

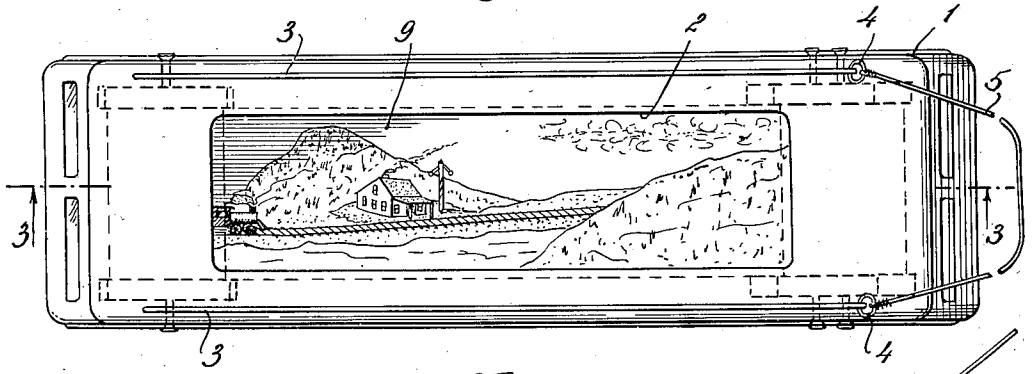
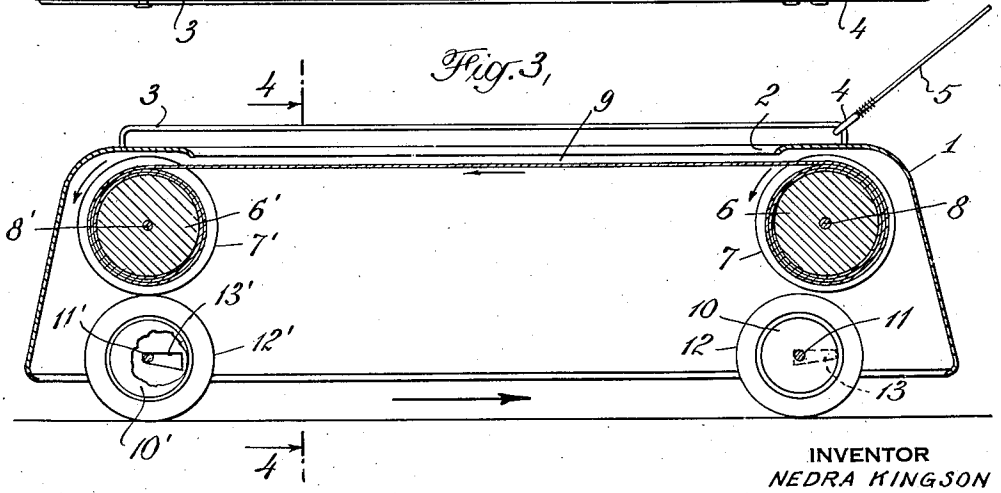


Fig. 3



INVENTOR
NEDRA KINGSON

BY
Pennie Davis Marvin & Edmonds
ATTORNEYS

June 11, 1946. N. KINGSON 2,401,937

WHEELED TOY VEHICLE

Filed Feb. 22, 1944 2 Sheets-Sheet 2

Fig. 4,

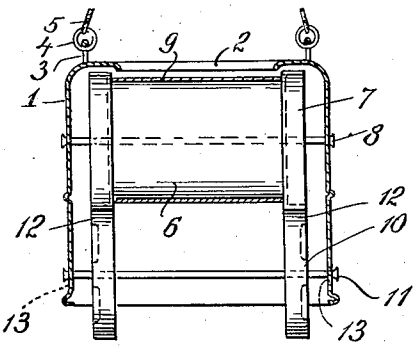


Fig. 5,

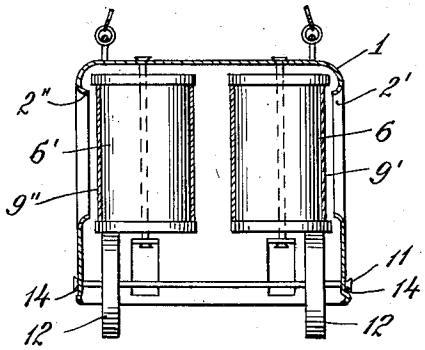


Fig. 5a

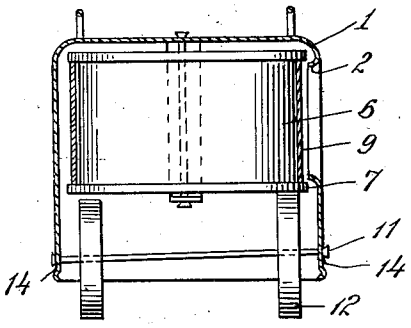


Fig. 5b,

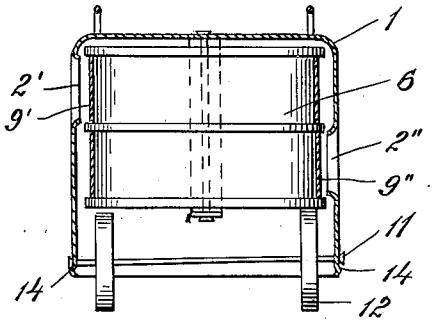
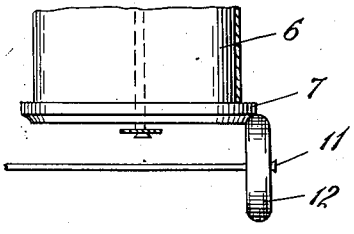


Fig. 6.



INVENTOR
NEDRA KINGSON
BY
Pennie Davis Marvin & Edmonds
ATTORNEYS

Patented June 11, 1946 2,401,937

UNITED STATES PATENT OFFICE

2,401,937

WHEELED TOY VEHICLE

Nedra Kingson, Mount Vernon, N. Y.

Application February 22, 1944, Serial No. 523,441

10 Claims. (Cl. 46—204)

1

This invention relates to improvements in a child's toy, more particularly to a novel, direction-reversible toy vehicle having in combination therewith an interest-maintaining feature which comprises a scene-viewing opening or openings in the body thereof through which, upon operation of the vehicle, a series of pictures or figures may be viewed.

The main object of the invention is to provide an inexpensive, durable, attractive toy vehicle which may be easily operated in either direction by even a very small child.

Another advantage is the provision of a toy vehicle which, after continued use, will still command the attention of the child by virtue of the continuously changing scene feature incorporated therein.

A further advantage resides in the simplicity of construction of the vehicle whereby the scene-changing feature thereof is adapted to be actuated, upon movement of the vehicle, directly from its traction wheels, without intermediate energy translating means such as gearing, belting or the like.

In the drawings:

Fig. 1 is a perspective view of a preferred embodiment of the invention;

Fig. 2 is a top view of the toy vehicle shown in Fig. 1;

Figs. 3 and 4 are, respectively, sectional side and end views thereof, showing in detail the operating mechanism;

Figs. 5, 5*a* and 5*b* are sectional end views of alternative embodiments of the invention, illustrating the arrangement of portions of their operating mechanisms, and

Fig. 6 is a detail of an alternative arrangement of a portion of the driving mechanisms shown in Figs. 5 through 5*b* inclusive.

Referring now in detail to the drawings, 1 is a closed vehicle body of pressed metal, or other suitable material, having a portion 2 of its top cut away.

A pair of tubular rails 3, having their bent ends securely fastened to the top of the vehicle, run lengthwise thereabove near the side edges thereof and are each provided with a sliding ring 4 to which the ends of a pull-string 5 are fastened for use when the vehicle is to be manually operated. When it is desired to reverse the direction of the vehicle, the child will pull the drawstring in the opposite direction, sliding the rings 4 to the opposite ends of rails 3.

A pair of reels 6 and 6', having flanges 7 and 7', respectively, are rotatably mounted inside the

2

vehicle body 1 adjacent the wheels of the vehicle and the body opening 2, upon axles 8 and 8' journaled through the vehicle body 1, with their axes of rotation in the same horizontal plane as that of body opening or openings 2.

A band or strip 9, having its opposite ends fastened to reels 6 and 6' and being wound thereupon, is provided with a series of pictures or figures disposed therealong, adapted to be viewed through body opening 2.

Two pairs of traction wheels 10, 10' provided with rims 12, 12' are also rotatably mounted inside said vehicle body, adjacent the flanges 7, 7' of the aforesaid reels 6, 6', by means of axles 11, 11' journaled through vehicle body 1 and supported in slots 13, 13' punched, or otherwise provided therein.

Let us now assume the vehicle disclosed in Figs. 1 to 4 inclusive, is about to be operated in the direction indicated by the arrow under Fig. 3.

Movement of the vehicle, in the direction indicated in Fig. 3, causes axle 11 to be moved backward to the larger ends of slots 13 thereby disengaging the rolling frictional contact which theretofore existed between the rolling surfaces of wheel rims 12 and the adjacent surfaces of reel flanges 7. Contemporaneously, axle 11' is caused to be moved backward to the smaller ends of slots 13' so that the rolling surfaces of wheel rims 12' are brought into direct, rolling, frictional contact with the adjacent surfaces of reel flanges 7'.

Continued movement of the vehicle will cause reel 6 to be rotated in the direction indicated and the elongated band or strip 9 to be unwound therefrom and to be drawn past the viewing opening or window 2, in a direction opposite to that of the travel of the vehicle, and to be wound upon reel 6' by virtue of the rolling friction existing between the contacting surfaces of rims 12' and reel flanges 7'.

The strip or band 9 may be of any suitable material such as paper, starched linen or the like and of such length as may be conveniently wound upon the reels 6 or 6'.

The reel flanges 7, 7' and wheel rims 12, 12' may be of any suitable material which when their contacting surfaces are brought into rolling engagement will provide substantial friction therebetween.

It is to be understood that, instead of using an elongated band as hereinbefore described, a band of the continuous belt variety may be substituted therefor without departing from the spirit of the invention. The devices of Figs. 5 through 5*b*, in-

clusive are designed for use with such bands. When a continuous belt band is employed it may be arranged over the reels 6 in any well known manner.

In the embodiments of the invention shown in Figs. 5, 5a and 5b, the viewing openings 2, instead of being arranged in the top of the vehicle, are located in the sides thereof and reels 6 are rotatably mounted inside the vehicle body with their axes of rotation in a vertical plane corresponding to that of the openings 2. In these embodiments, the driving power for the reels 6 is provided by having the traction surfaces of the wheel rims 12 continuously, frictionally engage the lower flanges of reels 6, near their outer edges, at an angle approximately 90° to that of their respective axes of rotation. In these embodiments it is unnecessary to employ the type of body slots heretofore described; it is sufficient to journal the axles 11 through the vehicle body in the usual manner, such as at points 14. With this arrangement, the direction of picture band movement will, of course, be the same as that of the vehicle. However, the more normal, and perhaps more desirable arrangement from the standpoint of relative movement, would be to have the picture band move in opposite direction to that of the vehicle, in which case the body slots heretofore described are to be employed.

In Fig. 5, two separate independently operated pairs of reels 6 and 6' (only one of each pair is shown) are mounted within the vehicle body adjacent either side wall thereof at such locations that continuous bands 9' and 9'' carried thereby may be drawn past and the pictures or figures thereon viewed through openings or windows 2' and 2''.

The device disclosed in Fig. 5a is similar in operation to that shown in Fig. 5, except that only one pair of reels is employed to carry a single picture band 9 past an opening or window 2.

In the device of Fig. 5a, a pair of axles 11 (only one is shown) are so mounted within the vehicle body, at either end thereof, that only one wheel of either the front or back pair of wheels can be brought into operative, frictional, rolling contact with lower flanges 7 of either the front or rear reels 6 to effect rotation thereof, upon movement of the vehicle.

The device shown in Fig. 5b is similar to that shown in Fig. 5a, except that each of a single pair of reels (one is shown) is divided to accommodate a pair of continuous strips 9', 9'', one of which is adapted to be viewed through an opening 2' in the upper portion of one side of the vehicle body while the other may be viewed through a similar opening 2'' in the lower portion of the other side of the vehicle body. The device shown in Fig. 5b is otherwise identical in operation with the device shown in Fig. 5a.

Figure 6 is a detail of an arrangement wherein a portion of the outer, contacting edge of flanges 7, when utilized in devices of the types disclosed in Figs. 5 through 5b, is recessed to accommodate the contours of a driving wheel rim which is arcuate in cross-section.

As heretofore indicated, this invention is not intended to be limited to a manually operated toy vehicle as herein described and illustrated, but it may be advantageously embodied in other mechanically or electrically operated toy vehicles such as toy trains or the like.

It is also to be noted that as an alternative to the embodiment disclosed in Figs. 1 to 4 inclusive, the reels 6, 6' may be made unitary with the vehicle wheels if the latter are of sufficient diameter, i. e., the wheels may be used in lieu of and comprise the flanges of the reels, thereby dispensing with the rolling friction drive arrangement. In all other respects the operation of the vehicle would be the same as heretofore described.

I claim:

1. A wheeled toy vehicle adapted to be operated forward or backward comprising a closed body having at least one viewing aperture therein, axle support means arranged at each end of said body, front and rear wheels carried by said axle supports, at least one flanged reel mounted within each end of said body, adjacent said front and rear wheels, means including said axle supports for causing at least one wheel and reel at one end of said body to be brought into frictional driving engagement and for causing at least one wheel and reel at the other end of the body to be disengaged, depending on the direction of vehicle movement, and a band carried by said reels, whereby operation of said vehicle causes movement of said band past a viewing aperture.

2. A wheeled toy vehicle adapted to be operated forward or backward comprising a closed body having a viewing aperture in the top thereof, axle support means arranged at each end of said body, front and rear wheels carried by said axle supports, a flanged reel mounted within each end of said body, adjacent said front and rear wheels, means including said axle supports for causing the wheels and reel at one end of said body to be brought into frictional driving engagement and for causing the wheels and reel at the other end of the body to be disengaged, depending on the direction of vehicle movement, and a band of substantial length carried by said reels, whereby operation of said vehicle causes movement of said band past the viewing aperture.

3. A wheeled toy vehicle adapted to operate forward or backward comprising a body, axles at each end of the body, front and rear wheels carried by said axles, respectively, at least two reels mounted on said body, a band carried by said reels, means including said axles for causing at least one reel to be placed in driving connection with one wheel and for causing the other reel to be disconnected from driving connection with another wheel, depending on the direction of vehicle movement.

4. A wheeled toy vehicle adapted to operate forward or backward comprising a body, axles at each end of the body, front and rear wheels carried by said axles, respectively, a movable display mechanism mounted on said body, first and second driving means for said display mechanism, means for causing said first driving means to be operatively connected to the display mechanism and the second driving means disconnected from the display mechanism when the vehicle is moved forward, and the second driving means operatively connected to the display mechanism and the first driving means disconnected from the display mechanism when the vehicle is moved backward.

5. A wheeled toy vehicle adapted to operate forward and backward comprising a body, at least two reels mounted on said body, a band carried by said reels, wheel means for supporting the body means for causing said wheel means to be operatively connected to one of said reels to cause rotation of said reel when the vehicle is moving in one of said directions and for causing said wheel means to be disconnected from

said reel when the vehicle is moving in the other of its said directions.

6. A wheeled toy vehicle adapted to operate forward and backward comprising a body, a movable display mechanism including at least one reel, wheel means for supporting the body, means for causing said wheel means to be operatively connected to said reel to cause rotation thereof when the vehicle is moving in one of said directions and for causing said wheel means to be disconnected from said reel when the vehicle is moving in the other of its directions.

7. A wheeled toy vehicle adapted to operate forward or backward comprising a body, axles supported by said body at each end thereof, front and rear pairs of wheels carried by said axles, respectively, a reel mounted on said body at each end thereof, a band carried by said reels, said axles being mounted in slots for movement longitudinally of the body, the slots being so positioned relative to said reels that on movement of the vehicle in one of its directions the axle for one of the said pairs of wheels moves to a position in the slots in which it is mounted so that at least one of the wheels carried thereby is brought into frictional driving engagement with one of said reels, while the other axle moves to a position in the slots in which it is mounted so that the wheels carried thereby are out of frictional driving engagement with the other of said reels.

8. A wheeled toy vehicle adapted to operate forward or backward comprising a body, axles at each end of said body, front and rear wheels carried by said axles, respectively, two reels mounted on said body, a band carried by said reels, said reels being operatively connected to at least one of said front and rear wheels, respectively, said axles being so mounted for movement logitudinally of the body that when the vehicle is moved

in either direction an operative connection is established between one reel and a wheel carried by one axle while the operative connection between the other reel and the wheels carried by the other axle is interrupted.

9. A wheeled toy vehicle adapted to operate forward or backward comprising a body, axles at each end of said body, front and rear wheels carried by said axles, said axles being movable relative to the body and longitudinally thereof, a movable display mechanism mounted on said body, first and second driving means for driving said display mechanism in opposite directions, said first and second driving means being operative or inoperative according to the position of said axles relative to the body, and means for causing one of said driving means to be operative to drive said display mechanism and the other driving means to be inoperative, depending on the direction of movement of the vehicle.

10. A wheeled toy vehicle adapted to operate forward or backward comprising a body, a display mechanism movable in opposite directions and including at least one reel, at least one axle carried by the body, wheel means mounted on said axle for supporting the body, said axle being mounted for free movement relative to the body and longitudinally thereof, so that it assumes one position relative to the body when the vehicle is moving in one of its directions and another position relative to the body when the vehicle is moving in the other of its directions, means for causing said wheel means to be operatively connected to said reel to cause rotation thereof when the axle is in one position relative to the body and for causing said wheel means to be disconnected from said reel when the axle is in another position relative to the body.

NEDRA KINGSON.