June 25, 1946. R. B. ESTES 2,402,880

OCCUPANT STEERED AND PROPELLED VEHICLE

Filed June 20, 1944 3 Sheets-Sheet 1

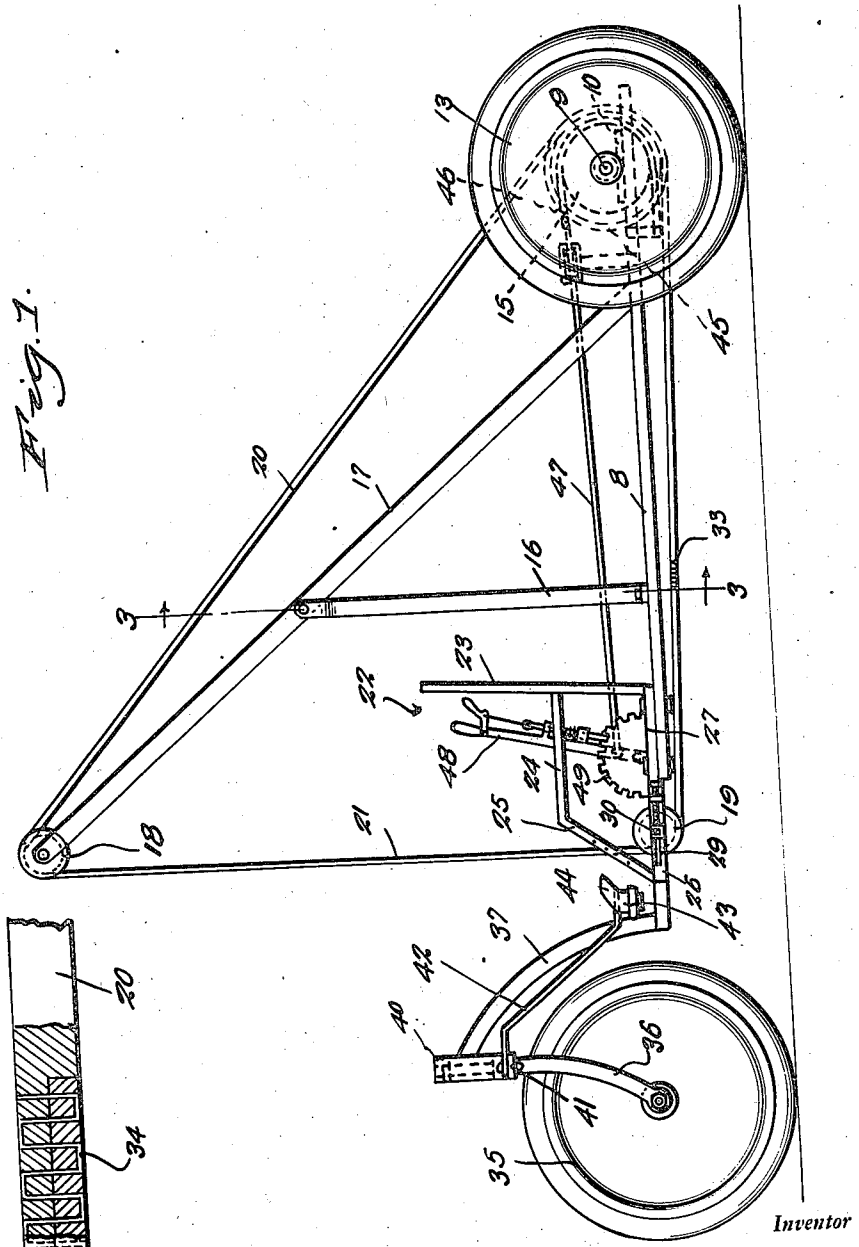


Fig. 1.

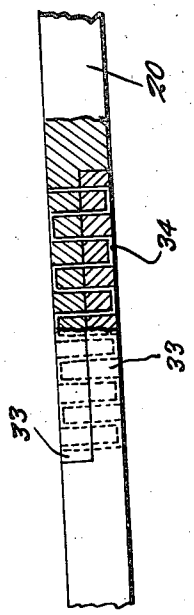


Fig. 2.

Inventor

Rufus B. Estes,

By Clarence A. O'Brien and Harvey B. Jackson

Attorneys

June 25, 1946. R. B. ESTES 2,402,880

OCCUPANT STEERED AND PROPELLED VEHICLE

Filed June 20, 1944 3 Sheets-Sheet 2

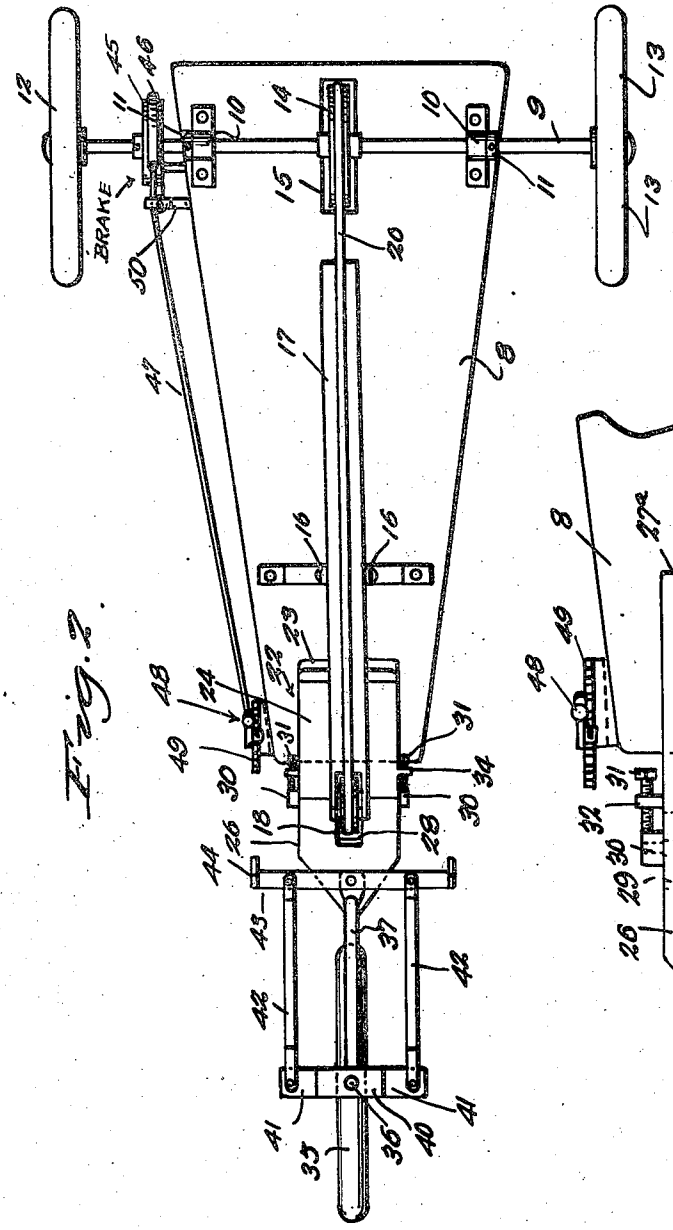


Fig. 1.

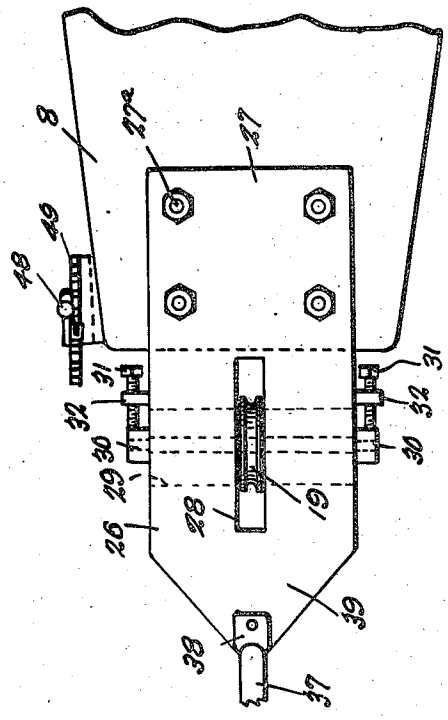


Fig. 4.

Inventor

Rufus B. Estes,

By Clarence O'Brien and Harvey B. Jackson

Attorneys

June 25, 1946. R. B. ESTES 2,402,880

OCCUPANT STEERED AND PROPELLED VEHICLE

Filed June 20, 1944 3 Sheets-Sheet 3

Fig. 3.

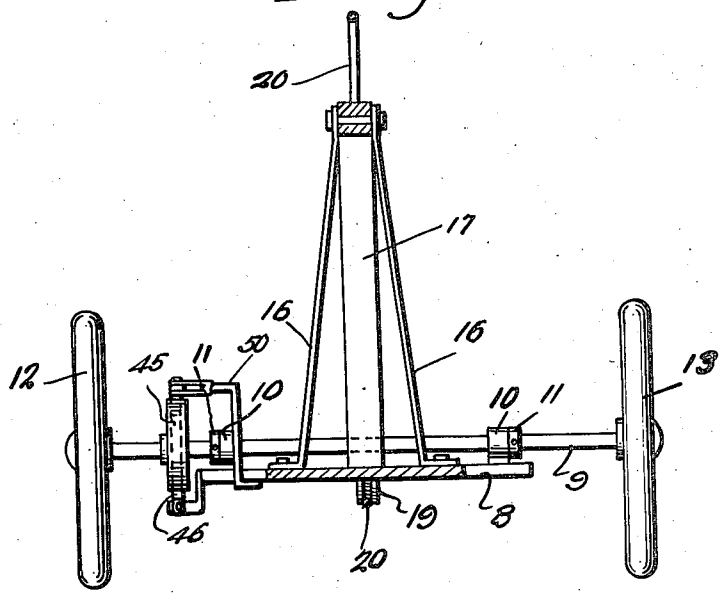


Fig. 6.

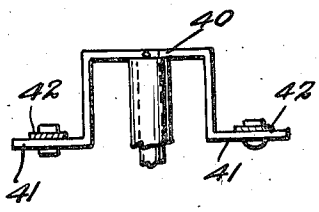
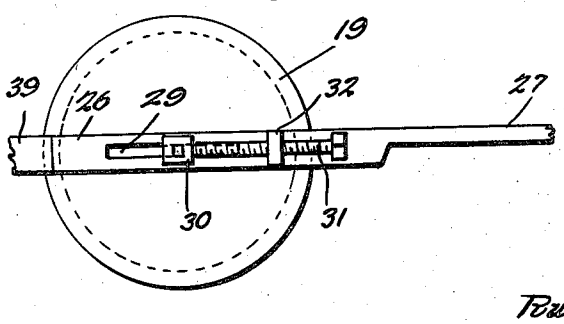


Fig. 5.



Inventor

Rufus B. Estes,

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Patented June 25, 1946 2,402,880

UNITED STATES PATENT OFFICE

2,402,880

OCCUPANT STEERED AND PROPELLED VEHICLE

Rufus B. Estes, Knoxville, Tenn., assignor to Leland T. Coffey, Knoxville, Tenn.

Application June 20, 1944, Serial No. 541,176

3 Claims. (Cl. 280—242)

1

This invention relates to a toy or equivalent vehicle characterized by a low slung platform-like body of an appropriate wheel-supported type having a seat at the front for the rider and a pulley and cable arrangement for propelling the traction wheel at the rear.

Although the structure may be used by neighborhood boys for store delivery purposes and other diversified uses, it was primarily designed with the thought of enabling the occupant to obtain a new and thrilling ride while learning to maneuver the same and to at the same time promote physical culture and muscle building through the medium of the pulley guided motion transmitting cable.

More specifically, in carrying out the aforementioned aims I provide a novel foot steered three-wheeled toy vehicle of a practicable and distinct type wherein the perpendicular or vertical flight of the endless cable is located within the vicinity of the driver's seat, this being grasped in hand-over-hand fashion to achieve the health and muscle building results.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the same:

Figure 1 is a side elevational view of a three-wheeled toy cable propelled vehicle constructed in accordance with the principles of the instant invention.

Figure 2 is a top plan view of the same.

Figure 3 is a vertical sectional view taken approximately on the plane of the line 3—3 of Figure 1, looking in the direction of the arrows.

Figure 4 is an enlarged fragmentary plan view of the front portion of the structure.

Figure 5 is an edge view of the adjusting means for the lower front pulley, this on the extension of the main platform.

Figure 6 is a view of one of the details.

Figure 7 is a view partly in section and partly in elevation showing the spliced endless pull cable or belt.

Referring to the drawings by distinguishing reference numerals, the horizontal platform is denoted by the numeral 8, this being of appropriate design and proportion. It is preferably of the design seen in Figure 2. The rear axle 9 is mounted for rotation in suitable bearings 10, said axle having stop collars 11 abutting said bearings. One wheel 12 is keyed on the axle to serve as a traction element and the other wheel is

2

mounted for idling, this at 13. The platform at a point midway the width of its rear end is provided with a slot 14 to accommodate a pulley 15 which is keyed on the axle for rotating the same.

On the central portion of the platform I provide uprights 16 forming a stand for a forwardly and upwardly inclined beam 17, the latter anchored at its lower end on the platform. At its upper end it is provided with a pulley 18, the latter being disposed directly above the third pulley 19 which latter pulley is on the frontal portion of the platform. These three pulleys serve to accommodate the endless belt or cable 20 which is trained thereover. The vertical flight 21 of said cable is the element which is grasped for operation.

The occupant's seat is indicated at 22 and is of any appropriate construction and includes a back rest 23 and a seat board 24, the latter having a forwardly inclined and depending apron 25 which is slotted for passage of the flight 21 of the cable and which also serves as a shield. Thus the pulley 19 is located beneath the shield and is appropriately guarded to prevent mishap and pinching of the rider's fingers.

I next call attention to the frontal extension 26, this being in the nature of an auxiliary platform having its rear end overlapped as at 26 and bolted or otherwise secured in place on the main platform as at 27. This platform is slotted at 28 to properly house the pulley 19. It is also formed with a horizontal slot 29 which intersects the slot 28 and which seres to accommodate the axle on which said pulley is mounted. At its outer ends this axle is provided with adapter nuts 30 to receive the screw-threaded shank on the bolt 31, said bolt operating through assembling lugs 32 on the longitudinal edges of the auxiliary platform. This provides the means for adjusting the pulley 19 back and forth to properly tension the endless belt. Incidentally, the ends of the belt are spliced together as indicated at 33 (see Figure 7) the spliced ends being laced as at 34. This arrangement facilitates removal and repair of said belt.

The front steering wheel 35 is an ordinary bicycle wheel and is mounted in a yoke or fork 36, the fork being journaled in an appropriate bearing on the frame bar 37 and said frame bar being fastened down at 38 on the pointed end portion 39 of the auxiliary platform 26 (see Figure 4).

A U-shaped adapter 40 is secured at the upper end of the journal of the fork 36 and suitably supported in place and is provided with outstand-

ing terminal ends 41, these to accommodate parallel links 42. The links, in turn, are connected as shown in Figure 2 with a foot-piece 42 having appropriate upstanding guard 4. The foot-piece is arranged within convenient reach of the legs of the rider, whereby to permit him to effectively steer the vehicle in an obvious manner.

In operation, it is obvious that the rider occupies the seat 24 and steers the vehicle by way of the foot-piece and its operating connections with the front swivelly mounted wheel 35. In order to propel the vehicle he simply pulls down in hand-over-hand fashion on the flight 21 of the cable which imparts rotation to the traction wheel 12. If he desires to reverse the movement he pulls upwardly on said flight or portion 21. Hence, it is obvious that the structure is a unique toy vehicle which while usable for practical load carrying purposes it is essentially an amusement device and one in which the strength and skill required to handle the belt or cable becomes a health and strength building factor.

If desired a suitable brake structure may be provided in actual practice. This is shown in a general way in the drawing and comprises, broadly, any suitable brake drum 45 mounted on the axle 9, there being an appropriate brake band 46 coacting therewith and said brake band being controlled by a suitable operating element 47 connected with lever means 48, this having a pawl coacting with the segmental stationary rack 49. Any desirable type of fixture or guide 50 may be provided in the vicinity of the brake drum and brake band to facilitate proper action of the brake applying element 47.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear undersanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

Having described the invention, what is claimed as new is:

1. In a toy vehicle of the class described, a horizontal platform, an axle on the rear end provided with wheels and a pulley, a second pulley on the front end portion of the platform opposite the rear pulley, an overhead beam supported on said platform and provided with a pulley located directly above the second-named pulley, a seat on said platform under said beam having a portion located over the second-named pulley as a shield and formed with an opening and a triangularly arranged endless belt trained about said pulleys, the flight thereof between the second- and third-named pulleys being perpendicularly arranged and extending vertically through the opening in position to be grasped and pulled either up or down by an accupant of the seat to propel the vehicle.

2. A toy vehicle of the class described comprising a horizontal platform, a rear axle, wheels on said axle, a pulley also keyed on said axle, a stand vertically mounted on said platform, a beam diagonally mounted on said stand and secured at its rear end to the platform and provided at its forward end with a pulley, a third pulley arranged on the frontal portion of the platform under the second pulley, a seat on said platform over the second pulley, an endless belt trained over said pulleys with a flight extending vertically between the second and third pulleys and through the forward portion of the seat midway the width thereof in position to be grasped by the occupant of the seat and pulled upon to rotate the rear axle and propel the vehicle.

3. A toy vehicle of the class described comprising a horizontal platform, a rear axle, wheels on said axle, a pulley also keyed on said axle, a stand vertically mounted on said platform, a beam diagonally mounted on said stand and secured at its rear end to the platform and provided at its forward end with a pulley, a third pulley arranged on the frontal portion of the platform, an endless belt trained over said pulleys with one flight extending vertically between the second and third pulleys, and a seat on the frontal portion back of the vertical flight of the belt and having a portion extending forwardly over the second pulley and formed with an opening through which the vertical flight of the belt passes in position to be grasped by the occupant and pulled upon to move the belt and rotate the rear axle to propel the vehicle.

RUFUS B. ESTES.