H. G. McCOMB.

TOY TANK.

APPLICATION FILED AUG. 21, 1919.

1,376,347. Patented Apr. 26, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

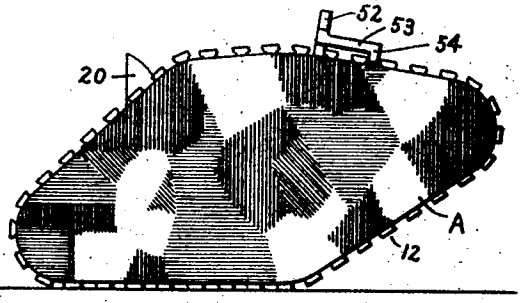


Fig. 2.

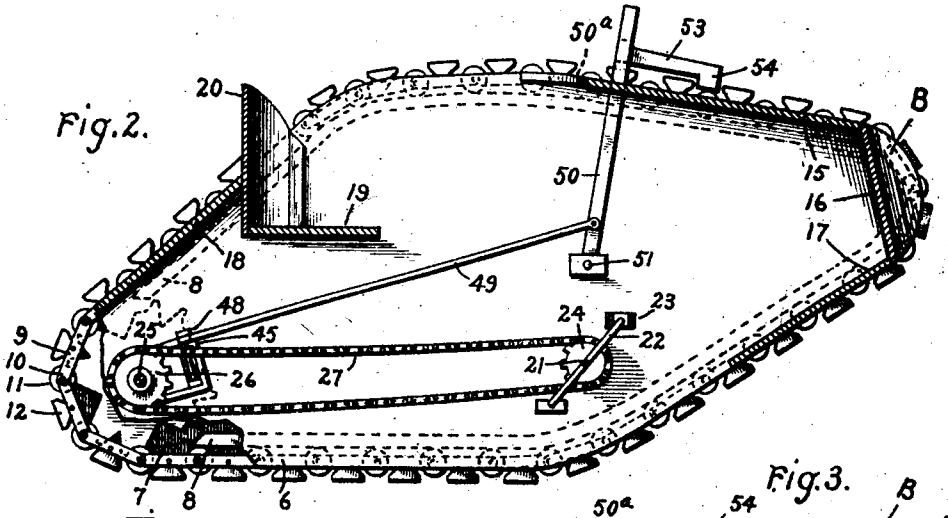
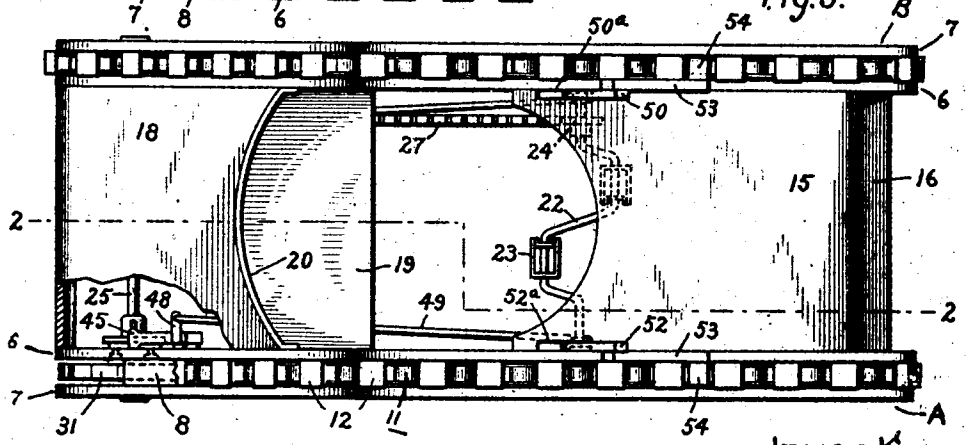


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

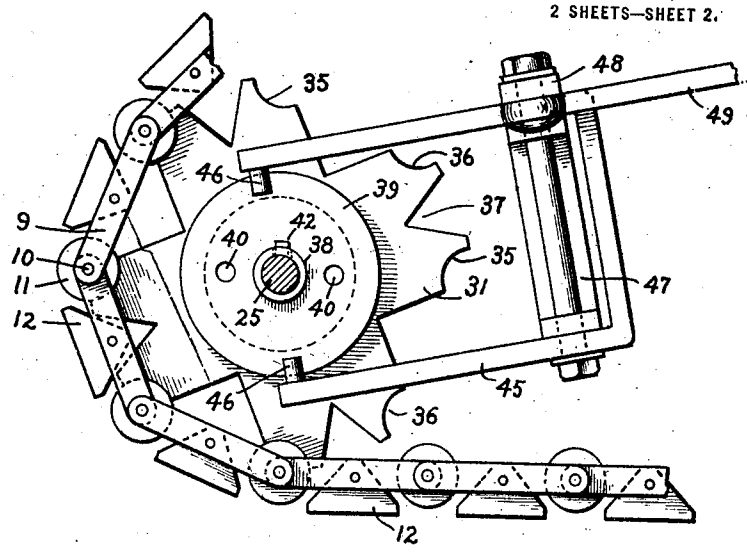
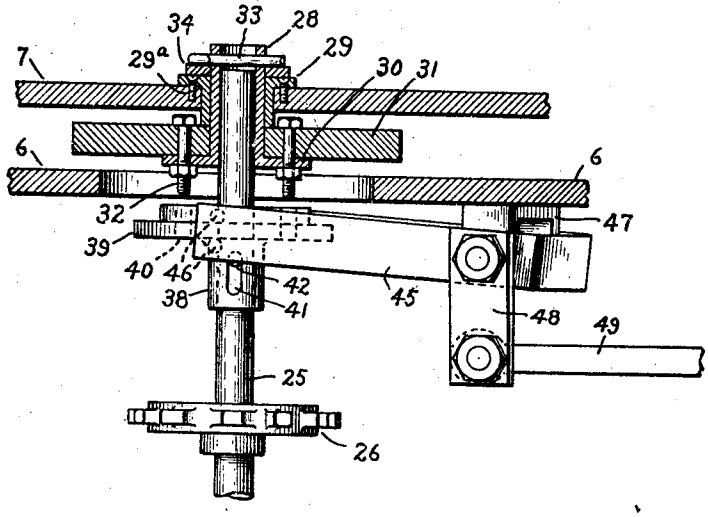


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY G. McCOMB, OF NEW YORK, N. Y.

TOY TANK.

1,376,347. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed August 21, 1919. Serial No. 318,898.

To all whom it may concern:

Be it known that I, HENRY G. McCOMB, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Toy Tanks, of which the following is a specification.

The present invention relates to toys or amusement devices for children and particularly to such devices which are intended to be propelled by the child while riding therein.

The primary object of my invention is to provide a novel device of the above character which simulates a "tank" as used in warfare, or a "caterpillar" tractor, and which can be maneuvered after the manner of such a tank or tractor.

A further object of my invention is to provide a toy tank or caterpillar tractor which is simple and rugged in structure, which can be built at a low cost, and which can be readily operated by any child.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawing which illustrates one embodiment of my invention, Figure 1 is a side elevation of a toy tank; Fig. 2 is a vertical section taken on line 2—2 Fig. 3 and with parts broken away to better illustrate the structure; Fig. 3 is a top plan view with parts broken away; Fig. 4 is a detail view of a part of the driving mechanism, and Fig. 5 is a detail view of a clutch mechanism.

Referring to the drawing, the tank comprises two side members A and B which are alike in structure, each comprising an inner plate or board 6 and an outer plate or board 7 held in spaced relation to each other by a strip 8. Strip 8 may be formed of one or of a plurality of pieces suitably curved to follow the contour of the side member and it is spaced slightly from the edges thereof so such edges project beyond it to form a flange on each side. This forms a groove or track which extends around the periphery of each side member, and located therein is a tread chain comprising pairs of parallel links 9 which are pivoted at their ends on the ends of short spindles 10. On spindles 10 between links 9 are rollers 11, which may be formed of wood or other suitable material and which run on strip 8. Pivoted on links 9 between rollers 11 are tread blocks 12. These are preferably triangular in shape being pivoted at their apexes with their bases pointed outward and extending beyond the peripheries of the rollers so as to be adapted to engage the ground. It will thus be seen that each tread chain is an endless chain provided with rollers to run on the track and tread blocks to engage the surfaces over which the tank is being propelled.

Side members A and B are held in spaced relation to each other by suitable forward cross pieces 15, 16, and 17 and by a rear cross piece 18 and these may be of such size as to inclose the space between the side members to the extent desired in order to give the desired appearance to the tank. Cross pieces 15 and 18 are spaced a sufficient distance apart at the top to provide an opening for the operator and at such opening is arranged a seat 19 having a back 20. The back of the seat may be curved as shown as is also the adjacent edge of cross piece 15 to give a neat appearance to the tank. The two side members A and B and the cross pieces 15, 16 17 and 18 form the body of the tank and as is seen from the drawing, they are shaped to give the device the contour of the tanks as used in warfare.

Journaled in side members A and B in advance of and at a lower level than seat 18 is a crank shaft 21 having cranks 22 on which are pedals 23 arranged to be engaged by the feet of the operator. On shaft 21 is a driving sprocket wheel 24.

At the rear end of the tank is a driven shaft or axle 25 on which is fixed a driven sprocket wheel 26 connected to driving sprocket wheel 24 by a chain 27 whereby shaft 25 may be driven from crank shaft 21. In the present instance a direct drive for one speed ratio is illustrated but it will be understood that a suitable arrangement to give two or more gear ratios may be utilized if found desirable. The ends of shaft 25 are journaled in sprocket hubs 28 (Fig. 5) which in turn are journaled in flanged bushings 29 arranged in outer boards 7 and fastened thereto by screws 29a. Sprocket hubs 28 have flanges 30 to which are fastened tread chain driving sprockets 31 by a suitable number of bolts 32.

Sprocket hubs 28 are held in bushings 29 by cotter pins 33, a washer or washers 34 being provided to bring the sides of sprockets 31 into engagement with the ends of bushings 29 to prevent side plays. Cotter pins 33 also serve to prevent axial movement of shaft 25. With this arrangement the ends of shaft 25 can turn in sprocket hubs 28 and sprocket hubs 28 can turn in side members A and B. Tread chain driving sprockets 31 are located between inner and outer boards 6 and 7, and shaft 25 is so located that sprockets 31 are in operative relation to the tread chains, strips 8 being cut away at the points where sprockets 31 are located as shown in Fig. 2, to permit the sprockets to engage the tread chains. Sprockets 31 are provided with curved surfaces 35 which engage chain rollers 11 to drive the tread chains in one direction and with curved surfaces 36 which engage chain rollers 11 to drive the tread chains in the other direction. The particular shape of sprocket 31 may be varied as found desirable and the number of curved engaging surfaces will depend, of course, upon the distance apart of rollers 11 and the diameter of the sprocket. As shown in Fig. 4 it may be considered as comprising four driving arms, each having an engaging surface 35 and an engaging surface 36 between which is a V-shaped notch 37 to accommodate the inner ends of tread blocks 12.

On shaft 25, adjacent each sprocket 31, is a clutch by means of which such sprocket may be clutched to shaft 25 so as to turn therewith. In the present instance each of these clutches is shown as comprising a sleeve 38 (see Fig. 5) having a flange 39 in which are a suitable number of axially extending spaced holes 40, two being shown in the present instance. Sleeve 38 has a pin and slot connection with shaft 25 so that it always turns with the shaft and can move axially thereof to a limited extent. As shown, sleeve 38 has a slot 41 in which is located a pin 42 fastened in shaft 25. Bolts 32, or some of them project beyond the surface of sprocket 31 to form clutch pins and when a clutch sleeve 38 is moved toward the adjacent sprocket 31, such pins will engage in holes 40 to clutch the sprocket to the shaft. Each clutch is moved by means of a U-shaped lever arm 45 which straddles flange 39 and is provided with pins 46 engaging opposite sides of flange 39. Lever arm 45 is pivoted on a bracket 47 fixed to the adjacent inner board 6. Fixed to each lever arm 45 is a short lever arm 48 to the end of which is connected one end of a link 49. The other end of the link 49 on the one side of the tank is connected to a hand lever 50 pivoted on side member B as indicated at 51; and the other end of the link 49 on the other side of the tank is connected to a hand lever 52 similarly pivoted on side member A. Hand levers 50 and 52 project upward through slots 50^a and 52^a in cross piece 15, the upper ends of the hand levers terminating beyond the confines of the tank and in positions to be grasped by the hands of an operator sitting in seat 19. By means of hand lever 50 the clutch on the one side of the tank may be engaged and disengaged and by means of the hand lever 52 the clutch on the other side of the tank may be engaged and disengaged, and as is clear, either clutch may be operated entirely independently of the other. It will be noted that when a hand lever is thrown or pushed forward its clutch is disengaged, while, when it is pulled backward its clutch is engaged. In connection with each hand lever 50 and 52 I preferably provide a means for locking or applying a brake to the adjacent tread chain when the lever is thrown to disengage its clutch, this being desirable, as it assists in maneuvering the tank, and for this purpose each hand lever has fixed to it an arm 53 provided at its end with a nose 54 which when the lever is thrown forward to disengage its clutch engages between blocks 12 to lock the tread chain, or frictionally with blocks 12 to form a brake for the tread chain.

In operation, the child sits in seat 19 with his feet on pedals 23. At the same time he grips the ends of levers 50 and 52 with his hands. Hand levers 50 and 52 may be in their forward positions so both clutches are disengaged and both tread chains are locked against movement. If now it is desired to propel the tank forward, the crank shaft 21 is operated in a forward direction thus imparting a turning movement to driven shaft 25 through chain 27. Shaft 25 will turn in a clockwise direction as viewed in Fig. 2. At the same time hand levers 50 and 52 are pulled backward thus moving noses 54 from engagement with the tread chains and at the same time turning lever arms 45 so as to move sleeves 38 axially to bring holes 40 in flanges 39 over the projecting ends of bolts 32, thus engaging both clutches. This locks tread chain driving sprockets 31 to driven shaft 25, and the turning of such sprockets drives the two tread chains in a direction to propel the tank forward. By operating crank shaft 21 in the opposite direction the tank may be driven backward as is obvious. To maneuver the tank, *i. e.*, to turn it in either one direction or the other, it is only necessary to release one clutch or the other which at the same time locks the tread chain associated with the clutch which is released. The other tread chain will then turn the tank. If it is desired to turn to the left, the left hand clutch is released and the right hand one is maintained engaged, while if it

is desired to turn to the right, the right hand clutch is released and the left hand one is maintained engaged. The tank may be thus turned either partly or entirely around.

It will be noted that the clutches are engaged by pulling on hand levers 50 and 52 and this assists the child in propelling the tank forward as he may pull on the levers with his arms at the same time that he is pushing on the pedals.

The toy may be made of the same contour as the tanks used in warfare, or of the contour of a caterpillar tractor, being provided with a flat bottom surface which travels on the ground and a forwardly projecting nose which has an angular under-surface by means of which the tank is enabled to travel over very irregular ground. It may also be camouflaged as shown in Fig. 1 to add to its attractiveness.

I have found that a tank as above described will readily climb up or down an ordinary street curbing and can be turned completely around within its own length. At the same time it is simple in structure and can be readily operated by any child. It may be made in various sizes to accommodate children of different ages and may be geared to give the desired speed and tractive effort.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In an apparatus of the character described, the combination of a body of the general contour of a tank or "caterpillar" tractor, as used in warfare or agriculture, a seat therein, endless tread chains on said body having parts adapted to engage the surface over which the device is propelled, shaft means adapted to be driven by an operator on said seat, and clutch means under the control of the operator for connecting said shaft means to either one or both said tread chains whereby the apparatus may be steered by clutching and unclutching the tread chains.

2. In an apparatus of the character described, the combination of a body of the general contour of a tank or tractor as used in warfare or agriculture, a plurality of tread chains thereon, shaft means adapted to be propelled by an operator, and separate clutch means for each tread chain for operatively connecting it to said shaft means whereby the apparatus may be steered by clutching and unclutching the tread chains.

3. In an apparatus of the character described, the combination of a body of the general contour of a tank or tractor as used in warfare or agriculture, a seat therein, endless tread chains on said body having parts adapted to engage the surface over which the device is propelled, driving sprockets for said tread chains, a shaft which is adapted to be driven by an operator on said seat, and clutch means for connecting either one or both said driving sprockets to said shaft whereby the apparatus may be steered by clutching and unclutching said driving sprockets.

4. In combination, a pair of side members each having a track around it, tread chains in said tracks, means including a seat for holding said members in spaced relation to each other, driving sprockets for said chains, shaft means adapted to be driven by an operator on said seat, and clutch means for connecting said shaft means to either one or both said sprockets whereby the apparatus may be steered by clutching and unclutching said driving sprockets.

5. In combination, a pair of side members each having a track around it, tread chains in said tracks, means including a seat for holding said members in spaced relation to each other, driving sprockets for said chains, shaft means adapted to be driven by an operator on said seat, clutch means for connecting either one or both said shaft means to said sprockets, and means adapted to be operated simultaneously with said clutch means for holding said tread chains against movement whereby the apparatus may be steered by clutching and unclutching said driving sprockets.

6. In combination, a pair of side members each having a track around it, tread chains in said tracks, means including a seat for holding said members in spaced relation to each other, driving sprockets for said chains, shaft means adapted to be driven by an operator on said seat, a clutch for connecting each driving sprocket to said shaft means, and separate means for operating said clutches whereby the apparatus may be steered by clutching and unclutching said driving sprockets.

7. In combination, a pair of side members each having a track around it, tread chains in said tracks, means including a seat for holding said members in spaced relation to each other, driving sprockets for said chains, shaft means adapted to be driven by an operator on said seat, a clutch for connecting each driving sprocket to said shaft means, separate means for operating said clutches, and means associated with said clutch operating means for holding said

tread chains against movement when the clutches are disengaged.

8. In a toy, a body of the contour of a "caterpillar" tractor, said body comprising two side members with a seat between, each side member being formed of two parallel plates and a strip which extends around their edges and is spaced therefrom to form a groove, a tread chain in each groove, a driving member for each tread chain, a shaft adapted to be driven by an operator on said seat, and clutch means for connecting either or both of said driving members to the said shaft.

9. In a toy, side members each having a groove extending around it to form a track, a seat between said side members, tread chains in said tracks, driving members for said tread chains, a shaft, clutch means for connecting said driving members to said shaft, a crank shaft located in advance of said seat adapted to be driven by the feet of an operator for driving said first named shaft, and hand levers located in advance of said seat for controlling said clutch means.

10. In a toy, a side member comprising two parallel plates, a strip which extends around the edges of said plates to hold them in spaced relation to each other, said strip being spaced from the edges of said plates so as to form a groove, a tread chain in said groove, and a driving sprocket for said tread chain journaled between said plates.

11. In a toy, a side member comprising two parallel plates, a strip which extends around the edges of said plates to hold them in spaced relation to each other, said strip being spaced from the edges of said plates so as to form a groove, a tread chain in said groove comprising rollers which run on said strip and tread blocks, and a driving sprocket pivoted between said plates.

12. In an apparatus of the character described, a body comprising side members, each having a groove extending around it, tread chains in said grooves, sprockets pivoted in said side members for driving said chains, a shaft journaled in the hubs of said sprockets, clutches on said shaft for connecting it to either or both of said sprockets, a seat located between said side members, and means operated by the hands and feet of an operator riding on said seat for turning said shaft and actuating said clutches.

13. In a toy "caterpillar" tractor, a body comprising two spaced side members with a seat between them, each side member having a groove around it, an endless tread chain in each groove, a sprocket on each side member for driving the tread chains, a shaft which extends from one side member to the other, two clutches on the shaft, one for each sprocket, for clutching the sprocket to the shaft, a hand lever for each clutch, and a locking member for each tread chain operated by respective hand levers, said hand levers operating first to release the clutch and then engage the locking member with the tread chain.

14. In a toy "caterpillar" tractor, two spaced side members, each comprising two parallel plates with a strip between them and spaced from their edges to form a groove, a seat between the side members at the rear of the tractor, tread chains in said grooves, sprockets engaging said tread chains, a shaft, means operated by the feet of an occupant on said seat for driving said shaft, a clutch for fastening each sprocket to said shaft, said clutches comprising members which slide axially on said shaft, and interengaging means for connecting said members and sprockets, and means located in advance of said seat and operable by the hands of the occupant for operating said clutches.

In witness whereof I have hereunto set my hand this 19th day of August, 1919.

HENRY G. McCOMB.