No. 879,947. PATENTED FEB. 25, 1908.

T. E. CRECELIUS.

TOY VEHICLE.

APPLICATION FILED DEC. 1, 1906

2 SHEETS—SHEET 1.

Fig. 1.

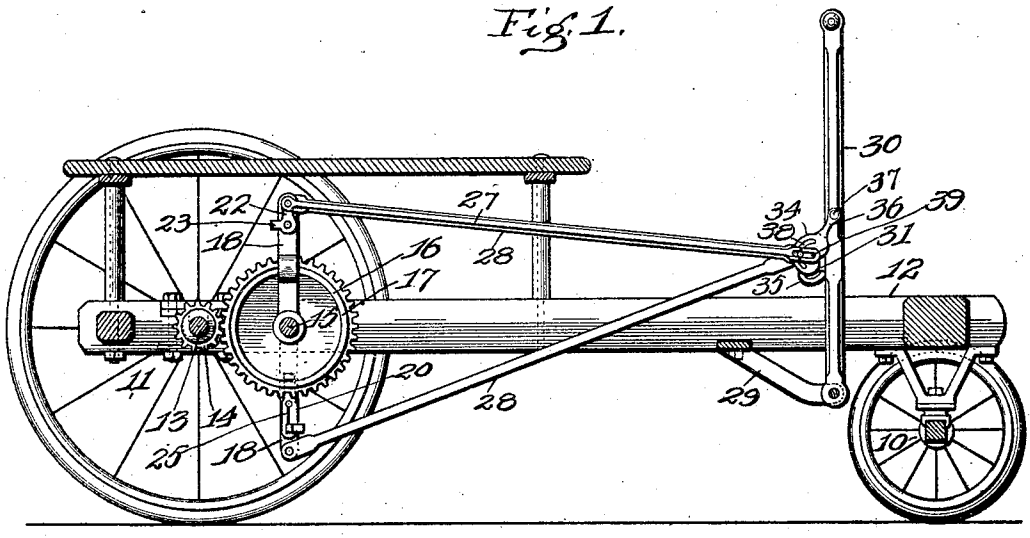
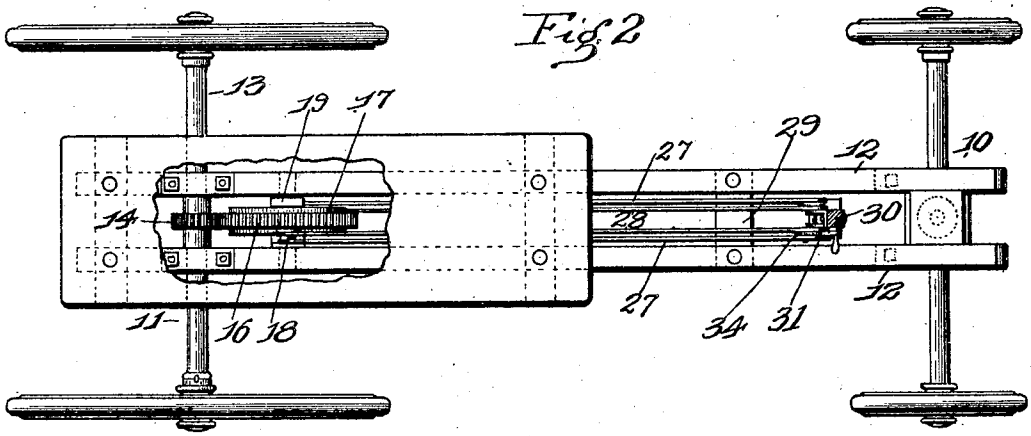


Fig. 2



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2 SHEETS—SHEET 2.

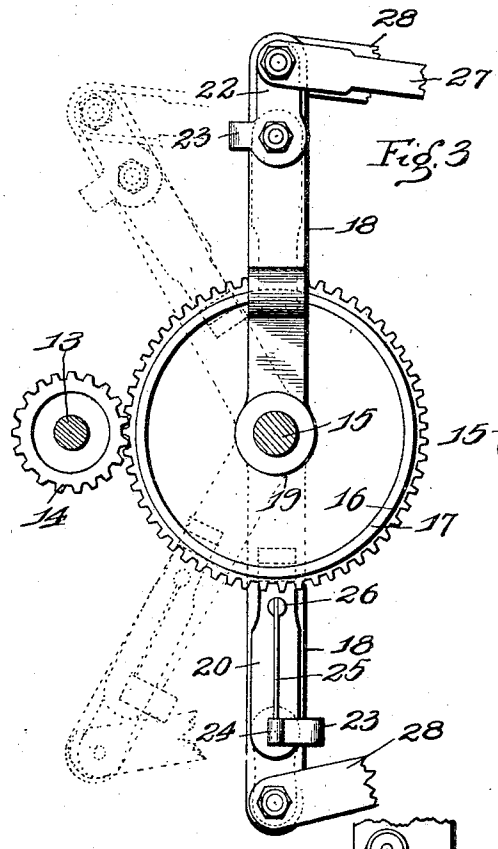


Fig. 3

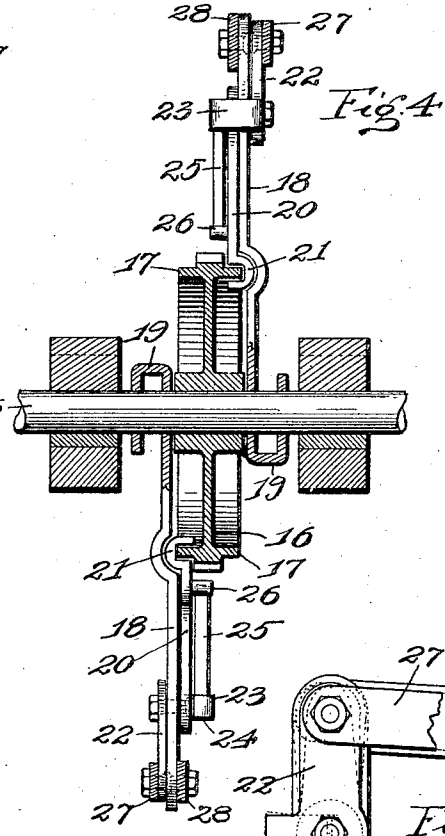


Fig. 4

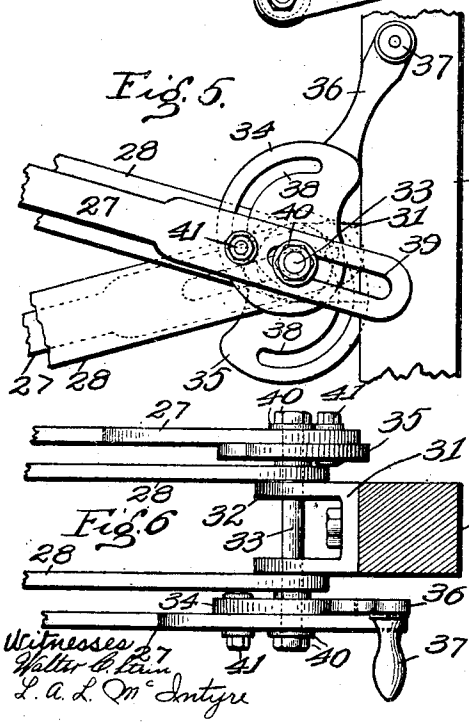


Fig. 5.

Fig. 6

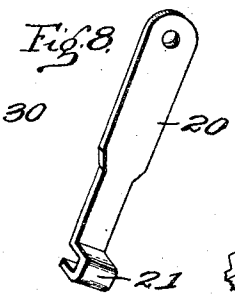


Fig. 8.

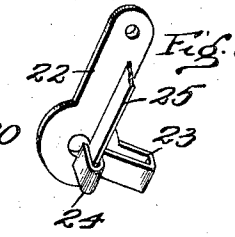


Fig. 9.

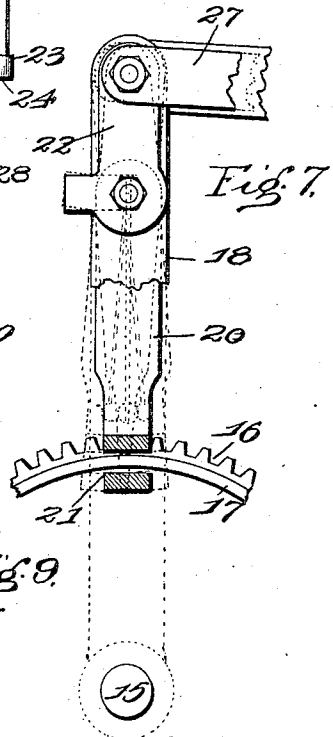


Fig. 7.

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UNITED STATES PATENT OFFICE.

THEODORE E. CRECELIUS, OF ST. LOUIS, MISSOURI.

TOY VEHICLE.

No. 879,947. Specification of Letters Patent. Patented Feb. 25, 1908.

Application filed December 1, 1906. Serial No. 345,939.

To all whom it may concern:

Be it known that I, THEODORE E. CRECELIUS, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Toy Vehicles, of which the following is a specification.

This invention relates to improvements in toy vehicles, and consists in the novel arrangement, construction and combination of parts as will be fully hereinafter described and claimed.

The object of my invention is to construct a toy vehicle propelled by an oscillatory lever movement imparting continuous motion to the driving mechanism during each forward and rearward movement of the lever.

A further object of my invention is to construct a toy vehicle with a propelling mechanism consisting of a flanged gear wheel meshing with a pinion for driving the gear wheel, and a plurality of levers revolving the flanged gear by means of a reciprocatory lever movement.

A further object of my invention is to provide a propelling mechanism which is revolved by a reciprocatory movement of a hand lever imparting motion to friction ratchet levers coming in contact with flanges formed on the propeller wheel.

In the drawings—Figure 1 is a vertical, central, sectional view of my complete invention. Fig. 2 is a top plan view of the same with parts broken away showing the arrangement and construction of several of the parts. Fig. 3 is an enlarged side elevation of the propeller mechanism with the connecting rods broken away. Fig. 4 is a vertical, central sectional view of the same. Fig. 5 is an enlarged detail side elevation of the cam mechanism made use of for shifting the friction ratchet levers. Fig. 6 is a top plan view of the same. Fig. 7 is an enlarged detail sectional view of one of the propeller operating levers showing the friction ratchet lever in its several positions. Fig. 8 is a detail perspective view of the friction ratchet lever. Fig. 9 is a detail perspective view of the fulcrum used for controlling the friction ratchet levers.

In the construction of my invention I provide a pivotal running gear 10, a rear driving gear 11, and a pair of body bars 12 to which the said gears are connected.

Upon the rear axle 13 of the driving gear and between the body bars 12 I provide a pinion 14 by which the driving gear is placed in revolution and between said bars 12 mounted upon a shaft 15 is a flanged gear wheel 16, its teeth meshing with the pinion 14, the flanges 17 extending laterally and are so arranged as to permit the friction ratchet levers to come in contact with the outer and inner periphery of said flanges in order to provide a biting contact whereby the gear wheel 16 is placed in revolution.

Upon the shaft 15 and on each side of the gear wheel 16 is mounted an operating lever 18, the lower ends bent U shaped as indicated by the numeral 19 and which act as a rigid support and bearing for said levers. Pivotally secured to the operating levers 18 are friction ratchet levers 20, their contacting ends 21 suitably bent to pass around the flange 17 of the gear wheel so as to permit the same to contact when shifted to the right or left with the inner and outer periphery of said flanges. On the operating levers 18 and mounted upon the same pivotally supporting the friction ratchet levers I mount the fulcrums 22 which have a projecting bent arm 23 passing around the levers 18 and 20, and are provided with a socket 24 in which is supported a leaf spring 25, the other end of said leaf spring being connected to a lug 26 secured to the friction ratchet lever 20.

To the free end of the fulcrum 22 I connect one end of the shifting rods 27 and to the free ends of the operating levers 18 is connected one end of the connecting rods 28.

To the under side of the body bars 12 and near the front gear 10 I provide a bracket 29 to which is pivotally connected the reciprocating lever 30, and upon said lever 30 I provide a bracket 31 suitably bent forming a pair of ears 32. Through said ears is passed a short shaft 33 and to said shaft on the outside of both ears is connected the opposite end of the connecting rods 28. Upon said shaft 33 and located on the outside of both of the connecting rods 28 I rigidly attach cams 34 and 35. The cam 34 is provided with a projecting arm 36 to which is attached a handle 37 whereby said cams may be placed in various positions. The cam 35 as will be seen in Fig. 5 is placed in reverse position to that of the cam 34 and both of said cams are provided with a curvilinear slot 38.

The opposite ends of the shifting rods 27

are provided with elongated slots 39 which pass over the projecting ends of the shaft 33 and are held in position by the nuts and washers 40 or any other suitable means. In the shifting rods 27 and located immediately to the rear of the elongated slot 39 is a bolt or pin 41 which passes through the cams 34 and 35 and allowed to operate in the curvilinear slots 38. The object of this is to shift the fulcrums 22 which control the friction ratchet levers 20 to place it in either tilted direction when it is desired to advance or back the vehicle. This is done by the operator throwing the cams 34 and 35 by means of the handle 37 in a forward or rearward position, the curvilinear slots 38 being arranged out of center, and by the operation of said cams the shifting bars 27 are allowed to slide forwardly or rearwardly by means of the slots 39.

When the cams are in the position as shown in Fig. 5 the friction ratchet levers 20 are thrown in position to propel the vehicle forwardly and when the cams are in position as shown in Fig. 1 so that the operating levers are vertical the friction ratchet levers are in a disconnected position and will permit the vehicle to coast forward or rearwardly without manipulating the reciprocating lever and when the cams are thrown in the opposite position then the friction ratchet levers are thrown in a reversed position so that by manipulating the reciprocating lever the vehicle will back. By referring to Fig. 7 I show in dotted lines the several positions which the friction ratchet lever will assume by the three movements of the cams, and by the arrangement of the cams the shifting bars 29 will operate in reverse movement shifting the friction ratchet levers opposite to each other so that the gear wheel 16 will be continuously propelled by each stroke of the reciprocating lever. In other words while the lever is being operated forwardly the upper friction ratchet lever will contact or bite with the flanges and operate the wheel and during the rearward movement of the lever 30 the lower friction ratchet lever will contact with the flange and continue the revolution of the wheel in the same direction. By providing these friction ratchet levers there is absolutely no lost motion as would be the case where teeth are provided because no matter how close the teeth are placed together there is a small amount of lost motion yet by a bite on a smooth flange the wheel is advanced immediately when contacted with.

Having fully described my invention, what I claim is:

1. A toy vehicle comprising a running gear, a friction ratchet operating mechanism, a reciprocating lever in combination with a shifting mechanism carried by the reciprocating lever for imparting reverse movement to the ratchet operating mechanism by the manipulation of the shifting mechanism, substantially as specified.

2. A device of the class described comprising a running gear, a friction ratchet propelling mechanism, a reciprocating lever, in combination with a shifting mechanism carried by the reciprocating lever, rods connecting the shifting mechanism with the friction ratchet propelling mechanism for imparting reverse motion to the propelling mechanism substantially as specified.

3. A device of the class described, comprising a pivotal front gear, a driving gear, and a supporting frame, a pinion connected to the driving gear, a flanged gear wheel supported to the frame, operating levers located on the side of the gear wheel, friction ratchet levers carried by the operating levers arranged to contact with the flanges of the gear wheel, fulcrums carried by the operating levers, and controlling the movement of the friction ratchet levers, a reciprocating lever supported by the frame, connecting bars connecting the operating levers with the reciprocating lever, cams located on the reciprocating lever and shifting bars connecting the fulcrums and operated by the cams to place the friction ratchet levers in various positions, substantially as specified.

4. A toy vehicle comprising a running gear, a flanged propeller wheel operating the running gear, friction ratchet levers communicating with the flange of the propeller wheel, operating levers carrying the friction ratchet levers, means for shifting the friction ratchet levers to contact with the flange to operate the wheel in either direction, and means for operating the operating levers, substantially as specified.

5. A device of the class described comprising a running gear, a shaft supported upon the running gear, a gear wheel mounted upon said shaft and provided with a flange on each side of the teeth of said wheel, a pair of operating levers supported upon said shaft, a pair of friction ratchet levers carried by the operating levers, their free ends engaging with the flanges of the gear wheel, a reciprocating lever in combination with a shifting mechanism carried by the reciprocating lever, rods connecting the shifting mechanism with the operating levers and the friction ratchet levers for reversing the movement of the gear wheel substantially as specified.

6. A device of the class described comprising a propeller mechanism consisting of a shaft, a flanged gear wheel mounted upon said shaft, a pair of operating levers carried by the shaft, a pair of friction ratchet levers carried by the operating levers, jaws formed on the free ends of the friction ratchet levers for contacting with the flanges of the gear wheel, a reciprocating lever pivotally mounted at its lower end in combination with a

shifting mechanism carried by the reciprocating lever and a plurality of rods connecting the shifting mechanism with the operating levers and friction ratchet levers for reversing the movement of the propeller mechanism substantially as specified.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

THEODORE E. CRECELIUS.

Witnesses:
ALFRED A. EICKS,
WALTER C. STEIN.