J. B. ALLEN.

COASTING AND BRAKE ATTACHMENT FOR TOY VEHICLES.

APPLICATION FILED NOV. 27, 1917.

1,284,169.

Patented Nov. 5, 1918.

2 SHEETS—SHEET 1.

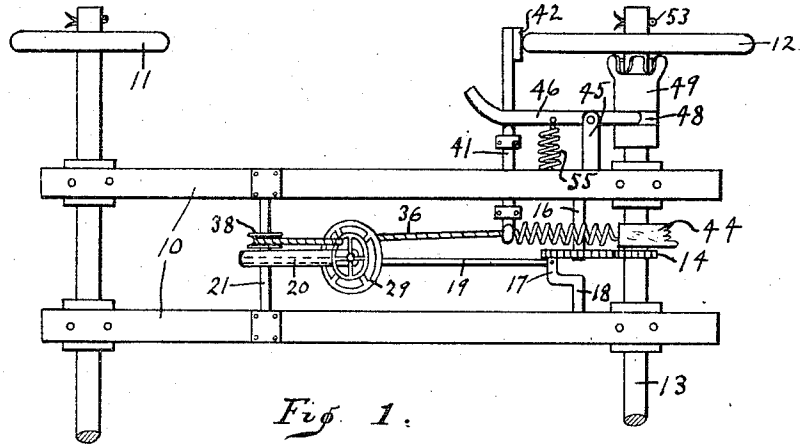


Fig. 1.

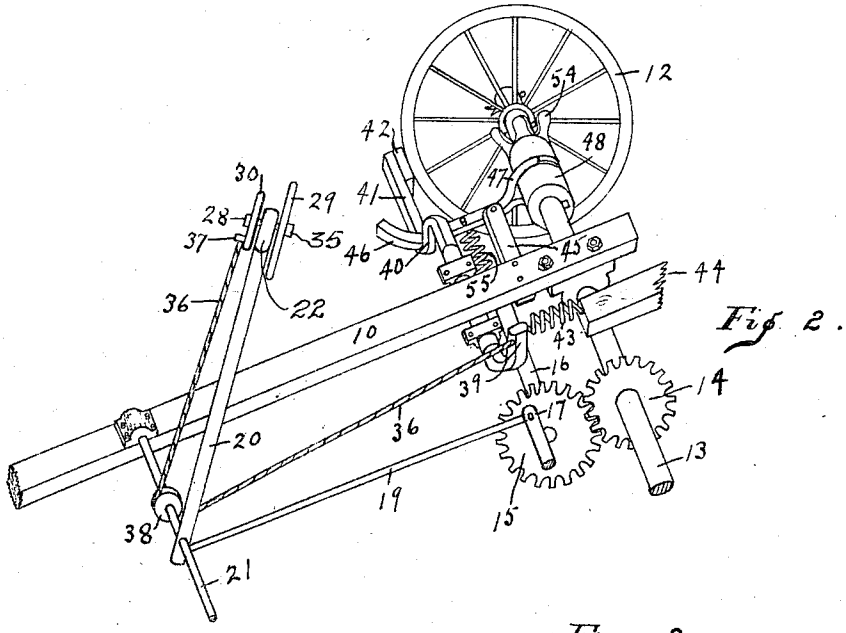


Fig. 2.

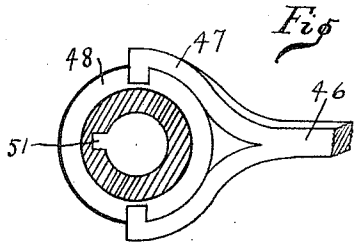


Fig. 3.

WITNESS

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Fig 4.

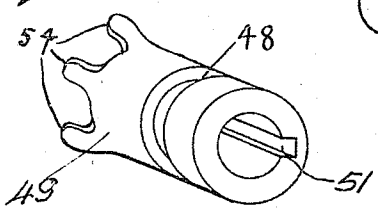


Fig 5.

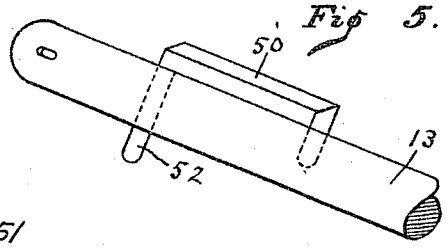


Fig 7.

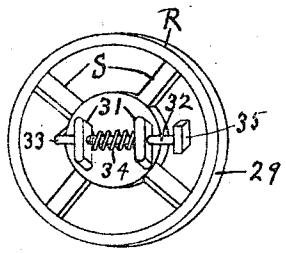
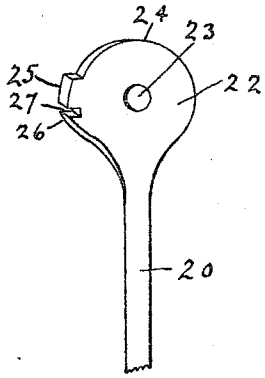


Fig 6.



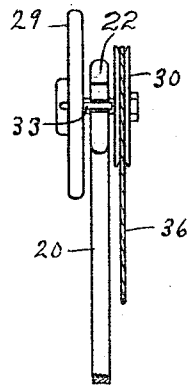


Fig 8.

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UNITED STATES PATENT OFFICE.

JAMES B. ALLEN, OF PUEBLO, COLORADO, ASSIGNOR TO THE ALLEN COASTER BRAKE MANUFACTURING COMPANY, OF PUEBLO, COLORADO, A CORPORATION.

COASTING AND BRAKE ATTACHMENT FOR TOY VEHICLES.

1,284,169. Specification of Letters Patent. Patented Nov. 5, 1918.

Application filed November 27, 1917. Serial No. 204,237.

To all whom it may concern:

Be it known that I, JAMES B. ALLEN, a citizen of the United States, and a resident of Pueblo, in the county of Pueblo and State of Colorado, have invented a certain new and useful Improvement in Coasting and Brake Attachments for Toy Vehicles, of which the following is a full, clear, and exact description.

My invention is an improvement in coasting and brake attachments for toy automobiles, tricycles and like vehicles and it is particularly adapted for application to devices of the character mentioned in which the power is applied by means of a rocking lever which oscillates in a vertical plane. The principal object of the invention is to provide a mechanism which the rider may readily control to render the vehicle free running (the driving mechanism being out of gear), or apply the brakes, or to throw the driving mechanism into gear; and this without removing his hands from the oscillating power lever. A further object of the invention is to simplify and reduce the number of parts required in devices of this kind; and to so construct the device that all the movements described may be effected by a pulling action on a single cable. Further and more detailed description of the objects and advantages of my invention will later appear in this specification.

In the two sheets of drawings accompanying this application and forming a part hereof—

Figure 1 is a partial plan view illustrating the major parts of the frame and running gear of a toy automobile, and showing my invention applied thereto;

Fig. 2 is an isometric perspective showing most of the parts illustrated in Fig. 1;

Fig. 3 is a detail on an enlarged scale showing in vertical section the sliding clutch member, with the yoke for operating the same in elevation;

Fig. 4 is a perspective view of the sliding clutch member;

Fig. 5 is a perspective view of the axle end illustrating the special spline employed therewith;

Fig. 6 is a perspective of the upper end of the oscillating power lever as viewed from the front side;

Fig. 7 is a perspective view of that side of the hand wheel nearer the driver; and

Fig. 8 is a side elevation of the upper end of the oscillating power lever.

Referring to the drawings, in which like characters of reference designate like parts in the several views, let 10 indicate the frame of a toy automobile and 11 and 12 its front and rear wheels respectively, one each of which only is indicated in the drawings. The machine is designed to be driven by means of the rear axle 13 to which the rear wheel 12 is normally fixed by a clutch, which clutch is adapted to be retracted to allow said wheel to run free on said axle. On the rear axle 13 there is fixed a gear 14 which meshes with a gear 15 free to revolve on a stub shaft 16 mounted on one of the frame members. A pin 17 is carried by the gear 15 said pin preferably, for the purpose of aiding in keeping the parts in alinement, being continued into a crank 18 journaled in the second frame member on a line with the shaft 16. A connecting rod 19 joins the pin 17 to the lower end of the lever 20 which rocks on the transverse shaft 21 on which it is mounted.

At is upper end the lever 20 is formed into a flattened head 22 (see Fig. 6) which head stands in a plane transverse to the direction in which the machine is driven. This head has a circular opening 23 therethrough and is provided on its upper edge with a comparatively long, uniformly curved surface 24 and with projections 25, 26 which leave a notch 27 therebetween. A pin 28 is journaled in the opening 23 in the lever head and wheels 29, 30 are secured to said pin on opposite sides of the lever head, the wheel 29 being nearer the driver's seat. This wheel 29 forms a hand grip for the rider, either on its rim R or spokes S, for use while working the lever back and forth to drive the machine and also operates to throw the clutch and apply the brakes through a turning movement. On the face of the wheel 29 nearer the driver there is a locking means which may be conveniently constructed as shown by forming on the wheel face a pair of lugs 31 perforated to permit the sliding therein of a pin 32 which has a bent end 33 passing over the edge of the head 22 in position to enter the notch 27 or ride on the surface 24 as the case may be. A compression spring 34 tends always to hold the locking part 33 in engagement with the head 22 but permits it to be pushed out and disen-

gaged therefrom when pressure is exerted on the head 35 of the pin 32.

A cable 36 is secured at one end to the wheel 30. This may be done as indicated in Fig. 1 by attaching the cable to a pin 37; or, as in the preferred form shown in Fig. 8, by securing the cable to the wheel in position to be wound thereon in a groove in the edge of the wheel. The cable 36 passes over an idler 38 on the shaft 21 and thence toward the rear where it is secured to the upturned end 39 of a compound crank. This compound crank is journaled adjacent its middle in bearings carried preferably on the vehicle body and has its end opposite to 39 downwardly turned at 40 as shown in Fig. 2 and then continued horizontally at 41 to a point adjacent the wheel 12 where it carries a brake block 42. A tension spring 43 connected to 39 and to a suitable portion of the frame 44 tends always to hold the compound crank in such position that the brake shoe is out of contact with the wheel 12.

On a bracket 45 carried by the frame there is pivoted at a point intermediate its ends a lever 46 which carries a yoke 47 at its rear end and which has its forward end outwardly deflected as shown in Figs. 1 and 2. The yoke 47 has points which run in but do not touch the bottom of a groove 48 in a collar 49 longitudinally slidable but nonrevolubly held on the shaft 13 by the spline 50 shown in Fig. 5 which is received in the notch 51 in the collar. This spline has points entering recesses in the axle and the outer of these points 52 is so long as to pass entirely through the axle 13 and provide an inner stop for the wheel 12—which may thus be secured in place by a simple cotter pin or the like 53. The collar 49 has a series of teeth 54 on its outer end which are adapted to pass between the spokes of the wheel 12 and lock the same to the driven axle 13.

Operation.

It will of course be obvious how the operation of the lever 20 back and forth will rotate the rear axle 13, these being old and well known combinations. The clutching and braking parts which comprise my invention are shown in the drawings in braking position, with the cable 36 under tension; to reach this position the wheel 29 has been turned in a counter clock-wise direction and the bent portion 33 of the locking mechanism has ridden well around on the face 24. In this position the parts must be manually held by the operator by means of the wheel. If the wheel is released the spring 43 will actuate the parts and will unwind the cable 36 until the part 33 strikes the face of the projection 25; during this movement the downwardly turned portion of the compound crank 40 travels along a straight part of 46 thus permitting no movement of 46. Nevertheless the compound crank will be swung far enough to clear the brake shoe from the wheel 12 and the device will thus be in coasting position. If, now, it is desired to place the same in driving position the locking part 33 is pressed out far enough to clear the projection 25 and the wheel 29 turned farther in a clock-wise direction until 33 enters the notch 27 where it will be retained. During this latter movement 40 will have passed out far enough on the curved part of 46 to enable the latter to be moved by the tension spring 55 to throw the collar 49 so that the teeth 54 engage spokes on the wheel 12 and bind the same to the axle 13. A reversal of the movements will of course give the reverse action.

It will thus be seen that the brakes may be applied with as little or much force as the operator may desire and that the parts when released from braking position will automatically return to coasting or neutral position; but that it will require a positive movement of retracting the locking part 33 to pass to or from driving position. Liability to accident due to the rider throwing in the clutch while coasting or intending to apply the brake is thus much reduced.

While I have only illustrated my clutch and brake as applied to a single wheel it will be obvious that the construction shown may be duplicated on the other corresponding wheel if desired; this and other obvious changes in details may be made without departing from my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a device of the class described, a driven axle, a wheel on said axle, a clutch normally fixing said wheel to said axle but adapted to be retracted to free the same, a compound crank carrying at one end thereof a brake in proximity to said wheel, a curved lever having its curved face in position to be engaged by one crank of said compound crank and its opposite end connected to said clutch, a cable connected to the other crank of said compound crank, a tension spring connected to said last mentioned crank and acting against said cable, and a tension spring holding said curved lever in engagement with the adjacent crank.

2. In a toy vehicle, an oscillating, hand-operated lever, an axle driven from said lever, a wheel normally fixed to said axle, a clutch normally fixing said wheel to said axle but adapted to be retracted to free the same, a compound crank carrying at one end thereof a brake in proximity to said wheel, a curved lever having its curved face in position to be engaged by one crank of said compound crank and its opposite end connected to said clutch, a cable having one

end connected to the other crank of said compound crank and its other end connected at the free end of said oscillating lever, means on said last mentioned lever for pulling on said cable, a tension spring connected to said last mentioned crank and acting against said cable, and a tension spring holding said curved lever in engagement with the adjacent crank.

3. In a toy vehicle, a compound clutch-throwing and brake-operating crank, a shaft, an oscillating driving lever mounted on said shaft, an idler on said shaft, a cable connected at one end to a crank of said compound crank and passing over said idler, a grooved wheel on the free end of said oscillating lever to which wheel the other end of said cable is secured and on which said cable is adapted to be wound, and means on said oscillating lever for turning said grooved wheel.

4. In a toy vehicle, a compound clutch-throwing and brake-operating crank, a shaft, an oscillating driving lever mounted on said shaft, an idler on said shaft, a cable connected at one end to a crank of said compound crank and passing over said idler, a pin journaled in the free end of said oscillating lever, a grooved wheel fixed on said pin to which wheel the other end of said cable is secured and on which said cable is adapted to be wound, a hand wheel fixed on said pin, and retractable means for retaining said pin in different angular positions.

5. In a toy vehicle, a driven axle, a wheel free on said axle, a spline on said axle, the outer end of said spline being of sufficient depth to pass entirely through said axle and to project therebeyond, and a clutch slidable on said axle and spline, said clutch having fingers on its outer face adapted to pass between the spokes of said wheel when in outermost position.

6. In a toy vehicle, a driven axle, a wheel free on said axle, a spline on said axle, the outer end of said spline being of sufficient depth to pass entirely through said axle and to project therebeyond, whereby said spline is adapted to act as a stop for said wheel, and a clutch slidable on said axle and spline to fix said wheel on said axle.

7. In a toy vehicle, an axle, a wheel on said axle, a clutch normally fixing said wheel to said axle but adapted to be retracted to free the same, a compound crank carrying at one end thereof a brake in proximity to said wheel, a curved lever having its curved face in position to be engaged by one crank of said compound crank and its opposite end connected to said clutch, a tension spring forcing said curved lever against said crank, a shaft, an oscillating lever mounted on said shaft, a link and gearing for driving said axle from said oscillating lever, an idler on said shaft, a cable connected at one end to a crank of said compound crank and passing over said idler, a tension spring connected to said last mentioned crank and acting against said cable, a pin journaled in the free end of said oscillating lever, a grooved wheel fixed on said pin to which wheel the other end of said cable is secured and on which said cable is adapted to be wound, a hand wheel fixed on said pin, and retractable means for retaining said pin in different angular positions.

In testimony whereof I have hereunto affixed my signature.

JAMES B. ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."