

April 26, 1932.

S. I. BERGER

1,855,702

TOY

Filed July 14, 1930

2 Sheets-Sheet 1

FIG. 1.

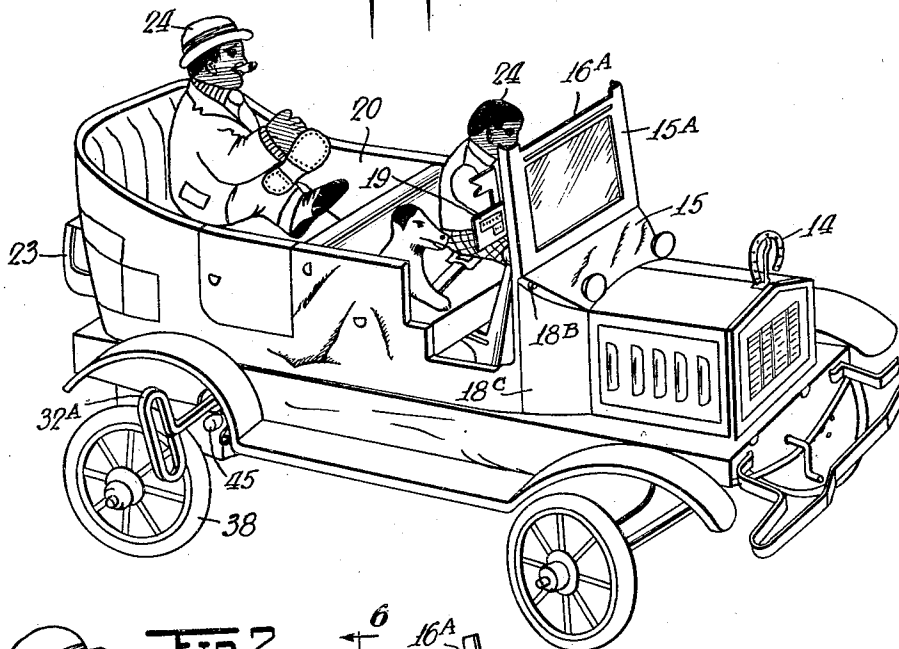
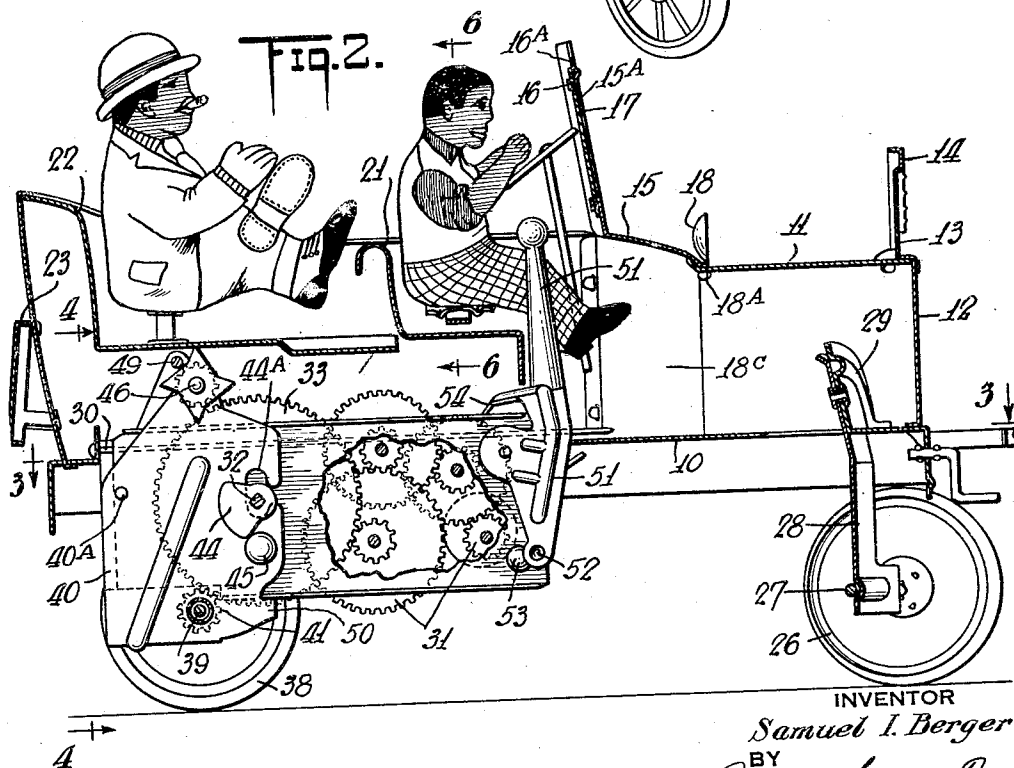


FIG. 2.



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2 Sheets-Sheet 2

Fig. 3.

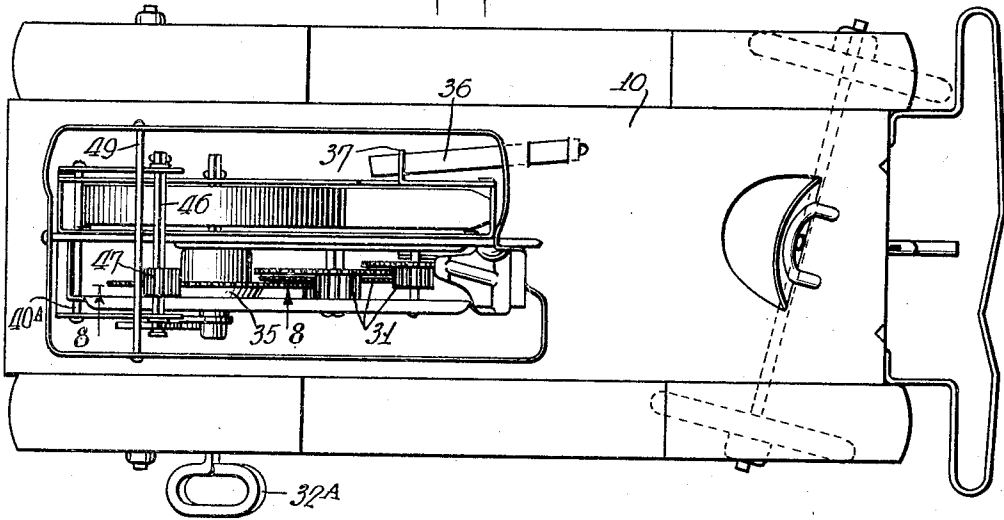


Fig. 4.

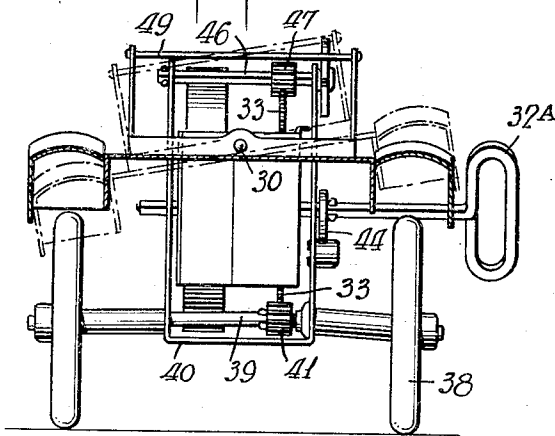


Fig. 5.

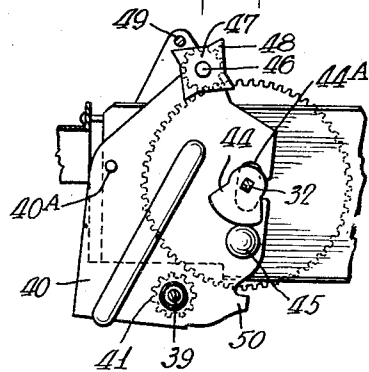


Fig. 6.

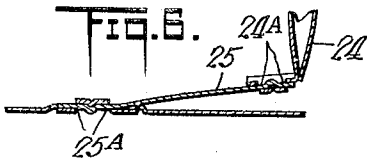


Fig. 7.

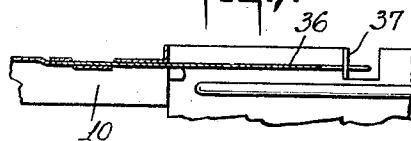
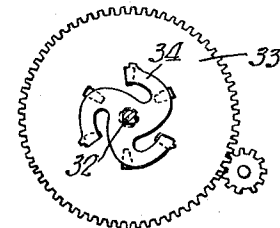


Fig. 8.



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TOY

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This invention relates generally to motor operated toys, and more particularly to self-propelled wheeled toys.

While certain features of the present invention are broadly applicable to various types of toys, the invention is particularly adapted to self-propelled wheeled toys simulating an automobile or like vehicle, and in which figures illustrative of passengers are mounted.

A general object of the present invention is to provide a self-propelled vehicle in which the operation of a simple spring motor provides exaggerated and grotesque representation of the antics of a poorly functioning and antiquated automobile, the obvious uncertain manoeuvres of which strongly appeal to the imagination of both juvenile and adult operators, to render the toy highly amusing and captivating.

Another object is to provide a self-propelled toy which will, upon unwinding of a spring motor, intermittently propel itself, and between the interims of propulsion, violently vibrate in simulation of a poorly operated and/or poorly functioning or freak automobile.

A further object is to provide a self-propelled toy vehicle which during the driving operation will be vibrated in conjunction with the propulsion thereof in realistic representation, for instance, of an automobile operating with a flat tire.

Another object is to provide in a toy vehicle, a vehicle body rockably mounted with respect to its ground engaging supports so that during the action thereof wheel shimmying is developed and a general appearance of instability and decrepitness is imparted to the vehicle.

Another object is to provide a toy vehicle embodying figures supported from the vehicle body in such manner as to vibrate with the body and independently thereof, these vibrations being of greater amplitude than the vibrations of the vehicle, so as to accentuate the vehicle vibrations.

A further object is to provide a propelling and vibrating unit for toy vehicles pivotally mounted and arranged to intermittently pro-

pel the body and to vibrate the body between the propelling interims.

Another object is to provide a spring motor assembly for use in toy vehicles, which is so constructed and so supported as to withstand unusual jar and vibration of the vehicle body with which it is associated.

Another object is to provide an improved winding mechanism for a spring motor, by the provision of which moving parts within the motor casing are avoided during the winding operation.

Other objects are to provide a device in which the foregoing desiderata are accomplished in a novel, simple and efficient construction which gives an impression of frailty and untrustworthiness, while in reality providing an efficient, durable and economical structure.

In one preferred embodiment of the invention, as illustrated in the drawings, a chassis, the side portions of which are cut and bent to simulate wheel fenders, is provided. The chassis provides pivotal mounting for a front wheel assembly, while the body of the chassis is apertured to receive therethrough a motor which is rockably supported from the chassis. Associated with the motor a wheel mounting carriage is provided, the arrangement being such as to provide for rocking of the chassis with respect to the wheels and with respect to the motor.

For vibrating the chassis, means carried by the motor shaft moves the carriage to break the driving connection between the motor and the wheels, and to establish driving connection for a vibrator which engages a portion of the chassis or body to impart vibration thereto.

The chassis has mounted thereon a replica of a disreputable automobile body, from the seats of which figures are mounted by leaf springs, the arrangement being such that vibrations of the chassis, both while the toy is being propelled and while being vibrated, impart vibration of greater amplitude and of various angles to the figures so that the latter seem to be severely jounced about during operation of the toy.

In the accompanying drawings, in which

is shown one of various possible embodiments of the several features of the invention,

Fig. 1 is a perspective view of one embodiment of the invention.

Fig. 2 is a longitudinal vertical section of the toy illustrated in Fig. 1.

Fig. 3 is a longitudinal horizontal section taken on lines 3—3 of Fig. 2.

Fig. 4 is a vertical section taken on lines 4—4 of Fig. 2 and illustrating the movement of the body by the dotted line position.

Fig. 5 is a detail longitudinal section showing the position of the driving gear when the body is being vibrated.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 2 showing the mounting of the figures.

Fig. 7 is a detail section showing the spring retainer for the motor, and

Fig. 8 is a vertical section on lines 8—8 of Fig. 3 and illustrating the winding assembly of the motor.

The numeral 10 of the drawings designates a chassis cut, bent and formed to provide mud guards, and to otherwise depict a normal vehicle chassis. The chassis 10 supports a body, the lower edge of the sections of which include tongues which are receivable through registering apertures of the chassis to fixedly secure the body upon the chassis. The body is of such design as to represent a dilapidated and time worn model of a standard make of automobile which has for a long time been popular as a low priced car. It will be understood that the body may be suitably decorated to further bring out these representations.

The body is formed by a forward hood section 11, the front end of which is closed by a radiator 12. The hood supports a bracket 13 which may mount an ornament such as the horse shoe 14. Windshield, cowl and headlights are formed by an apron or cowl piece 15 secured on the hood and extending upwardly therefrom to form windshield frame 15A, along the upper and lower rails 16A of which tongues 16 are provided which are received through and secure a transparent piece 17, representing a glass windshield. The forward edge of the piece 15 includes vertically bent cup-shaped members 18 representing headlights. From one edge of the windshield a tab 19 extends which is in the configuration of, and suitably painted to illustrate, a meter as commonly used on taxicabs. Securement of the cowl piece is provided for by a central tongue 18A thereof, which passes through and is bent against the underside of the hood 11, and by upstanding tongues 18B carried by the rearwardly extending sides 18C of the hood, the arrangement providing an ingenious assembly for firmly locking the parts in assembled position and for providing economic manufacturing details.

The main portion of the body is identified by the numeral 20 and is so cut and bent (and preferably painted) to depict a high set ungainly body with one door missing, as distinct from a low set stream line body of modern design. The various body portions referred to are joined together as well as to the chassis to provide a rigid sturdy structural assembly, despite its worn appearance.

The front and rear seats of the vehicle are formed by independent transversely extending members 21 and 22 respectively, the back of the front seat extending over the forward edge of the rear seat to form a substantially continuous floor for the body. On the rear of the body a piece 23 is attached in simulation of an empty tire rack.

Mounted from the seats, figures 24 are provided, the figure on the front seat supporting a steering wheel and representing a man in strained driving position. The figure on the rear seat represents a passenger with legs crossed and in a position of ease and tranquility. Both the figures are supported from the seats by spring leaves 25, the seat ends of which are received for securement through slits 25A in the seat. The opposite ends diverge from the seat to be received through similar slits 24A of base members of the figures. The figures may thus vibrate in response to vibration of the body. The supporting leaf springs of the figures are transversely flexible as well as longitudinally flexible, thus providing for vibration of the figures in multiform direction and wave motion and at greater amplitude than the imparting vibration of the body.

The front or steering wheels 26 of the vehicle are mounted upon an axle 27 supported at an angle to a transverse plane of the vehicle by a frame 28 pivotally connected by a rivet to a tongue 29 struck up from the bottom of the chassis at its forward end. The pivotal connection of the front wheel assembly is such as to circularly direct the vehicle upon propulsion thereof and is further arranged to permit rocking or oscillation of the chassis with respect to the floor so that the body may vibrate while the front wheels are in their normal position on a supporting surface.

For propulsion a combined rear wheel and motor assembly is provided, mounted through a central rear aperture of the chassis and supported for oscillating movement upon a longitudinally extending supporting pin 30.

The assembly includes a spring motor unit embodying a series of speed increasing gears 31, the gear train acting as a substantial fly wheel to limit the speed at which the motor may be operated. The motor spring (not shown) is secured to the housing at one end, while the opposite end is directly connected to a main winding and driving shaft 32, which extends beyond the vehicle body to

terminate in a winding key 32a. Loosely mounted upon the shaft 32 a main driving gear 33 is provided. For driving the gear 33 a disc including extending spring arms 34 is provided as indicated in Fig. 8. The gear is apertured to removably receive the extremities of the spring fingers therein, the arrangement providing an overrunning clutch in which, upon winding operation, the spring fingers move outwardly from the apertures of the gear to permit relative movement of the disc with respect to the gear, while in unwinding operation the extremities of the spring fingers are received in the apertures of the gear to move the gear with the unwinding of the motor. A disc shaped housing washer 35 is also provided, the edges of which embrace the gear and receive therein the spring fingers to conceal and protect them. This novel arrangement of winding construction provides a completely protected winding assembly which is distinct from conventional assemblies now in use by providing means in which the relative longitudinal movement of parts during the winding operation is avoided.

For restraining the motor assembly from oscillation with respect to the body, a spring leaf 36 (Fig. 7) is provided which is carried by the chassis and which extends rearwardly to be received through an aperture in a struck out ear 37 on one face of the motor housing.

The rear driving wheels 38 of the assembly are mounted upon an axle 39 supported by a U shaped carriage 40, which is pivotally mounted over the motor casing as by the transverse pin 40A, the legs of the U being apertured near the bottom to receive therethrough the axle 39. Between the legs, the axle is provided with a gear 41 which intermittently engages the driving gear 33, thus to drive the axle and propel the vehicle. The ends of the axle are bent from the straight gear bearing central portion, whereby the wheels are eccentrically mounted with respect to the axis of the axle and thus rotation of the axle will give the vehicle oscillatory movement during this propulsion. The weight of that portion of the vehicle supported by the rear wheels will be seen to pivotally urge the wheel carriage with its lower portion forward whereby the gear 41 will be normally engaged by the driving gear 33 to rotate the wheels and propel the vehicle.

For pivotally moving the carriage as the toy is operated, the main shaft 32 is provided with a cam 44, which is adapted to strike a projection 45 of the carriage to rock it in clockwise direction to the position shown in Fig. 5 whereby the gear 41 will be moved from the driving gear and propulsion of the vehicle will cease. The carriage itself is provided with an open elongated slot 44a, which receives therethrough the shaft 32, so

that the carriage may move with respect to the shaft and without interference.

The sides of the carriage extend beyond the upper edges of the motor plates, the extremities of the legs being provided with a transverse shaft 46 carrying gear 47. Upon tilting of the carriage by the cam, the gear 47 will be engaged with the driving gear 33 to rotate the shaft 46. The outer end of the shaft is provided with a star wheel 48 and upon such rotation the points of the star wheel intermittently strike a transverse bar 49 carried by the body to violently oscillate the body in the interims between propulsions of the vehicle. It will be noted that during the operation of the motor, the axle gear or star wheel gear will one or the other be at all times engaged with the driving gear, and that simultaneous engagement of both will be impossible. It will be noted that the forward portion of the carriage includes a finger 50 which acts to limit the carriage's pivotal movement.

For controlling the operation of the motor, a pivotal control lever 51 is mounted on one of the motor plates. The lower end of the control lever is provided with a protrusion 52 which is engageable with a cooperating protrusion of the plate, thus to lock the lever against accidental movement. The opposite end of the lever extends through the motor aperture of the chassis to terminate in a handle adjacent the forward figure of the body and in representation of a gear shifting lever. Adjacent the pivoted portion of the handle a rearwardly extending gear engaging finger 54 is provided, which, upon rearward movement of the upper end of the lever, is received between the teeth of one of the gears of the speed increasing gear train and which thus locks the motor against rotation.

In the operation of the device it will be seen that when the motor is wound and the shift lever moved forwardly, the rear wheel carriage will be in a position indicated in Fig. 2 and the motor will thus operate to rotate the rear axle and propel the vehicle. It will be noted that during such propulsion the angular construction of the rear axle provides for an oscillation of the vehicle, such oscillation being sufficient to give the figures vibration as to simulate jolting of the motor vehicle, as though due to a flat tire. As the vehicle is propelled, the main shaft is rotated and the cam 44 is moved to tilt the carriage to assume the position as shown in Fig. 5. By this movement the gear 47 is moved into enmeshment with the driving gear 33 and the star wheel is rotated to successively strike the transverse rod of the body and substitute the forward propulsion of the vehicle by a continued violent oscillation of the body with respect to its supporting wheels. The violent vibration thus imparted will give to the figures by their resilient actions a wild jolting

and jostling which provides a highly ludicrous and amusing spectacle in exaggeration of the action of an antiquated automobile urgently in need of serious repairs.

5 It will thus be seen that there is herein described apparatus in which the several features of this invention are embodied, and which apparatus in its action attains the various objects of the invention and is well suited
10 to meet the requirements of practical use.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from
15 the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

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

1. A self-propelled toy vehicle including a body, a driving motor assembled with the
25 body, and propelling means operable by the motor and movably supported with respect thereto to be movable bodily at recurrent intervals into and out of operative driving connection with the motor to provide intermittent
30 propulsion of the toy in response to continuous operation of the motor.

2. A self-propelled toy including a body, a motor assembled with the body, traction means intermittently operable by the motor to
35 propel the body, and means operable by the motor during periods of rest of the traction means to vibrate the body.

3. A self-propelled toy including a body, a motor assembled with the body, traction
40 means operable by the motor to propel the body, and means operable by the motor in conjunction with the traction means to vibrate the body, and to shift said traction means and said vibrating means to alternately
45 actuate said traction means and said vibrating means upon continuous operation of the motor.

4. A toy including a body, a motor assembled with said body, and means operable
50 by the motor to vibrate the toy, said means being arranged for intermittent operative connection to the motor.

5. A toy vehicle including a chassis, a motor supported therefrom, and a pair of wheels
55 associated with said motor arranged for bodily movement with respect to said motor to intermittently establish operative connection between said motor and wheels.

6. A toy vehicle including a chassis, a motor assembly, a pair of wheels associated with
60 said motor assembly, a pivoted wheel supporting frame arranged for pivotal movement with respect to said motor to intermittently establish operative connection between said
65 motor and wheels, and means for vibrating

said vehicle carried by said frame for driving connection with said motor upon pivotal movement of the frame to move the wheels from driving connection with the motor.

7. A toy vehicle including a chassis, a motor assembly, a pair of wheels associated with
70 said motor assembly, a pivoted wheel supporting frame arranged for pivotal movement with respect to said motor to intermittently establish operating connection between
75 said motor and wheels, and means for vibrating said vehicle carried by said frame, including a star wheel rotatable by the motor to strike the chassis to vibrate it upon pivotal movement of the frame.

8. A toy vehicle including a chassis, a motor assembly supported by the chassis, a driving gear for said motor assembly, a bracket
80 pivotally associated with said motor and including a geared driving axle arranged for operative connection with said driving gear upon pivotal movement of the bracket in one
85 direction and a geared shaft to vibrate the vehicle associated with the bracket for movement therewith to operative connection with
90 the driving gear when the bracket moves to disengage the axle from operative connection therewith.

9. A toy vehicle including a chassis, a motor assembly supported by the chassis, a driving gear for said motor assembly, a bracket
95 pivotally associated with said motor and including a geared driving axle arranged for operative connection with said driving gear upon pivotal movement of the bracket in one
100 direction and a geared shaft to vibrate the vehicle associated with the bracket for movement therewith to operative connection with the driving gear when the bracket moves to
105 disengage the axle from operative connection with the driving gear, said vibrating shaft including an externally mounted star wheel, said chassis being provided with a
110 transverse shaft so arranged in the path of the wheel that, upon rotation, the points of the wheel will strike said shaft to vibrate said body.

10. A self-propelled wheeled toy including a wheeled chassis, a body carried by said
115 chassis, a propelling motor, a pivotal connecting support for said motor to provide for rocking movement of the body with respect to the motor, drive wheels on the chassis and means for intermittently connecting said
120 drive wheels to the motor.

11. A self-propelled wheeled toy including a wheeled chassis, a propelling motor supported by said chassis by pivotal connecting
125 means to provide for lateral rocking movement of the chassis with respect to the motor, and a spring connection means between said motor and chassis to resiliently limit rocking movement of the motor with respect to the chassis.

12. A self-propelled wheeled toy includ- 130

ing a chassis, a motor and driving assembly associated with said chassis, an independently mounted pair of wheels pivotally connected with said chassis to permit rocking movement of said chassis with respect to said independent wheels, drive wheels on the chassis and means for intermittently connecting said drive wheels to the motor.

13. A self-propelled wheeled toy including a chassis, a propelling wheel assembly pivotally supported from the chassis, an independent wheel assembly pivotally supported from said chassis whereby said chassis may rockably move with respect to both wheel assemblies, a motor for the propelling wheel assembly and means controlled by said motor for intermittently connecting the propelling wheel assembly in operative relation with the motor.

14. A self-propelled wheeled toy including a wheeled chassis, said chassis being centrally apertured, and a propelling motor for the wheels of said chassis, supported through the aperture of said chassis, the wheels of said chassis including drive wheels mounted for bodily movement to be connected and disconnected from said motor.

Signed at Newark, in the county of Essex and State of New Jersey, this 9th day of July, A. D. 1930.

SAMUEL I. BERGER.

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