

June 17, 1958

R. S. HAMMOND ET AL
TOY VEHICLE

2,838,875

Filed April 20, 1955

2 Sheets-Sheet 1

Fig. 1.

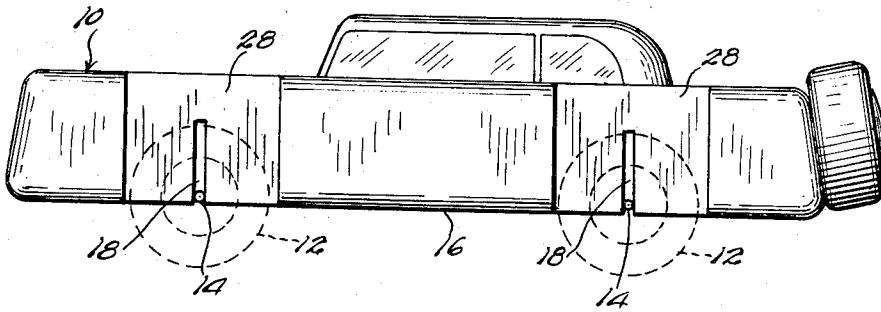
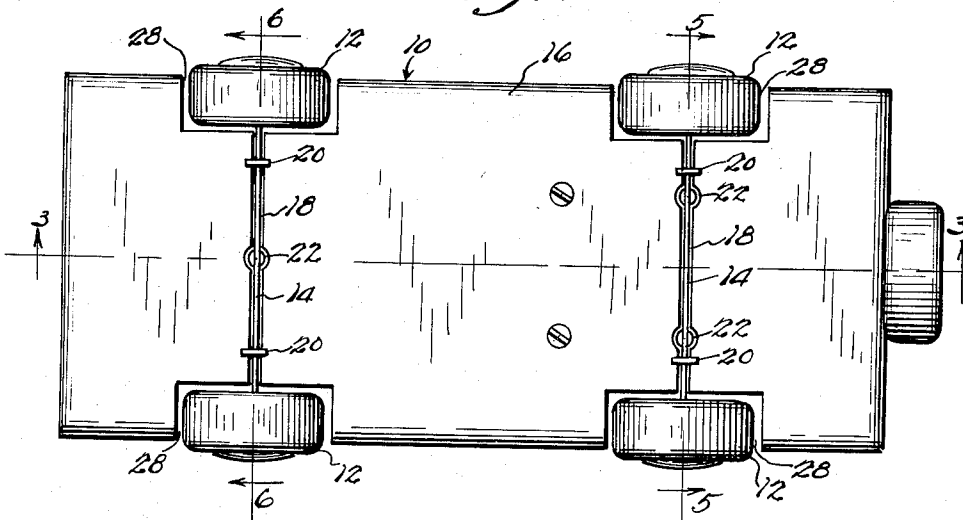


Fig. 2.



INVENTORS.

Romeyn S. Hammond
BY *Jean Adam Siegfried*
Thies, Ober, Mackenburger
van Holst, & Coltrane

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Fig. 3.

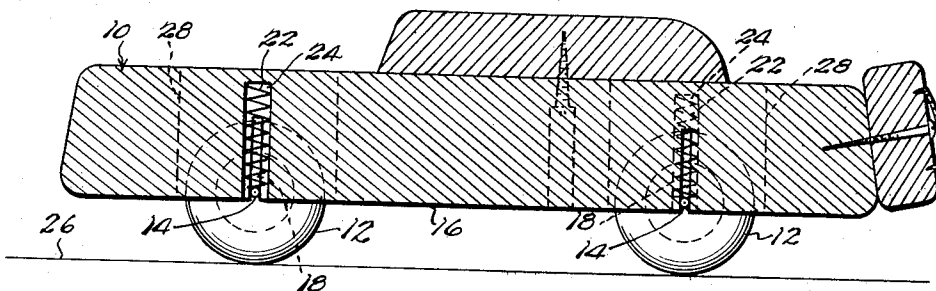


Fig. 4.

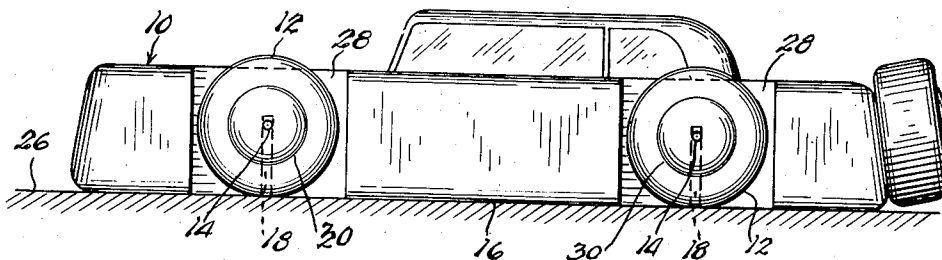


Fig. 5.

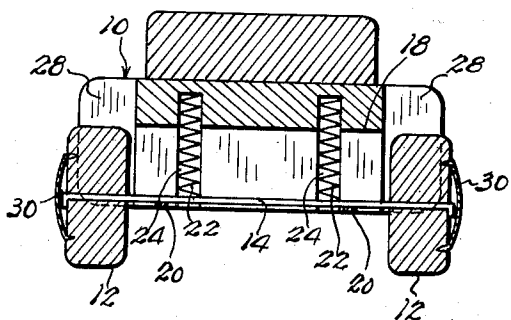
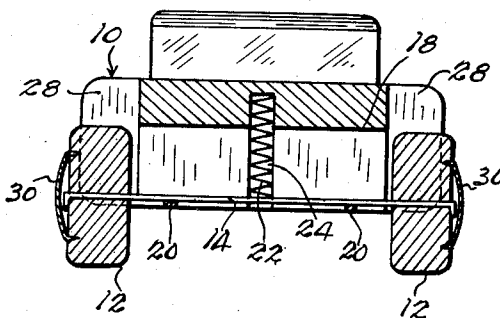


Fig. 6.



INVENTORS.

Romeyn S. Hammond.

BY. & Jean Adam Siegfried

Thies, Oba. Macklinburg, *attys*
van Holst, & Colman

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2,838,875

TOY VEHICLE

Romeyn S. Hammond, Dearborn, Mich., and Jean Adam Siegfried, Worcester, Mass., assignors to Marketing Specialists, Inc., Chicago, Ill., a corporation of Illinois

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12 Claims. (Cl. 46—201)

This invention relates to toy vehicles and more particularly to toy vehicles sufficiently small as not to be intended to be used for transporting children.

It is common knowledge that children, when playing with their toys, frequently leave them in places where other individuals may accidentally step on or trip over the toys with resultant injury. Moreover, the possibility of injury from falling is considerably greater when the toys have wheels which may cause the toy to skirt out from under the foot of the person accidentally stepping on the toy.

Consequently, it is one of the objects of this invention to provide a toy vehicle which will have the least possible tendency to roll over its supporting surface if accidentally stepped on.

It is a further object of this invention to provide a toy vehicle which is both economical and durable in construction.

Accordingly, in carrying out this invention there is provided a toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, retracting means for moving said wheels vertically upward with respect to said body a distance sufficient to bring said under portion into contact with said surface upon the application to said body of a downwardly directed force, said retracting means comprising members axially supporting said wheels and being associated with the under portion of said body in vertically movable relationship therewith, and biasing means opposing said retracting means for returning said wheels to rolling condition upon the removal of said force.

This invention, together with further objects and advantages thereof, will best be understood by reference to the following description taken in connection with the accompanying drawings, and the scope will be pointed out in the appended claims.

In the drawings in which like parts are designated by like reference numerals:

Figure 1 is a side elevational view of the toy vehicle of the invention, the supporting wheels being shown in outline in rolling condition;

Fig. 2 is a bottom view of the device shown in Fig. 1, including the wheels shown in full;

Fig. 3 is a sectional view of the device in rolling condition taken along line 3—3 of Fig. 2;

Fig. 4 is a side elevational view of the device in non-rolling condition;

Fig. 5 is a sectional view taken along line 5—5 of Fig. 2; and

Fig. 6 is a sectional view taken along line 6—6 of Fig. 2.

With particular reference to Figs. 1 and 2, applicants' toy vehicle comprises a body 10 provided with wheels 12 rotatably secured to supporting members or axles 14 operably associated with the under portion 16 of the body 10. The axles 14 are disposed in a pair of vertical transverse slots 18, the slots 18 extending vertically upward into the body 10 a distance sufficient to permit retraction

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of the wheels 12 out of rolling contact with the supporting surface when the axles 14 are moved to the top of the slots 18, as will be described hereinafter.

As shown in Fig. 2, the axles 14 are prevented from falling out of the slots or recesses 18 by means of U-shaped staples 20 overlying the bottom of the slots. The wheels 12 are normally biased into rolling condition by means of springs 22 (see Figs. 3, 5 and 6), disposed in cylindrical recesses 24 extending vertically upward from the bottom of the body 10, the recesses being enlarged portions of slots 18. The springs 22, as shown in Fig. 3, normally bias the axles 14 against the staples 20 whereby the wheels 12 are disposed in rolling condition. Upon the application of a downwardly directed external force to the body 10, such as when the vehicle might be stepped on, the body 10 is urged downwardly against the bias of springs 22 until the axles or wheel supporting members 14 are sufficiently high in the transverse slots 18 to permit the bottom 16 of the vehicle to come into contact with the vehicle supporting surface 26, as shown in Fig. 4. In this position, the friction between the bottom of the vehicle and the supporting surface is sufficient to prevent the vehicle from rolling out from under the object, such as a foot, imposing the downwardly directed force thereon. It should be noted that one or more biasing springs 22 may be provided for biasing each axle with satisfactory results being obtained provided the combined biasing effect on either axle is not so great as to prevent retraction of the wheels upon the application of a downwardly directed force greater than a child would apply in normal use of the vehicle.

For streamlining purposes, rectangular recesses 28, as shown in Figs. 1, 2 and 4, may be provided in the sides of the body 10 to permit the vertical retraction of the wheels 12 as the axles 14 are moved toward the top of slots 18. Hub caps 30 may also be provided, as shown in Figs. 4, 5 and 6.

In addition to providing an important feature of safety to persons accidentally stepping on the toy, as described above, the construction disclosed serves to protect the device itself against damage from such accidents. It is well known that the axles of such toys are ordinarily the parts most vulnerable to damage, by bending or breakage, but with the present construction they are not affected by the imposition of any load or weight upon the body of the toy vehicle which the body itself can withstand in the condition illustrated in Fig. 4 of the drawings. The axles are not put under any stress other than that imposed by the springs 24.

We claim:

1. A toy vehicle comprising a body and wheels operably associated with and normally projecting below the under portion of said body for rolling said vehicle over a supporting surface, and means accommodating retraction of said wheels substantially perpendicularly to said supporting surface a distance at least as great as the extent of projection of said wheels below the bottom surface of said body.

2. A toy vehicle comprising a body and wheels operably associated with and normally projecting below the under portion of said body for rolling said vehicle over a supporting surface, and means accommodating retraction of said wheels substantially perpendicularly to said supporting surface a distance at least as great as the extent of projection of said wheels below the bottom surface of said body, said means comprising spring biased members axially supporting said wheels and being associated with the under portion of said body in vertically movable relationship therewith.

3. A toy vehicle comprising a body and wheels operably associated with and normally projecting below the under portion of said body for rolling said vehicle over

a supporting surface, means accommodating retraction of said wheels substantially perpendicularly to said supporting surface a distance at least as great as the extent of projection of said wheels below the bottom surface of said body, and biasing means opposing said retraction-accommodating means whereby said wheels are normally disposed in rolling condition.

4. A toy vehicle comprising a body and wheels operably associated with and normally projecting below the under portion of said body for rolling said vehicle over a supporting surface, means accommodating retraction of said wheels substantially perpendicularly to said supporting surface a distance at least as great as the extent of projection of said wheels below the bottom surface of said body, said retraction-accommodating means comprising members axially supporting said wheels and being associated with the under portion of said body in vertically movable relationship therewith, and biasing means opposing said retraction-accommodating means whereby said wheels are normally disposed in rolling condition.

5. A toy vehicle comprising a body and wheels operably associated with and normally projecting below the under portion of said body for rolling said vehicle over a supporting surface, means accommodating retraction of said wheels substantially perpendicularly to said supporting surface a distance sufficient to bring said under portion into contact with said surface, said retraction-accommodating means comprising members axially supporting said wheels and being associated with the under portion of said body in vertically movable relationship therewith, and biasing means opposing said retraction-accommodating means whereby said wheels are normally disposed in rolling condition.

6. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, said under portion having a pair of vertical slots extending transversely therethrough between laterally opposed wheels, and retraction-accommodating means operable in said slots for permitting movement of said wheels substantially perpendicularly to said supporting surface a distance sufficient to bring said under portion into contact with said surface.

7. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, said under portion having a pair of vertical slots extending transversely therethrough between laterally opposed wheels, and retraction-accommodating means for moving said wheels substantially perpendicularly to said supporting surface a distance sufficient to bring said under portion into contact with said surface, said retraction-accommodating means comprising members axially supporting said wheels and vertically movable in said slots.

8. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, said under portion having a pair of vertical slots extending transversely therethrough between laterally opposed wheels, retraction-accommodating means operable in said slots for moving said wheels substantially perpendicularly to said supporting surface a distance sufficient to bring said under portion into contact with said surface, and biasing means opposing said retraction-accommodating means whereby said wheels are normally disposed in rolling condition.

9. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, said under portion having a pair of vertical slots extending transversely therethrough between laterally opposed wheels, retraction-accommodating means for moving said wheels substantially perpendicularly to said supporting surface a distance sufficient to bring said under portion into contact with said surface, said retraction-accommodating means comprising members axially supporting said wheels and vertically movable in said slots, and biasing means opposing said retraction-accommodating means whereby said wheels are normally disposed in rolling condition.

10. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, said under portion having a pair of vertical slots extending transversely therethrough between laterally opposed wheels, retraction-accommodating means operable in said slots for moving said wheels substantially perpendicularly to said supporting surface a distance sufficient to bring said under portion into contact with said surface, biasing means opposing said retraction-accommodating means whereby said wheels are normally disposed in rolling condition, and means for retaining said retraction-accommodating means in said slots.

11. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, a pair of axles each rotatably supporting a laterally opposed pair of said wheels, said under portion of said body having a pair of vertical slots extending transversely therethrough between said pairs of wheels, said axles being disposed in said slots for vertical movement therein, means for retaining said axles in said slots, said slots having a depth sufficient to permit vertical movement of said axles therein whereby the under portion of said vehicle may be urged into contact with said supporting surface, and biasing means disposed in said slots above said axles for urging said axles into vehicle rolling condition.

12. A toy vehicle comprising a body and wheels operably associated with the under portion of said body for rolling said vehicle over a supporting surface, axles for rotatably supporting said wheels, said under portion of said body having transversely extending vertical slots, said axles being disposed in said slots for vertical movement therein, means for retaining said axles in said slots, said slots having a depth sufficient to permit vertical movement of said axles therein whereby the under portion of said vehicle may be urged into contact with said supporting surface, and biasing means disposed in said slots above said axles for urging said axles into vehicle-rolling condition.

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