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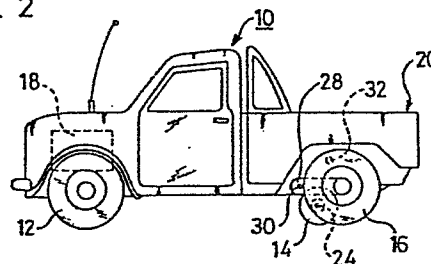
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54 An improved toy car.

57 A toy car comprising a pair of front wheels (12, 12) and a plurality of rear wheels (14, 16, 16) is disclosed, in which the plurality of rear wheels comprise a central main wheel (14) and a pair of follower wheels (16, 16) on either side of the main wheel (14). The toy car is simple in construction and may prevent transverse slippage or turnover of a car body upon sudden change of its running direction.

FIG. 2



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AN IMPROVED TOY CAR

This invention relates to a toy car, more particularly to an improvement in the toy car.

There have previously been proposed various types of toy cars, such
5 as a spring-drive type, a battery-drive type, a wireless-control
type and others, for winning popularity with younger children.
However, majority of such conventional toy cars may slip transversely
upon sudden change of a running direction, and in a worse case may
lose its weight balance to turn over. In order to eliminate such
10 disadvantages, an independent-suspension system has been utilized
for maintaining the weight balance, which system results in a
complicated structure and a high cost.

As a result of diligent works for designing a toy car which is
15 simple in construction and may prevent transverse slippage upon
sudden change of the running direction, it has now been found out
that an improved design of the toy car comprising a pair of front
wheels and a plurality of rear wheels mounted to a car body, in
which said plurality of rear wheels comprise a main wheel arranged
20 substantially at the center of a car width and a pair of follower
wheels arranged on either sides of the main wheel, said pair of
follower wheels each being pivoted to one end of a supporting arm
while the other end of the supporting arm being pivoted to an
eccentric position in relation to an axle of the main wheel, may
25 run on three wheels, namely the front wheels, the rear main wheel

and either one of the follower wheels upon the sudden change of the running direction.

Thus, an object of the invention is to provide a toy car which is simple in construction and may readily change its running direction.

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The object may be achieved, in accordance with the invention by designing the toy car comprising a pair of front wheels and a plurality of rear wheels mounted to a car body, in which said plurality of rear wheels comprise a main wheel arranged substantially at the center of a car width and a pair of follower wheels arranged on either sides of the main wheel, said pair of follower wheels each being pivoted to one end of a supporting arm while the other end of the supporting arm being pivoted to an eccentric position in relation to an axle of the main wheel.

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In the toy car of the invention, a running balance may be further improved by putting a heavier fixed loading on the rear wheel side than on the front wheel side of the car body.

20 The invention will be described in more detail hereinbelow for the preferred embodiment of a wireless-control toy car with reference to the accompanying drawings.

Figure 1 is a plan view of one embodiment of the toy car according to the invention;

Figure 2 is a side view of the toy car as shown in Fig. 1;

Figure 3 is a bottom view of the toy car as shown in Fig. 1;

Figure 4 is a schematic view illustrating the relation between the main and follower wheels and the contacted ground upon straight

30 running of the toy car;

Figure 5 is a schematic view illustrating the relation between the main and follower wheels and the contacted ground upon changing the running direction; and

Figure 6 is a schematic view illustrating a position in which one wheel is lifted off from the ground upon the direction change, as shown in Fig. 5.

In the drawings, the toy car according to the invention comprises a car body 10 formed of, for example, a plastic material as well as a pair of front wheels 12, 12 and a plurality of rear wheels consisted of a main wheel 14 arranged substantially at the center of a car width and a pair of follower wheels 16, 16 arranged on either side of the main wheel 14. The car body 10 at its front part contains a direction-change means 18 which may be operated by an output signal from a wireless-controller (not shown) provided separately from the car body. The direction-change means 18 may be connected through an optional power-transmission mechanism (not shown) to the front wheels 12, 12. On the other hand, the car body 10 at its rear part, namely at a carrier 20 is provided with a driving motor 22 which is operated by another output signal from the wireless-controller. A driving shaft of the motor 22 is connected through another power-transmission mechanism (not shown) to an axle 24 of the main wheel 14 for serving the main wheel 14 as a driving wheel. In this case, the carrier 20 is provided, in addition to the driving motor 22, with a power battery (not shown) in order to put a heavier fixed loading on the rear wheel side than on the front wheel side.

Each of the pair of rear wheels 16, 16 is rotably mounted to one end of a supporting arm 28, while the other end of the arm 28 is pivoted through a shaft 30 to an eccentric position in relation to an axle 24 of the main wheel 14. In Figure 2, a reference 32 represents a stopper for defining the upper limit when the supporting arm 28 rotates on the shaft 30.

The toy car according to the invention will be described hereinbelow for its operation and effect.

In operation of the toy car, the car body 10 is placed on the floor or the ground and the wireless-controller is operated to start rotation of the driving motor 22. Thus, a rotational force of the motor 22 is transmitted through the power-transmission mechanism to the main wheel 14 thereby to drive the toy car straight at given speed. In this case, both the follower wheels 16, 16 are contacted

with the ground due to its own weight applied on the shaft 30 of the supporting arms 28, 28 and may rotate freely (Fig. 4).

The toy car may change the running direction for the front wheels
5 12, 12 through selective operation of the direction-change means 18 by use of the wireless-controller while straight running. In this case, a sudden change of the running direction allows the car body 10 to incline due to a centrifugal force, as shown in Fig. 5. In accordance with the invention, one of the follower wheels 16b may
10 rotates upwardly on the shaft 30 of the supporting arm 30 to oppose the centrifugal force in cooperation with the main wheel 14 and the front wheels 12, 12 and thus to prevent loss of the weight balance and transverse slippage or turnover of the car body. The other follower wheel 16a may be contacted with the ground, as in
15 the straight running, due to its own weight applied on the shaft 30 of the supporting arm 28 and may rotate freely (Fig. 5). In case of more abrupt change the running direction in relation to the straight running speed, one of the front wheels 12, and one of the follower wheels 16b may be lifted off from the ground. However,
20 the remaining front wheel 12, the main wheel 14 and the follower wheel 16a may keep running on the three wheels and prevent the transverse slippage or turnover here again (Fig. 6).

As described hereinabove, the toy car according to the invention is
25 simple in construction and may achieve not only the prevention of transverse slippage and turnover of the car body upon the sudden change of its running direction but also the turning on a small radius. Further, a spin operation upon running is possible, thereby to provide a very amusing toy car.

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It will be appreciated that the invention is not limited to the embodiment as described hereinabove and that a front wheel drive system may be employed or a supporting rod for the follower wheels may be resiliently supported through a spring.

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Although the invention has been described for its preferred embodiment hereinabove, it will be appreciated that many variations and modifications may be made without departing from the spirit and the scope of the invention.

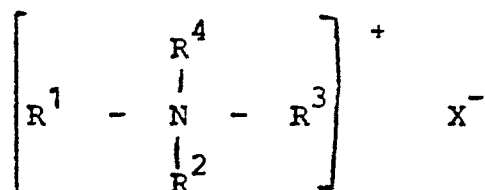
Claims:

1. A toy car comprising a pair of front wheels (12, 12) and a plurality of rear wheels (14, 16, 16) mounted to a car body (10),
5 in which said plurality of rear wheels comprise a main wheel (14) arranged substantially at the center of a car width and a pair of follower wheels (16, 16) arranged on either sides of the main wheel (14), said pair of follower wheels (16, 16) each being pivotted to one end of a supporting arm (28) while the other end of the
10 supporting arm (28) being pivotted to an eccentric position in relation to an axle (24) of the main wheel (14).
2. A toy car according to claim 1, wherein a heavier fixed
15 loading is put on the rear wheel side than on the front wheel side of the car body (10).

CLAIMS FOR AUSTRIA

1. A method of preparing a pharmaceutical composition suitable for relief from pain, comprising as an active ingredient an aqueous emulsion containing a pharmacologically acceptable cationic surfactant, a pharmacologically acceptable non-ionic surfactant having an alcohol-derived portion containing at least 6 carbon atoms, and water; said emulsion being the sole pain-relieving constituent and containing at least 5 weight percent of said cationic surfactant and at least about 5 weight percent of said non-ionic surfactant; said method comprising combining said cationic surfactant and said non-ionic surfactant with water, stirring the produced mixture while heating to produce a smooth emulsion, and cooling said emulsion.
2. The method in accordance with claim 1 wherein said cationic surfactant and said non-ionic surfactant are present in substantially equal amount by weight.
3. The method in accordance with claims 1 or 2, wherein said aqueous emulsion contains 15 to 35 weight percent of said cationic surfactant, 15 to 35 weight percent of said non-ionic surfactant, and 50 to 30 weight percent water.

4. The method in accordance with anyone of claims 1 to 3, wherein said cationic surfactant is represented by the general formula



wherein each of R^1 , R^2 , R^3 and R^4 is a monovalent organic group containing up to 22 carbon atoms, or at least two of said R^1 , R^2 , R^3 and R^4 together form part of a cyclic structure that includes the nitrogen atom, and X^- is an anion of a pharmacologically acceptable acid.

5. The method in accordance with claim 4 wherein R^1 and R^3 are alkyl groups of 12 to 18 carbon atoms, and R^2 and R^4 are lower alkyl groups of 1 to 4 carbon atoms.

6. The method in accordance with anyone of claims 1 to 4, wherein the non-ionic surfactant is a saturated fatty acid ester of a polyhydric alcohol anhydride containing 12 or more carbon atoms.

7. The method in accordance with anyone of claims 1 to 6, wherein the (a) cationic and the (b) non-ionic surfactants are selected from (a) di(hydrogenated tallow) dimethyl ammonium methyl sulfate and (b) sorbitan monopalmitate; (a) di(hydrogenated tallow) dimethyl ammonium-chloride and (b) polyoxyethylene (2) cetyl ether; (a) 1-methyl-1-[2-(hydrogenated tallow)amidoethyl]-2-hydrogenated tallow imidazolinium methyl sulfate and (b) polyoxyethylene (2) cetyl ether; (a) ethyl bis(polyhydroxyethyl) alkyl ammonium ethyl sulfate and (b) sorbitan monostearate; (a) dimethyl stearyl benzyl ammonium chloride and (b) sorbitan monostearate; (a) di(hydrogenated tallow) dimethyl ammoniumchloride and (b) sorbitan monopalmitate; and/or

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(a) 1-methyl-1-[2-(hydrogenated tallow)aminoethyl]-2-hydrogenated tallow imidazolinium methyl sulfate and (b) sorbitan monopalmitate.

FIG. 1

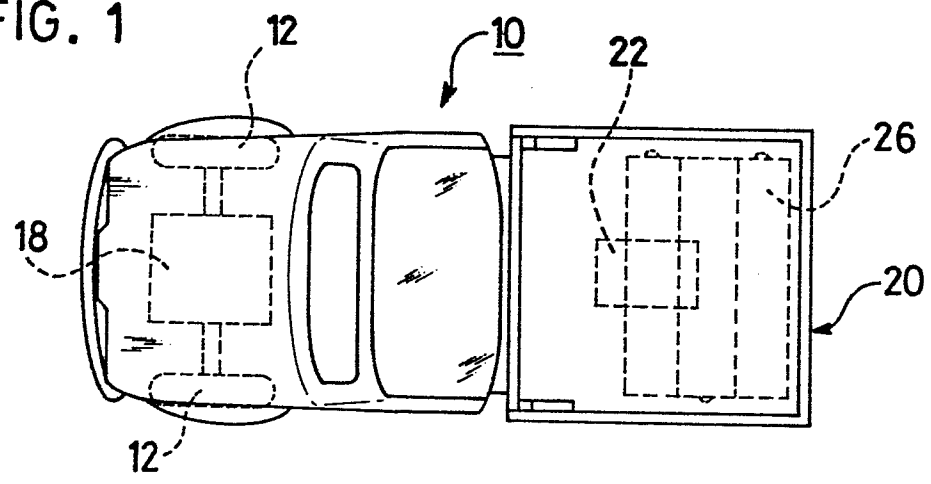


FIG. 2

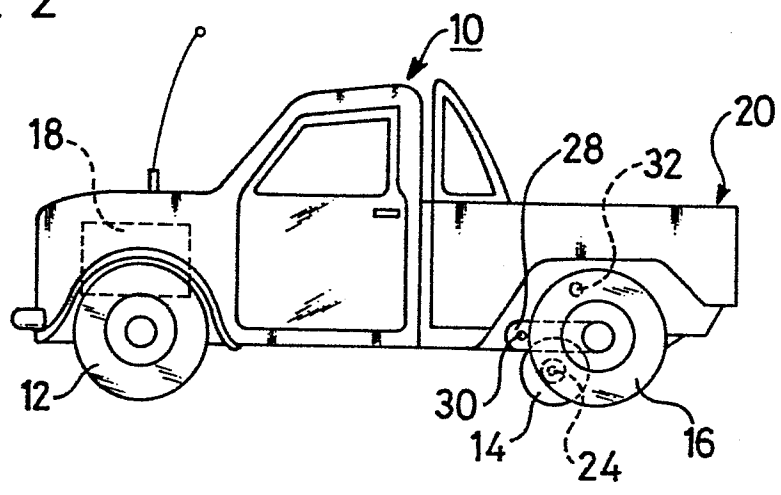


FIG. 3

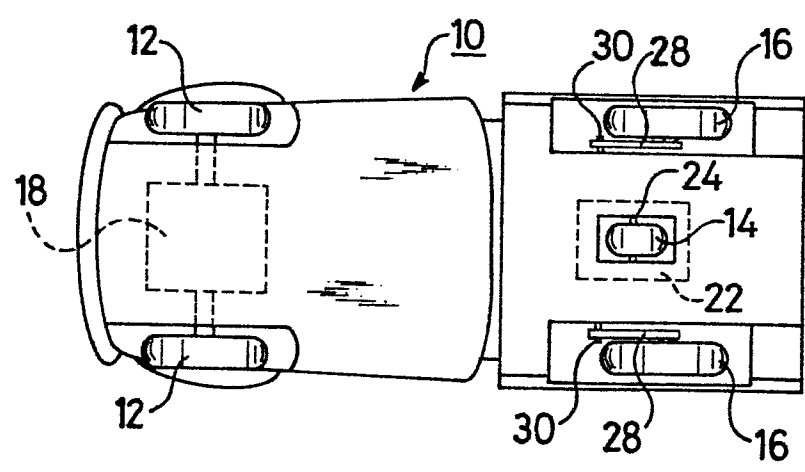


FIG. 4

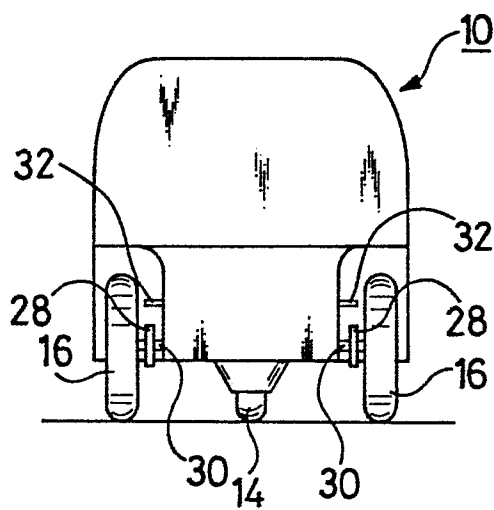


FIG. 5

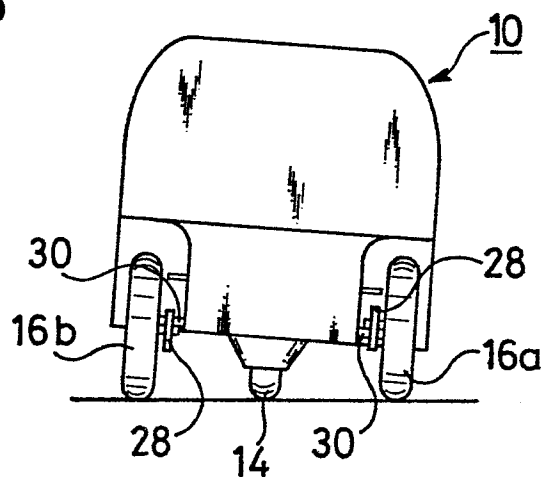
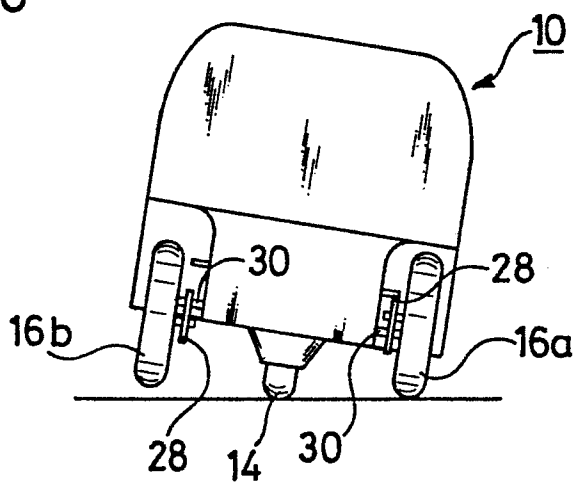


FIG. 6





European Patent
Office

EUROPEAN SEARCH REPORT

01 51 664
Application number

EP 84 10 1549

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	FR-A-1 256 008 (MECCANO)		A 63 H 17/26

A	GB-A-1 390 068 (LESNEY PRODUCTS)		

A	FR-A- 530 433 (TATSCHKE)		

A	FR-E- 68 491 (BOBARD)		

			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			A 63 H B 62 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24-09-1984	Examiner VANRUNXT J.M.A.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			