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Improved scooter

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2007200103 10 Jan 2007

ABSTRACT

There is disclosed a vehicle (5a;5b;5c), for example, a self-propelled and/or pedal vehicle such as tricycles (10a;10b;10c), bicycle, scooter, micro-scooter, or collapsible scooter, for example, adapted for use by children or infants. Accordingly, the invention provides a self-propelled vehicle (5a;5b;5c) comprising illuminatable direction indicator means 45a;45b;45c) comprising left turn and right turn indictor means (45'a,45"a;45'b,45"b;45'c,45"c), which selectably operate by turning of a steering means or column (30a;30b;30c) of the self-propelled vehicle (5a;5b;5c) to the left or to the right, respectively, the steering means or column (30a;30b;30c) comprising handlebars in a disclosed embodiment. The self-propelled vehicle (5a;5b;5c) comprises a tricycle.

2007200103 10 Jan 2007

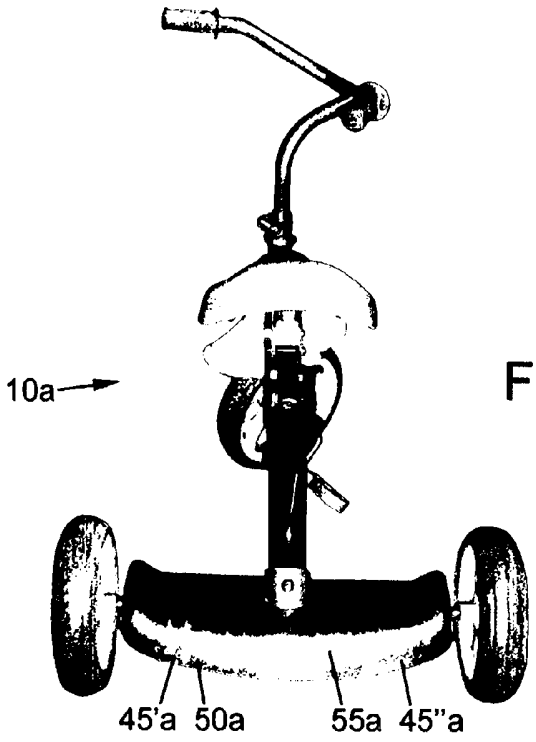

Fig.1(c)

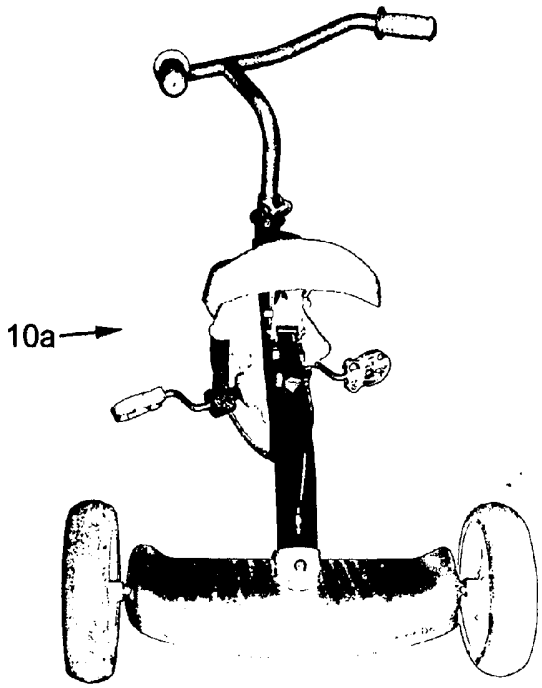

Fig.1(d)

2007200103 10 Jan 2007

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PATENTS ACT 1990

COMPLETE SPECIFICATION

NAME OF APPLICANT(S)::

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INVENTION TITLE:

Improved scooter

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

5102

2007200103 10 Jan 2007

FIELD OF INVENTION

This invention relates to improvements in and relating to vehicles, for example, self-propelled and/or pedal vehicles such as tricycles, bicycles, scooters, micro-scooters, and collapsible scooters. The invention particularly, though not exclusively, relates to such vehicles adapted for use by children or infants.

BACKGROUND TO INVENTION

Pedal vehicles such as tricycles, and other self-propelled vehicles such as scooters, are popular with children and infants as recreational or play articles.

It is an object of at least one embodiment of at least one aspect of the present invention to obviate and/or mitigate one or more disadvantages in the prior art.

It is an object of at least one embodiment of at least one aspect of the present invention to provide an improved vehicle.

It is an object of at least one embodiment of at least one aspect of the present invention to provide a vehicle having a novel lighting arrangement.

It is an object of at least one embodiment of at least one aspect of the present invention to provide a vehicle having a novel lighting or illumination effect.

2007200103 10 Jan 2007

SUMMARY OF INVENTION

According to a first aspect of the present invention there is provided a self-propelled vehicle comprising illuminatable direction indicator means.

The illuminatable direction indicator means may comprise left turn and right turn indicator means.

Left turn or right turn indicator means may be selectably operable by turning of a steering means or column of the self-propelled vehicle to the left or to the right, respectively. The steering means or column may comprise or provide handlebars, or alternatively a steering wheel.

The self-propelled vehicle may comprise a tricycle, such as for use by children or infants. Alternatively, the self-propelled vehicle may comprise a scooter.

The left turn and right turn indicator means may comprise at least one and preferably a plurality of LEDs, which may, in use, operate simultaneously or sequentially. The LED's may be of the same or of a mixture of colours.

The left turn and right turn indicator means may be rearward facing on the self-propelled vehicle. Alternatively or additionally, the left turn and right turn indicator means may be forward facing on the self-propelled vehicle.

2007200103 10 Jan 2007

The left turn and right turn indicator means may be provided between rear wheels of the tricycle.

The left turn and right turn indictor means may be provided on a rear footplate of the tricycle.

The illuminatable direction indictor means may be electrically powered by means of one or more batteries, which may be provided in or below the rear footplate.

Circuitry connecting the illuminatable direction indicator means to the one or more batteries may include an on/off switch.

The circuitry may also include control means within or adjacent a steering column of the vehicle. The control means may comprise a control member, and left and right switch means, which may be selectively activated by the control member, in use. The indicator means may therefore be self starting and self cancelling. That is to say, in use, turning of the steering column to one side may cause the control member to activate the switch means for that one side, and re-straightening of the steering column may deactivate the switch means for that one side.

The self-propelled vehicle may include a parent/guardian pole/handle, which may be rearward facing, and which may be detachable.

According to a second aspect of the present invention there is provided a self-propelled vehicle,

such as a tricycle, comprising at least one illuminatable means on a wheel thereof.

The wheel may comprise a front wheel.

The vehicle may comprise a tricycle, e.g. for use by children or infants.

The vehicle may comprise left and right pedals carried by the front wheel.

The wheel may comprise a pneumatic tyre.

The wheel may comprise left and right walls, which may define a space therebetween. The walls may preferably be plastic, or alternatively, metal.

A pneumatic tyre may comprise a valve accessible through an aperture in one of the left or right walls.

The at least one illuminatable means may comprise a plurality of lights, e.g. LEDs. The lights may be of a same or of a mixture of colours.

At least some of the lights may be distributed in a closed shape, such as a circle, e.g. centred on a hub of the wheel, e.g. on one or both of the left and right walls. In an alternative implementation the lights may fan out from the hub of the wheel, e.g. in lines extending from the wheel, the lines possibly being straight, curved or wavy.

The at least one illuminatable means may be powered by one or more batteries, which may be provided on or in

2007200103 10 Jan 2007

the wheel, e.g. in a battery compartment extending into said space.

The batteries may be accessible by a releasably securable cover, which may comprise or form part of one of the left or right walls.

The wheel may also provide an on/off switch for the at least one illuminatable means. The switch may provide a number of on positions to selectably allow the at least one illuminatable means to illuminate continuously or to operate in a predetermined sequence under the control of electronic control means.

According to a third aspect of the present invention there is provided a wheel for a self-propelled vehicle, the wheel comprising at least one illuminatable means thereon.

According to a fourth aspect of the present invention there is provided a wheel adapted for use in a self-propelled vehicle according to the second aspect of the present invention.

BRIEF DESCRIPTION OF DRAWINGS

Embodiments of the invention will now be described by way of example only, and with reference to the accompanying drawings, which are:

Figure 1(a) view from front and to one side of a tricycle according to a first embodiment of the present invention;

Figure 1(b) view from rear and to other side of the tricycle of Figure 1(a);

Figure 1(c) rear view of the tricycle of Figure 1(a) in a first illuminated state;

Figure 1(d) rear view of the tricycle of Figure 1(a) in a second illuminated state;

Figure 1(e) rear view of part of the tricycle of Figure 1(a);

Figure 1(f) front view from one side of the tricycle of Figure 1(a) according to a first modification;

Figure 1(g) rear view of the modified tricycle of Figure 1(f);

Figure 1(h) cross-sectional view of a steering column of the tricycle of Figure 1(a) viewed from above;

Figure 1(i) cross-sectional view of the steering column of the tricycle of Figure 1(a) viewed from the side;

Figure 1(j) circuit diagram for the tricycle of Figure 1(a);

Figure 2(a) view from front and to one side of a tricycle according to a second embodiment of the present invention;

Figure 2(b) view from rear and to other side of the tricycle of Figure 2(a);

Figure 2(c) rear view of the tricycle of Figure 2(a) in a first illuminated state;

Figure 2(d) rear view of the tricycle of Figure 2(a) in a second illuminated state;

Figure 2(e) rear view of part of the tricycle of Figure 2(a) in first illuminated state;

Figure 2(f) rear view of part of the tricycle of Figure 2(a) in second illuminated state;

Figure 2(g) front view from one side of the tricycle of Figure 2(a) according to a first modification;

Figure 2(h) rear view of the modified tricycle of Figure 2(g)

Figure 3(a) view from rear and to one side of a tricycle according to a third embodiment of the present invention;

Figure 3(b) side view of tricycle of Figure 3(a);

Figure 3(c) top view of tricycle of Figure 3(a);

Figure 3(d) bottom view of tricycle of Figure 3(a);

Figure 3(e) front view of tricycle of Figure 3(a);

Figure 3(f) rear view of tricycle of Figure 3(a);

Figure 4(a) view from front and to one side of a tricycle according to a fourth embodiment of the present invention;

Figure 4(b) view from rear and to other side of tricycle of Figure 4(a);

Figure 4(c) view of right side of front wheel of tricycle of Figure 4(a) in an illuminated state;

Figure 4(d) view of right side of front wheel of tricycle of Figure 4(a) in an illuminated state;

Figure 4(e) view of the left side of front wheel of tricycle of Figure 4(a) in a non-illuminated state;

Figure 4(f) view of left side of front wheel of tricycle of Figure 4(a) in an illuminated state;

Figure 4(g) circuit diagram for tricycle of Figure 4(a);

Figure 5(a) view from front and to one side of a tricycle according to a fifth embodiment of the present invention;

Figure 5(b) view from rear and to other side of tricycle of Figure 5(a);

Figure 5(c) view of right side of front wheel of tricycle of Figure 5(a) in a non-illuminated state;

Figure 5(d) view of right side of front wheel of tricycle of Figure 5(a) in an illuminated state;

Figure 5(e) view of left side of front wheel of tricycle of Figure 4(a) in a non-illuminated state;

Figure 5(f) view of left side of front wheel of tricycle of Figure 5(a) in an illuminated state;

Figure 6(a) view from front and to one side of a tricycle according to a sixth embodiment of the present invention;

Figure 6(b) side view of tricycle of Figure 6(a);

Figure 6(c) top view of tricycle of Figure 6(a);

Figure 7(a) view from front and to one side of a tricycle according to a seventh embodiment of the present invention in an illuminated state;

Figure 7(b) perspective view of front wheel of tricycle of Figure 7(a) in an illuminated state;

Figure 8(a) view of one side of a wheel according to an embodiment of the present invention in an illuminated state; and

Figure 8(b) view of other side of the wheel of Figure 8(a) in an illuminated state.

DETAILED DESCRIPTION OF DRAWINGS

Referring to Figures 1(a) to 1(j), there is illustrated a self-propelled vehicle, generally designated 5a, according to an embodiment of the present invention.

The vehicle 5a comprises a tricycle 10a, e.g. for use by children or infants, having a frame 15a, a front wheel 20a, a pair of rear wheels 25a, steering column 30a, handlebars 35a, pedals 36a, and seat 40a.

The tricycle 10a comprises illuminatable direction indicator means 45a comprising left turn and right turn indicator means 45'a,45"a, which are selectively operable in use by a user turning handlebars 35a, and therefore front wheel 20a to the left or to the right respectively.

In this embodiment the left turn and right turn indicator means 45'a,45"a, each comprise a plurality of

2007200103 10 Jan 2007

LEDs 50a, which when selected in use, can be adapted to operate simultaneously either constantly on or flashing, or sequentially flashing. In this embodiment the LEDs 50a are of a mixture of colours; however the LEDs 50a can be the same colour.

As can be seen from Figures 1(a) to 1(e), the left turn and right turn indicators 45'a, 45"a face rearward. In a modification the left turn and right turn indicator means 45'a,45"a may face forward, or alternatively, both forward and rearward. The left turn and right turn indicator means 45'a,45"a are provided between the rear wheels 25a on a rear footplate 55a of frame 15a.

Referring to Figures 1(f) to 1(g), there is shown a modification to the tricycle 10a comprising a parent/guardian pole/handle 60a, which can be made to be detachable, e.g. by fixing bolts or the like.

Referring now to Figures 1(h) to 1(j), the illuminatable direction indicator means 45a are electrically powered by means of batteries 65a provided under the rear footplate 55a.

Circuitry 70a connecting the illuminatable direction indicator means 45a to batteries 65a also includes an on/off rocker switch 75a and control means 80a within the steering column 30a. The control means 80a comprises a control member 85a (which moves with the handlebars 35a), and left and right switch 90'a,90"a, which are, in use,

2007200103 10 Jan 2007

selectively activated by movement of the control member 85a.

Referring now to Figures 2(a) to 2(h) there is shown a self-propelled vehicle 5b according to a second embodiment of the present invention comprising a tricycle 10b. The tricycle 10b is substantially the same as that of the tricycle 10a, but differs therefrom in the colour scheme thereof. The tricycle 10a comprises a purple frame, blue tyres, and yellow wheels, and a blue seat, and red handle grips. The tricycle 10b comprises a blue frame, blue tyres, yellow wheels, a blue seat, and blue handle grips.

Referring now to Figures 3(a) to 3(f) there is shown a self-propelled vehicle 5c according to a third embodiment of the present invention comprising a tricycle 10c. The tricycle 10c is substantially the same as that of the tricycle 10a but differs therefrom in that tricycle 10c does not have pedals, and is therefore foot propelled.

Referring to Figures 4(a) to 4(g) there is illustrated a self-propelled vehicle 105a according to a fourth embodiment of the present invention.

The vehicle 105a comprises a tricycle 110a, e.g. for use by children or infants, having a frame 115a, a front wheel 120a, a pair of rear wheels 125a, steering column

130a, handlebars 135a, pedals 136a, brake mechanism 137a, and seat 140a.

The tricycle 110a comprises at least one illuminatable means 145a on an outer surface of a wheel thereof, in this case, the front wheel 120a.

The vehicle 105a comprises left and right pedals 136'a,136"a, carried by the front wheel 120a. The wheel 120a comprises a pneumatic tyre 150a.

The wheel 120a also comprises left and right walls 155'a,155"a, which provide a gap, space or void (not shown) therebetween. The pneumatic tyre 150a comprises a valve 160a accessible via an aperture 165a in one of the left or right walls 155'a,155"a. The aperture 165a may be openably closeable by a cover member (not shown).

The at least one illuminatable means 145a comprises a plurality of light sources, particularly LEDs, either of the same or a mixture of colours. As can be seen from Figures 4(a) to 4(g), the lights are distributed in circles centred on a hub of front wheel 120a on both of the left and right walls 155'a,155"a.

The at least one illuminatable means 145a is powered by a battery or batteries provided on or in the front wheel 120a in a battery compartment extending into the gap. The battery(ies) is/are accessible by a releasably securable cover 160a, which forms part of one of the left or right walls 155'a,155"a.

The front wheel 120a is also provided with an on/off switch 170a, e.g. rocker switch, for controlling the at least one illuminatable means 145a. The switch 170a is provided with two "on" positions to selectively allow the at least one illuminatable means 145a to illuminate constantly, or to operate in a predetermined sequence under the control of electronic control means 175a provided in the gap.

Referring now to Figures 5(a) to 5(f) there is shown a self-propelled vehicle 105b according to a fifth embodiment of the present invention comprising a tricycle 110b. The tricycle 110b is substantially the same as that of the tricycle 110a, but differs therefrom in the colour scheme thereof. The tricycle 110a has a blue seat, blue rear wheels, and a blue and yellow front wheel. The tricycle 110b has a pink seat, pink rear wheels, and a black and pink front tyre.

Sixth and seventh tricycles 110c,110d according to embodiments of the present invention are shown in Figures 6(a) to 6(c), and Figures 7(a) and 7(b), respectively.

Finally, in Figures 8(a) and 8(b) is shown a wheel 120e according to an eighth embodiment of the present invention.

It will be appreciated that the embodiments of the invention hereinbefore described are given by way of

2007200103 10 Jan 2007

example only, and are not meant to limit the scope of the invention in any way.

It will be appreciated that in modified versions of the disclosed embodiments, the features of any one disclosed embodiment may be replaced by or added the features of any other disclosed embodiment. For example, the features of the first to third embodiments may be added to the fourth to seventh embodiments, and vice versa.

The reference in this specification to any prior publication (or information derived from it), or to any matter which is known, is not, and should not be taken as an acknowledgment or admission or any form of suggestion that that prior publication (or information derived from it) or known matter forms part of the common general knowledge in the field of endeavour to which this specification relates.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A self-propelled vehicle, such as a tricycle, comprising illuminatable direction indicator means.

2. A self-propelled vehicle as claimed in claim 1, wherein the illuminatable direction indicator means comprise left turn and right turn indicator means.

3. A self-propelled vehicle as claimed in either of claims 1 or 2, wherein left turn or right turn indicator means are selectably operable by turning of a steering means or column of the self-propelled vehicle to the left or to the right, respectively.

4. A self-propelled vehicle as claimed in claim 3, wherein the steering means or column comprise or provide handlebars or a steering wheel.

5. A self-propelled vehicle as claimed in any of claims 1 to 3, wherein the self-propelled vehicle comprises a pedal driven vehicle, such as for use by children or infants.

6. A self-propelled vehicle as claimed in claim 2 or any of claims 3 to 5 when dependent upon claim 2, wherein

the left turn and right turn indicator means each comprise at least one LED.

7. A self-propelled vehicle as claimed in claim 6, wherein each left turn and right turn indicator means comprises a plurality of LEDs which, in use, operate simultaneously or sequentially.

8. A self-propelled vehicle as claimed in either of claims 6 or 7, wherein the LEDs are of a same or of a mixture of colours.

9. A self-propelled vehicle as claimed in claim 2 or any of claims 3 to 8 when dependent upon claim 2, wherein the left turn and right turn indicator means are rearward facing on the self-propelled vehicle.

10. A self-propelled vehicle as claimed in claim 2 or any of claims 3 to 9 when dependent upon claim 2, wherein the left and right turn indicator means are forward facing on the self-propelled vehicle.

11. A self-propelled vehicle as claimed in claim 2 or any of claims 3 to 10 when dependent upon claim 2, wherein the left turn and right turn indicator means are provided between rear wheels of the vehicle.

2007200103 10 Jan 2007

12. A self-propelled vehicle as claimed in claim 2 or any of claims 3 to 11 when dependent upon claim 2, wherein the left turn and right turn indicator means are provided on a rear footplate of the tricycle.

13. A self-propelled vehicle as claimed in any preceding claim, wherein the illuminatable direction indicator means are electrically powered by means of one or more batteries, which are provided in or below a/the rear footplate.

14. A self-propelled vehicle as claimed in claim 13, wherein circuitry connecting the illuminatable direction indicator means to the one or more batteries includes an on/off switch.

15. A self-propelled vehicle as claimed in claim 14, wherein the circuitry includes control means within or adjacent a steering column of the vehicle.

16. A self-propelled vehicle as claimed in claim 15, wherein the control means comprises a control member, and left and right switch means, which are selectively activated by the control member, in use.

2007200103 10 Jan 2007

17. A self-propelled vehicle as claimed in any preceding claim, wherein the self-propelled vehicle includes a parent/guardian pole/handle, which is rearward facing, and which is optionally detachable.

18. A self-propelled vehicle, such as a tricycle, comprising at least one illuminatable means on a wheel thereof.

19. A self-propelled vehicle as claimed in claim 18, wherein the wheel comprises a front wheel.

20. A self-propelled vehicle as claimed in either of claims 18 or 19, wherein the vehicle comprises a tricycle, such as for use by children or infants.

21. A self-propelled vehicle as claimed in any of claims 18 to 20, wherein the vehicle comprises left and right pedals carried by the front wheel.

22. A self-propelled vehicle as claimed in any of claims 18 to 21, wherein the wheel comprises a pneumatic tyre.

23. A self-propelled vehicle as claimed in any of claims 18 to 22, wherein the wheel comprises left and right walls, which define a space therebetween.

2007200103 10 Jan 2007

24. A self-propelled vehicle as claimed in claim 23, wherein the walls are made of plastic or metal.

25. A self-propelled vehicle as claimed in either of claims 23 or 24, wherein the wheel comprises a/the pneumatic tyre, which comprises a valve accessible through an aperture in one of left or right walls.

26. A self-propelled vehicle as claimed in any of claims 18 to 25, wherein the at least one illuminatable means comprises a plurality of lights such as LEDs.

27. A self-propelled vehicle as claimed in claim 26, wherein the lights are of a same or of a mixture of colours.

28. A self-propelled vehicle as claimed in either of claims 26 or 27, wherein at least some of the lights are distributed in a closed shape, such as a circle, optionally centred on a hub of the wheel, optionally on one or both of the left and right walls.

29. A self-propelled vehicle as claimed in either of claims 26 or 27, wherein the lights fan out from the hub of the wheel, such as in lines extending from the wheel, the lines optionally being straight, curved or wavy.

2007200103 10 Jan 2007

30. A self-propelled vehicle as claimed in any of claims 18 to 29, wherein the at least one illuminatable means are powered by one or more batteries.

31. A self-propelled vehicle as claimed in claim 30, wherein the batteries are provided on or in the wheel, such as in a battery compartment extending into said space.

32. A self-propelled vehicle as claimed in either of claims 30 or 31, wherein the batteries are accessible by a releasably securable cover, which optionally comprises or forms part of one of the left or right walls.

33. A self-propelled vehicle as claimed in claim 18, wherein the wheel provides an on/off switch for the at least one illuminatable means.

34. A self-propelled vehicle as claimed in claim 33, wherein the switch provides a number of on positions to selectably allow the at least one illuminatable means to illuminate continuously or to operate in a predetermined sequence under the control of electronic control means.

35. A wheel for a self-propelled vehicle, such as a tricycle, the wheel comprising at least one illuminatable means thereon.

36. A wheel adapted for use in a self-propelled vehicle, such as a tricycle, according to any of claims 18 to 34.

37. A self-propelled vehicle as hereinbefore described with reference to the accompanying drawings.

38. A wheel for use in a self-propelled vehicle as hereinbefore described with reference to the accompanying drawings.

2007200103 10 Jan 2007

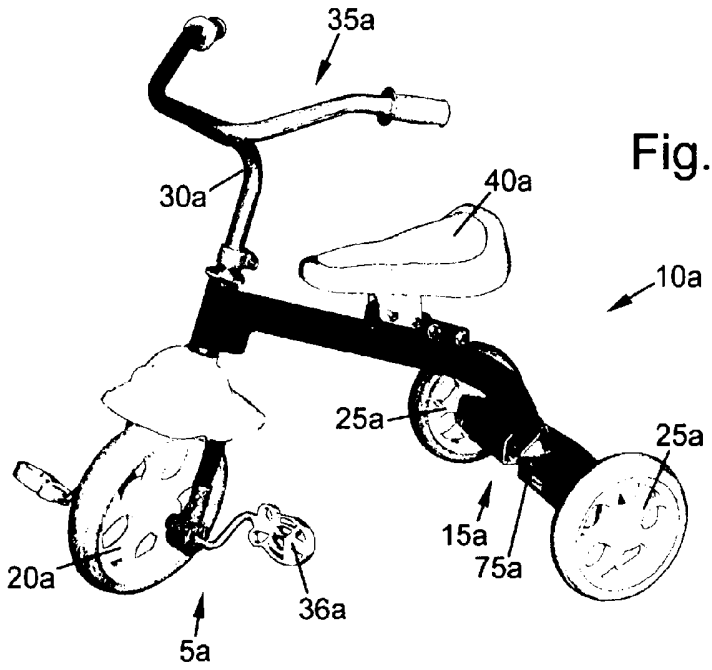


Fig.1(a)

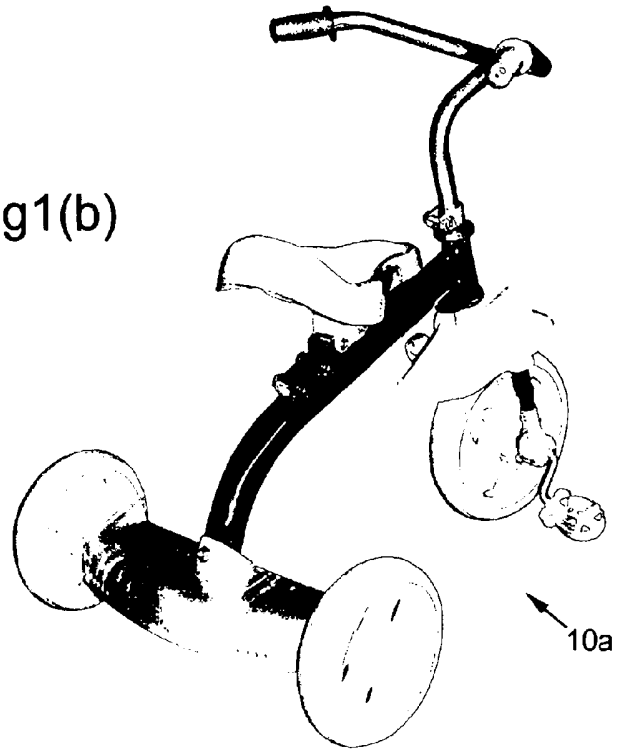


Fig1(b)

2007200103 10 Jan 2007

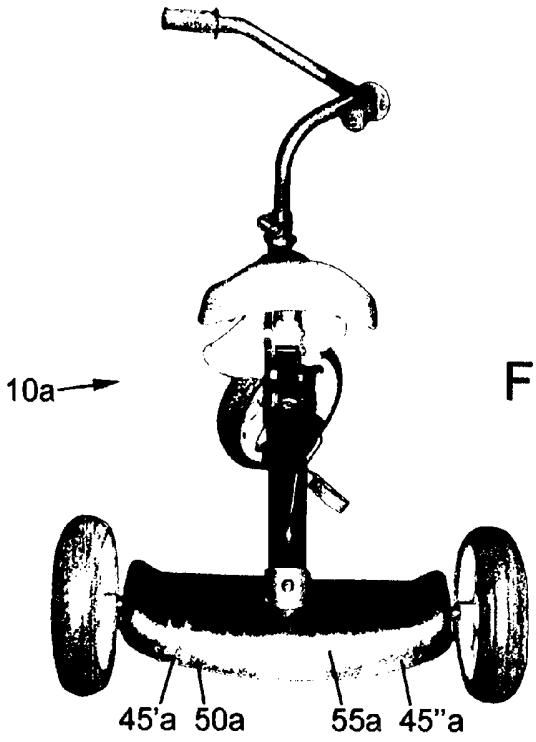


Fig.1(c)

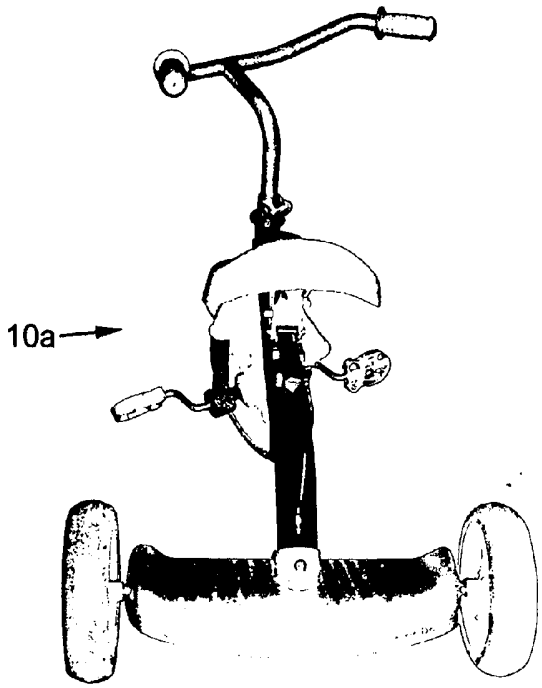


Fig.1(d)

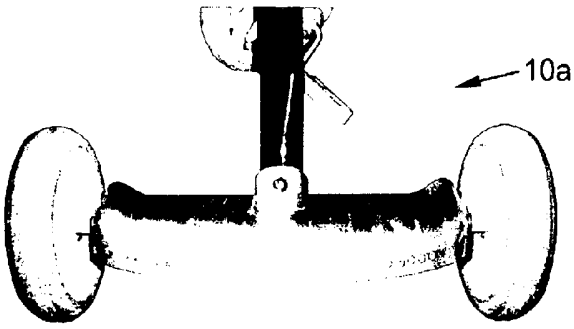


Fig.1(e)

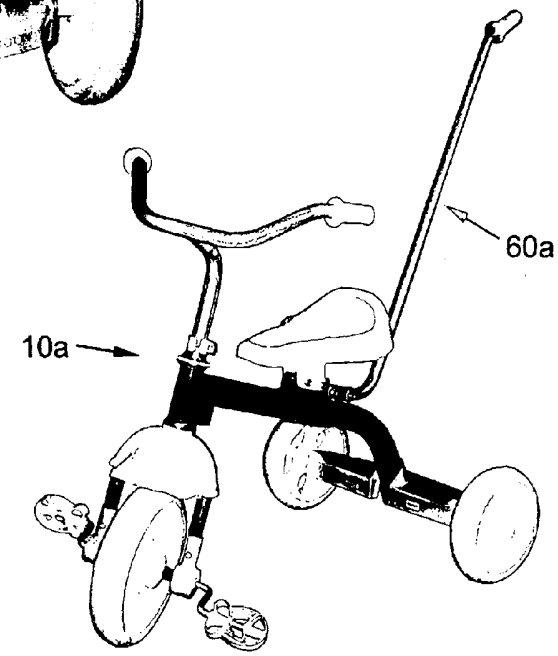


Fig.1(f)

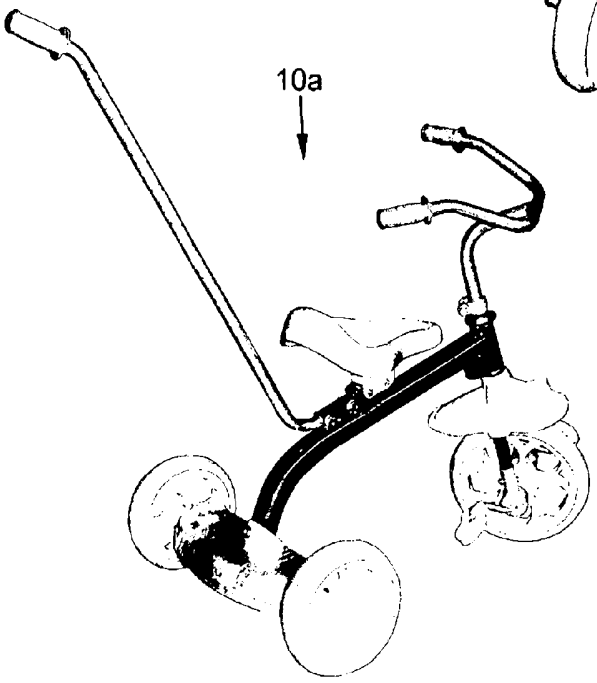


Fig.1(g)

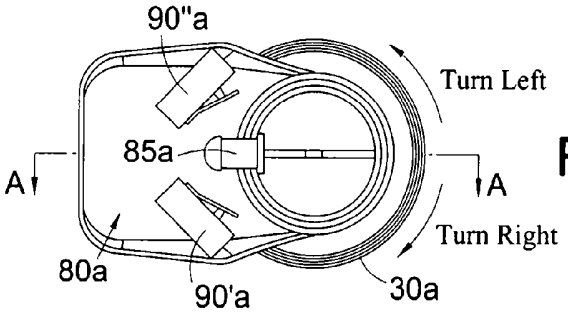


Fig.1(h)

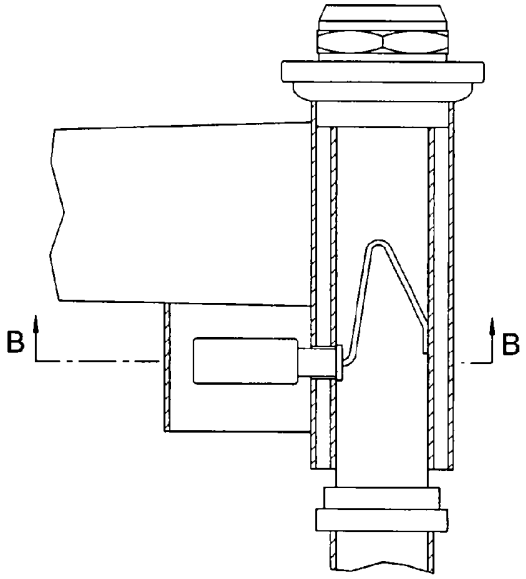


Fig.1(i)

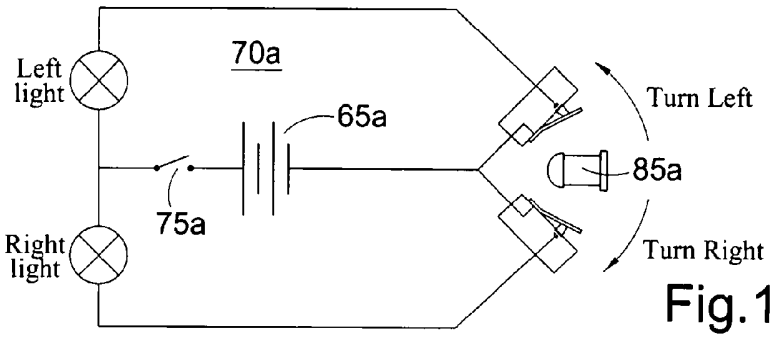


Fig.1(j)

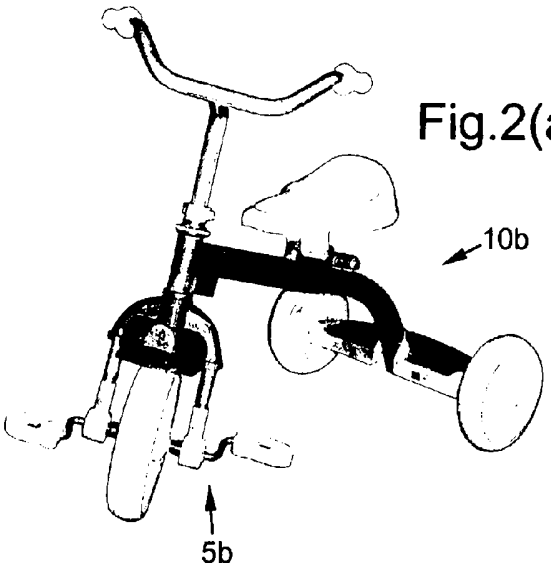


Fig.2(a)

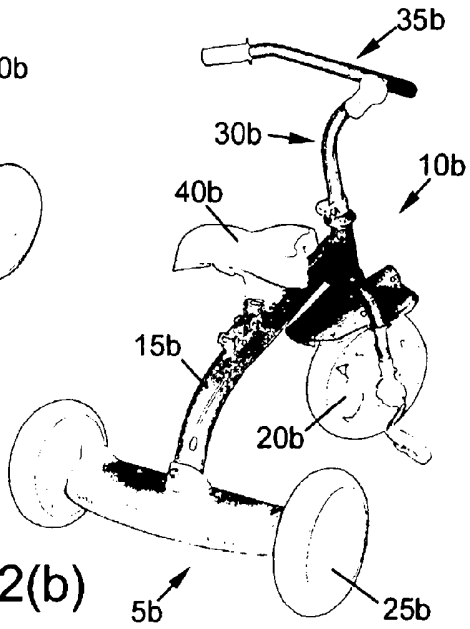
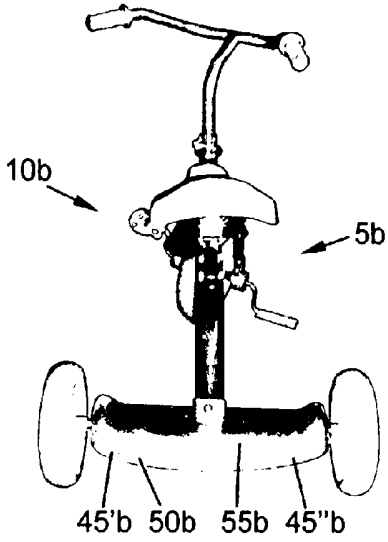


Fig.2(b)



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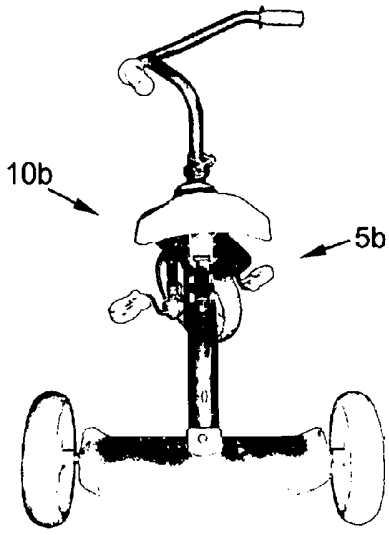


Fig.2(d)

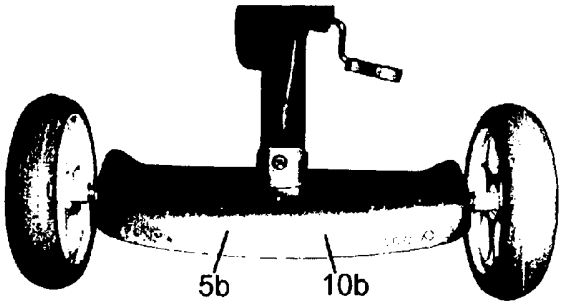
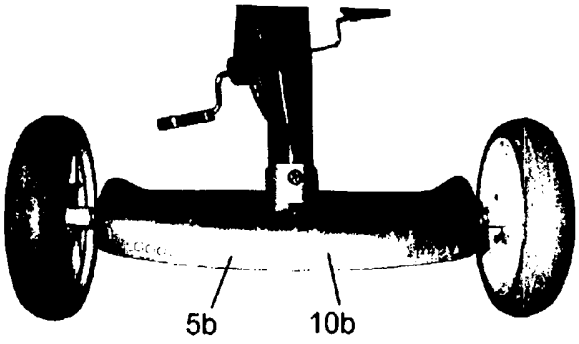


Fig.2(e)



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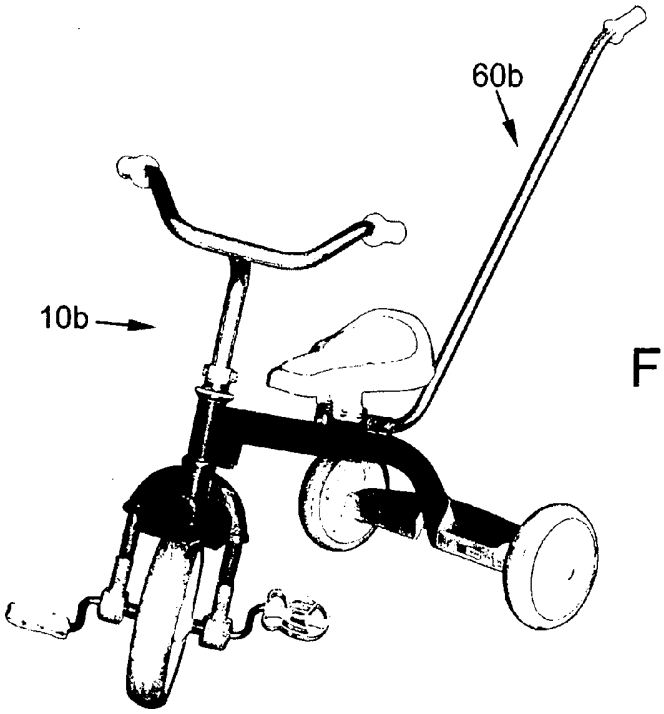
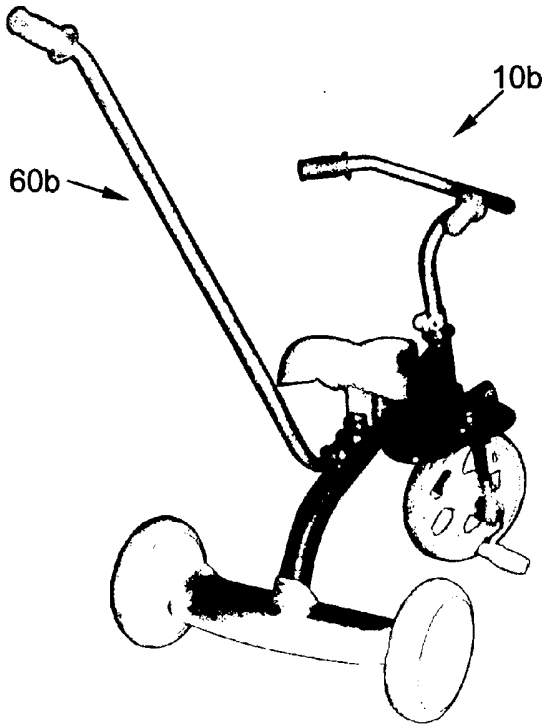


Fig.2(g)



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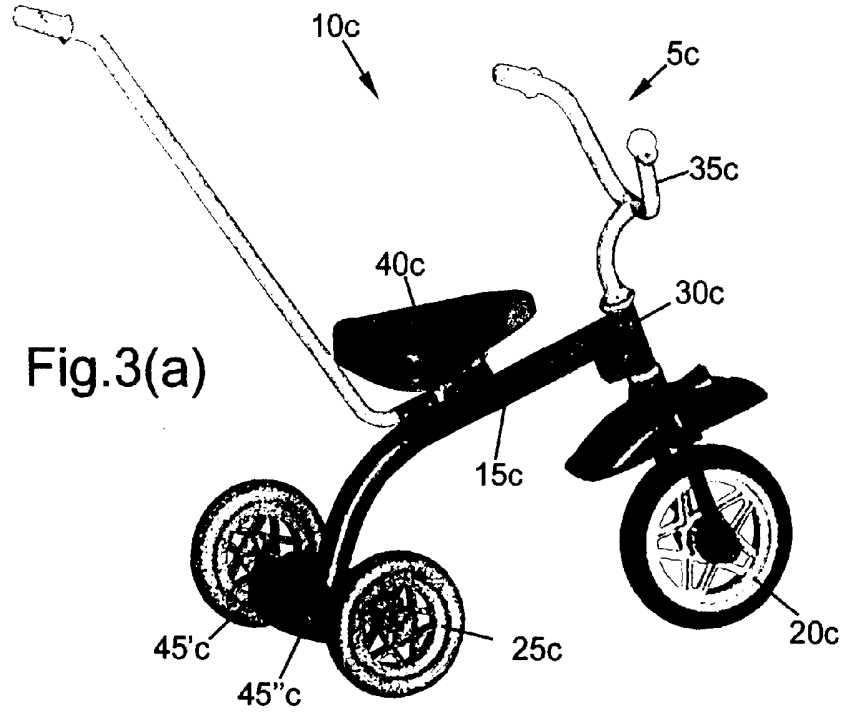


Fig.3(a)

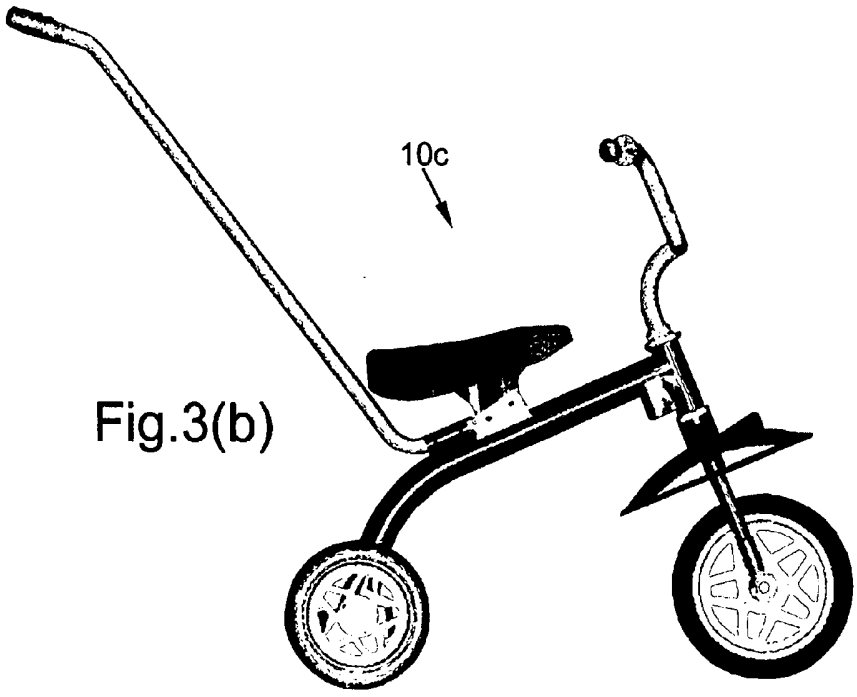
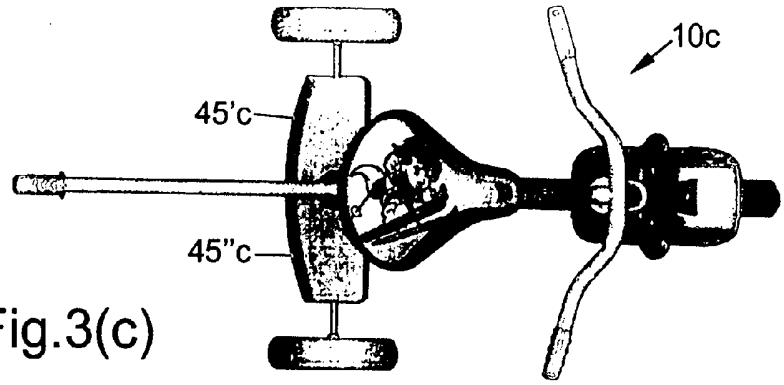


Fig.3(b)

2007200103 10 Jan 2007



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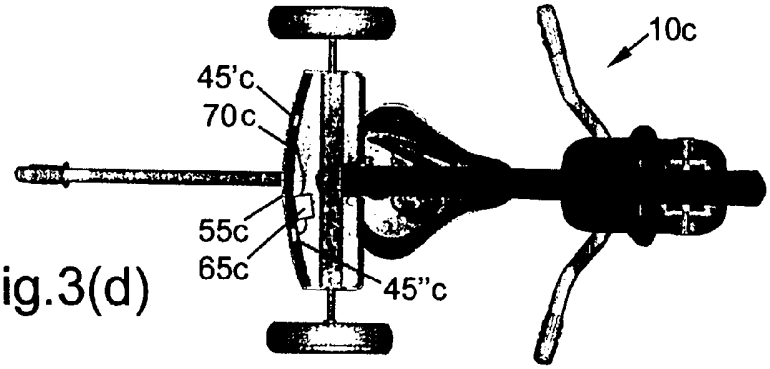

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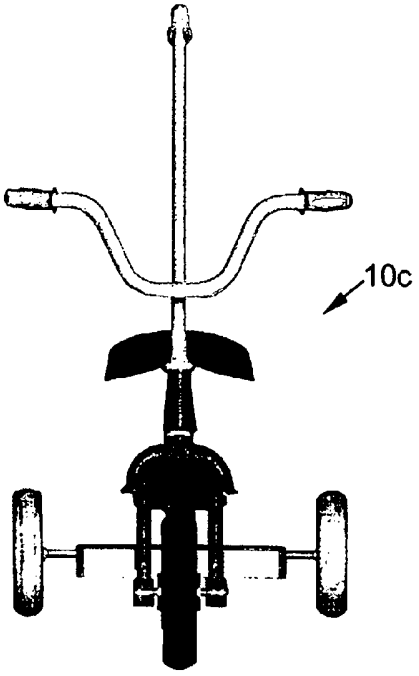

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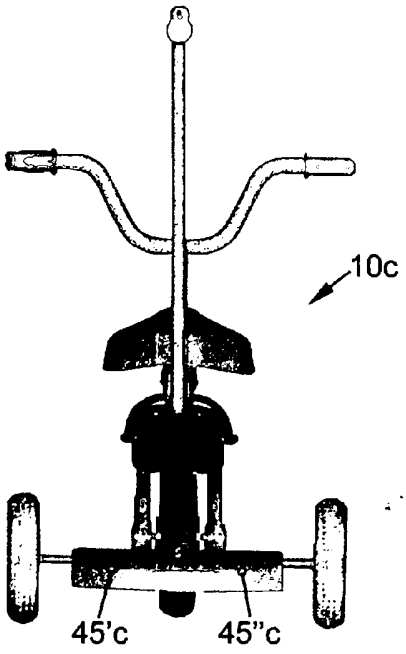


Fig.3(f)

2007200103 10 Jan 2007

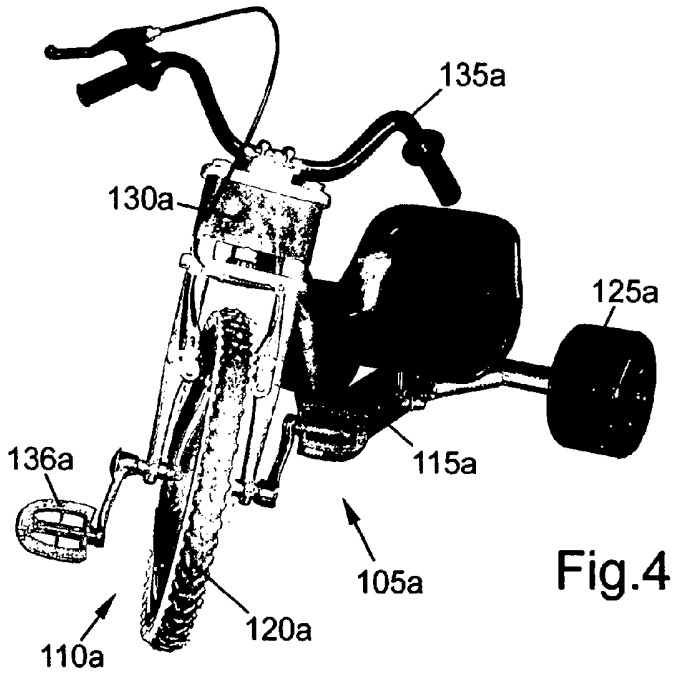


Fig.4(a)

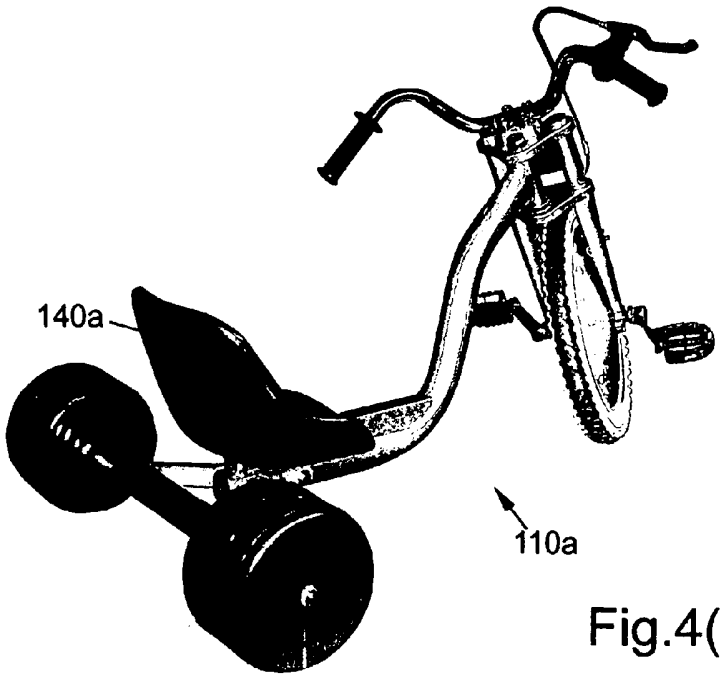


Fig.4(b)

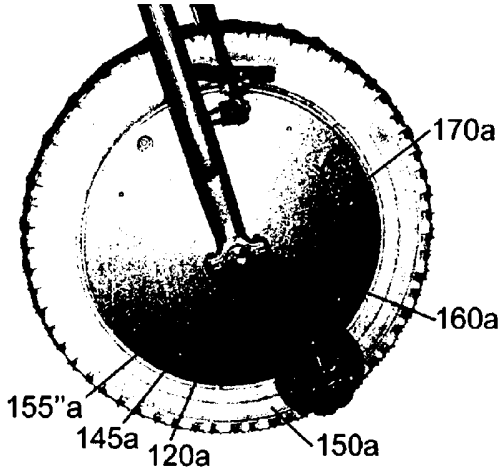


Fig.4(c)

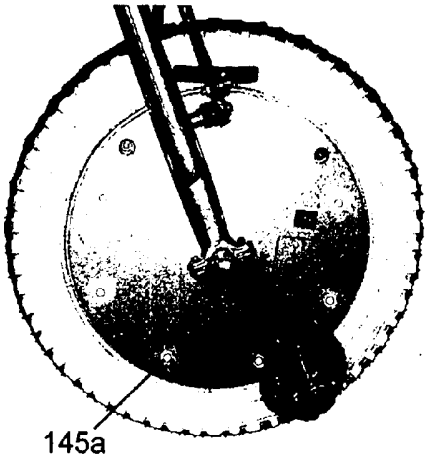


Fig.4(d)

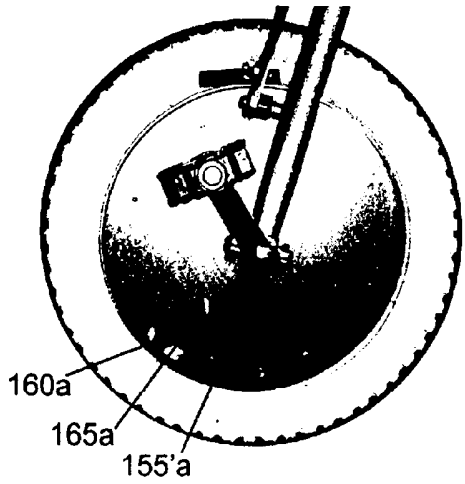


Fig.4(e)

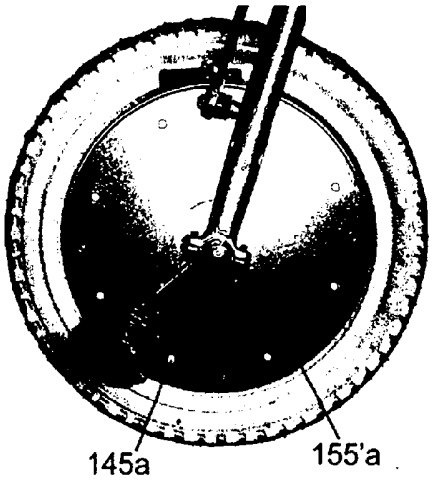


Fig.4(f)

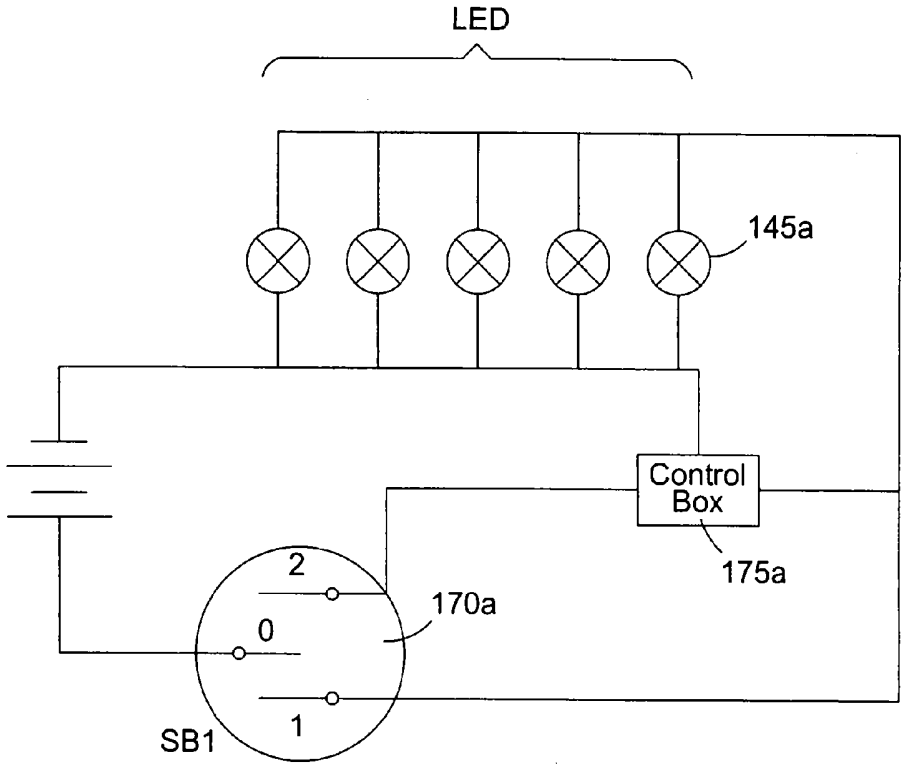


Fig. 4(g)

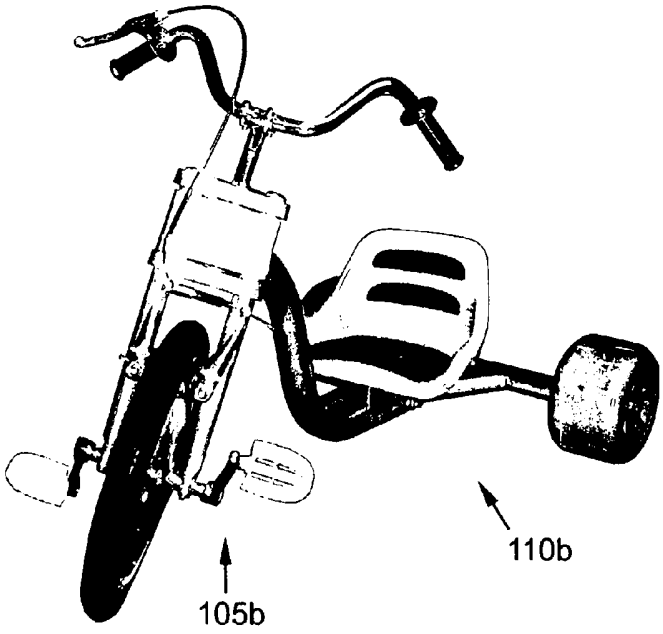


Fig.5(a)

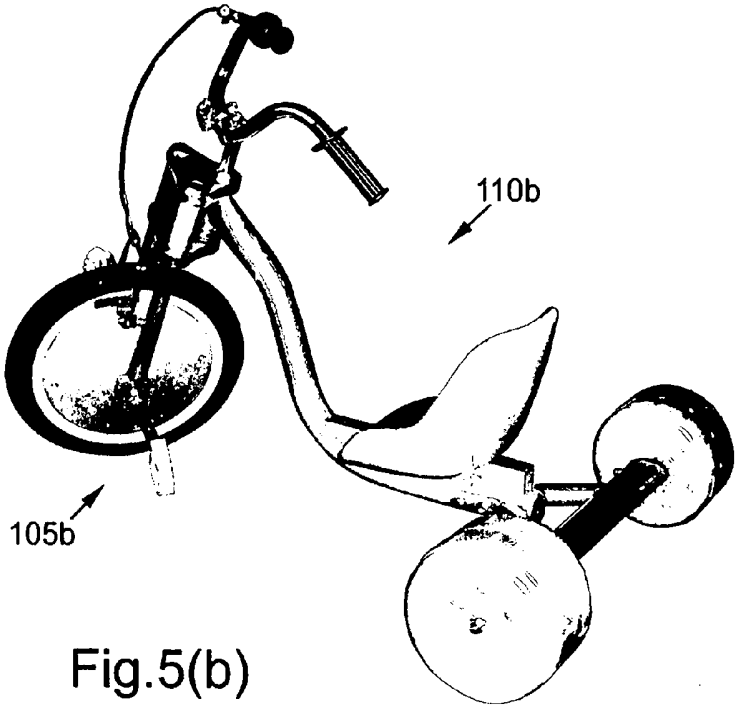


Fig.5(b)

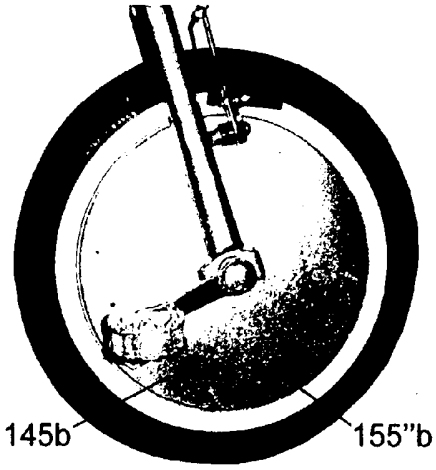
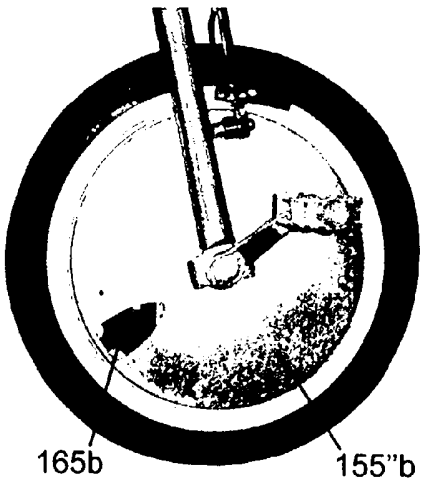


Fig.5(c)



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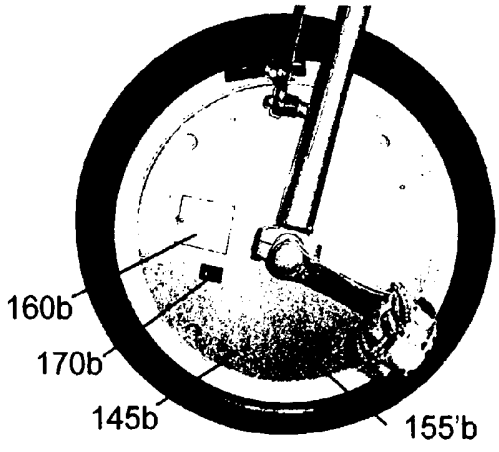

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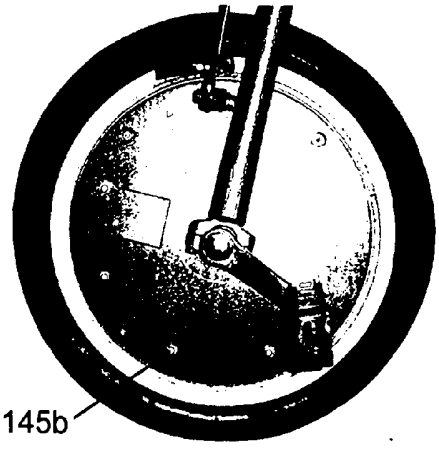


Fig.5(f)

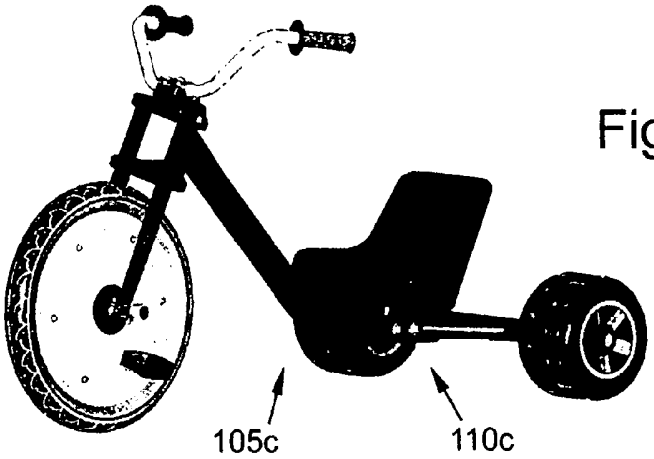
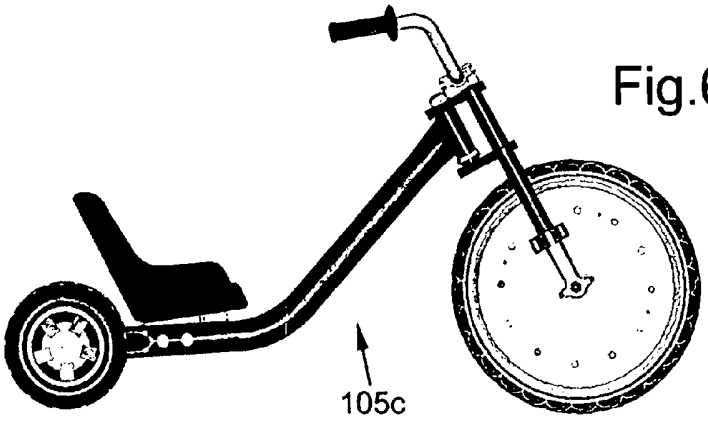


Fig.6(a)



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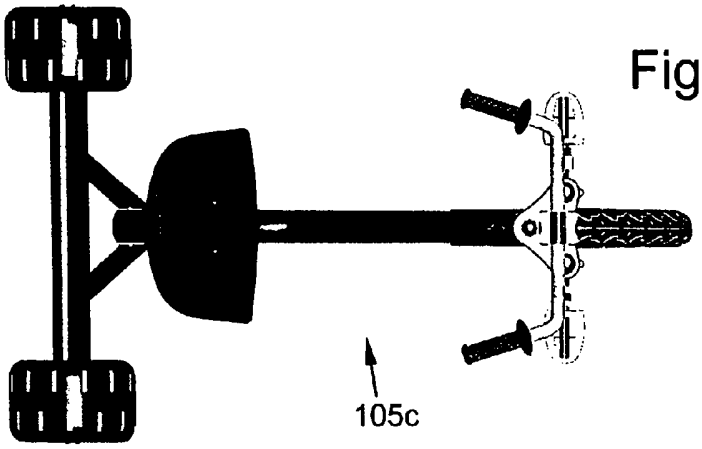

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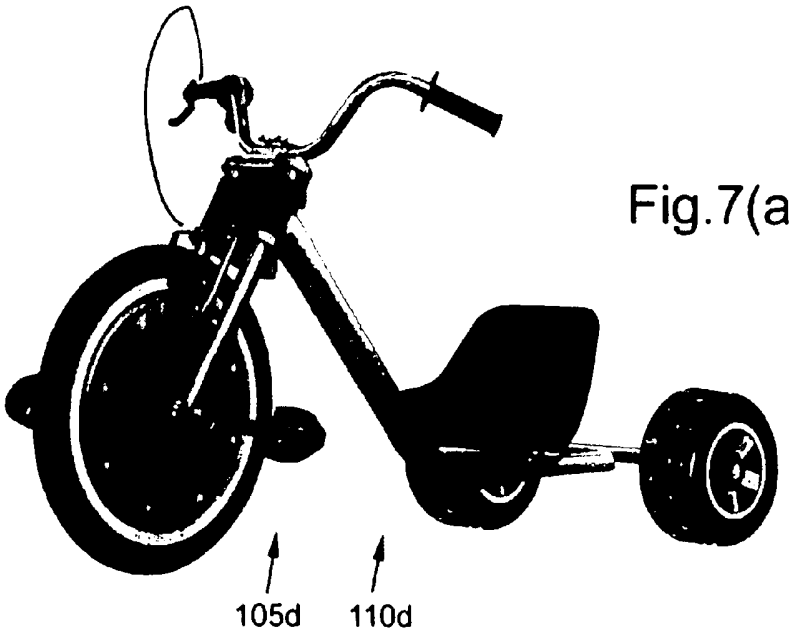

Fig.7(a)

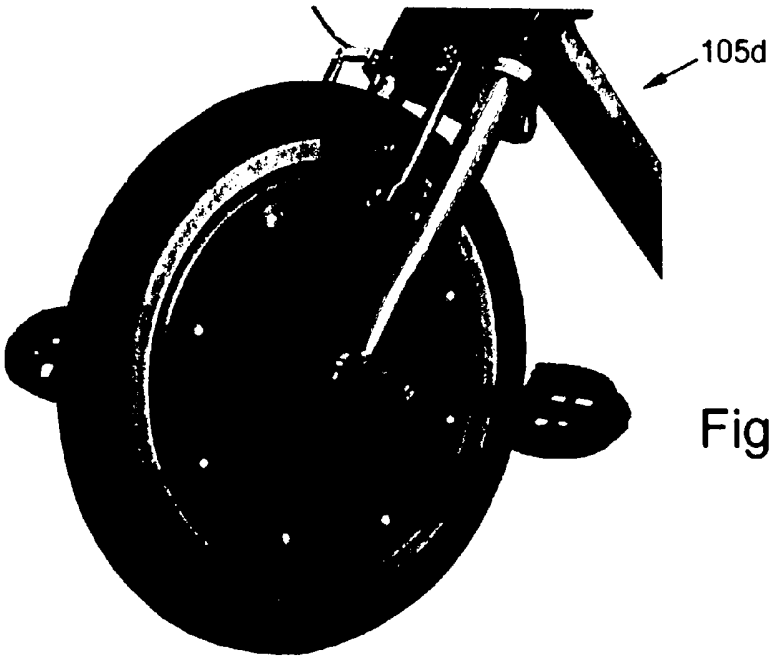

Fig.7(b)

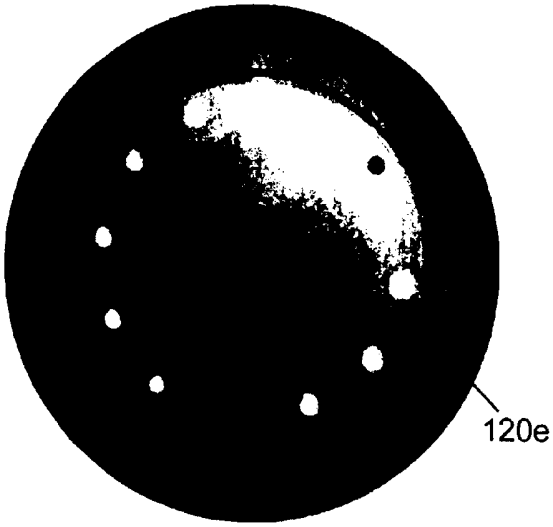

Fig.8(a)

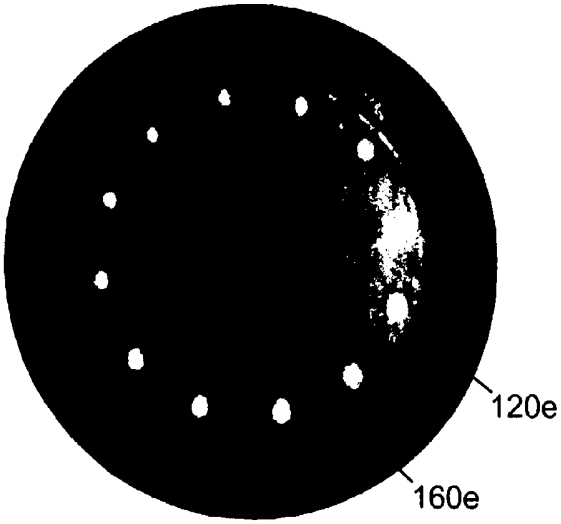

Fig.8(b)