United States Patent [19]

Haschek

[11] **3,708,911**

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[54] RECREATIONAL DEVICE

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[52] **U.S. Cl.** **46/47,** 46/220

[51] **Int. Cl.** **A63h 33/02**

[58] **Field of Search** 46/220, 49, 74, 82–85

[56] **References Cited**

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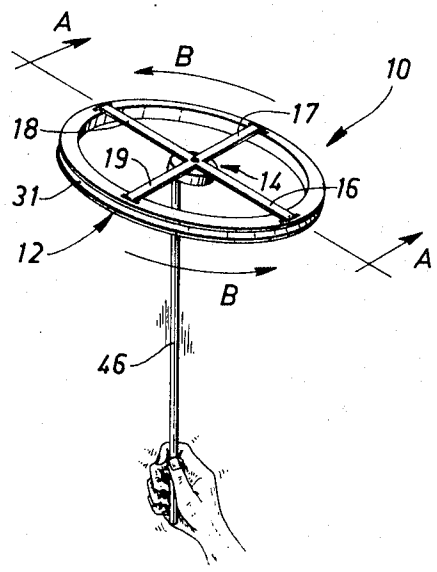
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Assistant Examiner—J. Q. Lever
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[57] **ABSTRACT**

A recreational device includes an outer hoop to which a generally axially disposed hub is secured by radial spokes. The hub includes a discoid portion and a generally cylindrical wall defining a recess so that the device can be spun on the tip of a stick. An axial hole in the hub allows two of the devices to be mounted on a shaft to provide a pair of wheels while, by detaching the hub and the spokes from the hoop, the device is converted into a conventional trundling hoop. By the use of generally trapezoidal vanes having airfoil configurations as the spokes, the device can be caused to fly through the air when spun from the tip of a stick or, by inverting the device, it tends to remain on the tip of such a stick when it is spun thereon.

6 Claims, 10 Drawing Figures



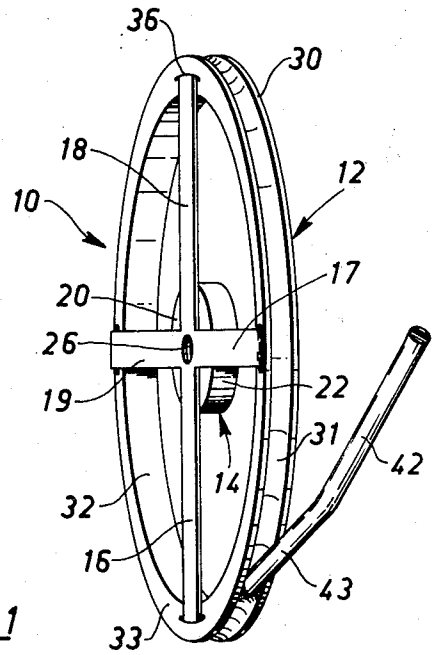


FIG. 1

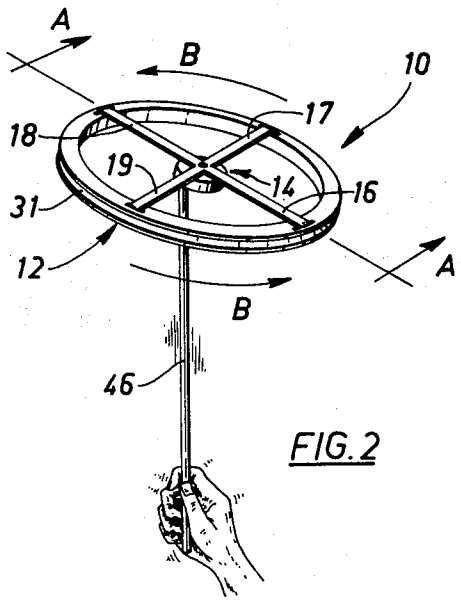


FIG. 2

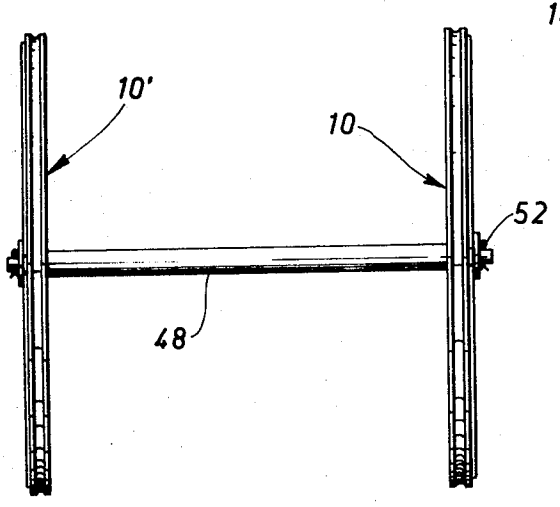
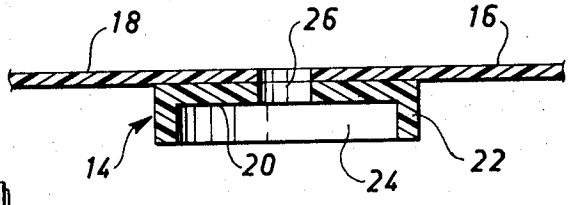


FIG. 3

FIG. 4



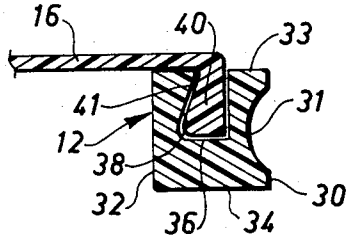


FIG. 5

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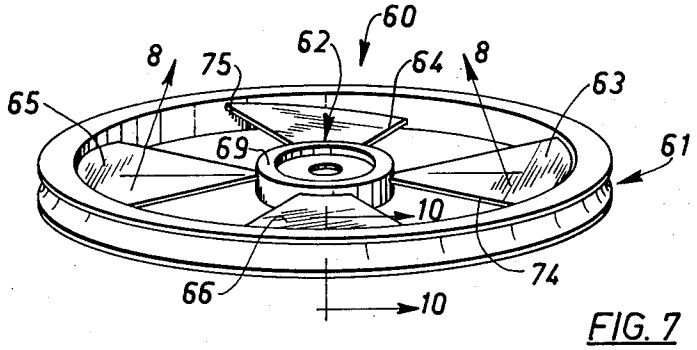


FIG. 7

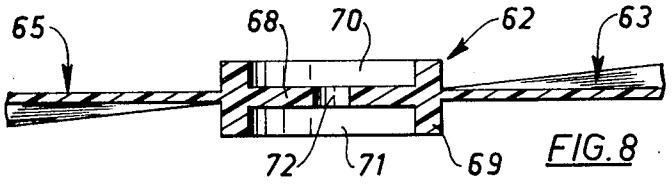


FIG. 8

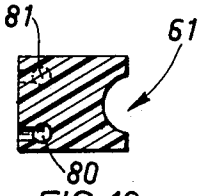


FIG. 10

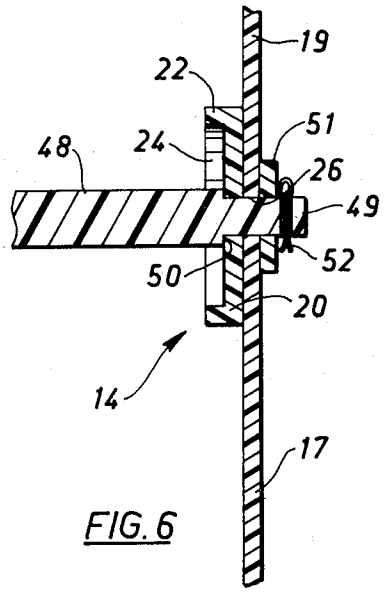


FIG. 6

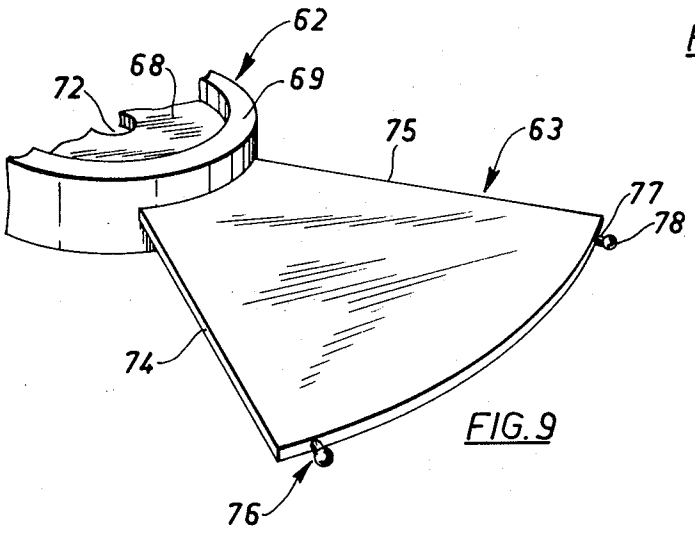


FIG. 9

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RECREATIONAL DEVICE

BACKGROUND OF THE INVENTION

The present invention relates to recreational devices and more particularly to a combination device which can be used both as a trundling hoop and as a spinning toy or device.

Many types of trundling hoops have heretofore been proposed but the various constructions which have been previously proposed for such hoops have nearly all been intended for improving the performance in actual use of such a hoop during its trundling. For example, U.S. Pat. No. 1,953,426 describes a trundling hoop with an external peripheral groove in which the tip of a trundling stick is maintained by a ring secured to the stick and passing through the hoop. U.S. Pat. No. 2,811,812 is directed to what might be described as a trundling disc similarly provided with a peripheral recess for receiving the end of a trundling stick.

In addition to the aforementioned trundling hoops, spinning toys toys which include a spinning element or disc which can be spun on the tip of a stick have also been known for many years. For example, U.S. Pat. No. 476,825 describes a spinning toy which includes an axial conical cap for receiving the tip of a spinning stick while U.S. Pat. No. 2,098,168 describes a spinning toy which is formed with indentations and guide ribs for automatically locating the spinning disc relative to the tip of the spinning stick.

One important object of this invention is to provide a recreational device which includes features of both a trundling hoop and a spinning device.

Another object of this invention, in accordance with a preferred feature thereof, is to provide a recreational device of the aforesaid type and which is easily converted from a trundling hoop to a spinning device.

Yet another object of the present invention is to provide a device of the aforesaid character and which is of exceedingly simple and inexpensive construction.

One further object of this invention is to provide a recreational device which is suitable as a toy for children of all ages and which will also be of interest to older children and even to adults in that its more advanced use requires considerable co-ordination and physical skill.

Other objects of the invention will become apparent as the description herein proceeds.

SUMMARY OF THE INVENTION

Broadly, the present invention provides a recreational device which comprises a hoop defined by inner and outer peripheral surfaces, a generally axially disposed hub and a plurality of spokes interconnecting said hub and said hoop inwardly of said outer peripheral surface thereof for maintaining said hub in generally axial disposition relative to said hoop, and in which said hub includes a discoid portion and depending therefrom an outer skirt wall defining an axial recess for receiving the tip of an elongated playing stick whereby said device can be spun upon such a playing stick.

In accordance with a particularly useful feature of this invention, a recreational device in accordance therewith is constructed so that the spokes are detachably secured to the hoop so permitting those spokes and the hub to be detached completely from the hoop in turn to allow the conventional use of the latter as a trundling hoop.

In accordance with yet another feature of this invention, the hub of a device according to the invention is usefully provided with an axial opening so that two such devices can be removably mounted on a shaft effectively to provide a pair of wheels for use by children.

Other features and advantages of the invention will become apparent as the description herein proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described merely by way of illustration with reference to the accompanying drawings in which:

FIG. 1 is a perspective view of one particularly useful embodiment of a recreational device in accordance with this invention showing one way in which that device can be used as a trundling hoop;

FIG. 2 is a perspective view of the device shown in FIG. 1 but showing the use of that device as a spinning toy;

FIG. 3 is another perspective view showing two of the devices as shown in FIGS. 1 and 2 when such devices are mounted on the ends of a shaft to provide a pair of wheels;

FIG. 4 is an enlarged fragmentary sectional view through the hub of the device shown in FIGS. 1 to 3 when taken as indicated by the arrows A — A of FIG. 2;

FIG. 5 is an enlarged fragmentary sectional view through the hoop of the device shown in FIGS. 1 to 3 when taken as indicated by the arrows A — A of FIG. 2;

FIG. 6 is an enlarged fragmentary sectional view through the hub of one of the devices shown in FIG. 3 and showing a useful manner in which those devices are detachably secured to a shaft;

FIG. 7 is a perspective view of an alternative embodiment of a recreational device in accordance with this invention;

FIG. 8 is an enlarged fragmentary sectional view through the device shown in FIG. 7 when taken as indicated by the arrows 8 — 8 of that figure;

FIG. 9 is an enlarged perspective view of one of the spokes of the recreational device shown in FIG. 7 and also fragmentarily showing the hub of that device; and

FIG. 10 is a section through the hoop of the device shown in FIGS. 7 to 9 when taken as indicated by the arrows 10 — 10 of FIG. 7.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to the device shown in FIGS. 1 to 5 of the accompanying drawings, it will be seen that the recreational device indicated generally at 10 in those figures of the drawings includes a hoop generally indicated at 12, a hub generally indicated at 14 and four equiangularly spaced apart spokes generally indicated at 16, 17, 18 and 19. The spokes 16, 17, 18 and 19 interconnect the hub 14 and the hoop 12 so as to maintain that hub 14 in generally axial disposition relative to the hoop 12.

Referring particularly to FIG. 4, it will now be seen therefrom that the hub 14 includes a generally discoid portion 20 which is integrally formed with a depending

outer skirt wall 22 which, together with the discoid portion 20, define a recess 24.

In the particular device 10, the spokes 16, 17, 18 and 19 are formed as a unitary structure which is usefully secured to the hub 14 by welding or by means of a suitable adhesive. An axial opening 26 is formed through the discoid portion 20 of the hub 14 as well as through the inner ends of the spokes for a purpose which will be more readily understood as the description herein proceeds.

At their outer ends, the spokes 16, 17, 18 and 19 are detachably secured to the hoop 12 in a manner which will best be understood by reference to FIGS. 1 and 5. It will be seen from those figures that the hoop 12 includes a peripheral outer surface 30 with a generally central peripherally extending recess 31 therein and a coaxial peripheral inner surface 32, side surfaces 33 and 34 extending between the inner and outer surfaces 32 and 30 respectively.

The hoop 12 is shown as being provided with four equiangularly spaced apart recesses 36 extending into the hoop from the side surface 33 thereof. Each of the recesses 36 includes an undercut inner wall 38. Tongues 40 integrally formed on the outer ends of the spokes 16, 17, 18 and 19 are received removably in corresponding ones of the recesses 36. Each such tongue 40 has an inner surface 41 having a configuration corresponding to that of the undercut inner walls 38 of the recesses 36 to provide a type of snap action locking of the tongues 40 in the corresponding recesses to allow uncoupling on resilient bending of the ends of the spokes. It is to be noted that the outer ends of the spokes 16, 17, 18 and 19 are disposed inwardly of the peripheral outer surface 30 of the hoop 12 when they are disposed within the recesses 36.

Having described the structure of the device 10, some of the several ways in which that device can be used for recreational purposes will now be considered. In FIG. 1, the device 10 is shown as being used as a trundling hoop. In FIG. 1, the device 10 is shown as being propelled by means of a trundling stick 42 having an angularly offset lower end portion 43 which is received in the aforementioned recess 31 in the peripheral outer surface 30 of the hoop 12.

Although the device 10 is shown in FIG. 1 as being used as a trundling hoop with the hub 14 and the spokes 16, 17, 18 and 19 thereof actually secured to the hoop 12, it will frequently be desirable to detach those particular parts from the hoop 12 for such use. With those parts so detached, the lower end portion 43 of the trundling stick 40 can also be applied against the inner surface 32 of the hoop 12, if, as and when desired, as is common practice with conventional trundling hoops. Furthermore, with the hub 14 and the spokes 16, 17, 18 and 19 detached from the hoop 12, the latter can be used in other ways which would not be possible if the hub 14 were permanently secured to the hoop 12. Merely by way of example, there can be mentioned the use of the hoop 12 as a pitching hoop or even for use as a "hula-hoop."

Referring now to FIG. 2, it will be seen that there is illustrated therein the manner in which the device 10 can be spun on the tip of a spinning stick 46. For such use, the upper end of the spinning stick 46 is received in the aforementioned recess 24 in the hub 14 and, by correct manipulation of the stick 46, the device can be caused to rotate as indicated by the arrows B in FIG. 2. According to the wishes of the user, the aim of the exercise can be to cause the device 10 to remain on the upper end of the stick 46 as it is spun thereon or it can be to cause it to fly off the end of the stick through the air. It should also be understood at this stage that, although the device 10 has been shown as being usable with a trundling stick 42 or with a separate spinning stick 46, the device 10 can be designed so as to be used in either manner with but one stick.

Yet another manner in which the device 10 can be utilized will now be described with reference to FIGS. 3 and 6 of the accompanying drawings. In FIG. 3, the device 10 is shown as being detachably mounted on one end of a shaft 48, a similar device 10' being mounted on the opposite end of the shaft 48. One manner in which the devices 10 and 10' can be detachably secured to the ends of the shaft 48 is shown in FIG. 6 from which it will be seen that the shaft 48 is formed with end sections 49 of reduced diameter and sufficiently small to pass through the aforementioned axial apertures or openings 26 in the hubs 12 of respective ones of the devices 10 and 10' so that shoulders 50 on the shaft abut the inner surfaces of the discoid portions 20 of the hubs 14 of respective ones of the devices 10 and 10'. Washers 51 are usefully disposed on the end sections 49 outwardly of the discoid portions 50 and split pins 52 are received in openings in the outer ends of the end sections 49 thereby detachably to hold the devices 10 and 10' on the shaft 48. In this way, the devices 10 and 10' can be removably mounted on a shaft 48 to provide a pair of wheels with which a child can play and amuse himself in many ways.

Referring now to FIGS. 7 to 10 of the accompanying drawings there is shown therein generally at 60 an alternative embodiment of a recreational device in accordance with this invention. The device 60 is similar to the device 10 already described herein in that it comprises a circular hoop which is generally indicated at 61 and an axially disposed hub generally indicated at 62 and maintained in position by spokes or vanes 63, 64, 65 and 66, extending between the hub 62 and the hoop 61 and detachably secured in a manner yet to be explained, to the hoop 61. The hub 62 of the recreational device 60 differs from the hub 14 of the device 10 in that it includes a discoid member 68 which is integrally formed with an outer cylindrical wall 69 so as to provide recesses 70 and 71 on opposite sides of the device. An axial opening 72 is provided through the member 68 for the same purpose as the axial opening 26 was provided in the device 10. Each of the spokes or vanes 63, 64, 65 and 66 is integrally formed with the cylindrical wall 69 of the hub 62 and has a generally trapezoidal plan configuration including side edges 74 and 75 which diverge in the radially outward direction. Bosses or knobs 76 and 77, each of which includes an enlarged generally spherical head 78 are integrally formed with each of the vanes along the outer edges of those vanes. Correspondingly shaped recess or openings 80 and 81 are formed at appropriate positions in the hoop 61 to permit the two knobs on each of the vanes 63, 64, 65 and 66 detachably to be secured to the hoop 61 as will readily be understood by reference to FIGS. 7, 9 and 10. In particular, it will further be un-

derstood that either the hoop **61** or the spherical heads **78** of the knobs **76** and **77** will be sufficiently resiliently deformable to allow those knobs removably to be inserted into respective ones of the recesses **80** and **81**.

Each of the vanes **63**, **64**, **65** and **66** is usefully formed with an airfoil configuration so as to provide at least some degree of interaction with the air as the device **60** is spun on the tip of a spinning stick in a similar manner to that shown in FIG. **2** for the device **10**. For example, the leading clockwise edge **75** (viewed from below in FIG. **7**) of each of the vanes **63**, **64**, **65** and **66** can be axially offset relative to the corresponding trailing edge **74** of the vane for such a purpose. The leading edge **75** of each vane then slopes upwardly in the radially outwardly direction while each trailing edge **74** slopes downwardly in the same direction. With this particular construction, it will frequency be useful to provide the openings **80** and **81** of each pair of such openings in the hoop **61** at different axial positions on the inner surface of the hoop **61** as shown in FIG. **10**.

By providing such airfoil configurations to the vanes of a device, such as the device **60**, that device can be caused to some extent to fly through the air after it has been spun off the top of a spinning stick. On the other hand, if such a device is inverted on the spinning stick, an opposite but useful effect can be obtained, which effect then tends to hold the device on the spinning stick rather than causing it to fly off such a stick.

Although the devices of the invention, such as the devices **10** and **60** already specifically described herein, can be manufactured from an appropriate material, the use of inexpensive plastics material will generally be advantageous. The use of a sufficiently resilient material is of course required when the spokes or vanes of such a device are detachably secured to the hoop by means of a snap action such as those hereinbefore specifically described.

It will be appreciated that numerous modifications in the constructions hereinbefore specifically described are possible within the scope of this invention and, merely by way of example, it can be mentioned that the invention is not restricted to the use in a device in accordance therewith of four spokes or vanes as hereinbefore specifically described.

What is claimed is:

1. In a recreational device, the combination of a wheel comprising a hoop defined by inner and outer peripheral surfaces, a generally axially disposed hub and a plurality of spokes extending outwardly from said hub and detachably connected to said hoop inwardly of said outer peripheral surface thereof by resiliently deformable securement means for maintaining said hub in generally axial disposition relative to said hoop, and in which said hub includes an annular discoid portion defining a generally axial opening and depending from said annular discoid portion a continuous outer skirt wall defining a generally cylindrical axial recess, and an elongated playing stick comprising a reduced diameter terminal portion defined by a radially extending shoulder and dimensioned freely to be received in said generally axial opening in said discoid portion of said hub for essentially non-eccentric rotation of said wheel on said playing stick and said playing stick having a terminal portion dimensioned to be received in said axial recess in said hub so as to engage said annular discoid portion of said hub outwardly of said axial opening therethrough thereby to support said wheel on that end of said playing stick and whereby, in turn, said wheel can be spun eccentrically on said playing stick, and whereby, on detachment of said spokes from said hoop and on removal of said hub and said spokes from said hoop, that hoop can be used as a trundling hoop.

2. A recreational device as claimed in claim **1** and in which said peripheral outer surface of said hoop is formed with a generally central peripherally extending recess for receiving a tip of said playing stick.

3. A recreational device as claimed in claim **1** and in which said resiliently deformable securement means comprises resiliently deformable members provided at outer ends of said spokes for detachable securement to co-operating securement means provided on said hoop.

4. A recreational device as claimed in claim **1** in which each said spoke is defined by lateral edges which diverge in the radially outward direction and in which each said spoke has an airfoil configuration with one major surface thereof disposed obliquely relative to the major plane of said hoop when said spokes are attached to said hoop.

5. A recreational device as claimed in claim **4** and in which said discoid portion of said hub is integrally formed with a generally cylindrical outer wall thereby to define two said generally cylindrical axial recesses, one on each side of said discoid portion.

6. A recreational device as claimed in claim **3** and in which said hub and said spokes are integrally formed of a resiliently flexible plastics material and in which said resiliently deformable members comprise studs formed at the radially outer ends of said spokes and removably received within corresponding recesses formed in said hoop.

* * * * *