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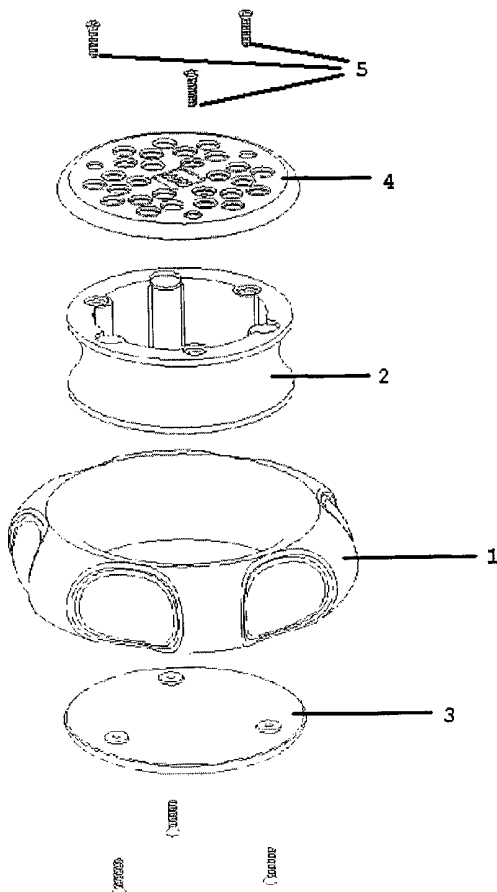
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[Continued on next page]

(54) Title: A BUILDING SET FOR A KICK TOY



(57) Abstract: A building set for building a toy that may be set in motion by kicking it or otherwise causing it to move across a surface. The pattern of movement, properties of reflection, and appearance of the toy may be changed in many ways in that the toy may be modified by replaceable parts, which substantially determine the friction of the toy against the surface of the properties of reflection of the toy when it is reflected from an obstacle, e.g. a wall. In a preferred embodiment, the toy may be disassembled and e.g. comprise a ring (1), a core (2), slide plates (3, 4) and screws (5), which are adapted to be screwed down into the core (2) and thereby keep the parts assembled, so that it e.g. looks like a puck or a hopscotch stone. The building set may comprise many loose parts, e.g. several types of rings (1), several types of cores (2) or several types of slide parts (3 and 4), so that the use can construct a toy having precisely the properties of friction and reflection that are desired.



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A building set for a kick toy

The invention relates to a building set for a kick toy e.g. a puck, hopscotch stone or the like, where the toy, after kicking, describes a path on a surface. The toy may also be pulled or be set in motion in another manner.

A toy of the above-mentioned type is known e.g. from US Patent Specification 5 014 990. Also available are similar toy objects e.g. those which are known from US Patents 3 675 928, 4 078 801 and 3 997 164. The common feature of this known toy is that it has a given configuration so that the characteristics, path of movement, appearance, reflection property, etc. of the toy are given in advance.

Known are also toys that can be disassembled so that certain parts may be replaced. For example, the toy known from US Patent No. 5 951 353 may have inserted therein buoyancy elements, weights or pills with tracers for the training of dogs, and the toy known from US Patent No. 4 940 441 comprises a replaceable, central part so that the appearance may be changed. Finally, the frisbee known from WO 99/24134 is composed of several parts that can be disassembled so that the aerodynamic properties of the toy may be changed.

The object of the invention is to provide a kick toy where the user himself may determine the properties of movement of the toy when the toy moves on a surface, e.g. asphalt or tiles, or hits an obstacle, e.g. a wall.

This object is achieved by means of a building set which comprises replaceable parts which predominantly define

the friction of the kick toy against the surface or against an obstacle.

This provides many possible combinations, as will appear
5 from the following, since the building set may comprise a
basic building set as well as additional friction-defining
loose parts that may be acquired as needed. The toy
can be disassembled so that the slide part may be re-
placed by another slide part. One type of slide part may
10 e.g. be provided with spark stone, so that the toy emits
sparks when it moves across a hard surface. The slide
part may also be adapted to give out tracers, such as
chalk or the like. In an embodiment, the slide part may
comprise a substantially plane ring, but may also be
15 shaped as a segment of a sphere where the convex part
faces away from the core part. The slide part may also be
substantially plane and form an angle with the side facing
toward the core part. The slide surface may also be
shaped in other ways, e.g. with a central dome-shaped
20 projection, but the variation possibilities of the building
set may be increased additionally in that the building
set comprises a plurality of friction pins which may
be arranged selectively in a plurality of through holes
in the slide parts, so that the pins extend substantially
25 axially out from the slide part.

In a preferred embodiment, the toy also comprises re-
placeable core parts and ring parts. There may be several
types of core parts which are radially enclosed by a ring
30 and are axially defined by one or two slide parts. The
core parts may be provided with threaded holes to allow
the toy to be screwed together or be disassembled, and
there may be core parts with an eccentric weight distribution
or movable weights, so that the properties of

movement of the toy may be changed. The core part, just as a ring part, may also contain electronic circuits for the emission of light, sound or radio signals.

5 The ring parts may have different colours and different configurations, which also affect the properties of movement of the toy when e.g. it is kicked or when it is thrown back from a wall. The various rings may be made of a hard or soft elastic material, which also results in
10 various characteristic properties of movement when the toy e.g. hits a wall. The friction properties of the rings may also be changed by means of several rings having differently shaped peripheries, or the rings may have radial holes for receiving various types of radially protruding pins.
15

The toy is preferably adapted to be moved across a firm surface, but it may also be used on water, it being an advantage that the parts can be assembled in a watertight
20 manner. The toy may e.g. be used for playing ducks and drakes. The toy may also be pulled e.g. behind a bicycle and in the daytime leave tracers on the road that show how the toy has moved across the surface, or in the night-time give out sparks if there are spark stones in
25 the slide parts.

To vary the possibilities of the building set according to the invention additionally, the building set may comprise moulds for moulding at least some of the parts belonging to the building set. For example, the building
30 set may comprise a mould for a ring part and comprise moulding means allowing the user himself to mould his own ring, which may thereby be made entirely individual with respect to colours, properties of elasticity and fric-

tion, etc. Several moulds may also be provided for the ring parts so that the moulded ring part may have several different shapes.

5 The invention will be explained more fully by the following description of some embodiments with reference to the drawing, in which

figure 1 shows a toy built with a first embodiment of the
10 building set according to the invention,

figure 2 shows the toy of figure 1, shown in a disassembled state,

15 figures 3 and 4 show a ring for the toy shown in figures 1 and 2,

figures 5 and 6 show a core part for the toy shown in
figures 1 and 2,

20

figures 7 and 8 show slide parts for the toy shown in figures 1 and 2,

figure 9 shows another embodiment of a ring,

25

figure 10 shows pins for arrangement in the ring shown in figure 9,

30

figures 11 and 12 show another embodiment of a slide part,

figures 13 and 14 show friction pins to be received in the slide part shown in figures 11 and 12,

figures 15 - 20 show additional embodiments of slide parts for the building set according to the invention,

figure 21 shows an example of a mould which may belong to
5 the building set.

Figures 1 and 2 show the parts for a first embodiment of a building set according to the invention. The parts are shown assembled in figure 1 and in a disassembled state
10 in figure 2, and comprise a ring 1, a core 2, slides 3 and 4 as well as screws 5 which are adapted to be received in threaded holes in the core 2 so that the core is enclosed by the rings 1, and so that the slides 3 and 4 serve partly as a clamping ring and partly as slide
15 faces for the toy.

The toy is preferably used such that the ring 1 is kicked either to a fellow player or against a wall, following which the toy is returned either by the action of the
20 fellow player or by reflection of the toy from the wall.

Before the versatility of the building set will be explained more fully, the parts shown in figure 1 will be described in greater detail with reference to figures 3 -
25 8. Figures 3 and 4 show the ring 1 of figures 1 and 2 which has a substantially round outer periphery, but with six small incisions 6 that serve to increase the friction when the user kicks the toy to set it in rotation. The cross-sectional shape of the internal contour of the ring
30 depends on how the core is shaped. In some cases, the ring may be pressed down over the core, and in other cases it is expedient that the core consists of two halves that adjoin each other axially. Figures 5 and 6 show an example of a core which is not split. The exter-

nal cross-section of the core has the shape of a rim, and it will be appreciated that the ring must be relatively elastic in order to be pressed down over the core. Figures 5 and 6 also show threaded holes 7 for the screws 5. 5 Figures 7 and 8 show the slide parts 3 and 4 from figure 1, said slide parts having holes 8 for receiving the screws 5 so that the slide parts in figures 7 and 8 may be secured to the core by means of the screws and thereby keep the toy clamped together. The core as well as the 10 slide parts may be made of metal or impact-resistant plastics, e.g. polyamide.

It will readily be appreciated that the reflection properties of the toy, e.g. from a wall, depend on how elastic the ring is. An example of a material may be Silicon 15 Shore 70, but many other materials may be used. However, the reflection properties also depend on the outer shape of the ring, as a relatively smooth ring will be thrown back in the same manner each time, while a ring having 20 protruding edges will be reflected more arbitrarily. The most arbitrary reflection can be achieved by means of the ring shown in figures 9 and 10, where the ring has a plurality of holes 9 for receiving pins 10, which are shown in figure 10. When the toy is to be assembled, the pins 9 25 are first placed in the holes 8, said pins being mounted radially outwards. It can be seen in figure 10 that the pins are slightly conical, and so are the holes 9, such that the pins 10 are effectively retained in the holes 9 when the core is then mounted together with the slide 30 parts. The building set need not just comprise one type of pins, but there may be several types of different length, different thickness, and finally the coefficient of elasticity of the material may be varied. The user can

hereby build a ring that gives the toy very different reflection properties from a wall.

What makes the building set quite extraordinary is that the user is given the possibility of building the toy himself to meet the need of the moment. The need may depend on how many persons take part in the game, which surface is used for the game, and which wall, if any, is used for throwing back the toy. One may also play with the toy alone, and either pass it on right away against the wall or train oneself in stopping it. No matter how the toy is played with, it is possible to achieve many other variations in addition to those already mentioned, as will appear from the following.

Figures 11 and 12 show another embodiment of a slide for the toy. The slide in figures 11 and 12 has a plurality of holes 10a, 10b, 10c which are arranged in six groups. A friction pin 11 may be arranged in arbitrary ones of the holes, as shown in figure 13, one end 13 being slightly conical to fit corresponding holes 10a, 10b, 10c, the other end 12 being intended to increase the friction against the surface. To fix the friction pin better, it may have a group of three pins 13a, 13b, 13c as shown in figure 14, said pins fitting the holes 10a, 10b, 10c. As explained in connection with the pins 10 in figure 10, the pins in figures 13 and 14 may have different material properties. The building set may comprise a plurality of different pins with different coefficients of friction and with different coefficients of elasticity. Thus, by exchanging the pins, the user can see how the path of movement of the toy changes across a surface. The pins may also be configured as spark stones, so that sparks are given out from the toy when it slides across a

surface, and the pins may also be configured to give out tracers, e.g. chalk or another colour, so that a line is drawn on the surface where the toy has moved.

5 The pattern of movement may also be affected by replacing the core part by a core part having an eccentric weight distribution, or by a core part where the user himself can determine the weight distribution.

10 Figures 15 and 16 show an additional embodiment of a slide for the building set according to the invention. The slide in figures 15 and 16 is formed as a segment of a sphere, where the flat side faces toward the core, while the convex side faces toward the surface. Screw
15 holes 8 as well as holes 14 for receiving friction pins are shown. This form of slide causes the toy to more readily jump into the air if it hits a minor obstacle.

The embodiment of a slide shown in figures 17 and 18 will
20 also make the toy jump into the air, but in a less predictable manner than is the case with the slide shown in figures 15 and 16. The slide in figures 17 and 18 also has holes 8 and screw holes 14 for friction pins or the like.

25 As a further example, a slide is shown in figures 19 and 20 which is substantially plane and centrally has a small outwardly protruding dome 15. The dome 15 may have a coefficient of friction and a coefficient of elasticity
30 which are different from the rest of the slide face in figures 19 and 20.

Figure 21 shows a mould 20 having an upper part 21 and a lower part 22. The upper part 21 has a hole 23 for inser-

tion of a moulding compound when the mould is closed. After setting, a ring may be taken out as shown at 24. A building set may contain one or more moulds, and there may be several moulding compounds so that the user can
5 make his own individual ring for his toy.

P a t e n t C l a i m s :

1. A building set for a kick toy, e.g. a puck, a hop-
5 scotch stone or the like, which may be set in motion and
thereby be caused to move along a path on a surface,
c h a r a c t e r i z e d in that the building set
comprises replaceable parts which predominantly define
the friction of the kick toy against the surface.
- 10 2. A building set according to claim 1, c h a r a c -
t e r i z e d in that the building set comprises several
types of slide parts having coupling means for the mount-
ing of the slide parts on a core part in the toy.
- 15 3. A building set according to claim 2, c h a r a c -
t e r i z e d in that there are slide parts with spark
stones.
- 20 4. A building set according to claim 2, c h a r a c -
t e r i z e d in that there are slide parts which are
adapted to give out tracers.
- 25 5. A building set according to claims 2-4, c h a r a c -
t e r i z e d in that one type of slide part has the
shape of a segment of a sphere, which has a substantially
plane side facing toward the core part, and which has a
convex side facing away from the core part.
- 30 6. A building set according to claims 2-4, c h a r a c -
t e r i z e d in that one type of slide part comprises a
substantially plane ring.
7. A building set according to claims 2-4, c h a r a c -

t e r i z e d in that one type of slide part has a substantially plane side facing toward the core part and has a substantially plane slide side, which faces away from the core part, and which forms an acute angle with said
5 plane side.

8. A building set according to claim 6 or 7, c h a r -
a c t e r i z e d in that a dome-shaped projection is provided in the centre of the side facing away from the
10 core part.

9. A building set according to claims 2-8, c h a r a c -
t e r i z e d in that the slide parts have a plurality of through holes, and that the building set comprises a
15 plurality of pins which may be arranged in one or more of the holes so that the pins extend substantially axially out from the slide part.

10. A building set according to claim 1, c h a r a c -
20 t e r i z e d in that the building set comprises additional interconnectible and replaceable parts, such as core parts and ring parts which are substantially mutually co-axially positioned.

25 11. A building set according to claim 10, c h a r a c -
t e r i z e d in that the building set comprises several types of ring parts.

12. A building set according to claim 10, c h a r a c -
30 t e r i z e d in that the ring parts have different colours.

13. A building set according to claim 11 or 12,

c h a r a c t e r i z e d in that the outer peripheries of the rings have different configurations.

14. A building set according to claims 11-13, c h a r -
5 a c t e r i z e d in that one ring type has radially outwardly protruding pins.

15. A building set according to claims 11-14, c h a r -
a c t e r i z e d in that there are ring types having
10 incorporated electronic circuits.

16. A building set according to claims 11-14, c h a r -
a c t e r i z e d in that the rings are fully or partly
made of a hard elastic material.

15 17. A building set according to claims 11-14, c h a r -
a c t e r i z e d in that the rings are fully or partly
made of a soft elastic material.

20 18. A building set according to claim 2, c h a r a c -
t e r i z e d in that the building set comprises several
types of core parts which are radially enclosed by a ring
part and are axially defined by slide parts.

25 19. A building set according to claim 18, c h a r a c -
t e r i z e d in that the core part has a plurality of
threaded holes for receiving screws for the attachment of
the slide parts.

30 20. A building set according to claim 18, c h a r a c -
t e r i z e d in that the core part has an eccentric
weight distribution.

21. A building set according to claim 20, c h a r a c -

t e r i z e d in that the core part comprises movable weights.

22. A building set according to claims 18-21, c h a r -
5 a c t e r i z e d in that the core part contains elec-
tronic circuits.

23. A building set according to claim 22, c h a r a c -
t e r i z e d in that the core part is adapted to emit
10 light, sound or radio signals.

24. A building set according to claim 10, c h a r a c -
t e r i z e d in that the building set comprises gaskets
for watertight mutual mounting of core part, ring part
15 and slide parts.

25. A building set according to claim 1 or 2, c h a r -
a c t e r i z e d in that the building set comprises
moulds for moulding at least some of the parts belonging
20 to the building set.

26. A building set according to claim 25, c h a r a c -
t e r i z e d in that it comprises at least one mould
for the ring parts.

25

27. A building set according to claim 25 or 26,
c h a r a c t e r i z e d in that the building set com-
prises different moulding means having different proper-
ties of friction and elasticity.

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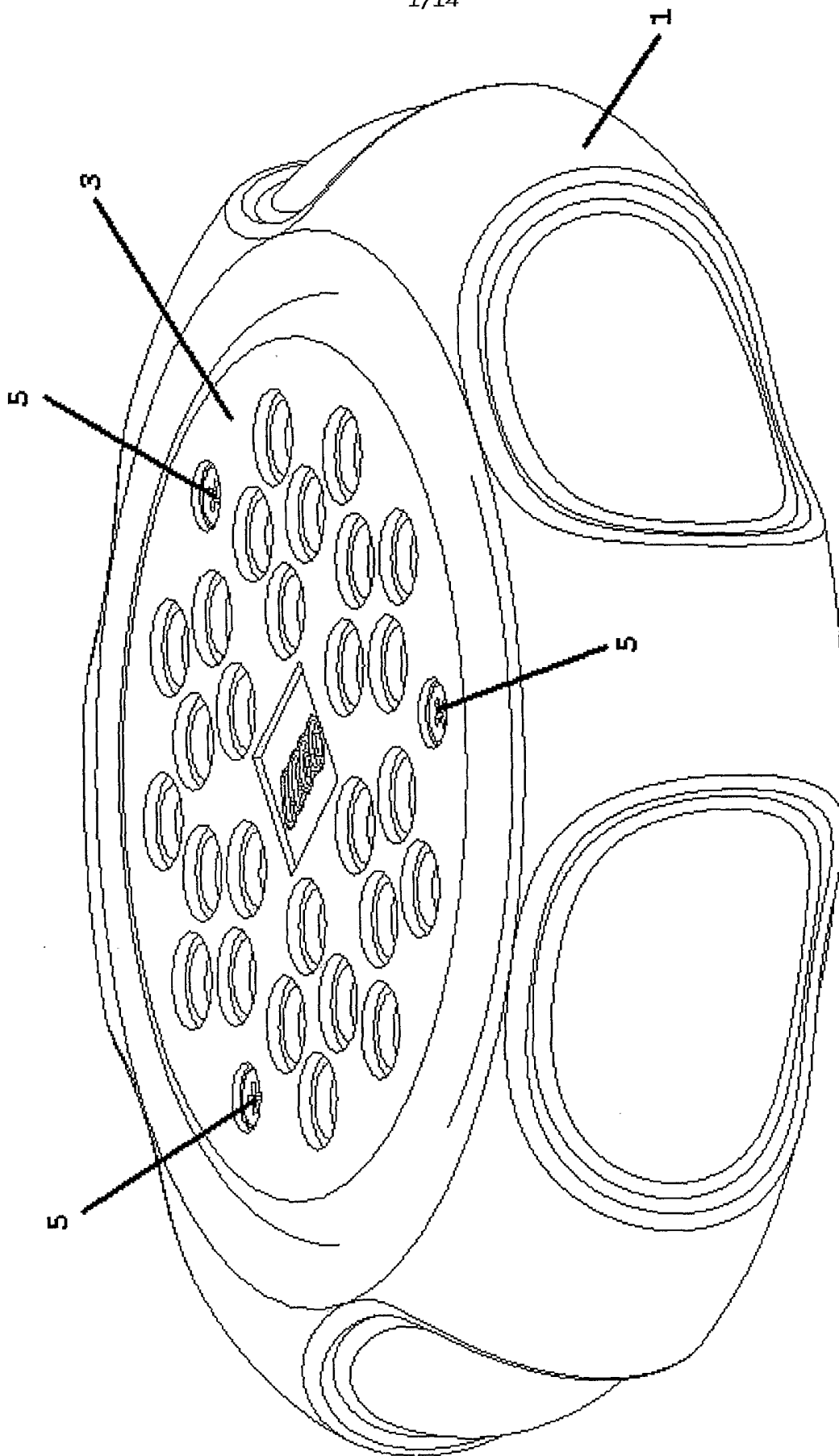
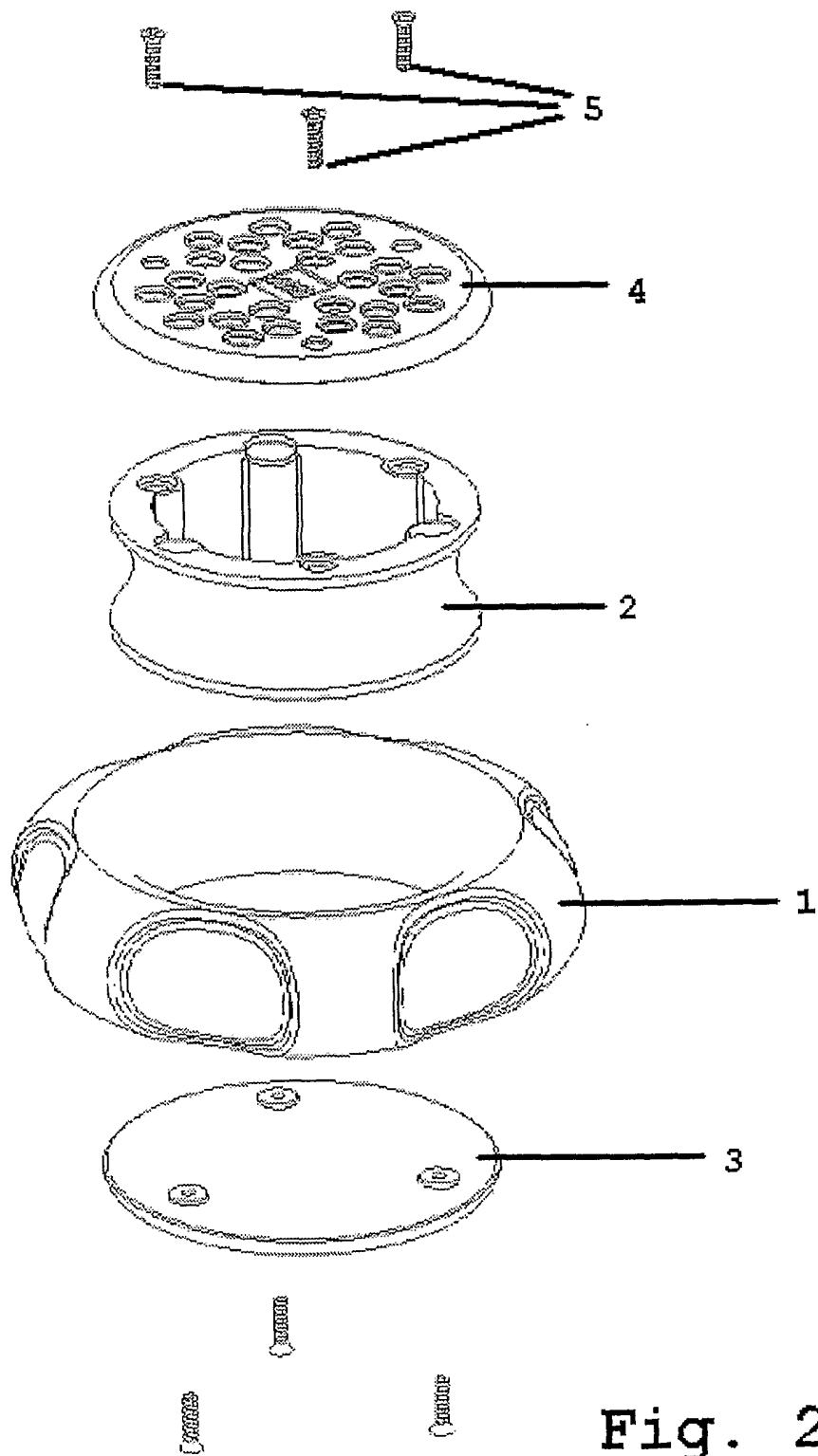


Fig. 1



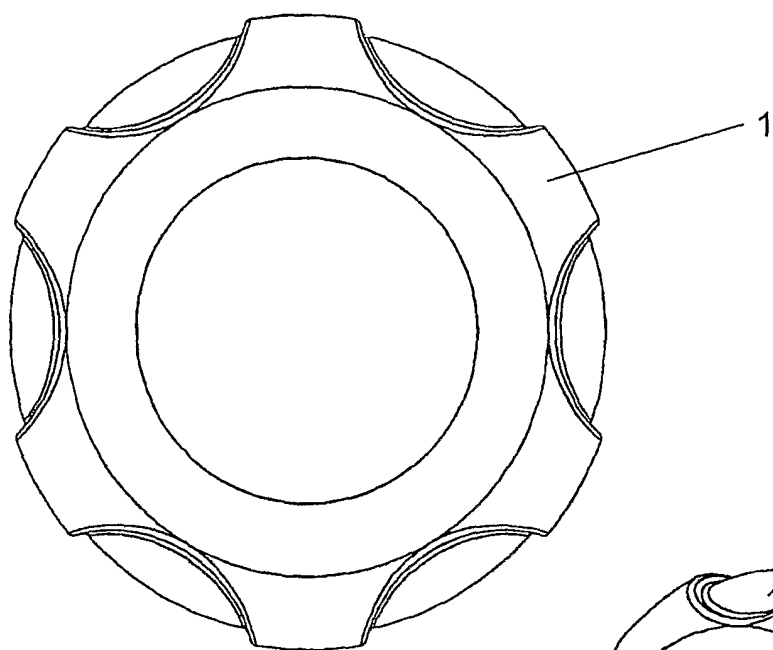


Fig. 3

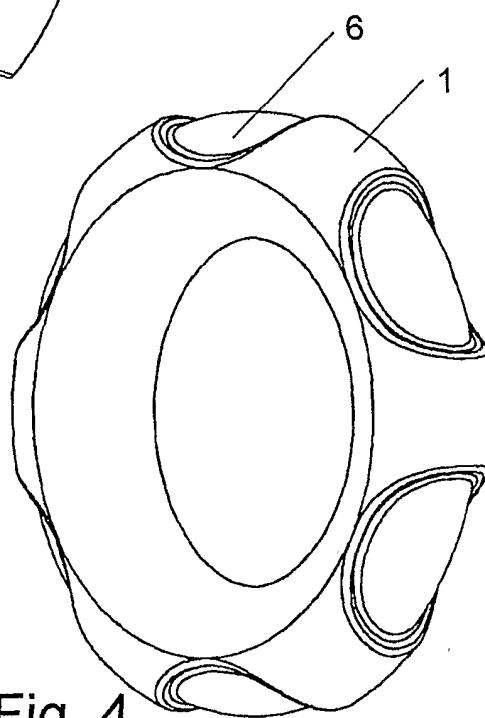


Fig. 4

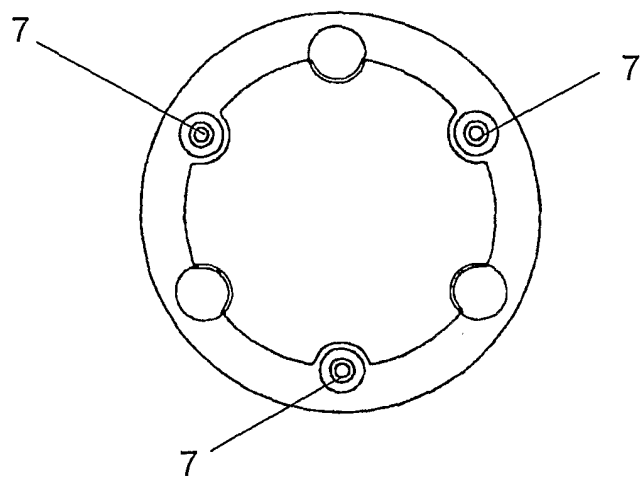


Fig. 5

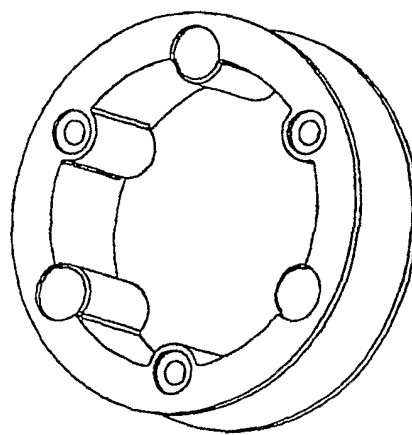


Fig. 6

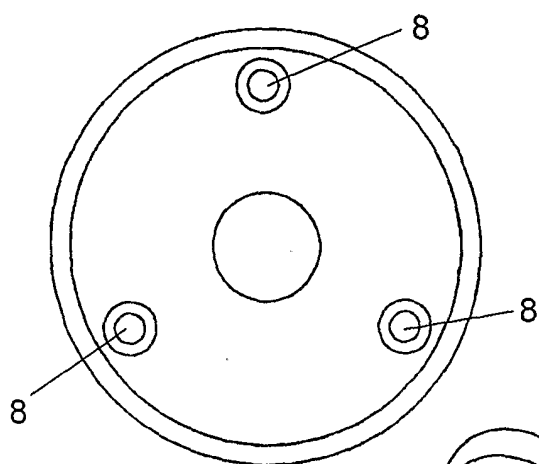


Fig. 7

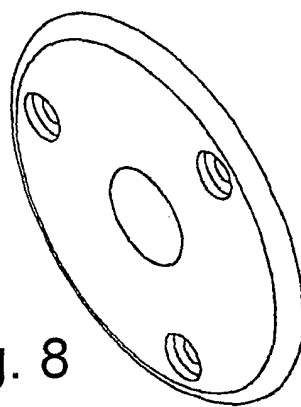


Fig. 8

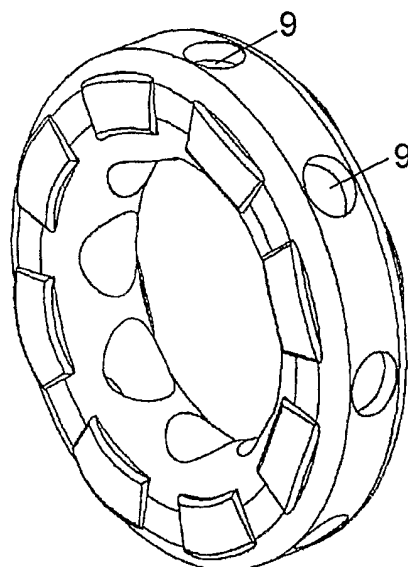


Fig. 9

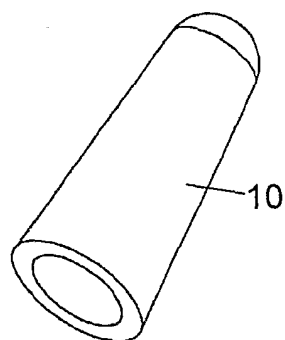


Fig. 10

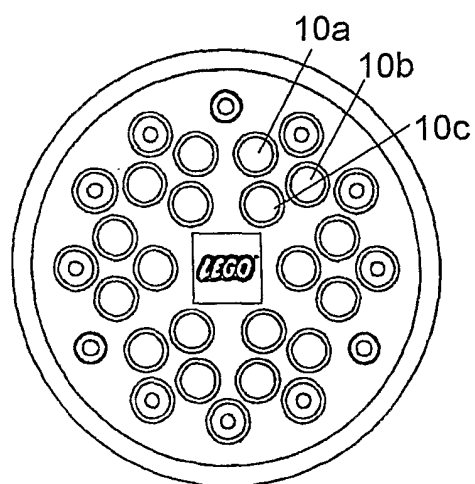


Fig. 11

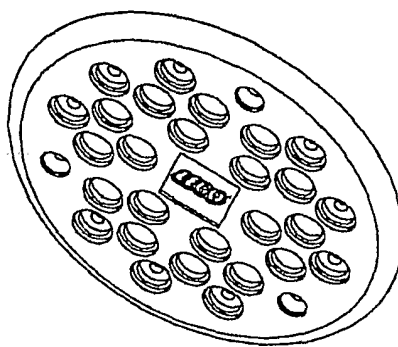


Fig. 12

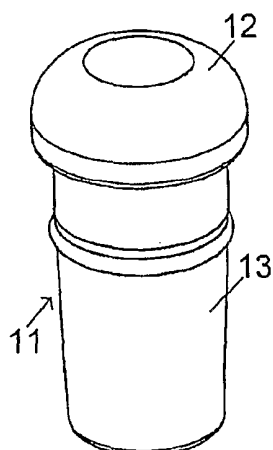


Fig. 13

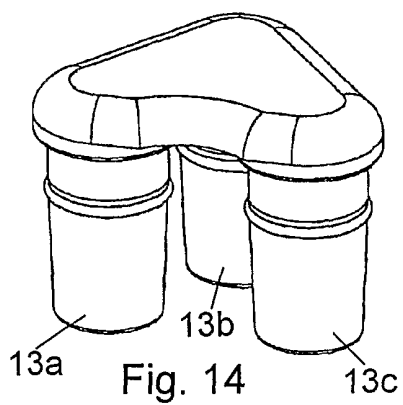


Fig. 14



Fig. 15

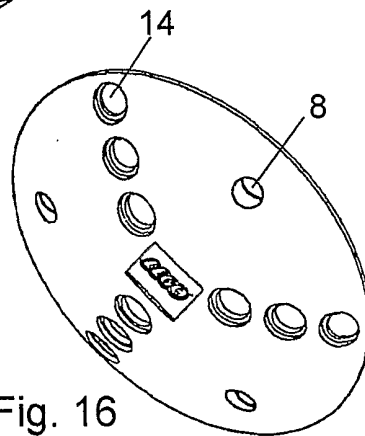


Fig. 16



Fig. 17

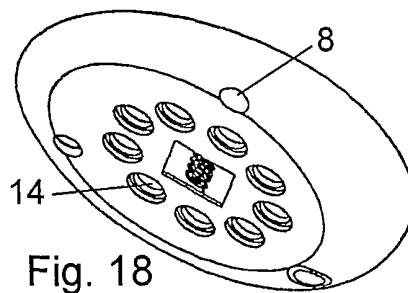


Fig. 18



Fig. 19

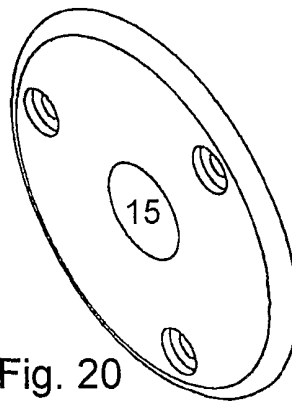


Fig. 20

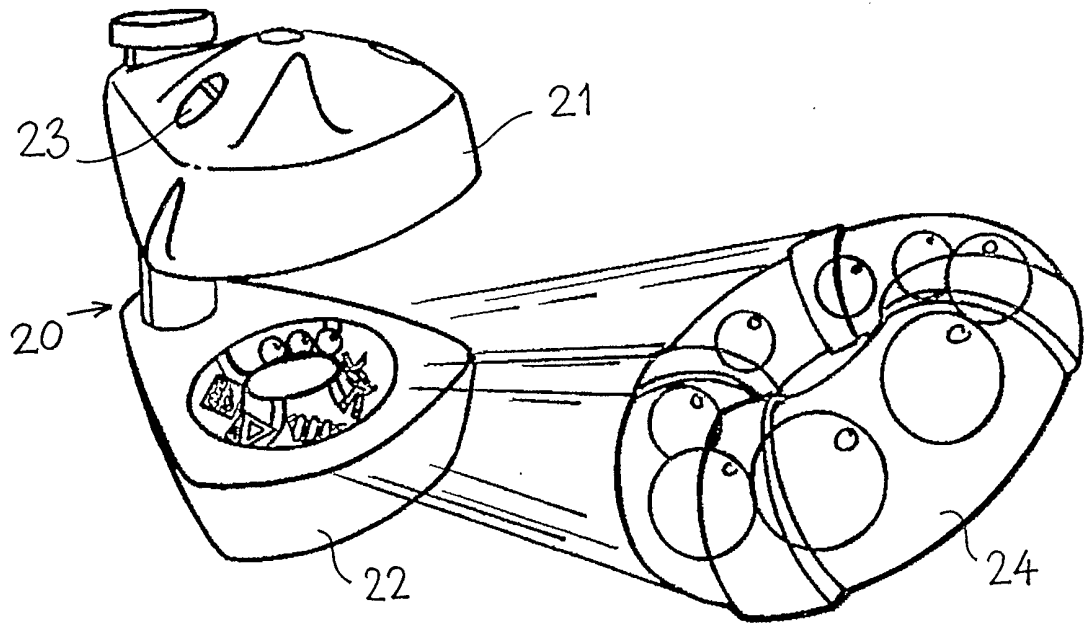


Fig. 21

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 01/00370

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A63H 33/18 // A63B 71/00, A63B 67/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A63H, A63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI-DATA, PAJ, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5816965 A (KOTLER), 6 October 1998 (06.10.98), column 3, line 29 - line 48; column 6, line 1 - column 7, line 50, figures 1,6	1,2,5,6,9
Y	--	10-14,15-23
Y	US 5951353 A (MOORE), 14 Sept 1999 (14.09.99), column 3, line 59 - column 4, line 2, figure 1, abstract	10-14,16, 19-21
Y	US 5014990 A (KASER ET AL), 14 May 1991 (14.05.91), column 3, line 45 - line 60, figure 6, abstract	17,18

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

15 August 2001

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Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 01/00370

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5720651 A (CHIEN), 24 February 1998 (24.02.98), figure 7, claim 2, abstract -- -----	15,22,23

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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