



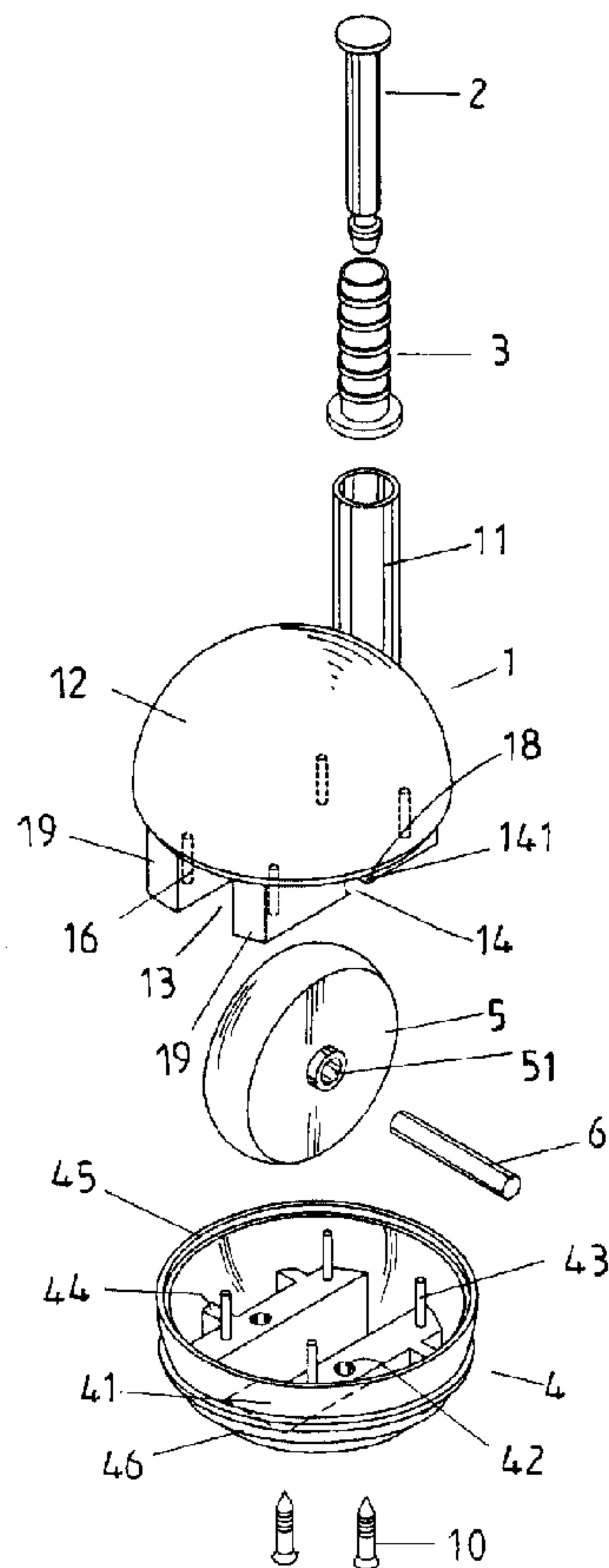
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(54) **ROUES DE TROTTE-BEBE OU DE POUSSETTE**

(54) **WHEEL ASSEMBLY FOR A BABY WALKER OR STROLLER**



(57) A wheel assembly includes a connecting member connected to a frame of a baby walker or stroller, thereby allowing the upper shield to rotate relative to the frame. The upper shield further includes two opposite walls defining an upper compartment therebetween, the opposite walls including a pair of aligned axle receiving holes. A lower shield is connected to the upper shield and includes a lower compartment that aligns with the upper compartment. A wheel is rotatably received in the upper compartment and a lower compartment and has a lower end extended beyond the lower compartment. An axle is extended through an axle hole of the wheel and the axle receiving holes of the upper shield. The upper shield and the lower shield cover the axle hole of the wheel and the axle to prevent entrance of alien objects.

Abstract of the Disclosure

A wheel assembly includes a connecting member connected to a frame of a baby walker or stroller, thereby allowing the upper shield to rotate relative to the frame. The upper shield further includes two opposite walls defining an upper compartment therebetween, the opposite walls including a pair of aligned axle receiving holes. A lower shield is connected to the upper shield and includes a lower compartment that aligns with the upper compartment. A wheel is rotatably received in the upper compartment and a lower compartment and has a lower end extended beyond the lower compartment. An axle is extended through an axle hole of the wheel and the axle receiving holes of the upper shield. The upper shield and the lower shield cover the axle hole of the wheel and the axle to prevent entrance of alien objects.

Wheel Assembly for a Baby Walker or Stroller

Background of the Invention

1. Field of the Invention

The present invention relates to a wheel assembly for a child's wheeled gear (e.g., a baby walker or stroller) with improved smooth rotation, safety, and aesthetically pleasing effect.

2. Description of the Related Art

Fig.10 of the drawings illustrates a conventional wheel assembly for a baby walker or stroller. The wheel assembly includes a wheel seat 1' having a hub 121' and a tube 11' formed on a side thereof and connected to the hub 121' via ribs 12'. A tubular connecting member 3' is mounted around the tube 11' and a connecting post 2' is extended through a longitudinal hole 31' of the tubular connecting member 3'. The tubular connecting member 3' further includes outer threading 32' for engaging with a frame of the baby walker or stroller. Thus, the wheel seat 1' is rotatable through 360° relative to the frame of the baby walker or stroller. Two wheels 4' are mounted on both sides of the hub 121' and an axle 5' is extended through the hub 121' and axle holes 41' of the wheels 41.

It is, however, found that dust and/or alien objects tend to enter the exposed axle holes 41' of this wheel assembly such that friction to the axle 5' is increased. As a result, the wheels 4' may not rotate smoothly. The exposed ends of the axle 5' adversely affect the aesthetically pleasing effect. In addition, referring to Fig. 11, the wheels 4' are not shielded such that the wheels 4' cannot be stopped by objects having a height lower than a radius of the wheel 4'. More specifically, it is possible for the child in the baby walker or stroller to move to a dangerous place and thus gets hurt if adult is not aware of the situation. If obstacles are provided to avoid such situation, walking inconvenience to adults is incurred. Furthermore, the baby or child may reach his/her fingers or toes into a space "A" (Fig. 12) between the wheels 4' and thus be injured.

1 Fig.13 of the drawings illustrates another conventional wheel assembly for a baby
2 walker or stroller. The wheel assembly includes a wheel seat 6' having a semi-ball like body
3 62' with an axle hole 63' therein and a tube 61' extended upward therefrom. A tubular
4 connecting member 8' is mounted around the tube 61' and a connecting post 7' is extended
5 through the tubular connecting member 8'. The tubular connecting member 8' further includes
6 outer threading (not labeled) for engaging with a frame of the baby walker or stroller. Thus,
7 the wheel seat 6' is rotatable through 360° relative to the frame of the baby walker or stroller.
8 A larger semi-ball like wheel 9' is mounted to a side of the wheel seat 6' and an axle 92' is
9 extended through the axle hole 63' in the wheel seat 6' and an axle hole 93' of the wheel 9'.
10 The wheel 9' includes a wheel rim 91' having a diameter larger than that of the body 62' and in
11 contact with ground for rolling.

12 Nevertheless, dust and/or alien objects also tend to enter the exposed axle holes 93' and
13 63' of this wheel assembly such that friction to the axle 92' is increased. As a result, the wheel
14 9' may not rotate smoothly. The exposed ends of the axle 92' adversely affect the aesthetically
15 pleasing effect. In addition, it is possible for the child in the baby walker or stroller to move to
16 a dangerous place and thus gets hurt if adult is not aware of the situation, as the wheel 9' is not
17 shielded. Furthermore, the baby or child may reach his/her fingers or toes into a space between
18 the wheel 9' and the body 62' and thus be injured.

19 The present invention is intended to provide an improved wheel assembly that mitigates
20 and/or obviates the above problems.

21 Summary of the Invention

22 It is a primary object of the present invention to provide an improved wheel assembly
23 for a child's wheeled gear (e.g., a baby walker or stroller) having an almost completely hidden
24 wheel to avoid entry of dust or alien objects into the axle and to provide an aesthetically
25 pleasing effect.

1 It is another object of the present invention to provide an improved wheel assembly for
2 a baby walker or stroller having a stop so as to be easily stopped by a short obstacle to prevent
3 potential injury to the child in the baby walker or stroller.

4 In accordance with one aspect of the invention, a wheel assembly for a child's wheeled
5 gear comprises:

6 an upper shield comprising a connecting means adapted to be connected to a frame of
7 the child's wheeled gear, thereby allowing the upper shield to rotate relative to the frame, the
8 upper shield further comprising two opposite walls defining an upper compartment
9 therebetween, the opposite walls including a pair of aligned axle receiving holes,

10 a lower shield connected to the upper shield, the lower shield comprising a lower
11 compartment that aligns with the upper compartment,

12 a wheel rotatably received in the upper compartment and a lower compartment and
13 having a lower end extended beyond the lower compartment, the wheel including an axle hole,
14 and

15 an axle extended through the axle hole of the wheel and the axle receiving holes of the
16 upper shield,

17 wherein the upper shield and the lower shield cover the axle hole of the wheel and the
18 axle to prevent entrance of alien objects.

19 In accordance with a second aspect of the invention, a wheel assembly for a child's
20 wheeled gear comprises:

21 an upper shield comprising a connecting means adapted to be connected to a frame of
22 the child's wheeled gear, thereby allowing the upper shield to rotate relative to the frame, the
23 upper shield further comprising an upper compartment,

24 a lower shield connected to the upper shield, the lower shield comprising two opposite
25 walls defining a lower compartment therebetween, the lower compartment being aligned with
26 the upper compartment, the opposite walls of the lower shield including a pair of aligned axle
27 receiving holes,

1 a wheel rotatably received in the upper compartment and a lower compartment and
2 having a lower end extended beyond the lower compartment, the wheel including an axle hole,
3 and

4 an axle extended through the axle hole of the wheel and the axle receiving holes of the
5 lower shield,

6 wherein the upper shield and the lower shield cover the axle hole of the wheel and the
7 axle to prevent entrance of alien objects.

8 The upper shield further comprises at least one positioning hole and the lower shield
9 further comprises at least one positioning peg for engaging with said at least one positioning
10 hole.

11 The upper shield further comprises a first engaging ledge on a lower end thereof and the
12 lower shield further comprises a second engaging ledge on an upper end thereof for engaging
13 with the first engaging ledge.

14 The upper shield further comprises at least one upper engaging hole therein and the
15 lower shield further comprises at least one lower engaging hole aligned with said at least one
16 upper engaging hole, and further comprising at least one screw extended through said at least
17 one lower engaging hole and said at least one upper engaging hole.

18 At least one of the upper shield and the lower shield comprises a plurality of reinforcing
19 ribs. The lower shield further comprises a stop on an outer periphery thereof so as to be
20 stopped by an obstacle when desired.

21 Each axle receiving hole includes an access having a width slightly smaller than a
22 diameter of the axle, thereby allowing the axle to be forcibly inserted into the axle receiving
23 hole via the access.

24 The upper or lower shield further comprises a second pair of aligned axle receiving
25 holes at a level different from that of the first-mentioned pair of axle receiving holes for
26 optional engagement of the axle to one of the first pair of axle receiving holes and the second
27 pair of the axle receiving holes.

1 Other objects, advantages, and novel features of the invention will become more
2 apparent from the following detailed description when taken in conjunction with the
3 accompanying drawings.

4 **Brief Description of the Drawings**

5 Fig. 1 is an exploded perspective view of a wheel assembly for a baby walker or stroller
6 in accordance with the present invention;

7 Fig. 2 is a perspective view of the wheel assembly in accordance with the present
8 invention;

9 Fig. 3 is a sectional view taken alone line A-A in Fig. 2;

10 Fig. 4 is a sectional view taken alone line B-B in Fig. 2;

11 Fig. 5 is a side view illustrating operation of the stop of the wheel assembly;

12 Fig. 6 is a schematic side view illustrating a tie-up member for the wheel assembly;

13 Fig. 7 is a perspective view of a modified embodiment of the wheel assembly in
14 accordance with the present invention;

15 Fig. 8 is a perspective view of another modified embodiment of the wheel assembly in
16 accordance with the present invention;

17 Fig. 9 is a perspective view of still another modified embodiment of the wheel assembly
18 in accordance with the present invention;

19 Fig. 10 is an exploded perspective view of a conventional wheel assembly for a baby
20 walker or stroller;

21 Fig. 11 is a side view illustrating movement of the conventional wheel assembly in Fig.
22 10;

23 Fig. 12 is a perspective view of the conventional wheel assembly in Fig. 10; and

24 Fig. 13 is an exploded perspective view of another conventional wheel assembly for a
25 baby walker or stroller.

Detailed Description of the Preferred Embodiments

Referring to Figs. 1 through 9 and initially to Figs. 1 through 4, a wheel assembly for a child's wheeled gear (e.g., a baby walker or stroller) in accordance with the present invention generally includes a wheel seat 1 comprising an upper shield 12 and a lower shield 4. A tube 11 extends upwardly from the upper shield 12. A tubular connecting member 3 is mounted around the tube 11 and a connecting post 2 is extended through a longitudinal hole (not labeled) of the tubular connecting member 3. The tubular connecting member 3 further includes outer threading (not labeled) for engaging with a frame (not shown) of the baby walker (not shown) or stroller (not shown). Thus, the wheel seat 1 is rotatable through 360° relative to the frame of the baby walker or stroller.

The upper shield 12 includes a wheel receiving compartment 13 defined between two opposite walls 19 that have aligned axle holes 14. The compartment 13 is adapted to receive an upper portion of a wheel 5. Each wall 19 includes an axle receiving hole 14 with an access 141 having a width slightly smaller than the diameter of an axle 6, thereby allowing the axle 6 to be forcibly inserted into the axle receiving holes 14 via the accesses 141. The upper shield 12 includes a number of engaging holes 15 (Fig. 3) for engaging with the lower shield 4, which will be described later. The upper shield 12 further includes a number of positioning holes 16 (Fig. 1) and reinforcing ribs 17 (Fig. 3). Formed on a lower end edge of the upper shield 12 is an engaging ledge 18.

The lower shield 4 includes a width wider than the diameter of the wheel 5. Formed in a lower end of the lower shield 4 is a wheel receiving compartment 41 that has a width greater than that of the wheel 5. A lower end of the wheel 4 extends beyond the lower shield 4 and thus may roll on the ground (Fig. 3). The lower shield 4 further includes a number of engaging holes 42 (Fig. 3) aligned with the engaging holes 15 of the upper shield 12, and screws 10 are extended into the engaging holes 15 and 42 to secure the upper shield 12 and the lower shield 4 together. The lower shield 4 further includes a number of positioning pegs 43 (Fig. 1) for engaging with the positioning holes 16 of the upper shield 4, thereby providing a securer

1 engagement therebetween. The lower shield 4 further includes a number of reinforcing ribs 44
2 (Fig. 1). In addition, the lower shield 4 includes an engaging ledge 45 (Figs. 1 and 3)
3 complimentary to the engaging ledge 18 of the upper shield 12, thereby providing a fitting
4 engagement therebetween. The lower shield 4 further includes a stop 46 (preferably annular)
5 on an outer periphery thereof.

6 The wheel 5 includes an axle hole 51 (Fig. 1) through which the axle 6 extends. The
7 wheel 5 is rotatably mounted in the compartments 13 and 41 by means of engaging the axle 6
8 with the axle receiving holes 14 of the upper shield 12.

9 In assembly, the axle 6 is extended through the axle hole 5 of the wheel 5. Next, two
10 ends of the axle 6 are forcibly inserted into the axle receiving holes 14 via the accesses 141,
11 respectively, thereby rotatably mounted the wheel 5 and the axle 6 to the upper shield 12. The
12 lower shield 4 is then attached to a bottom of the upper shield 12 with the positioning pegs 43
13 engaged in the positioning holes 16 and with the engaging ledge 18 engaged with the engaging
14 ledge 45. In addition, screws 10 are inserted into the holes 42 and 15 to securely connect the
15 lower shield 4 with the upper shield 12, while allowing the lower portion of the wheel 5
16 beyond the compartment 41 for rolling on the ground.

17 Thus, the axle hole 51 of the wheel 5 and the axle 6 are covered by the upper and lower
18 shields 12 and 4 (Fig. 2), thereby preventing entrance of alien objects or dust that may affect
19 smooth rotation of the wheel 5. In addition, the upper and lower shields 12 and 4 cover all of
20 the components and thus provide an aesthetically pleasing effect, while avoiding potential
21 injury to children by means of preventing access of children's toes or fingers into the upper
22 and lower shield 12 and 4.

23 Referring to Fig. 5, when the wheel assembly of the invention is attached to a baby
24 walker (not shown) or stroller (not shown) and rolls on the ground, only a small portion of the
25 wheel 5 is exposed. Thus, an adult may easily find an obstacle 7 that is higher than the height
26 of the exposed portion of the wheel 5 to thereby limit movement of the wheel 5. The obstacle
27 7 may be placed to the access to the topmost one of stairs or similar location. Thus, the baby

1 walker or stroller can be stopped easily if desired, thereby preventing potential injury to the
2 child in the baby walker or stroller. Referring to Fig. 6, the obstacle 71 may include a tie-up
3 member 711 for engaging with the stop 46. The obstacle 71 may further include a trough 712
4 for receiving and thus elevating the wheel 5, thereby stopping movement of the wheel 5 in the
5 forwarding direction. The wheel 5 may slide along the slope of the obstacle 71 back to the
6 ground in the reverse direction for continuous movement.

7 Fig. 7 illustrates a modified embodiment of the invention, wherein the upper and lower
8 shields are rectangular rather than semi-spherical. Fig. 8 illustrates a further modified
9 embodiment, wherein the wheel 5 and the axle 6 are mounted to the lower shield (now
10 designated by 8) rather than the upper shield (now designated by 9). Fig. 9 illustrates a further
11 modified embodiment, wherein the upper shield 91 includes two pairs of axle receiving holes
12 912 and 913 at different levels to allow adjustment of the exposed extent of the wheel 5. Thus,
13 the wheel 5 can be adjusted to roll over a rugged road or smooth road.

14 According to the above description, it is appreciated that the wheel assembly in
15 accordance with the present invention includes the following advantages when compared with
16 a conventional one:

- 17 (1) the axle hole of the wheel and the axle are covered by the upper and lower shields,
18 thereby preventing entrance of alien objects or dust that may affect smooth rotation
19 of the wheel;
- 20 (2) the upper and lower shields covering the components provide an aesthetically
21 pleasing effect, and potential injury to children is avoided by means of preventing
22 access of children's toes or fingers into the upper and lower shields;
- 23 (3) a short obstacle may be used to stop the wheel, thereby providing improved safety
24 while reducing walking inconvenience to adults;
- 25 (4) the upper and lower shields are securely connected by means of positioning
26 holes/positioning pegs, engaging ledges, and screws, thereby providing a reliable

1 engagement therebetween, while avoiding shifting of the axle receiving
2 compartment in the lower shield toward the wheel edge; and

3 (5) the exposed extent of the wheel may be adjusted to suit different road conditions.

4 Although the invention has been explained in relation to its preferred embodiment, it is
5 to be understood that many other possible modifications and variations can be made without
6 departing from the spirit and scope of the invention as hereinafter claimed.

1 **What is claimed is:**

2 1. A wheel assembly for a child's wheeled gear, comprising:

3 an upper shield comprising a connecting means adapted to be connected to a frame of
4 the child's wheeled gear, thereby allowing the upper shield to rotate relative to the frame, the
5 upper shield further comprising two opposite walls defining an upper compartment
6 therebetween, the opposite walls including a pair of aligned axle receiving holes,

7 a lower shield connected to the upper shield, the lower shield comprising a lower
8 compartment that aligns with the upper compartment,

9 a wheel rotatably received in the upper compartment and a lower compartment and
10 having a lower end extended beyond the lower compartment, the wheel including an axle hole,
11 and

12 an axle extended through the axle hole of the wheel and the axle receiving holes of the
13 upper shield,

14 wherein the upper shield and the lower shield cover the axle hole of the wheel and the
15 axle to prevent entrance of alien objects.

16 2. The wheel assembly as claimed in claim 1, wherein the upper shield further comprises at
17 least one positioning hole and the lower shield further comprises at least one positioning peg
18 for engaging with said at least one positioning hole.

19 3. The wheel assembly as claimed in claim 1, wherein the upper shield further comprises a
20 first engaging ledge on a lower end thereof and the lower shield further comprises a second
21 engaging ledge on an upper end thereof for engaging with the first engaging ledge.

22 4. The wheel assembly as claimed in claim 1, wherein the upper shield further comprises at
23 least one upper engaging hole therein and the lower shield further comprises at least one lower
24 engaging hole aligned with said at least one upper engaging hole, and further comprising at
25 least one screw extended through said at least one lower engaging hole and said at least one
26 upper engaging hole.

1 5. The wheel assembly as claimed in claim 1, wherein at least one of the upper shield and the
2 lower shield comprises a plurality of reinforcing ribs.

3 6. The wheel assembly as claimed in claim 1, wherein each said axle receiving hole includes
4 an access having a width slightly smaller than a diameter of the axle, thereby allowing the axle
5 to be forcibly inserted into the axle receiving hole via the access.

6 7. The wheel assembly as claimed in claim 1, wherein the upper shield further comprises a
7 second pair of aligned axle receiving holes at a level different from that of the first-mentioned
8 pair of axle receiving holes for optional engagement of the axle to one of the first pair of axle
9 receiving holes and the second pair of the axle receiving holes.

10 8. The wheel assembly as claimed in claim 1, wherein the lower shield further comprises a
11 stop on an outer periphery thereof and adapted to be stopped by an obstacle when desired.

12 9. A wheel assembly for a child's wheeled gear, comprising:

13 an upper shield comprising a connecting means adapted to be connected to a frame of
14 the child's wheeled gear, thereby allowing the upper shield to rotate relative to the frame, the
15 upper shield further comprising an upper compartment,

16 a lower shield connected to the upper shield, the lower shield comprising two opposite
17 walls defining a lower compartment therebetween, the lower compartment being aligned with
18 the upper compartment, the opposite walls of the lower shield including a pair of aligned axle
19 receiving holes,

20 a wheel rotatably received in the upper compartment and a lower compartment and
21 having a lower end extended beyond the lower compartment, the wheel including an axle hole,
22 and

23 an axle extended through the axle hole of the wheel and the axle receiving holes of the
24 lower shield,

25 wherein the upper shield and the lower shield cover the axle hole of the wheel and the
26 axle to prevent entrance of alien objects.

1 10. The wheel assembly as claimed in claim 9, wherein the upper shield further comprises at
2 least one positioning hole and the lower shield further comprises at least one positioning peg
3 for engaging with said at least one positioning hole.

4 11. The wheel assembly as claimed in claim 9, wherein the upper shield further comprises a
5 first engaging ledge on a lower end thereof and the lower shield further comprises a second
6 engaging ledge on an upper end thereof for engaging with the first engaging ledge.

7 12. The wheel assembly as claimed in claim 9, wherein the upper shield further comprises at
8 least one upper engaging hole therein and the lower shield further comprises at least one lower
9 engaging hole aligned with said at least one upper engaging hole, and further comprising at
10 least one screw extended through said at least one lower engaging hole and said at least one
11 upper engaging hole.

12 13. The wheel assembly as claimed in claim 9, wherein at least one of the upper shield and the
13 lower shield comprises a plurality of reinforcing ribs.

14 14. The wheel assembly as claimed in claim 9, wherein each said axle receiving hole includes
15 an access having a width slightly smaller than a diameter of the axle, thereby allowing the axle
16 to be forcibly inserted into the axle receiving hole via the access.

17 15. The wheel assembly as claimed in claim 9, wherein the lower shield further comprises a
18 second pair of aligned axle receiving holes at a level different from that of the first-mentioned
19 pair of axle receiving holes for optional engagement of the axle to one of the first pair of axle
20 receiving holes and the second pair of the axle receiving holes.

21 16. The wheel assembly as claimed in claim 9, wherein the lower shield further comprises a
22 stop on an outer periphery thereof and adapted to be stopped by an obstacle when desired.

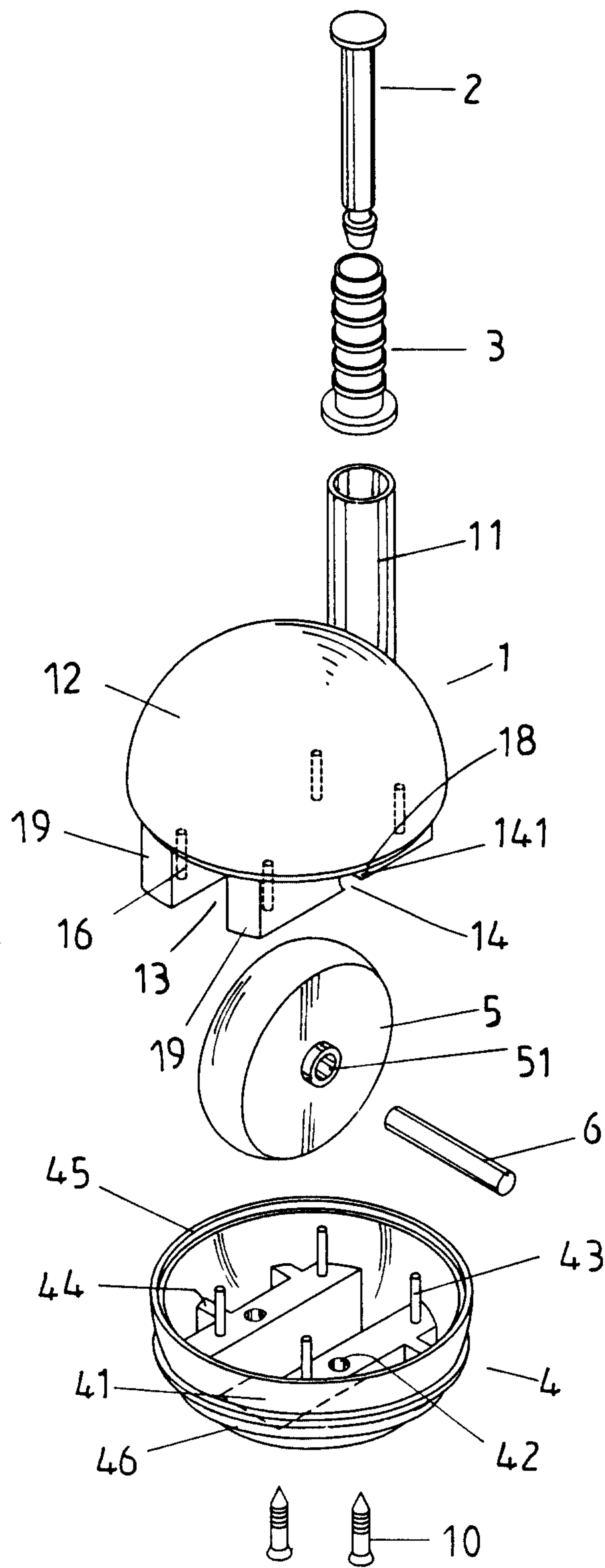


FIG. 1

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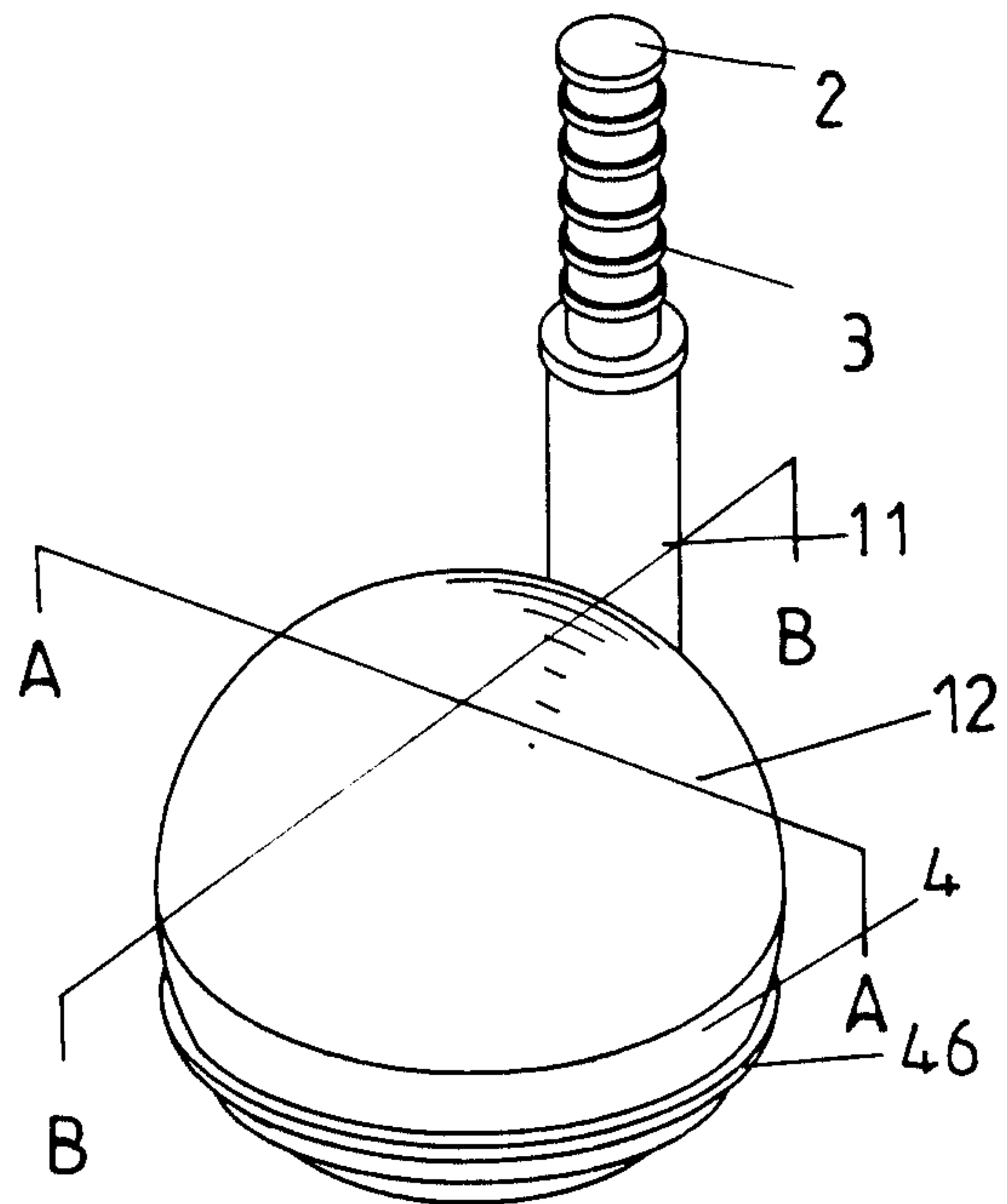


FIG. 2

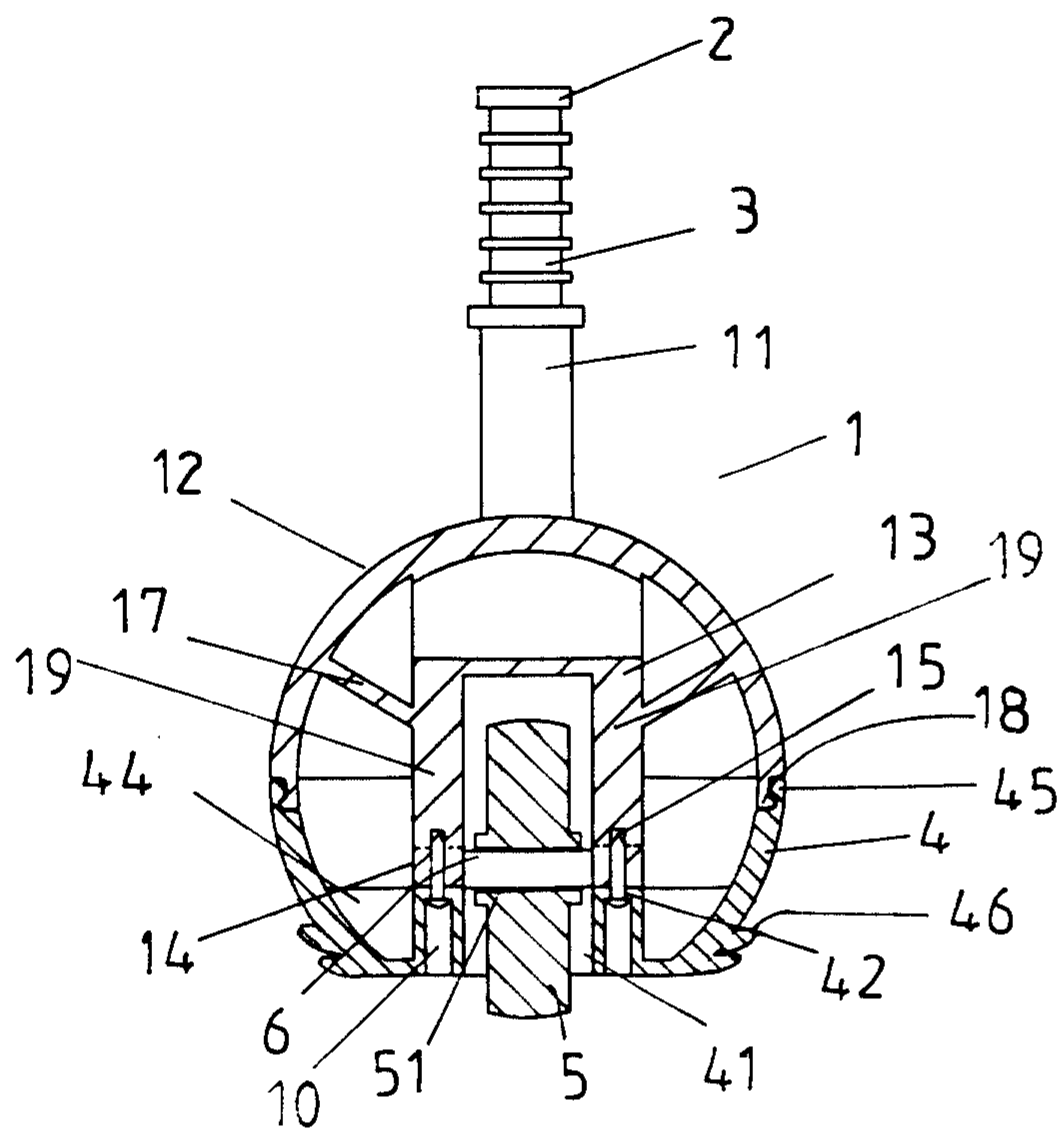


FIG. 3

INVENTOR: TSAI MEI WU
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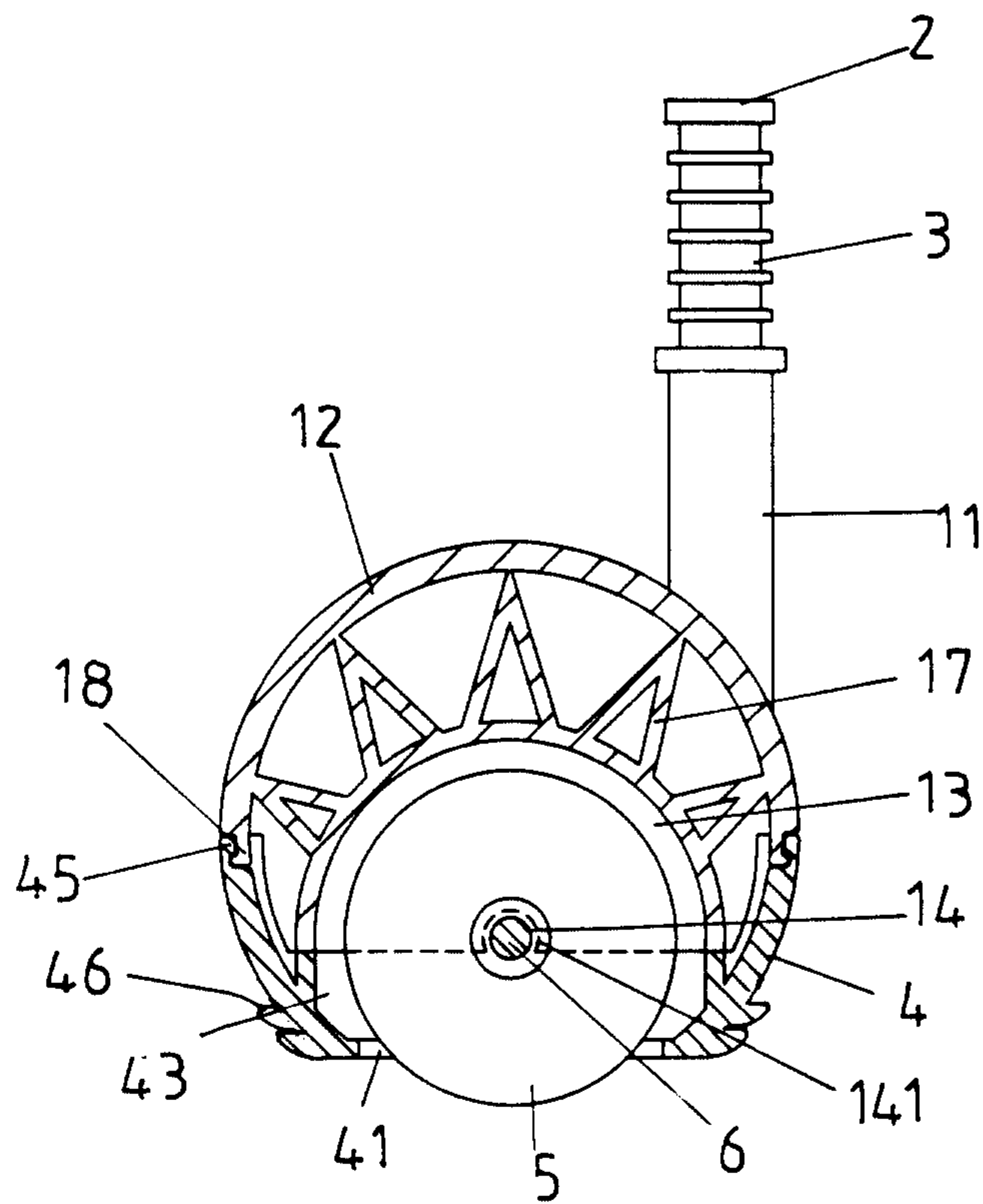


FIG. 4

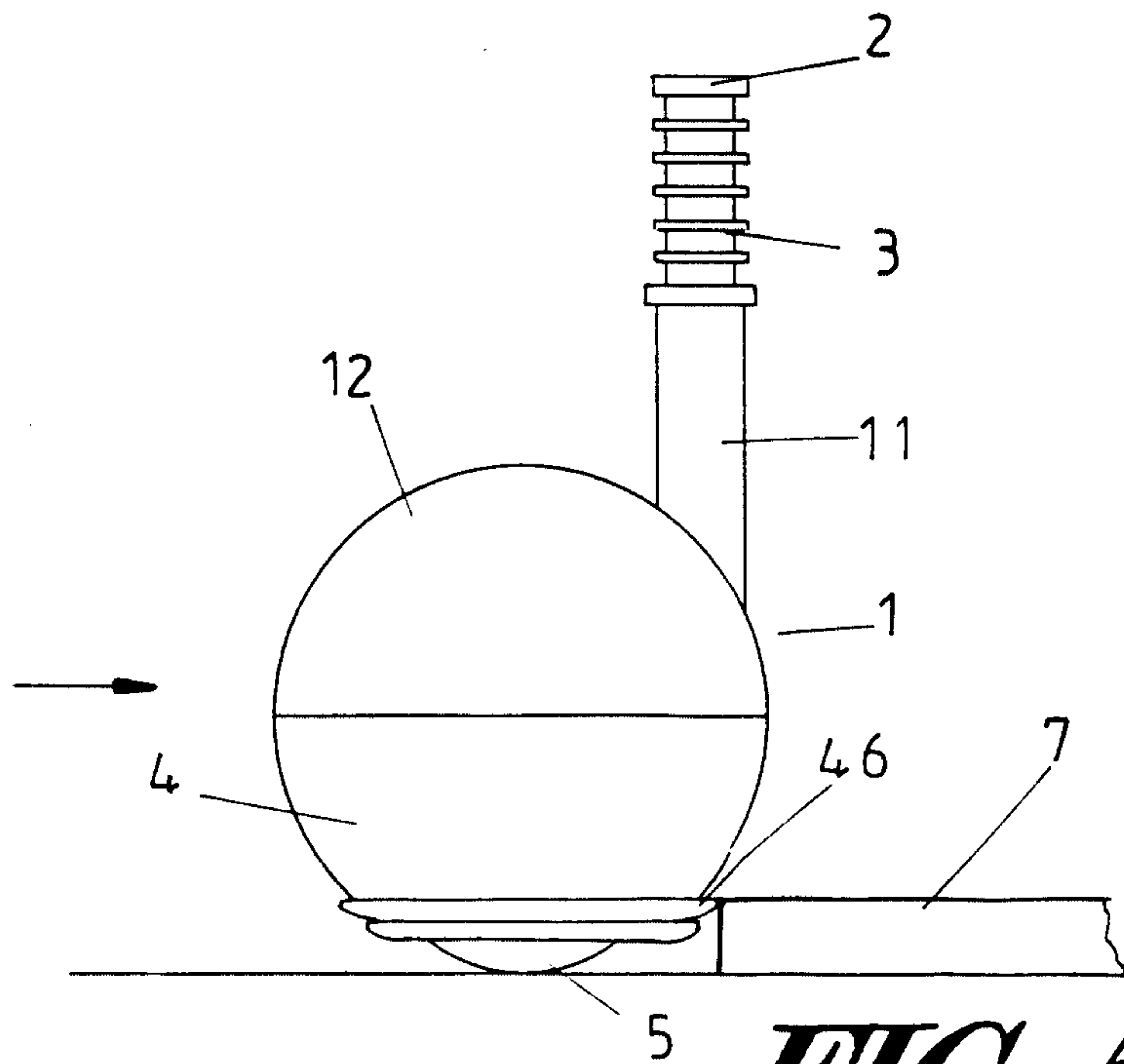


FIG. 5

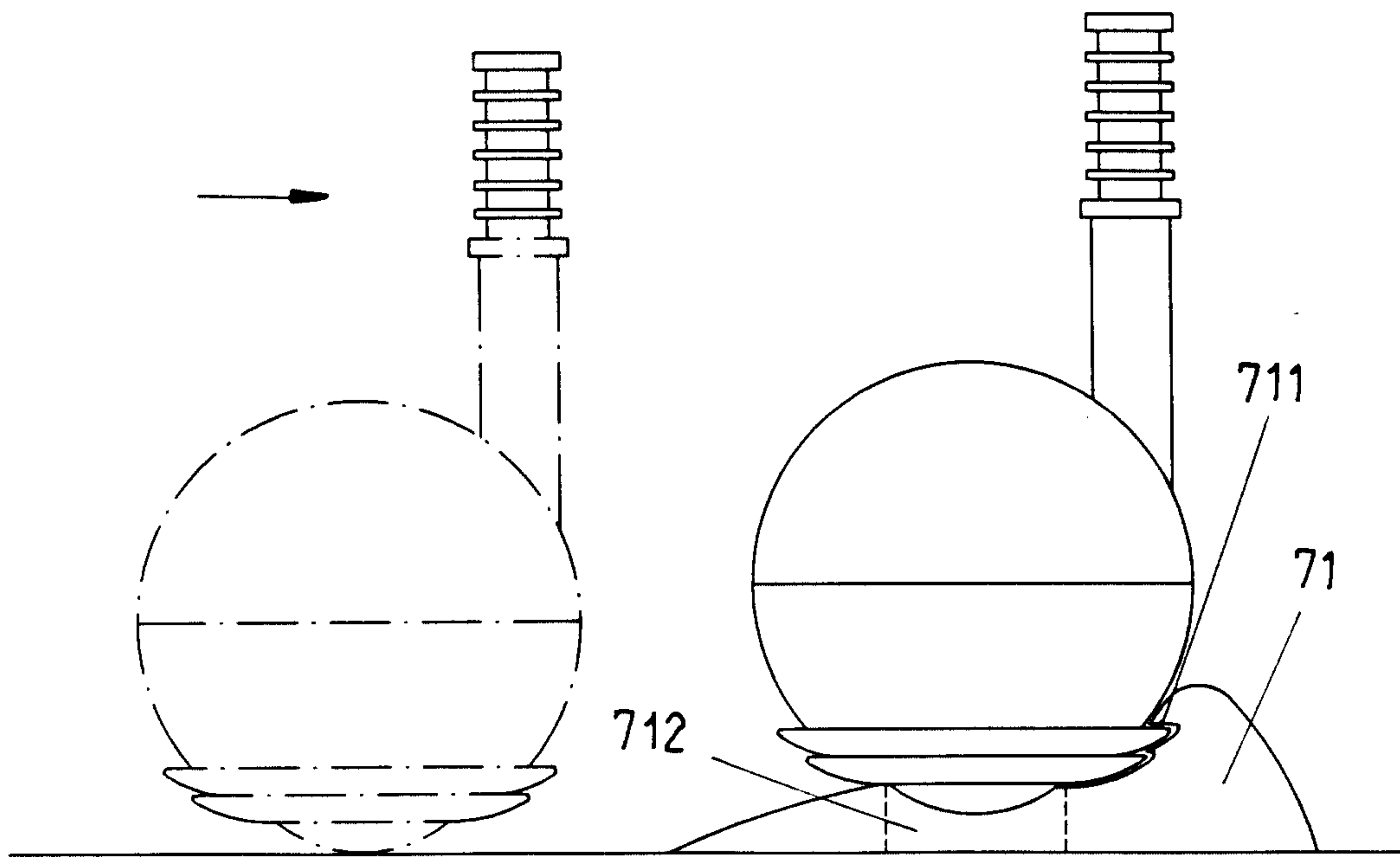


FIG. 6

INVENTOR: TSAI MEI WU
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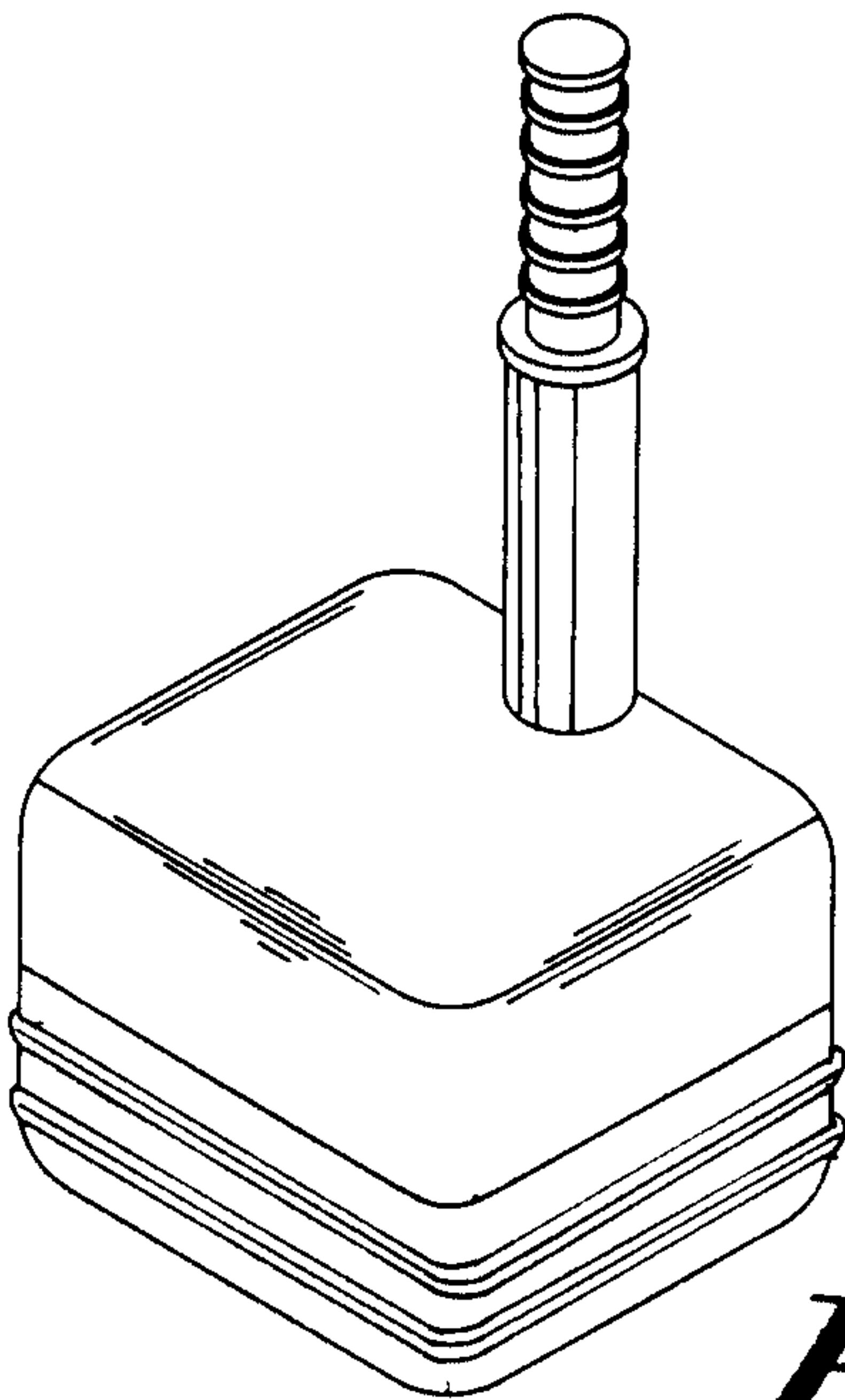


FIG. 7

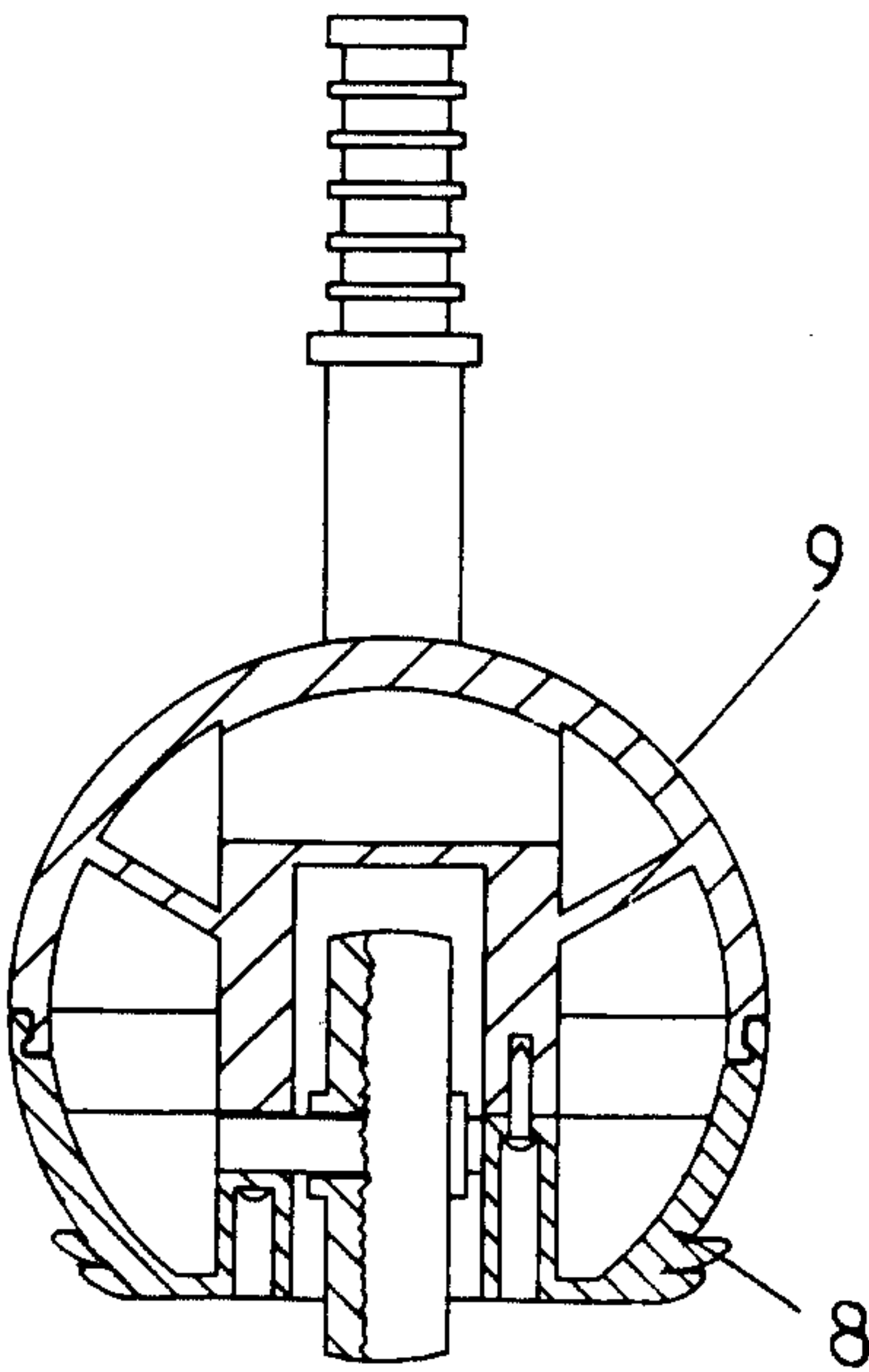


FIG. 8

INVENTOR: TSAI MEI WU
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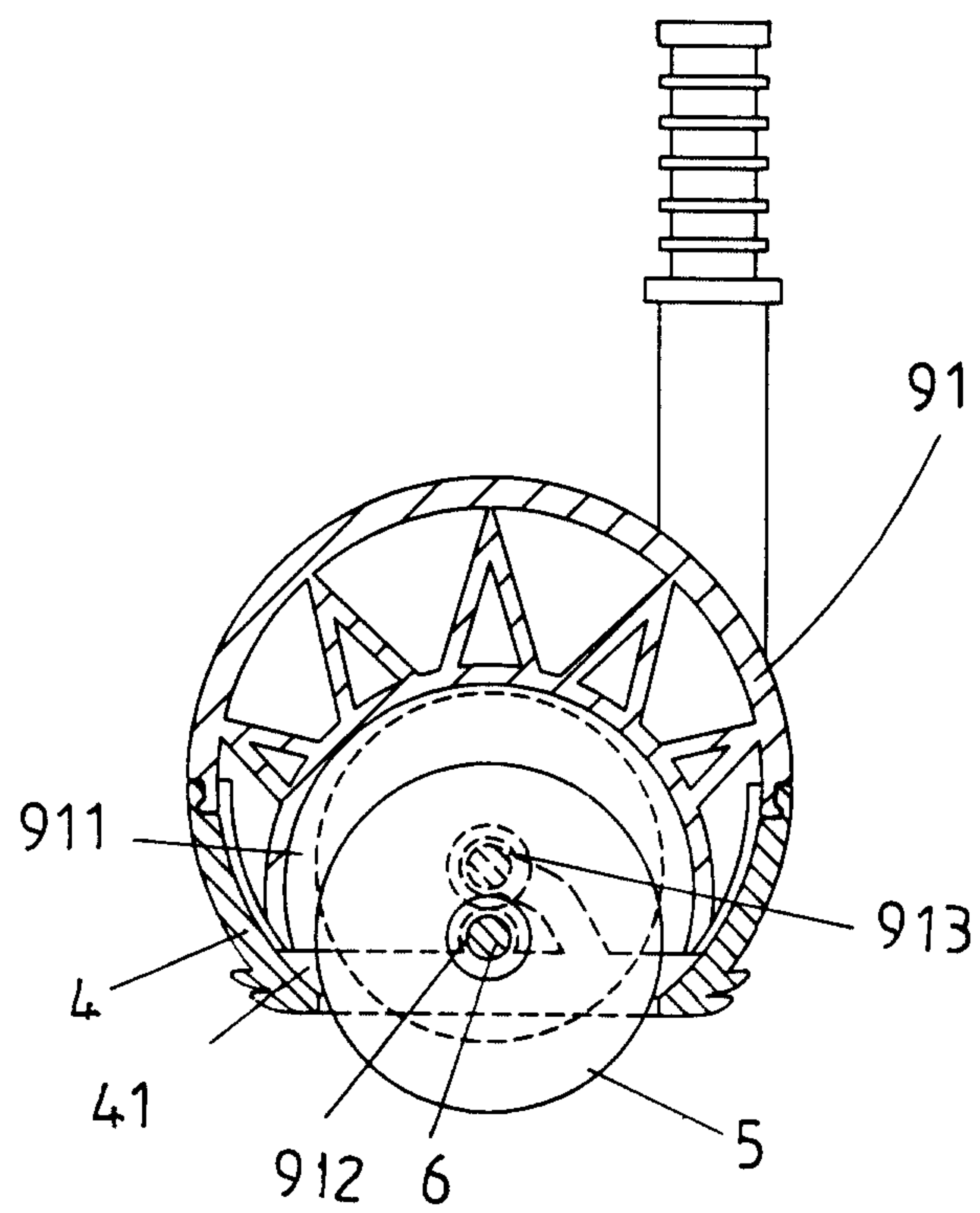


FIG. 9

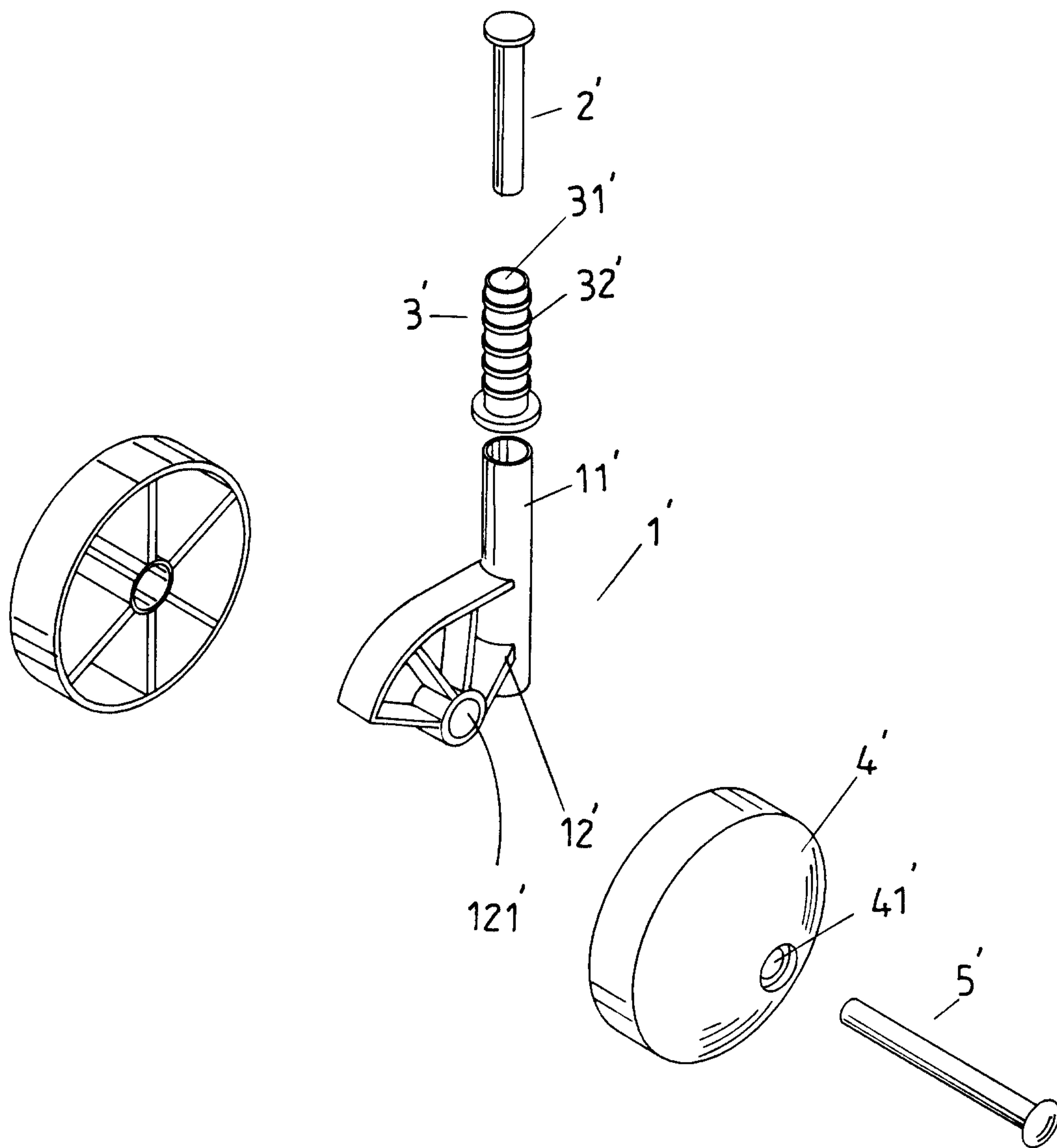


FIG. 10
PRIOR ART

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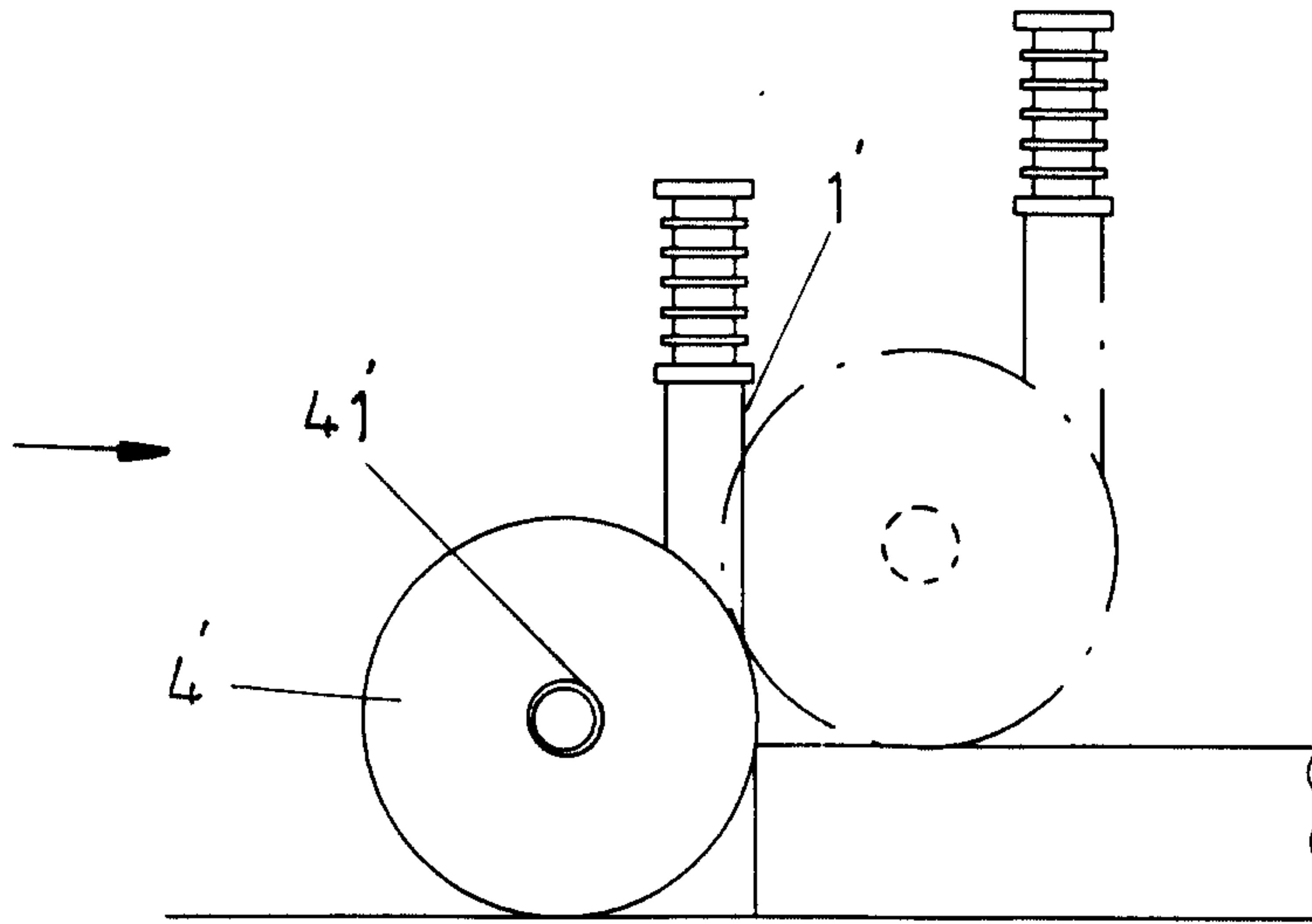


FIG. 11
PRIOR ART

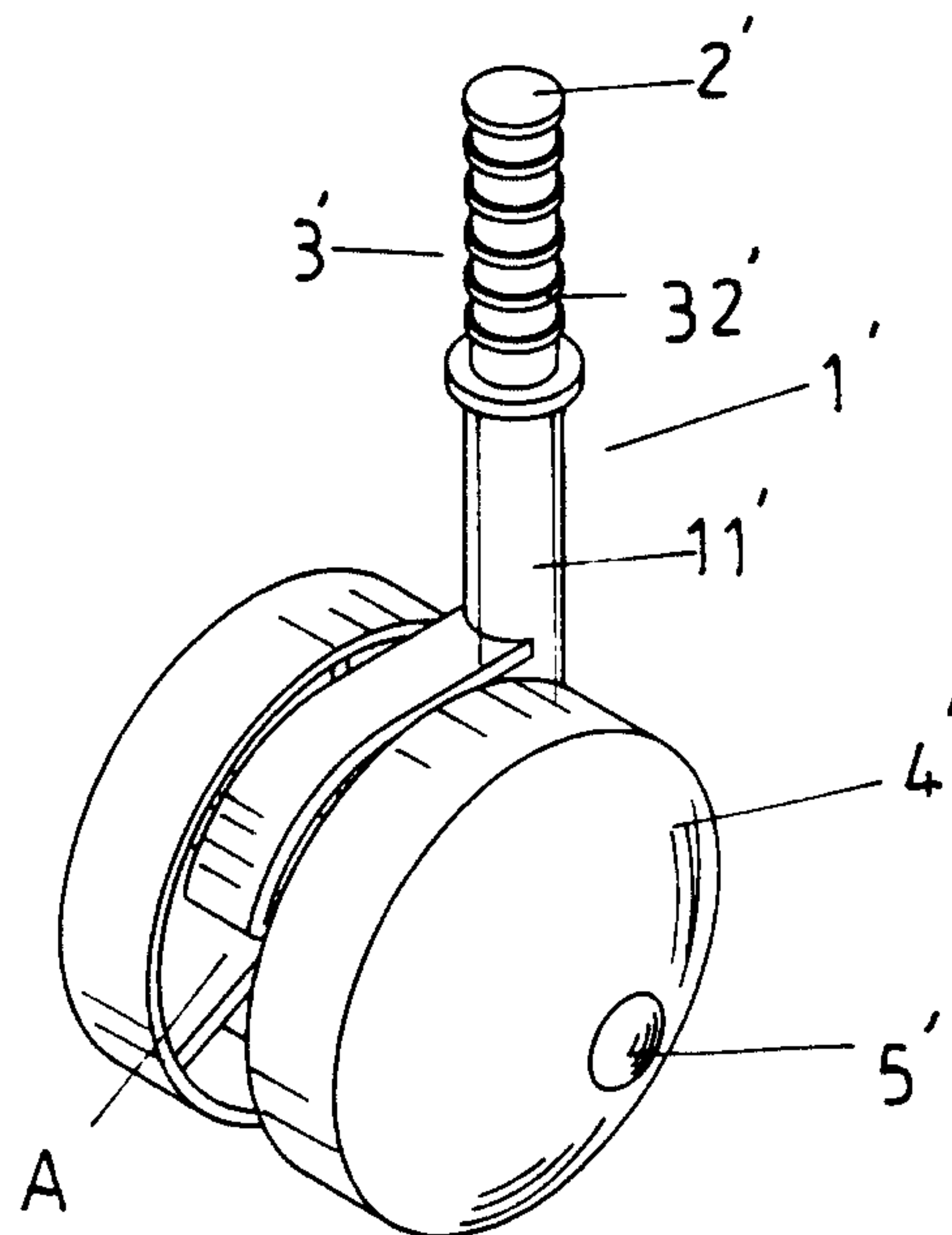


FIG. 12
PRIOR ART

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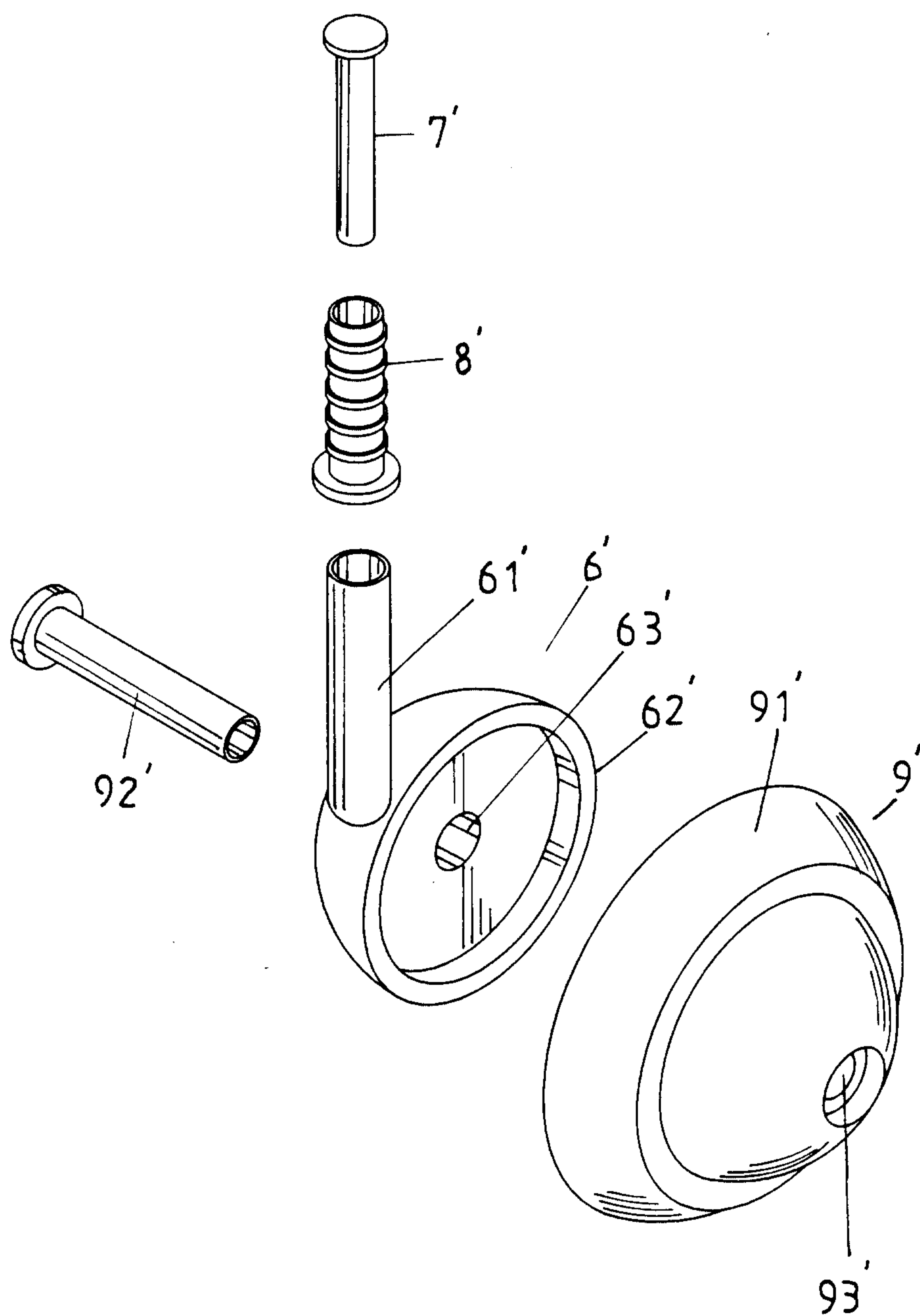


FIG. 13
PRIOR ART

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