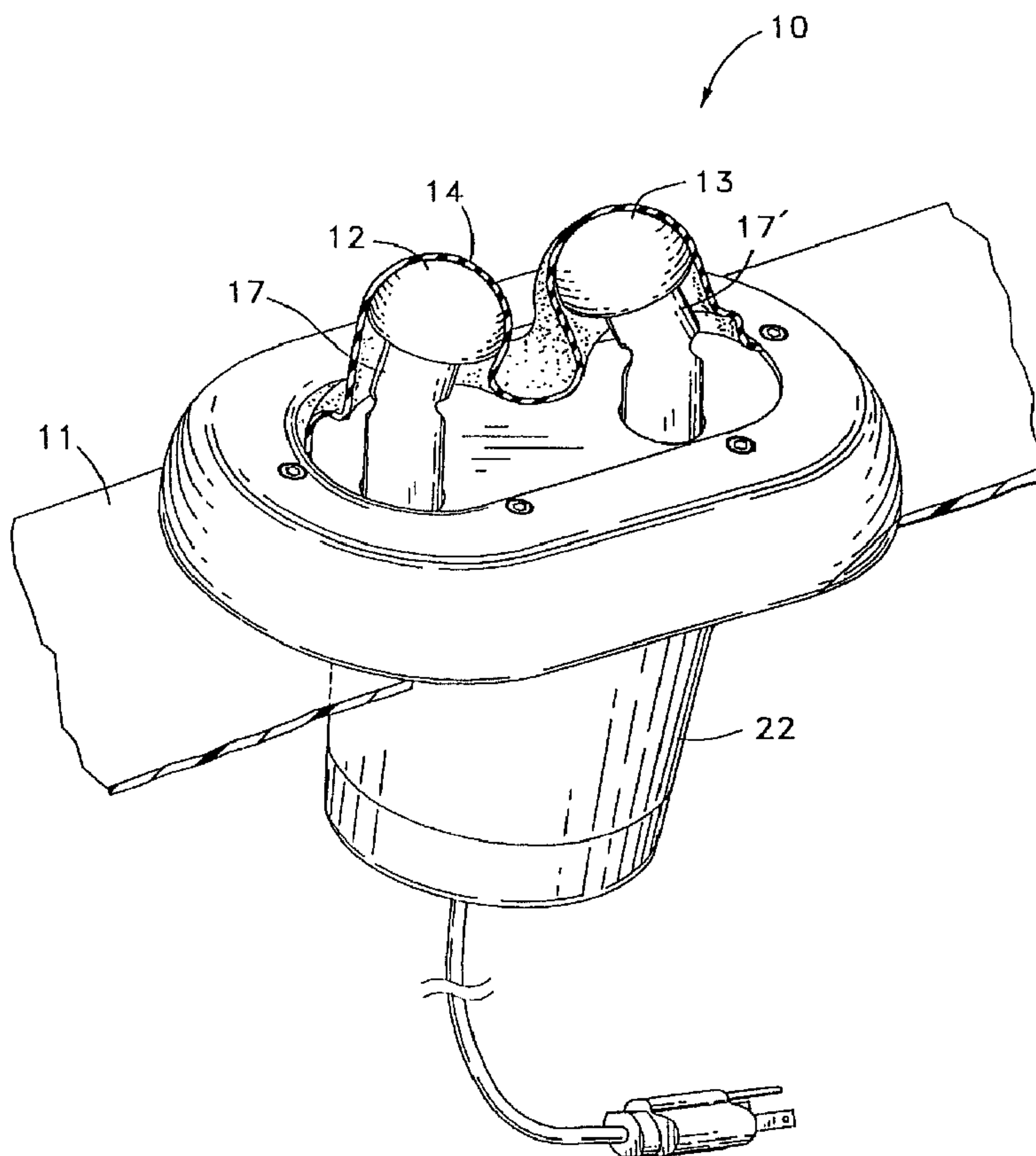




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(54) Titre : MASSEUR POUR LE COU A UTILISER DANS LES CUVES THERMALES
 (54) Title: NECK MASSAGER FOR USE IN SPAS



(57) **Abrégé/Abstract:**

A neck massager for mounting in the sidewall of a spa. The neck massager is enclosed in a housing which holds an electric motor with a drive shaft. The drive shaft is connected through gears to a pair of massage arms each of which have offset knobs at the end thereof. The knobs are covered by a flexible diaphragm and the device is mounted in the sidewall of a spa in such a way that it may be contacted by a user's neck.

1 ABSTRACT OF THE DISCLOSURE

2 A neck massager for mounting in the sidewall of a spa. The
3 neck massager is enclosed in a housing which holds an electric
4 motor with a drive shaft. The drive shaft is connected through
5 gears to a pair of massage arms each of which have offset knobs
6 at the end thereof. The knobs are covered by a flexible
7 diaphragm and the device is mounted in the sidewall of a spa in
8 such a way that it may be contacted by a user's neck.

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NECK MASSAGER FOR USE IN SPAS

BACKGROUND OF THE INVENTION

The field of the invention is muscle massagers and the invention relates more particularly to neck and shoulder massagers of the type which tend to be used with spas, hot tubs or whirlpool baths.

A hydro-massage unit for a spa is shown in U.S. Patent No. 4,839,930. This device provides a flow of water against the inner surface of a diaphragm which provides a massage for a user's neck. A waterproof vibrating cushion is shown in U.S. Patent No. 4,935,972. It is waterproof and may be used in a spa or a bath tub. It utilizes a vibrator element within a cushion.

While both of these devices provide a degree of neck and shoulder massage, neither is positioned in a spot to utilize the comfortable shape of the spa.

BRIEF SUMMARY OF THE INVENTION

1
2 It is an object of the present invention to provide a
3 massager, particularly for the neck and upper shoulder muscles
4 which is mounted in a manner to provide a comfortable neck and
5 upper shoulder massage in a water filled spa.

6 The present invention is for a neck and upper shoulder
7 massager for mounting in a spa, whirlpool bath or the like. The
8 neck and upper shoulder massager is held in a housing which may
9 be held in or against the sidewall of a spa. The massager has a
10 massager body held in an opening in the sidewall or against the
11 opening in the sidewall of the spa in a waterproof manner so that
12 no water may be passed into the massager body. A waterproof
13 massager diaphragm is held in a watertight manner over a
14 diaphragm opening in the massager body. At least two massagers
15 are held in a moveable manner by the massager body. Each
16 massager has a massager face which contacts an underside of the
17 waterproof massager diaphragm and each of the massagers is
18 supported so that they are capable of moving in an undulating
19 manner under the waterproof massager diaphragm. The massagers
20 may be turned either by a motor held within the massager body, a
21 motor which drives a driven cable within a hollow conduit
22 attached to a remote motor and to the massager body or by water
23 power driving a turbine held within the massager body. The
24 massagers may be rotating angled arms or rotating angled massage
25 wheels or cams.

1 **BRIEF DESCRIPTION OF THE DRAWINGS**

2 Figure 1 is a perspective view partially cut away of the
3 neck massager of the present invention.

4 Figure 2 is a cross-sectional view thereof showing one of
5 the massage knobs.

6 Figure 3 is a cross-sectional view thereof showing both of
7 the massage knobs.

8 Figure 4 is a top view with the diaphragm removed of the spa
9 of Figure 1.

10 Figure 5 is a cross-sectional view of the knobs in a central
11 position.

12 Figure 6 is a cross-sectional view of the knobs in an inner
13 position.

14 Figure 7 is a cross-sectional view of the knobs in an outer
15 position.

16 Figure 8 is a diagrammatic side view, partly in cross
17 section, of an alternate embodiment of a massager positioned in a
18 spa.

19 Figure 9 is an enlarged cross sectional view, partly cut
20 away of the drive cable of the massager of Figure 8.

21 Figure 10 is a diagrammatic side view, partly in cross
22 section, of a further alternate embodiment of a massager
23 positioned in a spa.

1 Figure 11 is a side view partly in cross-section of an
2 alternate embodiment of the neck massager of the present
3 invention.

4 Figure 12 is a side view of a spa and neck massager of the
5 present invention driven by water power.

6 Figure 13 is a cross-sectional view of an alternate
7 embodiment of the massager arms of the massager of the present
8 invention.

9 Figure 14 is a cross-sectional view taken along line 14-14
10 of Figure 13.

11 Figure 15 is a cross-sectional view taken along line 15-15
12 of Figure 13.

13 DESCRIPTION OF THE PREFERRED EMBODIMENTS

14 A neck massager for spas is shown in perspective view in
15 Figure 1 and indicated generally by reference character 10. The
16 neck massager of Figure 1 is designed to be mounted in the
17 sidewall of a spa 11 in a waterproof manner. It is preferably
18 mounted at an angle of about 45° to the horizontal. The massager
19 has a pair of knobs 12 and 13 below a flexible diaphragm 14. The
20 inner workings are shown best in Figures 2 and 3 where it can be
21 seen that knob 12 is held on a shaft 15 which is turned by a bent
22 fitting 17 affixed to shaft 16. The bent fitting 17 causes the
23 tip 18 of knob 12 to be offset a distance 19 from the axis of
24 rotation 20 of massage arm shaft 16. Distance should be between

1 about 0.5" and 2.0" and preferably about 1.0". Bent fitting 17
2 is preferably at an angle of about 30°.

3 An electric motor 21 is held within housing 22 as are a
4 series of gears 23. Motor 21 has a driven shaft 24 to which an
5 output gear 25 is held. Output gear 25 drives gear 26 which has
6 a smaller gear 27 around the shaft 28' thereof. Smaller gear 27
7 drives gear 28 which also has a smaller gear 29 in its center.
8 Smaller gear 29 in turn drives gear 30 which is attached to shaft
9 16.

10 The gear train is shown best in Figure 4 of the drawings
11 where it can be seen that gear 30 drives a pair of idler gears 31
12 and 32 which in turn drive gear 33 in the opposite direction from
13 gear 30. With a 1500 RPM motor the massage gears 30 and 33
14 rotate at a speed of about 30 RPM which provides a slow and
15 pleasant massage action by the movement of knobs 12 and 13 under
16 diaphragm 14.

17 Diaphragm 14 is fabricated from a flexible material
18 preferably an elastomer such as polyurethane. The diaphragm 14
19 is preferably waterproof as is the gear box 34 portion of housing
20 22. Housing 22 is covered by a weatherproof cover 38. An O-ring
21 seal 35 preferably is held by a series of bolts and nuts to the
22 spa shell 11.

23 The unit is shown in Figure 3 without gears where the
24 support for shafts 16 and 16' can be seen to be held in shaft
25 cups 39 and 39'. The other gears are similarly supported.

1 The wall mounted massager of the present invention is
2 preferably mounted in a flattened portion of a spa fabricated
3 especially for the use of such massager, although other mounting
4 methods can be used to adapt existing spas to the use of the
5 massager of the present invention. The knobs preferably each
6 have a rounded hemi- spherical ends having a diameter of about
7 1.5". The knobs are preferably fabricated from a polymer having
8 a high degree of surface slip and abrasion resistance such as
9 nylon, and with the knobs operating in opposite directions, the
10 massaging action is especially effective.

11 A cable driven version of the massager of the present
12 invention is shown in Figure 8 and indicated by reference
13 character 40. Two massage units are shown in the spa 41 and
14 these may be hand held or attached to a spa wall by suction cups
15 or other means. The massage unit is identical to that shown in
16 Figures 1 through 7 except that in place of motor 21 a drive
17 cable 42 is utilized. Drive cable 42 is flexible and, as shown
18 in Figure 10 has a stationary outer sleeve or conduit 43 and a
19 rotating inner driven cable 44. Such cables are used in a
20 smaller version as speedometer cables and in larger versions to
21 remotely drive a tool. Inner cable 44 would be attached to
22 driven shaft 24 so that it is driven by inner cable 44 in place
23 of motor 21. Inner cable 44, in turn, is driven by motor 45.
24 Motor 45 is shown attached to an outer portion of spa 41 and is
25 provided with means to protect the motor from the elements and to

1 prevent the motor from being touched by users of the spa. The
2 use of a cable driven massager permits the user to position the
3 massager 40 in any preferred location.

4 One of the advantages of providing a waterproof diaphragm
5 and body is that the massager 40 can be operated under the
6 surface 54 of the water in the spa. Both the hollow flexible
7 conduit 43 and the body of the massager are waterproof as is the
8 diaphragm. Thus, the massager 40 of Figure 8 can be positioned
9 at any desirable position.

10 A different version of a hand held massager is shown in
11 Figure 10 and indicated by reference character 46. Massager 46
12 is also like massager 40 except that it is driven by a water
13 turbine which turns driven shaft 24. Water is fed through hose
14 47 into massager 46 which contains a conventional turbine, not
15 shown. Water is supplied from within spa 48 through conduit 49.
16 Conduit 49 is affixed to the inlet of pump 50 which is driven by
17 motor 51. Pump 50 feeds water at a high pressure to conduit 52
18 which, in turn, is attached to flexible hose 47. The water from
19 the massager turbine simply drains back into the spa as indicated
20 at reference character 53.

21 A spa wall-mounted massager 55 is shown in Figure 11 and
22 this massager is driven by the hollow flexible cable 42 of Figure
23 9. The motor 45 is positioned behind spa wall 56 and at a level
24 below spa seat 57 and above the bottom 58 of spa 41. In this

1 way, motor 45 is protected from any contact by the user. It is
2 shown in Figure 11 attached to the outer wall 60 of the spa.

3 The massager body or housing 22 is shown mounted in a manner
4 similar to that shown in Figure 1 and the diaphragm 14 is held
5 about diaphragm opening 61 in a waterproof manner similar to that
6 shown in Figure 1. At least two massage arms 62 and 63 are shown
7 in Figure 11 and they may be of any construction as long as they
8 provide an undulating motion to waterproof diaphragm 14.

9 A water driven massager is shown in Figure 12 and the
10 massager body 22 is the same as that shown in Figure 10. A pump
11 motor 64 drives a high pressure water pump 65 which provides high
12 pressure water to the jets of the spa (not shown) through pipe
13 66. On/off valves 67 and 68 control the flow of water to the
14 jets and the massager respectively. A conduit 69 feeds water to
15 a turbine not shown, but of conventional construction which turns
16 the massager arms in a manner similar to that described above. A
17 water outlet conduit 70 is attached to the outlet of the turbine
18 not shown and is connected to an inlet line 71 of pump 65.

19 An alternate embodiment of a massager unit is shown in
20 Figures 13, 14 and 15 of the drawings. The massager body
21 supports a massager wheel support shaft 72 to which massage
22 wheels 73, 74, 75 and 76 are rigidly mounted. Wheels 73, 74, 75
23 and 76 support six rollers 77 rotatably mounted on axles 78.
24 Massage wheel support shaft 72 is driven by a belt not shown.

1 Rollers 77 cause the flexible diaphragm 14 to undulate and
2 provide a massaging action against the user's neck.

3 Thus, a neck and upper massager may be held either by a spa
4 wall or against a spa wall and is provided with a waterproof
5 housing and diaphragm so that it may be used in a spa
6 environment. The portable version may be moved to any
7 comfortable position either above the water level or below it and
8 the motor which drives the massager is safely held out of the way
9 below the spa wall.

10 The present embodiments of this invention are thus to be
11 considered in all respects as illustrative and not restrictive;
12 the scope of the invention being indicated by the appended claims
13 rather than by the foregoing description. All changes which come
14 within the meaning and range of equivalency of the claims are
15 intended to be embraced therein.

WHAT IS CLAIMED IS:

1. A neck massager for use in a spa, said neck massager comprising:
 - a massager body to be held in an opening in a said wall of a spa and said massager body having a diaphragm opening;
 - a massager diaphragm held over said diaphragm opening;
 - at least two massagers held in a movable manner by said massager body and said at least two massagers each having a massager face which contacts an underside of said massager diaphragm and each of said at least two massagers being supported so that they are capable of moving in an undulating manner under said massager diaphragm; and means for moving said at least two massagers in an undulating manner comprising:
 - a turbine drive held by said massager body, said turbine drive being connected to said at least two massagers so that as said turbine drive turns, said at least two massagers are caused to undulate;
 - a motor;
 - a water pump driven by said motor, said water pump having an inlet and outlet and said inlet being supplied to a source of water; and
 - a water hose having a first end and a second end and said first end being connected to said outlet of said water pump and said second end being connected to said turbine drive to cause said turbine drive to turn, thereby causing said at

least two massagers to undulate.

2. A movable neck massager for use in a spa, said movable neck massager comprising:

a massager body having a spa-contacting base movably held against a side wall of a spa, said massager body being waterproof so that no water may pass into an interior of said massager body, said massager body having a diaphragm opening;

a massager diaphragm held over said diaphragm opening;

at least two massagers held in a movable manner by said massager body and said at least two massagers each having a massager face which contacts an underside of said massager diaphragm and each of said at least two massagers being supported so that they are capable of moving in an undulating manner under said waterproof massager diaphragm; and

means for moving said at least two massagers in an undulating manner comprising:

a turbine drive held by said massager body, said turbine drive being connected to at least two massagers so that when said turbine drive turns, said at least two massagers are caused to undulate;

a motor held in a fixed position with respect to said spa;

a water pump driven by said motor, said water pump having an inlet and an outlet and said inlet being supplied to a source of water; and

a flexible water hose having a first end and a second end and

said first end being connected to said outlet of said water pump and said second end being connected to said turbine drive to cause said turbine to turn, thereby causing said at least two massagers to undulate and permitting said massager body to be placed in a desired position at the end of the flexible water hose.

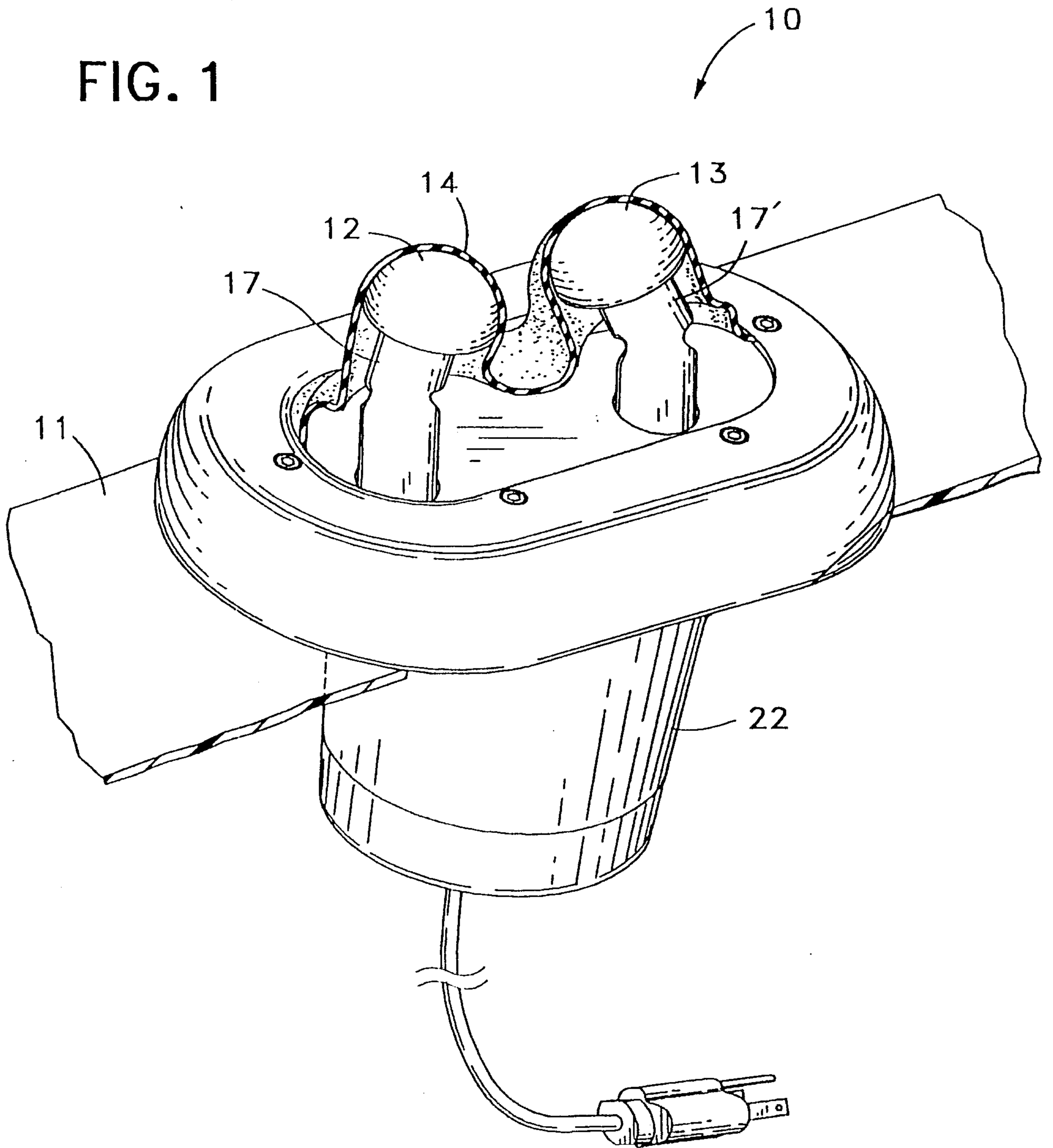
3. The movable neck massager for use in a spa of claim 2 wherein said at least two massagers comprise a plurality of rollers mounted on each of a plurality of slowly rotating wheels.

4. A movable neck massager for use in a spa of claim 2 wherein there are six rollers mounted on each four wheels.

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FIG. 1



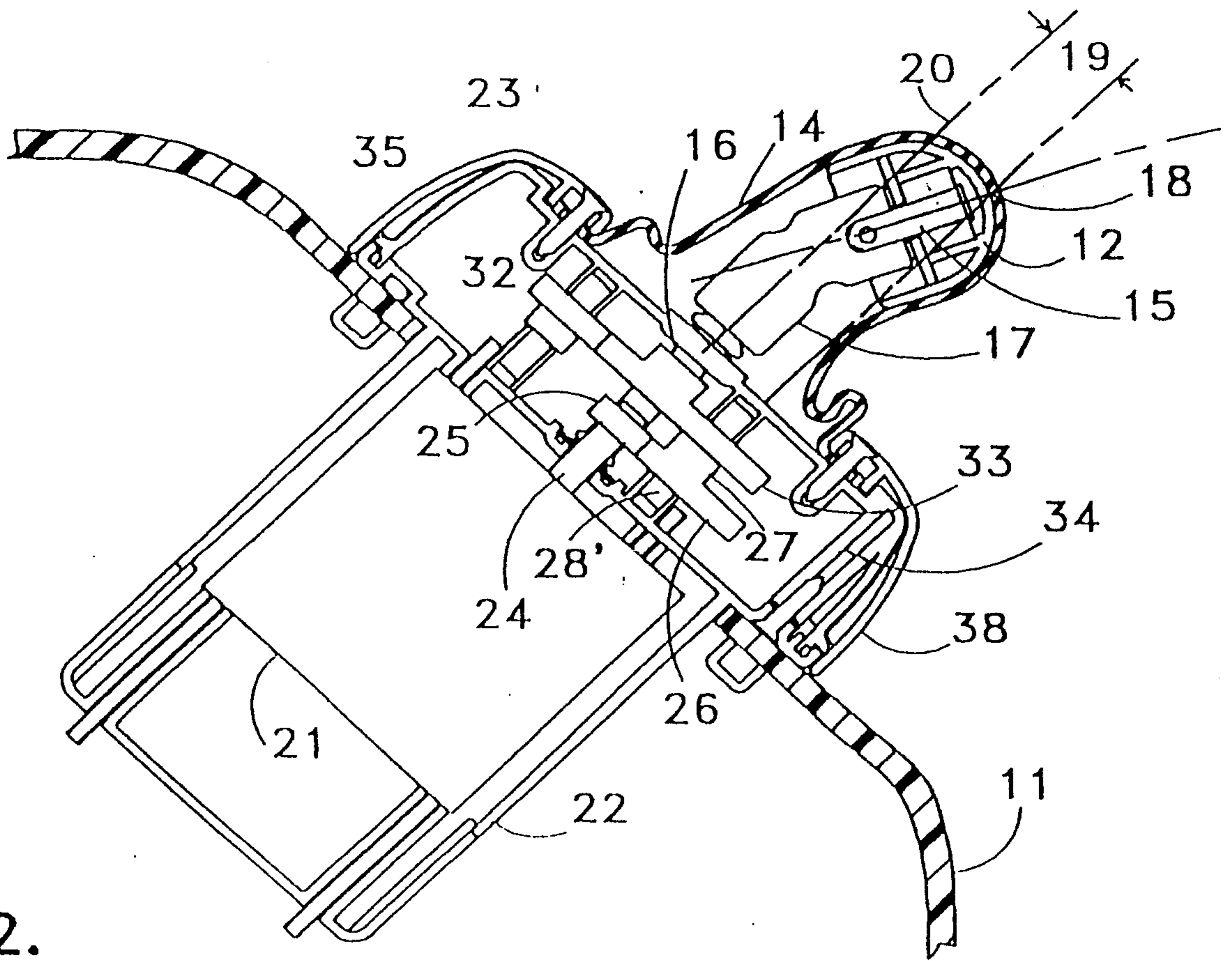


FIG. 2.

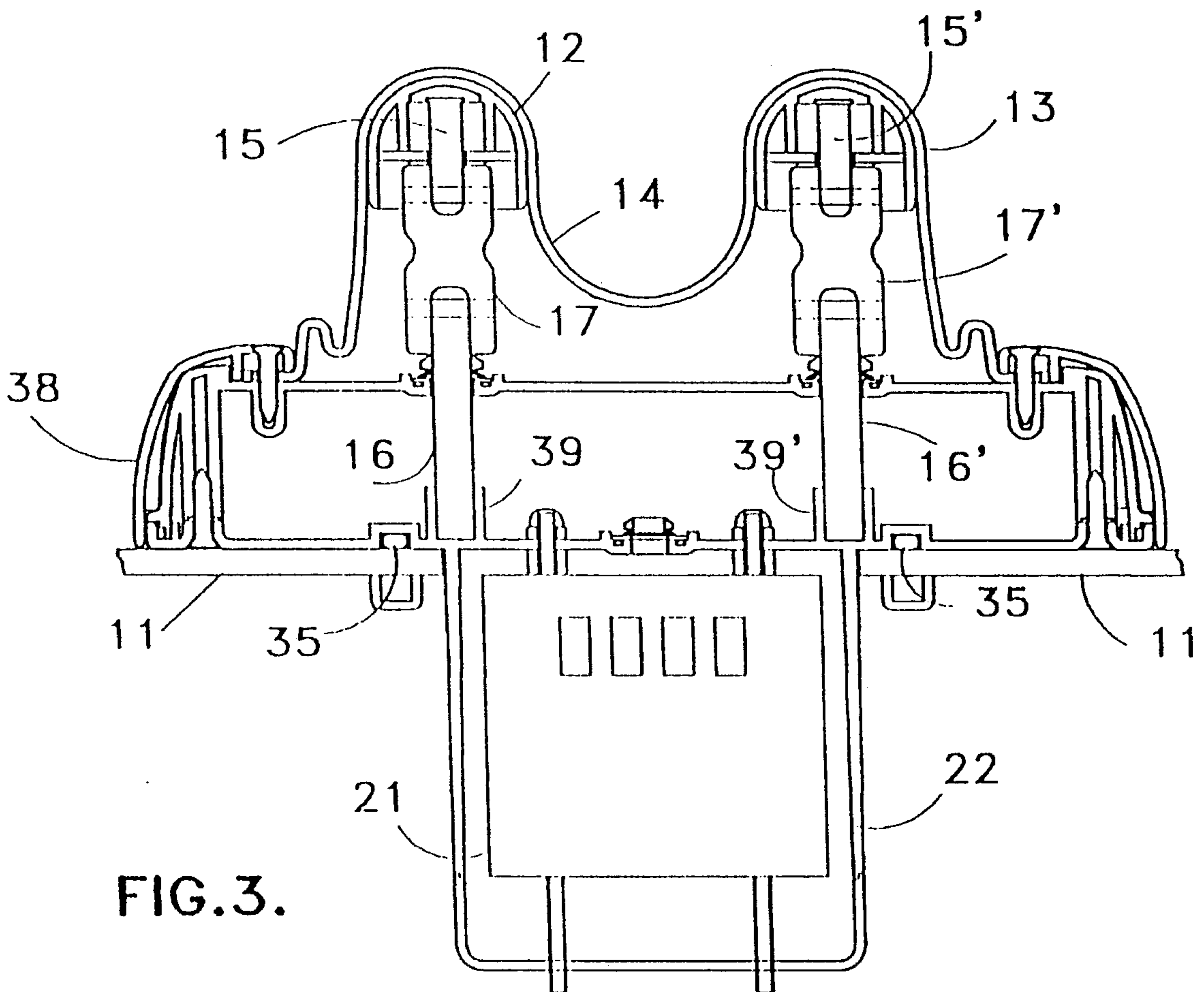


FIG. 3.

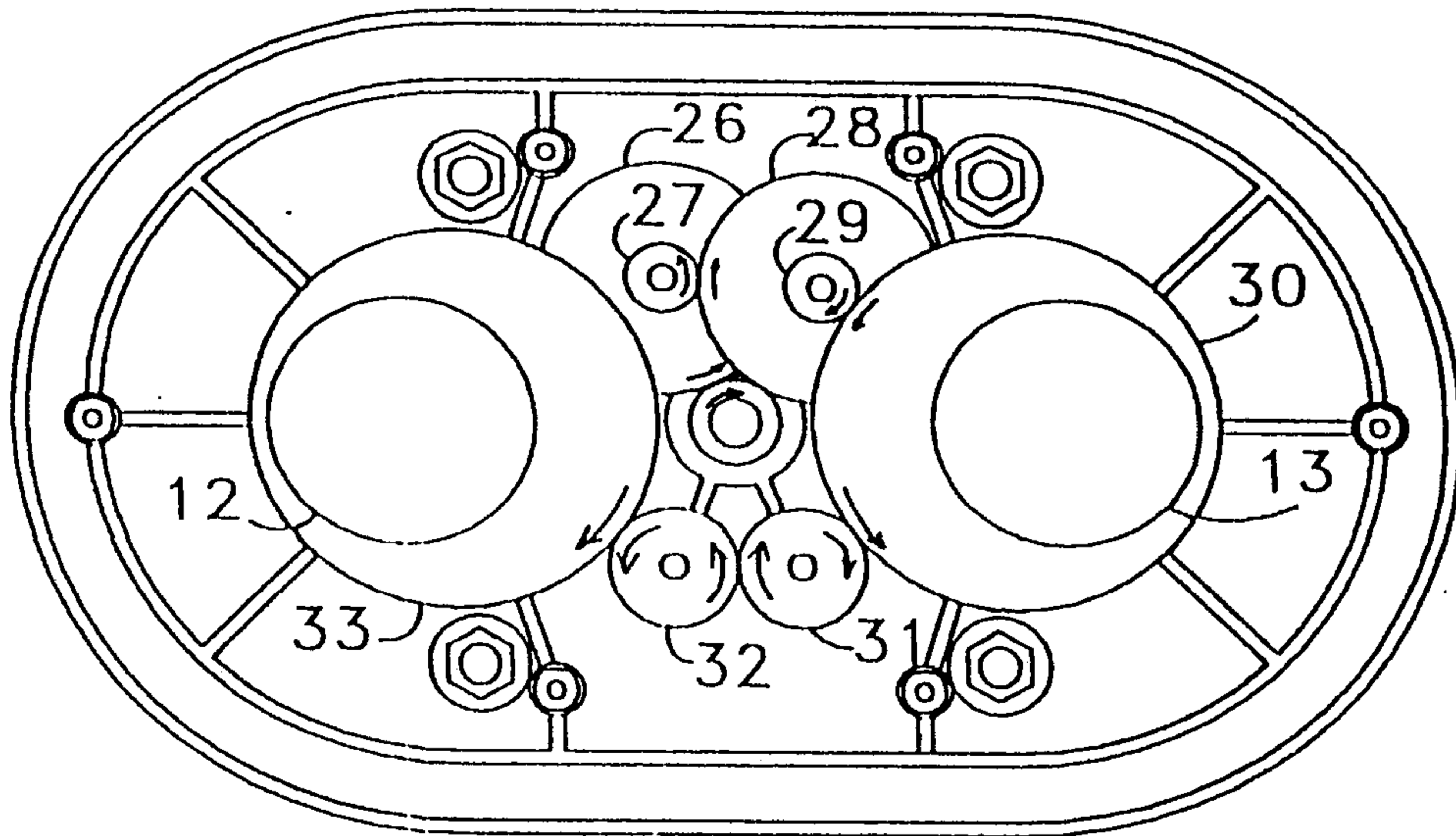
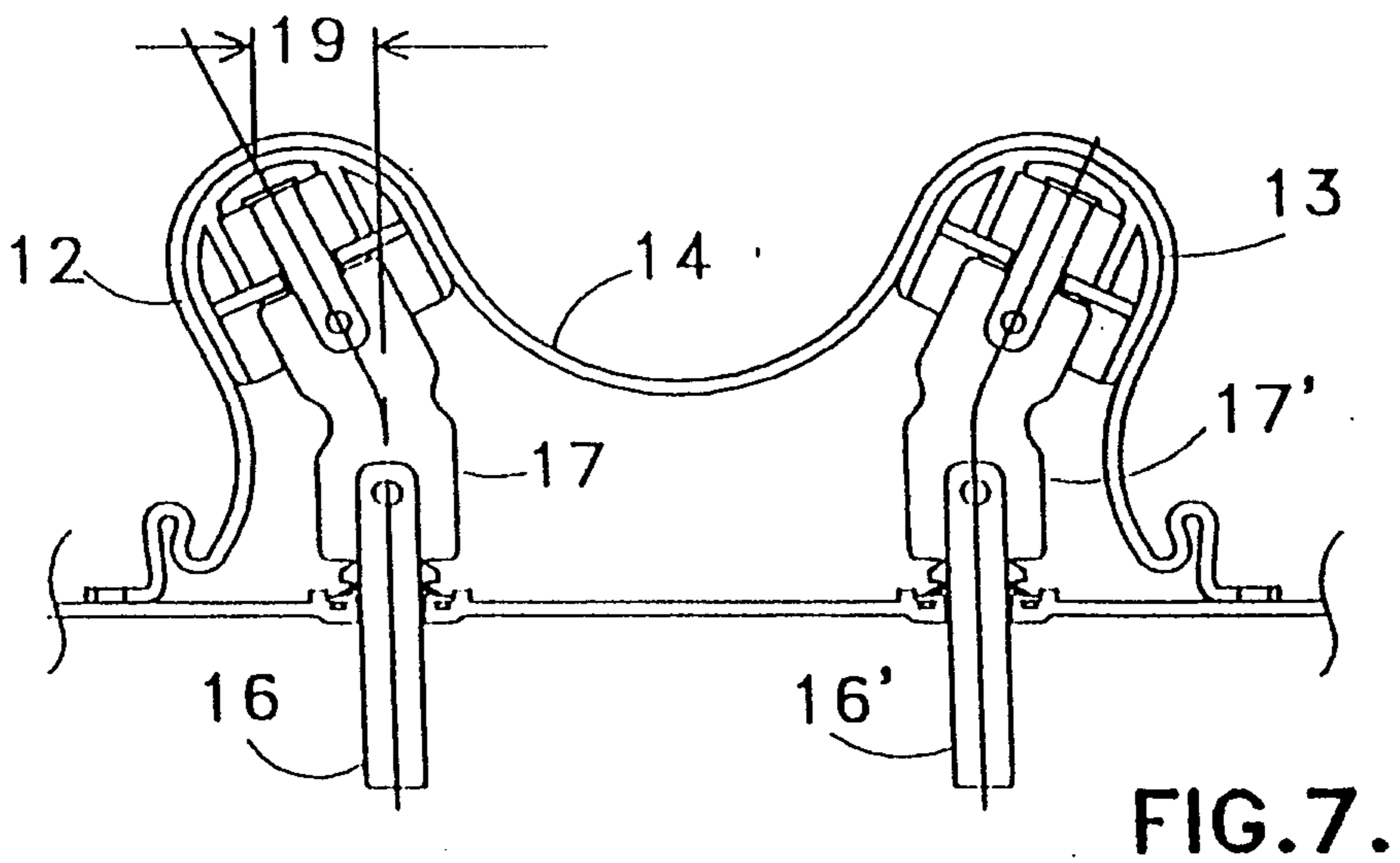
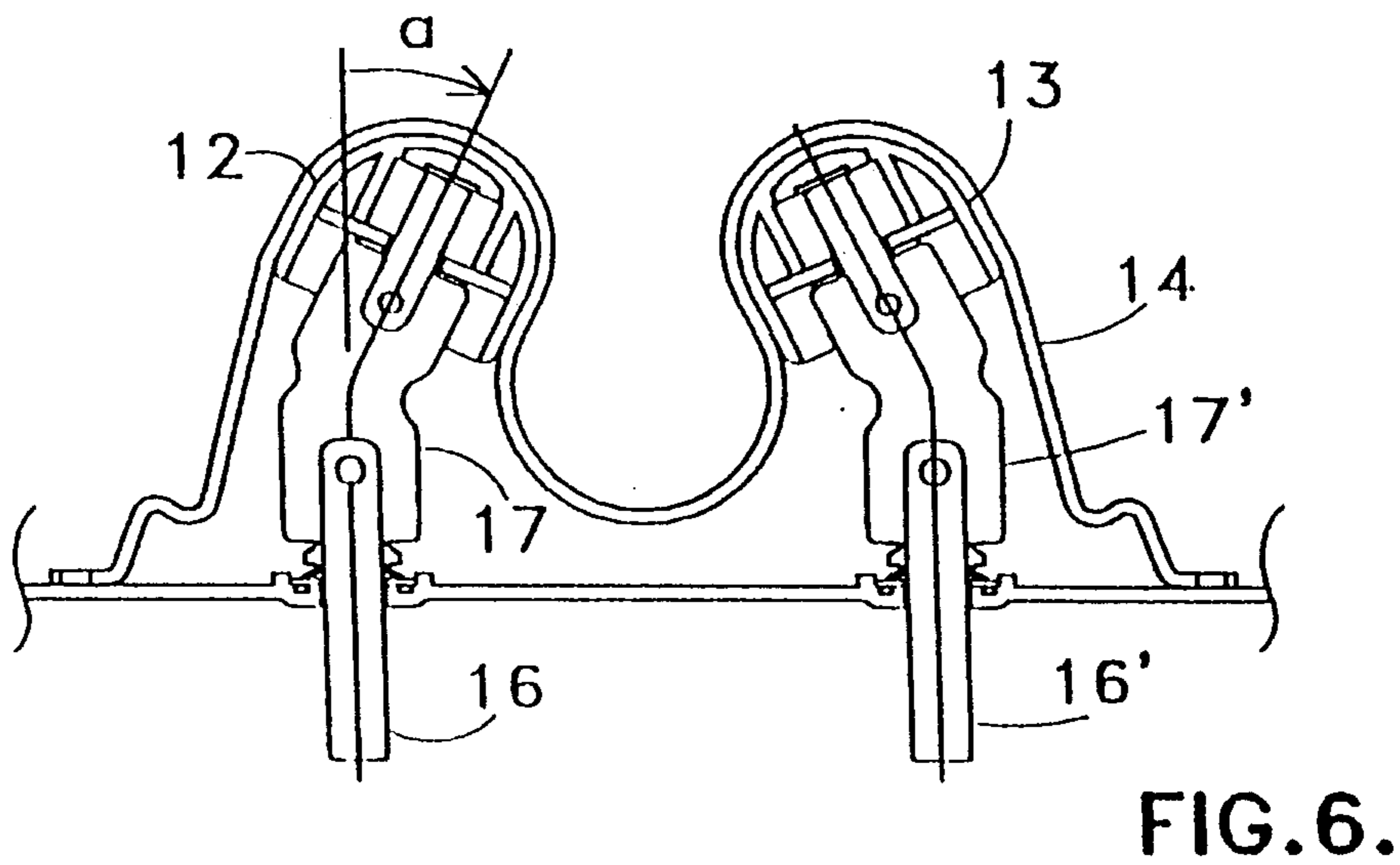
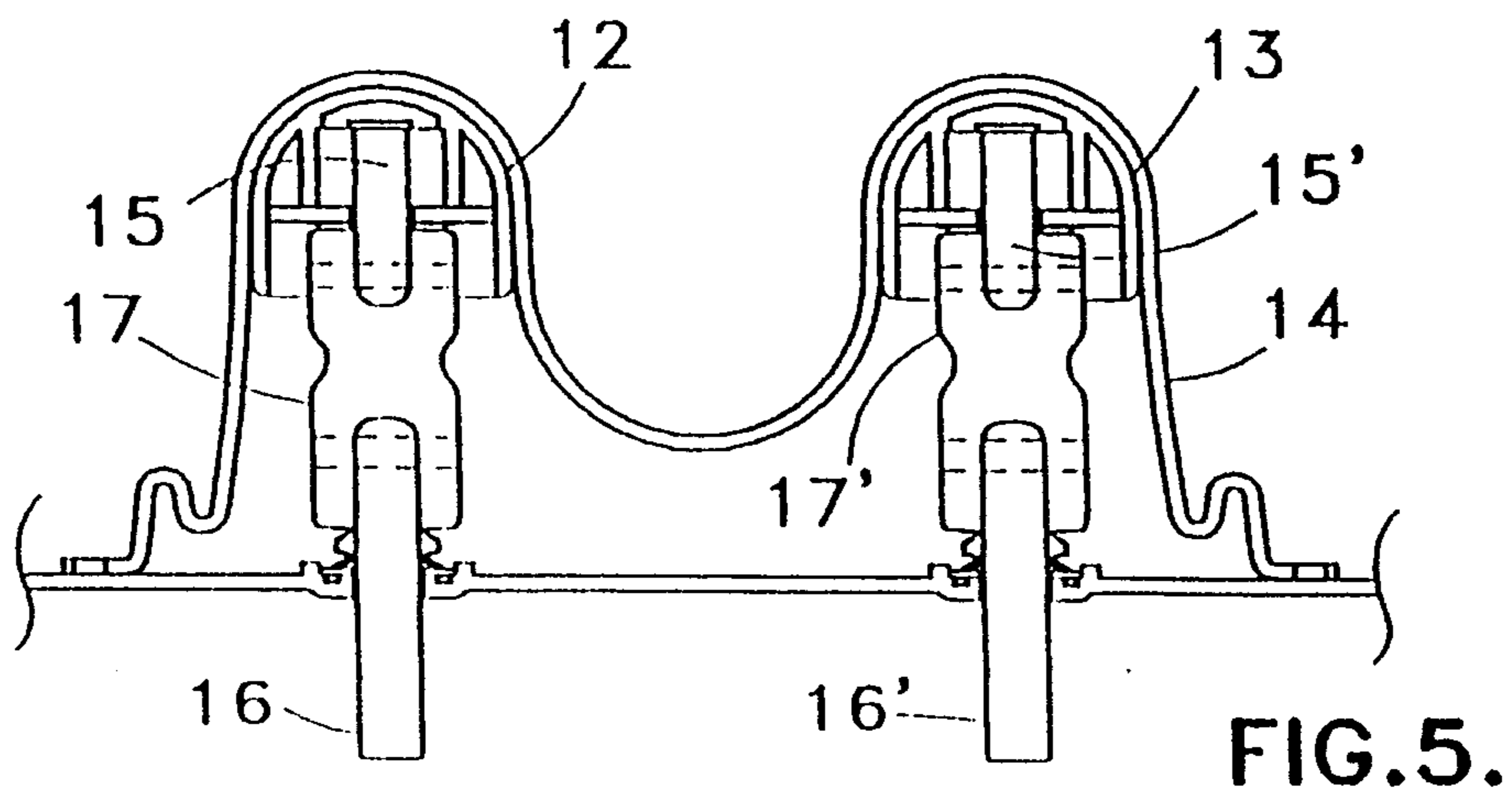


FIG. 4.



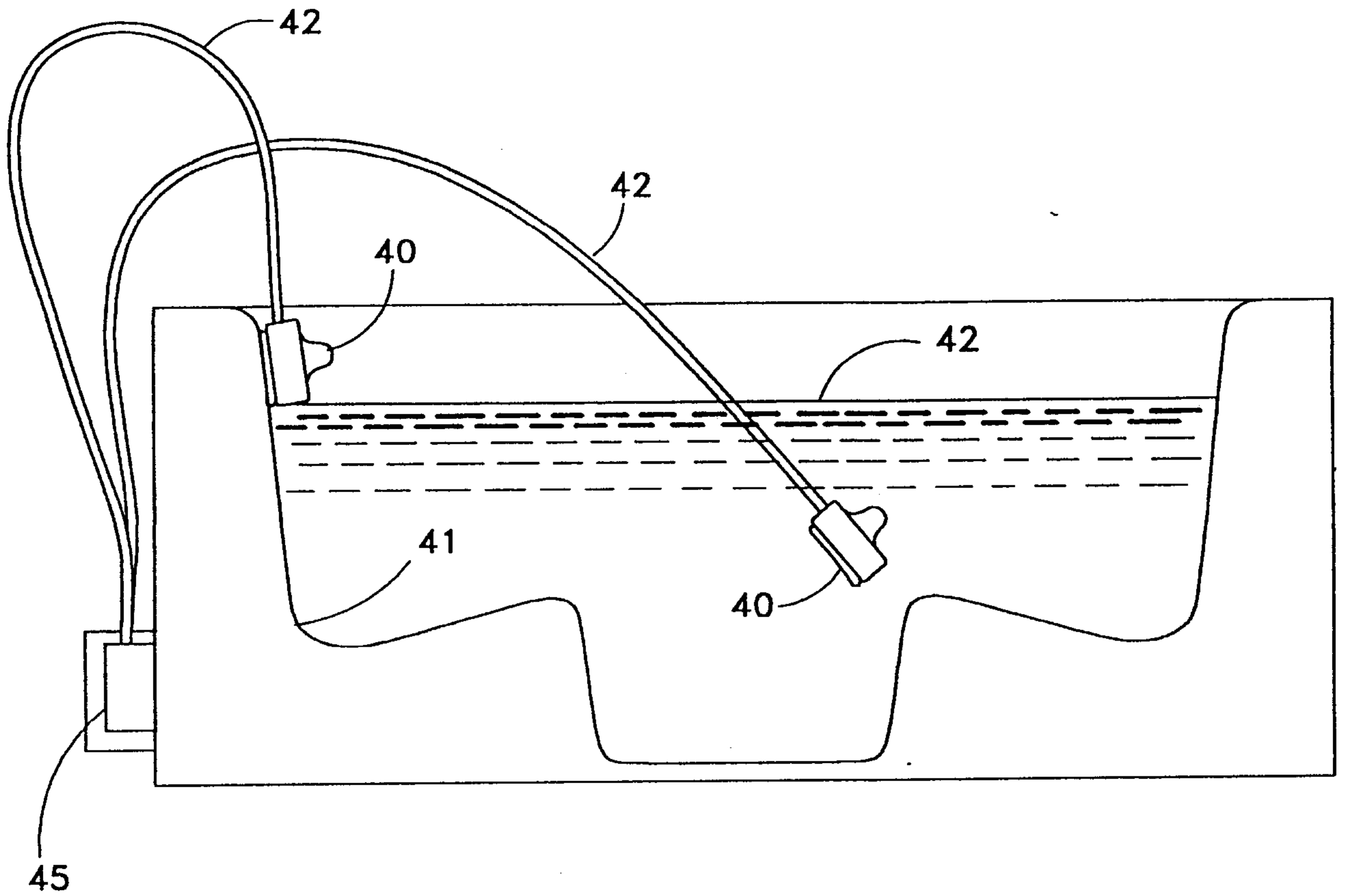


FIG. 8.

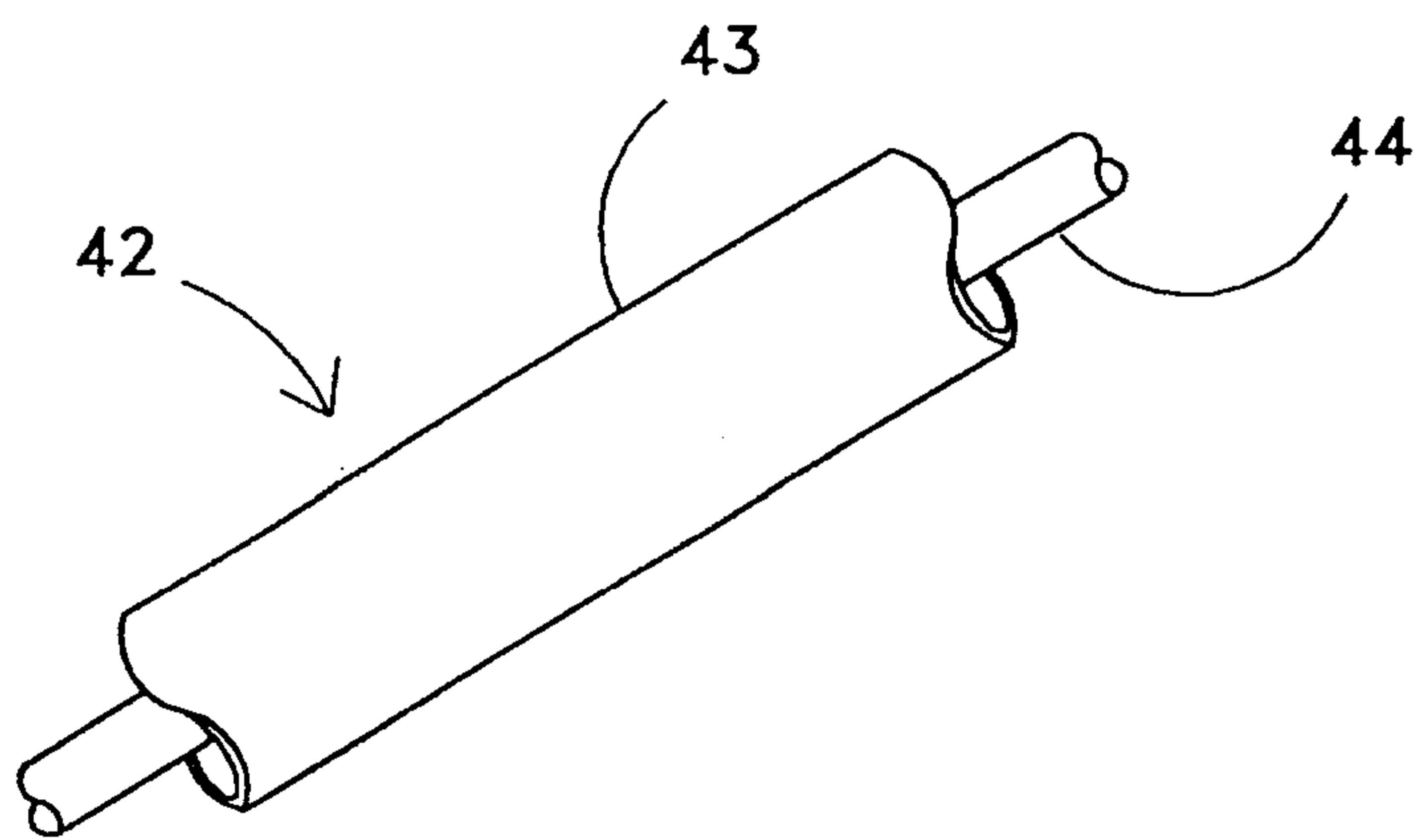


FIG. 9.

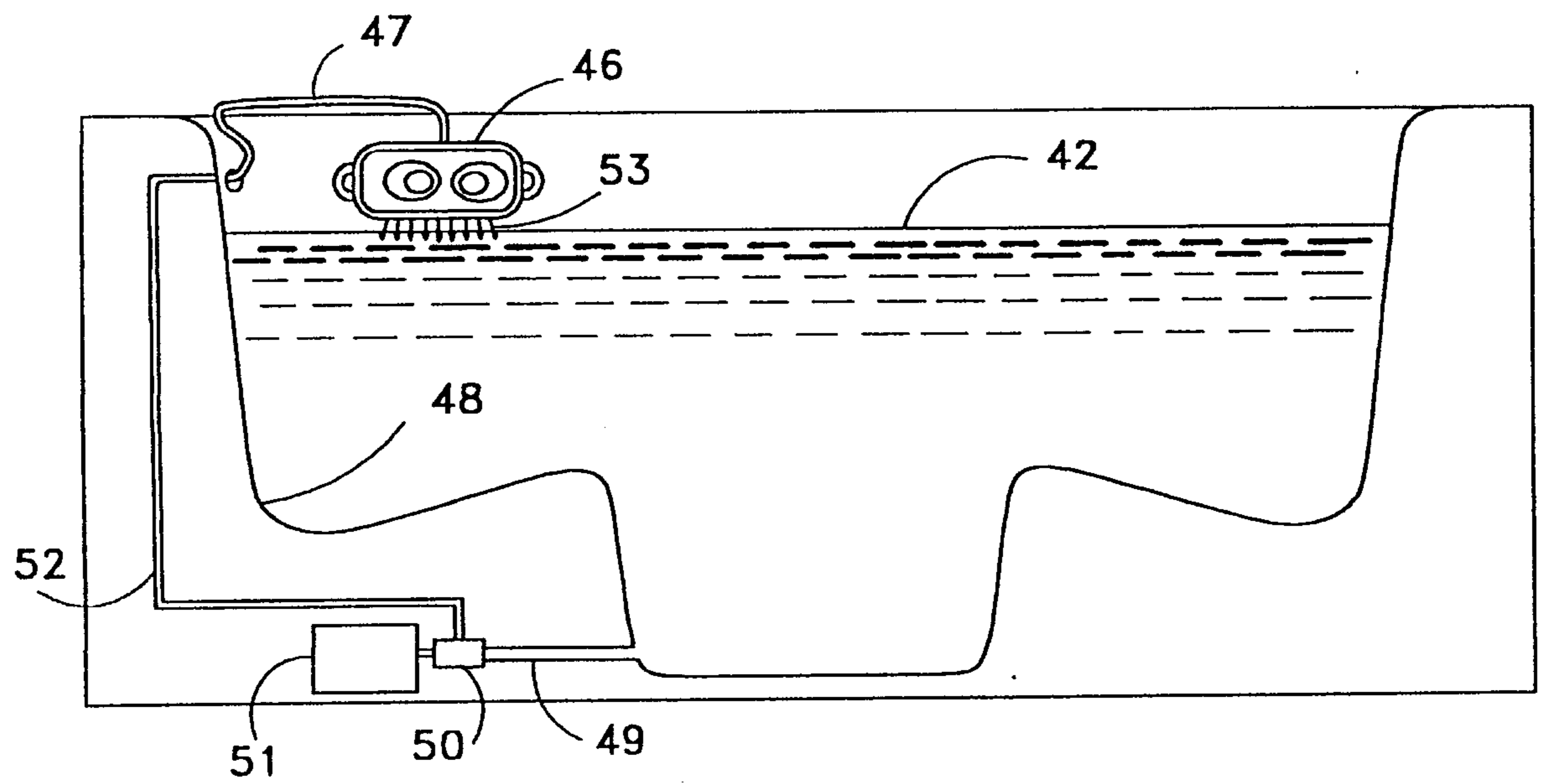


FIG.10.

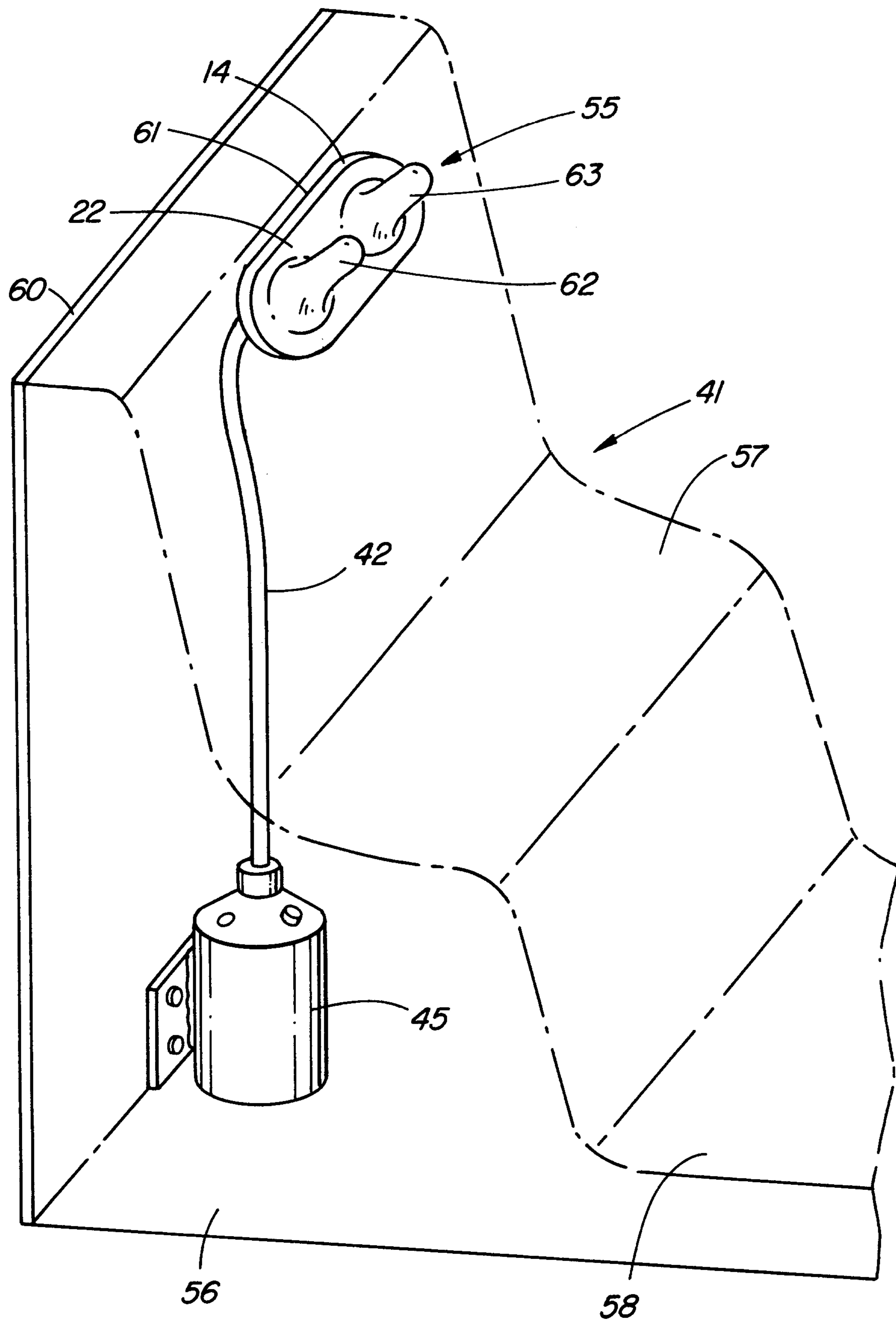


FIG. 11

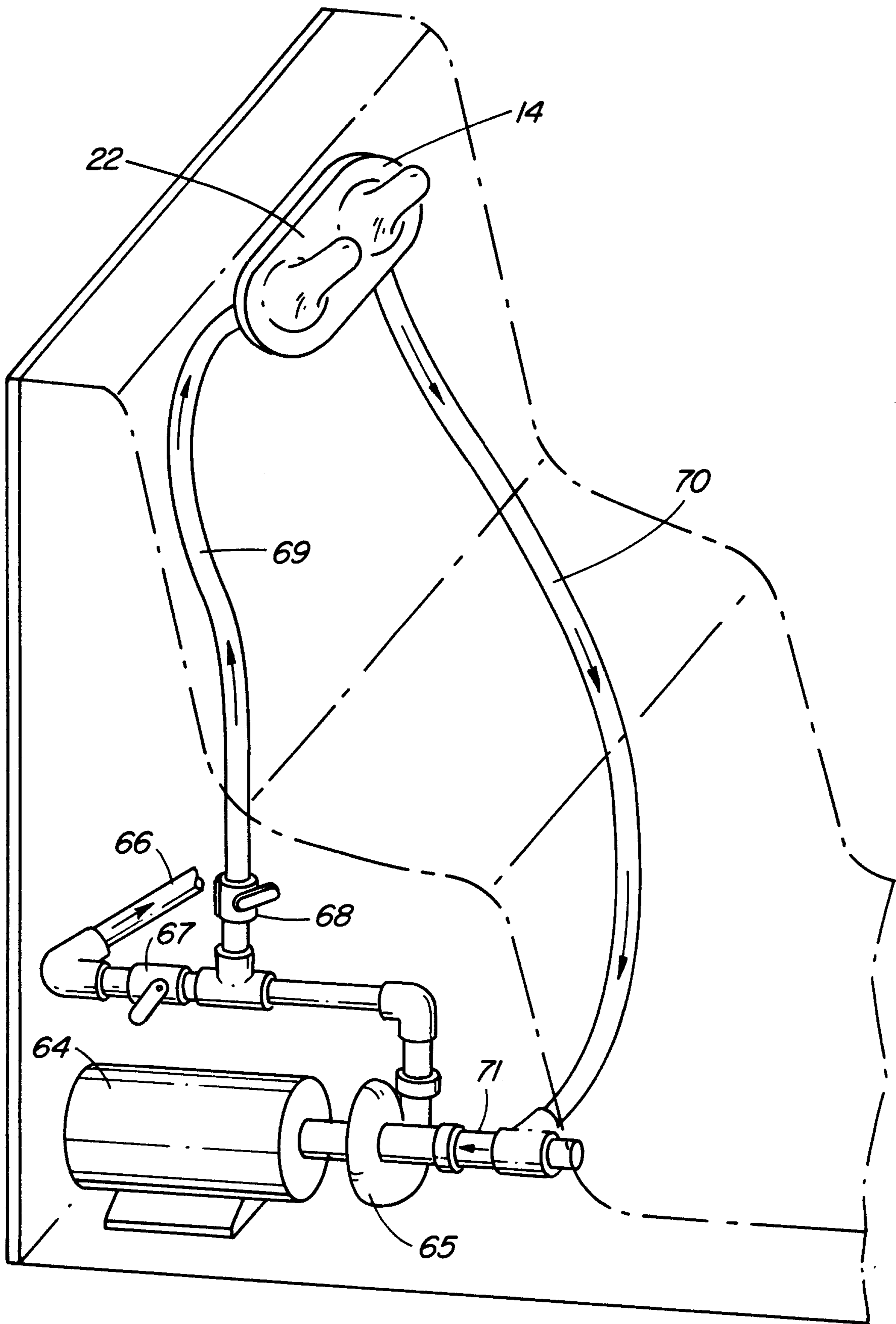


FIG. 12

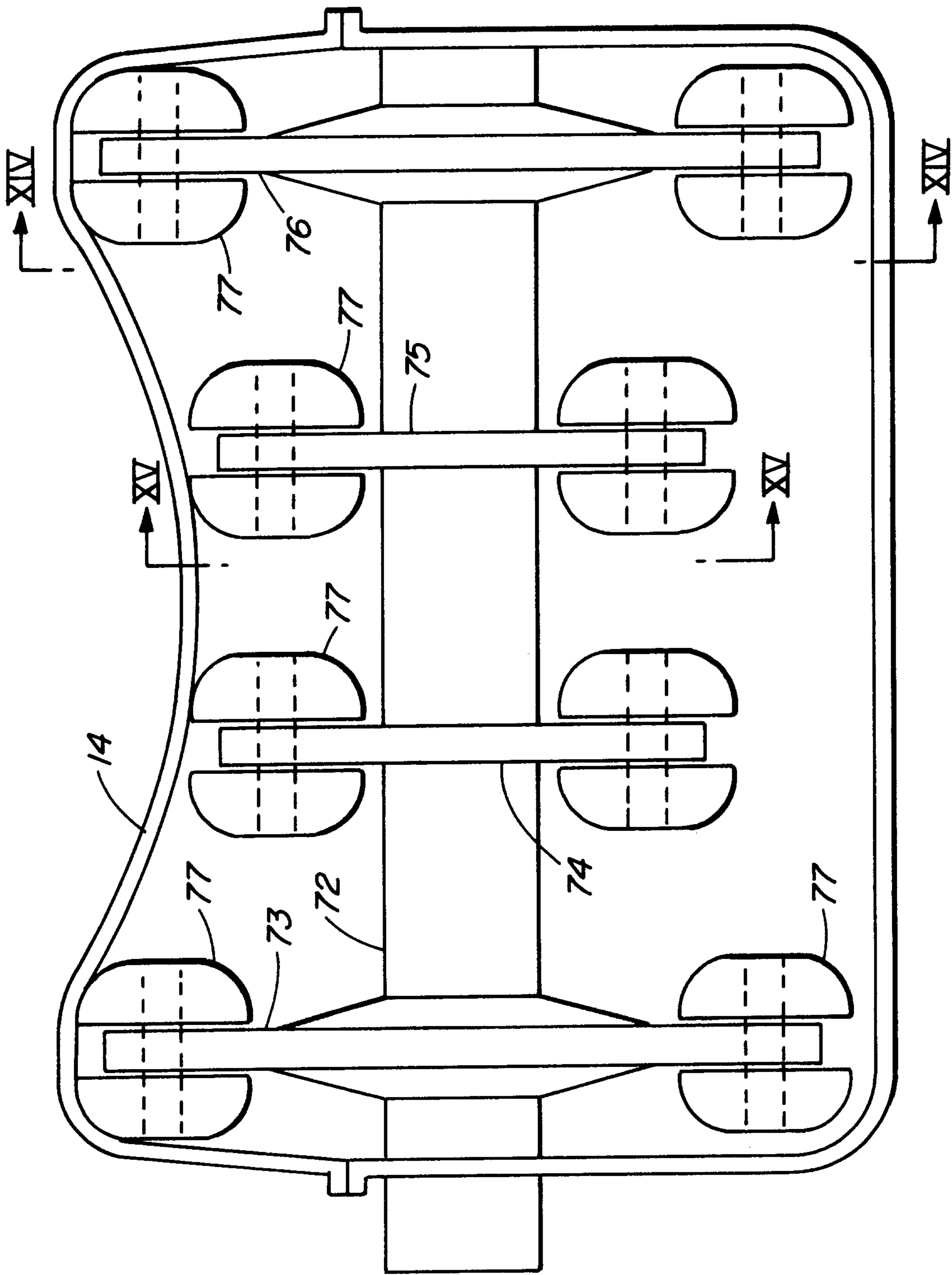


FIG. 13

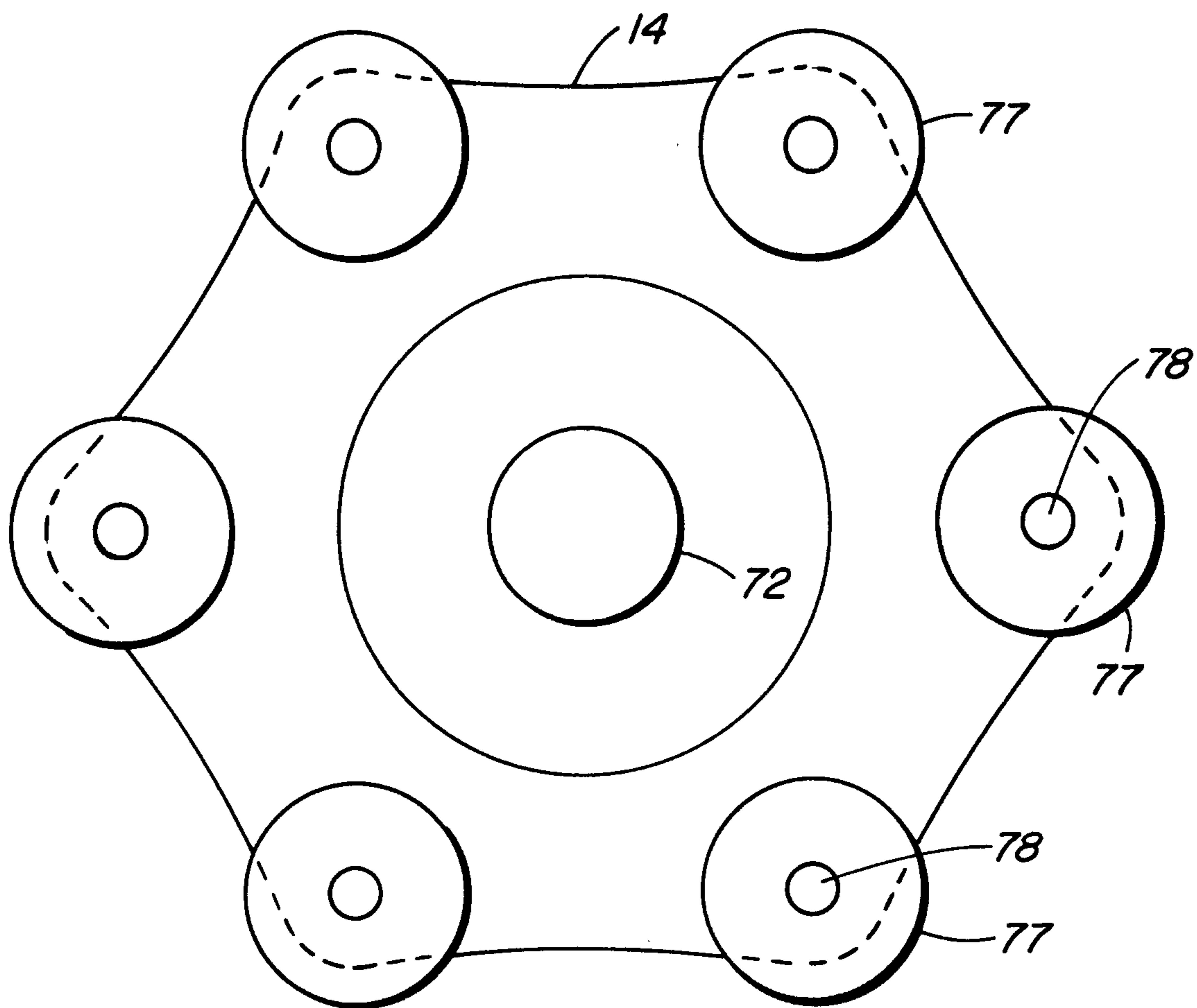


FIG. 14

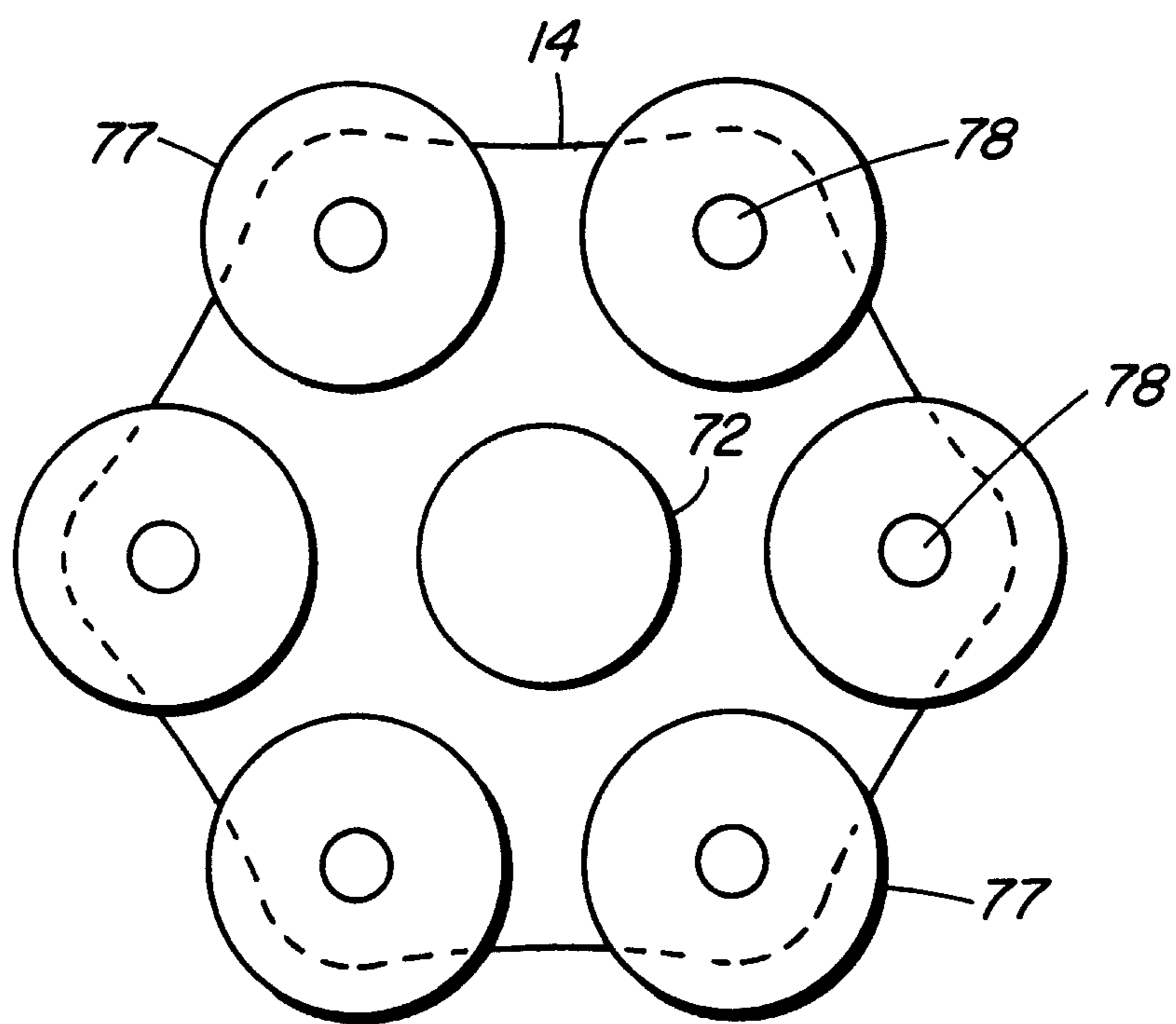


FIG. 15

