(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 488 729 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
22.12.2004 Bulletin 2004/52

(51) Int Cl.[7]: **A47L 9/16**

(21) Application number: **03380225.7**

(22) Date of filing: **08.10.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **16.06.2003 ES 200301406**

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(54) Waste receiving container for vacuum cleaners

(57) The vacuum cleaner in which the waste container-receptacle object of the invention is applicable, is of the type that bases its operation on the so-called cyclone or centrifugal effect, throwing the wastes drawn in against the side walls of the container to produce a depositing of said wastes in the bottom, where they are stored until same is emptied. The container comprises two independent tanks (2) wherein most of the side surface and bottom (10) thereof is closed by a tiltable cover (14), whose opening permits easy and effective emptying and cleaning. The tanks (2) have respective inclined partition walls (15) that reduce the amount of particles that rise up to the top area where some filters (8) provided for in a top cover (6) are located. This also permits the acceptable level of wastes to rise above such partition walls (15).

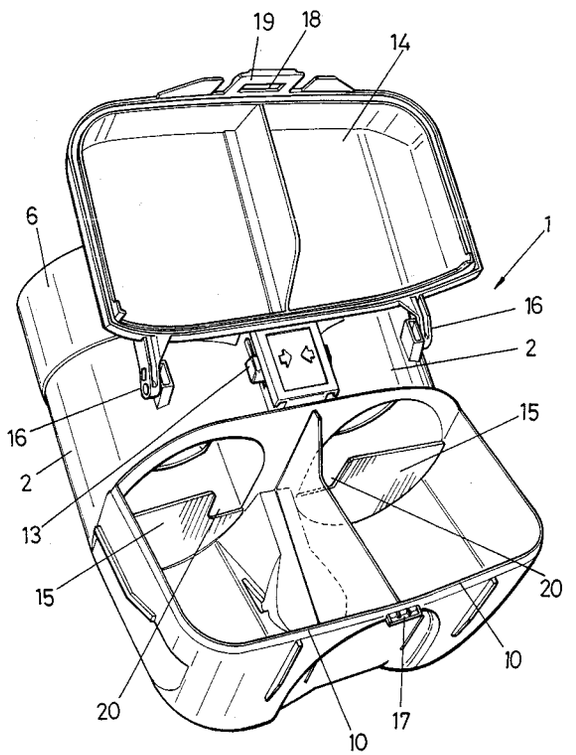

FIG.3

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Description

[0001] The present invention refers to a waste container-receptacle for vacuum cleaners, based on the collection being carried out by the so-called cyclone effect produced inside the container. The container comprises two independent tanks, inside each one of which the cyclone effect is produced so that the wastes are deposited on the bottom of each one of the tanks of the container.

[0002] The object of the invention is to provide a waste container-receptacle of the cited type, with some innovations that permit greater effectiveness to be obtained in the depositing of the wastes on the bottom of each one of the tanks, in the retaining of such wastes, as well as to permit the acceptable level of wastes inside the tanks to rise and to achieve the emptying and cleaning of the tanks to be done easily and effectively. The container is designed to be used in small-size and easy-to-use home vacuum cleaners.

BACKGROUND OF THE INVENTION

[0003] Currently, on the market there are vacuum cleaners that operate on the so-called cyclone or centrifugal effect, which avoids the need to use conventional and classic and replaceable filter bags. The cyclone effect consists of creating a stream of air inside the waste container-receptacle, the wastes being thrown against the side walls, producing a type of decantation of such wastes that will logically be deposited on the bottom of the container, where the wastes will be stored until the container is emptied.

[0004] The air comes out clean through a nozzle, after having passed through a filtering system that retains those suspended particles which due to their low density have not been deposited on the bottom of the container.

[0005] In order to prevent the cyclone effect from lifting the particles or wastes toward the corresponding outlet area, the container has been provided with a transversal partition wall with openings or holes that permit the wastes to drop to the bottom.

[0006] Based on said principles and characteristics there are manufacturers of different vacuum cleaners that include said system, as well as numerous documents that describe them, it being possible to cite, for example, US patent 2942691, European patent 1181886 and US patent 2276844, wherein the container has the cited intermediate partition wall with a window or opening to permit the fall or decantation of the wastes to the bottom, although they have the inconvenience that the waste storage capacity is very limited. Furthermore, neither are the emptying and cleaning as effective as they should be, nor is said emptying process as simple or feasible as it should be.

[0007] The fact that the container comprises two independent tanks, with a shared inlet that forks off towards each one of them in order to produce the cyclone in each one of said tanks, is also known. Said container with the two tanks forms an assembly with a handle and means for coupling on the body of the vacuum cleaner, which may be easily disassembled in order to carry out any type of maintenance of the different component parts that comprise the container itself.

DESCRIPTION OF THE INVENTION

[0008] The waste container-receptacle for vacuum cleaners, object of the invention, is of the type referred to last of all in the preceding section, in other words, it comprises two independent tanks, a top cover where the corresponding filters and an inside partition wall in each one of the tanks, are arranged, in order to prevent the wastes deposited by the cyclone effect from rising.

[0009] As of these characteristics, one of the improvements or innovations consists of the intermediate partition wall provided for in each tank having an incline with respect to the air inlet plane, an incline that will preferably be upward from its edge and in contact with the side wall of the tank itself towards its free edge.

[0010] Said inclined arrangement of each partition wall and therefore the lack of perpendicularity between the partition wall and the cyclone gives rise to a better collection of the particles drawn in by the partition wall itself. The number of particles that rise up to the filters has been considerably reduced and this prevents possible clogging of the filters.

[0011] Besides, the arrangement of such partition walls and their shape, that cover a sector of the total amplitude of the tank, permit the acceptable level of wastes to rise above the respective partition wall.

[0012] In a preferred embodiment, the cited partition walls have a notch that defines a through opening, as an enlargement of that which defines the open sector not occupied by the partition wall itself.

[0013] Another improvement consists in part of the side surface of the tanks and part of its bottom being materialized by a feasible, conveniently jointed cover, which corresponds with the height comprised between the inclined partition walls and the bottom of the tanks. The joining is carried out on the side surface of the tanks, above the area where the inclined partition walls are positioned.

[0014] Said cover closes at the bottom by pressure locking or by any other system that permits easy unlocking thereof, permitting with its opening and tilting easy emptying and cleaning of the tanks, upon a large part of the side surface and a part of the bottom of said tanks remaining totally open.

[0015] In a variant, the cover includes a pair of partition walls with a shape and arrangement such that together with the oblique or inclined partition walls of the two tanks of the container, in a position in which said cover is closed, they will cover almost the entire amplitude or "space" of each tank, leaving only an opening for the intake of air and collection of particles or wastes,

as well as a groove in correspondence with the facing of both edges of the partition walls of the tanks and of the partition walls of the cover.

[0016] Said combination or complementarity of the cited partition walls minimizes to a large degree the rise of particles and dust which are to be kept in the bottom of the tanks.

[0017] The cited partition walls of the cover can be coplanar with the ones of the tanks, or they can be arranged so that they are unaligned.

[0018] Finally, it should be said that the partition walls of the cover can have a notch facing the one of the partition walls of the tank, defining together a larger through opening.

[0019] In another variant, the cited partition walls of the cover have an oblique arrangement, in other words, diagonal.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] In order to complete the description that is going to be made hereinafter and for the purpose of providing a better understanding of the characteristics of the invention, a set of diagrams based on which the innovations and advantages of the waste container-receptacle for vacuum cleaners, object of the invention, will be more easily understood, will accompany the present specification.

Figure 1 shows a perspective view of the container-receptacle assembly, showing an exploded view of the body that the top cover forms with the filters included therein.

Figure 2 shows a perspective view of the opposite surface of the assembly represented in the preceding figure.

Figure 3 shows another perspective view of the waste container-receptacle assembly object of the invention, wherein one can see the bottom cover open leaving the tanks receiving the wastes totally in the open.

Figure 4 shows a detailed view corresponding to a section where one can see the inclination of the partition walls provided for in the tanks.

Figure 5 shows a perspective view of an embodiment wherein the cover is provided with some partition walls complementary to the inclined partition walls of the tanks.

Figure 6 shows a plan view, along one section, of the combination between the partition walls of the cover and of the tanks, according to the embodiment represented in the preceding figure.

Figure 7 shows a perspective view of the cover with the partition walls oriented obliquely.

DESCRIPTION OF THE PREPARED EMBODIMENT

[0021] In view of the cited figures, it can be seen how the particle or waste container-receptacle for vacuum cleaners object of the invention, is comprised of a general body (1) wherein two independent tanks (2) are established, between which there is defined an inlet duct (3), whose mouth (4) is located underneath, while its emergence empties into an inside area or distributor (5) that is closed at the top by means of a cover (6) with a handle (7) and inside filters (8), which are positioned concentrically on the top part of the tanks (2). Said inside outlet area or distributor (5) of the duct (3), through the respective notches (9) forks off into two openings that communicate with the tanks (2), through which the air with the wastes drawn in that enter through the duct (3) fork off towards both tanks (2) wherein the cyclone effect is produced. The wastes deposit on the bottom (10) of such tanks (2) and the clean air emerges outside through the outlet (11), after passing through the filters (8) and other filtering blocks also provided for in the cover itself (6).

[0022] Said cover (6) has coupling/decoupling means (12) for its assembly/disassembly with respect to the general body (1) of the container-receptacle, whose means (12) are complemented with other blocking/deblocking means (13) provided for this purpose in body (1).

[0023] The tanks (2) have part of their side profile and part of the bottom materialized by a cover (14), which covers a sector of the cited side surface and the height comprised between the bottom (10) and an inclined intermediate partition wall (15) provided for in each tank (2).

[0024] Said cover (14) is jointed in two points (16) to the main body (1), permitting the tilting thereof in order to close or open the tanks (2) and to permit in this latter case the emptying and cleaning of the tanks. Said cover (14) is blocked in the closed position of said cover by means of a spring (17) of the general body (1) wherein the window (18) of a fin belonging to the cover itself (14) locks.

[0025] The arrangement, shape and amplitude of the cover (14) permits that in its open position the emptying and cleaning of the tanks (2) can be done easily and effectively, since the cover merely needs to be unlocked from its closed position and folded upward so that all the wastes that have been stored in the bottom of the tanks (2) drop by gravity, at the same time that the large amplitude of the open area that said cover (14) provides permits easy and effective cleaning.

[0026] As to the inclined partition walls (15) provided for in the tanks (2), the incline thereof enhances the collection of wastes and reduces to a large degree that the particles rise above such partition walls (15) toward the filter (8) area and logically towards the outlet area, permitting the time for cleaning or replacing such filters(8) to be lengthened.

[0027] The residues that are deposited and stored on the bottom (10) of the tanks (2) can reach a level higher than that of the partition walls themselves (15), thus in-

creasing the storage capacity of said tanks (2), all of this due to the shape and inclined arrangement of the partition walls (15), which in a preferable embodiment have a size that closes a sector of the total amplitude of the tanks (2), leaving the other ample sector in the open. These partition walls (15) have a notch (20) that defines an opening that enlarges the opening or free sector by means of the corresponding tank (2).

[0028] In a variant, it has been provided for that the cover (14) is provided with a pair of complementary partition walls (15') of the partition walls (15) of the tanks (2), in such a way that in the closing of the cover (14) its partition walls (15') face the partition walls (15) covering almost all the "space" or open amplitude of the tanks (2). A small separation (21) is defined between both partition walls (15) and (15') and in combination with the opening that defines the notch (20) of the respective partition walls it gives rise to the opening for the intake of air and collection of the wastes towards the bottom.

[0029] The partition walls (15') of the cover can have another notch (20') like notch (20) of the partition walls (15), in such a way that when notches (20) and (20') face each other, a larger amplitude of the opening is created.

[0030] These partition walls (15') of the cover (14) that can be coplanar to the partition walls (15) of the tanks (2) or they can be unaligned, minimize to a large degree the rise of dust and particles to be kept inside the tanks (2).

[0031] In another variant, the cover (14) has its partition walls (15'') diagonal, in other words, they have an oblique arrangement as shown in figure 7.

Claims

1. Waste container-receptacle for vacuum cleaners, that forming a general body provided for in order to be assembled and disassembled with respect to the general frame of a home vacuum cleaner, whose operation is based on the so-called cyclone or centrifugal effect, a body wherein there are two tanks for receiving the wastes drawn in, through a duct that forks off into two openings communicating with the tanks, defining the inlet in each one of them, both tanks being closed at the top by means of a shared dismountable cover with inside filtering means and a outlet for the already filtered air, whereas each one of the tanks wherein the cyclone effect is produced independently, is provided with an intermediate partition wall in order to prevent the rise of the particles that are decanted towards the bottom of each deposit, **characterized in that** the intermediate partition walls (15) of the tanks (2) have an inclined arrangement with respect to the stream of air with wastes, improving the power of collecting the particles or wastes by each partition wall (15), thus also permitting the acceptable level of the wastes inside the tanks (2) to rise.

2. Waste container-receptacle for vacuum cleaners, according to claim 1, **characterized in that** one part of the side surface and one part of the bottom (10) of the tanks (2) are materialized by a cover (14) jointed sideways, whose tilting when open leaves the tanks (2) open at the sides and at one part of the bottom (10), facilitating the emptying and cleaning of the tanks.

3. Waste container-receptacle for vacuum cleaners, according to claim 1, **characterized in that** the inclined partition wall (15) of each one of the tanks (2) has an amplitude that covers a sector of the gap of the respective tank (2), leaving an ample sector open, defining the opening for the decantation of the wastes.

4. Waste container-receptacle for vacuum cleaners, according to claim 3, **characterized in that** the inclined partition (15) of each one of the tanks (2) has a notch (20) defining an opening of enlargement of the sector open in the corresponding tank (2).

5. Waste container-receptacle for vacuum cleaners, according to the preceding claims, **characterized in that** the cover (14) that closes part of the side surface of the tanks and part of the bottom (10) of the tanks, is provided with some partition walls (15') that in the closed position for said cover (14) are complementary to the inclined partition walls (15) of the tanks (2), covering almost all the open amplitude or "space" of each one of the tanks (2).

6. Waste container-receptacle for vacuum cleaners, according to claim 5, **characterized in that** between the partition walls (15) of the tanks (2) and the partition walls (15') of the cover, an opening defined by the notch (20) of the partition walls (15) and by the separation (21) defined between the partition walls (15 and 15') is formed.

7. Waste container-receptacle for vacuum cleaners, according to claims 5 and 6, **characterized in that** the partition walls (15') of the cover (14) are coplanar with the partition walls (15) of the tanks (2).

8. Waste container-receptacle for vacuum cleaners, according to claims 5 and 6, **characterized in that** the partition walls (15') of the cover (14) are unaligned with respect to the partition walls (15) of the tanks (2).

9. Waste container-receptacle for vacuum cleaners, according to any of claims 5 to 8, **characterized in that** the partition walls (15') of the cover (14) have a notch (20') that, together with the notch (20) of the partition walls (15), defines a larger amplitude of the through opening formed between the partition walls

(15) and (15').

10. Waste container-receptacle for vacuum cleaners, according to any of the preceding claims, **characterized in that** the cover (14) has some partition walls (15") in an oblique arrangement.

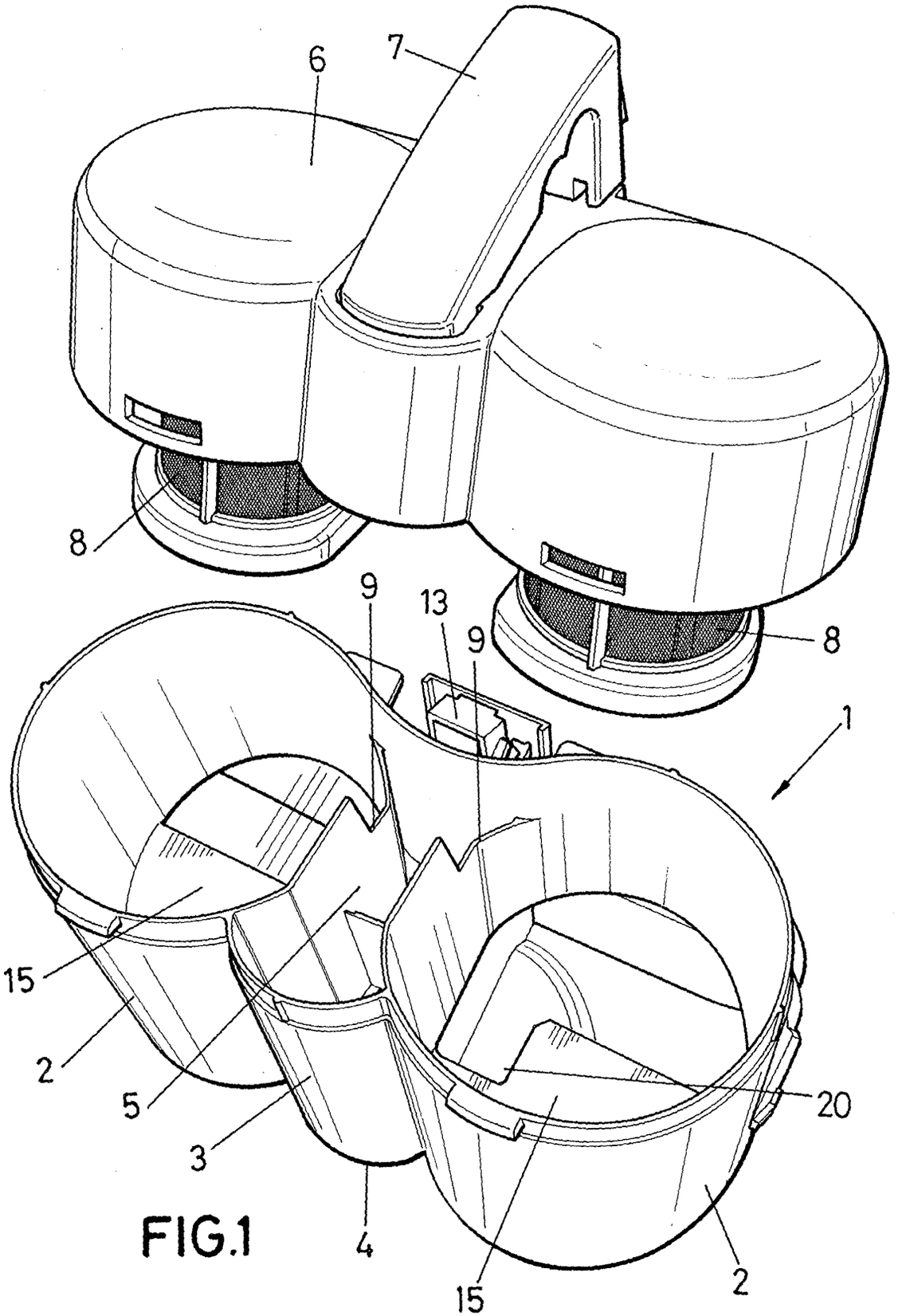

FIG.1

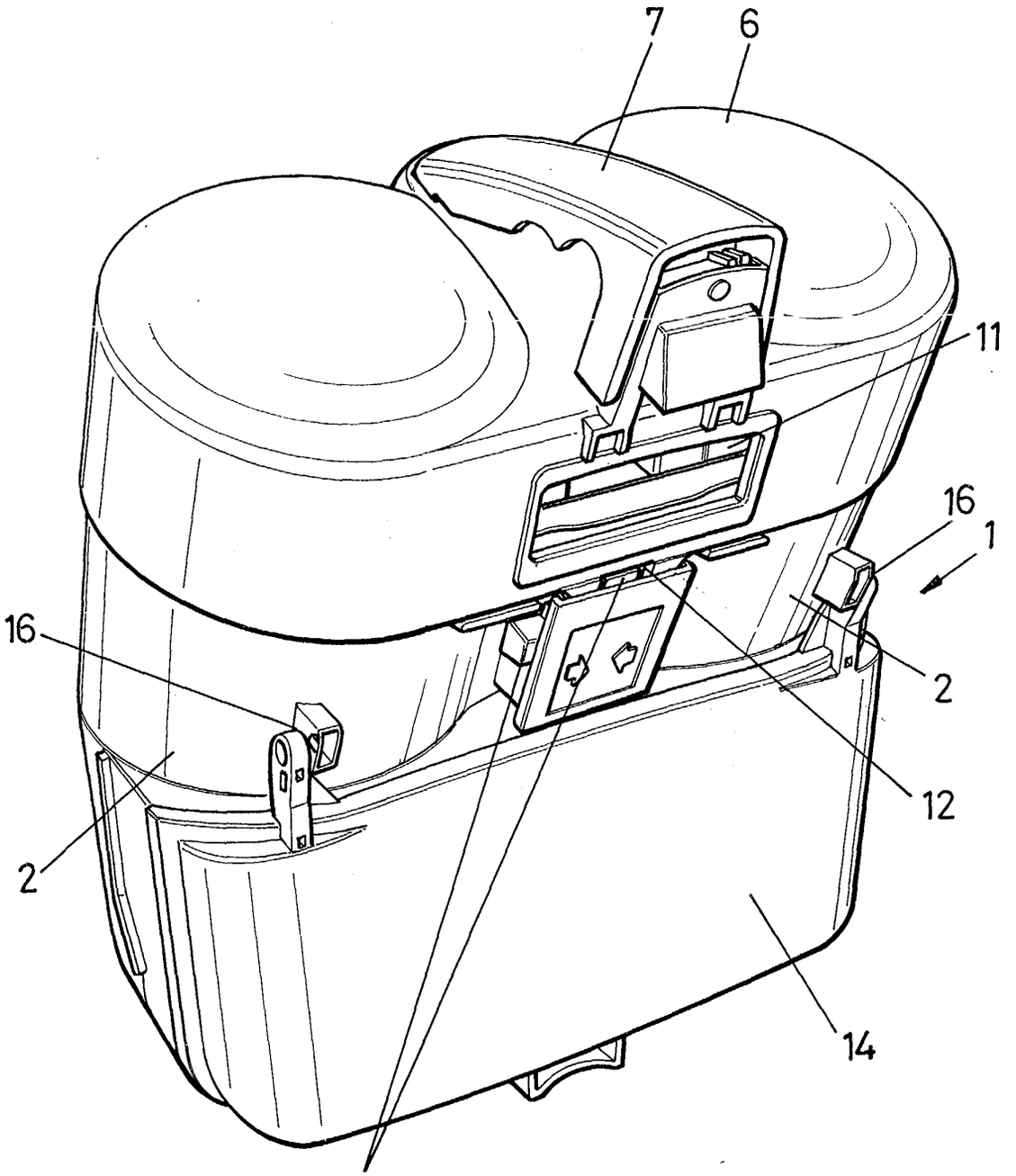

FIG.2

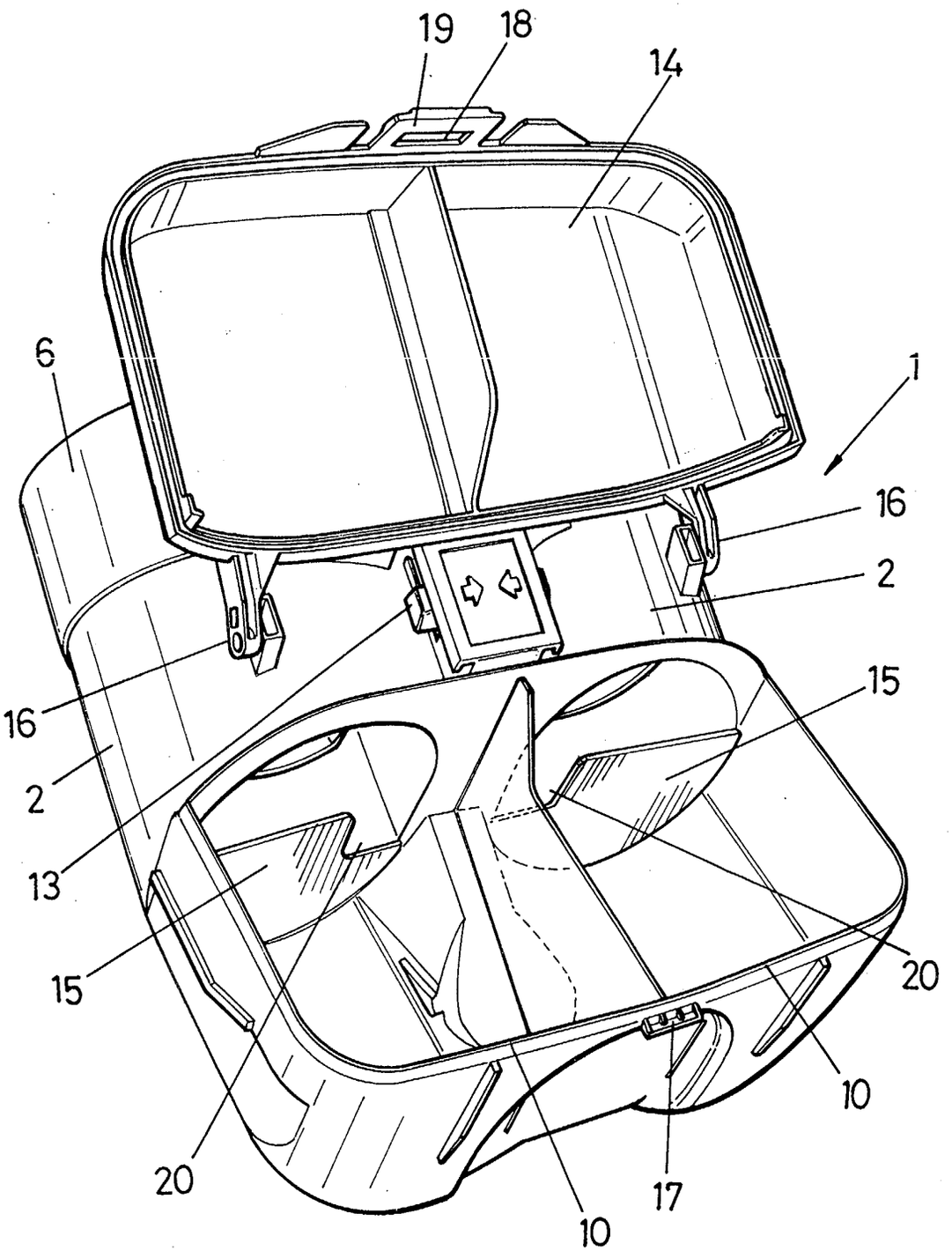

FIG.3

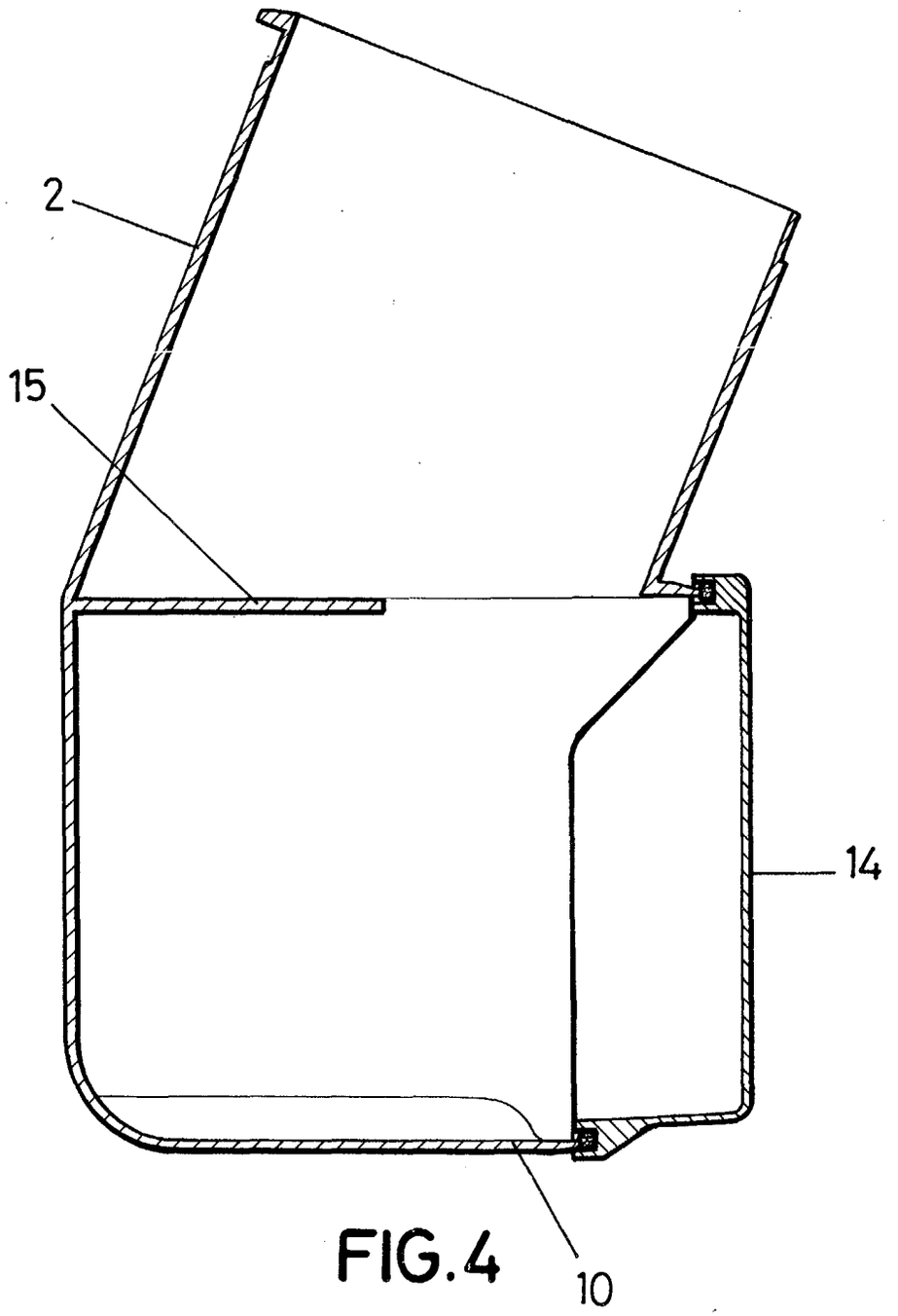

FIG.4

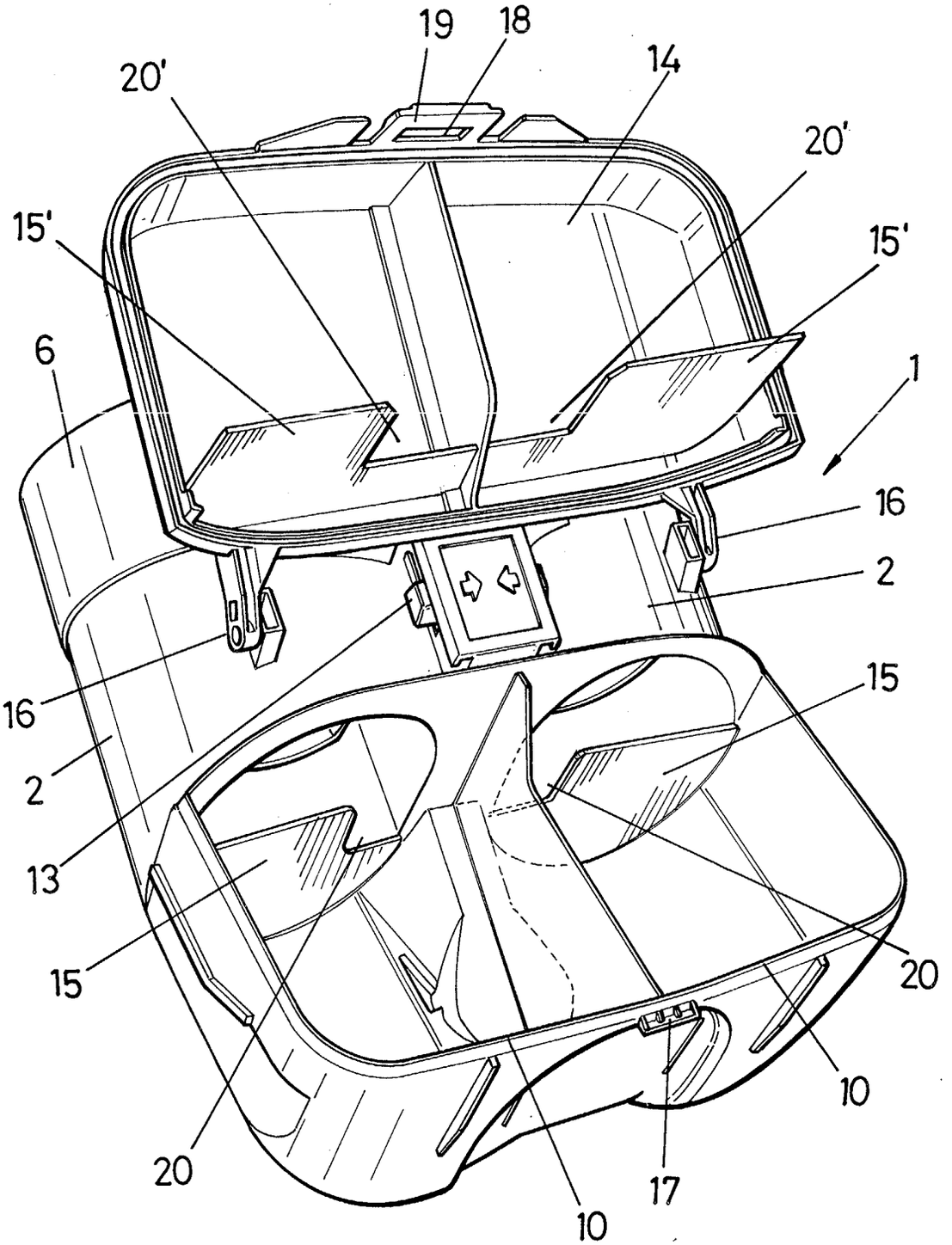

FIG.5

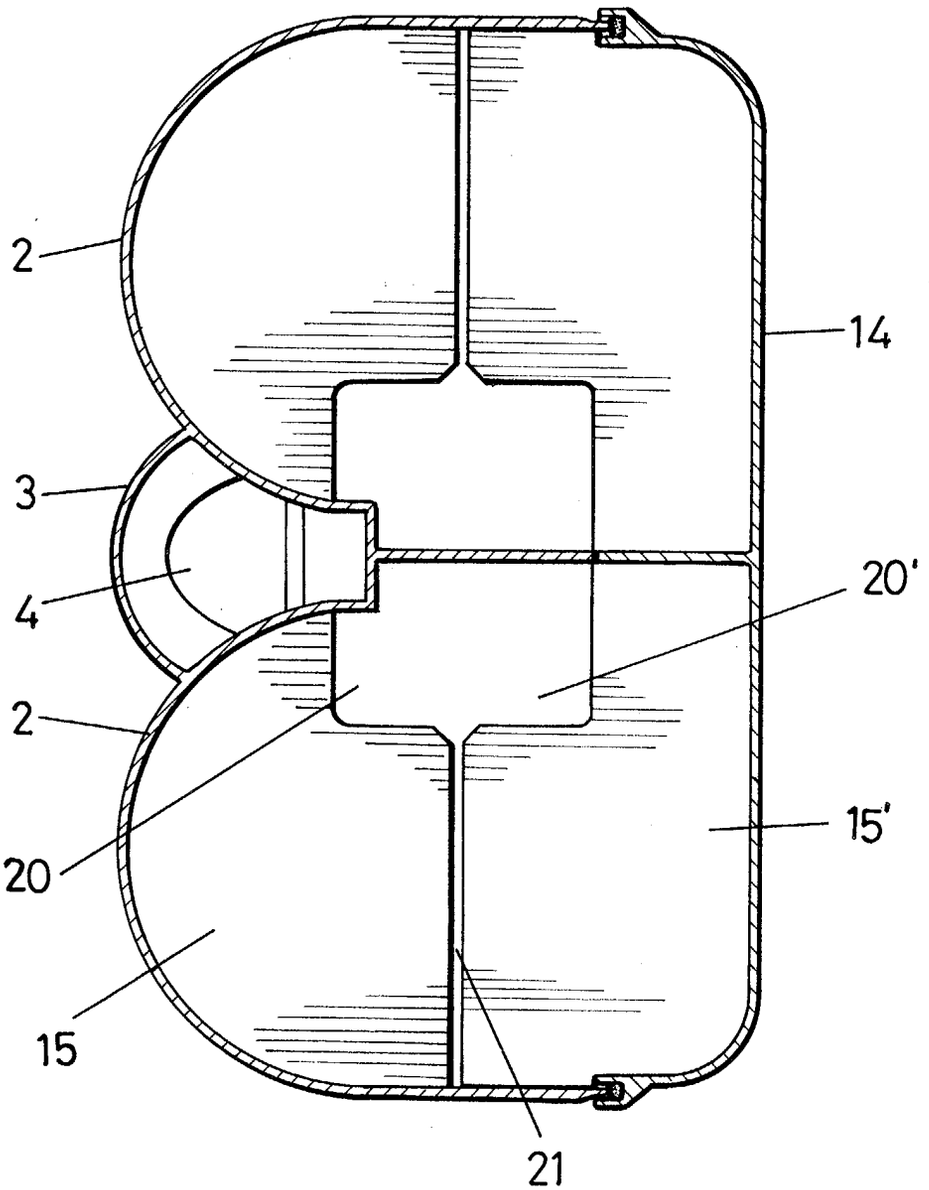

FIG.6

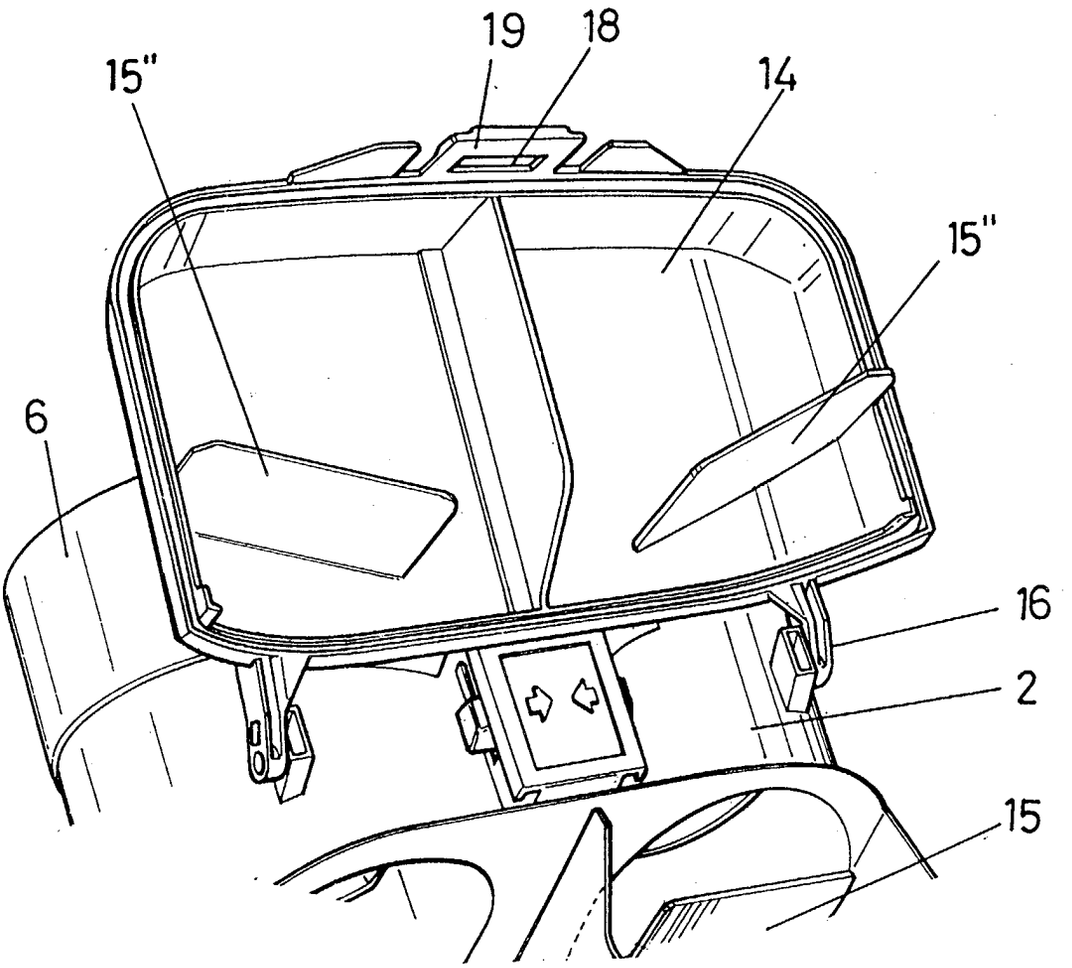

FIG.7