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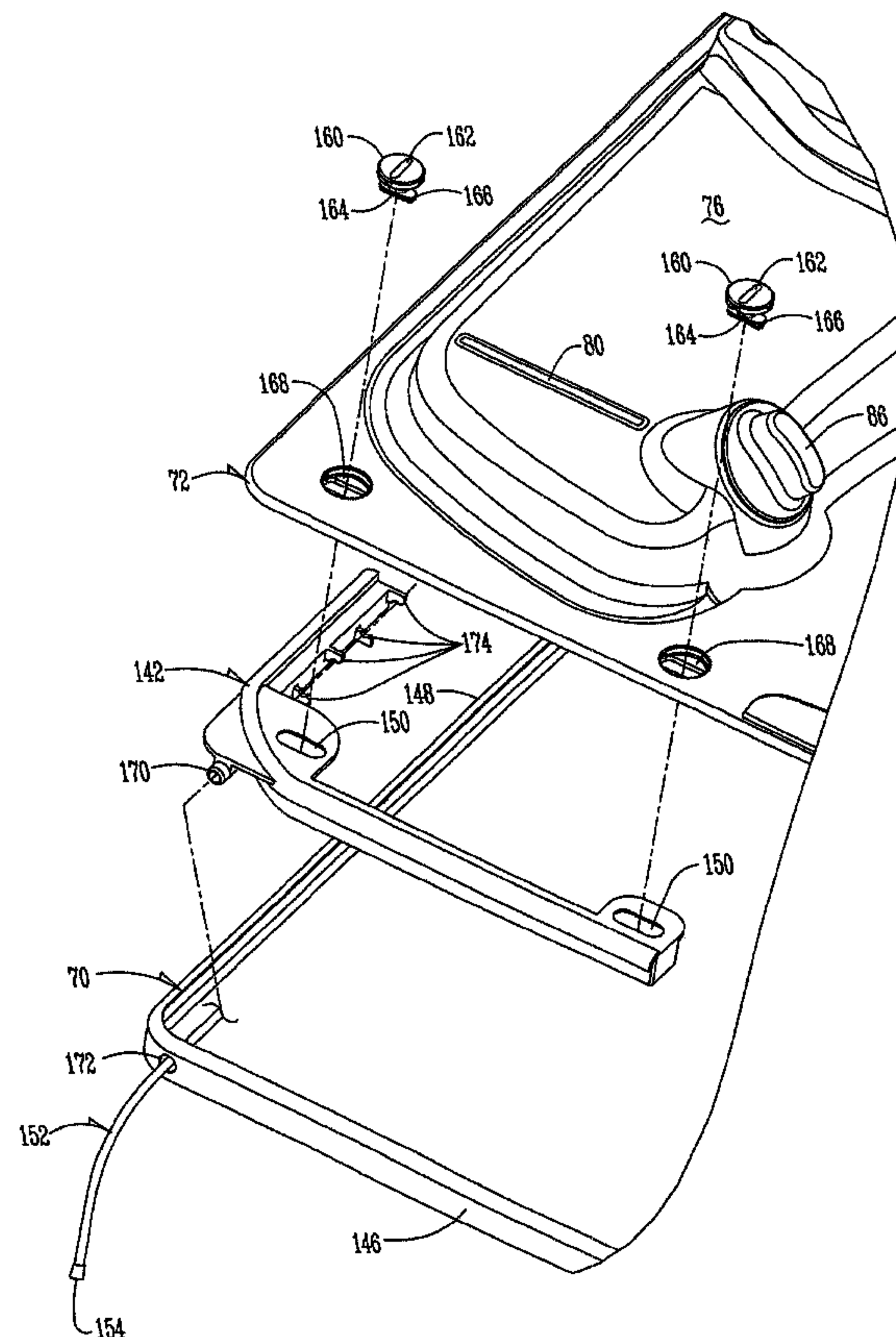
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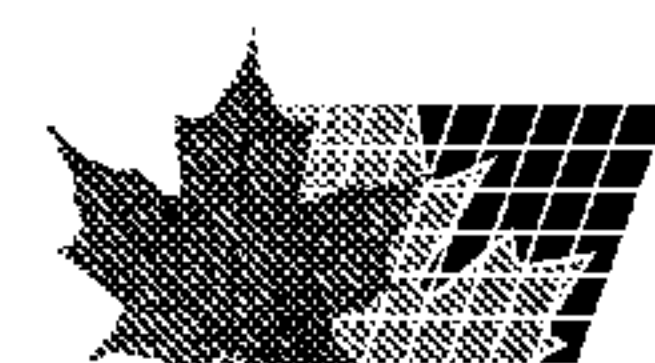
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(57) Abrégé/Abstract:

A washing machine lid having a lid frame is provided with the lid frame including a forward edge, a rear edge, at least first and second opposite side edges, an upper surface and a lower surface. A housing is detachably mounted to the lid frame by a bracket assembly. The bracket assembly retentively engages the lid frame. At least one securing member retentively engages the housing and also retentively engages the bracket assembly for attaching the housing to the lid frame .



APPARATUS AND METHOD FOR
ASSEMBLING WASHING MACHINE LID ASSEMBLY

ABSTRACT OF THE DISCLOSURE

5 A washing machine lid having a lid frame is
provided with the lid frame including a forward edge, a
rear edge, at least first and second opposite side
edges, an upper surface and a lower surface. A housing
is detachably mounted to the lid frame by a bracket
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10 bracket assembly for attaching the housing to the lid
frame.

APPARATUS AND METHOD FOR ASSEMBLING WASHING MACHINE LID
ASSEMBLY

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates to an apparatus and method for assembling a washing machine lid assembly.

10 Many devices have been used for dispensing fluids such as liquid detergents into washing machines. Some of these devices have been provided inside the washing machine and some have been provided on the lid for the washing machine. These prior art devices however have been deficient in many respects.

15 Many of these devices have been small in volume. They also failed to provide a satisfactory means for metering the amount of fluid dispensed and for permitting the user to determine the amount of fluid left in the dispenser.

 Therefore, the present invention seeks to provide an improved washer lid having a fluid dispenser thereon and the method for using same.

20 Further the invention seeks to provide an improved apparatus and method for assembling a washing machine lid assembly.

25 Still further the present invention seeks to provide an improved washer lid having a fluid dispenser which will hold a large quantity of fluid for use in several washing loads.

 Further still the present invention seeks to provide the provision of an improved washer lid which includes a counter balance for counter balancing the weight of the fluid in the

fluid dispenser.

Moreover the present invention seeks to provide an improved washer lid and method for using same which permits the metering of the amount of fluid to be dispensed and contains a viewing window therein for observing the quantity of fluid within the dispensing chamber.

Still further the present invention seeks to provide an improved lid having a fluid dispenser which is registered above the washer access opening when the lid is in its open position so that fluid can be dispensed directly into the access opening by gravity.

Further still the present invention seeks to provide an improved lid which recharges the dispensing chamber each time the lid is moved to its closed position.

SUMMARY OF THE INVENTION

The foregoing are achieved by a washing machine lid having a lid frame. The lid frame includes a forward edge, a rear edge, at least first and second opposite side edges, an upper surface and a lower surface. A housing is detachably mounted to the lid frame by a bracket assembly. The bracket assembly is retentively engaged in the lid frame. At least one securing member retentively engages the housing and also retentively engages the bracket assembly for attaching the housing to the lid frame.

In another aspect of the invention there is provided a washing machine comprising a washing machine cabinet having a front wall, a rear wall, first and second opposite side walls and a top cover, the top cover having an upwardly presented surface with an access opening therein. The machine has a lid assembly and a hinge mounts the lid assembly to the top cover

for hinged movement about a hinge axis from a closed position in covering relation over the access opening to an open position. The lid assembly comprises a lid frame, a housing and a bracket assembly, the bracket assembly retentively engaging one of the lid frame and the housing. At least one securing member is detachably secured to the other of the lid frame and the housing to the bracket assembly for attaching the housing to the lid frame.

Still further, the invention comprehends a method for assembling a washing machine lid comprising providing a lid frame having a forward edge, a rear edge, at least first and second opposite side edges, an upper surface and a lower surface, providing a housing, retentively engaging a bracket assembly with one of the lid frame and the housing and providing a securing member and using the securing member to attach the other of the lid frame and the housing to the bracket assembly to attach the lid frame and the housing together.

BRIEF DESCRIPTION OF THE FIGURES OF THE DRAWINGS

Figure 1 is a perspective view of the present invention.

Figure 2 is a view similar to Figure 1, but showing the washer lid in its closed position.

Figure 3 is a top plan view of the top cover of the present invention showing in phantom lines the position of the sealing gasket when the lid is closed.

Figure 4 is a sectional view taken along line 4-4 of Figure 2.

Figure 5 is a front elevational view taken from the front of the washing machine as viewed in Figure 1.

5 Figure 6 is a partial sectional view taken along line 6-6 of Figure 5.

Figure 7 is a sectional view showing the level of fluid within the reservoir chamber before the dispensing chamber has been charged.

10 Figure 8 is a view similar to Figure 7, but showing the lid in its horizontal position with the fluid passing from the reservoir chamber into the dispensing chamber.

15 Figure 9 is a view similar to Figure 7 and 8 showing the lid returned to its upstanding position with the dispensing chamber being fully charged with fluid.

20 Figure 10 is a perspective view of the plastic dispenser housing of the present invention, showing the valve in an exploded view.

Figure 11 is an enlarged sectional view taken along line 11-11 of Figure 7.

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

25 Figure 13 is an exploded perspective view showing the interrelationship of the plastic dispenser housing, mounting bracketry and the metal lid frame.

Figure 14 is an enlarged exploded view of one corner of the assembly of Figure 13.

30 Figure 15 is a sectional view taken generally along line 15-15 of Figure 5.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings the numeral 10 generally designates a clothes washer using a lid assembly 68

having the fluid dispenser of the present invention. Washer 10 includes a cabinet 12 having side walls 14, a front wall 16 and a top wall 18. Top wall 18 includes a horizontal portion 20 and an inclined portion 22
5 which extends downwardly and forwardly from the front edge of the horizontal portion 20. The top wall 18 is provided by a top cover 24 having a rear edge 26, side edges 28, 30, and a front edge 32. A juncture or bend 34 divides the horizontal portion 20 from the inclined
10 portion 22 of the top surface of the top cover 24.

Provided within top cover 24 is a door depression 36 having a rear edge 38, side edges 40, 42 and a front edge 43. Extending upwardly and rearwardly from the front edge 43 is a lip flange 44 having a lower front
15 edge 46 which extends upwardly and rearwardly to a ridge 48. Ridge 48 includes opposite ends 50, 52 and an intermediate portion 54. Intermediate portion 54 is slightly below the ends 50, 52 and is also positioned forwardly from ends 50, 52.

20 Extending downwardly and inwardly from ridge 48 is a generally circular skirt 56 having a front drain surface 58, side drain surfaces 60, 62, and a rear drain surface 64 all of which surround an access opening 66.

25 Top lid assembly 68 is comprised of a metal lid frame 70 and a plastic dispenser housing 72 which are detachably secured together. Plastic dispenser housing 72 includes a gasket seal 74 (Figure 1), and a fluid chamber formed by a reservoir chamber wall 76 and a
30 dispensing chamber wall 78. Gasket seal 74 is elongated and includes a left end 96 and a right end 98. As best shown in Figures 1 and 3, gasket seal 74 extends across the front of the washer door depression 36 and generally across the ridge 48. The seal 74
35 retains condensation in the area of the door depression

36 and also provides a reduction in agitation noise that otherwise might escape from the access opening 66 of the washer 10.

5 A reservoir viewing window 80 is provided in reservoir chamber wall 76 and a dispensing viewing window 82. The sliding indicator 84 can be manually set as a marker at any of a plurality of positions along the length of the window 82. Plastic dispenser housing 72 also includes a fill cap 86 which is
10 detachably mounted over a fill opening 87 and a dispenser button 88 for dispensing fluid 90 from the dispensing chamber in a manner to be described in more detail hereafter.

15 Metal lid frame 70 includes a horizontal surface 92 (when the lid is in its closed position) and an inclined surface 94.

Behind reservoir chamber wall 76 is a reservoir chamber 100 (Figure 4), and behind dispenser wall 78 is a dispensing chamber 102 (Figure 7). Dispensing
20 chamber 102 is contained within reservoir chamber 100 and includes side walls 104, a rear wall 106, and a dispenser spout 108 which provides a dispenser opening for permitting fluid to exit from dispenser chamber 102. The portion of the dispensing chamber 102 formed
25 by walls 104 and 106 is attached to front wall 76 by an interference fit and a slight amount of fluid can leak by the attachment point.

Within reservoir chamber 100 are several stand offs 110, 112 which provide structural support to the
30 walls within the reservoir chamber 100.

Referring now to Figure 15, the fill opening 87 is shown without fill cap 86 in place. With the lid assembly 68 in the generally vertical posture of
Figures 1 and 5, the fill opening 87 is formed with a
35 downwardly angled entry portion 89 through wall 76 and

a substantially horizontally disposed cylindrical exit portion 91. The back edge 93 of the exit portion 91 is in close proximity to and generally parallel to the back wall 99 of the reservoir chamber 100. When fluid is poured into the fill opening 87, it will flow into exit portion 91 and will enter the reservoir chamber 100. The fill can continue until fluid is observed at the lower lip of exit portion 91 at which point the reservoir chamber 100 is full. When the lid assembly 68 is in the closed horizontal posture of Figure 4, the fluid in the reservoir chamber 100 will always be below the back edge 93 of the exit portion 91. Thus, if the operator should forget to replace the fill cap 86, there would not be any spilling of fluid out of fill opening 87. In fact, fill cap 86 could be left off if desired. Further shown in Figure 15 is a vent opening 101 that allows the reservoir chamber 100 to breathe freely preventing any airlock condition.

Plastic housing 72 is nested within the metal lid frame 70 and is fitted beneath the curled front edge 114. The peripheral edges of the housing 72 rest on the side edges 144, 146 (Figure 13) and rear edge 148 of the metal lid frame 70. The front edge 116 of the plastic housing 72 nests under the front curled edge 114 of the lid frame 70.

Referring to Figures 10 and 11, a valve assembly 117 comprises a valve stem 118 having an upper end 120. Dispenser button 88 is fitted over the upper end 120 and includes a sealing flange 122 thereon. Valve stem 118 includes a valving flange 124 and a retaining flange 126. A coil spring 128 is fitted over the lower end of the valve stem 118. The valve assembly 117 is fitted within a valve receiving bore 130 in the housing 72. A retaining clip 132 is fitted within a retaining clip slot 134 and includes clip fingers 136

(Figure 12) which retentively engage the retaining flange 126 to hold the valve assembly 117 within valve receiving bore 130. The clip fingers 136 of retaining clip 132 are yieldably movable toward one another to permit the clip 132 to be removed so as to permit removal of the valve assembly 117. This permits the easy removal of the valve assembly 117 for cleaning.

Referring to Figure 11 a dispenser port 138 provides communication from dispensing chamber 102 to the valve receiving bore 130. Fluid is permitted to enter the axial space between the valving flange 124 and the sealing flange 122. Depression of button 88 causes the valving flange 124 to move to the left of the dispenser spout 108 as viewed in figure 11 thereby permitting fluid to flow out of the dispenser spout 108. Removal of pressure from the bottom 88 permits the spring 128 to return the valve flange 124 to its original position, thereby cutting off the flow of fluid from the dispenser chamber 102.

Figures 7, 8, and 9 illustrate the method of using the dispenser chamber 102 and the reservoir chamber 100 of the present invention. Initially the lid assembly 68 is moved to its up-standing position shown in Figure 7. The fill cap 86 is removed and fluid such as liquid detergent is poured into the reservoir chamber 100 until fluid is observed at the lower lip or exit portion 91 of the fill opening 87. As can be seen in Figure 6, the front walls 76, 78 of chambers 100, 102 are inclined toward the dispensing chamber 102 thereby causing any fluid within chamber 100 to move toward the dispensing chamber 102 when the lid assembly 68 is lowered.

As can be seen in Figure 7 the initial filling of the reservoir chamber 100 does not cause any substantial amount of fluid to be within the dispensing

chamber 102. However, when the lid assembly 68 is moved to its closed position (Figure 8) the fluid within chamber 100 flows around the rear wall 106 and both of the side walls 104 of chamber 102 and enters chamber 102 through a charging opening 107 adjacent the rear wall 106. Returning the lid assembly 68 to its upright position as shown in Figure 9 causes the dispenser chamber 102 to be full and ready for dispensing fluid through spout 108.

The operator then depresses the button 88 and observes through window 82 as the fluid level lowers within dispenser chamber 102. The operator can determine, by dispensing a predetermined quantity of fluid into a measuring container, what the level of the fluid within the dispensing chamber should be after the proper amount has been dispensed. The operator can then move the sliding indicator 84 to mark that position and thereafter can release the button 88 when the level of fluid reaches the level for a particular brand or concentration of detergent.

On occasion the detergent may clog or foul the valve assembly 117. This can easily be remedied by pulling out clip 132 and removing the valve assembly for cleaning. The valve assembly 117 can then be reinserted, and the clip 132 is inserted to retain the valve assembly 117 in position for operation.

Referring to Figures 13 and 14, the present invention utilizes a novel means for attaching the plastic housing 72 to the metal lid frame 70. Two L-shaped brackets 140, 142 are fitted in the rear corners of the metal lid frame 70 under the edges 144, 146, 148 as shown in Figures 13 and 14. L-shaped brackets 140, 142 are each provided with elongated slots 150 and are also provided with a bushing 170 which fits within a spring hole 172 of the metal lid frame 70. Bushing 170

includes a cylindrical bore extending therethrough and a torsion rod spring 152 is fitted through the bore in bushing 170. Torsion rod spring 152 includes a first end 154 and a second end 156 (Figure 13). The second end 156 engages the L-shaped bracket 140, and the first end 154 is outside the top lid assembly 68 and is adapted to engage the underside of top cover 24 to provide a counter balance to the lid assembly, counter balancing the weight provided by the fluid in the reservoir and dispensing chambers 100 and 102.

A center link clamp 158 is clamped over the torsion rod spring 152 between the two L-shaped brackets 140, 142 so as to lock the L-shaped brackets beneath the curled lip flanges 144, 146 on the sides of metal lid frame 70. The spring 152 is held to the L-shaped brackets 140, 142 and the center link clamp 158 by spring finger clamps 174.

Four retainer pegs 160 each include a slot 162, a shank 164 and an elongated tab 166. These pegs 160 are fitted within holes 168 in housing 72 and the elongated tabs 166 fit within the elongated slots of the L-shaped brackets 140, 142. Rotation of the pegs 160 causes the elongated tabs 166 to turn below the slots 150 so as to retentively attach the housing 72 within the metal lid frame 70. This attachment of the housing 72 to the frame 70 allows quick removal of the housing 72 so that it may be taken to a sink for flushing or cleaning should it become clogged by liquid detergents or their residue. Further, the unique system for attachment of the housing 72 to be easily installed as an accessory since the same lid frame is used with or without the housing 72.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, these are used in

a generic and discriptive sense only and not for purposes of limitation. Changes in the form and the porportion of parts as well as in the substitutuion of equivalents are contemplated as circumstances may
5 suggest or render expedient without departing from the spirit or scope of the invention as further definged in the following claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A washing machine lid comprising:
a lid frame having a forward edge, a rear edge, at least first and second opposite side edges, an upper surface and a lower surface;
a housing;
a bracket assembly retentively engaging said lid frame;
at least one securing member having a first portion thereof retentively engaging said housing and a second portion thereof retentively engaging said bracket assembly for attaching said housing to said lid frame.
2. A washing machine lid according to claim 1 wherein said housing comprises a chamber therein, a fill opening providing access into said chamber, a fill cap detachably mounted over said fill opening, a dispensing opening providing communication from said chamber to outside said chamber and a valve mounted in said dispensing opening.
3. A washing machine lid according to claim 2 wherein said chamber of said housing includes a reservoir chamber and a dispensing chamber, said fill opening providing communication into said reservoir chamber and said dispensing opening providing communication from said dispensing chamber.
4. A washing machine lid according to claim 3 wherein said housing includes a plurality of walls forming said dispensing chamber and forming a charging opening which

5 provides fluid communication between said dispensing chamber and said reservoir chamber.

5. A washing machine lid according to claim 1 wherein said bracket assembly comprises a first bracket, a second bracket, and an intermediate bracket, said first and second brackets engaging said first and second opposite side edges respectively of said lid frame, said intermediate bracket engaging and holding said first and second brackets in retentive engagement with said first and second opposite edges respectively of said lid frame.

6. A washing machine lid according to claim 5 and further comprising a spring member engaging said first, second, and intermediate brackets and having a first end engaging said lower surface of said lid frame and a second end extending outwardly beyond one of said first and second opposite side edges.

7. A washing machine lid according to claim 6 and further comprising first and second hinge members mounted to said lid frame and being adapted to mount said lid frame to a washing machine top cover for pivotal movement about a hinge axis, said spring member having a longitudinal axis which extends along said hinge axis.

8. A washing machine lid according to claim 5 wherein said intermediate bracket is removable from engagement with said first and second brackets to permit said first and second brackets to be moved out of retentive engagement with said first and second opposite side edges of said lid frame.

9. A washing machine comprising:
a washing machine cabinet having a front wall, a rear
wall, first and second opposite side walls, and a
top cover;
5 said top cover having an upwardly presented surface
with an access opening therein;
a lid assembly;
a hinge mounting said lid assembly to said top cover
for hinged movement about a hinge axis from a
10 closed position in covering relation over said
access opening to an open position;
said lid assembly comprising a lid frame, a housing,
and a bracket assembly;
said bracket assembly retentively engaging one of said
15 lid frame and said housing;
at least one securing member detachably securing the
other of said lid frame and said housing to said
bracket assembly for attaching said housing to
said lid frame.

10. A washing machine according to claim 9 wherein
said bracket assembly comprises first and second
brackets engaging said first and second opposite side
edges of said lid frame respectively, and an
5 intermediate bracket engaging said first and second
brackets and holding said first and second brackets
into retentive engagement with said first and second
side edges respectively of said lid frame.

11. A washing machine according to claim 10 wherein
said first and second side edges of said lid frame each
include an edge flange, said first and second brackets
being positioned between and retentively engaging said
5 edge flanges of said first and second side edges
respectively.

12. A washing machine according to claim 11 wherein each of said side flanges of said first and second side edges have an approximately C-shaped cross sectional configuration with the open portions of said C-shaped configurations facing one another, said first and second brackets being at least partially nested within said C-shaped configurations of said side flanges.

13. A method for assembling a washing machine lid comprising:
providing a lid frame having a forward edge, a rear edge, at least first and second opposite side edges, an upper surface and a lower surface;
providing a housing;
retentively engaging a bracket assembly with one of said lid frame and said housing; and
providing a securing member and using said securing member to attach the other of said lid frame and said housing to said bracket assembly to attach said lid frame and said housing together.

14. A method according to claim 13 and wherein said housing has a chamber formed therein, said chamber having a fill opening, a dispenser opening and means for dispensing metered amounts of a fluid placed in said chamber through the fill opening from said chamber through a dispensing opening therein.

15. A method according to claim 14 wherein said chamber is divided into a reservoir chamber and a dispensing chamber which are in fluid communication with one another through a charging opening, whereby fluid placed into said chamber is placed in said reservoir chamber and fluid dispensed from said chamber is dispersed from said dispensing chamber;
at least a portion of said fluid in said chamber can move from said reservoir chamber to said dispensing chamber through said charging opening.

16. A method according to claim 15 wherein said at least a portion of said fluid is moved through said charging opening by

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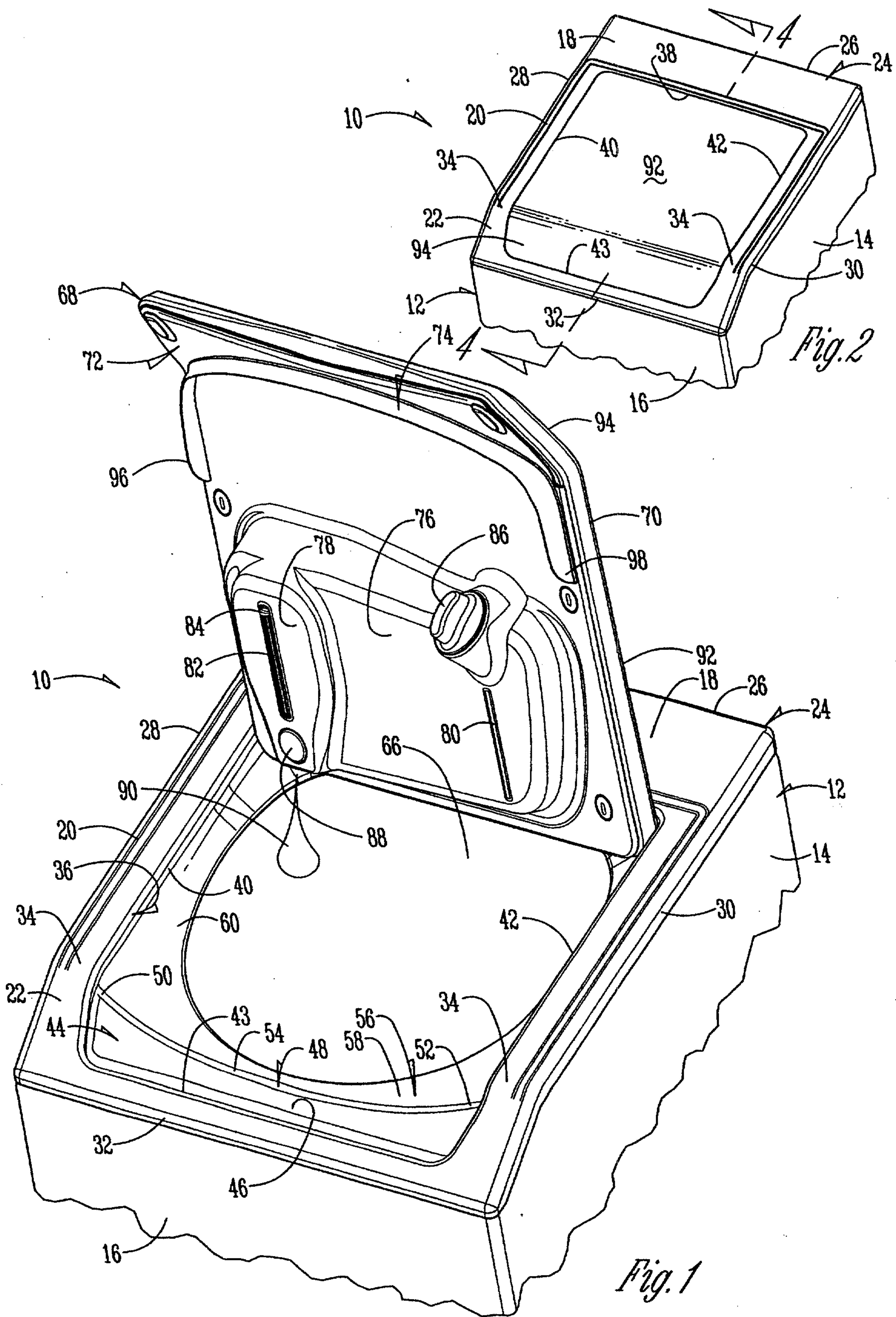
moving said housing from a first position wherein said charging opening is facing generally upwardly to a second position wherein said charging opening is facing generally horizontally.

17. A method according to claim 13 wherein said bracket assembly comprises first and second brackets, said method further comprising holding said first and second brackets in retentive engagement with said first and second side edges respectively of said lid frame.

18. A method according to claim 17 and further comprising providing an intermediate bracket and using said intermediate bracket between said first and second brackets to hold said first and second brackets in retentive engagement with said first and second side edges respectively of said lid frame.

19. A method according to claim 18 and further comprising engaging a spring member with said first, second and intermediate brackets with a first end of said spring engaging said lid frame and a second end of said spring member extending outwardly beyond one of said first and second opposite side edges.

20. A method according to claim 13 and further comprising moving said securing member out of retentive engagement with one of said lid frame and said bracket to permit detachment of said lid frame from said housing.



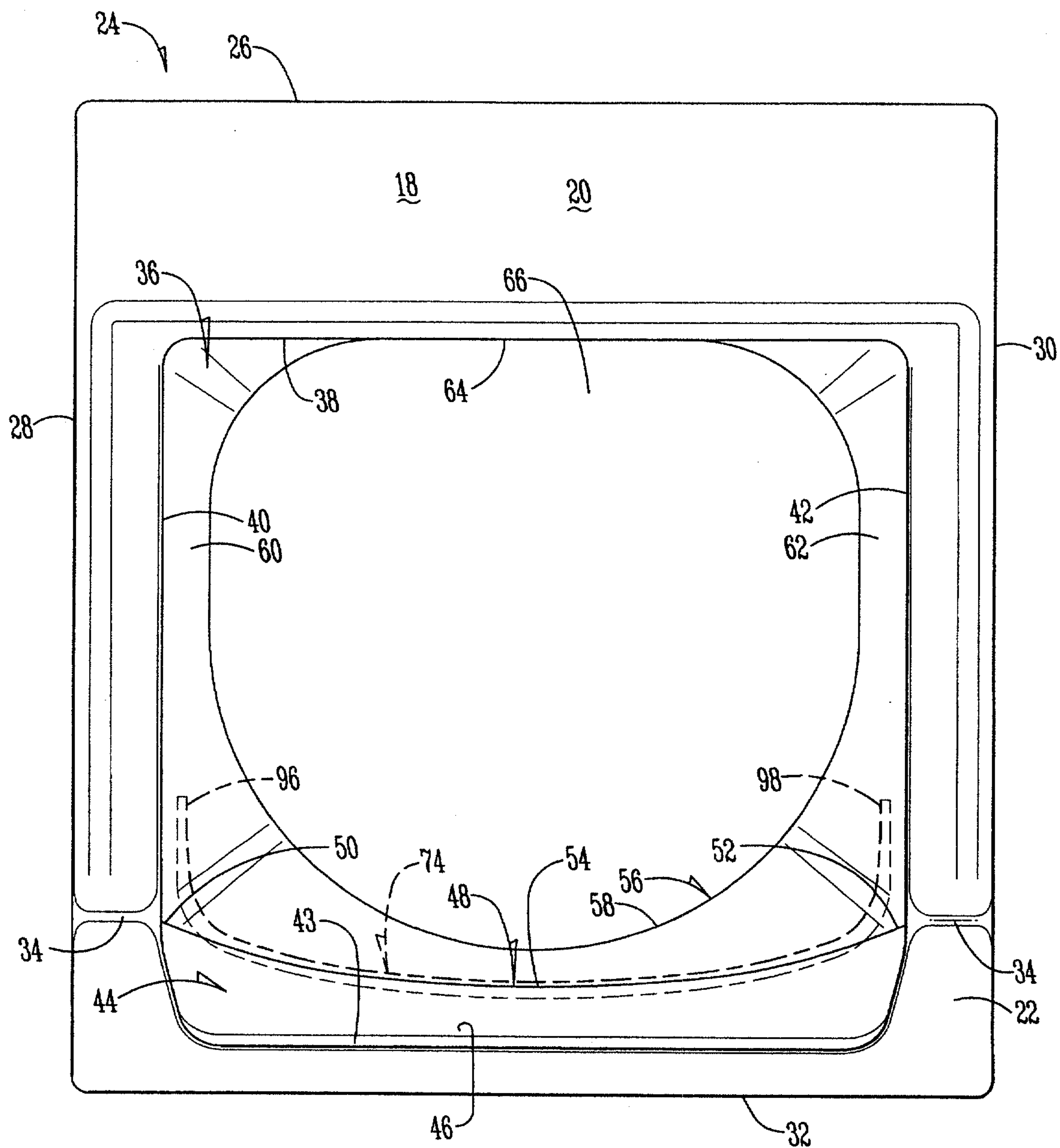
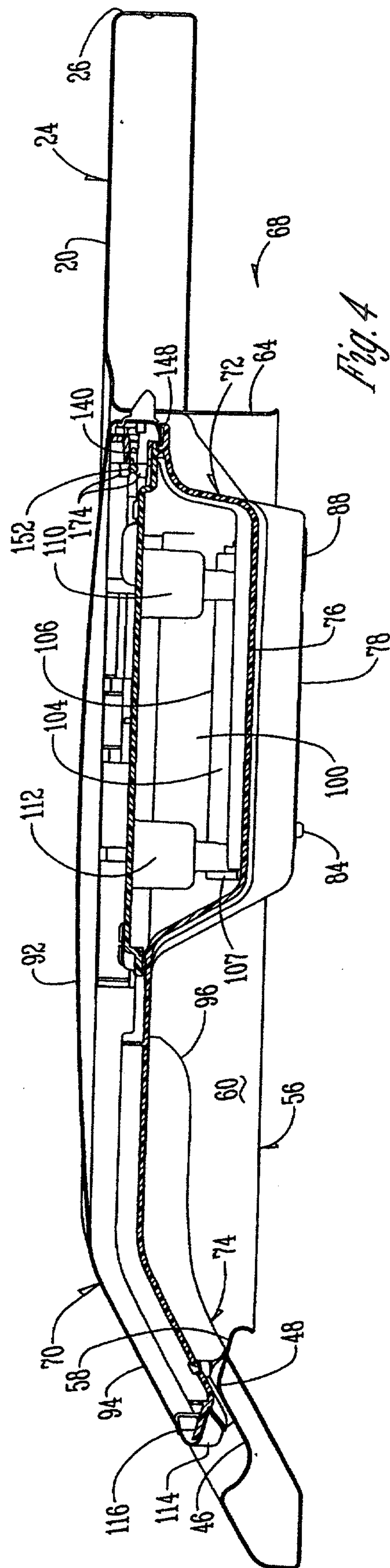


Fig. 3

Intelligence & Design
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Quay and King
PATENT AGENTS

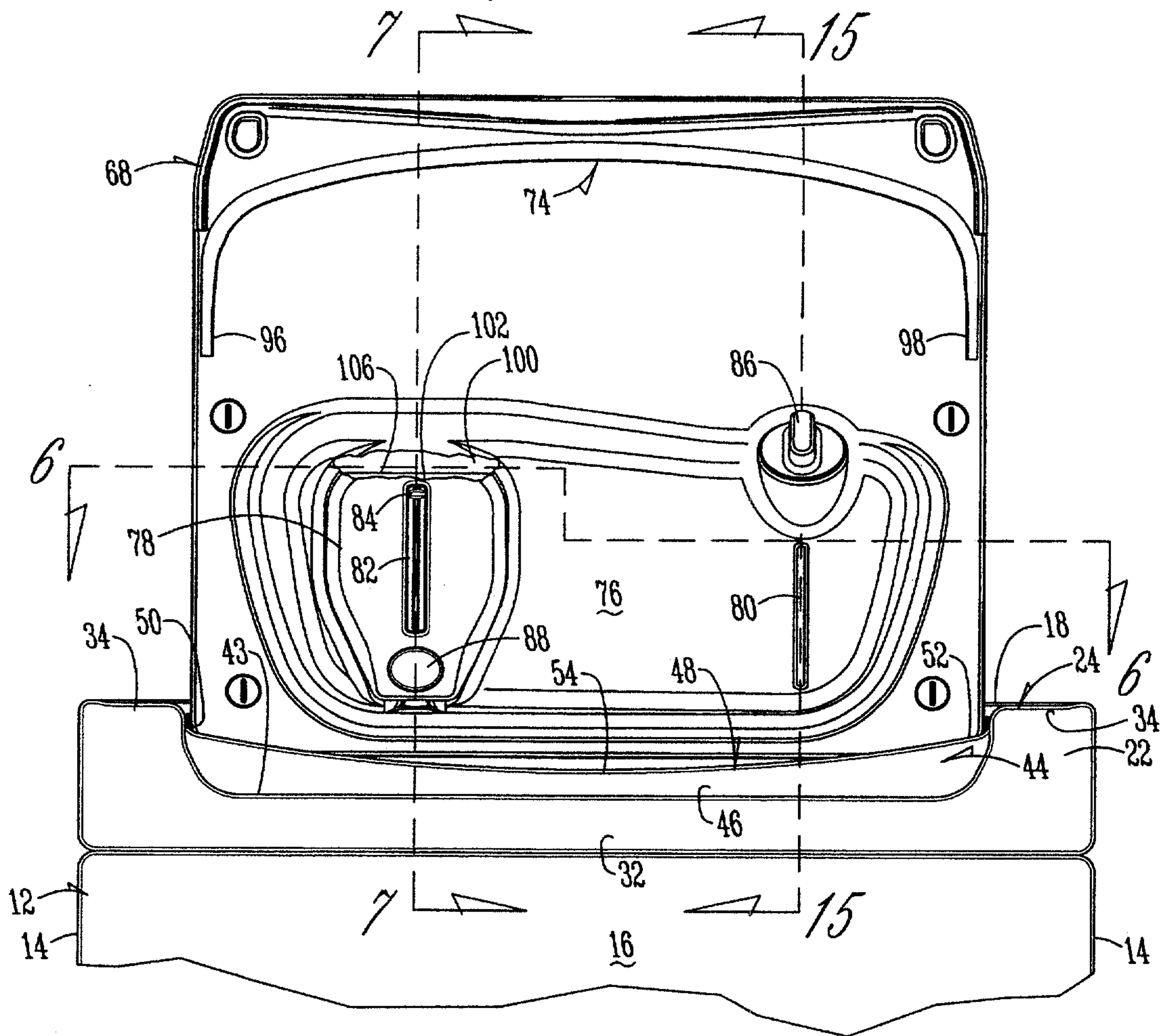


Fig. 5

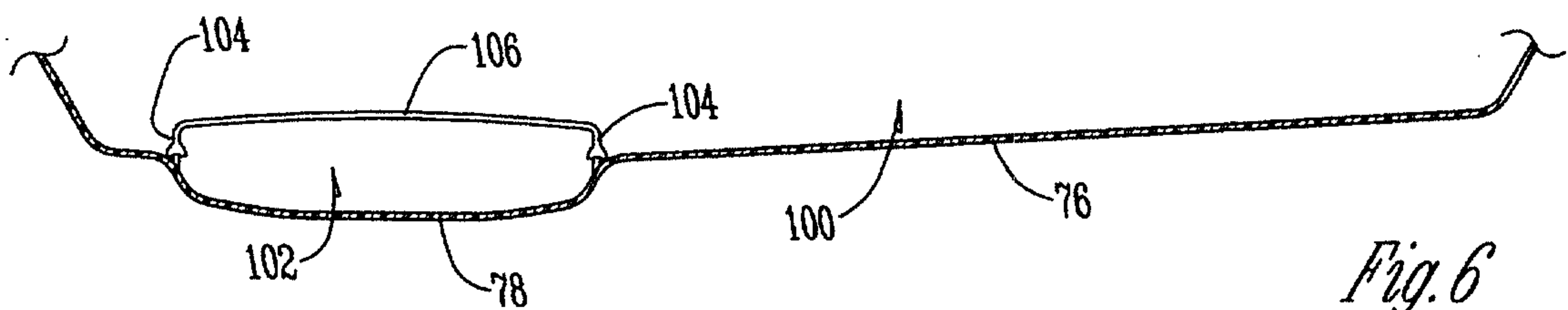
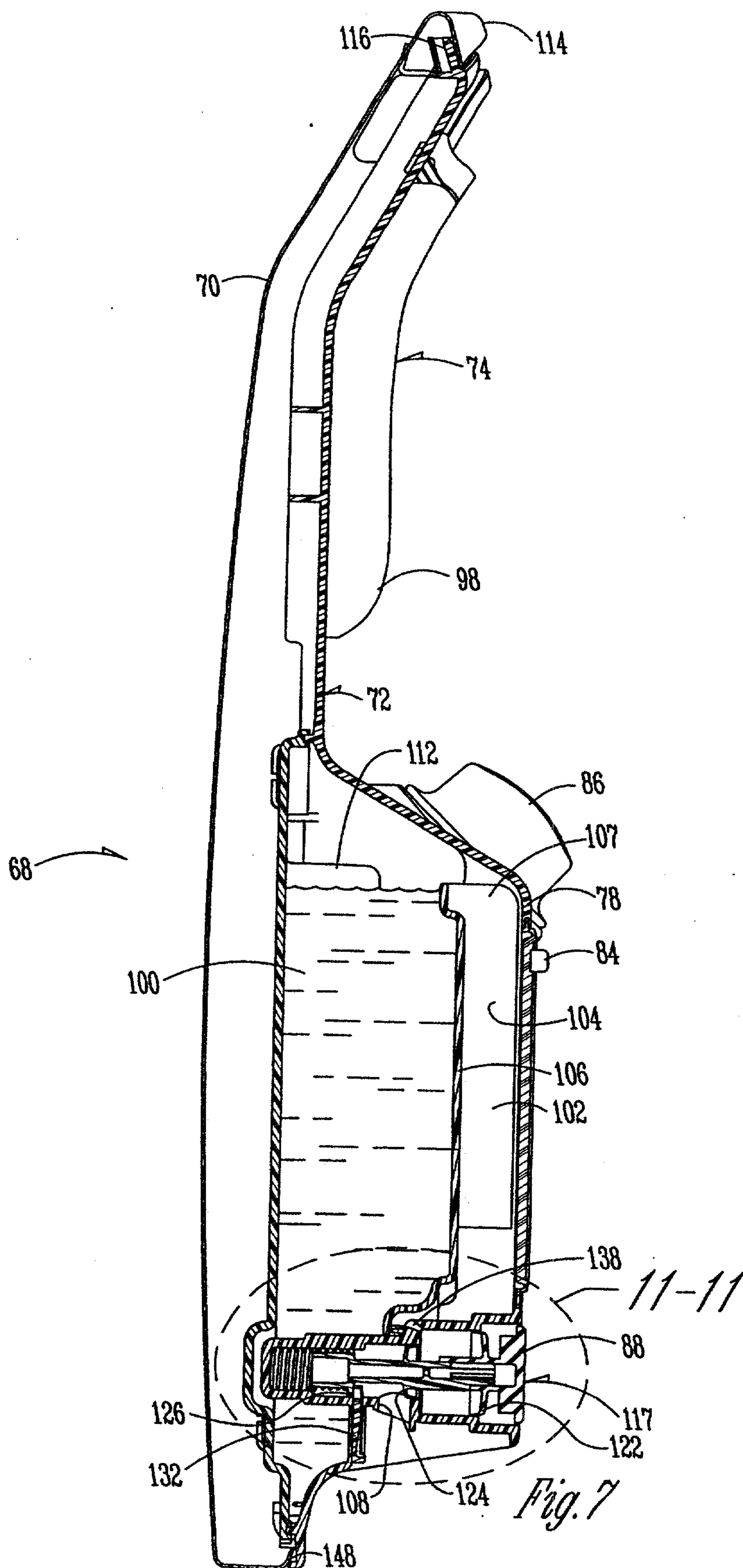


Fig. 6



Staley & Associates
PATENT AGENTS

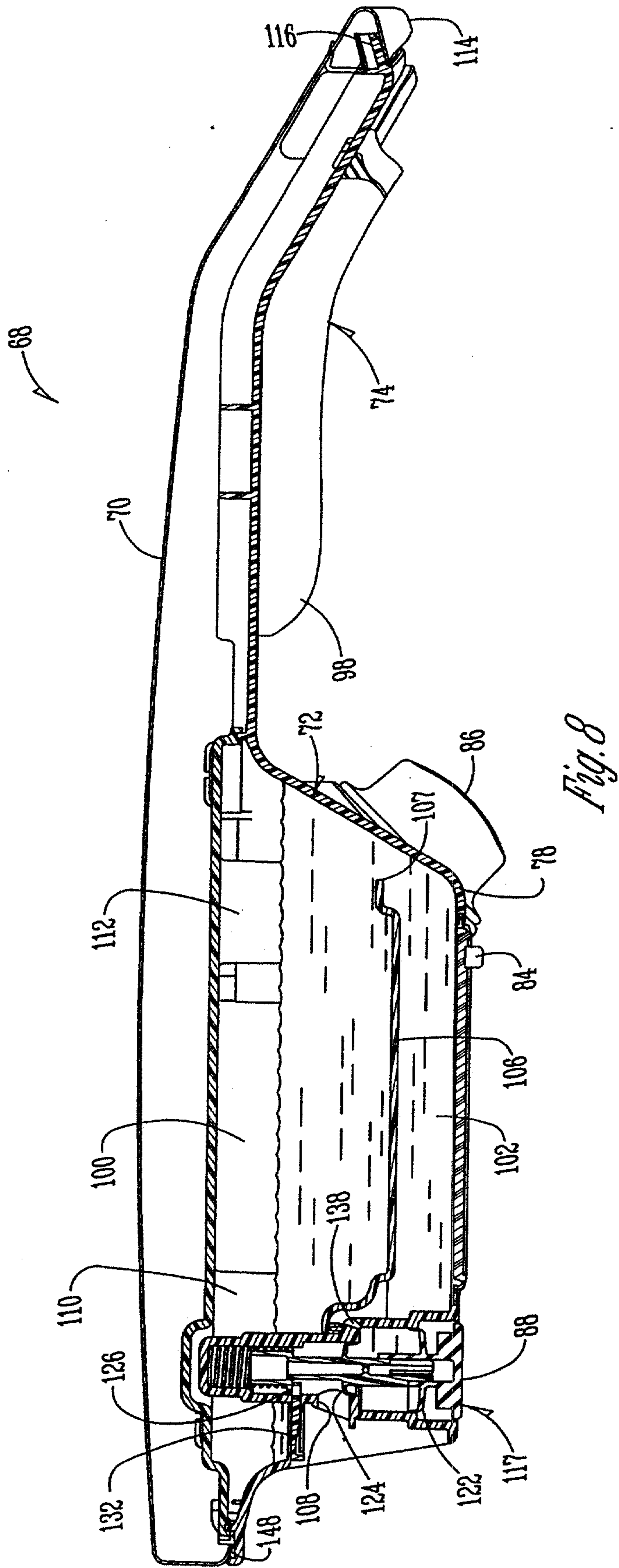
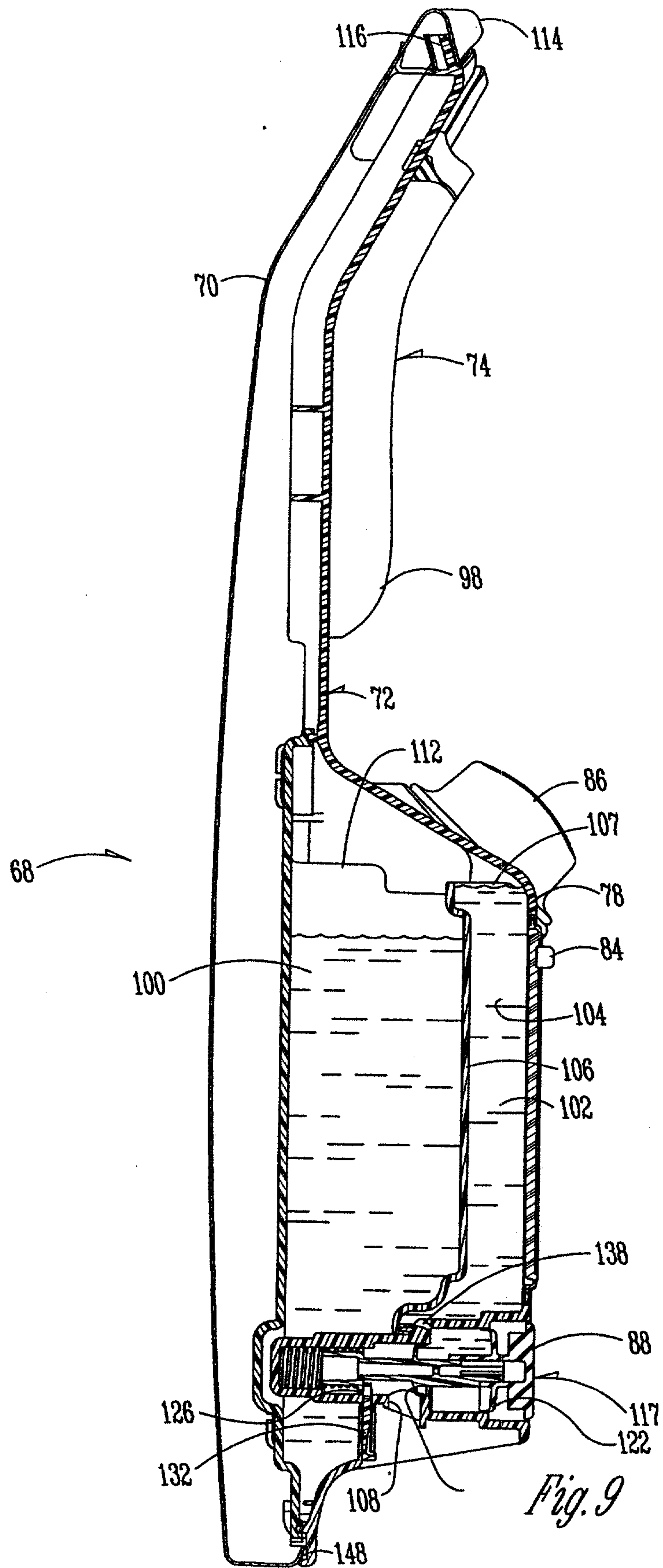


Fig. 8



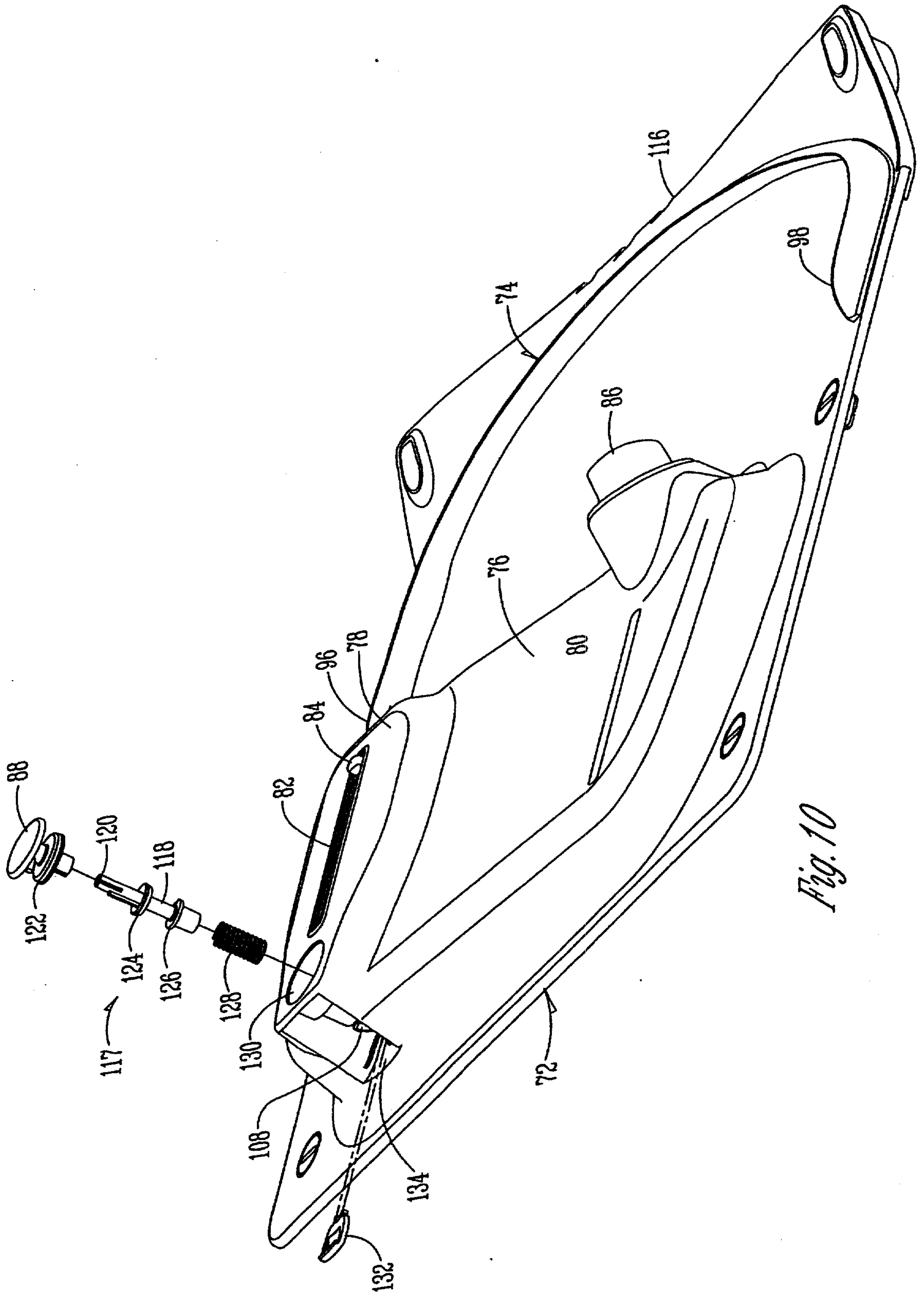
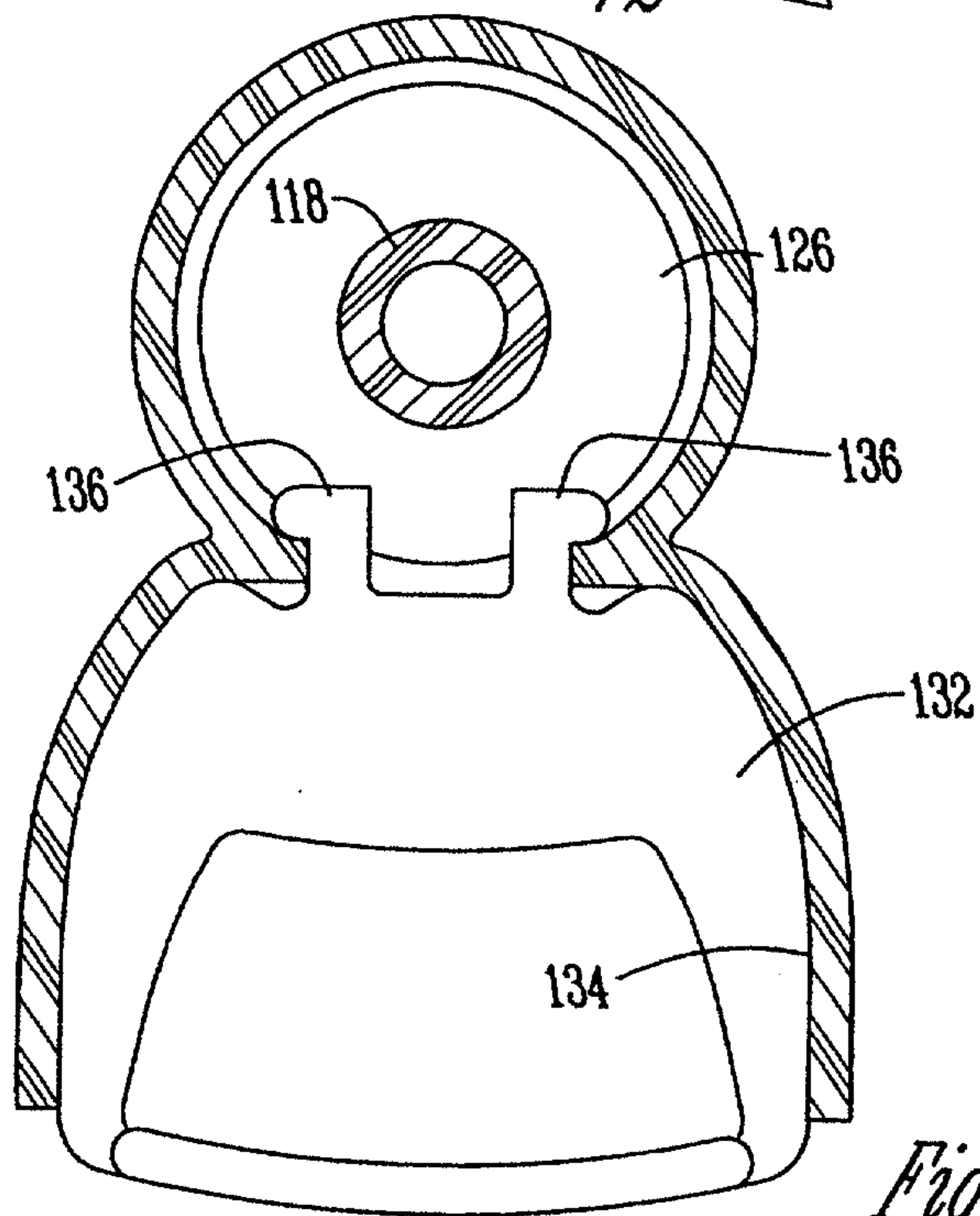
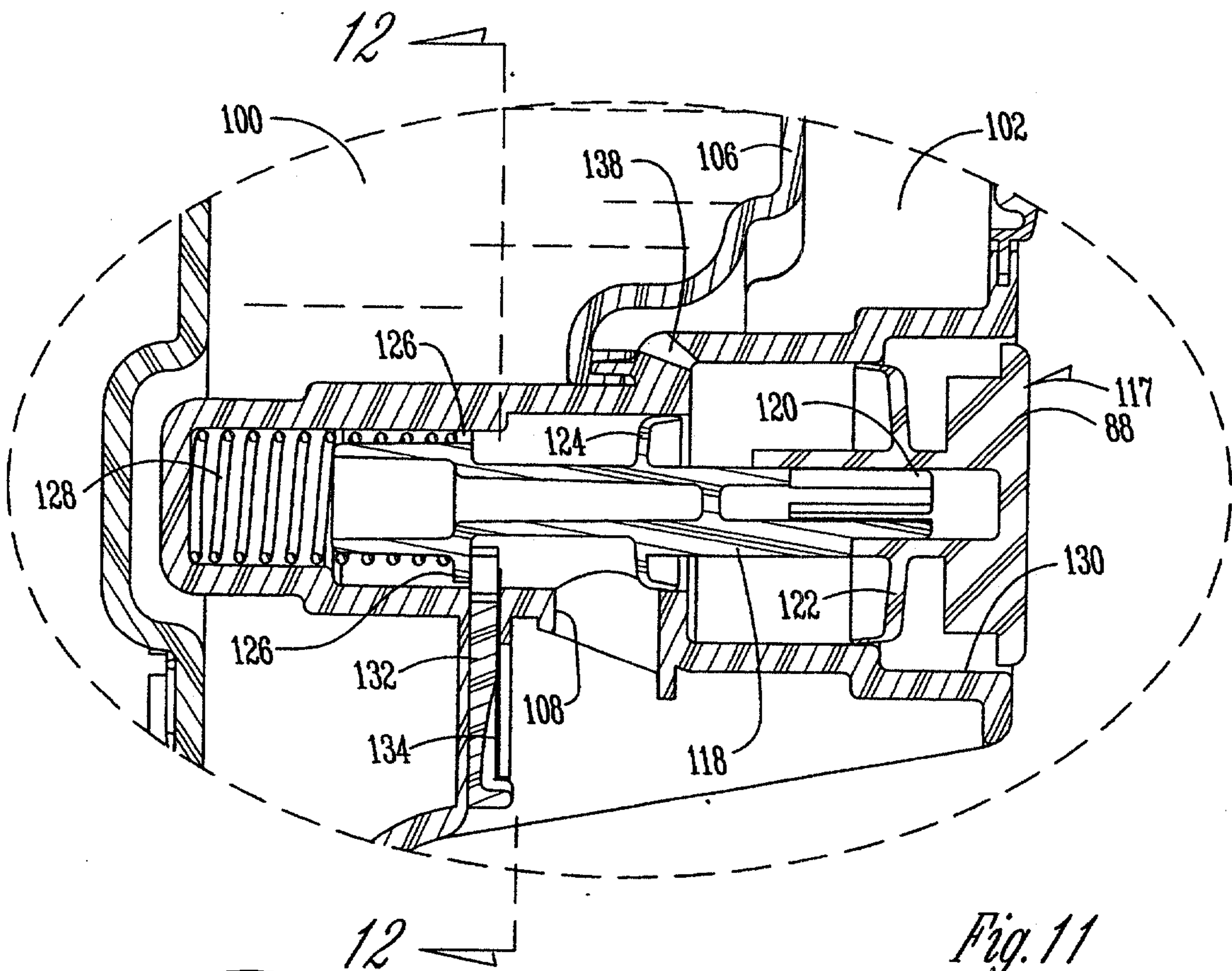
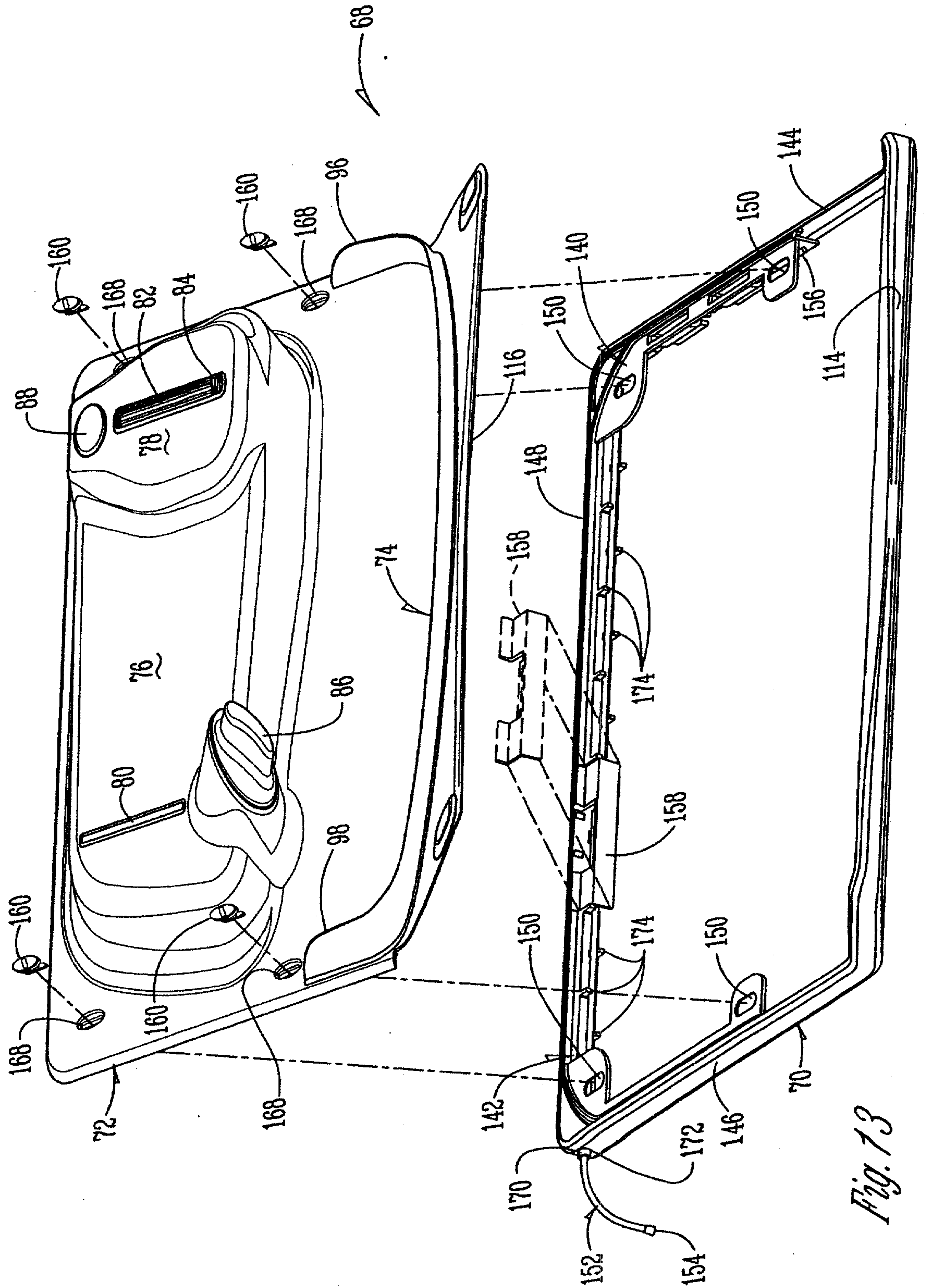
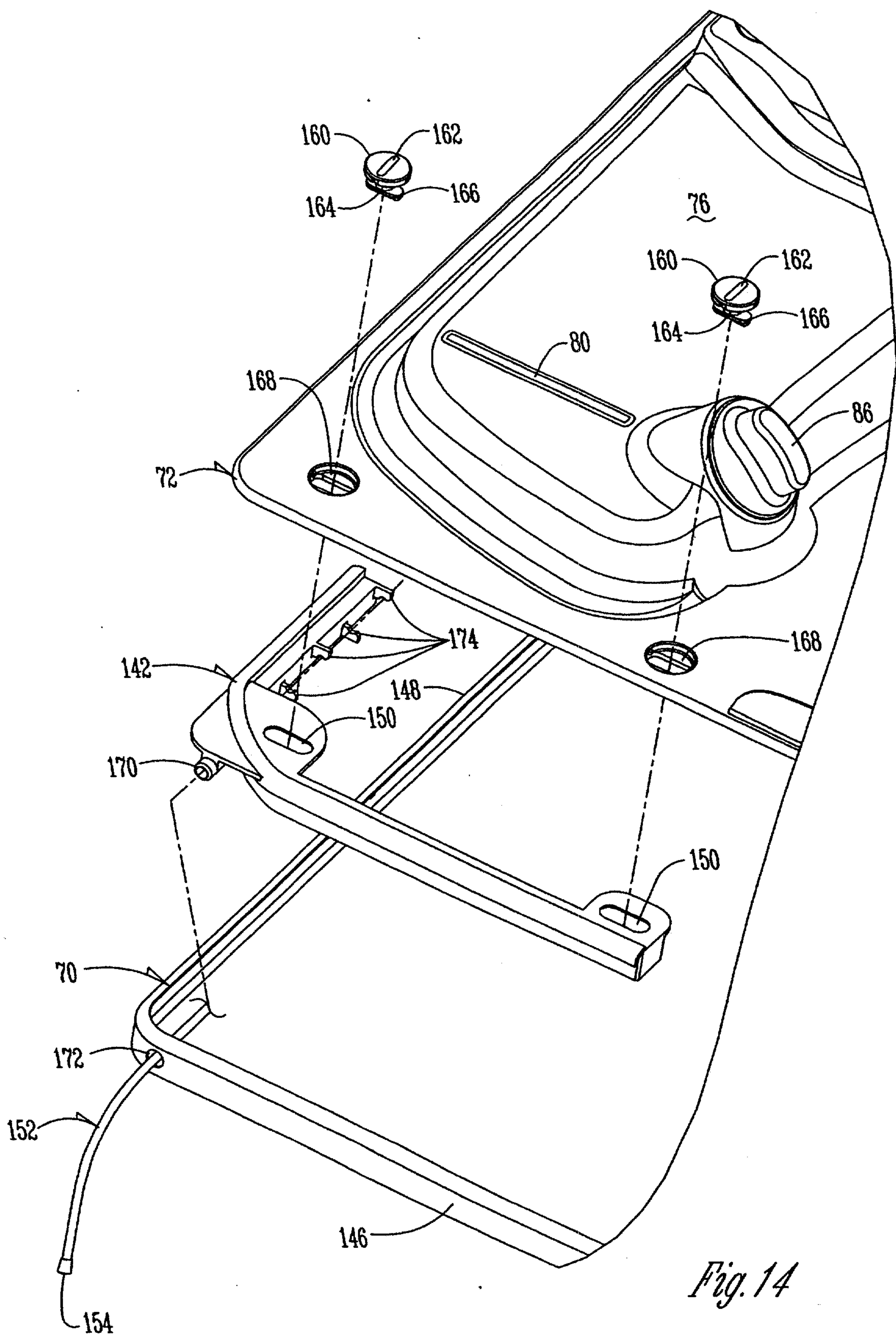


Fig. 10







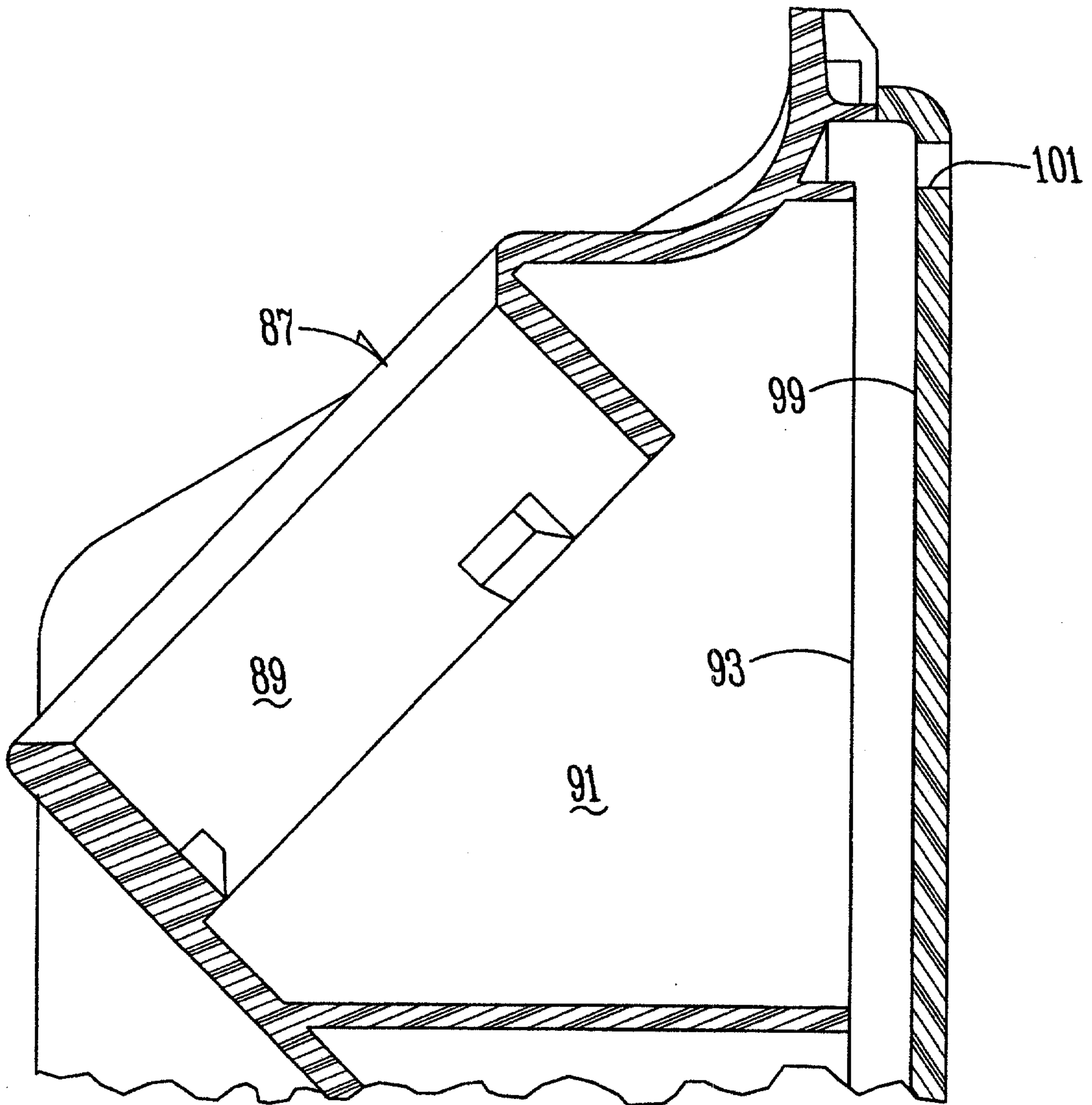


Fig. 15

