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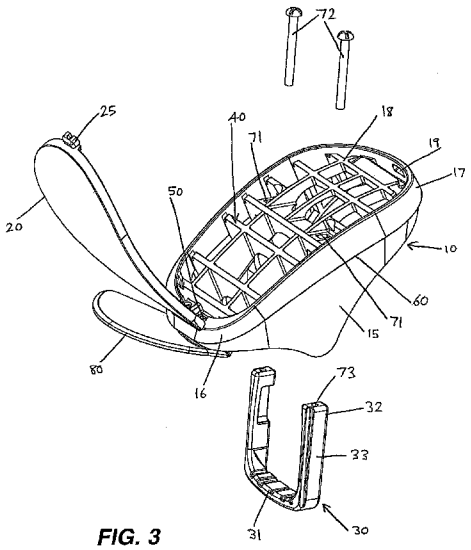


FIG. 3

(57) Abstract: The invention relates to an improved device for fitting over at least a portion of the housing of a fuel delivery nozzle, in particular a display device for displaying information. The device incorporates a body, a display surface for displaying information, a transparent lid which is hinged to the body, a splashguard and a securing clip. The clip is slideably located in a channel in the body, the channel being angled with respect to the display surface. The securing clip and channel arrangement is thereby suitable for securing to both 'standard' and 'vapour recovery' types of fuel delivery nozzles.

WO 2009/103968 A2

HOOD

Field of invention

The present invention relates to a device for fitting over at least a portion of the housing of a fuel delivery nozzle.

Background of invention

Devices for displaying information on a fuel delivery nozzle, for example a petrol pump nozzle, are known. Such devices are often subjected to rough treatment in use, for example being dropped or run over by the wheels of automotive vehicles, and it is relatively common for such devices to be damaged or dislodged in use.

The environment in which such devices are used also commonly leads to the devices coming into contact with volatile and potentially damaging chemicals. The display window common to such devices, through which information is displayed to an operator, is therefore commonly subject to degradation or breakage, requiring replacement of the display window when the device is in service, while allowing the display window to remain attached in use. There is also a need for the display window to be removable so that the information displayed on the device can be updated in use.

Furthermore, such devices are often assembled and attached to the fuel delivery nozzle by persons who lack mechanical assembly skills, therefore there is a risk of incorrect assembly when such persons assemble the display device to the fuel delivery nozzle. Such incorrect assembly can often lead to parts falling off in use and being damaged or lost.

Finally, at least two types of fuel delivery nozzle exist, 'standard' and 'vapour recovery', these having differing physical dimensions and shape. Known types of display devices for attaching to a fuel delivery nozzle use different attachment methods and/or components for attaching to different types of fuel delivery nozzles. Problems exist with the known display devices whereby incorrect components for attachment may be used which leads to insecure fitment, loss and/or breakage of the display device. Additionally, the correct components for fixing the display device to the fuel delivery nozzle may not be immediately available, thereby causing undue inconvenience to the user of the display device.

The invention is set out in the claims.

An improved display device with a more intuitive method of assembly is thus provided, in terms of both how the individual parts making up the display device are assembled to each other, and how the complete display device is assembled to the fuel delivery nozzle. An improved display device is further provided, requiring less assembly by users in the field, and less disassembly and subsequent re-assembly in the field. An improved display device which is suitable for fixing to both types ('standard' and 'vapour recovery') of fuel delivery nozzle is thus provided.

Embodiments of the invention will now be described by way of example with reference to the Figures:

Fig. 1 – Perspective view of the underside of the device.

Fig. 2 – View of the display device in position, on fuel delivery nozzle.

Fig. 3 – Exploded view of the display device.

Fig. 4 – Perspective detail view showing the display device hinged lid.

Fig. 5 – Underside view of the display device secured to a fuel delivery nozzle.

Fig. 6 – Perspective detail view showing the clip located in the body.

Fig. 7 – Perspective view showing details of the hinge.

Fig. 7a – View from underneath the body, showing body hinge stubs.

Detailed description

As shown in Fig. 1, in an embodiment, the present invention incorporates a body (10), also referred to herein as a hood. As shown in Fig. 2, the hood (10) is constructed with an internal lattice structure (18) which is both relatively strong and lightweight, and defines a display surface (40). The display surface (40) can accommodate information for display, which may be carried on a card or other suitable media, and which is viewable through a transparent lid or cover (20). The lid (20) is hingeably attached to the hood (10) by a hinge (50). The hinge (50) is arranged so that the lid (20) can be detached from the hood (10) if necessary, this being necessary, for example, if the lid (20) has become degraded or damaged. A splashguard (80) is optionally fitted to the hood (10).

As shown in Figs. 1 and 2, the reverse side of the hood (10) from that having the display surface (40) is shaped so as to be compatible with the shape of common types of fuel delivery nozzle (90), including particularly those commonly known as 'standard' and 'vapour recovery' types, both of which include a pipe (95) projecting from a housing or boot (92) moulded or otherwise formed thereon. The pipe (95) diameter and housing (92) size of the 'vapour recovery' type of fuel delivery device is relatively larger than the corresponding diameter of the 'standard' or 'slimline' type of fuel delivery device nozzle (90). The front of the fuel delivery nozzle (90) is herein defined

as a point closest to the pipe (95) opening. It will be appreciated that a substantial match between the shape of the hood (10) and the shape of the fuel delivery nozzle housing (92) is all that is required for effective attachment of the hood (10) to the fuel delivery nozzle housing (92), an exact match being unnecessary. As shown in Fig. 5, the hood (10) is secured to the fuel delivery nozzle (90) by securing means or element (30), in this embodiment, a generally U-shaped, rigid clip (30).

Referring to Fig. 3, the hood (10) includes an upper surface, also referred to as a display surface (40), which is generally oval in shape and downwardly gently curved when viewed from the side. A skirt (60) descends from the upper surface (40) defining parallel sidewalls (15) and curved front and rear end walls (16, 17). As shown in Fig. 6, the inner face of each sidewall (15) incorporates one of a pair of parallel passageways or channels (35) in which the distal ends (32) of the clip (30) slideably locate. The channels (35) in the hood (10) are parallel to each other and oblique relative to the general direction of the upper surface (40) of the hood (10), and thereby the length of the channels able to be accommodated in the hood is increased relative to that which would be achieveable if the channels (35) were aligned in a normal direction to the general direction of the upper surface (40). Thereby the range of adjustment of the clip (30) is extended such that it is suitable for encompassing attachment of both 'standard' and 'vapour recovery' types of fuel delivery nozzle to the hood (10). The clip (30) includes a central portion (31) for engaging against the nozzle housing (92) and end arms (33) each receivable in the channel. The angle of the channels (35) also causes the clip (30) to be located at an angle such that the central portion (31) of the 'U' section of the clip (30) is located around a forward portion of the fuel delivery nozzle housing (92). The point where the clip (30) is secured or attaches to the hood (10) is located substantially centrally between the front (16) and rear (17) end walls of the

hood (10). Thereby, the security of attachment of the hood (10) to the fuel delivery nozzle (90) is increased. The clip (30) incorporates screw receiving holes (73) at each distal end (32). The hood (10) incorporates corresponding screw locating holes (71) through which screws (72) can be inserted. The shafts of said screws (72) engage in screw receiving holes (73) of the clip (30) in order to retain the clip (30) in position in the hood (10).

Turning to the hinge arrangement, as shown in Figs. 3 and 4, the lid (20) is hinged to the hood (10) by a hinge (50). The hinge (50) allows the lid (20) to be opened sufficiently far that access to the screws (72) can be gained without the necessity to detach the lid (20) from the body (10). In particular, as shown in Figs. 7 and 7a, the lid (20) includes opposing claws (22) which define a concentric cylindrical space therebetween, and are slideably received around corresponding cylindrical stubs (12) of the body (10), to a position where they are retained by a detent from which they can be forced to remove the lid. In the detent position the claws (22) are rotatable around the stubs (12) providing the hinging action. The lid (20) incorporates a clip (25) on its end opposite to the hinge (50), the clip (25) being receivable into a locating hole (19) on the body (10) and suitable for retaining the lid (20) in the closed position when the display device is in use.

The splashguard (80) optionally locates in the hood (10) and is retained in position between the fuel delivery nozzle (90) and the hood (10).

The hood (10) optionally comprises an overhanging lip (60) aligned with the position where multiple parts of a mould come together. This reduces the prominence of the appearance of 'flashing' which is a problematic feature of injection moulding.

In operation, the hood (10) is positioned to at least partially cover the fuel delivery nozzle (90) and is attached thereto by means of the clip (30) which is slideably located in the angled channel (35) incorporated in the hood (10). The 'U' portion of the clip (30) locates around the fuel delivery nozzle (90) and the ends of the 'U' shaped clip (30) are attached to the hood (10) by screws (72) inserted through the top of the hood (10) until the hood (10) is firmly fastened and can accommodate both 'standard' and 'vapour recovery' types of fuel delivery nozzle (90). The general direction of the display surface (40) is ideally close to the general direction of the pipe (95) of the fuel delivery nozzle (90) so that the height or thickness of the body (10) is minimised. The obliqueness of the channel (35) in which the clip (30) is slideable, relative to the pipe of the fuel delivery nozzle, allows the range of adjustment of the clip (30) to be greater than if a clip adjustable in a substantially normal direction to the pipe of the fuel delivery nozzle was employed. The increase in adjustment range is achieved without necessitating an increase in the thickness of the body (10) relative to the display surface (40) area. The thickness or height of the body (10) is thereby able to be minimised while still allowing a relatively wide range of adjustment of the clip (30).

This advantageously avoids problems with the incorrect type of clip (30) being ordered, reduces problems of leftover stock, and thereby reduces waste and stock storage costs, reduces the number of parts to be manufactured and associated tooling costs, reduces problems with incorrect assembly due to the wrong clip being used by an operator, and reduces associated problems of insecure attachment leading to display devices becoming detached from the fuel delivery nozzle (90) and possibly then becoming damaged.

In operation, the lid (20) is removably hinged to the body (10) and arranged to hold in place an information card upon which is placed information. The

information on the information card is viewable through the lid (20) which is transparent. The lid (20) can be supplied pre-assembled to the body (10). The hinged arrangement of the lid (20) to the body (10) allows the lid (20) to be hinged open so as to gain access to both the information card and to the screws (72) which secure the clip (30) to the body (10), without the need to separate the lid (20) from the body (10). The possibility of incorrect user assembly of lid (20) to body (10) is thereby obviated, which advantageously reduces the risk of detachment of lid (20) in use, and subsequent loss or damage. The lid (20) is removable by the use of force greater than that normally encountered when merely hinging the lid (20) open. The facility to replace damaged or degraded lids in service easily and efficiently is therefore provided, with reduced risk of losing the lid by inadvertent detachment.

It will be appreciated that further variations on the described embodiments are possible. For example, the clip can incorporate barbs on its ends which locate in receiving indentations in the body, rather than being secured by screws. Alternatively, the clip could be a flexible securing means such as a tie wrap. The clip may secure to itself in order to provide securing tension, or may be secured to the body in order to provide securing tension. The channels in the body can be open sided channels or closed sided channels or passageways. The channels or passageways can be closed at the display surface end (for example if the clip is secured by barbs) or can be open at the display surface end (for example if the clip is secured by screws secured into the ends of the clip). The channel may be perpendicular rather than oblique if the height of the hood permits. The display surface may be an upper surface that is user viewable, opposed to a nozzle engagement surface.

Suitable materials for construction of the hood (10) are plastic, rubber or similar materials. The lid (20) is constructed from a transparent plastic, nylon,

or similar material. The hood (10) and lid (20) can be formed by a process of injection moulding or other suitable process for forming such materials. The clip (30) is constructed from a suitable rigid material such as plastic or metal, which may be injection moulded or formed by a bending process, or by die casting, or by other suitable processes. The splashguard (80) can be constructed from a compliant rubber material, or other similar material, by a process of injection moulding or other similar process.

While the invention has been described in terms of specific features and embodiments, it will be appreciated that numerous variations of the features of the invention are possible and the specific embodiments described are not intended to limit the invention.

CLAIMS

1. A device for fitting over at least a portion of the housing of a fuel delivery nozzle, the device having

a body, and

a channel in the body for slideably receiving at least a portion of a securing element to allow adjustable securement.

2. A device according to claim 1 wherein the body includes a display surface and the channel is disposed with respect to the body in a direction oblique to the display surface.

3. A device according to claim 2 wherein the display surface includes a portion suitable for receiving an information display insert.

4. A device according to any preceding claim further comprising a securing element.

5. A device according to claim 4 in which the securing element includes a central portion for engaging against the nozzle housing and end arms each receivable in a respective channel.

6. A device according to claim 4 or claim 5 wherein the securing element is secured to the body at a position which is substantially central between front and rear end walls of the body.

7. A device according to any preceding claim further incorporating a cover.

8. A device according to claim 7 where the cover is attached to the body by a hinge.

9. A device according to claim 8 where the cover has a hinge portion removably attachable to the body.

10. A fuel delivery nozzle display device having a body and a securing element, the body having a formation adapted to accept the securing element when secured to a housing of a fuel delivery nozzle having pipe of a first dimension and a housing of a fuel delivery nozzle having a pipe of a second dimension, wherein the second dimension is different to the first dimension.

11. A device substantially as described herein with reference to the drawings.

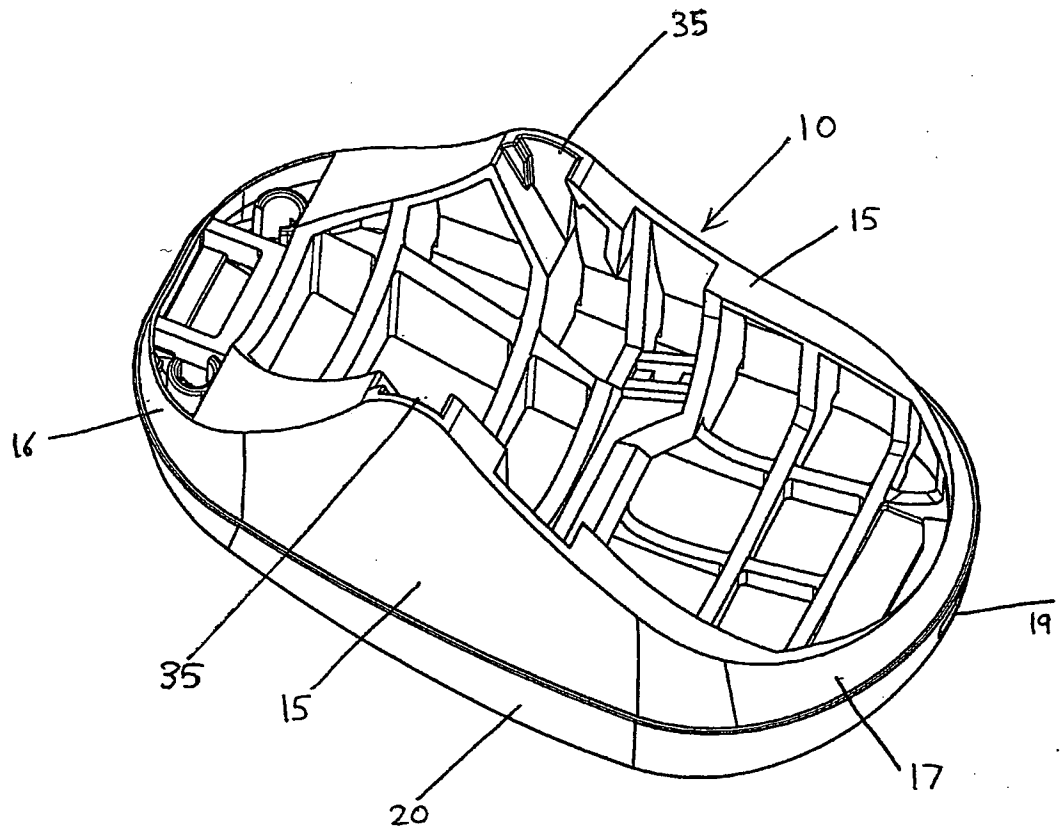


FIG. 1

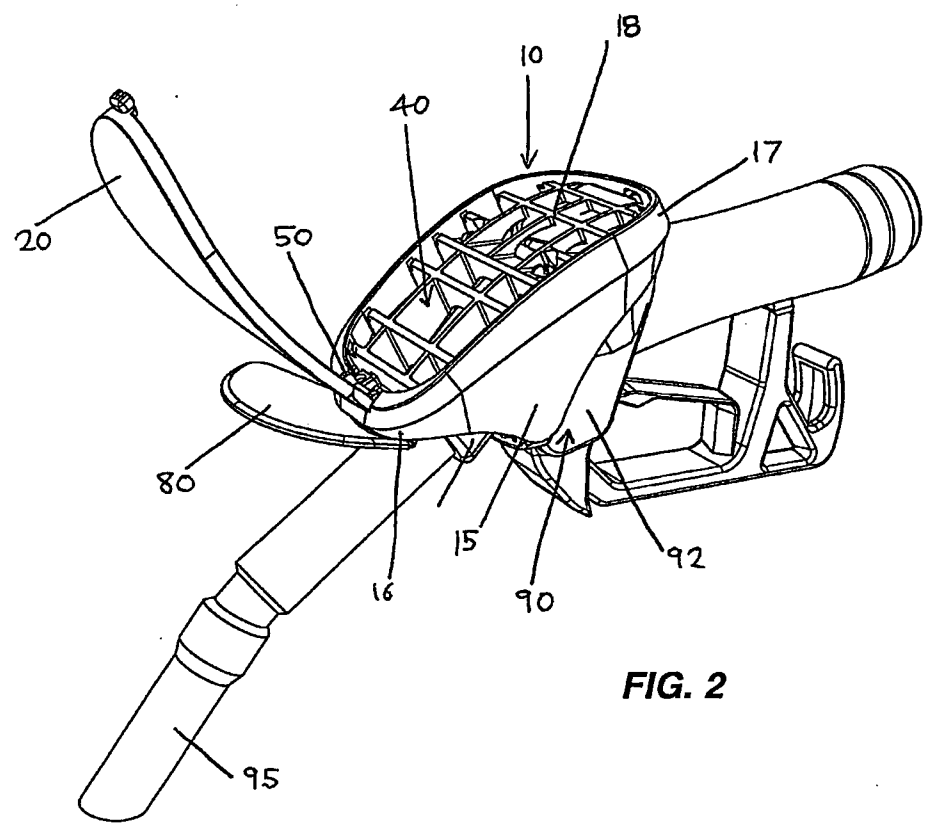


FIG. 2

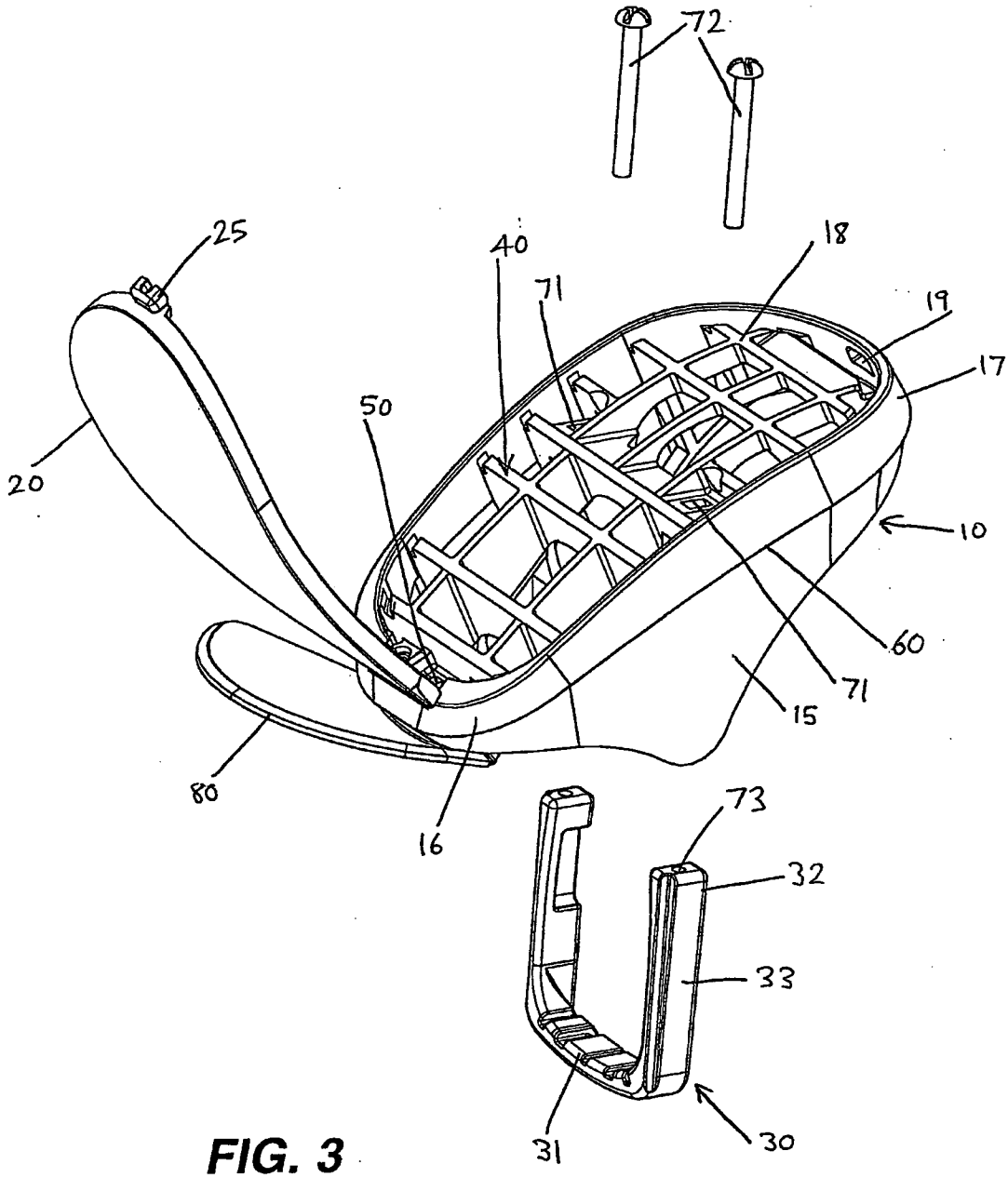


FIG. 3

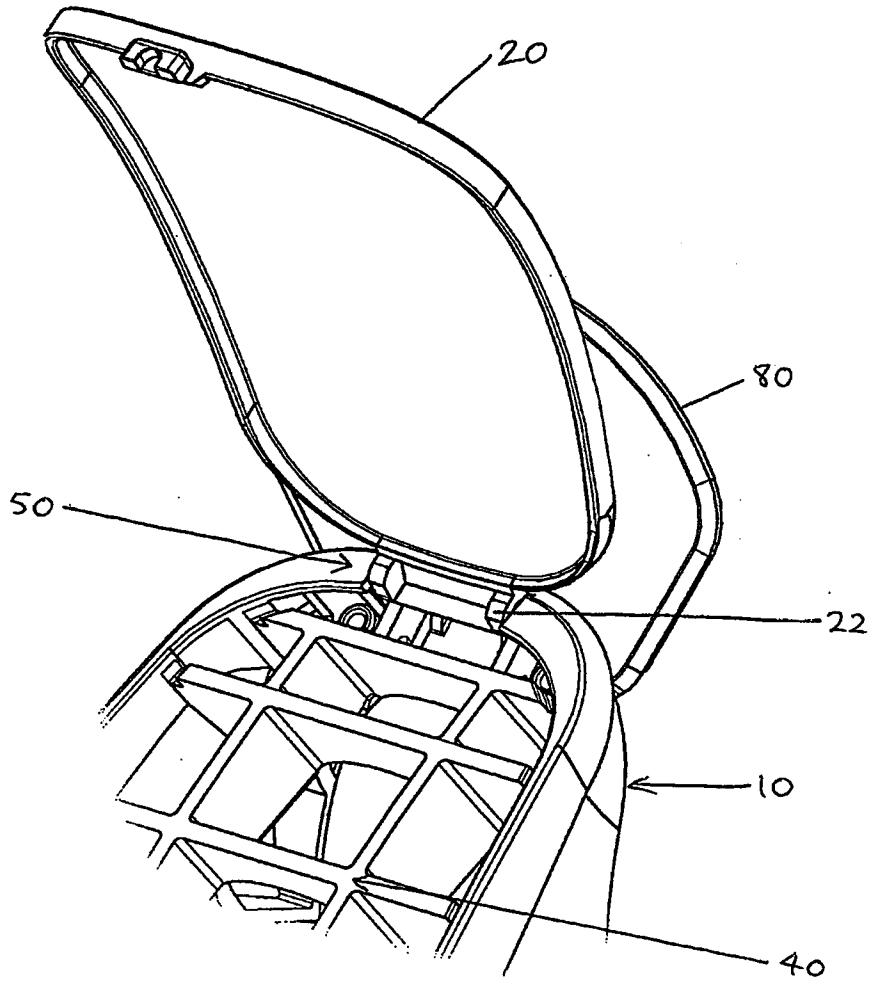


FIG. 4

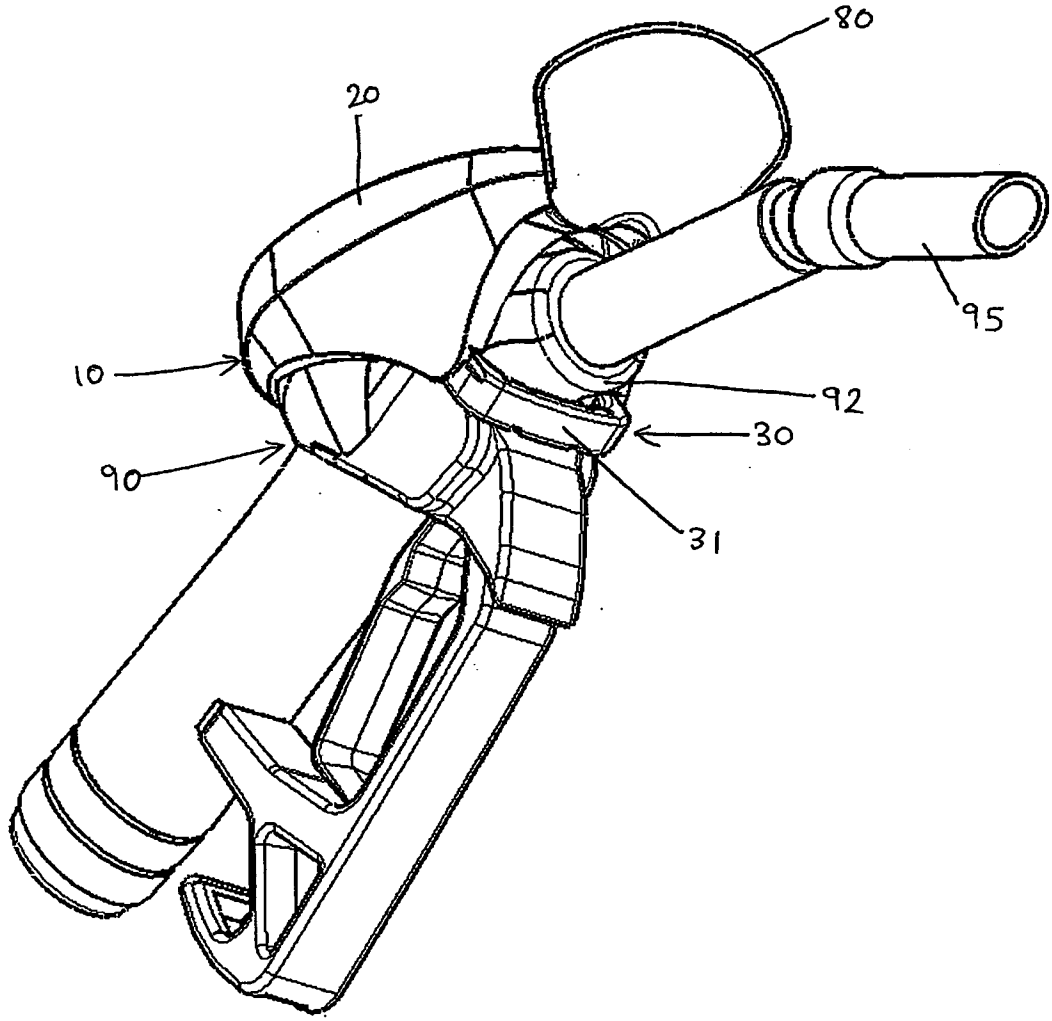


FIG. 5

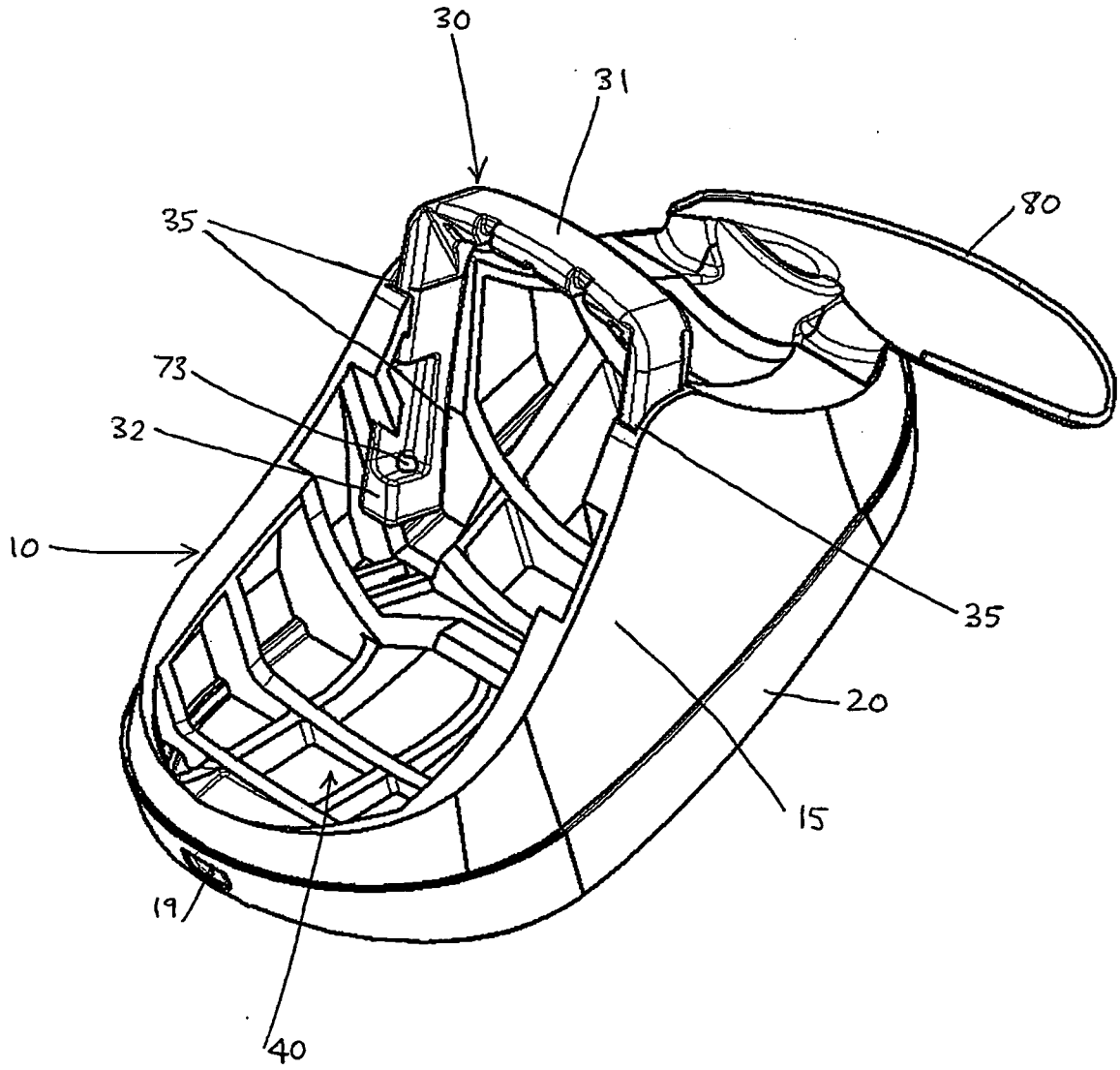


FIG. 6

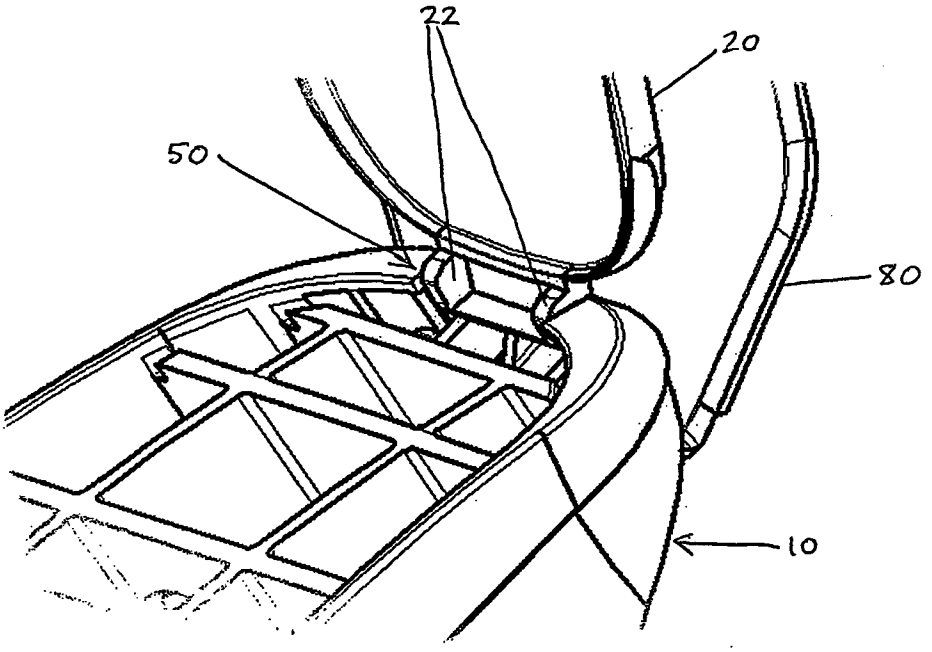


FIG. 7

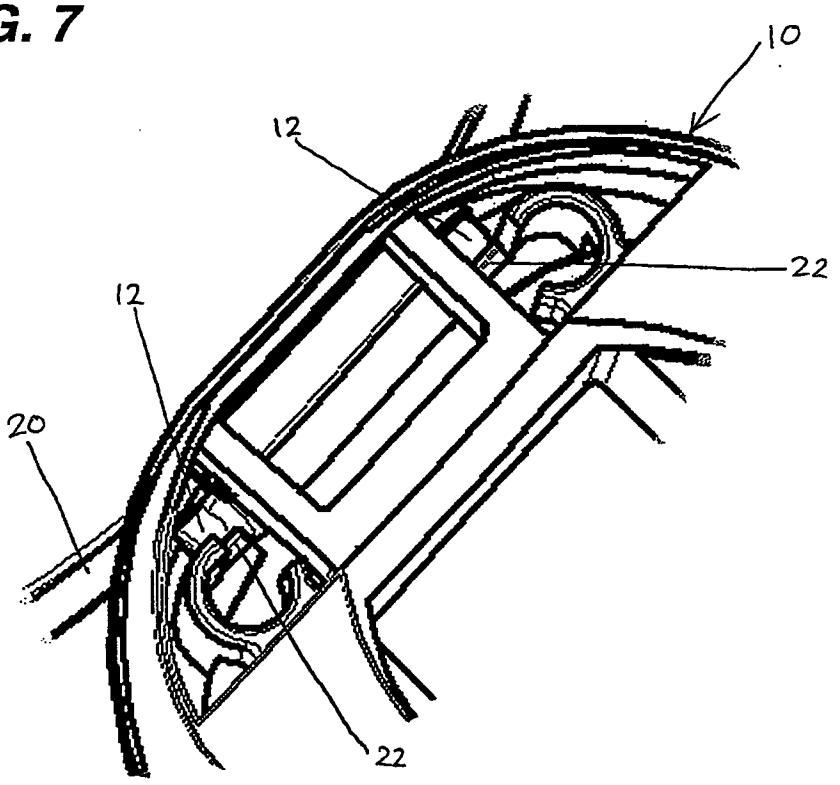


FIG. 7a