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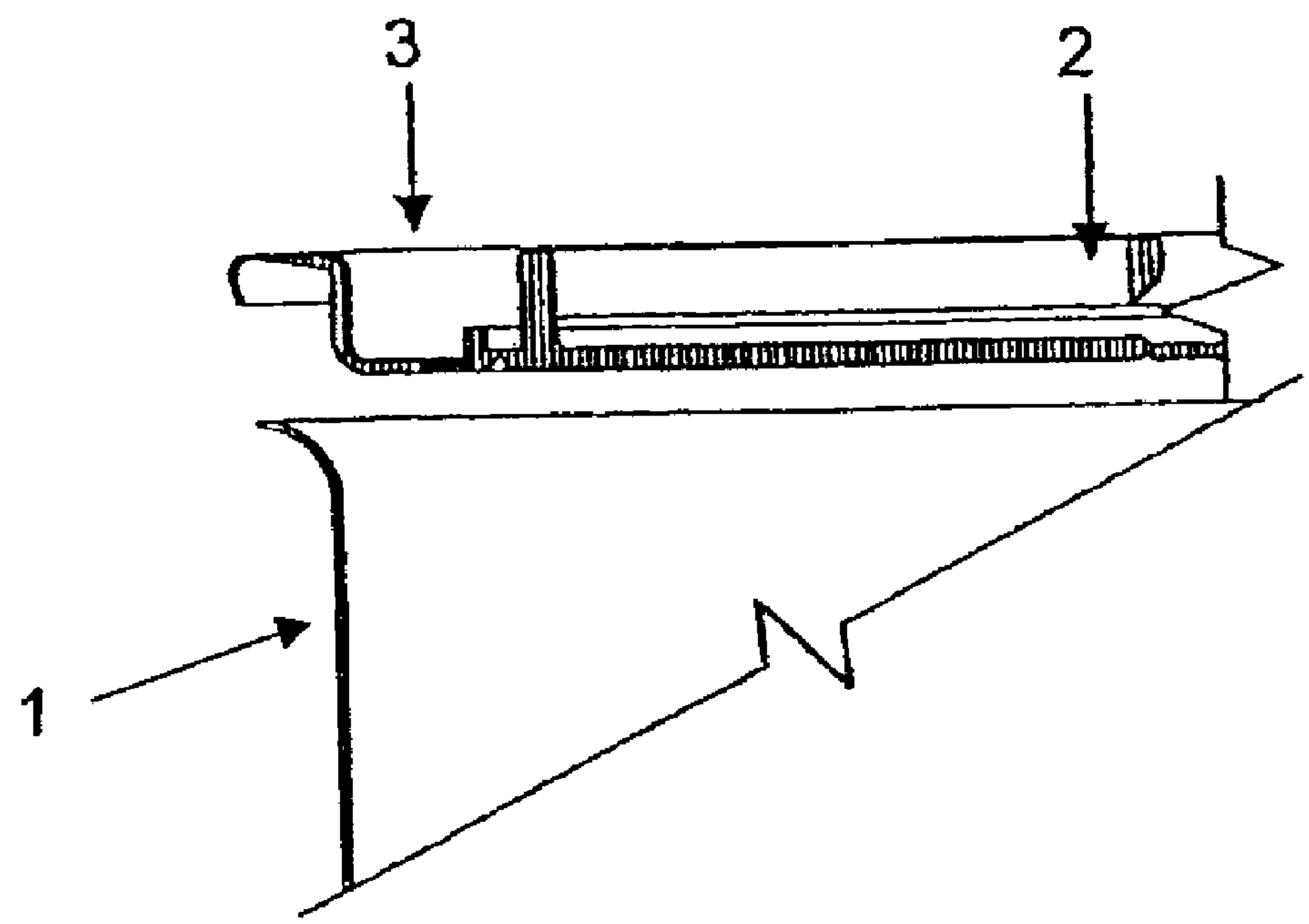
(54) Title: LID SEAL FOR METAL CONTAINER



(57) Abrégé/Abstract:

The "INTRODUCED DESIGN FOR METAL CONTAINER LID-SEALS FOR LIQUIDS" is made up of a securing system obtained by means of a beading process of the upper rim of the metal container (1), preferably manufactured from tinplate; characterized by its plastic membrane (2) assembly, metal ring (3) stamped to conform to a flat inner section (4) with a central circular opening (5), and a drawn inner edge bent toward the inside (6) with a ridge to conform to a recessed bed (7) that is enclosed by a peripheral edge bent downward and slightly inward (8) allowing beading with the membrane (2); the peripheral border (9) that fits into the bed (7) and beaded to the container's edge (1); followed within by the ring- shaped recess (10) that the flat internal section (4) fits into, with the drawn and bent inner edge toward the inside (6) of the metal ring (3); this in turn being followed by the inner stiffened perimetral ring (11) and the lower tapered triangular breaking band (12) that upon pulling the built-in pulltab (13); partially breaks the tilting triangular lid (14) at the thicker tapered band (15) at its lock (16).

ABSTRACT

The "INTRODUCED DESIGN FOR METAL CONTAINER LID-SEALS FOR LIQUIDS" is made up of a securing system obtained by means of a beading process of the upper rim of the metal container (1), preferably manufactured from tinplate; characterized by its plastic membrane (2) assembly, metal ring (3) stamped to conform to a flat inner section (4) with a central circular opening (5), and a drawn inner edge bent toward the inside (6) with a ridge to conform to a recessed bed (7) that is enclosed by a peripheral edge bent downward and slightly inward (8) allowing beading with the membrane (2); the peripheral border (9) that fits into the bed (7) and beaded to the container's edge (1); followed within by the ring-shaped recess (10) that the flat internal section (4) fits into, with the drawn and bent inner edge toward the inside (6) of the metal ring (3); this in turn being followed by the inner stiffened perimetral ring (11) and the lower tapered triangular breaking band (12) that upon pulling the built-in pulltab (13); partially breaks the tilting triangular lid (14) at the thicker tapered band (15) at its lock (16).

LID SEAL FOR METAL CONTAINER

THIS INTRODUCED DESIGN FOR METAL CONTAINER LID-SEALS FOR LIQUIDS is for a practical and innovative sealing lid belonging to the plastic injection systems field with specific use in metal containers for liquid foodstuffs and similar products, and for which an original development design was granted with intent to improve its use and functionality in relation to other models generally encountered in the marketplace.

As a result, an improvement to the metal container lid-seal for liquid foodstuffs and similar products has been introduced in this patent application. Its development seeks to achieve a lid-seal that guarantees the necessary tightness, and consequently protects the quality of the packaged product ensures that there will be no possibility of injury to fingers and that the product will continue to be preserved once the container has been opened.

It is widely known that juices are extracted from several varieties of fruit.

Technicians in this area know that in current processes, once the juice is extracted it is packaged to increase its shelf life, prevent contact with airborne bacteria and allow storage in aclimatized facilities for extended periods.

Generally, these storage facilities are cold rooms that preserve the product and prolong its life.

A considerable inconvenience in these models lies in the fact that the packaging is often fabricated with cut, rolled and welded tinplate, with the bottom sealed by beading a disk of the same material to it, and the top sealed by using an identical piece and by the same method.

It is common knowledge that this process of sealing both ends is bothersome to the end-user who must use a can opener to cut open and remove the central part of the can that contains the juice, running the risk of injury due to the sharp edges produced by the can opener.

It was because of these inconveniences that the inventor, a professional in the field, and after countless trials and studies, created and developed the object of this patent. He conceived a lid-seal where not only the mechanical and functional qualities were taken into consideration, but also the shape, design and location of its parts and components. Once correctly positioned, they increased the effectiveness without the inconvenience.

This patent application concerns the developed model and the improvement introduced for metal container lid-seals for liquid foodstuffs. It employs a built-up arrangement where the can sealing is achieved by an assembly that includes an injected (PEBD) plastic membrane with a peripheral border, a tapered triangular band with curved lateral edges to facilitate breakage and a third shallower band that provides a rocking motion to the seal.

A built-in pulltab and an upper ring-shaped recess are incorporated into the tapered triangular band with curved lateral edges in order to receive a stamped laminated tinplate ring. Its inner edge is drawn and bent so that the cutting edge is not exposed. The outer edges of the assembly are affixed to the upper edge of the container by a beading process, with the internal diameter of the laminated ring slightly larger than the tapered triangular plastic membrane band. This serves as support and aids in breaking the band when the user initiates pulling the tab to open the container.

The container can later be sealed by using the tilting lid, formed upon tearing the tapered band by means of an existing lock at the end and above the base of the tilting triangular lid.

It should be noted that the lid is quite simple in its design and permits easy workability while obtaining excellent practical and functional results. It offers an innovative configuration when compared to known models.

This application also introduces a sealing assembly to provide a hermetic seal for liquid foodstuff packaging with low industrial production costs while meeting tamper-proof, hygene, safety and utilitarian practicality requirements, thus offering the consumer an additional option in the generic marketplace.

This patent was designed in order to obtain a sealed lid with a minimum number of parts, yet conveniently configured and arranged to allow the container to be sealed and its contents preserved longer without the inconveniences mentioned earlier.

According to one aspect of the invention, there is provided an end seal device for sealing an open end of a metal package, comprising:

a plastic membrane; and

a metal ring stamped to have a flat inner cross-section having a central circular opening with a turned down and inwardly folded inner edge, and an elevation that forms a lower seat surrounded by a downwardly and inwardly facing peripheral rim whereby the metal ring can be crimped with the membrane, the membrane having a peripheral edge inserted into the seat for crimping to an edge of the package, the membrane having an annular recess internally adjacent the peripheral edge, the flat inner cross section of the metal ring with the turned down and inwardly folded inner edge being inserted in the annular recess, the annular recess being followed internally by a perimetral annular reinforcement, a pull ring and a first, lower triangular thinned line that is formed to break when the pull ring is pulled, wherein the pull ring breaks partly at a tilting triangular lid along a second, more solid thinned line, a restraint being provided in a region of the first thinned line.

According to a further aspect of the invention, there is provided a two-part lid-seal adapted for being fixed by beading on an upper edge of a container, comprising in combination a first part which is a unitary plastic membrane and a second part which is a metal ring;

the plastic membrane having a peripheral flange portion and a central opening portion with a narrow breaking line therebetween, a pull ring being attached to the central opening portion for breaking the plastic membrane along the breaking line, to provide an opening giving access to the interior of such container;

the metal ring having a central opening corresponding to said central opening portion in said plastic membrane and having an elevated outer section which forms an upper bed having a peripheral edge;

said plastic membrane extending continuously over an entire underside and said central opening of said metal ring:

the peripheral flange portion of the plastic membrane being shaped and located so as to nest in said upper bed of said metal ring, whereby said peripheral edge of said metal ring can be beaded on such container with the plastic flange portion forming a seal between said metal ring and such container.

According to another aspect of the invention, there is provided a two-part lid-seal adapted for being fixed by beading on an upper edge of a container, comprising in combination a first part which is a unitary plastic membrane and a second part which is a metal ring;

the plastic membrane having a peripheral flange portion and a central opening portion with a narrow breaking line therebetween, a pull ring being attached to the central opening portion for breaking the plastic membrane along the breaking line, to provide an opening giving access to the interior of such container;

the metal ring having a central opening corresponding to said central opening portion in said plastic membrane and having an elevated outer section which forms an upper bed having a peripheral edge;

whereby said peripheral edge of said metal ring can be beaded on such container;

wherein an inner edge of said metal ring, which defines said central opening, is bent outwardly, forming a beaded edge for said central opening; and

wherein said beaded edge of said central opening is received in a corresponding recess which opens upwardly in an upper surface of said plastic membrane.

This lid-seal's novel makeup allows it to achieve an excellent level of functionality and durability, being primarily created to preserve the tamper-proof construction of the packaging before opening, as well as the product's characteristics after opening.

To better understand the "INTRODUCED DESIGN FOR METAL CONTAINER LID-SEALS FOR LIQUIDS" presented herein, the design illustrations are attached as follows:

FIG. 1 – Top view highlighting the stamped metalic laminated ring.

FIG. 2 – Longitudinal section showing the shape of the stamped metal laminated ring.

FIG. 3 – Vertical section showing the shape of the stamped metal laminated ring.

FIG. 4 – Top view of the injected plastic membrane highlighting the built-in pulltab and the triangular lid's tapered tear band.

FIG. 5 – Cross section showing the shape of the injected plastic membrane with the built-in pulltab.

FIG. 6 – Vertical section of the injection moulded plastic membrane featuring the built-in pulltab, recessed to accomodate the metal ring, and the tapered breaking band next to the stiffening shoulder.

FIG. 7 – Vertical section with detail of the metal ring overlapping the plastic membrane, in position ready to be mounted on the metal container opening and then beaded.

FIG. 8 – Top view of metal container with the plastic membrane and beaded metal laminated ring.

FIG. 9 – Side view of a cylindrical metal container showing the upper beading that holds the ring and membrane to seal the container.

FIG. 10 – Partial cross section illustrating the plastic membrane overlapped by the metal laminated ring beaded onto the edge to seal the container.

The above figures related to this patent's subject "INTRODUCED DESIGN FOR METAL CONTAINER LID-SEALS FOR LIQUIDS" show that it is essentially distinguished by its bead fastening process on the upper rim of the metal container (1), which is preferably fabricated of sheet metal.

An integral part of the container (1) is an assembly made up of a plastic membrane (2), a metal ring (3) stamped to conform to a flat inner section (4) with a central circular opening (5) and a ridge to conform to a recessed bed (7) that is enclosed by a peripheral edge bent (8) which is bent downward and slightly inward to allow beading with the membrane (2).

The beading is shaped to conform to the peripheral border (9) that fits into the bed (7) and beaded to the container's (1) edge. This is followed within by the ring-shaped depression (10) that the flat internal section (4) fits into, with the drawn and bent inner edge (6) of the metal ring (3). This in turn is followed inside by the stiffened perimetral ring (11) and the lower broken tapered triangular band (12) once the built-in pulltab is pulled (13).

When the pulltab (13) is pulled with a finger, the tilting triangular lid (14) is partially broken at the thicker tapered band (15) that secures the tilting triangular lid (14) at the cavity produced by the rupturing of the tapered band (12). The same has a lock (16) at the support base of the pulltab (13).

This descriptive report is for a new concept in lid-seals, as demonstrated by the analysis and figures shown. There are innumerable differences between this and existing conventional models available in the marketplace, including structural and functional technical characteristics quite different from these others and pertinent to its technical position. Due to the advantages it offers and its truly innovative characteristics that satisfy all requirements of novelty and originality in this area.

While this application has illustrated and described the modality proposed above, it should be apparent to those familiar with the technology that other modifications in shape and detail may be implemented without straying from the scope of the application, as is delineated in the annexed claim.

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

1. An end seal device for sealing an open end of a metal package, comprising:
a plastic membrane; and
a metal ring stamped to have a flat inner cross-section having a central circular opening with a turned down and inwardly folded inner edge, and an elevation that forms a lower seat surrounded by a downwardly and inwardly facing peripheral rim whereby the metal ring can be crimped with the membrane, the membrane having a peripheral edge inserted into the seat for crimping to an edge of the package, the membrane having an annular recess internally adjacent the peripheral edge, the flat inner cross section of the metal ring with the turned down and inwardly folded inner edge being inserted in the annular recess, the annular recess being followed internally by a perimetral annular reinforcement, a pull ring and a first, lower triangular thinned line that is formed to break when the pull ring is pulled, wherein the pull ring breaks partly at a tilting triangular lid along a second, more solid thinned line, a restraint being provided in a region of the first thinned line.

2. A two-part lid-seal adapted for being fixed by beading on an upper edge of a container, comprising in combination a first part which is a unitary plastic membrane and a second part which is a metal ring;
the plastic membrane having a peripheral flange portion and a central opening portion with a narrow breaking line therebetween, a pull ring being attached to the central opening portion for breaking the plastic membrane along the breaking line, to provide an opening giving access to the interior of such container;
the metal ring having a central opening corresponding to said central opening portion in said plastic membrane and having an elevated outer section which forms an upper bed having a peripheral edge;
said plastic membrane extending continuously over an entire underside and said central opening of said metal ring:
the peripheral flange portion of the plastic membrane being shaped and located so as to nest in said upper bed of said metal ring, whereby said peripheral edge of said metal ring can be beaded on such container with the plastic flange portion forming a seal between said metal ring and such container.

3. The lid-seal of claim 2, in combination with a container, the peripheral edge of said metal ring being beaded on an upper edge of the container with said plastic flange portion forming a seal therebetween.

4. The lid-seal of claim 2 or 3, wherein said breaking line is disposed inwardly from the central opening of the metal ring, whereby a user is protected from contacting the metal ring after the central opening portion of the plastic membrane has been opened.

5. The lid-seal of claim 4, further comprising a reinforcement ring formed in the plastic membrane between the metal ring and the breaking line.

6. The lid-seal any one of claims 3 to 5, wherein an inner edge of said metal ring, which defines said central opening, is bent outwardly, forming a beaded edge for said central opening.

7. The lid-seal of claim 6, wherein said beaded edge of said central opening is received in a corresponding recess which opens upwardly in an upper surface of said plastic membrane.

8. The lid-seal any one of claims 2 to 7, wherein said recess is defined in said plastic membrane at a location outward from said reinforcement ring.

9. A two-part lid-seal adapted for being fixed by beading on an upper edge of a container, comprising in combination a first part which is a unitary plastic membrane and a second part which is a metal ring;

the plastic membrane having a peripheral flange portion and a central opening portion with a narrow breaking line therebetween, a pull ring being attached to the central opening portion for breaking the plastic membrane along the breaking line, to provide an opening giving access to the interior of such container;

the metal ring having a central opening corresponding to said central opening portion in said plastic membrane and having an elevated outer section which forms an upper bed having a peripheral edge;

whereby said peripheral edge of said metal ring can be beaded on such container;

wherein an inner edge of said metal ring, which defines said central opening, is bent outwardly, forming a beaded edge for said central opening; and

wherein said beaded edge of said central opening is received in a corresponding recess which opens upwardly in an upper surface of said plastic membrane.

10. A lid-seal of claim 9, in combination with a container, the peripheral edge of said metal ring being beaded on an upper edge of the container.

FIG. 1

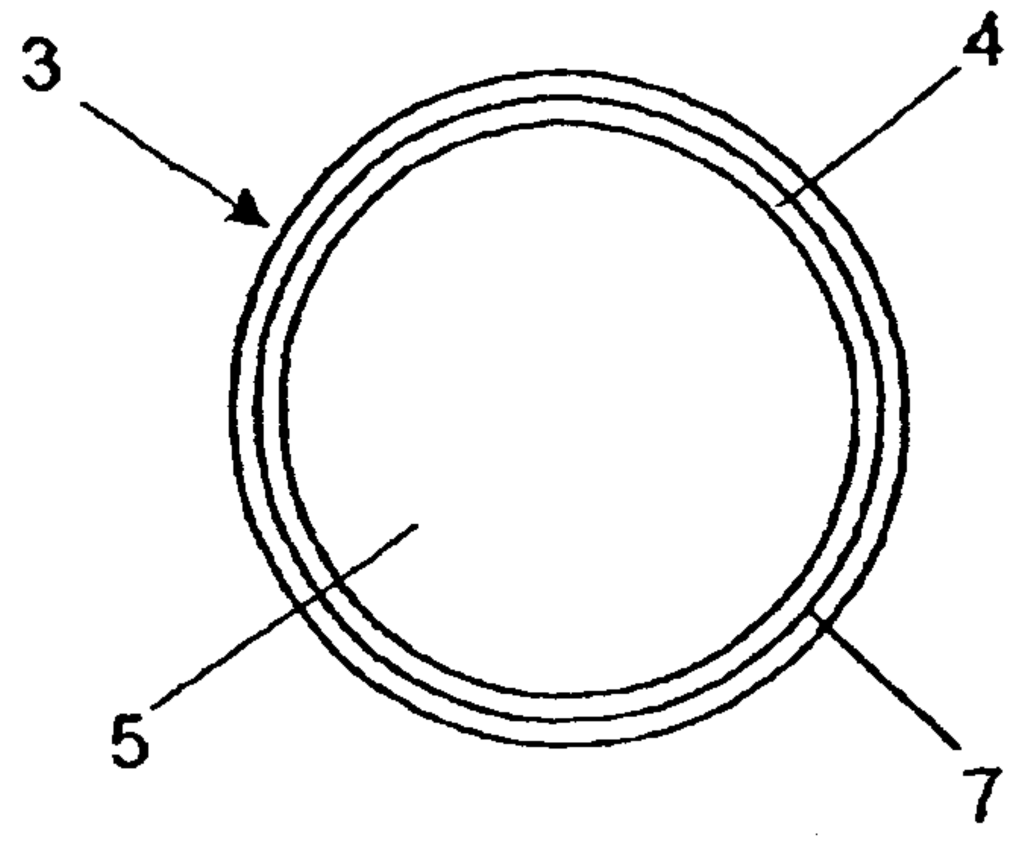


FIG. 2

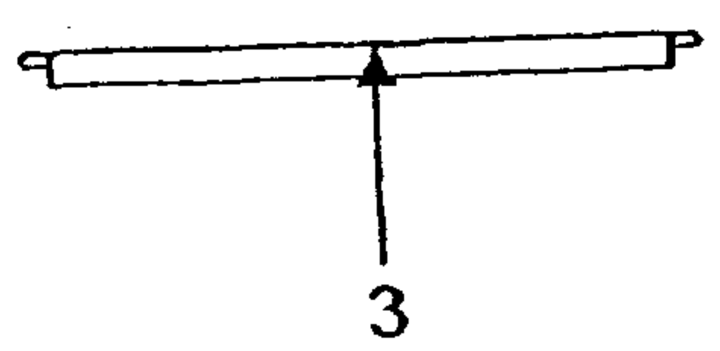


FIG. 3

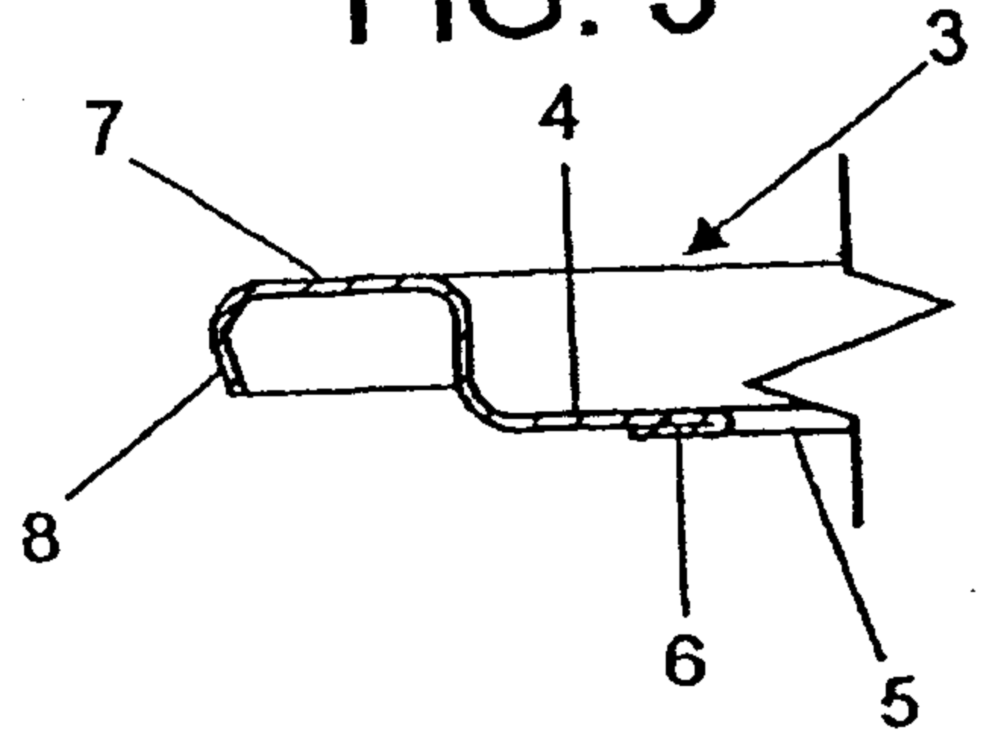


FIG. 4

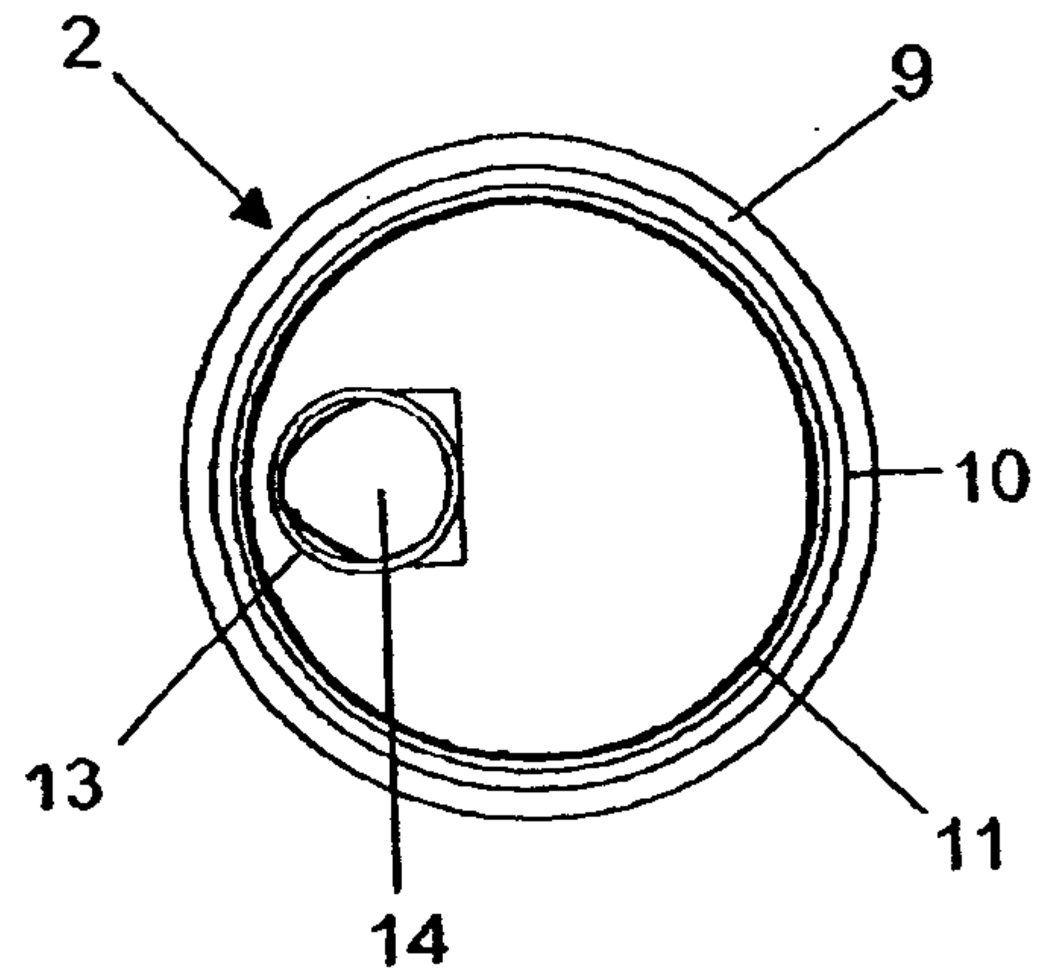


FIG. 5

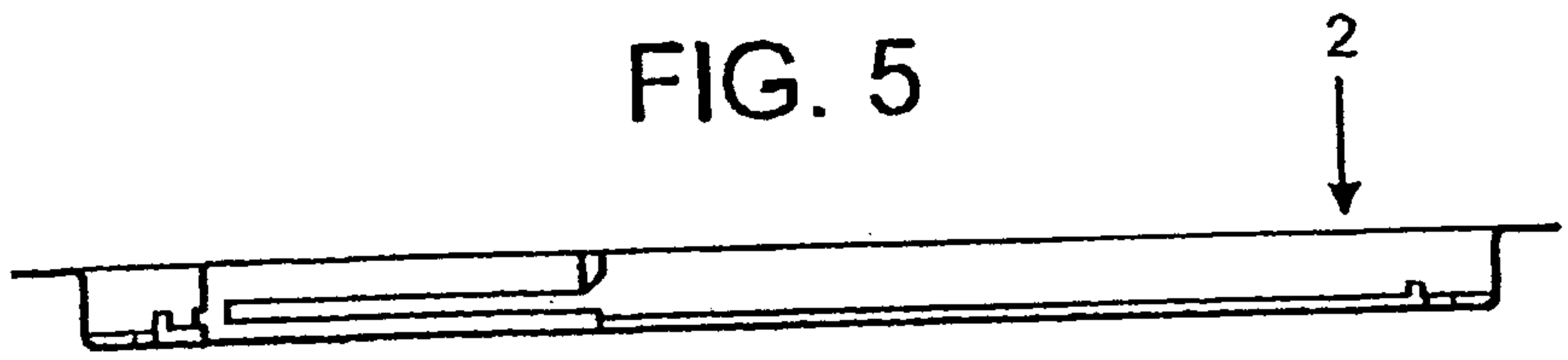


FIG. 6

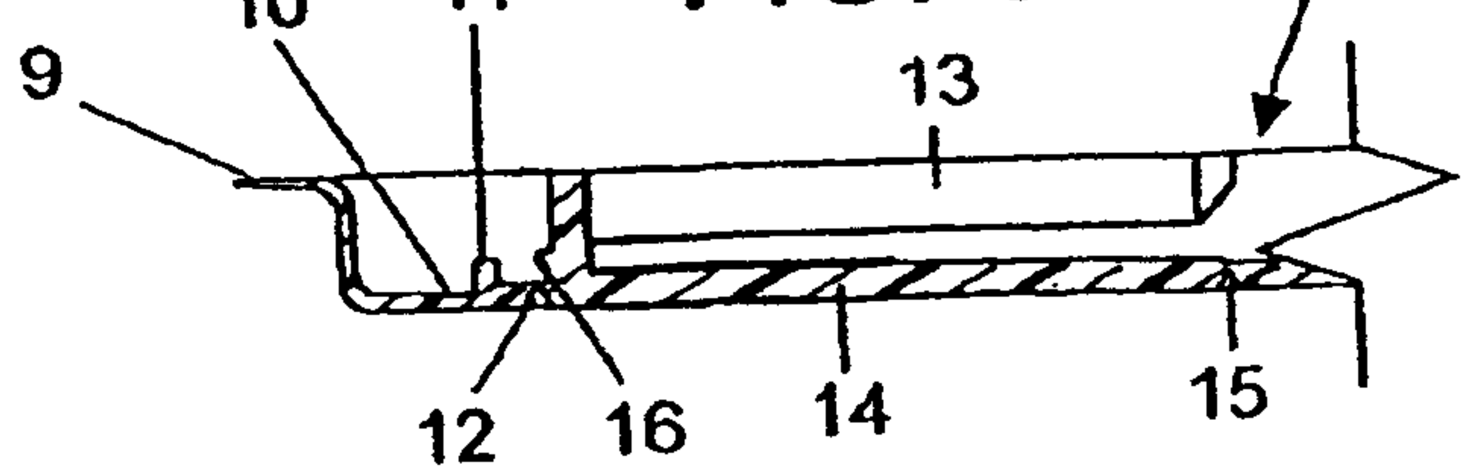


FIG. 7

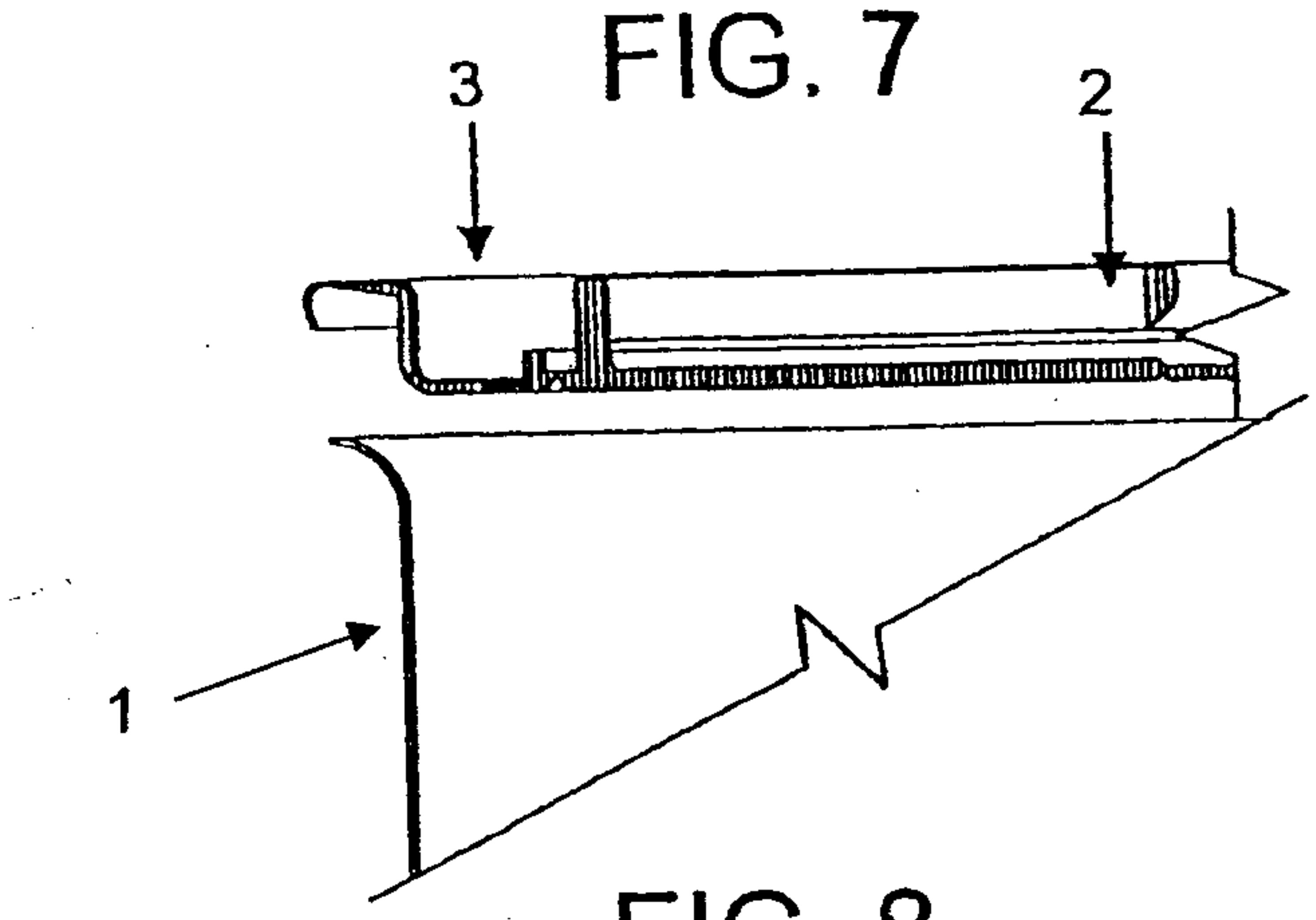


FIG. 8

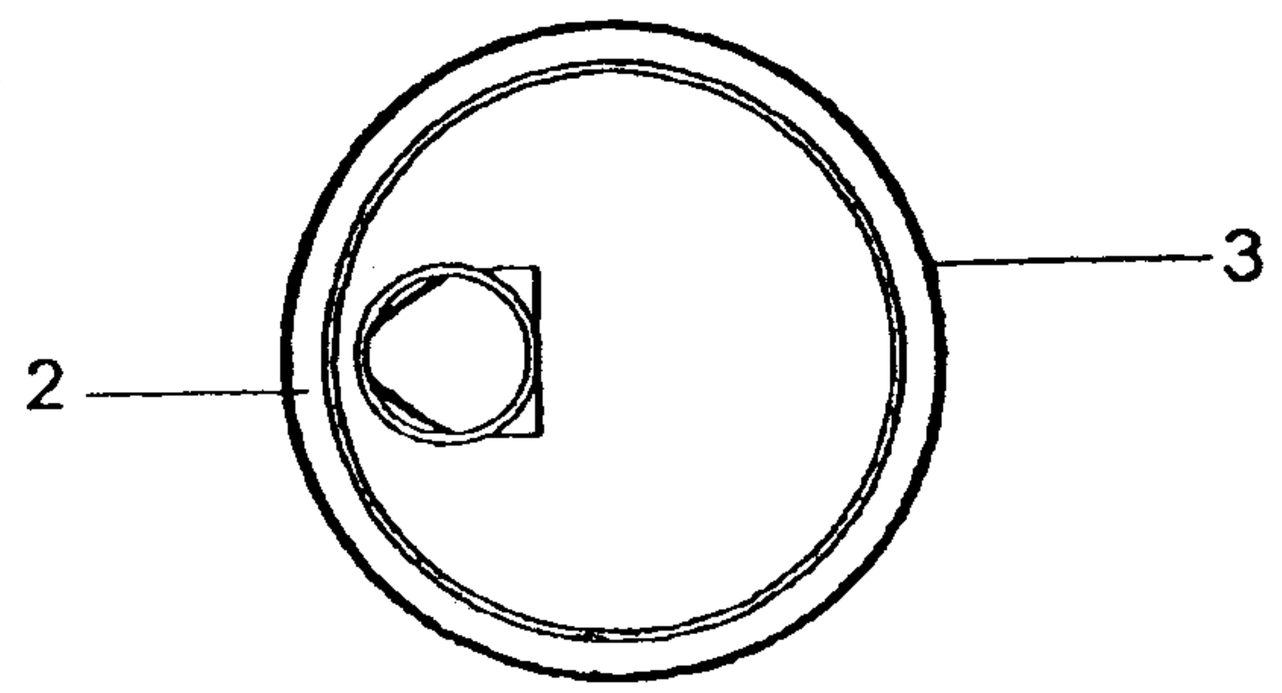


FIG. 9

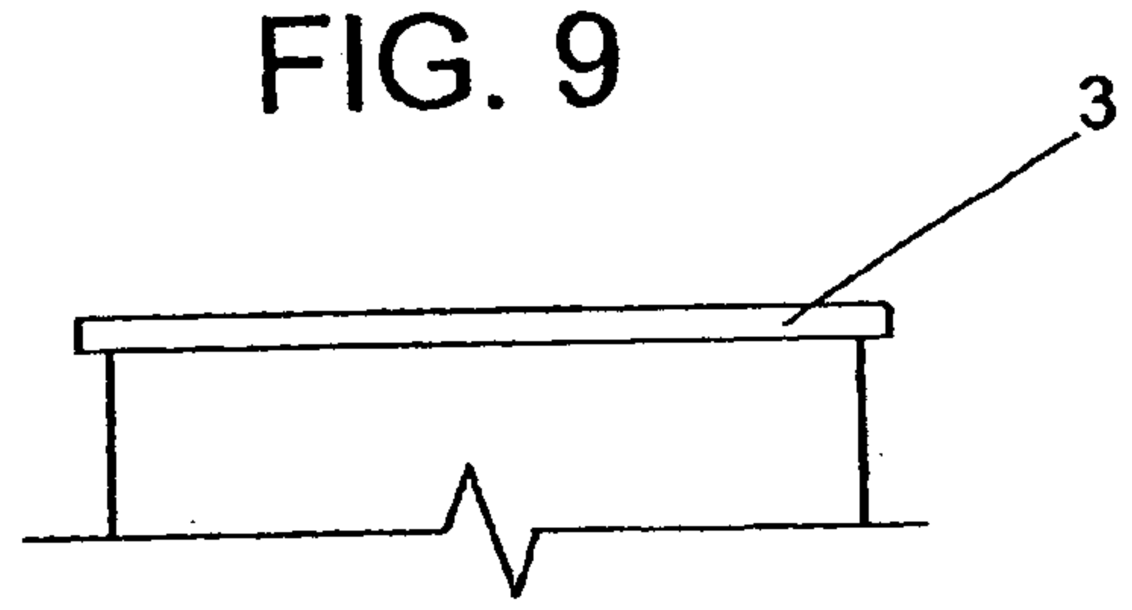
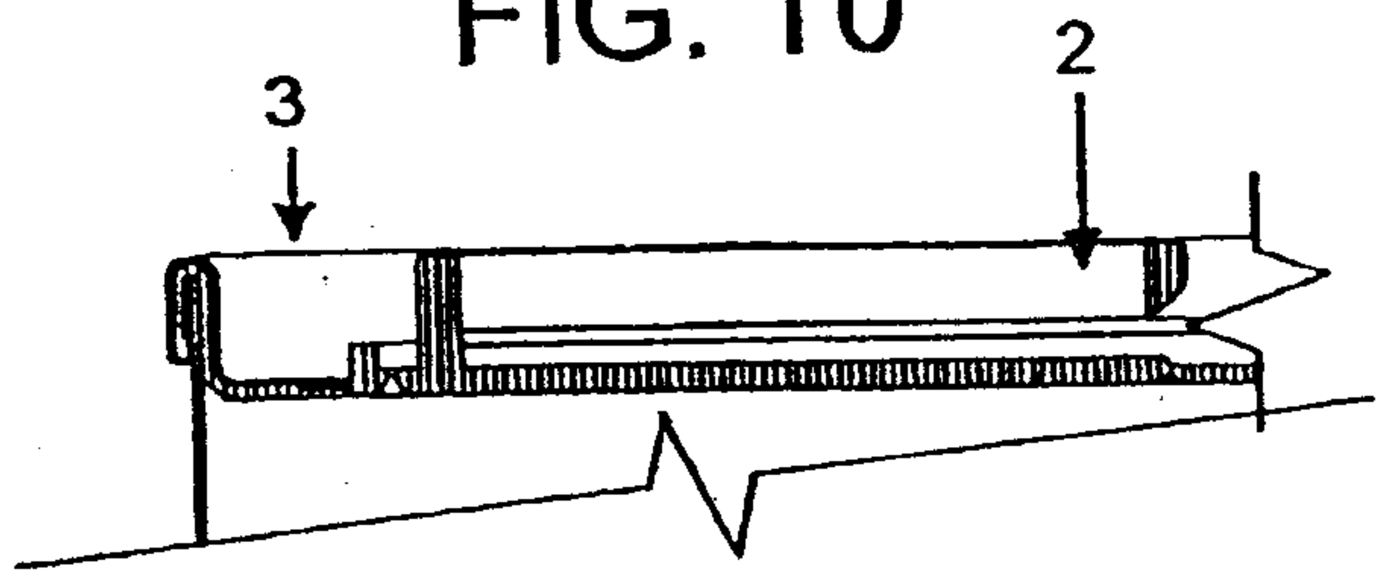
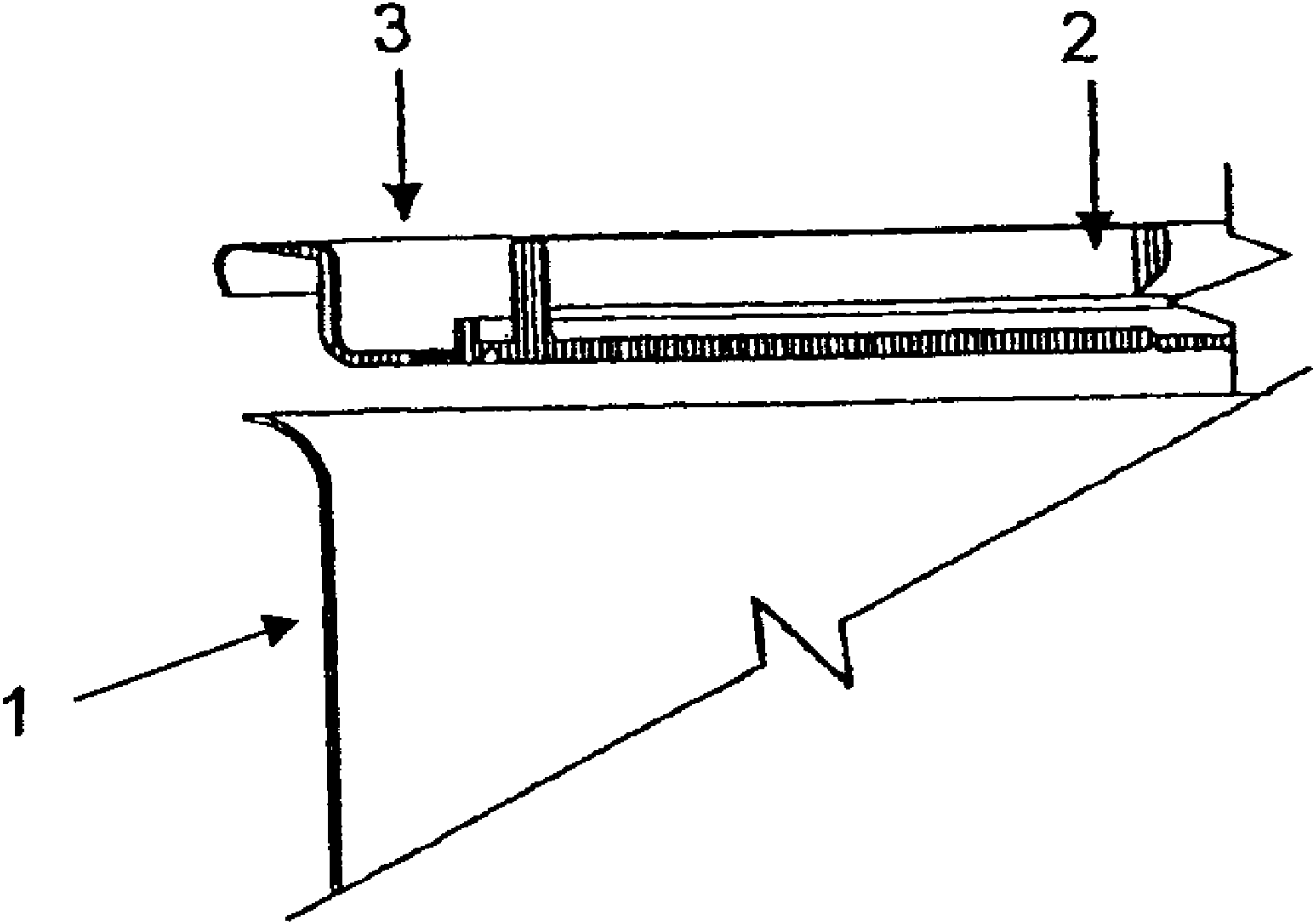


FIG. 10





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