

[54] BEE FEEDER FOR HIVES

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[51] Int. Cl. A01k 53/00

[58] Field of Search 6/5; 220/97 C, 70

[56] References Cited

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784,072	3/1905	Roberts....	6/5
905,706	12/1908	Johnson.....	6/5
2,496,285	2/1950	Goebel.....	6/5
3,715,853	2/1973	Bemiss.....	220/97 C X

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[57] ABSTRACT

A honey-bee feeder which is adapted to replace a brood frame which has been withdrawn from a con-

ventional box type beehive. One embodiment of the invention is characterized by a one piece container made by "blow molding" from plastic material and is of requisite size and shape to be effectively fitted into the beehive. The side and end walls slope toward the bottom wall and provide a tapered easy-to stack container. Upper end portions of the respective end walls are provided with horizontal outstanding lugs which can be hooked over and hung from the existing support rails in the beehive. The bottom wall has indentations which constitute bead type elevating feet. These "feet" when in use elevate the container and provide a crawl space between the opposed bottoms of the hive and container. To minimize immersion and bee drowning the interior wall surfaces may be roughened and, in addition, an optionally useable arcuately bowed screen guard promotes reliable climbing and ultimate escape.

The second embodiment is basically the same as the aforementioned embodiment except that the upper end is provided with narrowed and centered supporting lugs and the otherwise open top embodies integral end and centered reinforcing webs which, thus located, define spaced elongated openings, and conjointly stabilize and prevent undesirable warping of the walls, particularly the sidewalls.

1 Claim, 6 Drawing Figures

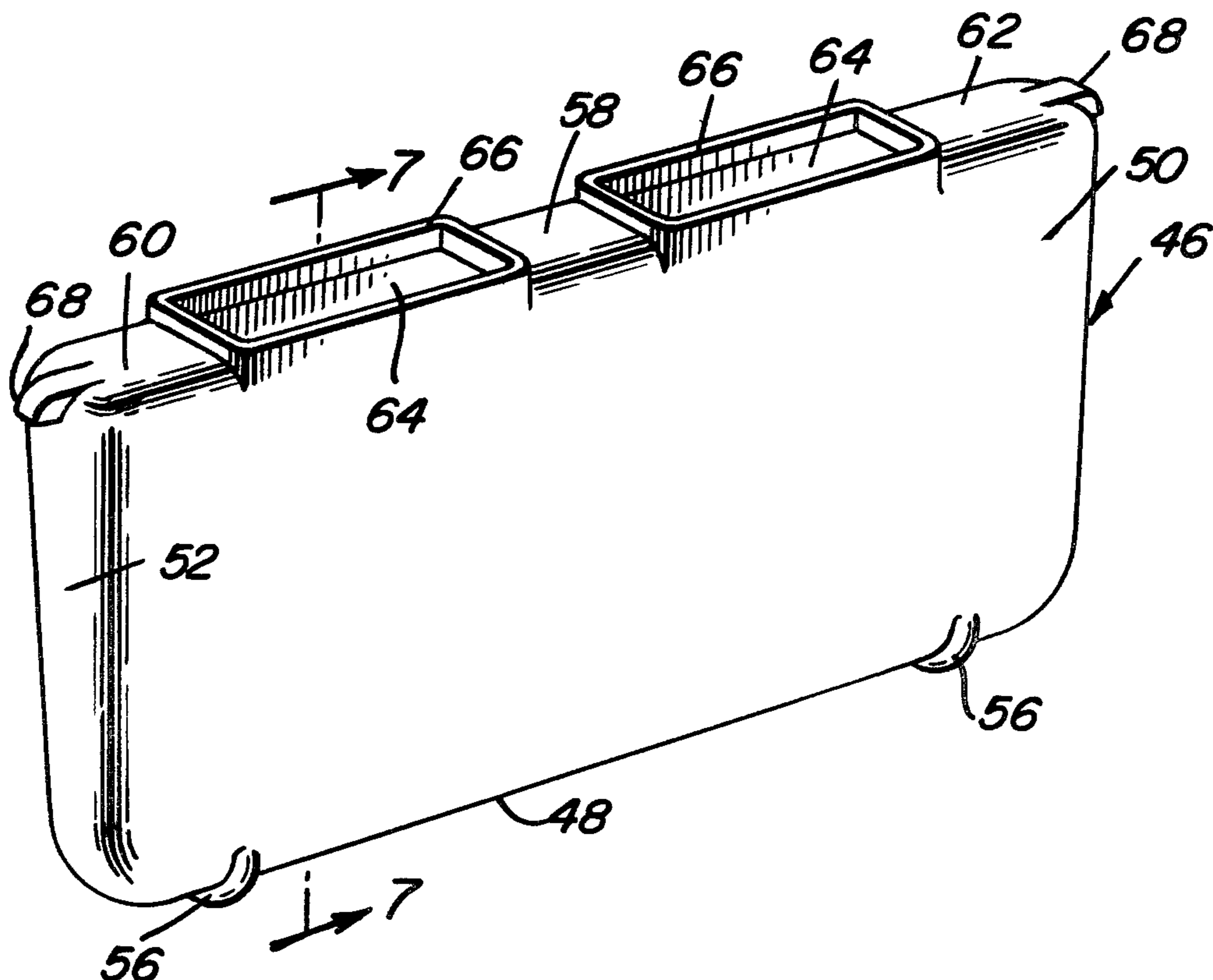


Fig. 1

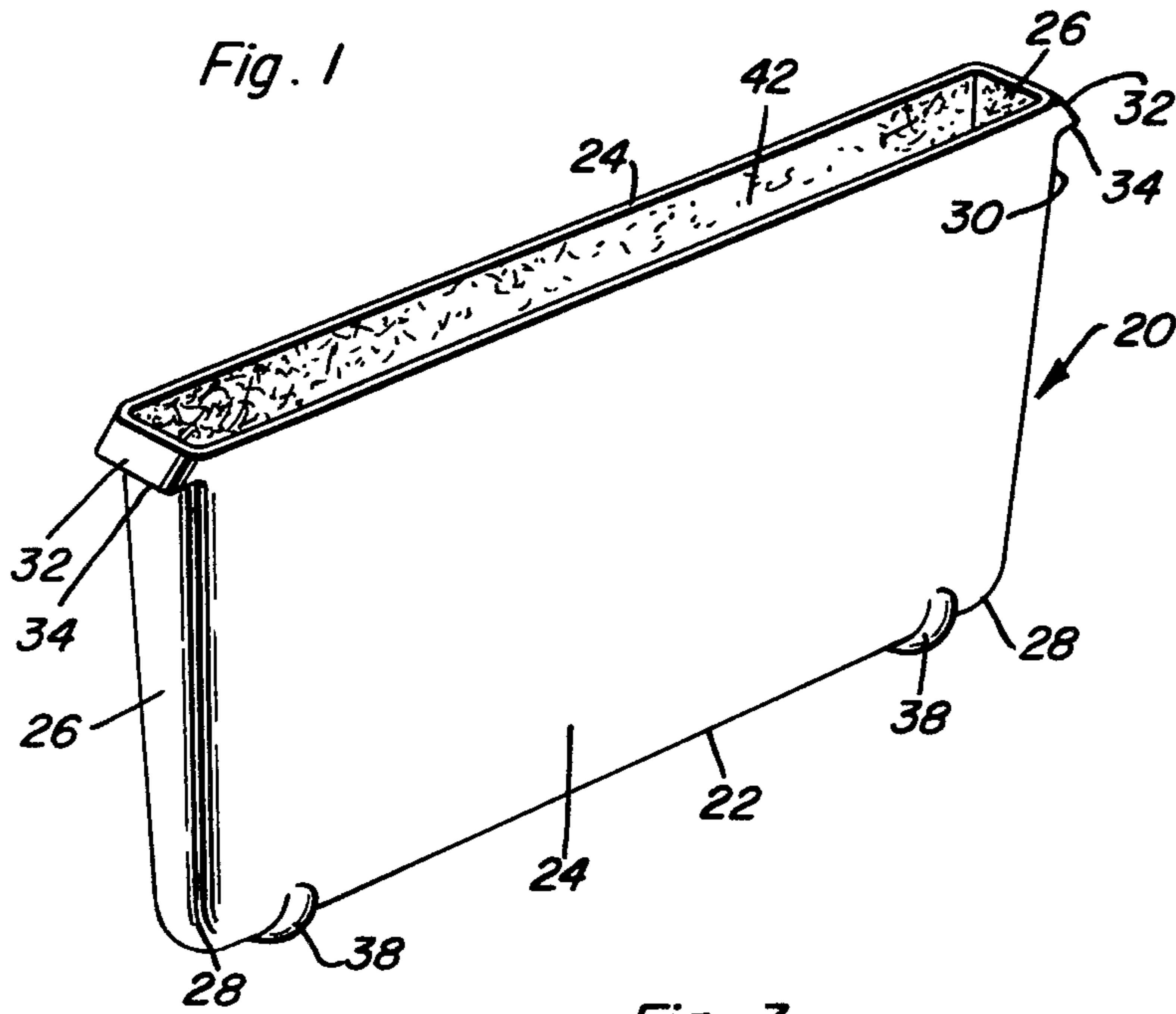


Fig. 2

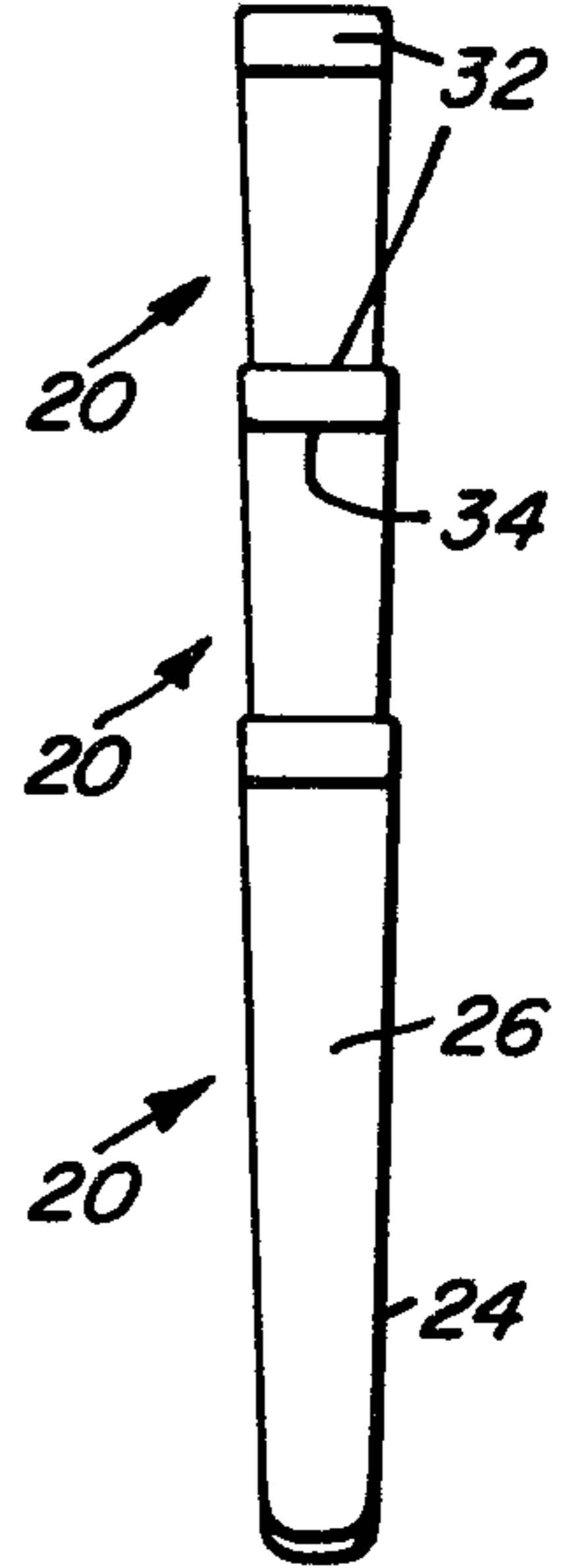


Fig. 3

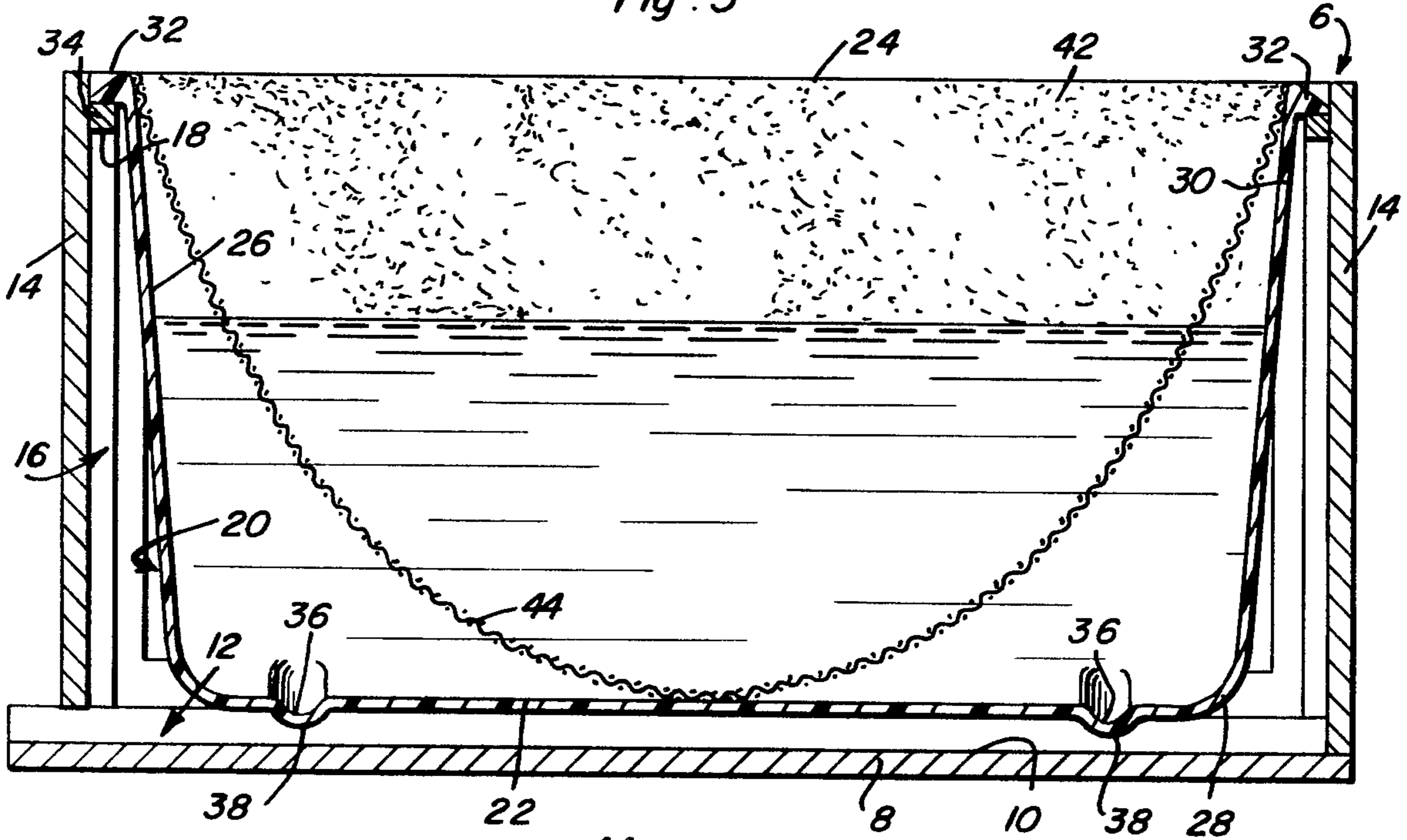
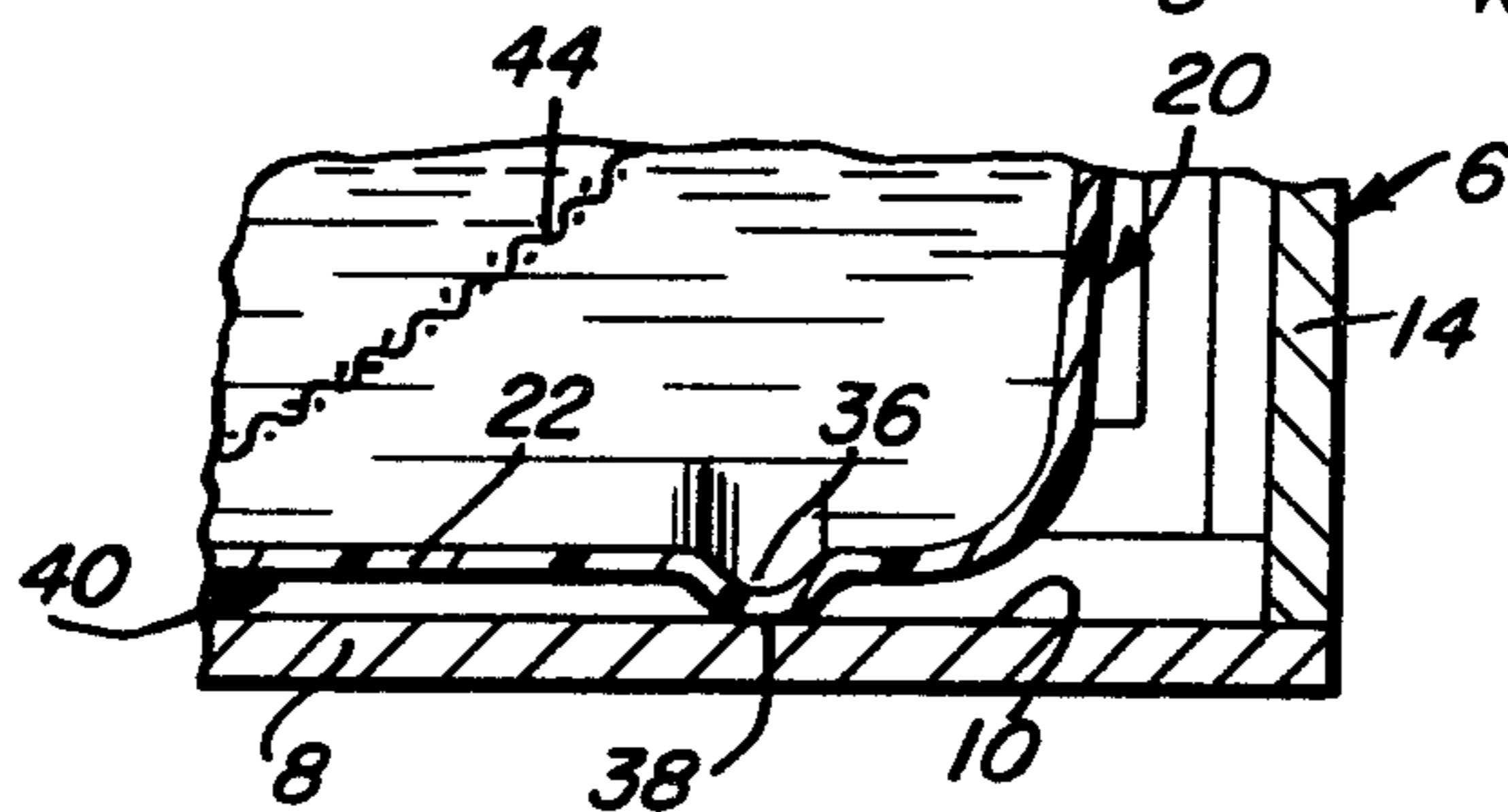
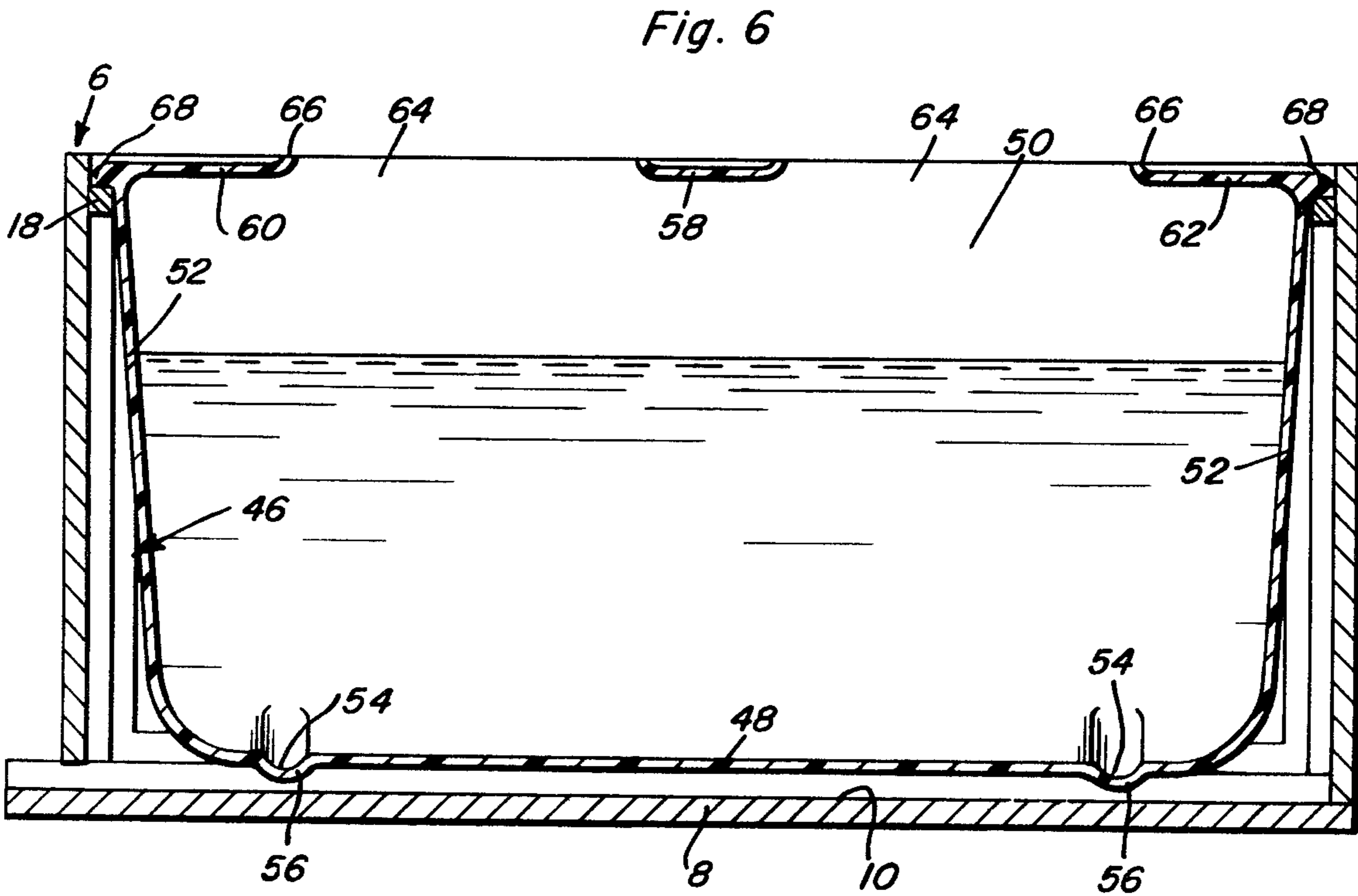
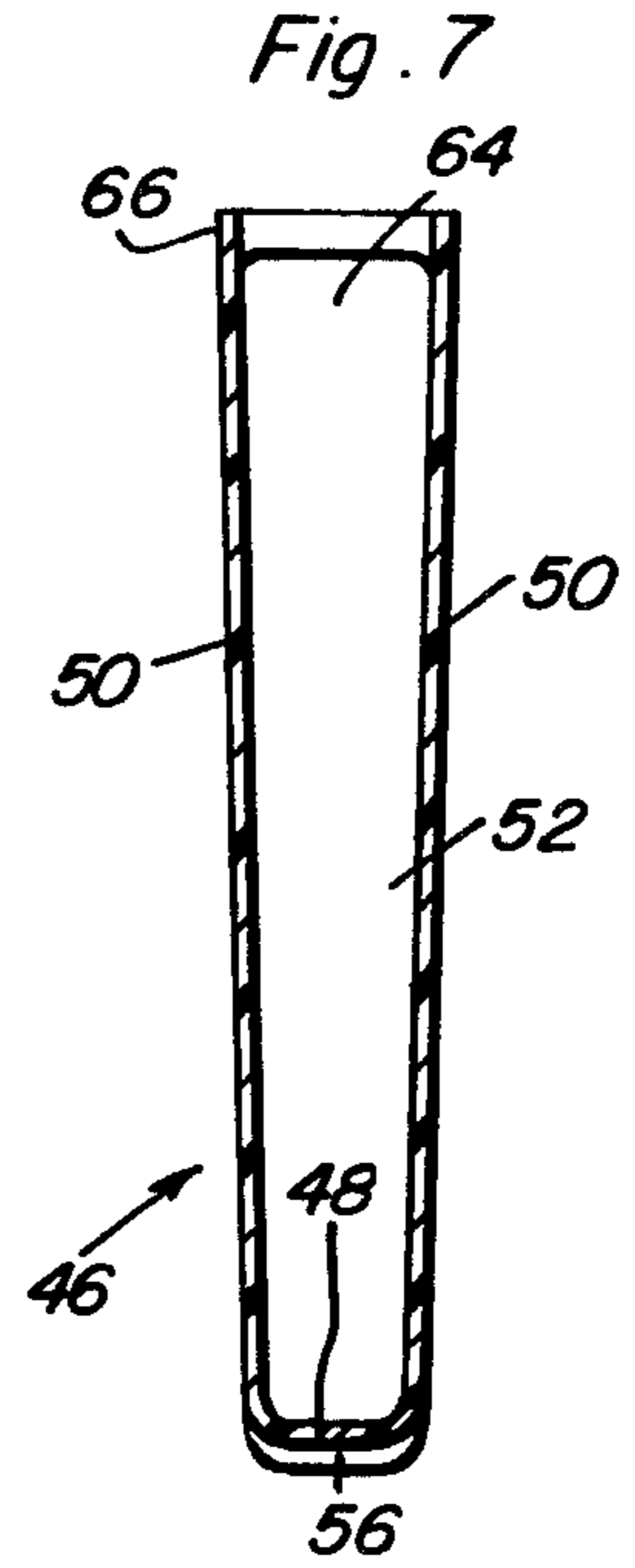
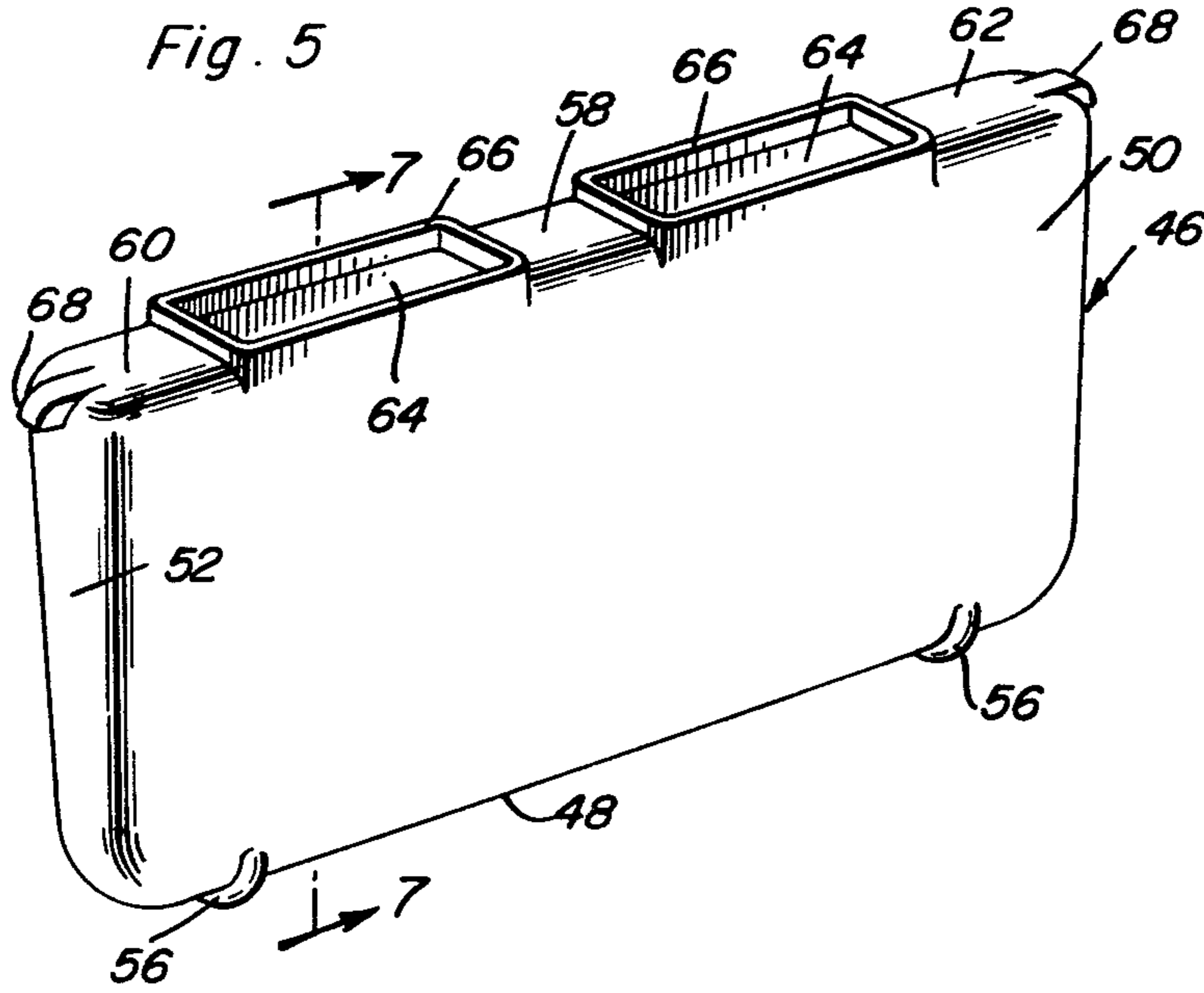


Fig. 4





BEE FEEDER FOR HIVES

This invention relates to certain new and useful improvements in readily insertable and removable feeders for conventional box-type beehives and pertains, generically construed, to a container for sweetened liquid, sugared water, for example, and preferably but not necessarily made from moldable plastic material and embodying features and advantages which insure satisfactory results.

Because of an increase in the price of honey, it is currently deemed to be economically desirable to feed bees during the winter with a suitable bee feed, a sugared water mixture, instead of leaving honey in the hive for the colony of bees to consume. With a view toward coping with and aptly solving this problem, a simple, practical and acceptable bee feeder is herein disclosed and recommended for economical and feasible use.

Insertable and removable bee feeders for use in box-type beehives are of many and varied styles and types. For background purposes and as generally indicative of the state of the art to which the invention relates two prior patents are herein cited. First, attention is invited to the bee feeder of Charles E. Saunders, U.S. Pat. No. 1,251,583. Saunders, being comparably complicated, is cited for general information only. Attention is also invited to the feeder for honey bees disclosed in Wilbur O. Goebel, U.S. Pat. No. 2,496,285. Goebel is significant in that it has to do with the idea of intentionally withdrawing one of the customary brood frames from the beehive and substituting the tank-type feeder therefor. Because Goebel is significant it is evident that it is an object of the present invention to structurally, functionally, and otherwise improve on the Goebel patent and other citations, if any, which exemplify the state of the art.

Wood and sheet metal and structurally equivalent tank-type and container type feeders while used extensively appear to have met with restricted adoption and endorsement in that the many requirements and conditions for widespread use have not been fully met.

Briefly, each herein disclosed bee feeder is characterized by a readily applicable and removable container for the readily accessible liquid bee feeding solution. Each container is simple and practical and is made of moldable plastic material and more specifically, comprises a horizontal bottom wall, upstanding sidewalls and interconnecting transverse end walls. Upper end portions of the end walls are provided with outstanding lugs which provide satisfactory hangers capable of being seated and hooked over the currently existing rails in the beehive. Each container is characterized by downwardly sloping side and end walls which in conjunction with the suitably narrowed bottom wall provide a tapered design which is ideal in that a plurality of the containers (that is, in one form of the invention) can be telescopingly fitted together and stacked for compactness and convenience and for expeditious handling and storage needs. Interior scaling and climbing surfaces of the walls are preferably roughened during the "blow molding" step. In addition to these roughened climbing surfaces an optionally useable insert, more particularly, an arcuately curved strip of screen wire, is conformingly located within the confines of the receptacle portion and provides an alternately available escape means for stray bees.

In both forms of the invention the bottom wall is preferably provided, adjacent to the respective ends, with indentations which in turn constitute transverse beads. These beads provide rests which are capable of resting on the bottom of the hive and serve as elevating feet when the aforementioned hanger lugs are not useable. These feet have been found to be effectually desirable in that they provide a crawl space between the coordinating bottoms of the beehive and container.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

FIG. 1 is a view in perspective of one embodiment of a bee feeder constructed in accordance with the principles of the present invention and readied for use.

FIG. 2 is an end view on a small scale showing how a plurality of the improved bee feeders can be nested together and stacked for compactness and convenience as well as for handling and storage.

FIG. 3 is an enlarged view showing portions of a conventional box-type beehive and showing, what is more significant, the insertable and removable bee feeder and how it is constructed and ordinarily supported and used.

FIG. 4 is a fragmentary detailed view with parts in section and which shows how the aforementioned depending bead type elevating feet can be used when the prevailing conditions require such installation and use.

FIG. 5 is a view in perspective showing a second form or embodiment of the bee feeder.

FIG. 6 is an enlarged view similar to FIG. 3 but showing the embodiment of FIG. 5 and how it is supported and used.

FIG. 7 is a vertical section taken on section line 7—7 of FIG. 5.

With reference first to FIGS. 1 to 4 and, more particularly, to FIG. 3 the numeral 6 designates a box type beehive having a horizontal bottom wall 8 and an interior surface 10, a passageway for bees as at 12. The upstanding vertical walls, not fully detailed, are denoted by the numeral 14. In actual practice, a plurality of the brooder frames are insertably installed, one of the frames 16 being shown in FIG. 3. Ordinarily, box rails 18 are provided and the present invention is constructed to utilize these rails.

The improved one piece but light weight durable container (FIGS. 1 - 4) is denoted by the numeral 20 and, in actual practice, is made from polyethylene or equivalent of moldable plastic material and lends itself to acceptable manufacture using a commonly known "blow molding" procedure. The generally horizontal wall, primarily flat, is denoted at 22 and is of requisite length to serve the purposes desired. Joined marginally to this bottom wall are the upstanding sidewalls 24 joined at their respective ends by intervening transverse vertical walls 26. The junctional portions of the walls are such as to provide rounded corner portions 28. Upper portions 30 of the end walls are provided with outstanding support lugs 32 which are approximately V-shaped cross-section and provide underneath substantially flat surfaces 34 which may be hooked over the satisfactorily supported atop the existing rails 18, in the manner illustrated in FIG. 3.

There may be instances where no rails are available and aptly suitable to accommodate the lugs 32. under such circumstances it may be and often is necessary to support the bottom wall 22 directly from the interior surface 10 of the bottom wall 8 of the beehive. To accomplish this and during the molding process indentations are provided as at 36 which define depending concave-convex beads 38. These beads constitute elevating feet and when in use, as shown in FIG. 4, they rest on the support surface 10. By providing longitudinally spaced transverse elevating feet the container is not only satisfactorily supported, a crawlway space for the bees is provided as at 40 in FIG. 4.

It will be evident that the downwardly sloping and converging walls in conjunction with the bottom wall provide the desired tapered shape, this being a feature of the concept in that it permits the containers 20 to be nested or telescopingly interconnected for stacking, handling and use particularly for shipping and similar purposes. The outstanding lip-like lugs 32 serve under ordinary circumstances in the manner shown in FIG. 3 for satisfactory support results. This is to say the lugs 32 resting on the rails 18 provide the desired suspension results within the confines of the hive.

As a general rule the interior surfaces of the side and end walls may be roughened or otherwise finished as suggested at 42 of FIG. 1 thus providing scaling and climbing surfaces for stray bees. As already suggested and where the lugs 32 not successfully useable, the elevating beads or feet 38 are available for use in the manner shown in FIG. 4. feed

In practice one of the brood frames (not detailed) is removed to provide space for insertion of the applicable and removable feeder 20. The feeder is then filled with a sugar water solution which, under ordinary circumstances, the bees drain in about 24 hours. This feeding is allowed to continue as long as the bees are eating in preparation for winter and such other procedural steps as are decided upon and are recommended for prevailing practice or resorted to until spring when the bees will again be fed from the feeders as they begin to leave their dormant state.

It is within purview of the invention to provide an additional safety guard, namely, an optionally useable strip of screen wire 44. This guard is fitted within the confines of the receptacle portion and is bowed or curved to fit and retain itself in place, as shown in FIG. 3. While it is deemed to be unnecessary to dwell upon the manner in which bees feed, it will be evident that the roughened surfaces 42 plus the screen guard 44 provide satisfactory and available means which minimize the likelihood of immersion and drowning in a seemingly obvious manner.

Manufacturing experience has shown that when the feeders are constructed in the manner shown in FIGS. 1 - 4, there is a tendency for the vertical sloping side walls to warp and bow in toward their central areas and this aspect of the matter has posed a mass production problem and under the circumstances, it is within the purview of the overall concept to manufacture moldable plastic feeders in keeping with the modifications shown in FIGS. 5-7. To the ends desired, each polyethylene container 46 is basically the same as already described and comprises a horizontal essentially flat bottom wall 48, upstanding vertical side walls 50 and interconnecting end walls 52. The desired transverse longitudinally spaced indentations 50 in the bottom provide

the desired bead-like elevating feet 56 which in practice function in the manner shown particularly well in FIG. 4.

The upper end of each container, instead of being wholly open as shown in FIGS. 1 - 4 inclusive, is partly closed. This is to say, the upper portions of the end and sidewalls are bridged and centrally united, for example, by a main reinforcing and stabilizing web 58 where the upper portion of the end walls 52 and coordinating end portions of the sidewalls 50 are similarly united by reinforcing and stabilizing webs, the one at the left being denoted at 60 and the one at the right at 62 (FIGS. 5 and 6). The portions in between the several reinforcing webs 58, 60 and 62 are fashioned into and provide the elongated entrance and exit openings 64 marginally surrounded by slight but upstanding flanges or rim portions 66. Thus the upper end of each container embodies the central main web 58 and the companion auxiliary webs 60 and 62 and the intervening elongated slot-like marginally encompassed openings 64. Then too and instead of having the supporting or suspension lugs of a width equal to the width of the end walls as in FIG. 1, for example, the lugs are relatively narrow and are centralized and are integrally formed and are here designated at 68. These narrow lugs serve the same supporting purposes as the aforementioned lugs 32 and as a matter of fact are shown in use in FIG. 6. Experience has shown that by constructing the upper end portions of the containers in this special manner warping difficulties are overcome. While this mode of construction serves to maintain the shape of the feeders it will be evident that the aforementioned stacking and telescoping feature is lost. On the other hand the individual bee keeper can sever and cut away the webs 58, 60 and 62, in fact, the entire top of each feeder and thus condition it for stacking much in the same manner as illustrated in FIG. 2. Another alternative would be to build them in the manner shown, for example, in FIG. 1 and to furnish suitably constructed small metal clips to be clamped over the upper edges of the sidewalls which would hold the side walls in shape and keep the feeder from warping (not illustrated).

It will be also noted that in both embodiments of the invention the bottom walls are provided with the aforementioned elevating and supporting feet 56 to accomplish the result, when desired, illustrated in FIG. 4.

An interpretative consideration of the embodiments of the invention, construed singly and collectively, will enable the reader to obtain a clear and comprehensive understanding of the generic as well as the specific aspects of the overall concept and, under the circumstances, a more extended description is deemed to be unnecessary.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. As an article of manufacture, a honey-bee feeder consisting of plastic molded container means including a horizontal bottom wall having a generally elongated rectangular configuration, and narrow vertical end walls rising therefrom that taper slightly outwardly as

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they rise to the top of the container means and then curve both inwardly and outwardly, in horizontal directions, the outward curve forming outstanding overhanging lugs for reception by rails within a beehive from which a brood frame has been withdrawn, said lugs being narrower than the vertical end walls and centrally oriented thereby spacing the lugs from adjacent brood frames, elongated vertical sidewalls similarly tapering slightly outwardly as they rise to the top of the container means, all of said vertical outwardly tapering walls assisting bees in crawling in and out, and, at the top of the container means, the vertical sidewalls curve inwardly to meet with the inwardly curved portions of the end walls, and they also meet at a central area of an upper portion to form a partial top wall for the container means, further providing a pair of openings in said partial top wall leading to a single, hollow interior

6

space bounded by said bottom, end, side and top walls, the inwardly curved portions forming the partial top wall with two openings further rigidifying and strengthening the overall container means by the joined portions of the partial top wall, all of the interior walls during their plastic molding procedure being given a roughened interior surface to further assist bees in climbing in and out of the container means, said bottom wall further having transversely positioned concavo-convex exterior beads extending for the full width of said bottom wall and adjacent the longitudinal extremities of said bottom wall, said beads serving as feet or legs to elevate said bottom wall above a bottom of a beehive in which it may be inserted said feet or legs providing a crawl space for bees adjacent the container means within a beehive.

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