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- (54) **HOPPER TYPE WILD BIRD FEEDER**
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(57) **ABSTRACT**

There are generally two styles of modern bird feeders: the tubular feeder with a tubular reservoir and several perches attached to the tubular reservoir at various positions around the reservoir, and the more traditional rectangular bin style with one or two feeding stations. These bin feeders are constructed to feed only general bird seed of mixed variety and are not selectively configurable to feed a specific small seed like thistle. The disclosed bin feeder includes removable and repositionable bin sidewalls with appropriately shaped upper and lower longitudinal edges to exclusively provide appropriate openings for thistle feed along one of the longitudinal edges or an appropriate opening for generally larger seed along the other of the longitudinal edges.

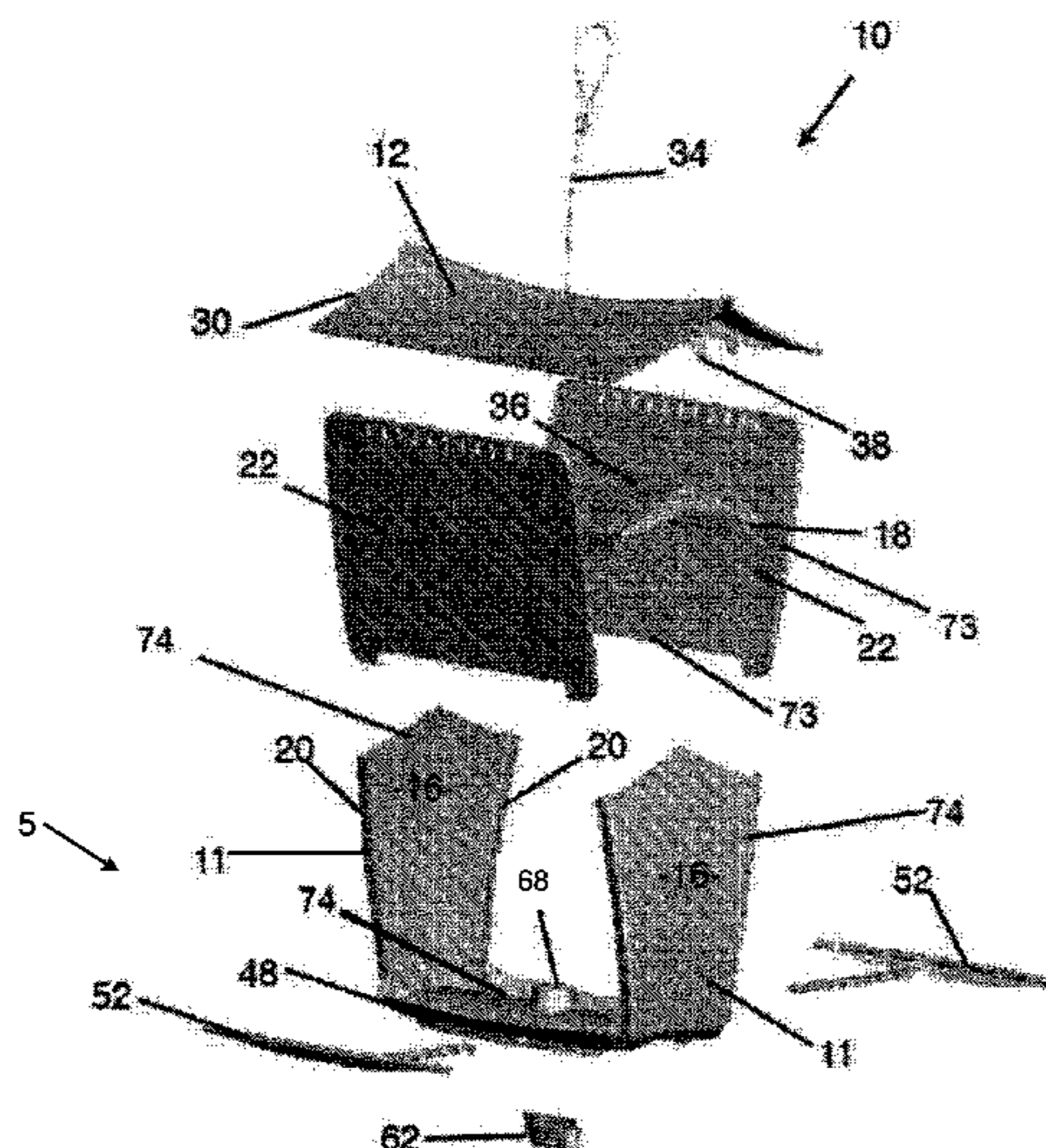
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See application file for complete search history.

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14 Claims, 13 Drawing Sheets



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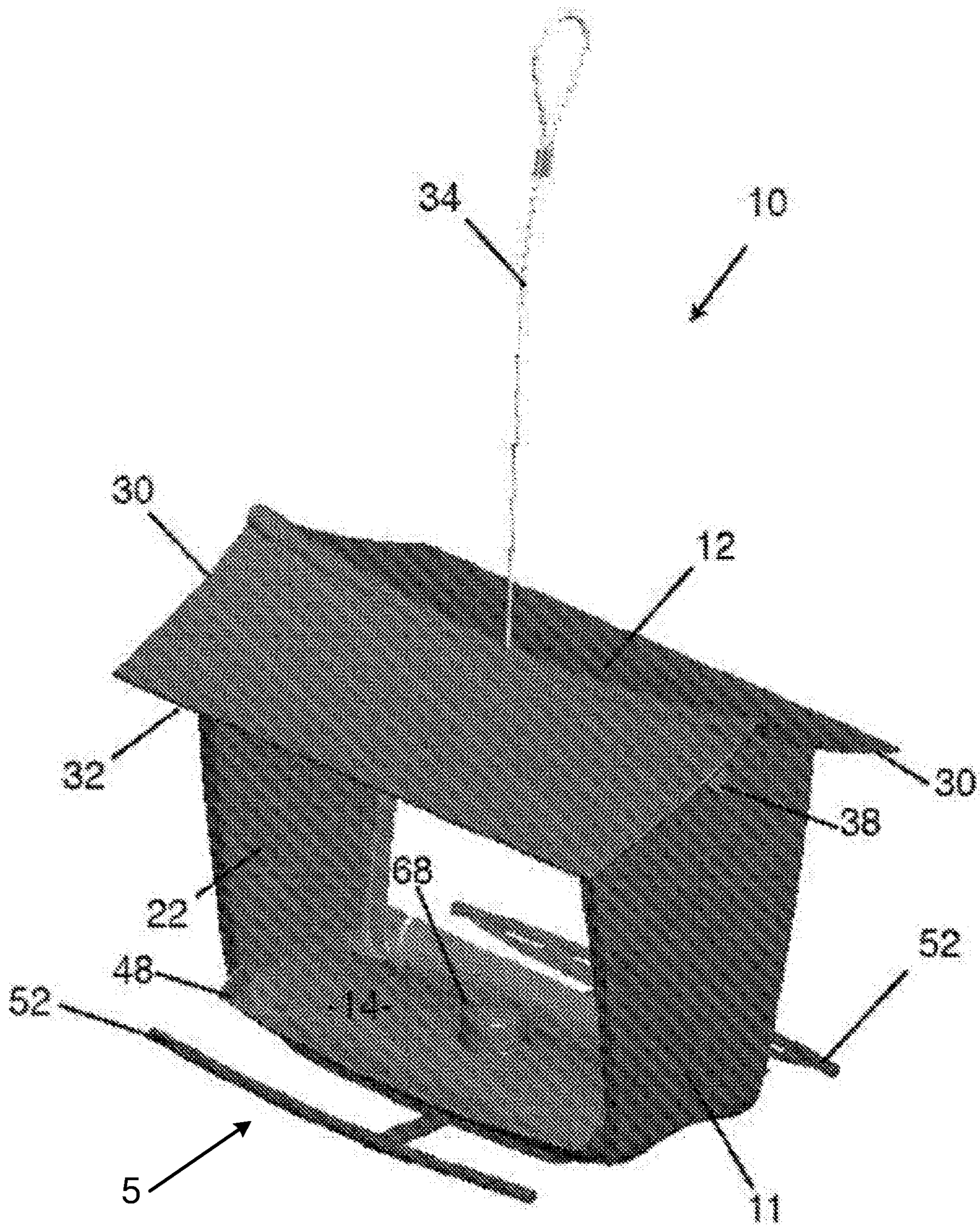


FIG. 1 Amended

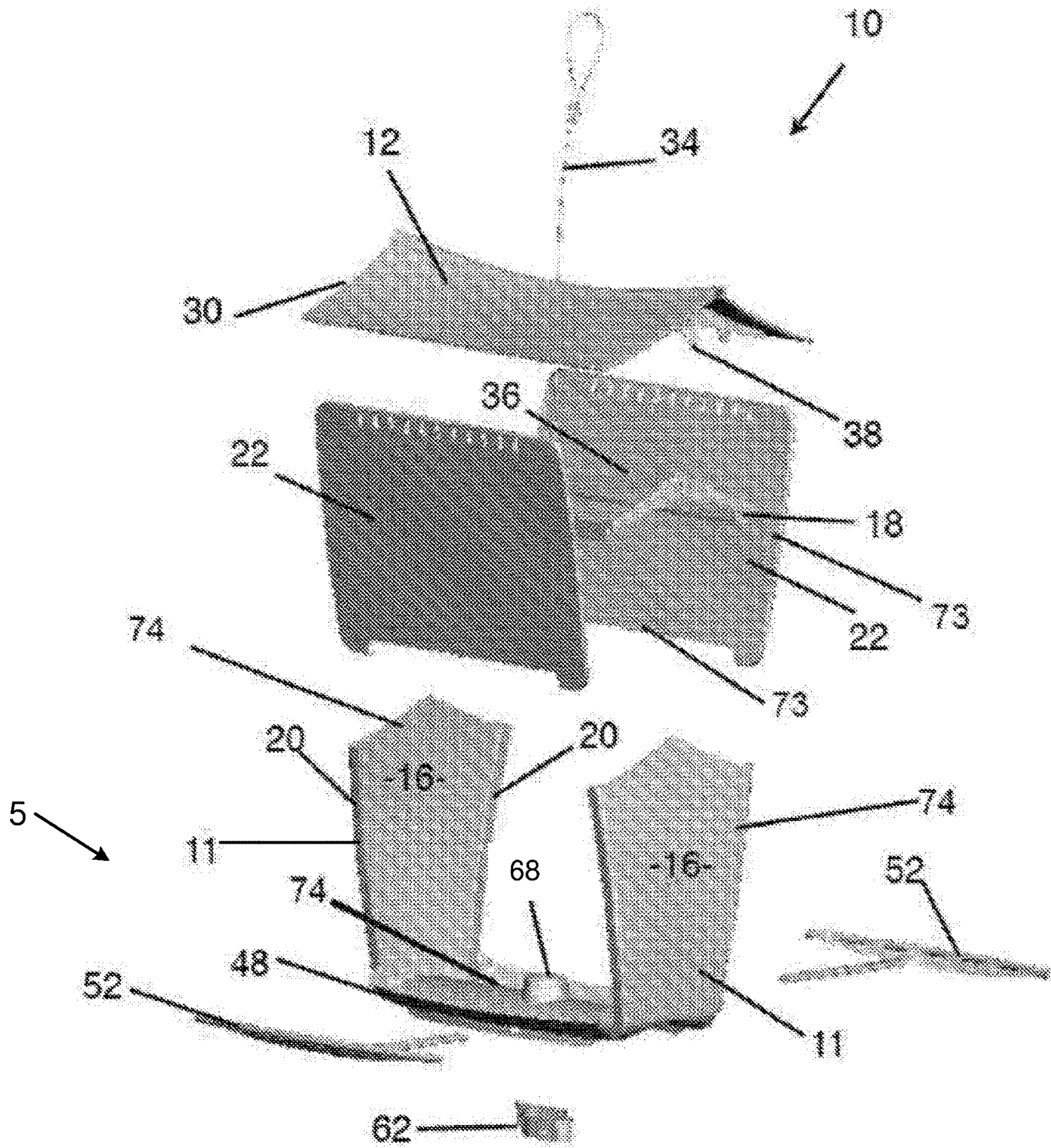


FIG. 2 Amended

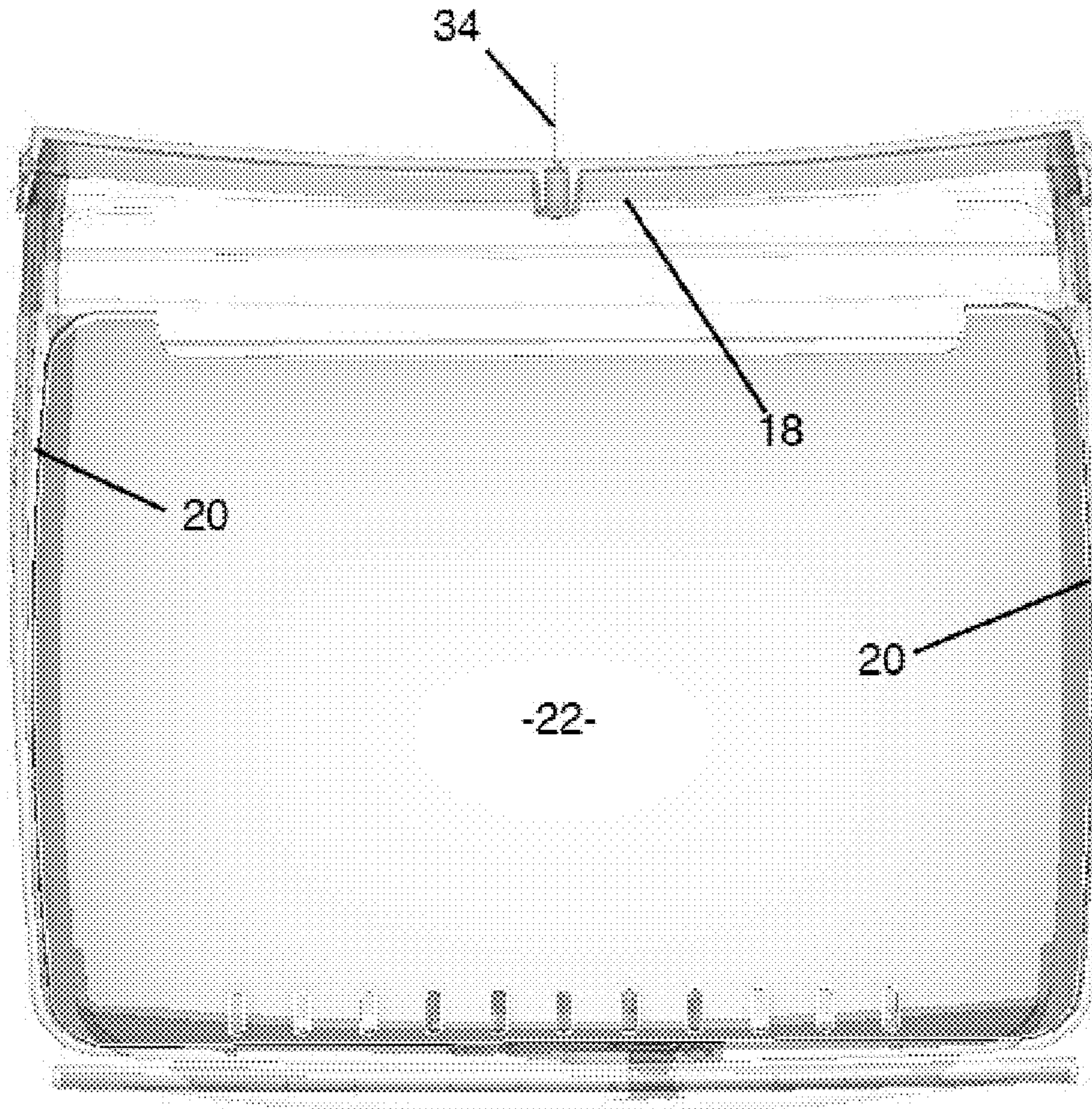


FIG. 3

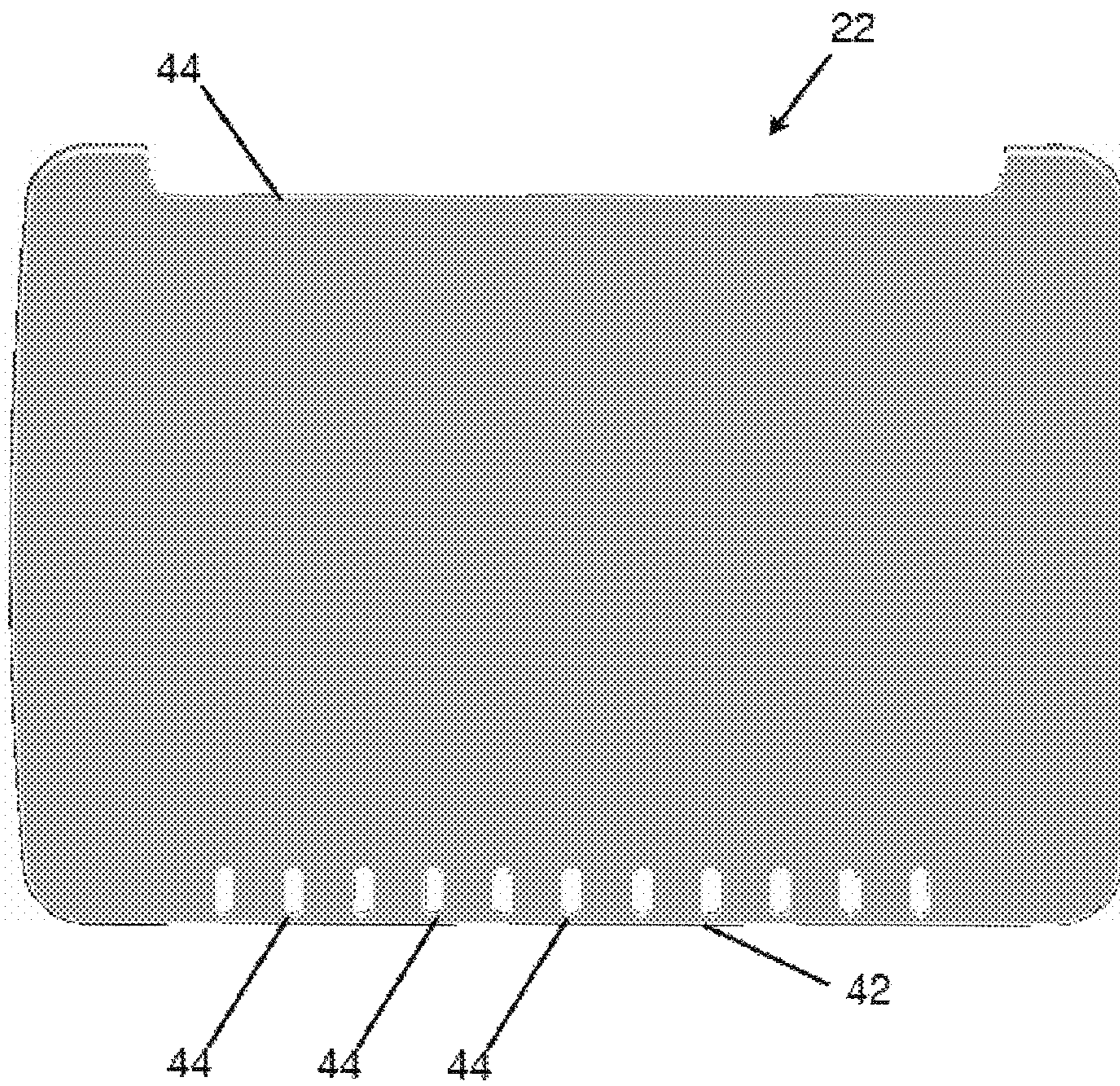


FIG. 4

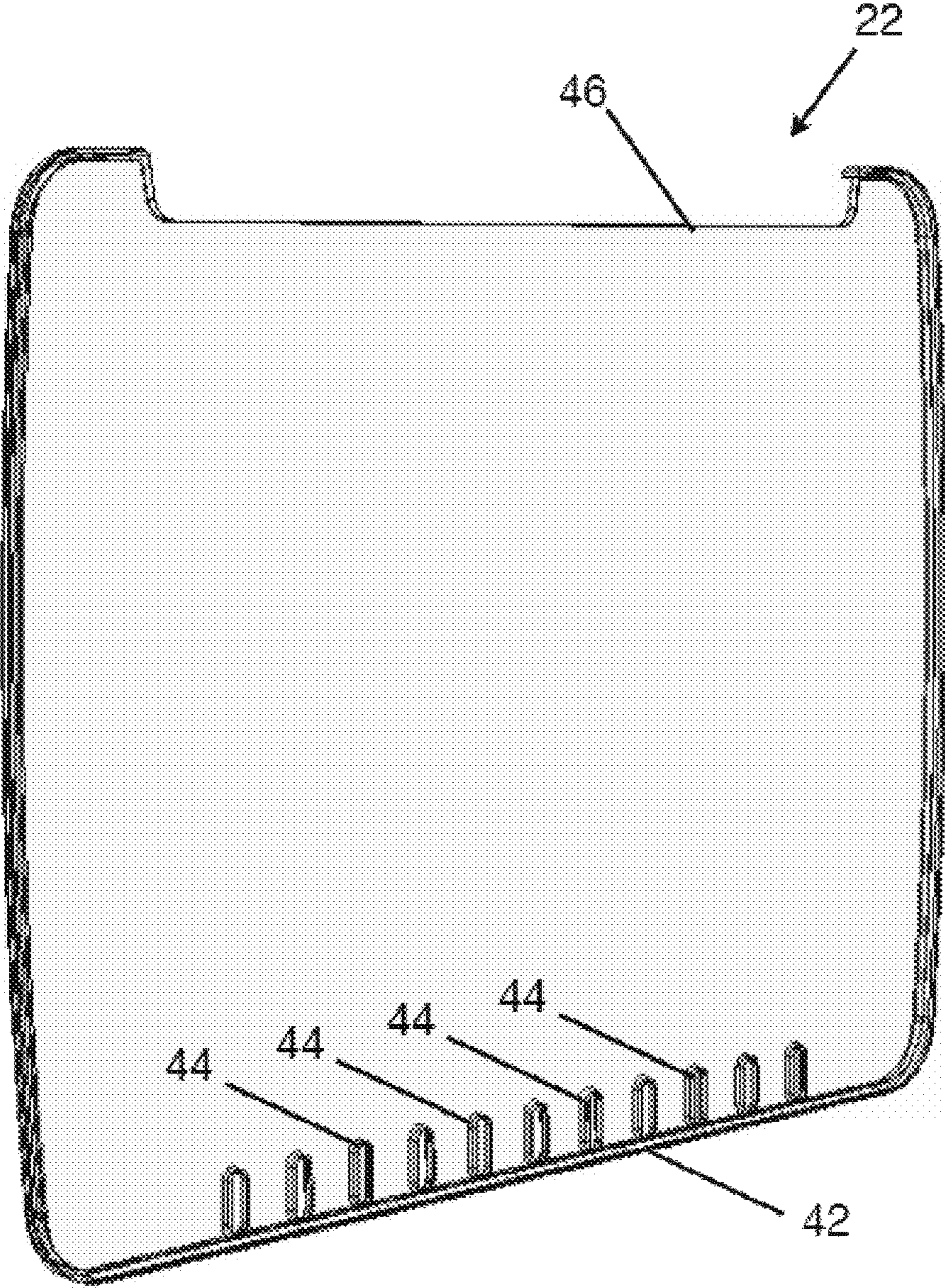


FIG. 5

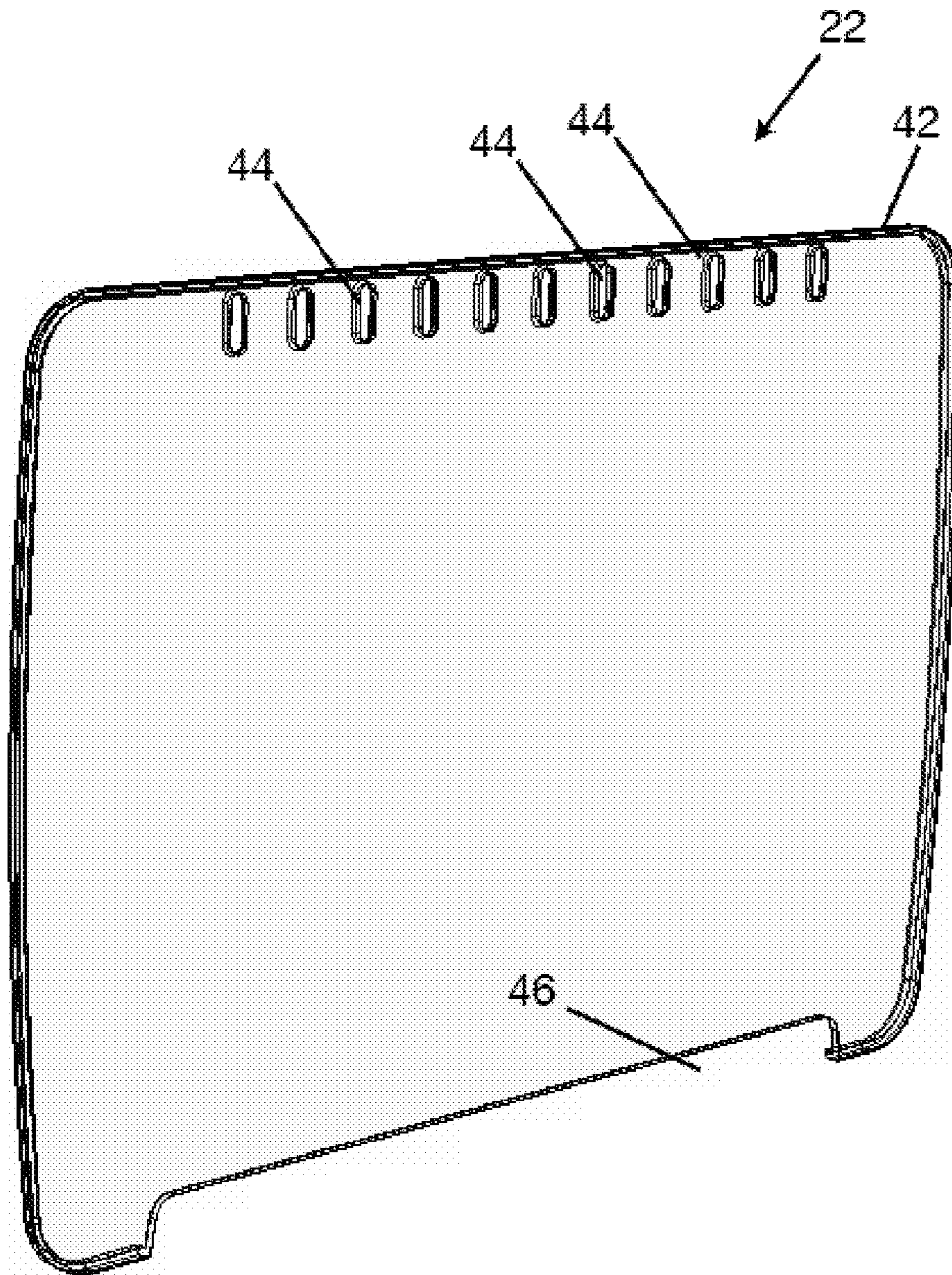


FIG. 6

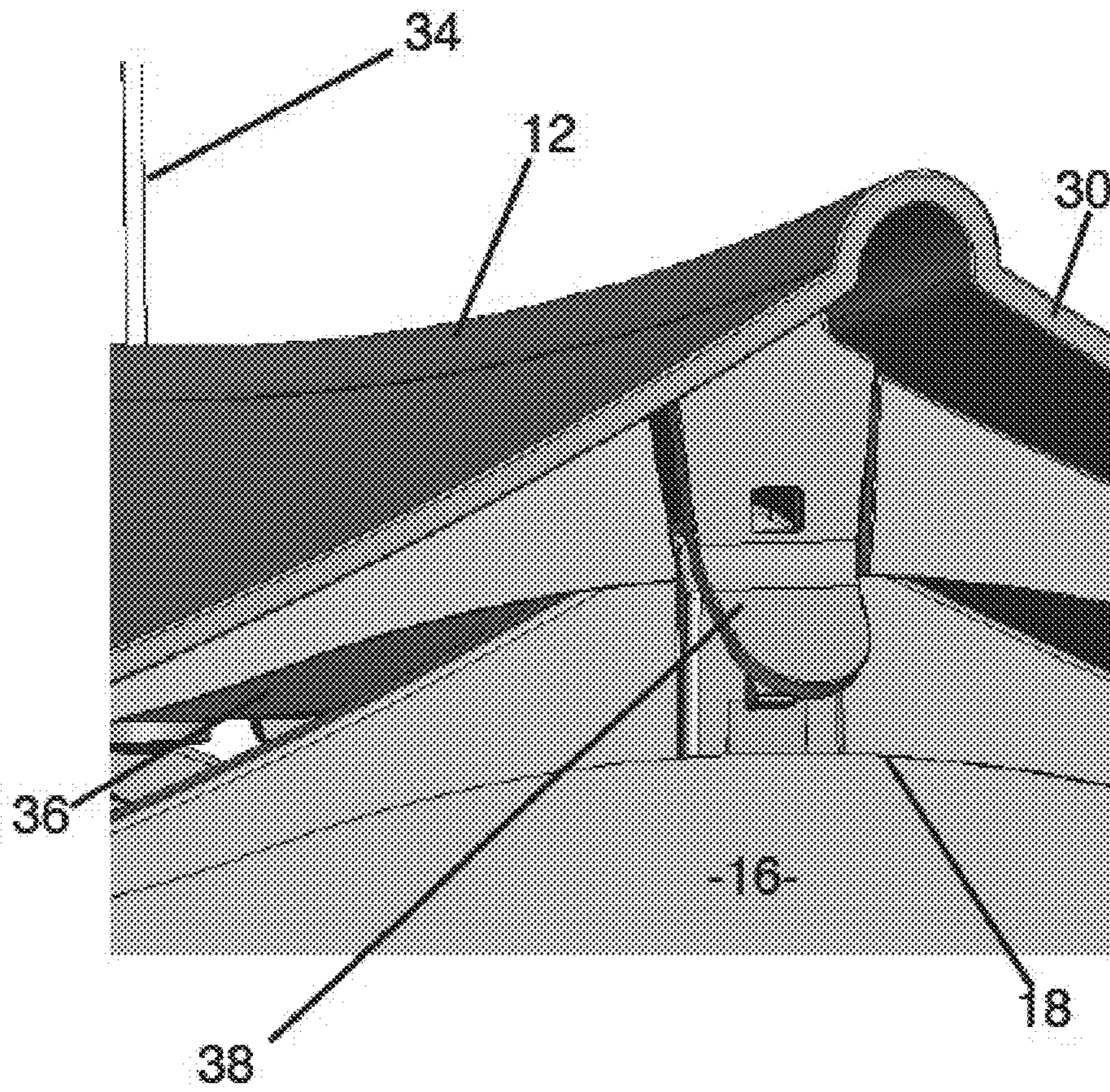


FIG. 7

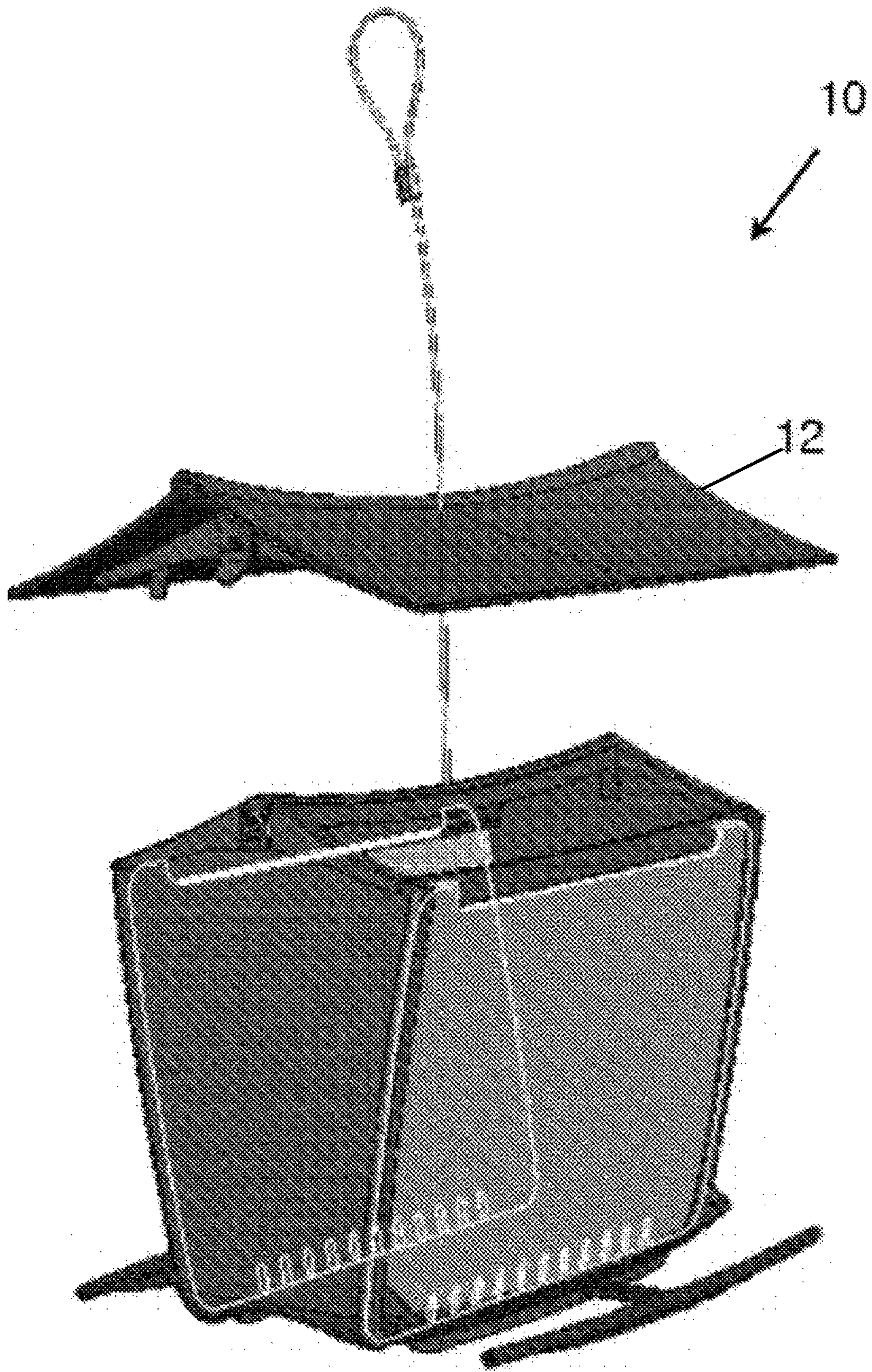


FIG. 8 Amended

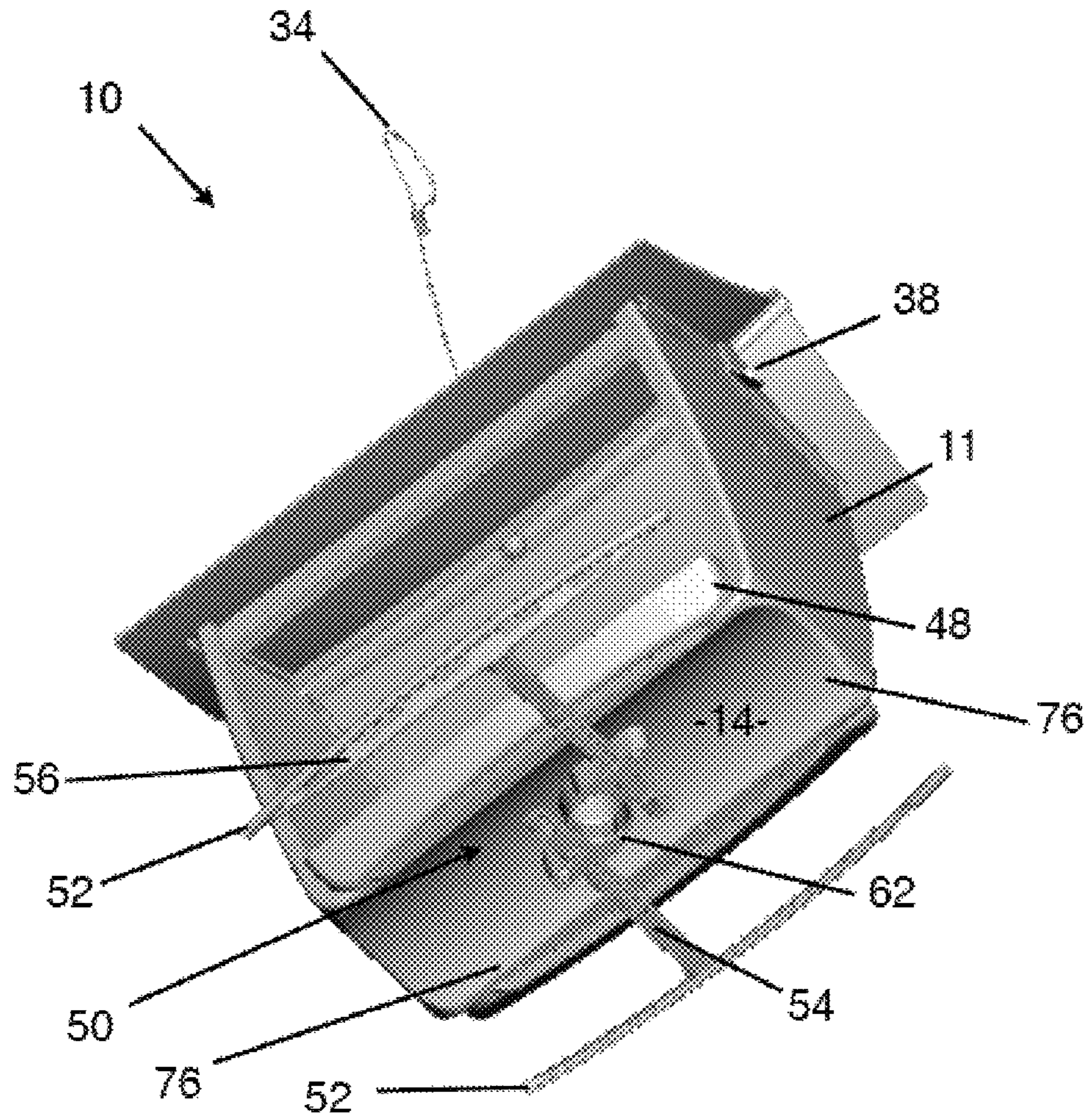


FIG. 10

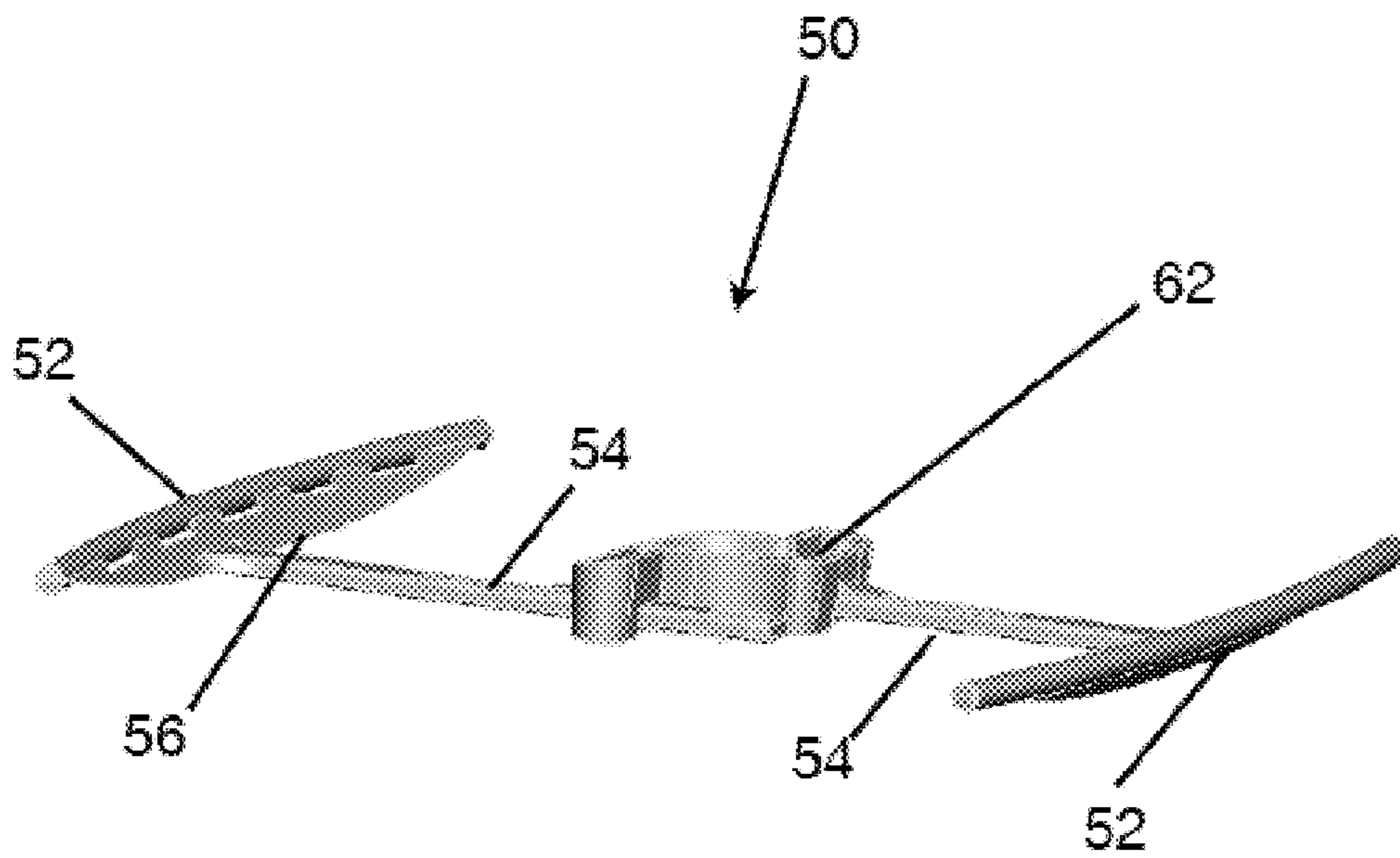


FIG. 11

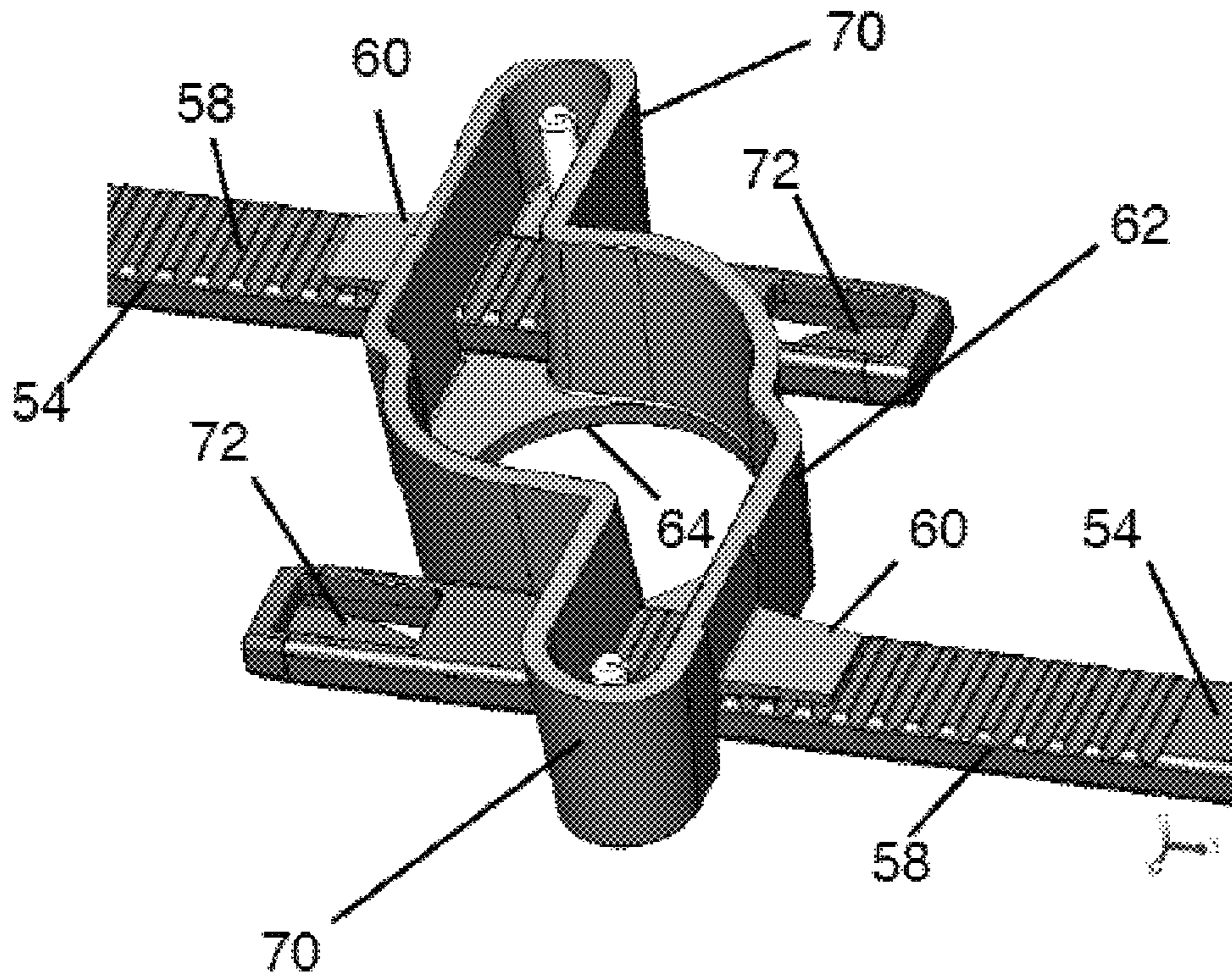


FIG. 12

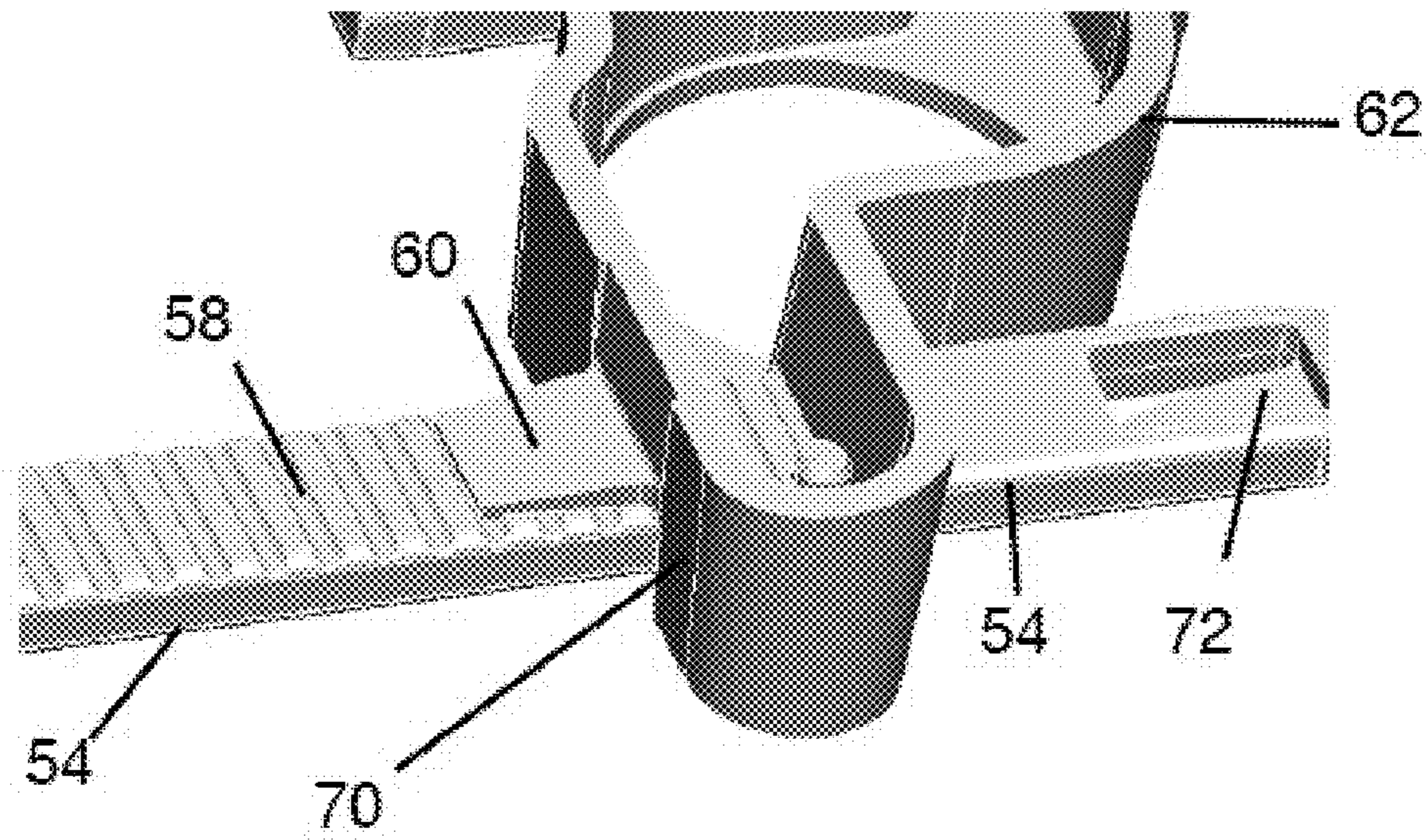


FIG. 13

HOPPER TYPE WILD BIRD FEEDER

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

BACKGROUND

This application claims benefit from provisional patent application Ser. No. 61/330,842 which was filed May [13] 3, 2010.

A traditional style of feeder for presenting seed to wild birds is the hopper style. This feeder is usually rectangular with a gable roof to protect the bin containing the seed, and a pair of window sidewalls forming the front and back walls for the bin. These sidewalls form a slot at the bottom of the bin for the seed in the bin to spill out onto a tray. Birds stand along the edges of the tray and feed from the spilled seed that seeps below the sidewalls of the hopper into the tray.

It is usual for these two sidewalls to be made of transparent material, usually a rectangular panes of plastic. This permits the owner of the bird feeder to see from a distance whether the bin needs to be refilled with birdseed.

Another type of feeder available from Cedar Works includes a single transparent sidewall made of a polymer sheet. This sidewall has a single notch along one edge. This sidewall can be removed from the slots in which it normally rests, the slots extending along the edges of the lateral walls. These lateral walls are made of wood. The transparent sidewall is accessed through a hinged lid which normally overlies the upper edge of the sidewall. This sidewall can be removed and flipped over, placing the notch either along the top edge or bottom edge of the sidewall. When the notch is positioned at the upper edge of the sidewall this feeder is intended for squirrels only. The owner of the feeder can enjoy watching this squirrel lift the hinge lid and reach inside to feed on the corn or other seeds in the bin. Alternatively the sidewall can be placed so that the single slot is located at the bottom. In this condition the seed is able to spill out on to the flat trough in front of the sidewall, so that birds as well as squirrels can be feed simultaneously from the same supply of seeds.

However there are other styles of feeders, for example tube style feeders that are intended to feed birds only. Among such tube feeders are feeders with very small restricted feed ports sized to permit small birds such as finches to access thistle seeds, apparently one of such small bird's favorite foods. Other feeders have a substantially larger port for feeding larger seeds to larger species of birds. There are also tube type feeders with adjustable or two position feeder ports. These feeders have rotating or sliding shutter that changes the size of the seed port from that appropriate for feeding the small thistle seeds, or alternatively the shutter is moved to expose or create a larger port for the passage of large seeds.

SUMMARY

Disclosed is a bin type feeder for wild birds with gable roof and adjustable perches that can be spaced controllably from a pair of oppositely facing sidewalls with feeding troughs at the lower edges of these sidewalls. These sidewalls are removable and reversible so that small feeder ports

located along one longitudinal edge of the sidewall can be positioned either along the bottom edge adjacent the feeding trough to form a feeder specifically designed to feed small thistle type seed, or the sidewalls can be inverted to properly position a single broad slot or arch formed along the bottom edge of the sidewall. In this configuration the bin type feeder is appropriate for feeding bird feeds that include large seeds like sunflower seeds, with the small thistle-sized ports positioned along the uppermost edge of the sidewall out of access or contact with the supply of seed contained in the bin.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is the perspective view of the bin type feeder according to this disclosure with thistle type ports aligned along the lower edge of the removable transparent sidewall.

FIG. 2 is an exploded view of the parts is to assemble the bin type feeder of FIG. 1.

FIG. 3 is an elevation view showing the sidewall in place in slots along the side of the bin.

FIG. 4 is an elevation view of the removable and adjustable sidewall.

FIG. 5 is the perspective view of sidewall of FIG. 4.

FIG. 6 is the sidewall with the thistle type seed ports along its upper edge and the single open arch forming a large seed port along the bottom edge.

FIG. 7 the close up view of the finger operated detained latch located at the ridge of each gable end of the gable roof.

FIG. 8 shows a partially transparent view of the bin with the gable roof slid upwardly to expose the upper edges of the bin sidewalls.

FIG. 9 is a close up view of the bin with the lid removed.

FIG. 10 is a perspective bottom view showing the adjustable perch assembly.

FIG. 11 is a detailed perspective view of the adjustable perch assembly.

FIG. 12 is a detailed view of the combination pole support and adjustable perches.

FIG. 13 is a close up view of the detent used to control the positioning of one of the two adjustable perches.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the accompanying figures, the feeder 10 has one or more feeding stations 5, such as feeding troughs 48, adjacent corresponding perches 52 and a bin 75 with sides that include at least one removable sidewall 22, and end walls 16, shown here as gable ends. All sides have edge portions, sidewall edge portions 73 and end wall edge portions 74, some of which, specifically the inward facing grooves 20 on the end wall edge portions 74, are sized and positioned to releasably hold a portion of the removable sidewalls.

As seen in the figures, the disclosed bin feeder 10 for wild birds is preferably made of an assembly of eight injection molded parts, and five fasteners. The hopper chassis 11 is an injection molded part with a substantially horizontally extending base which forms the floor 14 of the seed supply bin and generally upstanding end walls 16 integrally molded with the base. These end walls define a generally trapezoid shape with a wider upper portion and narrower bottom portion. The end walls are held in proper position by the hopper hanger panel 18 which extends across the upper most

edges of the end walls. The hopper panel is fastened to the end walls at each end by a single self-tapping pan head screw.

A pair of adjustable perches is attached to the bottom surface of the bottom wall by the perch mount. The pair of adjustable perches and perch mount will be detailed below.

As shown in the figures, the end walls of the hopper chassis have inwardly facing grooves **20** to receive the corresponding edge portions of pair of specially formed sidewalls. These sidewalls **22** and **22** are preferably comprised of rectangular panels of die-cut polymer sheeting. These sidewalls are preferably transparent or at least translucent to permit the owner to assess at a glance whether the supply of seed contained in the seed bin formed between the end walls the removable side walls **22** and beneath the roof **12** is adequate or needs to be replenished.

Above all these parts and assemblies, a roof extends to shelter most of the rest of the construction from precipitation. The roof preferably has a gently sloping gable shape with protruding gable ends **30** and protruding rake edges **32** that form an overall look of a small gabled house. A robust wire or cable hanger **34** extends from a point where it is fixed at the geometric centre of the ridge beam portion **36** of the hanger panel **18**, then up through a hole through the corresponding center of the roof, to an attachment loop at its distal end. As will be detailed, the roof has a pair of flexible finger-operated detents or latches **38** and **38** that snap onto and release from protrusions at the ridge of the gable ends of the hanger panel. Once the latches **38** are released the roof can be slid upwardly on the hanging wire to permit access to the large rectangular opening at the top of the bin for replenishing the seed in the bin hopper.

The removable roof also permits the side walls to be removed and selectively repositioned for dispensing either small thistle-type seed or larger general type seed, as will be detailed.

The removable and reversible sidewalls **22** are generally of uniform thickness but have a specific and precise overall planar shape. The shorter sides are gently curved to correspond approximately to the curving shape of the bin chassis end walls and to slide into and out of the slots **20** mentioned above formed between portions of the hanger panel and the hopper chassis **11**. The longitudinal bottom edge **42** (refer to FIGS. **4** [and], **5**, and **8**) is generally straight with a row of several, preferably about a dozen, small elongated slots or ports **44** spaced just above the lowermost edge. These slots are sized to dispense in a controllable manner thistle seed and to help restrict larger birds from accessing the thistle seed. The sizing of these thistle seed ports is well known in the industry, but preferably these thistle seeds ports are about $3\frac{1}{2}$ mm wide \times 1 cm tall and round at the top and bottom. A single long arch shaped indentation constitutes the majority of the upper longitudinal edge **46** of the side wall panel. This has an overall dimension approximately 10 to 12 cm in overall width and about 2 cm tall. For thistle feeding, both panels are placed in their respective slots **20** on each side of the bin chassis with the thistle ports **44** along at the lower edge as shown in FIGS. **4** and **5**. If the user decides to feed larger seeds, each of the side walls is removed from their slots **20**, flipped over, and positioned as shown in FIG. **6**, that is, with the large arch shaped indentation **46** facing downwardly and thus aligned along the bottom-most portion of the seed supply. Consequently the thistle seed ports are along the now upper edge of the side wall in close proximity to the roof when the roof is in its latched position.

FIG. **7** shows a detail of the latching engagement formed along at the upper edge of the bin and walls and the

corresponding portion of the hopper hanger panel. A single sloping detent is formed in the end of the hopper panel which normally rests in a correspondingly shaped opening in the centre of the flexible finger-operated latches **38** at each end of the roof. This latch is designed to resist accidental opening and to resist being opened by a hungry squirrel or the like.

When assembled in the thistle seed feeding configuration as seen in FIG. **9** the thistle ports are lined in close proximity to the bottom of the bin, adjacent the feeding trough **48** integrally formed along each lateral edge the bin floor. The bottom of the bin floor arches up in the middle to help move the supply of seeds towards these thistle ports at the feeding station **5** for feeding such small birds. Each of the two perches can be adjusted accordingly as will be detailed.

Referring to FIG. **10**, the relationship of the adjustable perch assembly **50** and the rest of the bird feeder can be seen. The adjustable perch assembly **50** is positioned inboard of the floor edge portions **76**. One can see the pair of feeding troughs **48** and **48** adjacent the perches **52**. These are relatively small feeding troughs to retain the seed immediately next to the thistle ports or to the single arch large seed port. Projecting beyond the edge of each trough, an arch-shaped elongated perch **52** is cantilevered from the bottom of the bin by a detented support arm **54**. Each perch has a structural member **56** which helps support the relatively small diameter stick-like perch grip. The detented elongated support arm is integrally formed with this arch shaped support, forming a single injection molded construction.

The upper surface of the elongated support **54** includes a series of indentations or detents **58** which receive an end of a flexing finger **60** integrally formed in the perch mount **62**. This flexing finger ratchets into and out of the indentations to hold the perching at an optimum position spaced from the outermost edge of the feeding trough.

Referring to FIGS. **11** through **13** the hopper perch mount **62** has the overall shape of a Z. The center portion **64** forms a cylindrical cavity which is continuation of the cylindrical receiver **68** shown, for example, in FIGS. **1-2**, in the floor of the hopper chassis, and thus forms a fairly secure and convenient pole mount if the owner chooses to support the in feeder on a slim pole. This is sometimes desirable since the feeder is designed to feed birds only, not squirrels. Sometimes squirrels can be prevented from accessing the bin feeder by fastening it to a tall, smooth pole to keep squirrels from reaching the feeder by climbing the pole, and erecting the pole far from trees where a squirrel might jump down onto the feeder from an adjacent tree.

The perch mount also includes two laterally extending perch support receivers **70**. These have correspondingly shaped rectangular holes in the opposed walls of each receiver, one wall having the integrally formed detent finger extending from its outer face. Note that the distal end of the perch support includes a detent finger **72** that flexes into the rectangular holes of the receiver **70** of the perch mount when the perch support is first inserted into the perch mount, but springs outwardly to prevent the perch from being completely removed from the perch mount. When the bin feeder is sold, the perches are pushed into and up against the lower edge of the bin chassis for reduced shipping volume and display but each perch can be pulled out to an optimum position for the particular birds sought to be attracted to the feeder by ratcheting the perch support out to that position. The perch supports are offset from one another to permit the supports to bypass each other in this fully retracted or collapsed state, as well as pass to each side of the pole mounting receiver or cavity. When erected and set to feed

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birds, the owner would pull outwardly on the perch support to the chosen perch position, which position will be held by the disclosed detent ratchet, etc.

The invention claimed is:

1. A feeder for wild birds comprising:

a bin having edge portions and a feeding station, the bin adapted to hold bird seed; and

at least one sidewall having a first edge disposed opposite a second edge, the first edge having a relatively large slot and the second edge having a plurality of relatively small ports, the sidewall being invertible, such that the edge portions of the bin are adapted to receive the sidewall in an orientation based on a size of the bird seed, the orientation positioning the first edge adjacent to the feeding station where the size of the bird seed is relatively large and the orientation positioning the second edge adjacent to the feeding station where the size of the bird seed is relatively small; and

a perch positioned adjacent to the feeding station, an elongated support member engaged to the perch, the elongated support member including a plurality of ratchet detents, where the support member is received in a ratchet perch mount mounted to and below a floor of the bin.

2. The feeder of claim 1, wherein the ratchet perch mount includes a flexible finger to engage the plurality of ratchet detents and hold the perch at a one of a plurality of distances away from the feeding station.

3. The feeder of claim 1, wherein the floor includes edge portions, the ratchet perch mount positioned inward from the floor edge portions.

4. The feeder of claim 1, wherein the ratchet perch mount is positioned adjacent to and coaxial with a socket to engage an end of a support pole.

5. The feeder of claim 1, wherein the bin includes a floor defining a socket adapted to engage an end of a support pole.

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6. The feeder of claim 1, wherein the feeding station includes a trough adapted to receive the large seeds via the large slot and the small seeds via the plurality of small ports.

7. The feeder of claim 1, wherein the slot is defined by tabs located at opposite sides of the first edge and a gap extending along the first edge between the tabs.

8. The feeder of claim 1, wherein the at least one sidewall is transparent.

9. The feeder of claim 1, wherein the at least one sidewall is a panel of substantially uniform thickness.

10. The feeder of claim 1, further comprising: a roof adapted to engage the bin to cover the supply of seed.

11. The feeder of claim 10, wherein the roof defines an opening to receive a hanger wire engaged to a ridge beam of the bin, and where the roof is detachable from the bin.

12. A feeder for wild birds comprising: a bin having a feeding station, the bin adapted to hold a supply of seed;

at least one sidewall having a first edge and a second edge, the first edge having a relatively large slot and the second edge having a plurality of relatively small ports, the at least one sidewall being invertible such that either the first edge or the second edge may be selectively positioned adjacent to the feeding station; and

a perch including a support defining a series of ratchet detents, the support projecting from an inboard receiver mounted to the bin and received in a ratchet perch mount permitting the perch to be positioned at varying distances from the feeding station.

13. The feeder of claim 12, wherein the large slot is sized to permit relatively large seeds to pass therethrough and the small ports are sized to permit relatively small seeds to pass therethrough.

14. The feeder of claim 12, wherein the inboard receiver is positioned adjacent a socket adapted to engage an upper end of a support pole.

* * * * *