



(22) Date de dépôt/Filing Date: 1996/02/08

(41) Mise à la disp. pub./Open to Public Insp.: 1996/08/10

(45) Date de délivrance/Issue Date: 2006/07/25

(30) Priorité/Priority: 1995/02/09 (US08/385,854)

(51) Cl.Int./Int.Cl. *H01R 13/447* (2006.01),
H02G 3/14 (2006.01)

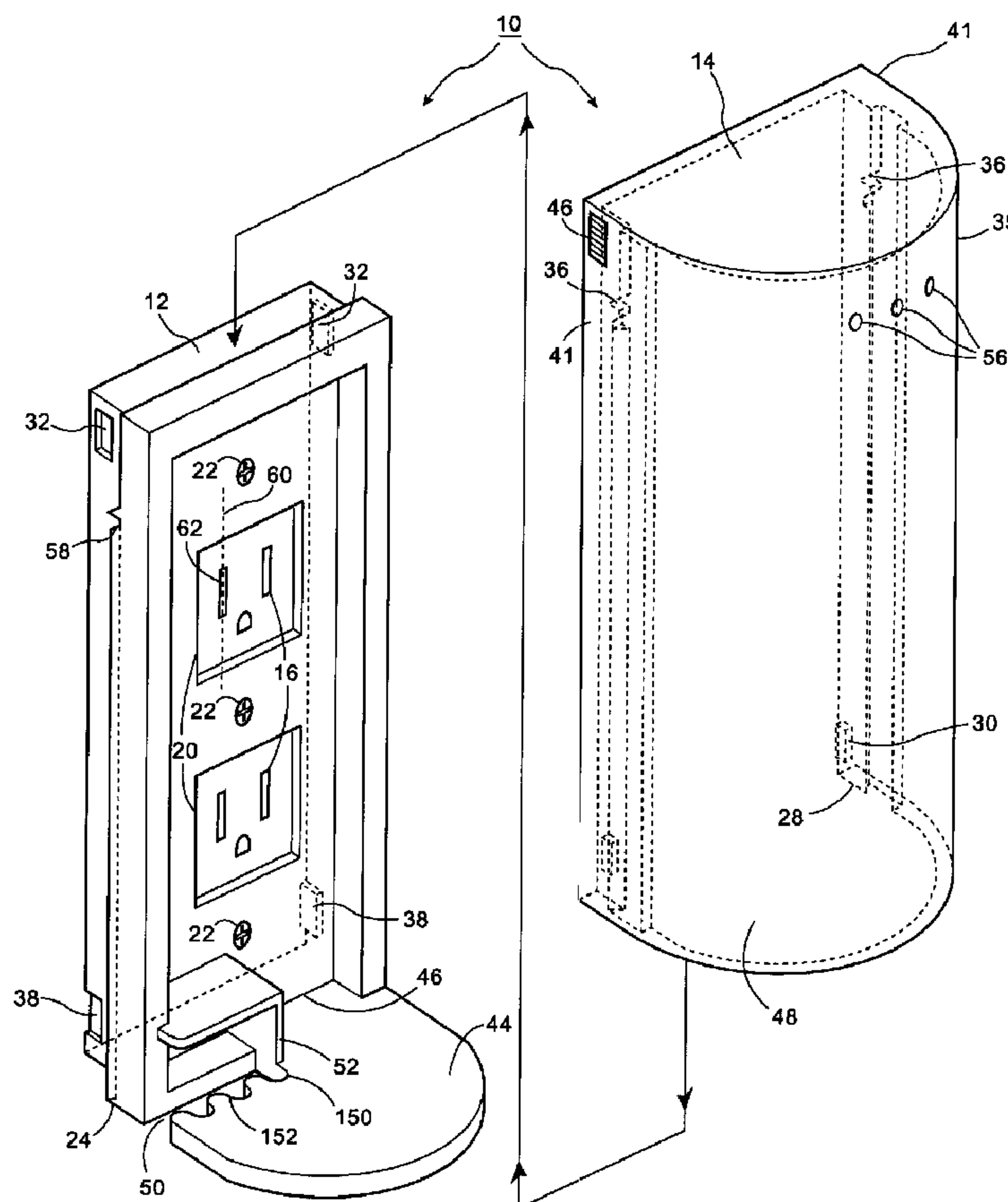
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(54) Titre : PLAQUE DE PROTECTION POUR SORTIE ELECTRIQUE

(54) Title: SHIELD FOR ELECTRICAL OUTLET



(57) Abrégé/Abstract:

The present invention is a shield for an electrical outlet assembly typically located in a wall opening which has at least one plug receptacle and a fastening aperture. The shield comprises a base plate which is securable to an electrical outlet assembly and has



(57) Abrégé(suite)/Abstract(continued):

openings to permit electrical cords to plug into receptacles when the base plate is secured to the electrical outlet. A cover, cooperates with the base plate, and has an open position enabling access to the plug receptacles, and a closed position wherein the cover together with the base plate define an enclosed space. The enclosed space is of sufficient size to house the outlet assembly and any conventional plugs inserted in the receptacles. The cover slidably engages the base plate in a given direction from an open position to a closed position and vice versa. The slidably engaging mechanism provides resistance to removing the cover in other directions. There is also passageway through the shield dimensioned for the passage of one or more electrical cords out of the shield. The passageway is defined by the base plate or the cover or both, and in the closed position the outlet assembly and plugs are covered by the shield with the cords emanating from the passageway.

ABSTRACT OF THE DISCLOSURE

The present invention is a shield for an electrical outlet assembly typically located in a wall opening which has at least one plug receptacle and a fastening aperture. The shield comprises a base plate
5 which is securable to an electrical outlet assembly and has openings to permit electrical cords to plug into receptacles when the base plate is secured to the electrical outlet.

A cover, cooperates with the base plate, and has an open position enabling access to the plug receptacles, and a closed position
10 wherein the cover together with the base plate define an enclosed space. The enclosed space is of sufficient size to house the outlet assembly and any conventional plugs inserted in the receptacles. The cover slidably engages the base plate in a given direction from an open position to a closed position and vice versa. The slidably engaging mechanism provides
15 resistance to removing the cover in other directions. There is also passageway through the shield dimensioned for the passage of one or more electrical cords out of the shield. The passageway is defined by the base plate or the cover or both, and in the closed position the outlet assembly and plugs are covered by the shield with the cords emanating
20 from the passageway.

Title: SHIELD FOR ELECTRICAL OUTLET**FIELD OF THE INVENTION**

The present invention relates to devices for electrical outlets and is particularly directed at outlet covers or shields for use with exposed
5 electrical outlets of the type intended to have plugs inserted in the receptacles.

BACKGROUND OF THE INVENTION

Conventional household electrical outlets normally consist of a pair of vertically aligned receptacles fastened to a wall mounted
10 electrical box and covered by a face plate. The receptacles usually have sockets to receive two or three prong plugs. Typically the face plate is attached via a one screw aperture centrally located in the receptacle pair, or by two screw apertures located just above and below the receptacles. The receptacles, face plate and screw fastener may be referred to as an outlet
15 assembly. Conventional two receptacle electrical outlets are known as well as cable outlets, and multiply ganged outlets.

Domestic electrical outlets assemblies are normally located just above floor level in easy reach and sight of small children. Children can easily pull or pry on plugs, or put foreign objects into the receptacles
20 exposing themselves to electrical shocks and possible injury. Children tend to be particularly attracted to night lights which may also be pried or pulled free of the receptacle. Therefore there is a need for a device which can address these concerns.

Domestic electrical outlet assemblies may also be located in
25 high visibility or high traffic areas with plugs, cords or small night lights emanating which may be unsightly or easily dislodged. It is desirable that an outlet cover be aesthetically attractive and protect plugs from being accidentally dislodged.

There are a number of devices that have attempted to address
30 these concerns. Some of the devices exemplified in U.S. patent No. 4,793,818 by Poirer, U.S. patent No. 4,302,624 by Newman, and U.S. patent

No. 2,516,464 by Hooser, cover the electrical receptacles when not in use, but leave the plugs exposed when a protective cover must be moved to permit plugging into the receptacles.

Other devices have attempted to cover the receptacle with
5 plugs in place, exemplified in U.S. patent No. 3,491,327 by Thomas, U. S. patent No. 2,526,606 by Gregg and U.S. patent No. 4,070,078 by Chrones. To install the Thomas device, the outlet face plate is slightly loosened, and a cover designed to slide behind the face plate is wedged in place. The installation is somewhat by trial and error and there is no positive lock
10 provided for the cover. The Chrones device utilizes separate hinged covers for each receptacle and contains many components making it relatively complex and expensive to manufacture. The Gregg device is awkward to use and once the cover is removed, it can be lost or misplaced. None of the above devices have considered the protection of night lights.

15 There is a need for a simple, inexpensive, and attractive electrical outlet cover which can cover unsightly receptacle outlets (in use or otherwise) and prevent accidental dislodging of plugs.

There is also a further need for providing an electrical outlet cover which is tamper resistant to children, and prevents foreign objects
20 from accidentally making contact with the plugs or receptacles. There is a further need to have a universal device to fit on conventional and contemporary outlets that others are not able to fit to.

There is a further need for an attractive device which can prevent unwanted tampering by children with night lights plugged into
25 such a receptacle or with conventional and contemporary cords and plugs plugged into such a receptacle.

SUMMARY OF THE INVENTION

The present invention is a shield for an electrical outlet
30 assembly opening which has at least one plug receptacle and a fastening aperture. The shield comprises a base plate which is securable to the electrical outlet assembly and has openings to permit electrical cords to

plug into the receptacle when the base plate is secured to the electrical outlet.

5 A cover cooperates with the base plate and has an open position enabling access to the plug receptacles, and a closed position wherein the cover together with the base plate defines an enclosed space. The enclosed space is of sufficient size to enclose the outlet assembly and most conventional plugs inserted in the receptacles. There is a means for slidably engaging the cover to the plate, wherein the cover slides in a given direction relative to the base plate from the open position to the
10 closed position and vice versa. The slidably engaging means provides resistance to removing the cover in other directions.

There is also a passageway through the shield dimensioned for the passage of one or more electrical cords out of the shield. The passageway is defined by the base plate or the cover or both, and in the
15 closed position the outlet assembly and plugs are covered by the shield with the cords emanating from the passageway.

The shield is preferred to further comprise a means for locking the cover to the base, such that in the closed position the shield is resistant to opening by a child, and a means for holding the cover to the
20 base in the open position, such that the cover is held in the open position.

The base plate is preferred to be adapted to fit over an existing face plate using the fastening apertures in the existing face plate to secure the base plate to the electrical outlet assembly.

The preferred base plate also further comprises an enclosure
25 element extending outwardly from the base plate and the cover, an open portion which co-operates with the base plate to form the enclosed space in the closed position, and a means for blocking the passageway to prevent foreign objects from making contact with the plugs and receptacles.

BRIEF DESCRIPTION OF THE DRAWINGS

30 The invention will now be described by way of example only, with references to the following drawings in which:

Fig. 1 is an exploded perspective view of the base plate and cover, showing the base plate mounted over an electrical outlet and a co-operating cover;

Fig. 2 is a front elevational view of the base plate a preferred
5 embodiment of the present invention;

Fig. 3 is a side elevational view of the base plate and enclosure element shown in Fig. 2;

Fig. 4 is a cross sectional view taken along line A-A of Fig. 3;

Fig. 5 is a front elevational view of a preferred embodiment
10 of the cover;

Fig. 6 is a side elevational view of the cover shown in Fig. 5;

Fig. 7 is a cross sectional view of the cover taken along line B-B shown in Fig. 5; and

Fig. 8 is a cross sectional view of the cover taken along line C-C
15 shown in Fig. 5.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Fig. 1, a preferred embodiment of the present invention is a shield shown generally as 10, comprising a base plate 12, and
20 a cover 14. The base plate is shown mounted over a conventional electrical outlet having two receptacles 16.

Referring to Figs. 1, 2, 3 and 4 base plate 12, is provided with openings 20 to permit electrical cords to plug into receptacles 16 when base plate 12 is secured to the electrical outlet. Base plate 12 is screwed to the
25 electrical outlet through one or more apertures 22 which register with the fastening screw holes in the electrical outlet. Base plate 12 can be placed on or over an existing face plate or the face plate can be removed prior to installing the base plate. Placing the existing base plate on or over the existing face plate is preferred, because if the existing face plate is removed,
30 the base plate will have to be formed from flame resistant plastic and dimensioned in accordance with UL and CSA safety code regulation and testing. Thus a preferred form of the invention is one which merely fits

over an existing face plate. Also, this allows for the existing cover to be readily available when no longer using shield.

Referring now to Figs. 1, 5, 6, 7 and 8, cover 14 co-operates with base plate 12 by sliding over base plate 12 via a slidably engaging means in the form of dovetail shaped rails 24 extending along the outer sides 26 of base plate 12 and the inner sides 28 of cover 14. Rails 24 on base plate 12 slidably interlock in tongue and groove fashion with rails 24 on cover 14. Cover 14 slides over base plate 12 in a direction parallel to the rails, from an open to a closed position and vice versa. Rails 24 provide resistance to removing the cover in any other directions in the closed position.

The cover is preferably generally semicircular in cross section, having an internal diameter. While the cover 14 can be dimensioned to exactly engage the base plate 12, the most preferred form of the invention is for cover 14 to be slightly smaller at the base in internal diameter, than the width of rails 24 on base plate 12. In this manner, in the unstressed state of cover 14 (when cover 14 is not engaging base plate 12), there is an overlap between cover 14 and base plate 12 causing an interference fit between these elements which adds a frictional component or stickiness to their engagement. The amount of friction required is not great, and the amount of interference will vary depending upon the type of plastic used. Satisfactory results have been achieved with a 1/64 to 1/32 inch of overlap. It will now be appreciated that by using such an interference fit the cover will be trying to spring back to its unstressed position, which will have the effect of urging the cover 14 outwardly, away from the wall. This ensures the cover 14 is urged outwardly from the wall during use.

Referring now to all figures, in the open position the outlet assembly is exposed enabling access to the plug receptacles 16. A holding means in the form of male tabs 30 spaced from the bottom of cover 14 and located on inner sides 28, register in the open position with depressions 32 spaced from the top of base plate 12 and located on the outer sides 26. Tabs 30 registering with depressions 32 are sufficient to hold cover 14 in the

open position. Urging cover 14 over base plate 12 releases tabs 30 from depressions 32, allowing cover 14 to be moved into the closed position. These may not be essential if enough friction arises from the interference fit described above, but are nonetheless preferred to be included. It will be appreciated that the male tabs 30 and depressions 32 could be reversed to suit molding preferences if desired.

In the closed position cover 14 together with base plate 12 define an enclosed space of sufficient size to house the outlet assembly and most conventional plugs inserted in receptacles 16. In this sense conventional plugs means plugs of the type typically found at the end of conventional electrical devices such as lamps, small appliances, and Christmas tree light strings. While heavy duty appliances and extensions cords may also be accommodated in some cases, it will be appreciated that the very largest plug types may require a slightly larger cover than would otherwise be the case. For home use it is preferred to keep the device generally smaller and more compact, although the cover size may be varied to suit the application for instance. Further, the contemporary flat cords will work and may allow for a smaller depth.

A locking means in the form of wedge shaped ridges 34 on outer side 26 spaced from the top of base plate 14, registers with corresponding female wedge shaped indentations 36 on inner sides 28 spaced from the top of cover 14 thereby locking cover 14 in the closed position. Tab 30 registers with a recess 38 in base plate 12 which provides geometrical relief for tab 30 in the closed position. Using one wedge shaped ridge 34 will work, however a plurality are preferred, as this improves the child resistance as explained more fully below. Molding cost may make it too expensive to form wedge shaped ridges 34 and therefore tab 30 at base can be the additional locking arrangement. Note, if tabs 30 are used for locking at base then this would require rear of cover to be pulled out and raised, which again is a two-step in-locking arrangement.

With the wedge shaped ridges 34, pushing laterally, toward the wall (against the outward urging caused by the interference fit), on the

top portion of cover 14 using finger grips 40 and simultaneously urging it into the open position will release the engagement of ridges 34 from indentations 36 unlocking cover 14 and may be positioned at base as well. Finger grips 40 are located on a outer surface 41 of cover 14 to provide
5 additional contact friction between fingers and outer surface 41 of cover 14 to aid in unlocking. The geometry of the locking means, and the strength and dexterity required, make it difficult for a child to unlock cover 14 from the closed position.

Base plate 12 has an enclosure element 44 extending
10 outwardly from the lower edge 46 of plate 12, and cover 14 an open portion 48, such that the enclosure element 44 forms a bottom wall of the shield 10, and in the closed position base plate 12 and cover 14 form a generally complete enclosure around the electrical outlet. It is also preferred to oversize enclosure element 44 relative to cover 14, to again cause an
15 interference or friction fit. This ensures that the first disengagement of the cover from the base plate from the closed position requires some initial effort to overcome any stickiness. This also results in a slight outward taper of cover towards the bottom, when the cover is mounted on the base plate 12.

20 The shield has a passageway in the form of an inlet 50 in the enclosure element 44 which is dimensioned for the passage of one or more electrical cords out of the shield 10. A blocking means in the form of a stop plate 52 extends outwardly from base plate 12 such that stop plate 52 prevents foreign objects like spoons, forks, and knives, or other metal
25 objects from making electrical contact with the outlet assembly. The horizontal section 54 of stop plate 52 is spaced from and parallel to enclosure element 44. The blocking means, therefore, blocks the cord passageway or inlet 50 when no cord is in place.

The design of this passageway is such that it will accept round
30 cord or wide flat cord (3/4 inch) or so on Noma bars. Others may not be able to use flat cords.

Cover 14 is preferred to have a means for venting, such as small vent louvres or holes 56 to provide air exchange, and is preferably made of translucent material to allow light to pass through cover 14. The position, size and shape of the vent holes can vary, depending upon various parameters, such as the size of the enclosed space and air exchange necessary. In some cases, there may be enough air exchange through the outlet assembly itself.

It is apparent by changing the size of the shield various types and sizes of electrical outlets can be accommodated including multiply ganged outlets containing more than two receptacles. Various types and sizes of plugs, night lights, and other electrical devices plugged into the receptacles can also be accommodated by varying the size of the shield.

Preferably the present invention is moulded from plastic, such as polypropylene, polyethylene, polyester or others that will be known to those skilled in the art which are preferably clear or translucent (although solid opaque materials may also be used), readily mouldable, relatively strong and impact resistant and available in a range of colours and finishes. Preferably the dimensions of cover 14 are approximately: vertical height of 5.06", horizontal width of 3.5", depth of 2.4", a hemispherical outer radius of 1.75". The thickness of cover 14 is normally 0.13" except near the rails where it increases to .25". Base plate 12 is dimensioned to co-operate with cover 14 with preferably some interference of 1/32 to 1/64" between cover 14 and base 12 as discussed above.

In use, base plate 12 is placed over top of an existing face plate, typically flush against a wall, or the face plate can be removed before base plate 12 is placed flush against the wall. In either case the base plate is screwed to the outlet using aperture(s) 22 which register with the fastening screw holes in the electrical outlet. Slightly longer screws may be required, because of the additional thickness of the base plate 12 overlying the existing face plate.

Cover 14 is positioned vertically above base plate 12 and then lowered such that the tongue and groove dovetail shaped rails 24 slidably engage in a vertical motion until tab 30 registers with depression 32. A chamfered upper portion of rails 24 on base plate 12, namely shoulder 58, helps to ensure that the initial engagement of cover 14 with base plate 12 is smoothly and easily achieved. Cover 14 is now in the open position relative to base plate 12.

In the open position electrical plugs can be plugged into receptacles 16 and electrical cords emanating from the plugs are positioned to pass through inlet or passageway 50. The number and geometry of inlets 50 may vary, including a serrated inlet geometry that impinges on electrical cords passing through the inlet, such that the serrations provide resistance to pulling on the cords. The serrations may be generally rectangular, as shown at 150, to accommodate conventional household wires, or may be generally rounded, as shown at 152, and sized with approximately 3/8" radius to accommodate larger sized wires. Inlet 50 may also be placed relative to the blocking means or plate 52 so that pulling on a cord results in a force on the plug approximately parallel to a slot axis 60 passing through the longitudinal direction of a receptacle slot 62. This maximizes the resistance to pulling plugs out of the receptacle. The plate 52 also adds additional strain relief to the cord by causing the cord to bend around the plate 52 prior to exiting passageway 50.

From the open position, cover 14 can be vertically slidably lowered until tab 30 registers with recess 38 and ridge 34 registers with indentation 36 locking the cover in the closed position forming an enclosed space of sufficient size to house the outlet assembly and plugs inserted into the receptacles. Cover 12 cannot be easily removed from base plate 14 in the closed position due to the tongue and groove dovetail shaped rails 24 and ridge 34 and indentation 36 locking means.

In the closed position cover 14 can be unlocked by pushing toward the wall, on the top portion of the cover disengaging ridge 34 from indentation 36 and simultaneously urging the cover vertically upwards

laterally or if tabs 30 are used, then by pulling away sides of cover at base and raising while still needing to overcome friction. Finger grips 40 can be used to aid in the unlocking. It will now be appreciated that to be successful in unlocking the cover, both sides of the top of cover 14 will
5 have to be pushed in towards the wall and an upward force sufficient to overcome the stickiness of the fit between cover 14 and enclosure element 44 is required. It has been found that the necessity for two simultaneous actions is sufficient to render the cover substantially child resistant.

Small night lights may also be plugged into receptacles 16 and
10 housed within the enclosed space of shield 10. Cover 14 or entire shield 10 may be made of translucent plastic to allow light from a night light to pass through and illuminate surrounding areas. It will also be appreciated by those skilled in the art that shield 10 may have a number of geometries including but not limited to the generally semi-circular cross sectional
15 shape shown in Fig. 1, or alternatively, a box shape, a silo shape, a wedge shape or a combination of these shapes. All that is required is that the closed position be one which forms an enclosure of sufficient size to accommodate, on the one hand conventional plugs, and on the other hand, a night light.

20 Also, it will be appreciated that various colours and finishes, textures such as chrome, bronze, and the like, could be used to allow the device to blend into the surrounding decor of the room which it is used in. Thus in addition to being a safety device, the present invention offers improved aesthetics over a conventional uncovered wall receptacle.
25 Various covers could be used with the same base plate to suit changes in interior decorating. Further it will be appreciated that a sealing gasket (shown as 200) could be added to the rear of base 12, to facilitate outdoor use. The sealing gasket would be in the shape of a rectangular strip to follow the inside edge of base plate 12. It will now be appreciated that for
30 outdoor use the dovetail groove between the cover and the base plate will add to the water and weather resistance of the device. Essentially water will have a difficult time in climbing back up around the dovetail.

It should also be apparent to persons skilled in the art that various modifications and adaptations of the structure described above are possible without departure from the spirit of the invention, the scope of which is defined in the appended claims.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

1. A shield for an electrical outlet assembly having at least one plug receptacle and a fastening aperture, the shield comprising:
 - 5 (a) a base plate securable to the electrical outlet assembly, said base plate having openings to permit electrical cords to plug into the receptacle when the base plate is secured to the electrical outlet;
 - 10 (b) a cover, co-operating with said base plate, said cover having an open position enabling access to the plug receptacles, and a closed position wherein the cover together with the base plate defines an enclosed space of sufficient size to enclose the outlet assembly and at least one plug inserted in the receptacles;
 - 15 (c) a means for slidably engaging the cover to the plate, wherein the cover slides in a given direction relative to the base plate from the open position to the closed position and vice versa and the slidably engaging means provides resistance to removing the cover in other directions; and
 - 20 (d) a passageway through the shield dimensioned for the passage of one or more electrical cords out of the shield, and in said closed position the outlet assembly and plugs are covered by the shield with any cords
 - 25 emanating from the passageway.
2. The device as claimed in claim 1, wherein the shield further comprises a means for releasably locking the cover to the base, such that in the closed position the shield is resistant to opening
- 30 by a child.

3. The device as defined in claim 1, wherein the shield further comprises a means for holding the cover to the base in the open position which may also be used as the locking arrangement.
4. The device as defined in claim 1, wherein the base plate is
5 adapted to fit over an existing face plate using either a single central fastening aperture, or two fastening apertures located toward a top and a bottom of the face plate, to secure the base plate to the outlet assembly.
5. The device as defined in claim 1, wherein the base plate further comprises an enclosure element extending outwardly therefrom
10 and the cover includes an open portion to co-operate with the base plate to form the enclosed space when the cover is in the closed position.
6. The device as defined in claim 5, wherein the enclosure element extends outwardly from a lower edge of the base plate and forms a bottom wall of the enclosed space created when the cover is in the closed
15 position.
7. The device as defined in claim 5, wherein the passageway comprises at least one inlet defined in the enclosure element.
8. The device as defined in claim 1, wherein the passageway is a serrated inlet such that the serrations impinge on the electrical cords
20 passing through the passageway providing resistance to pulling on the cords of multiple cord styles or shapes.
9. The device as defined in claim 1, wherein the base further comprises a means for blocking the passageway preventing objects from making contact with the plugs and receptacles.

10. The device as defined in claim 9, wherein the blocking means comprises a stop plate extending outwardly from the base preventing objects from making contact with the plugs and receptacles.
11. The device as defined in claim 1, wherein the base plate has
5 fastening apertures registering with enough corresponding fastening apertures in the outlet assembly to permit the base plate to be fastened to the outlet assembly.
12. The device as defined in claim 1, wherein the slidably
10 engaging means comprises dovetail shaped rails rigidly attached to the base plate, dimensioned to slidably mate in tongue and groove fashion with similar shaped rails rigidly attached to the cover.
13. The device as defined in claim 2, wherein the locking means comprises a male wedge shaped ridge attached to the base plate and a
15 corresponding female shaped indentation defined in the cover, wherein the closed position the ridge and indentation register, wherein to disengage the ridge and indentation requires a simultaneous inward and lifting motion.
14. The device as defined in claim 3, wherein the holding means
20 comprises a male or female tab on the inner side of the cover and a depression and a recess defined in the base plate, wherein the open position the tab and depression register such that the cover is held in the open position and in the closed position the tab and recess register.
- 25 15. The device as defined in claim 1, wherein the enclosed space is large enough to enclose a night light plugged into a receptacle.
16. The device as defined in claim 1, wherein the shield is made of a translucent material to allow light to pass through the shield.

17. The device as defined in claim 15, wherein the shield is made of a translucent material to allow light to pass through the shield.
18. The device as defined in claim 1, further including vent holes to provide air exchange.
- 5 20. The device as defined in claim 1, wherein the resistance to pulling the plug out of the receptacle is maximized by locating the passageway such that pulling on a cord, results in a force direction on the plug approximately parallel to a slot axis passing through the longitudinal direction of a receptacle slot.
- 10 21. A shield for an electrical outlet assembly having at least one plug receptacle and at least one fastening aperture and a face plate, said shield comprising:
- a base plate having three apertures for fasteners to accommodate both a single centrally located screw hole in said face plate
 - 15 and two top and bottom screw holes located in said face plate, and openings to permit electrical cords to plug into the receptacle when the base plate is secured to the electrical outlet; and
 - a cover releasably attachable to said base plate,
- wherein said cover and said base plate define
- 20 an enclosed space of sufficient size to enclose the outlet assembly and at least one plug inserted into the receptacles,
 - a passageway to permit one or more electrical cords connected to said plugs to pass out of said enclosed space, and
 - a means for slidably engaging the cover to the base plate.
- 25 22. A cover for a base plate attachable to an outlet assembly, the cover comprising:
- a means for slidably engaging to said base plate wherein said cover may be positioned in both an outlet exposed and an outlet covering

position on said base plate;

a body forming of sufficient size to permit the body to enclose a plug or night light plugged into said outlet assembly;

the body having a decorative outer surface, wherein said
5 cover can be interchanged on said base with covers having different decorative outer surfaces to suit decorative requirements.

23. The cover of claim 22 wherein said body is formed from molded plastic which is translucent.

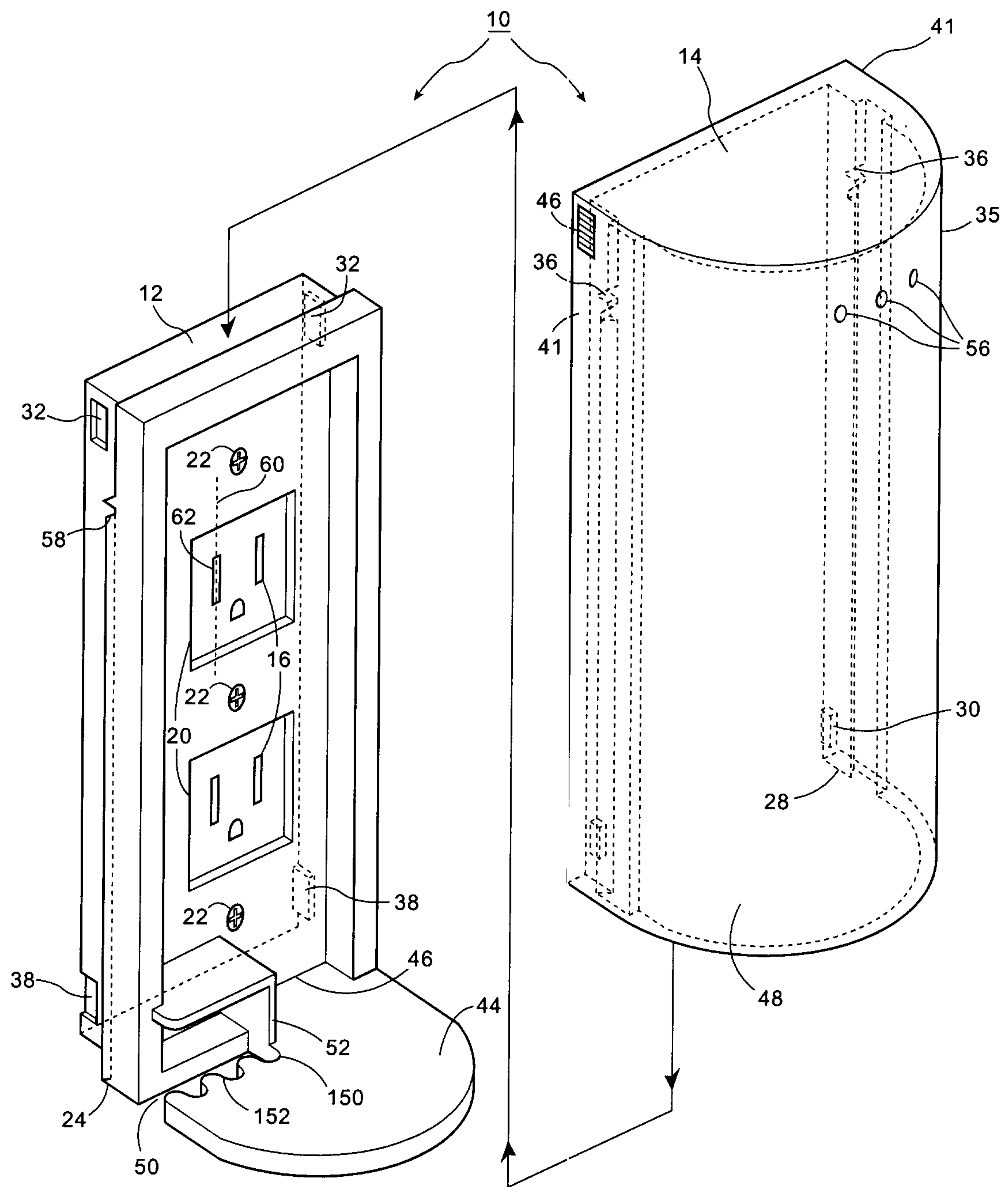


Figure 1

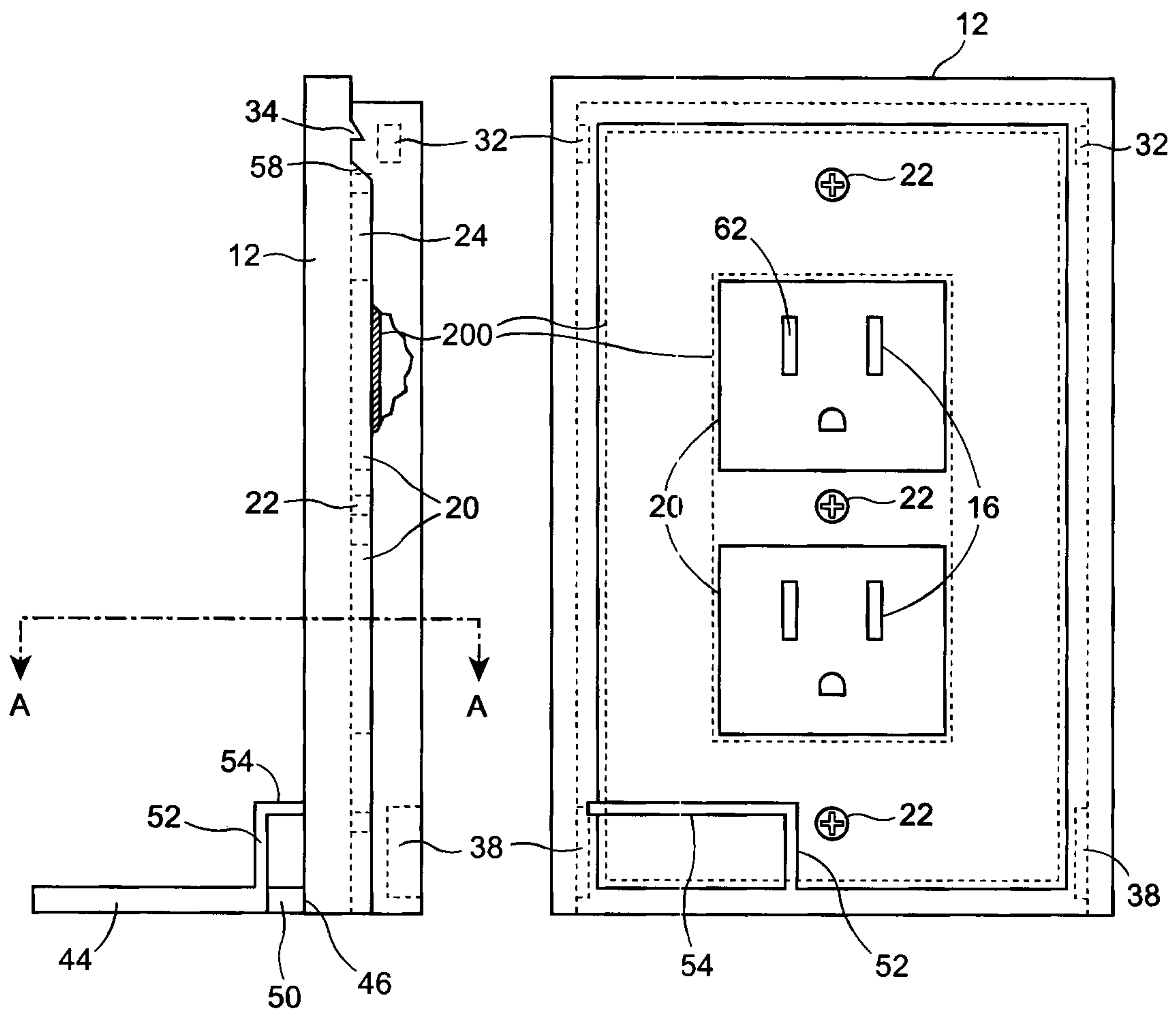


Figure 3

Figure 2

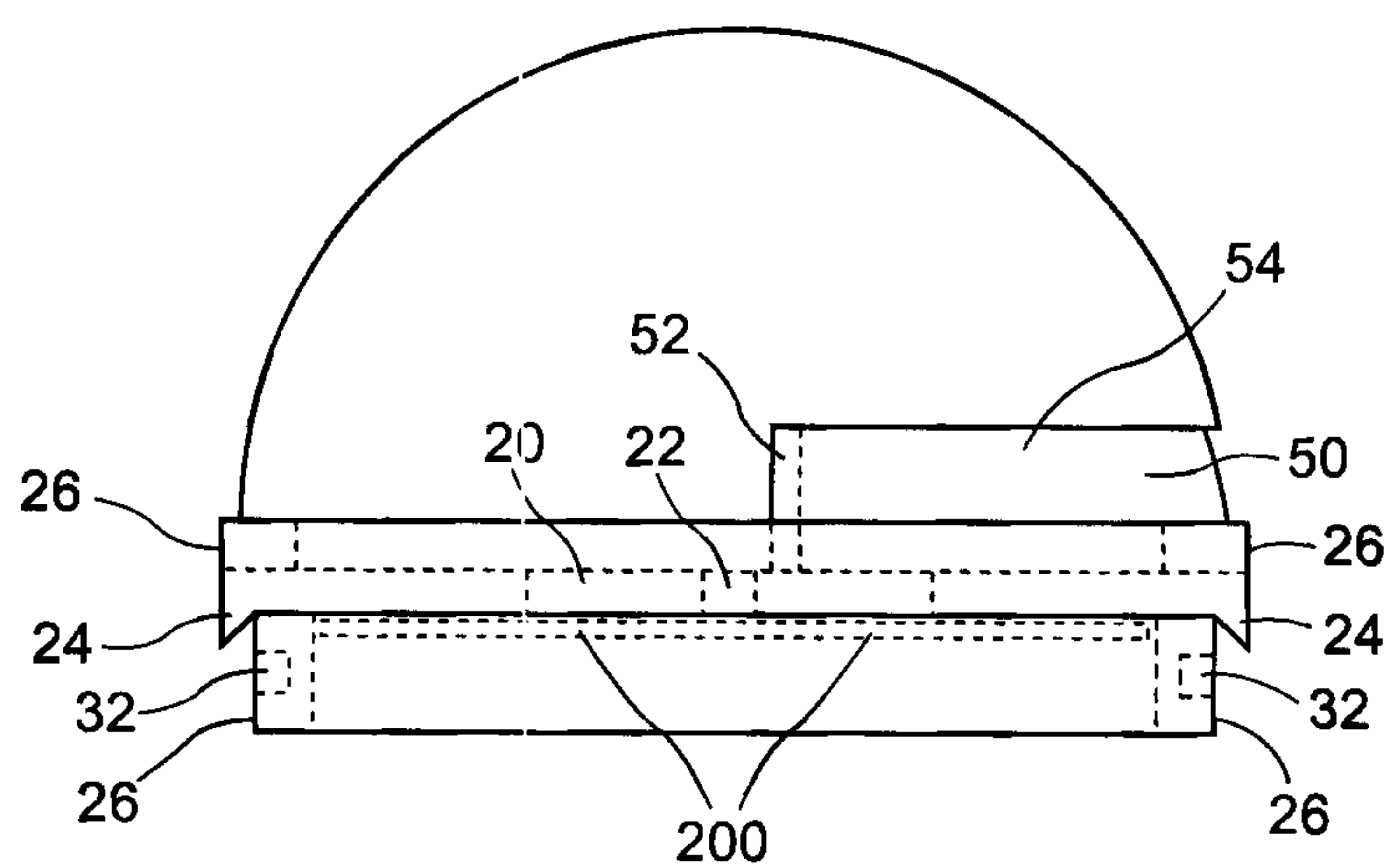


Figure 4

Figure 7
Section B-B

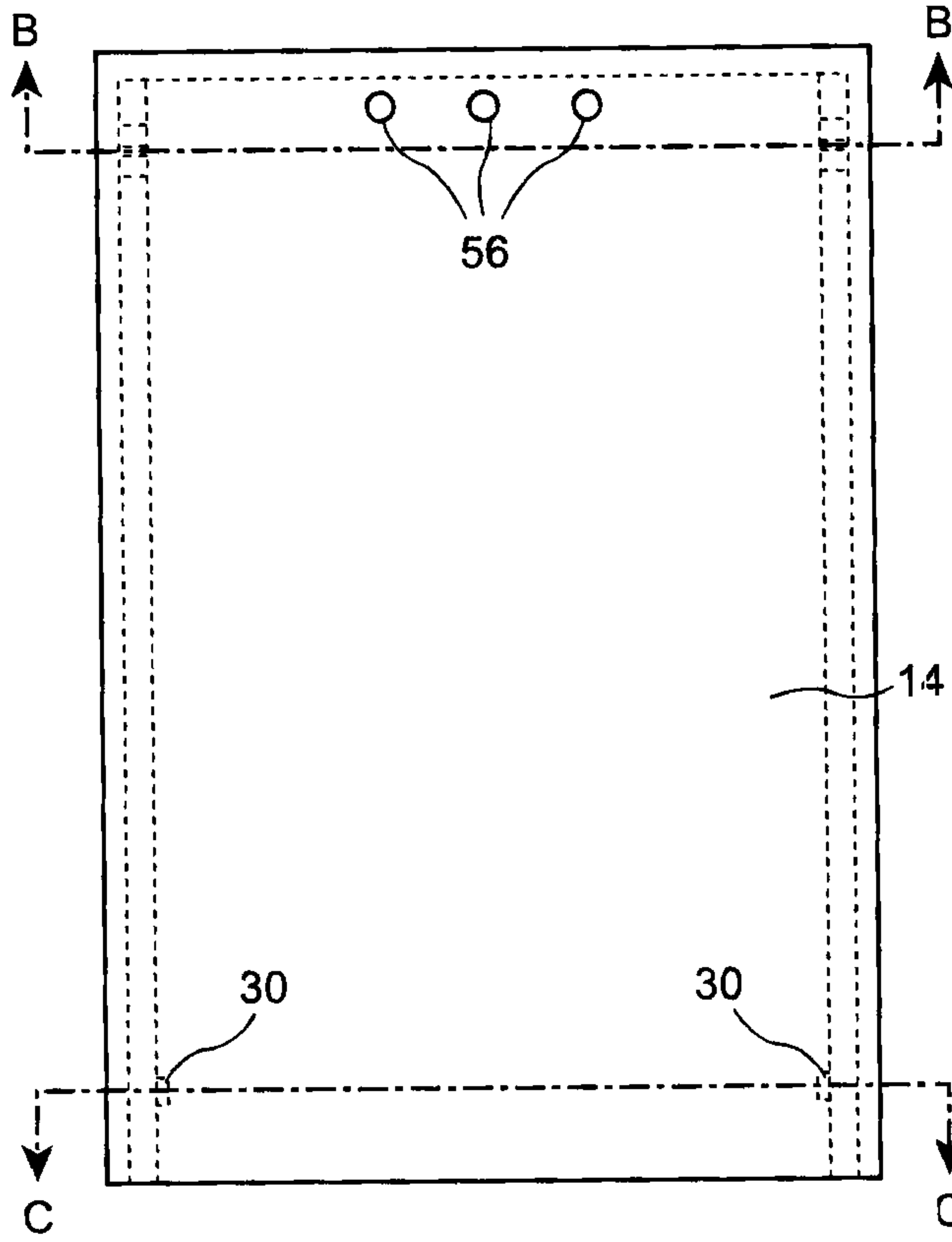
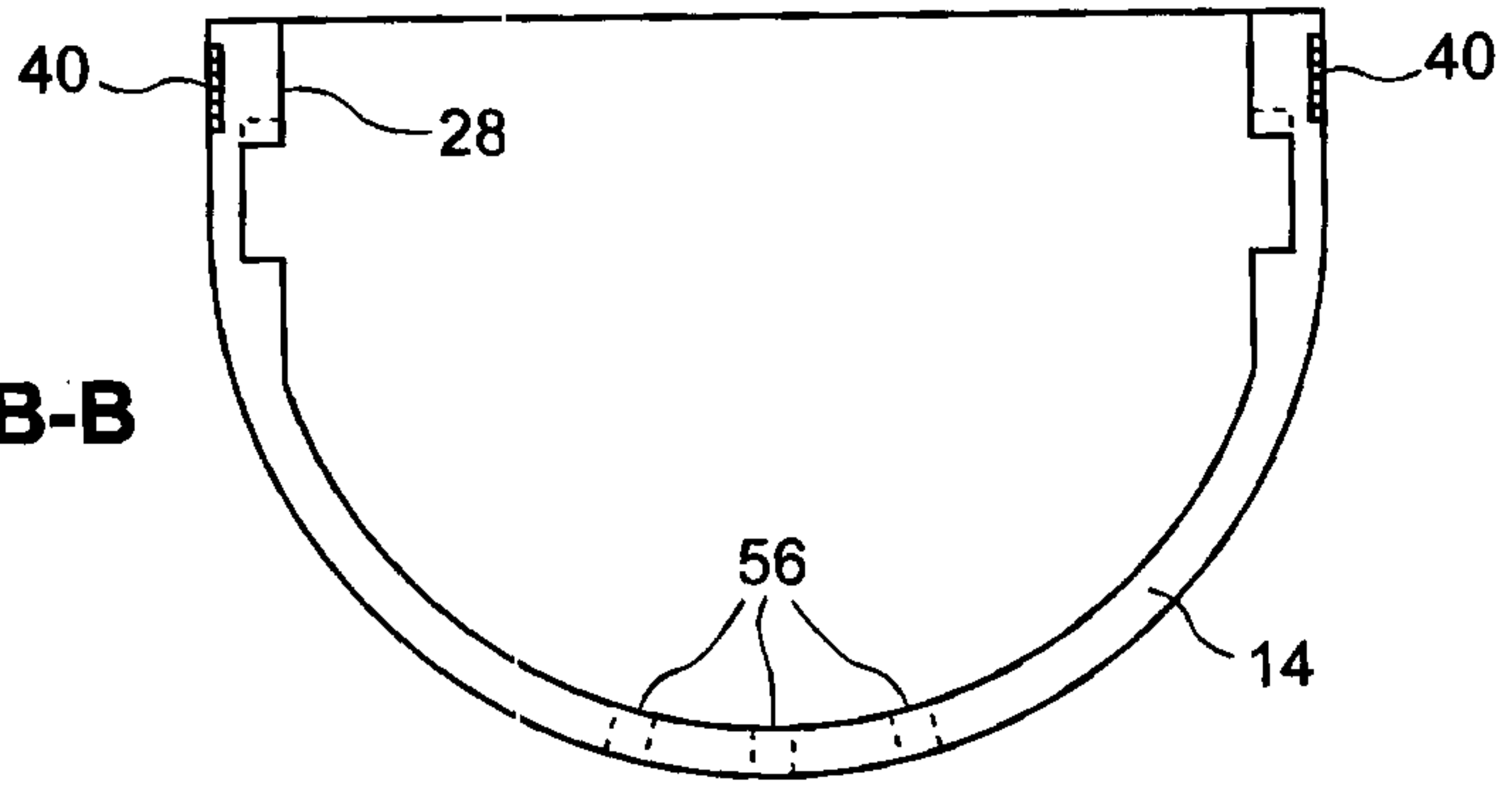


Figure 5

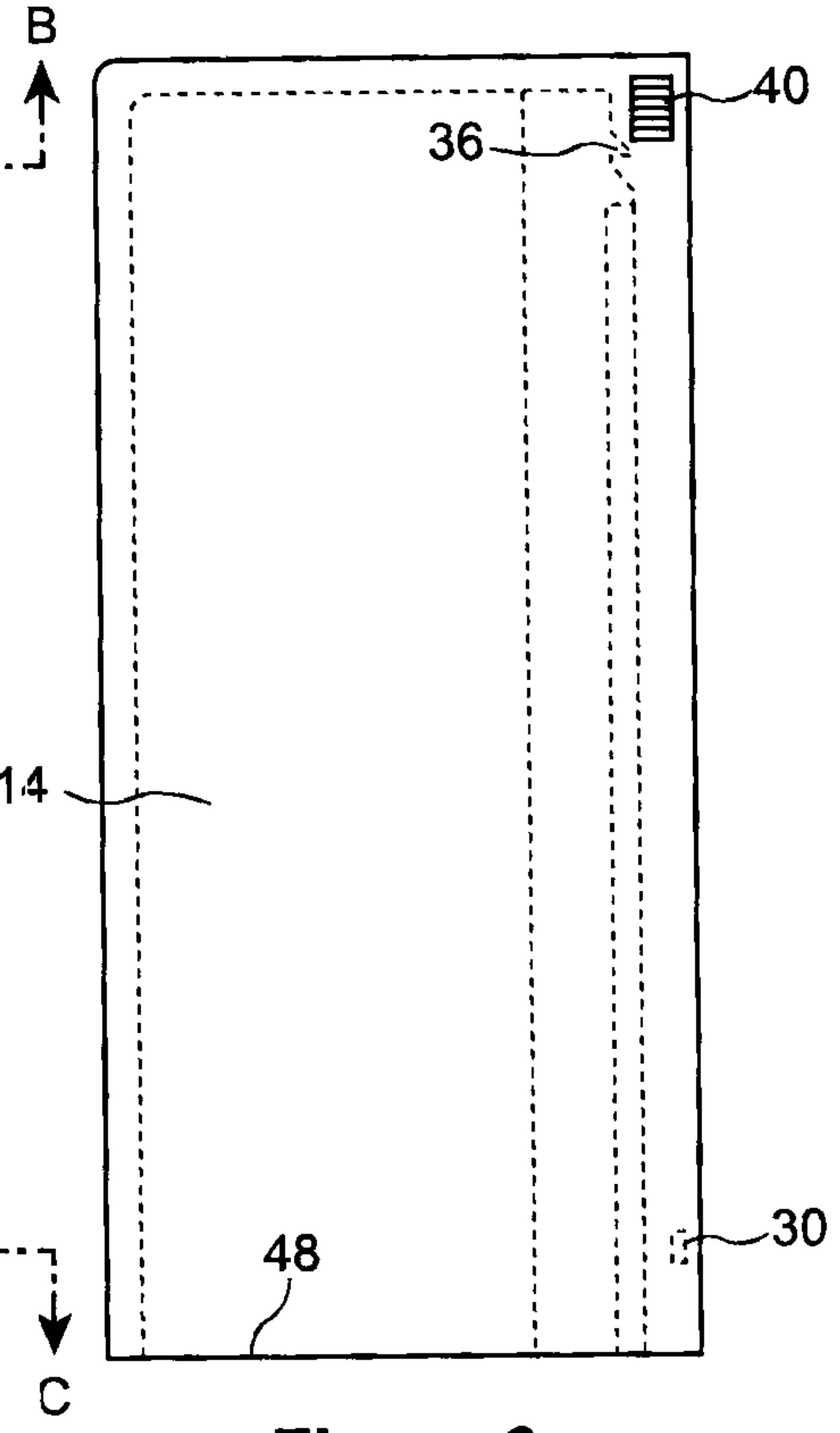


Figure 6

Figure 8
Section C-C

