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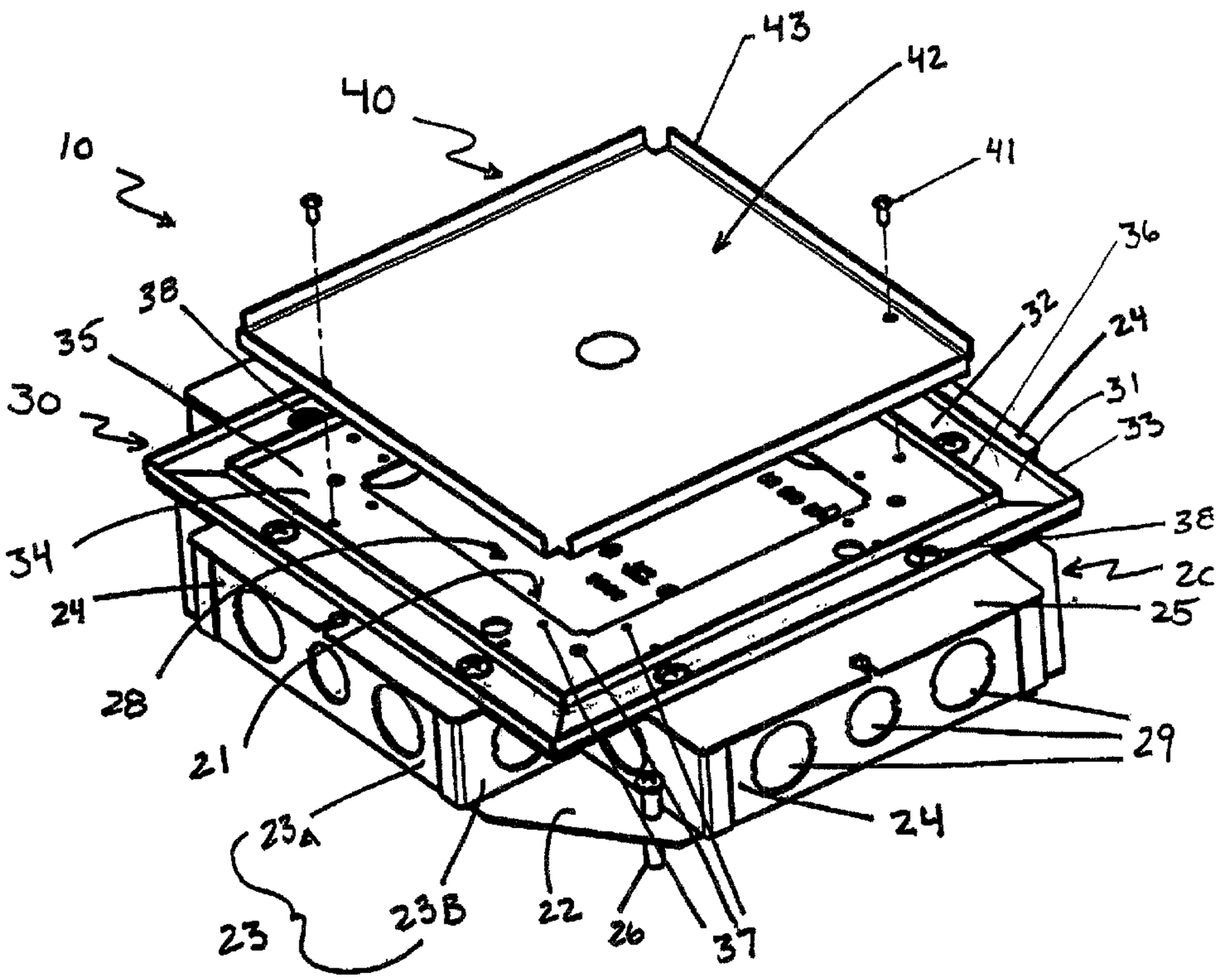
(54) Titre : BOITE ELECTRIQUE DE PLANCHER AVEC INSTALLATION A DOUBLE COUVERCLE
(54) Title: ELECTRICAL FLOOR BOX WITH DUAL COVER INSTALLATION



(57) Abrégé/Abstract:
The present invention provides a floor box assembly including a housing, a ring assembly, and a temporary cover designed to be adaptable to use with various covers. The floor box is designed to accommodate various types or sizes of covers enabling the floor box to be installed when the type of cover has not yet been finalized.

ABSTRACT

The present invention provides a floor box assembly including a housing, a ring assembly, and a temporary cover designed to be adaptable to use with various covers. The floor box is designed to accommodate various types or sizes of covers enabling the floor box to be installed when the type of cover has not yet been finalized.

577-713 PATENT

ELECTRICAL FLOOR BOX WITH DUAL COVER INSTALLATION

FIELD OF THE INVENTION

The present invention relates generally to recessed floor boxes which house power and communication wires or cables for termination. More specifically, the present invention relates to a recessed floor box assembly with capability to accept dual cover attachments, such as standard or flush mount covers.

BACKGROUND OF THE INVENTION

It is well known to run electrical wires and telecommunications wires underneath the surface of a floor. These cables and electrical systems may be placed under the floor surface so as to be more efficient in supplying power and data/telecommunication signals in commercial buildings. The electrical cables or wires beneath the floor may be accessed through a hole in the surface of the floor. In order to provide convenient access to the wires or cables as well as the termination devices which terminate the wires, a floor box is typically placed in the hole through the floor.

The cables are typically housed in ducts and/or conduit that are placed beneath the floor surface. These ducts are typically made of a metal, i.e. steel, iron, aluminum, etc., for structural rigidity to support the weight of the floor on top of the ducts. After the ducts are properly positioned in the floor, concrete then covers the ducts to create the actual floor surface. The thickness of the concrete floor, and the depth at which the ducts must be buried in the floor, are usually regulated by local building codes. The floor boxes may be integrated into the ducts

before the concrete floor is poured. However, in most instances, the concrete floor is poured over the ducts and then holes are drilled into the floor to insert the floor boxes that are connected to the duct.

The use of floor boxes to access cables running underneath the surface of a floor is well known in the art. The floor boxes are typically made of a metallic material so that they are resistant to the outside elements, such as moisture, and are also strong enough to maintain the structural integrity of the floor. The floor boxes are typically welded together to further increase their strength.

Typically, the design of the floor box varies depending on the associated cover used therewith. Therefore, the type of cover to be used must be determined prior to the construction of the floor. The floor box designed for that cover is then incorporated in the construction of the floor, i.e. installed prior to pouring the concrete floor. Once the concrete has cured, the floor box is fixed in place and the associated cover is then attached. A different type of cover is not able to be installed because the floor box is specifically designed for attachment to only one type of cover.

Therefore, it is desirable to provide a single floor box assembly having the flexibility to accommodate various cover installations.

SUMMARY OF THE INVENTION:

The present invention provides an electrical floor box with dual cover installation including a box, a ring assembly and a cover. The box includes an interior defined by a base, side walls and a top surface. The top surface has an access opening therethrough to provide access to the box interior. The ring assembly includes an inner ring and an outer ring. The inner ring includes an inner bottom surface and an inner rim about the inner bottom surface. The inner rim extends upwardly from a perimeter of said inner bottom surface. The inner ring is attached to the top surface of the box and extends around the access opening of the top surface. The outer ring includes an outer bottom surface and an outer rim about the outer bottom surface. The outer rim extends upwardly from a perimeter of the outer bottom surface. The outer ring is attached to the top surface of the box and extends around the inner ring. The cover has a planar portion and a flange thereabout. The cover is attached to the inner ring and has sufficient expanse to substantially cover the access opening. The cover has a flange about a planar portion.

The present invention further includes an electrical floor box with dual cover installation including a box, a ring assembly and a temporary cover. The box has an interior defined by a base, side walls and a top surface, and the top surface has an access opening therethrough to provide access to the interior of the box. The ring assembly includes a channel, the channel includes a pair of opposed rims and a planar portion extending therebetween. The opposed rims extend perpendicular to the planar portion. The channel is attached to the top surface of the box and extends around a portion of the top surface and the access opening. The portion of the top surface and one of the opposed rims provides for attachment of certain types of covers thereto.

While the planar portion of the channel and the other opposed rims provides for attachment of different types of covers thereto. The temporary cover is attached to the inner portion of the top planar surface and has sufficient expanse to substantially cover the access opening.

Furthermore, the present invention includes a dual cover installation ring assembly including an inner ring, an outer ring and a temporary cover. The inner ring includes an inner planar surface having an access opening therethrough and an inner rim extending perpendicularly from the inner planar surface. The inner rim extends about the inner planar surface. The inner ring accommodates a variety of covers for attachment thereto. The outer ring includes an outer planar surface and an outer rim. The outer planar surface is attached to the inner planar surface and extending outwardly around the inner rim. The outer rim extends perpendicularly from the outer planar surface and the outer rim extends about the outer planar surface. The outer ring accommodates a variety of different covers then the inner ring. The temporary cover is attached to the inner planar surface of the inner ring and has sufficient expanse to substantially cover the access opening.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the floor box assembly including the housing, ring assembly and temporary cap according to the present invention.

Figure 2 is a exploded view of the floor box assembly of Figure 1.

Figure 3 is a perspective bottom view of the housing base of the floor box assembly according to the present invention.

Figure 4 is a perspective side view of the floor box assembly according to the present invention.

Figure 5 is a perspective top view of the top surface of the housing and ring assembly of the floor box assembly according to the present invention.

Figure 6 is a perspective top view of the floor box assembly according to the present invention.

Figure 7 is a cross-sectional view of the housing of the floor box assembly embedded in concrete according to the present invention.

Figure 8 is an enlarged view of Figure 5 of the floor box assembly of the present invention.

Figure 9 is a perspective view of the floor box assembly embedded in concrete according to the present invention.

Figure 10 is a perspective view of the floor box assembly of Figure 9 according to the present invention.

Figure 11 is a perspective view of a standard overlay cover installation of the floor box assembly according to the present invention.

Figure 12 is a perspective top view of the floor box assembly of the present invention having a standard overlay cover attached thereto.

Figure 13 is a partial cross-section view of the floor box assembly according to the present invention including a standard overlay cover attached thereto.

Figure 14 is a perspective view of the floor box assembly according to the present invention embedded in concrete.

Figure 15 is a perspective view of a flush cover installation of the floor box assembly according to the present invention.

Figure 16 is a partial cross-section view of the floor box assembly according to the present invention including a flush cover attached thereto.

Figure 17 is a perspective view of a flush cover installation of the floor box assembly according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides an floor box assembly for use in concrete floors which may or may not be topped with additional flooring such as tile, wood, etc. More particularly, the present invention is a floor box assembly with dual cover installation capabilities. The floor box is designed to accommodate various types or sizes of covers enabling the floor box to be installed when the type of cover has not yet been finalized.

Referring to the Figures 1 and 2 there is shown a perspective view of the floor box assembly **10** of the present invention. The floor box assembly **10** includes a housing **20**, a ring assembly **30** and a temporary cap **40**. The housing **20** includes a generally cross-shaped housing interior **21** defined by a platform base **22**, sidewalls **23** and a partially open top surface **25**. Figures 2 and 3 show the platform base **22** as substantially planar and octagonal in shape providing excess material external to the housing interior **21** for leveling and stability purposes. The platform base **22** further includes grounding screws **12** for grounding the floor box housing **20**. Figures 3 and 4 show leveling pins **26** which are provided to assist in positioning the box **10** on top of a sub-floor to the desired level prior to pouring the concrete floor. Slotted holes **27** are provided through the base **22** for securing the floor box to the sub-floor, as shown in Figures 2, 3 and 6.

The cross-shape of the housing interior **21** is generally defined as having four compartments **24** positioned 90 degrees from each adjacent compartment and extending outwardly from the center of the base **22**, as shown in Figures 2 and 3. Each compartment **24** is defined by three sidewalls **23** protruding upwardly from the base **22.** In the preferred embodiment, each compartment **24** includes one exterior sidewall **23A** positioned at the perimeter edge of the base and two depending sidewall **23B** on either side of the exterior sidewall **23A** and generally perpendicular thereto. The depending sidewalls **23B** extend inwardly toward the center of the octagonal-shaped base **22** and connect to the depending sidewalls **23B** of an adjacent compartment **24** as shown in Figures 1-3. Figures 2 and 3 show divider connections **55** are located at each point of connection between depending sidewall **23B** of adjacent compartments **25**. The divider connections **55** provide a way to attach divider plates to the housing between **21** should it be necessary. A top surface **25** of the floor box **10** is designed to partially enclose the housing interior **21.** The top surface **25** is generally cross-shaped with an open upper portion **28** located in the center to provide access to the housing interior **21.** The top surface **25** is attached to sidewalls **23** via fasteners **14,** and encloses the top of each compartment **24** as shown in Figures 1, 2 and 5. A ring assembly **30** frames the open upper portion **28** and allows for attachment of various covers thereto.

As is particularly shown in Figures 1-4, sidewalls **23** and base **22** may include one or more conventional knockouts **29** to permit entry of wires and cables (not shown) into the housing interior **21** for termination purposes. As shown in Figures 11 and 17, interior compartments **24** accommodates various electrical termination devices **52** such as electrical receptacles **50** and data and communication jacks **51** which may be mounted therein in conventional fashion. Wires

and cables which are inserted through knockouts **29** are terminated with mating plugs which permit the wires and cables to be connected to the termination devices within the housing interior **21.**

As is well known, the housing **20** may be formed of a variety of materials both metallic and/or non-metallic. In the particular application shown here, housing **20** is formed of metal. It is further contemplated that while a cross-shaped housing is described herein, any shaped housing; such as square, circular, rectangular, octagonal, oval, channels, and those known in the art, may be adapted to accommodate the ring assembly as described herein.

The open upper portion **28** of the top surface **25** is surrounded by a ring assembly **30**, as shown in Figures 1, 2 and 5. The ring assembly **30** is generally a U-shaped trough attached to the top surface **25** of the housing **20.** The ring assembly **30** and the top surface **25** provide for an outer ring **31** and inner ring **34** to accommodate different types of covers. For example, the outer ring **31** may be used for attachment of a flush cover **70** and the inner ring **34** may be used for attachment of a standard overlay cover **60** as shown in Figures 13 and 16, respectfully. As shown in Figures 2 and 5, the ring assembly **30** is generally square in shape. However, it is contemplated that the ring assembly may vary in shape depending on the shape of the covers to be attached there to.

The inner ring **34** is substantially planar having an inner bottom surface **35** and inner rims **36** thereabout. The inner rims **36** extend upwardly about the inner bottom surface **35**. The inner bottom surface **35** includes various apertures **37** to provide for attachment of cover components

thereto. Figures 1, 2 and 5 show the outer ring **31** which surrounds the inner ring **34**. The outer ring **31** includes an outer bottom surface **32** and outer rims **33** thereabout, similar in the construction to the inner ring **34**. The outer bottom surface **32** of the outer ring **31** is substantially planar. Figures 1, 2, 14 and 17 show the outer bottom surface **33** includes plugs 38, such as screws, to plug attachment holes **39** during concrete pouring which may be used for attaching a cover component thereto. The outer rims **33** extend upwardly about the perimeter of the outer bottom surface **32** of the outer ring **31**. The inner rims **36** and outer rims **33** may be of the same vertical height as shown in Figure 7.

The ring assembly **30** may be a single molded component or individual rings attached together to form a complete assembly. The ring assembly **30** is connected to the housing **20** using various fastening methods such as welding. However, a single molded floor box assembly including a housing with a ring assembly integrally formed therein is also contemplated. The ring assembly **30** includes various apertures **37** to allow screw attachment of a cover and its components to the assembly **10**, as shown in Figures 1, 2 and 5.

A temporary cap **40** is seated on the inner ring **34** and over the open upper portion **28** to enclose the housing interior **21**. The temporary cap **40** is attached to the ring assembly **30** via fasteners **41** as shown in Figures 1, 2 and 6. The temporary cap **40** is used during installation of the box **10** to prevent material such as debris, concrete and other contaminants from entering the housing interior **21** during the pouring of the concrete floor therearound. The temporary cap **40** includes a substantially planar portion **42** having perimeter flanges **43** thereabout. Figures 4, 7 and 8 show the flanges **43** extend upwardly beyond the rims **33, 36** of the ring assembly **30.** The

vertical height of the flanges **43** is slightly higher then the inner rims **36** and outer rims **33** to allow the concrete to cover the rims **33, 36** during installation of the box **10** and pouring of the concrete, as shown in Figures 7 and 8. The difference in elevation **(A)** between the edge of the rims **33, 36** and the edge of the flange **43** determines the depth allotted for the cover in comparison to the surface of the poured concrete flooring. The difference of the elevation **(A)** is usually between about 0.1 inches to about 0.3 inches, preferably about 0.125 inches. The cap **40** includes a finger access knock-out **44** for removal of the cap **40** from the housing **20** after the housing **20** is set in the concrete. The planar portion **42** of the temporary cap **40** is generally parallel to the surface of the concrete floor and it is positioned slightly below the surface of the floor. The concrete is poured to about the height of the perimeter flanges **43** or slightly above the flanges **43** such that the ring assembly **30** is embedded in the concrete, as shown in Figure 9. After the concrete floor has hardened, the concrete above the temporary cap **40** is broken away and the temporary cap **40** is removed using the finger access **44** to provide access to the housing interior **21** and exposure of the inner ring **34** for standard overlay cover installation, as shown in Figures 10 and 14. Additional concrete may be broken away to expose the outer ring **31** for flush cover installation as further described below.

Floor Box Installation

The floor box installation is further described below. The floor box **10** is positioned on the sub-floor at the desired location. The knock-outs **29** are removed and the temporary cap **40** is removed for access to the housing interior **21.** The conduits and fittings are run through the box and attached accordingly. The temporary cap **40** is replaced and secured to the inner ring **34** enclosing the open upper portion **28** prior to pouring the concrete. The box **10** is adjusted using

the leveling pins **26** so that the flange **43** of the temporary cap **40** is properly positioned relative to the desired screed line of the concrete floor. Typically, the box **10** is adjusted such that the top edge of the flange **43** is about flush with the screened line of the poured concrete floor. However, the edge of the flange **43** may be installed up to about 0.07 inches below the screed line of the poured concrete floor. Once the box **10** is positioned at the desired level, it is secured to the sub-floor using traditional devices, such as wire or nails, through the slotted holes **27**.

The concrete floor is then poured to the screened line to cover the floor box **10**. The top edge of the flange **43** remains exposed as shown in Figures 7-9. Once the concrete has set, the concrete is chipped out and removed to expose the temporary cap **40**. Figure 10 shows the fasteners **41** of the temporary cap **40** are removed and the finger access **44** is punched out. The finger access **44** is used to remove the temporary cap **40** from the floor box **10**. Further preparation of the floor box assembly **10** depends on the type and style cover desired for installation. Examples of specific types of floor cover installations are further described below.

A. Standard Cover Installation

Figure 10 shows, the remaining concrete is chipped away and cleared out to the inner rims **36** of the inner ring **34**. If desired, a finished floor, **53** i.e. hardwood, tile, carpet, etc., may be installed on top of the cured concrete floor **54** around the floor box open upper end **28** and the inner ring **34**, as shown in Figures 11-13.

The floor box **10** is now ready for installation of a cover such as a standard overlay cover **60** as shown in Figure 11. The installation of the cover is similar to that known in the art.

Initially the wiring in the housing interior must be completed. The floor box **10** is wired in accordance with standard practicing, and national and local electrical codes. Generally, dividers may need to be installed depending on the types of conduits being installed therein. For example, electrical conductors and data cables may be routed between adjacent compartments **24** and dividers are required. The dividers are attached using the divider connection **55** in the housing interior **21**. Power and data device panels **52** are then installed. Once the floor box **10** wiring is complete, the cover may now be installed. As shown in Figures 11-13, a gasket spacer **61** is placed on the inner bottom surface **35** of the inner ring **34** to provide adequate transition between the standard cover **60** and the floor. The standard cover **60** is placed on top of the gasket spacer **61** and is secured to the floor box **10,** using screws **62** with o-rings **63** through the aperatures **37** provided through the inner ring **34**. A sealant grout or caulking **64** may be used under a portion of the cover which lies on the floor surface to seal the standard cover **60** to the floor. The standard cover **60** may be installed directly on the cured concrete floor **54,** or over a finished floor **53** depending on the desired application.

B. Flush Cover Installation

As shown in Figure 14, the remaining concrete is chipped away and cleared out to the outer rims **33** of the outer ring **31.** The concrete is cleared off of the heads of the screws **38**. The screws **38** are removed to unplug the attachment holes **39** and allow for attachment of the flush cover **70** and associated components there through. If desired, a finished floor **53**, i.e. hardwood, ceramic tile, etc., may be installed on top of the cured concrete floor **54** and around the outer ring **31,** as shown in Figures 15 and 16.

The floor box **10** is now ready for installation of a cover such as a flush cover **70**. Initially, the housing interior **21** is wired prior to attaching the flush cover **70** thereto. The floor box **10** is wired in accordance with standard practicing, and national and local electrical codes. Generally, dividers may need to be installed, electrical conductors, or data cables may be routed between adjacent compartments **24**, using the divider connections **55**. Power and data device panels **52** are installed. Once the floor box wiring is complete, the flush cover **70** is then installed. Referring to Figures 15-17, a flush trim ring **71** is installed over the outer bottom surface **32** of the outer ring **31**. Trim leveling screws **72** are installed with the trim ring **71**, through the attachment holes **39** of the outer ring **31.** The trim ring **71** is leveled to the floor surface using the trim leveling screws **72.** Figure 15 shows a gasket spacer **73** is placed on top of the inner ring **34** to provide transition between the flush cover **70** and the finished floor **53.** The flush cover **70** is placed over the gasket spacer **73**. The flush cover **70** and the gasket spacer **73** are secured to the floor box **10** using cover mounting screws **74** with o-rings **75** through apertures **37** provided through the inner bottom surface **35** of the inner ring **34**. Typically, a sealant grout or caulking **76** is used under the flange of the flush cover **70** to seal the flush cover **70** to the finished floor **53**.

The flush cover **70** may be mounted to the finished floor **53** or directly to the cured concrete **54.** If the flush cover is mounted directly to the cured concrete **54**, then a gasket spacer **73** may not be necessary and the flush cover **70** is directly attached to the trim **71** as shown in Figure 17.

While the particular embodiments of the present invention has been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the teachings of the invention. The matter set forth in the foregoing description and accompanying drawings is offered by way of illustration only and not as a limitation. The actual scope of the invention is intended to be defined in the following claims when viewed in their proper perspective based on the prior art.

WHAT IS CLAIMED IS:

1. An electrical floor box with dual cover installation comprising:

(a) a box having an interior defined by a base, side walls and a top surface, said top surface having an access opening there through to provide access to said interior of said box;

(b) a ring assembly comprising:

(i) an inner ring comprising an inner bottom surface and an inner rim about said inner bottom surface, said inner rim extending upwardly from a perimeter of said inner bottom surface, said inner ring attached to said top surface of said box and extending around said access opening of said top surface to provide for attachment of various covers thereon; and

(ii) an outer ring comprising an outer bottom surface and an outer rim about said outer bottom surface, said outer rim extending upwardly from a perimeter of said outer bottom surface, said outer ring attached to said top surface of said box and extending around said inner ring to provide for attachment of different various covers; and

(c) a cover having a planar portion and a flange thereabout, said cover being attached to said inner ring and having sufficient expanse to substantially cover said access opening, said cover having a flange about a planar portion.

2. The electrical floor box with dual cover installation of claim 1, wherein said cover includes a finger access knock-out on said planar portion.

3. The electrical floor box with dual cover installation of claim 2, wherein said cover and said inner ring are removeably attached via fasteners.

4. The electrical floor box with dual cover installation of claim 1, wherein said inner bottom surface of said inner ring includes apertures for attaching various covers thereto.

5. The electrical floor box with dual cover installation of claim 1, wherein said flange of said cover has a vertical elevation from said planar portion and said inner rim and said outer rim have vertical heights, wherein said vertical elevation is greater then said vertical heights.

6. The electrical floor box with dual cover installation of claim 5, wherein a difference between said vertical elevation and said vertical height of said inner rim is between about 0.1 inches to about 0.3 inches.

7. The electrical floor box with dual cover installation of claim 5, wherein a difference between said vertical elevation and said vertical height of said outer rim is between about 0.1 inches to about 0.3 inches.

8. The electrical floor box with dual cover installation of claim 5, wherein said vertical heights are substantially the same.

9. The electrical floor box with dual cover installation of claim 1, wherein said interior of said box is cross-shaped.

10. The electrical floor box with dual cover installation of claim 8, wherein said interior includes divider connections therein to provide a mechanism to attach divider plates thereto.

11. The electrical floor box with dual cover installation of claim 1, wherein said various covers are standard overlay covers.

12. The electrical floor box with dual cover installation of claim 1, wherein said different various covers are flush covers.

13. An electrical floor box with dual cover installation comprising:

(a) a box having an interior defined by a base, side walls and a top surface, said top surface having an access opening there through to provide access to said interior of said box;

(b) a ring assembly comprising a channel, said channel including a pair of opposed rims and a planar portion extending there between, said opposed rims extending perpendicular to said planar portion, said channel is attached to said top surface and extending around a portion of said top surface and said access opening, said portion of said top surface and one of said opposed rims provides for attachment of various covers thereto, and said planar portion of said channel and the other said opposed rims provides for attachment of different types of covers thereto; and

(c) a temporary cover attached to said inner portion of said top planar surface and having sufficient expanse to substantially cover said access opening.

14. The electrical floor box with dual cover installation of claim 13, wherein said temporary cover comprises a planar surface and a vertically rising flange thereabout, said planar surface includes a finger access knock-out therein.

15. The electrical floor box with dual cover installation of claim 14, wherein said temporary cover and said portion of said top surface are removeably attached via fasteners.

16. The electrical floor box with dual cover installation of claim 13, wherein said portion of said top surface includes apertures for attachment of said various covers thereto.

17. The electrical floor box with dual cover installation of claim 16, wherein said various covers are standard overlay covers.

18. The electrical floor box with dual cover installation of claim 13, wherein said planar portion of said channel includes apertures for attachment of said different types of covers thereto.

19. The electrical floor box with dual cover installation of claim 18, wherein said different types of covers are flush covers.

20. The electrical floor box with dual cover installation of claim 13, wherein said temporary cover comprises a flange having a vertical elevation and said opposed rims have perpendicularly rising heights, wherein said vertical elevation is greater than said perpendicularly rising heights.

21. The electrical floor box with dual cover installation of claim 20, wherein the difference of said vertical elevation of said flange and said perpendicularly rising heights of said opposed rims is between about 0.1 inches to about 0.3 inches.

22. The electrical floor box with dual cover installation of claim 21, wherein said perpendicularly rising heights of said opposed rims are substantially the same.

23. The electrical floor box with dual cover installation of claim 13, wherein said interior of said box is cross-shaped.

24. The electrical floor box with dual cover installation of claim 22, wherein said interior includes divider connections therein to provide a mechanism to attach divider plates therein.

25. A dual cover installation ring assembly comprising:

(a) an inner ring comprising:

(i) an inner planar surface having an access opening there through, and

(ii) an inner rim extending perpendicularly from said inner planar surface, said inner rim extending about inner planar surface;

(b) an outer ring comprising:

(i) an outer planar surface attached to said inner planar surface and extending outwardly around said inner rim, and

(ii) an outer rim extending perpendicularly from said outer planar, said outer rim extending about said outer planar surface; and

(c) a temporary cover attached to said inner planar surface of said inner ring and having sufficient expanse to substantially cover said access opening, wherein said inner ring has

a geometric configuration to provide for attachment of various covers thereon, and said outer ring has a geometric configuration to provide for attachment of different various covers thereon.

26. The dual cover installation ring assembly of claim 25, wherein said temporary cover includes a finger access knock-out thereon.

27. The dual cover installation ring assembly of claim 26, wherein said temporary cover and said inner planar surface are removeably attached via fasteners.

28. The dual cover installation ring assembly of claim 25, wherein said inner planar surface of said inner ring includes apertures for attachment to a floor box housing.

29. The dual cover installation ring assembly of claim 25, wherein said temporary cover has a flange thereabout, said flange having a vertical elevation, said inner rim having a perpendicularly rising elevation, wherein said vertical elevation being greater then said perpendicularly rising elevation of said inner rim.

30. The dual cover installation ring assembly of claim 29, wherein a vertical difference between said vertical elevation and said perpendicularly rising elevation is between about 0.1 inches to about 0.3 inches.

31. The dual cover installation ring assembly of claim 29, wherein said outer rim has an perpendicularly rising elevation, wherein said perpendicularly rising elevations of said inner rim and outer rim are substantially the same.

32. The dual cover installation ring assembly of claim 25, wherein said various covers are standard overlay covers.

33. The dual cover installation ring assembly of claim 25, wherein said different various covers are flush covers.

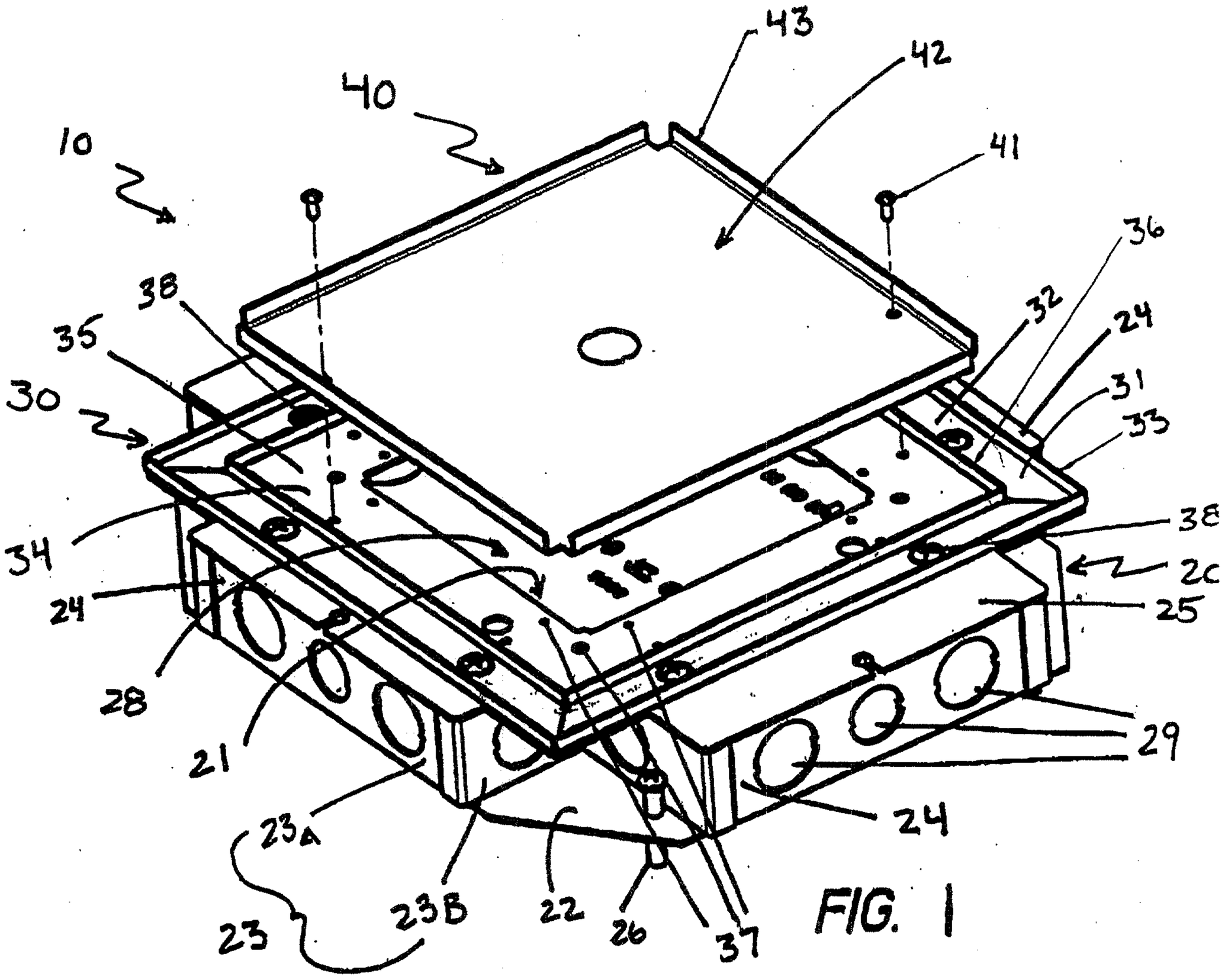

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FIG. 1

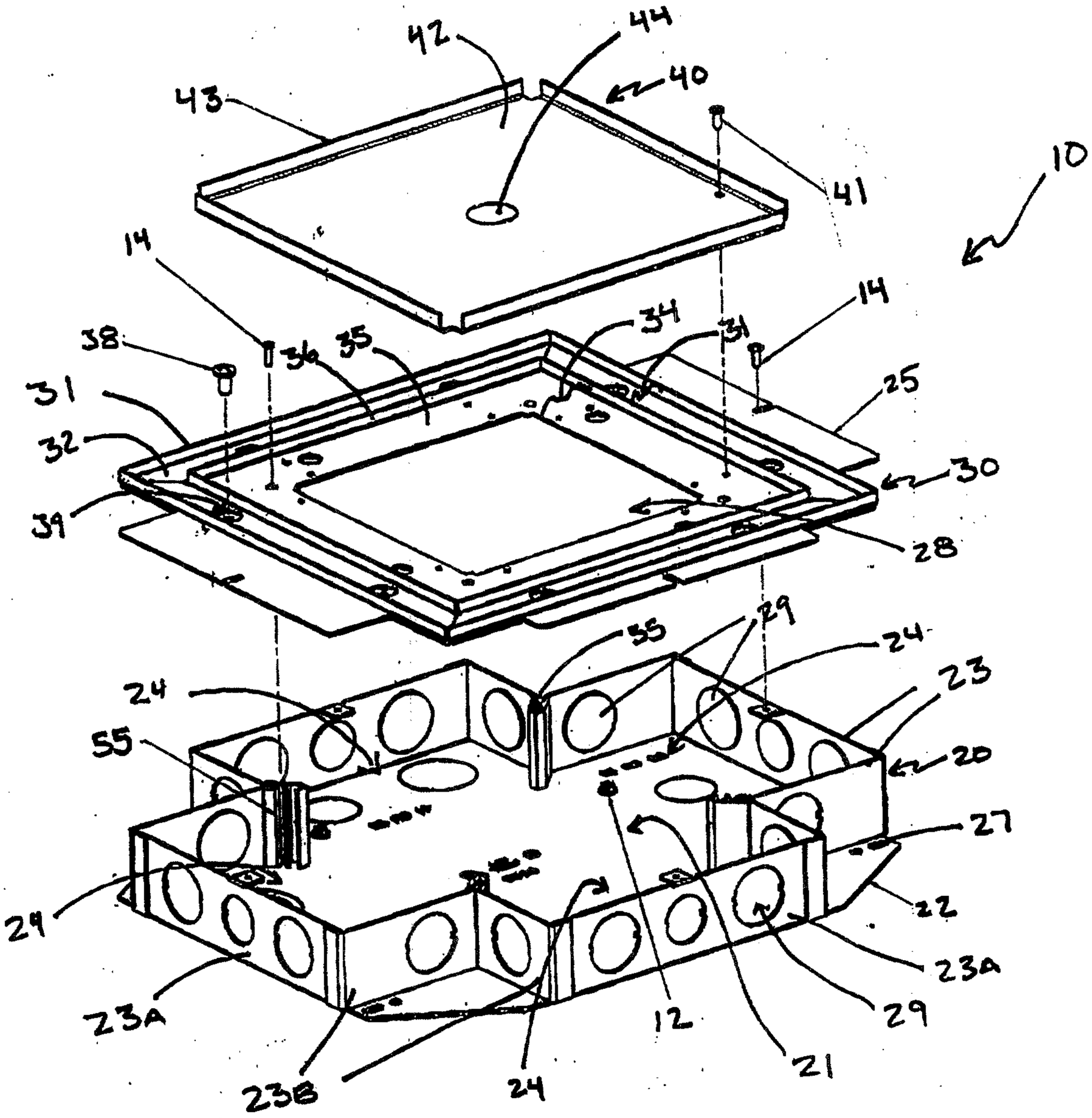
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FIG. 2

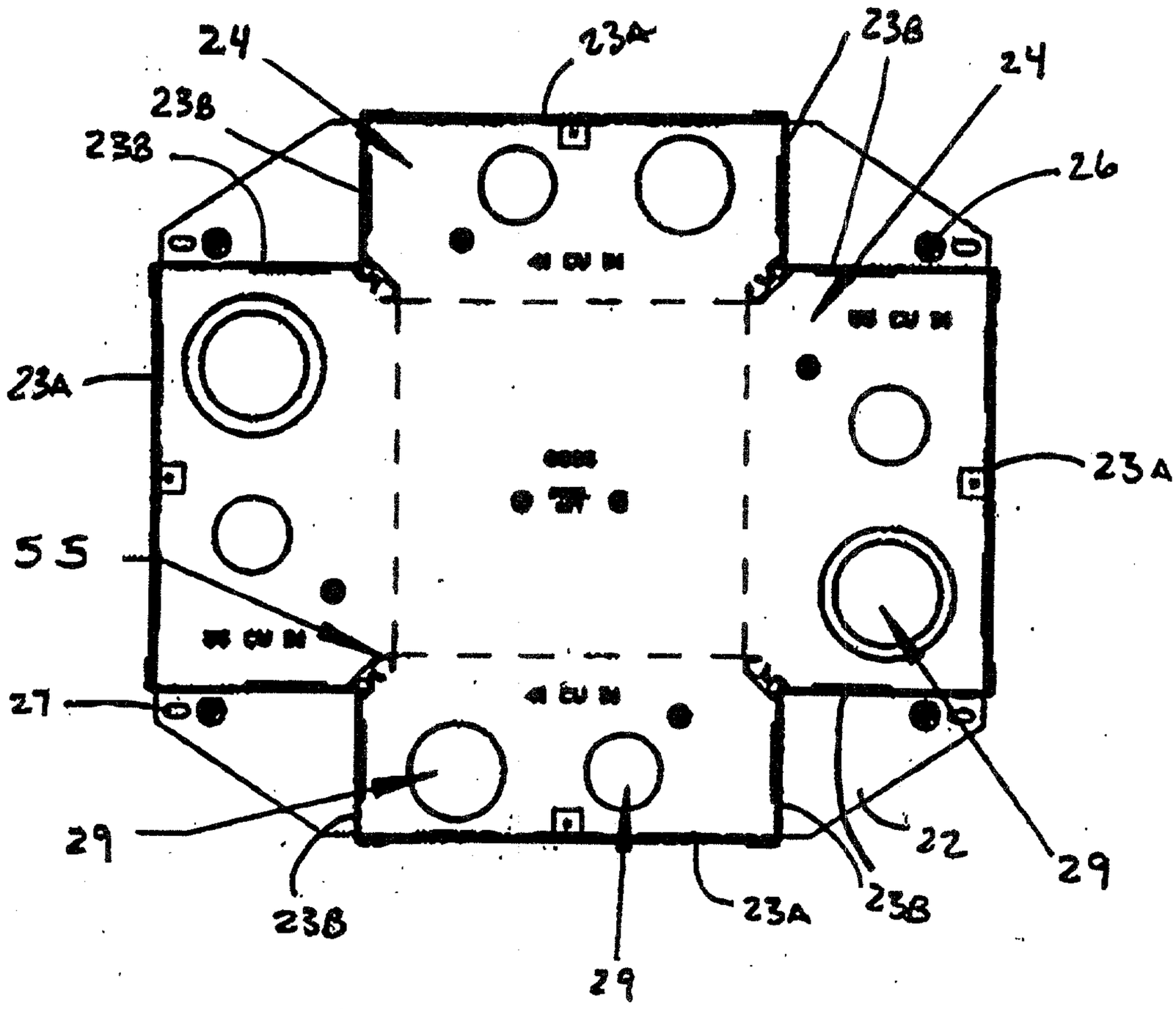
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FIG. 3

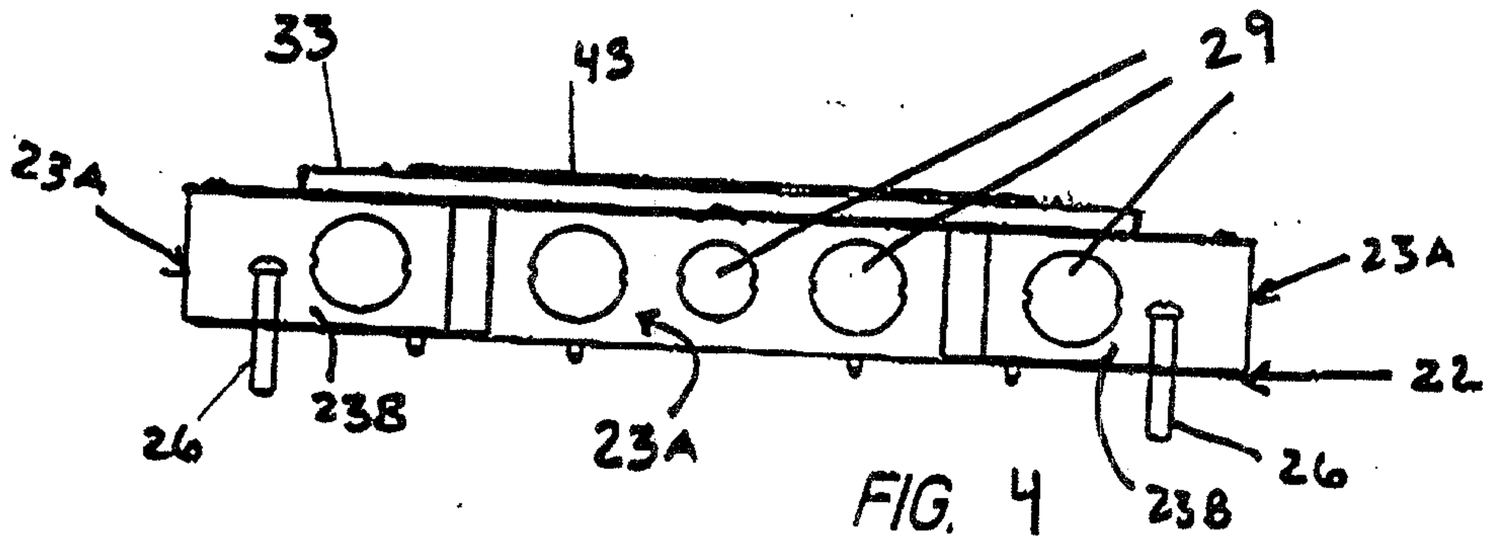
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FIG. 4

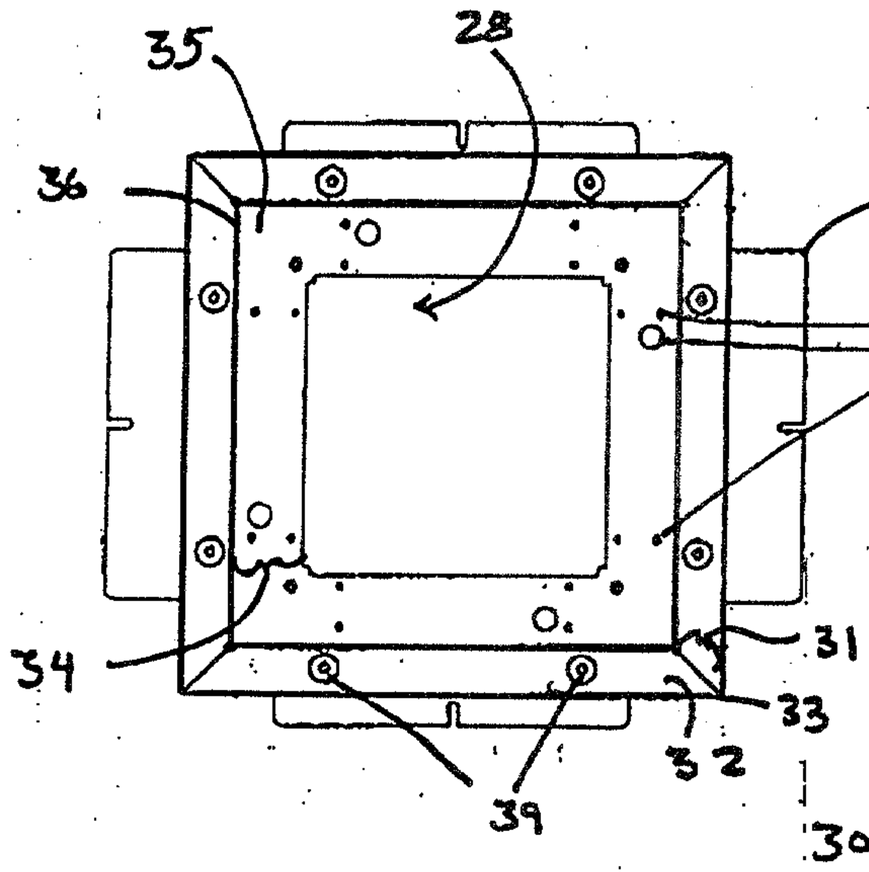

FIG. 5

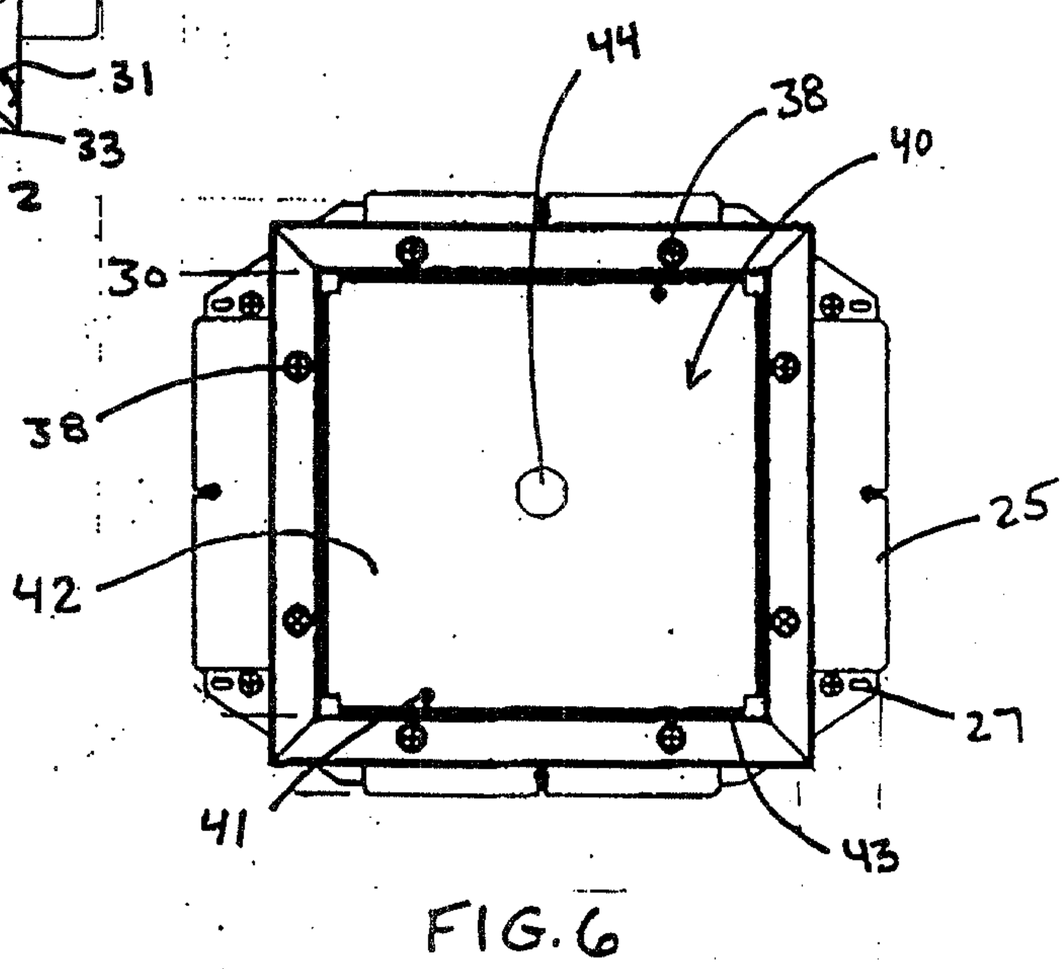

FIG. 6

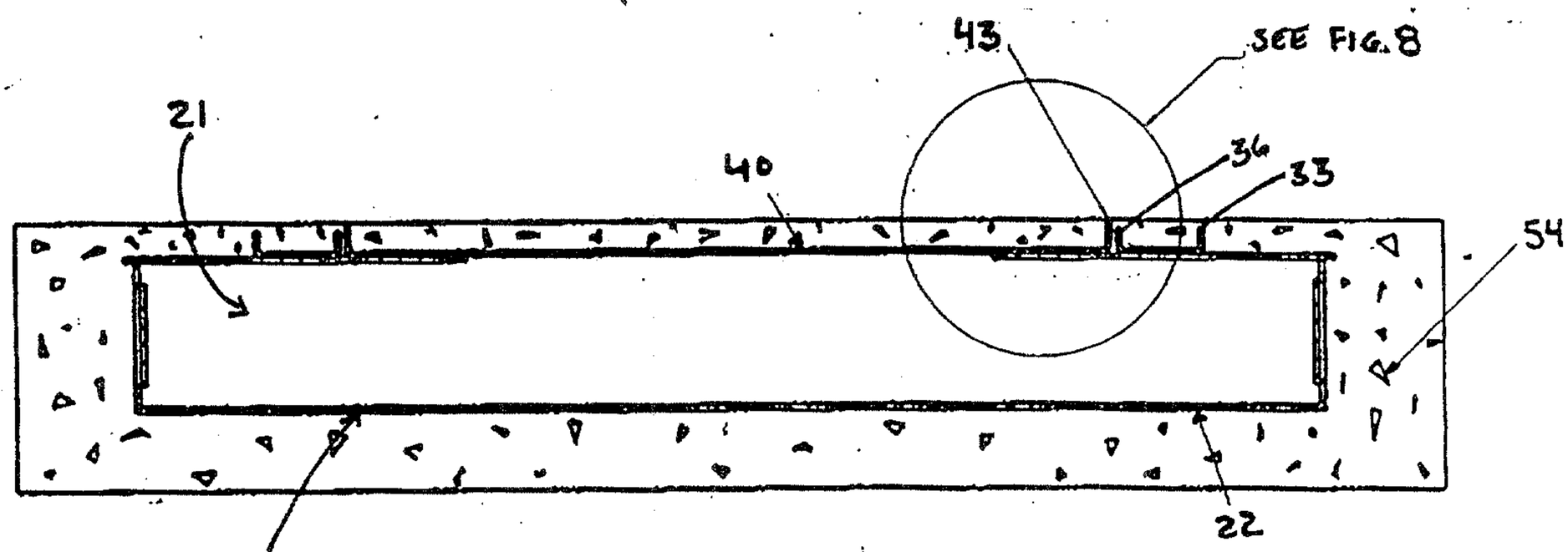

FIG. 7

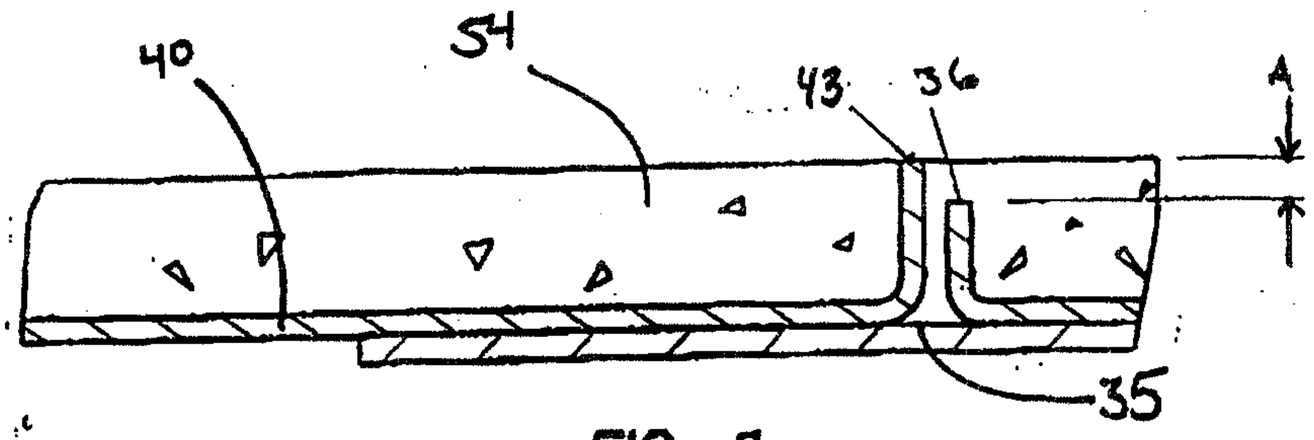

FIG. 8

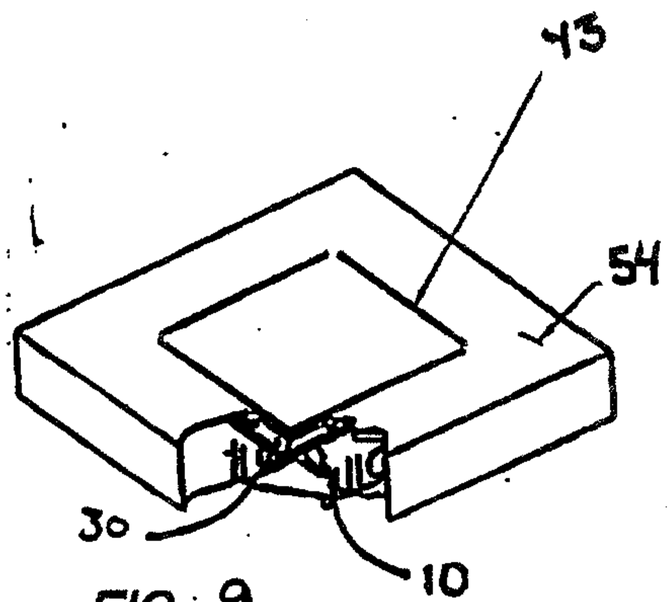

FIG. 9

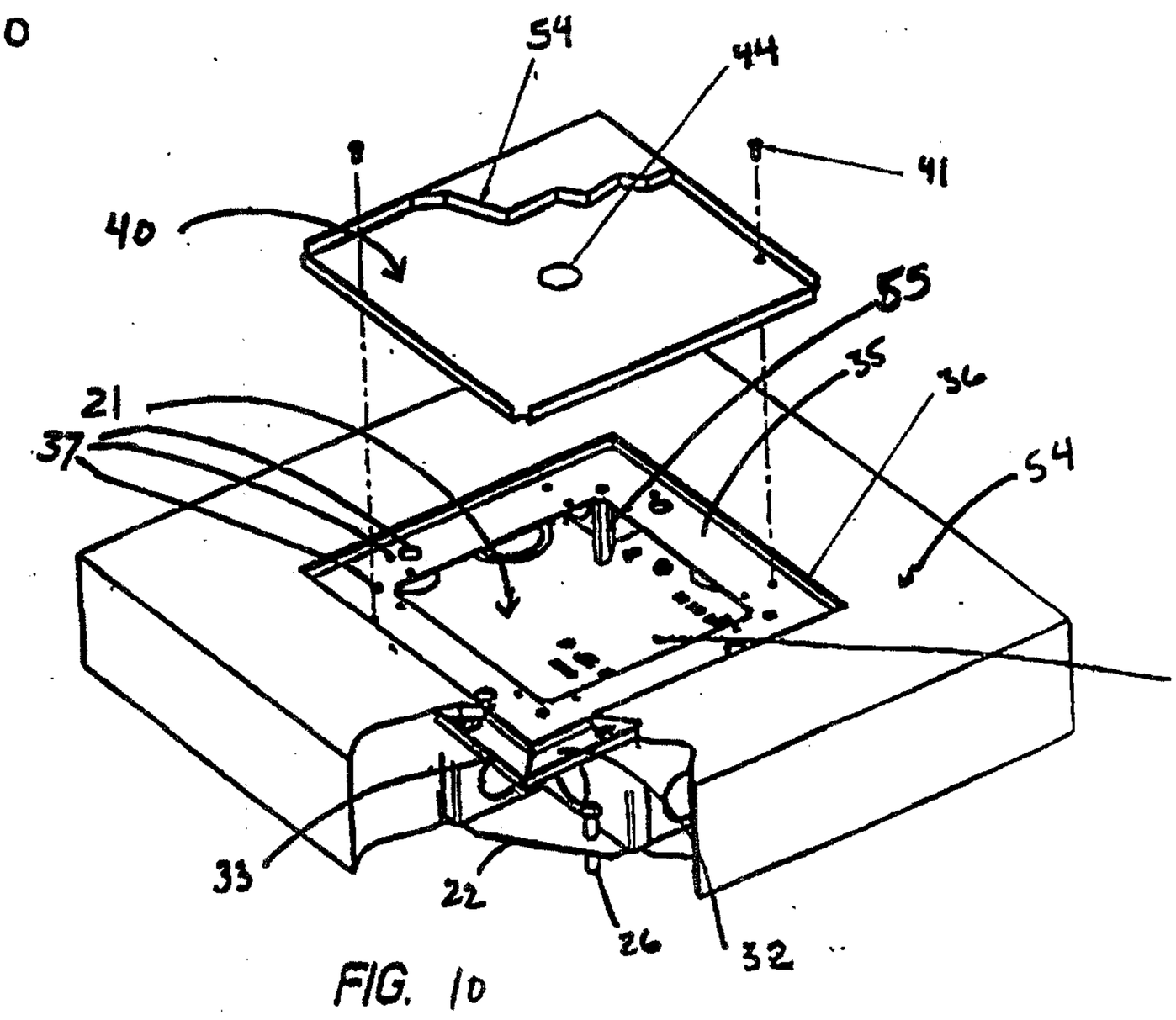

FIG. 10

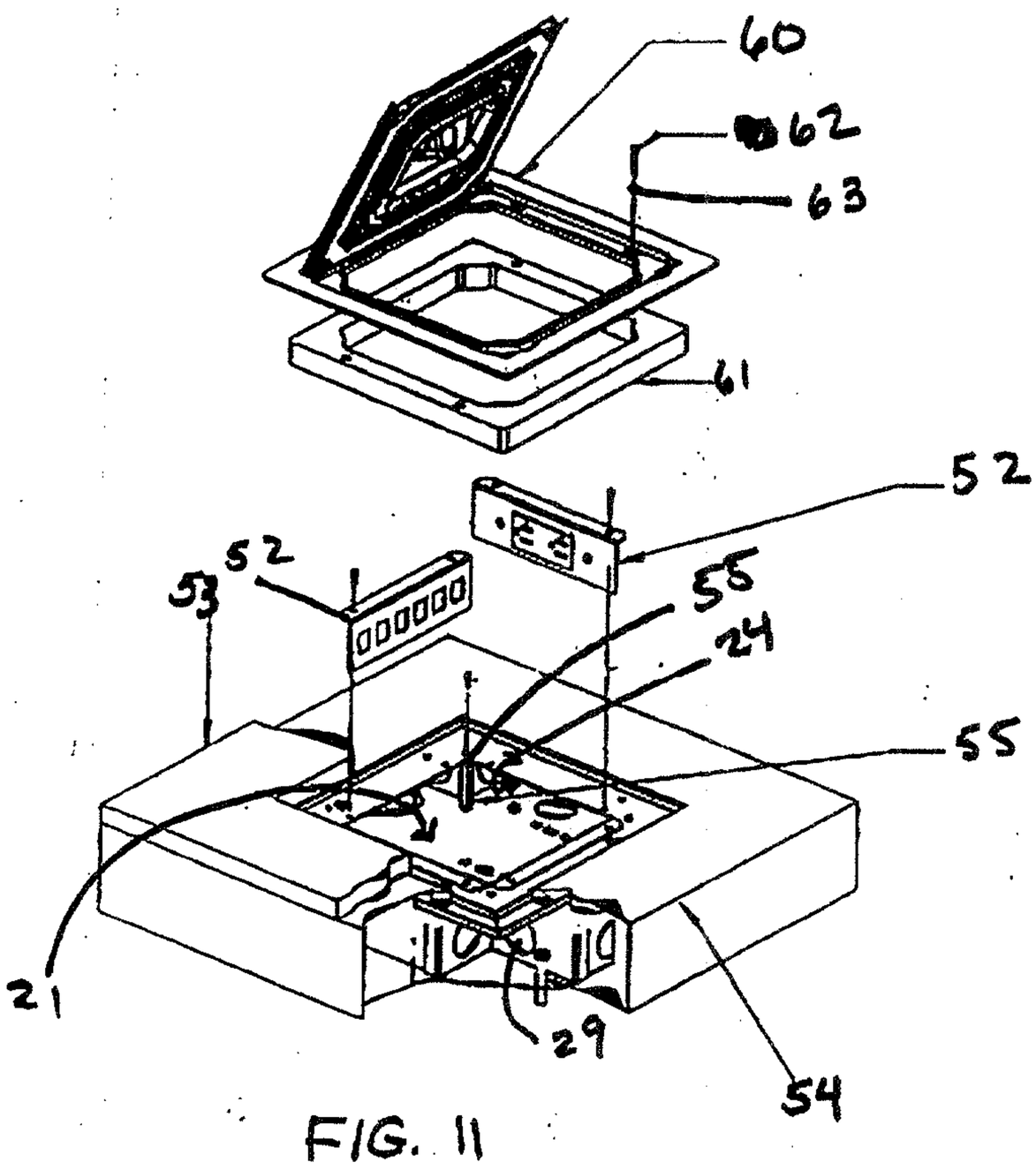

FIG. 11

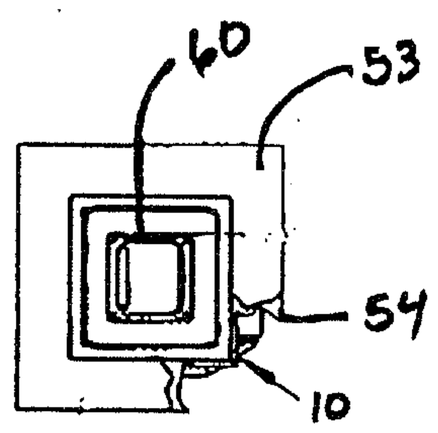

FIG. 12

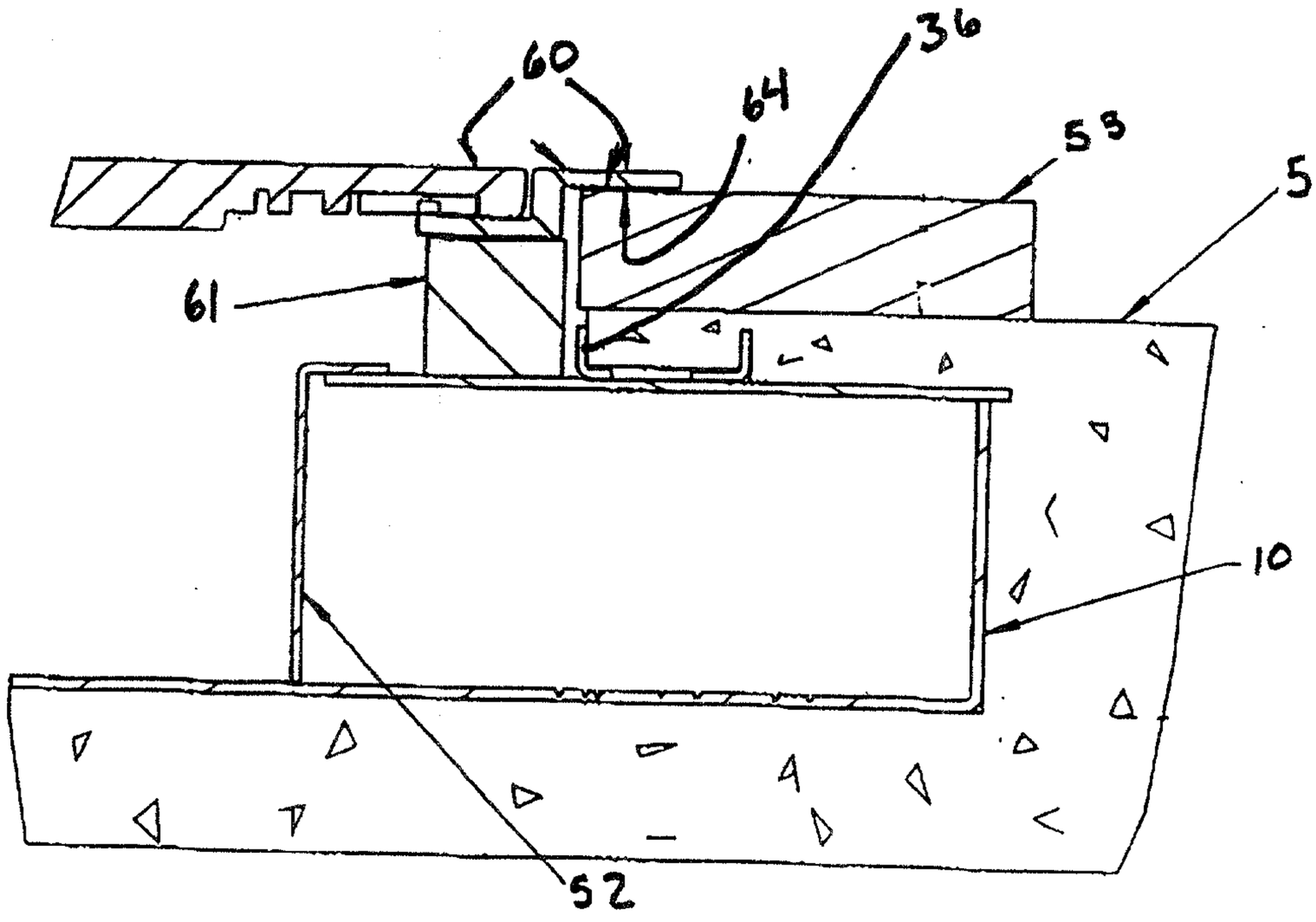

FIG. 13

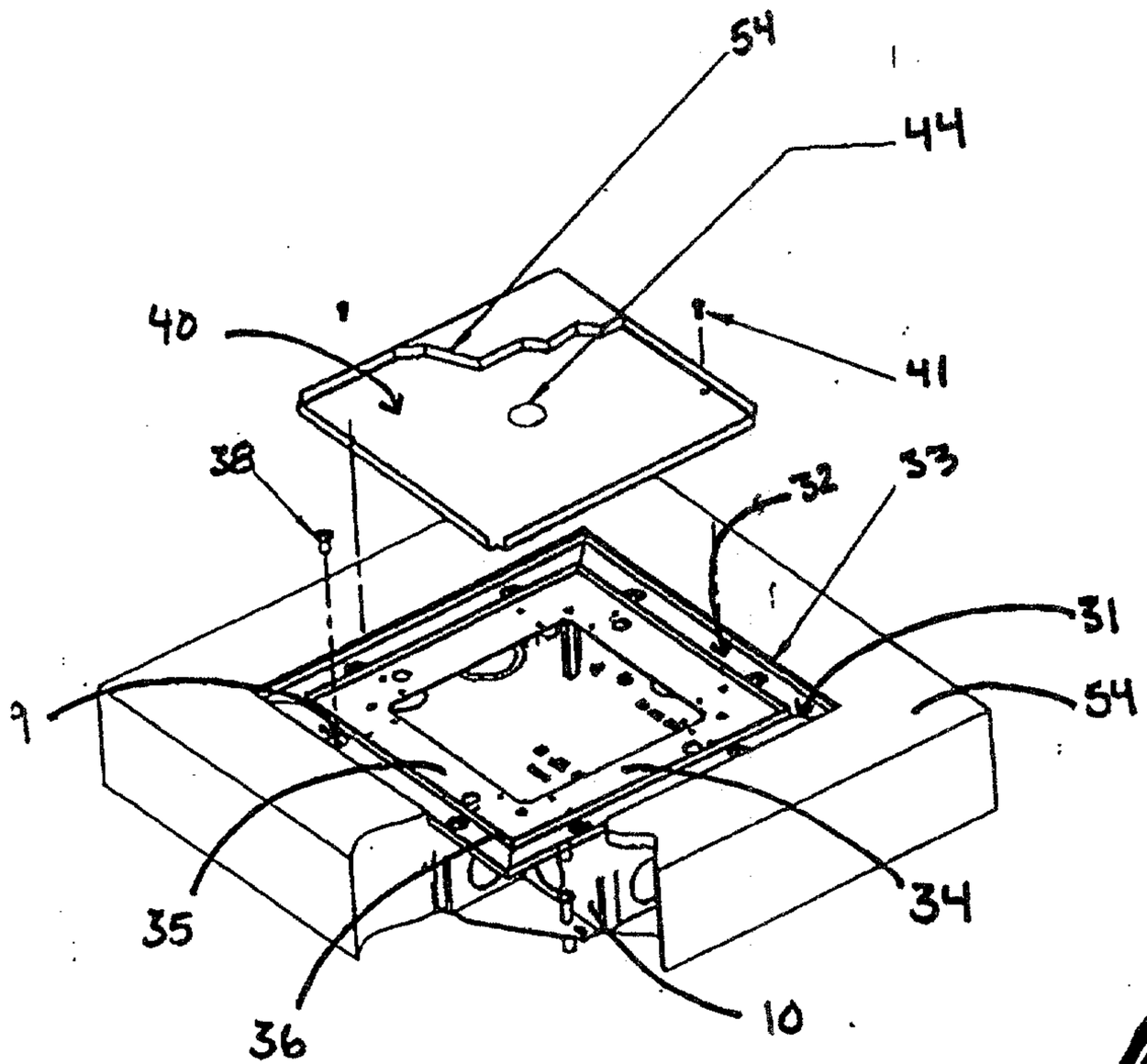
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FIG. 14

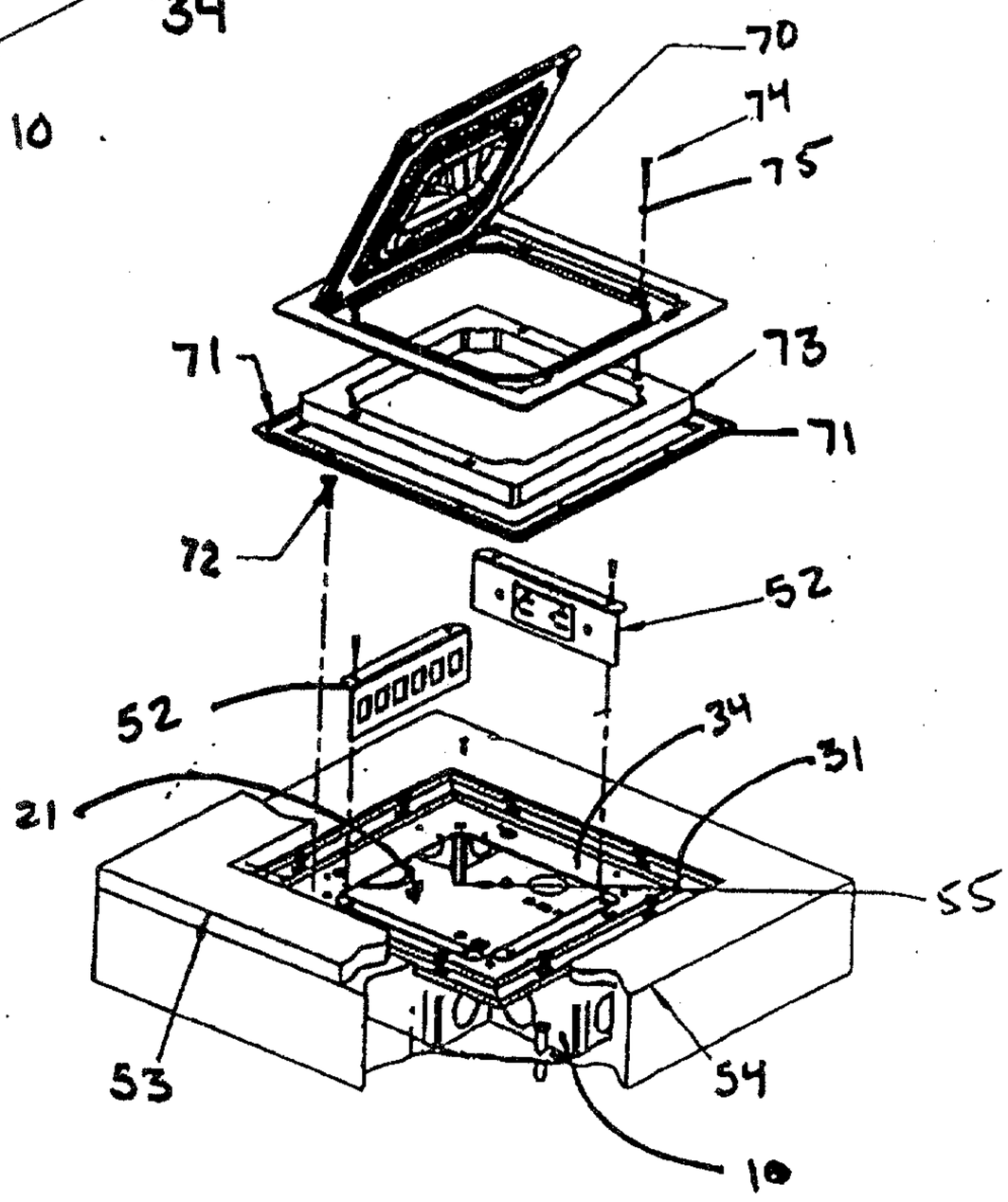
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FIG. 15

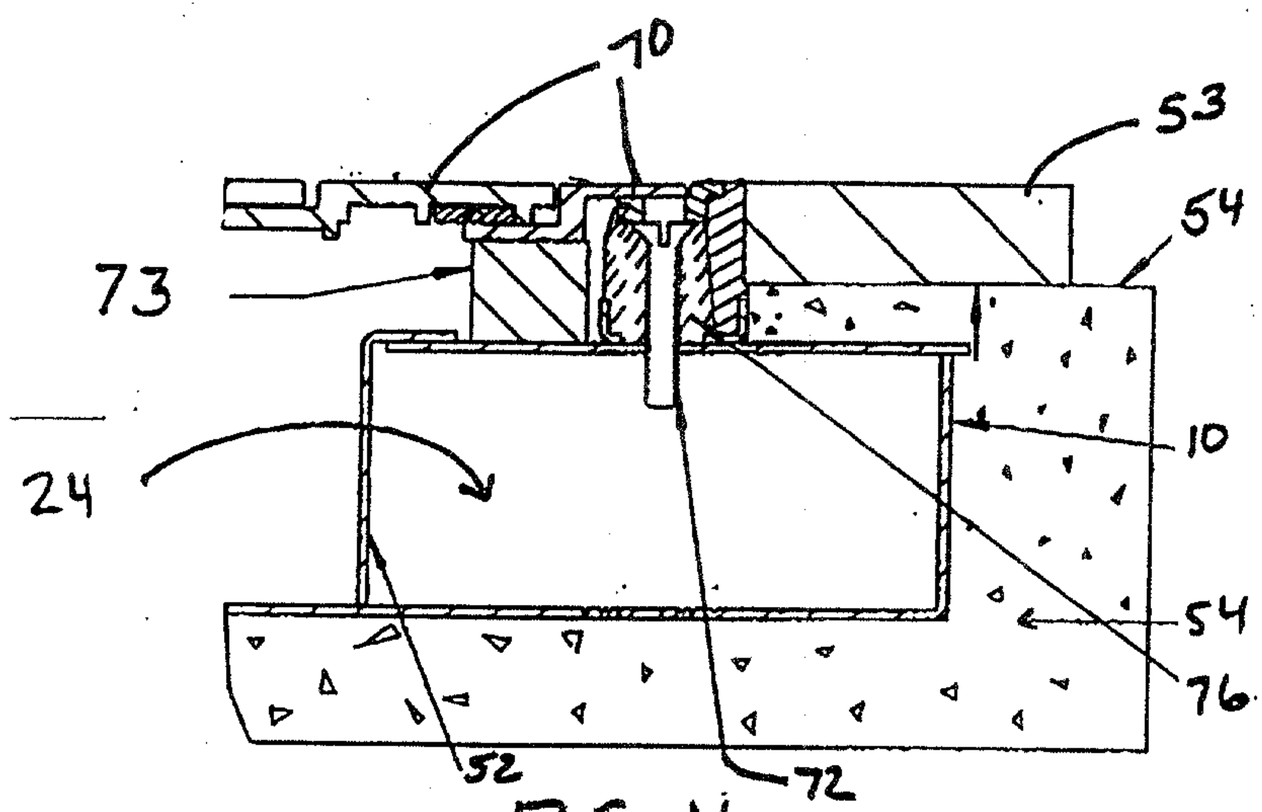


FIG. 16

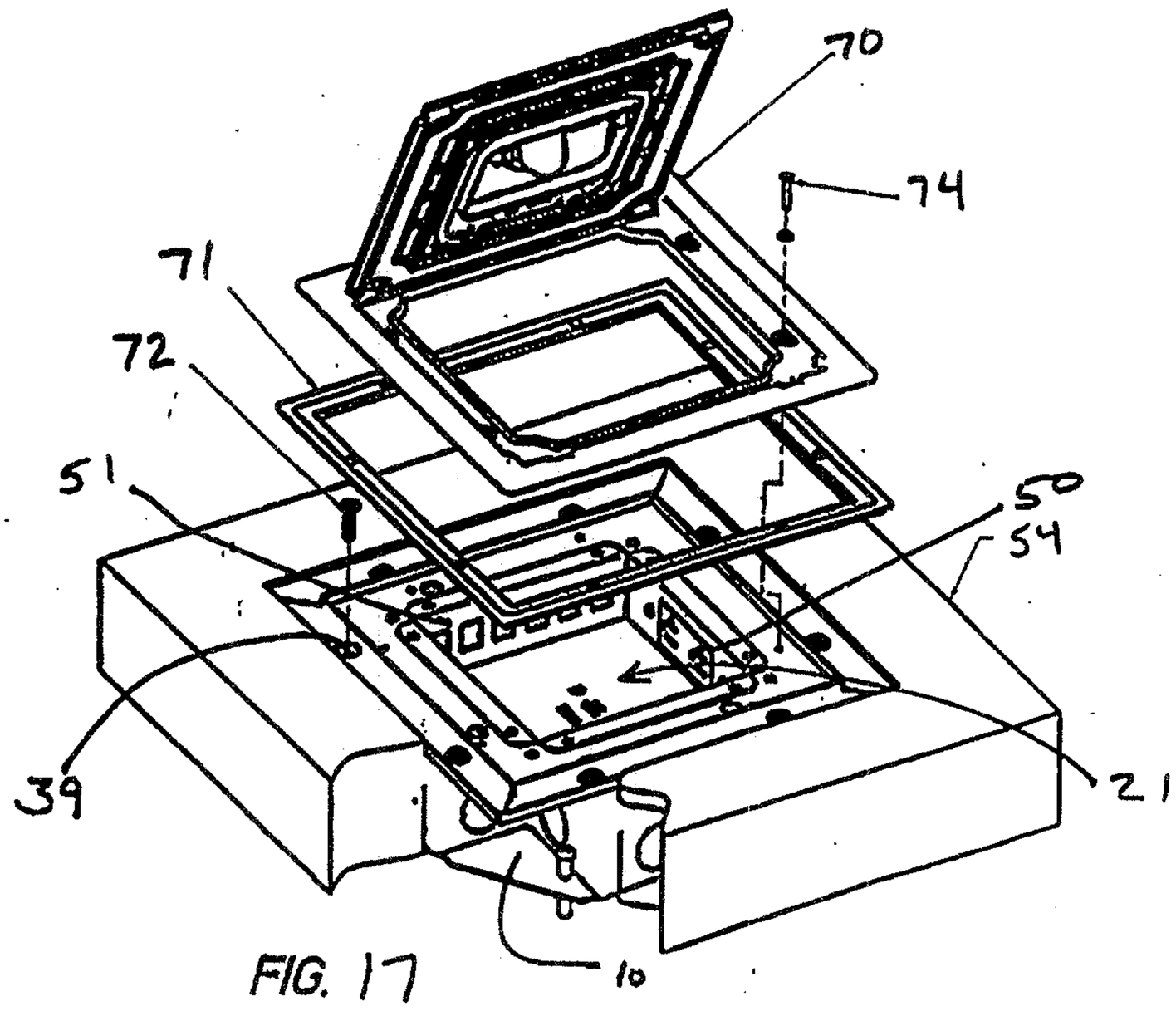
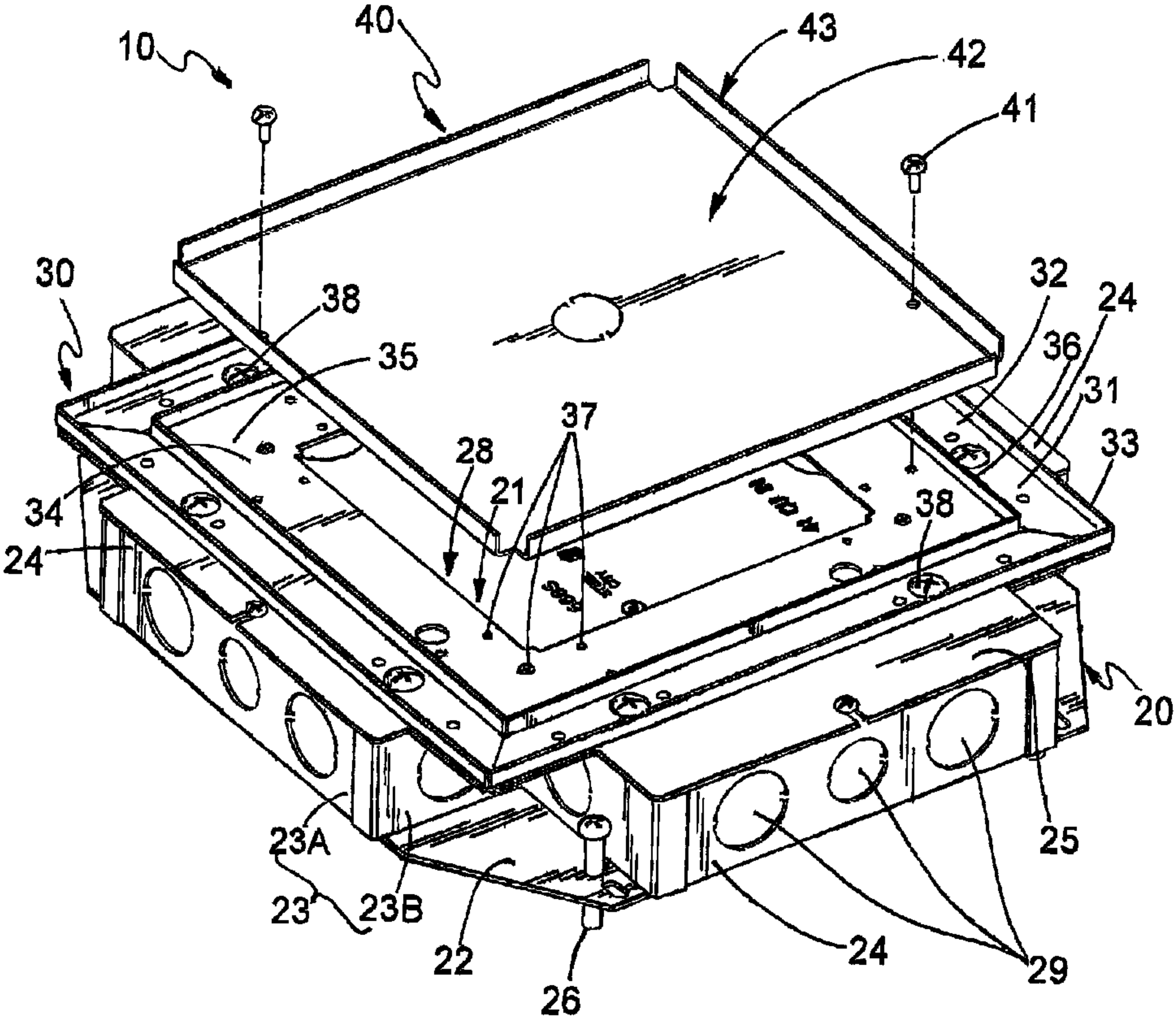


FIG. 17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