



(22) Date de dépôt/Filing Date: 2002/05/24

(41) Mise à la disp. pub./Open to Public Insp.: 2003/11/24

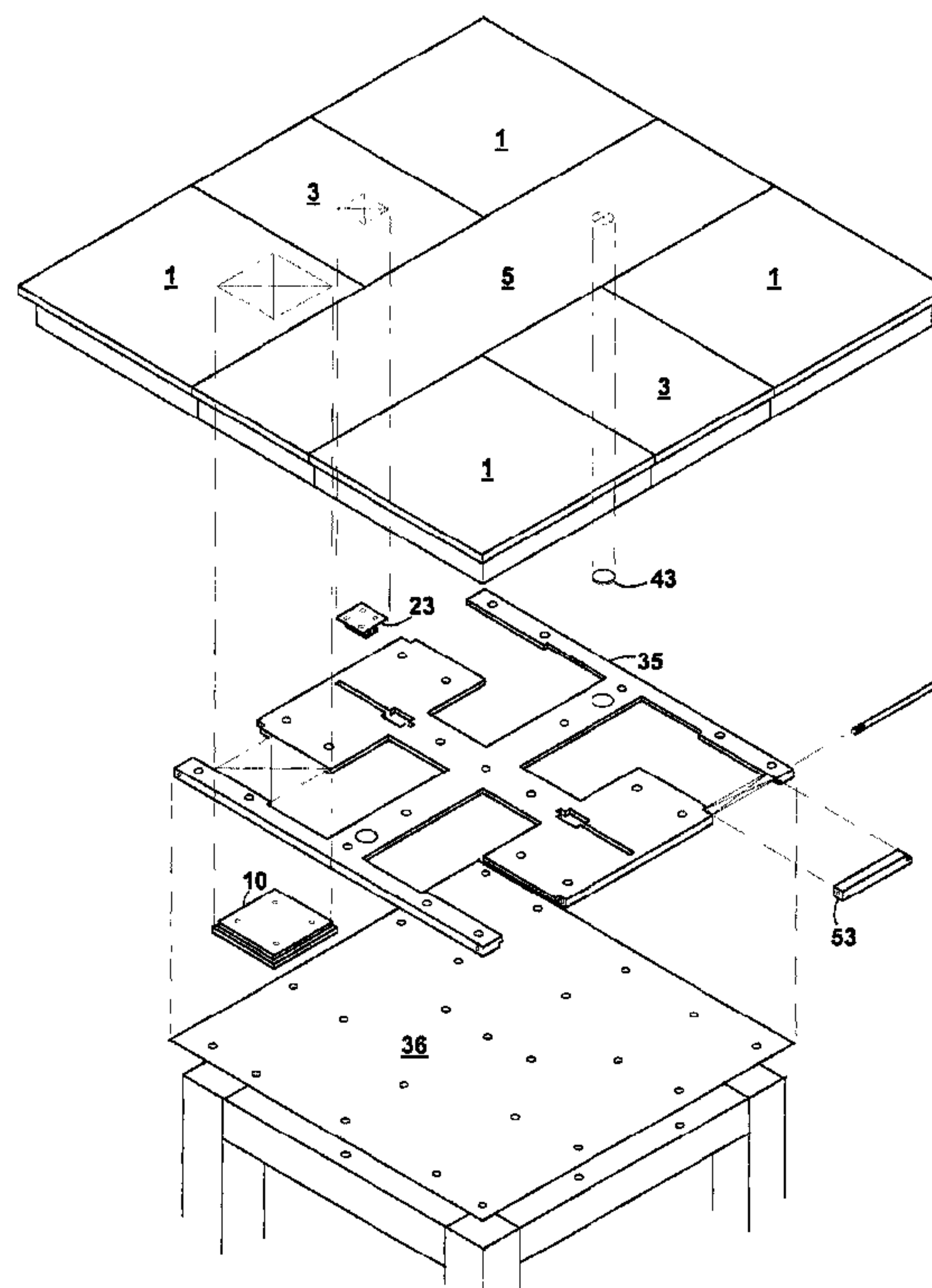
(51) Cl.Int.⁷/Int.Cl.⁷ A47B 1/00

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(54) Titre : STRUCTURE POUR SURFACES A DIFFERENTES DIMENSIONS

(54) Title: STRUCTURE FOR MULTISIZED SURFACE



(57) Abrégé/Abstract:

This compact Structure provides a means of increasing the size of the surface of such items as extension tables, platforms, and extension panels, to provide the option of two additional larger surface areas. These extensions are accomplished without requiring any movement in the supporting base. The Structure has four capital 'L' shaped grooved slots, cut into a flat surface, that are aligned to form a dislocated capital 'H' shape. These 'L' slots hold four principal Surface Leaves via a square or rectangular grooved holder fixed to each leaf. These holders slide along the 'L' slots producing an opening for the insertion of two facing insert leaves. The surface can then be opened further in the opposite direction and receive another longer insert leaf, which runs perpendicularly between the first two inserts. Further grooves, slots, and attachments in the Structure and insert leaves, accommodate the two extensions.



APPLICATION FOR PATENT
INVENTION: STRUCTURE FOR A MULTI-SIZED SURFACE

Abstract of the Disclosure

This compact Structure provides a means of increasing the size of the surface of such items as extension tables, platforms, and extension panels, to provide the option of two additional larger surface areas. These extensions are accomplished without requiring any movement in the supporting base. The Structure has four capital 'L' shaped grooved slots, cut into a flat surface, that are aligned to form a dislocated capital 'H' shape. These 'L' slots hold four principal Surface Leaves via a square or rectangular grooved holder fixed to each leaf. These holders slide along the 'L' slots producing an opening for the insertion of two facing insert leaves. The surface can then be opened further in the opposite direction and receive another longer insert leaf, which runs perpendicularly between the first two inserts. Further grooves, slots, and attachments in the Structure and insert leaves, accommodate the two extensions.

BACKGROUND OF INVENTION

Field of the invention:

This invention relates to the construction and use of surface areas, such as in the interconnection or extension of working or recreational surfaces by means of slotted and grooved elements. References to the invention will relate to the Structure for a multi-sized surface in its application to the field of extensible tables: these references are based on a prototype of the present embodiment.

This invention relates to the Structure for a multi-sized surface that provides for three possible surfaces. A four-leafed surface forms the smallest surface area, hereinafter referred to as the First Position. This smallest surface area halves and slides open to receive two facing insert leaves, leaving an elongated surface area, hereinafter referred to as the Second Position. This Second Position surface can then extend open in a perpendicular direction to the elongated side of the Second Position, to receive a third extension leaf. The third leaf runs between, and in a perpendicular direction to, the two inserts of the Second Position. This last and largest surface area will be hereinafter referred to as the Third Position. The Second Position and Third Position insert leaves combine to form a cross shaped surface inserted between the four principal leaves.

The extension of the principal leaves, hereinafter referred to as the Surface Leaves, is achieved by means of a sub-surface section, hereinafter referred to as the Structure, which includes two principle items, hereinafter referred to as the 'L' Slotted Structure and the Bottom Cover. The Structure acts as an interface between the leaves and the base. The 'L' Slotted Structure contains four 'L' shaped grooves that are aligned in a dislocated 'H' shape. The Bottom Cover is fixed between the 'L' Slotted Structure and the base, allowing for the movement of the Surface Leaves

in such a way that expansion and contraction of the surface can be achieved independently of the base. Two additional slots, for fasteners attached to each of the Second Position insert leaves, aid in securing and aligning the surface in the Second Position and the Third Position. There are also two additional disk-like holes for two positioning disks fixed to the Third Position insert leaf. The Structure, along with the four Surface Leaves and three additional insert leaves, allow this surface area to extend in two movements that are perpendicular to one another.

The Structure can be fixed to many objects, depending on the application. For example, the Structure can be fixed to the chassis of a flatbed trailer, or to a base to hold solar panels. Further applications will be referred to in a subsequent section. The base used as an illustration in the present document is a simple table-base consisting of column legs and crossbars.

Description of Prior Arts:

In general, extension surfaces open along one straight path. Examples of this manner of extension are the patents numbered FR 2797569 and US 4261266. This results in certain limitations on the use of space by this surface extension. For instance, a table that extends in this way is limited to the space used in the path in which it extends. If it is required to have a significant extension, the room will have to be long enough to accommodate this extension. This limitation in space increases the possibility of having to place one side of the table against a wall, resulting in a loss of place settings and surrounding passage space.

The present invention allows for the use of space in both the length and width of an enclosed area when extended. The present invention as applied in the field of extension tables will hereinafter be referred to as the Cross-Insert Table. By extending in both directions, the

surface area can be significantly larger while the effect on overall space in an enclosed area is minimal. A Cross-Insert Table, used as a dinning room table, can extend from seating two to four people, to seating four to six, and then six to twelve. This versatility in surface space is convenient for a variety of room sizes and can have a variety of uses in this field: dining room tables, kitchen tables, game tables, boardroom tables, etc.

Extension tables sometimes extend open in a way that require that they be lifted or that the user slide the legs along the floor. An example of this method of extension is found in the patent numbered CA 00555133. The requirements of these operations call for a significant amount of strength that may not be possible for all adults. It can also cause stress on the table legs which may result in them weakening over time. Other possible problems are scratch marks on a hard floor, or wear marks on a carpet. The Cross-Insert Table overcomes these problems as it extends and contracts without requiring the base to move. This improvement facilitates the ease in extending the table, eliminates stress on the table legs and damage to floors.

Extension tables often have bulky subsections or drop leaves to accommodate the elements used in extending their respective surfaces. An interesting and eloquent example of a table that presents this problem of bulkiness is found in the patent numbered GB 294796. An example of the drop leaf table is found in the patent numbered US 5513578. Space under the tabletop can be limited due to the space used by a bulky sub-structure, or a drop leaf table. The Cross-Insert Table's Structure is slender to the point of being easily hidden by a surface leaf lip. The Cross-Insert Table's lean Structure also has the advantage of having no moving parts exposed under the Structure: its underside is completely covered by the Bottom Cover. This Bottom Cover reduces the possibility of injury during

extension, or while stationary in all three positions. The Bottom Cover also serves to reinforce the 'L' Slotted Structure and leaf attachments. The Cross-Insert Table provides a safe compact Structure that is well out of view in each position.

Extension surfaces that open in a variety of directions can be expensive to produce. While the 'L' Slotted Structure of the Structure for a multi-sized surface is the most elaborate piece that requires detailed precision work, intrinsically, it possesses a simple three-dimensional shape. Advances in moulding techniques allow for an economical production of a durable precision made 'L' Slotted Structure in plastics, or other appropriate materials. The use of wood is also possible for the 'L' Slotted Structure: new methods of computer automated cutting technology can allow for a great number of Structures to be carved out efficiently and effectively. The Structure can be made of new kinds of engineered wood: the prototype's Structure is made from the material known by the acronym of MDF. Whether made from wood, plastic, or some other appropriate material, the 'L' Slotted Structure can be relatively thin, permitting a larger number of units to be stored in a relatively small area, ready for assembly and shipping.

The Structure for a multi-sized surface can have applications other than the field of extensible tables. The invention can be applied to the field of load bearing extensible surfaces, such as extensible platforms in the theatre, on ships, ocean oil platforms, tractor-trailers, platforms to move large objects, such as buildings, and other such fields. The invention can also be applied in the field of extensible surfaces for the presentation, collection or support of various elements as used in such fields as extensible signs, solar panels, or other such fields.

The Structure is suitable for attaching to different kinds and sizes of

fixed surfaces. This invention can attach to such surfaces as a granite ground surface, a steel platform, or a wooden base. Applications may be of a wide scale, for example, sizes may range from small decorative tables to platforms for enormous structures such as an extensible airfield or a man-made island.

BRIEF DESCRIPTION OF DRAWINGS

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings in which;

FIG 1 is an exploded view of the Cross-Insert Table in the Third Position;

FIG 2 is a perspective view of the Cross-Insert Table in the First Position;

FIG 3 is a perspective view of the Cross-Insert Table in the Second Position;

FIG 4 is a perspective view of the Cross-Insert Table in the Third Position;

FIG 5 is a side view of the Cross-Insert Table in the First Position;

FIG 6 is a side view of the Cross-Insert Table in the elongated side of the Second Position and the Third Position;

FIG 7 is a plan view of the underside of the Surface Leaves in the First Position;

FIGS 8A and 8B illustrate a cross-section view of one of the four square grooved holders that attach to each of the four Surface Leaves;

FIG 9 is a plan view of the top of the Surface Leaves illustrating the opening movement to allow for the insertion of the two insert leaves for the Second Position;

FIG 10 is a plan top view of the Surface Leaves and Second Position insert leaves, illustrating the aligning and contracting movements for the Second Position from the First Position;

FIG 11 is a plan view of the underside of the Cross-Insert Table tabletop in the Second Position;

FIGS 12A and 12B illustrate a cross-section view of the Second Position insert leaf fastener;

FIGS 13A and 13B illustrate a cross-section view of the Cross-Insert Table in the Second Position illustrating the different layers: the tabletop,

‘L’ Slotted Structure, Bottom Cover and base;

FIG 14 is a plan view of the surface of the Cross-Insert Table and all insert leaves, illustrating the extension and contraction from the Second Position to the Third Position with the insertion of the Third Position insert leaf;

FIG 15 is a plan view of the underside of the tabletop in the Third Position;

FIGS 16A and 16B illustrate a cross-section view of one of the two positioning disks for the insert leaf in the Third Position;

FIG 17 is a plan view of the top of the ‘L’ Slotted Structure;

FIGS 18A and 18B illustrate a cross-section view of the slot in the Structure that receives the Second Position insert leaf fastener;

FIGS 19A and 19B illustrate a cross-section view of the Structure’s leaf lock; and

FIG 20 is a plan view of the underside of the ‘L’ Slotted Structure.

Description of Preferred Embodiments - details of drawings

The description of details will follow with reference to the Structure for a multi-sized surface as applied to a table, in particular, a prototype of the invention referred to as the Cross-Insert Table.

FIG 1, a view that presents principal elements of the Cross-Insert Table, illustrates how it fits together when the surface is fully expanded in the Third Position. This figure serves as a general reference of the embodiment as a table. References to the details, indicated by the reference numbers, will be presented and described in the drawings that follow **FIG 1**. The X surfaced symbols in the exploded image represent the position of a variety of components, explained in detail in subsequent sections, as found when the table is assembled in the Third Position.

FIGS 2, 3, 4, 5, and 6, illustrate views of the Cross-Insert Table in each of the three positions.

In **FIG 2**, the four Surface Leaves 1 are attached to the base, via the Structure in a manner dealt with below, and remain attached to it in all three positions. A lip 2 is attached to the bottom edge of each Surface Leaf.

In **FIG 3**, two Second Position insert leaves 3 are inserted for the extension of the Cross-Insert Table to the Second Position. These two leaves are identical in size and shape and also have a lip 4.

In **FIG 4**, the Third Position insert leaf 5, is inserted for the extension of the Cross-Insert Table to the Third Position. This leaf also has a lip 6.

FIG 5 illustrates a side view of the Cross-Insert Table consisting of a typical base with column legs 7 and cross bars 8. The compactness of the Cross-Insert Table is apparent in this figure.

FIG 6 illustrates a side view of the Cross-Insert Table in the Second Position and, in this instance, the Third Position: given a base with symmetrical sides, when the Surface Leaves are square, and the Second Position insert leaves are the same width as the Third Position insert leaf, side views of the table in the Third Position, i.e., the elongated side from the Second Position and its opposite side in the Third Position, are the same. If there is a variation in size in one of the aforementioned elements, the two side views will differ, requiring an extra figure.

In **FIG 7**, surface clamps 9 that attach and thus cross at the edges of the Surface Leaves, are represented by small rectangular symbols. Each Surface Leaf is fitted with a square grooved holder 10 that slides in along the slots of the 'L' Slotted Structure when extending the tabletop surface. This movement within the Structure is further explained in a subsequent

section. The four circles 11 on each square grooved holder represent countersunk holes for the screws that fasten the holders to the bottom of the Surface Leaves.

FIG 8A illustrates an enlarged partial top section of a Surface Leaf 1 cut to expose the top of the square grooved holder 12. The circles represent the holes 13 where the fastening screws pass through and attach to the bottom of the Surface Leaf.

FIG 8B is a cross-section taken along the broken line 14 in **FIG 8A**. The edge of the holder is grooved 15 to allow it to be held in the Structure and slide along in it.

Movements of the Surface Leaves and Second Position insert leaves, from the First Position to the Second Position, are outlined in **FIGS 9, 10 and 11**.

FIG 9 shows the initial movement for the extension to the Second Position represented by arrows 16. The length of the arrows is for purposes of identification and indication of direction only, and, is not to be seen as a reference to some 'distance' in movement. The dowels 17 of the First Position top are visible and positioned on each Surface Leaf in a clockwise position.

FIG 10 includes the Second Position insert leaves, and illustrates the two contracting movements that complete the elongated surface in the Second Position. When the initial extension is sufficient to accommodate the width of the Second Position insert leaves and their corresponding dowels, the tabletop can then close in two movements. First, the facing ends of the Second Position insert leaves are fit together as shown by the short arrows 18. In the latter movement, the facing dowels 19 of the Second Position insert leaves are fit in place. Second, the two remaining halves of the top close, represented by longer arrows 20, allowing the

remaining dowels 21 to fit in place to form the Second Position surface.

In **FIG 11**, clamps 22 are aligned on the Second Position insert leaves 3 to fasten to their corresponding leaf clamps of the Surface Leaves 1. Attached to the underside of each of the Second Position insert leaves is a fastener 23. The circles 24 represent countersunk holes for screws that attach the Second Position insert leaf fastener to the bottom of the Second Position insert leaf. A further explanation of the Second Position insert leaf fasteners is outlined in the next two figures.

FIG 12A illustrates the Second Position insert leaf fastener by an enlarged detail of a section of the top of the Second Position insert leaf 3. The top surface 25 of the Second Position insert leaf fastener is partially exposed from under the Second Position insert leaf 3. The circles 26 represent the holes that permit screws to pass through to fix the fastener to the bottom of the Second Position insert leaf.

FIG 12B is a cross-section view taken from along the broken line 27 in **FIG 12A**. The Second Position insert leaf fastener has the form of an 'I' beam, the top 28 of which is countersunk into the bottom of the Second Position insert leaf. The bottom 29 of the 'I' beam is shorter and thicker than the top. The bottom 29 of this 'I' shaped fastener, along with the vertical shaft 30 of the 'I', fasten to, and slide along in a slot in the Structure.

FIG 13A is a plan top view of the tabletop in the Second Position which is partially cut along the broken line 31 to reveal the top of the base 32, and a circle 33, representing the hole which receives a fastening bolt attaching the base to the Structure.

FIG 13B gives a partial cross-section side view of the table taken from the right-angled broken line 31 in **FIG 13A**. Illustrated is one of two slots 34 for the Second Position insert leaf fastener running through the

'L' Slotted Structure 35 and closed off by the Bottom Cover 36. The 'L' slots 37 for each of the four square grooved holders are also cut completely through the 'L' Slotted Structure. The Second Position insert leaf fasteners and the holders of the Surface Leaves slide within their respective slots, while the bottom surfaces of all of the leaves slide along the top of the 'L' Slotted Structure. A further examination of these items will be explained more fully in a subsequent section.

FIG 14 illustrates the extension of the tabletop to the Third Position while further details of the Third Position insert leaf are illustrated in **FIGS 15** and **16**.

In **FIG 14**, arrows illustrate the direction of the extension 38 from the Second Position to make the necessary space for the Third Position insert leaf 5 and its dowels for the facing Second Position insert leaves 39 and for the facing Surface Leaves 40. Once the Third Position insert leaf is in place, the two tabletop halves contract 41 to form the tabletop in the Third Position. The dowels on the Third Position insert leaf are aligned with their corresponding holes and dowels on the Second Position insert leaves and Surface Leaves.

In **FIG 15** the clamps 42 for the Third Position insert leaf 5 are arranged in the same manner as in the First Position and the Second Position. Two positioning disks 43 are attached to the Third Position insert leaf. These disks serve to place the Third Position insert leaf in the correct position when either opening or closing the two halves of the Second Position, respectfully in expanding or contracting the surface area.

FIG 16A illustrates a partial top view of a section of the Third Position insert leaf 5. The view exposes the surface 44 of the positioning disk that is fixed to the underside of the Third Position insert leaf. The small circle 45 in the center of the top view represents the hole where the

screw passes through to attach the positioning disk to the underside of the Third Position insert leaf.

FIG 16B shows the cross-section view cut along the broken line 46 in **FIG 16A**. The positioning disk is tapered 47 which facilitates its placement in the 'L' Slotted Structures' receiving slot, shown in a subsequent section. The tapered screw shaped hole in the center of the bottom view represents a countersunk hole 48 made to receive a taper headed screw that attaches the positioning disk to the underside of the Third Position insert leaf.

FIG 17 illustrates the position of the Surface Leaves holders in each of the Cross-Insert Table's three positions. The three squares marked with an X in the upper right 'L' slot of the 'L' Slotted Structure are symbols that represent the location of the square grooved holders when in the First Position 49, Second Position 50, and the Third Position 51. The square symbol with an X represents the area of the top of the square grooved holder. The First Position consists of all four square grooved holders positioned at the closest point to the center of the 'L' Slotted Structure, or, at the bottom toe of each 'L' slot. There is a notch 52 at the outside elbow of each 'L' slot. The square grooved holder fits into this notch allowing for the extra space needed for the dowels to clear the edge of the Surface Leaf dowels when receiving a Second Position insert leaf. Once the table is in the Second Position, the square grooved holders are cleared from the notch 52, and ready to be slid along in the 'L' slots for the Third Position.

Continuing with **FIG 17**, the two halves of the Second Position tabletop, each consisting of one Second Position insert leaf and two Surface Leaves, slide outwards to receive the Third Position insert leaf. The latter movement consists of the square grooved holders of the two attached Surface Leaves, sliding along in the corresponding slots towards

the outer edge of the 'L' Slotted Structure. Once in this position, the square grooved holders will be against the leaf-locks 53. Once the Third Position insert leaf is in place, the holders and fasteners will contract to complete the Third Position tabletop. The latter movement results in a space 54 between the leaf-lock and the square grooved holder in the Third Position 51. These movements coincide with movements of the Second Position insert leaf fasteners in the two facing slots 34. These two slots are further explained in a subsequent section.

Continuing on **FIG 17**, two large circles 55 represent the circular slots that receive the positioning disks of the Third Position insert leaf. The smaller circles 56 represent countersunk holes for carriage bolts that will fasten the 'L' Slotted Structure to the Bottom Cover and, where necessary, the base. It is important that there are no protruding carriage bolts on the Structure's surface, as the Surface Leaves and Second Position insert leaves must be able to slide over it freely.

One of the two slots 34 in **FIG 17** is further illustrated in **FIG 18A** and **FIG 18B**.

In **FIG 18A**, an opening 57 equivalent to the dimensions of the bottom of the insert leaf fastener is cut into the Structure in order to receive the Second Position insert leaf fastener. The bottom of the view shows the tip 58 of the slot for the dowels of the facing Second Position insert leaves. When the table is in the Second Position, the shaft of the Second Position insert leaf fastener will be positioned up against the end of the tip 58. The top part of this view shows the remaining channel of the slot 59. The length of this slot, from tip 58 to end, must be sufficient to cover half the width of the Third Position insert leaf and the corresponding dowels of the latter.

FIG 18B is a cross-section view of the slot from the broken line 60

in **FIG 18A**. The grooves 61 in the slot hold the bottom of the 'I' beam shaped Second Position leaf insert fastener, and allows it to slide along in the slot.

FIG 19A is a partial top view of a corner of the Structure. A notch 62 on the inner edge of the outside 'L' slots facilitates the placement of the leaf-lock.

The partial cross-section view of the leaf-lock in **FIG 19B** is taken from the broken line 63 in **FIG 19A**. A countersunk bolt 64 runs from the outer edge of the Structure, through the leaf-lock 53 into the facing side 65 of the 'L' slot in the Structure. The leaf-lock 53 serves to secure the four Surface Leaves by locking the square grooved holder for the Surface Leaves in the 'L' shaped slots. It also serves to reinforce and seal the outer edge of the Structure.

In **FIG 20** the grooves 66 in the slots that hold the square grooved holders for the four Surface Leaves are clearly visible. The grooves 61 in the 'L' Slotted Structure for the Second Position insert leaf fasteners are also clearly visible. The circles 67 represent the holes where carriage bolts will pass through to fasten and hold the 'L' Slotted Structure to the Bottom Cover and, where appropriate, the table base.

Various modifications of the embodiment of the Structure for a multi-sized surface are intended to be covered by the present application provided these modifications fall within the interpretation of any of the appended claims. For example, the 'L' Slotted Structure and Bottom Cover could be seen as one piece. However, a Bottom Cover is preferable.

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

1. A compact Structure for use as a mechanism to extend a surface area twice, in perpendicular directions, on a fixed base, providing a total of three usable surface areas; a Structure comprising of:

an 'L' Slotted Structure with four capital 'L' shaped slots, that are aligned to form a dislocated capital 'H' shape, and are used to receive four holders each of which is fixed to one of the four principle Surface Leaves;

a notch in the outside elbow of each 'L' slot to accommodate the holders for the extension in the Second Position;

two symmetrically facing slots cut out of the 'L' Slotted Structure to receive fasteners for Second Position insert leaves;

two circular slots in the 'L' Slotted Structure to receive the positioning disks of the Third Position insert leaf;

a Bottom Cover fastened to the underside of the 'L' Slotted Structure; and

a notch in the inner outside edge of each 'L' of the 'L' Slotted Structure with bored holes to receive a leaf-lock on the outside of each of the 'L' shaped slots.

2. A Structure, as claimed in 1, where the holders are square, or rectangular, and grooved and slide along the 'L' shaped grooves to allow the available surface to be opened up from the First Position to the Second Position and to the Third Position.

3. A Structure as claimed in 1 whereby the fasteners for the Second Position insert leaves possess an elongated 'I' beam shape, with the top of each 'I' countersunk into the bottom of each Second Position insert leaf, fitting into the slot and capable of sliding to accommodate extensions for the Second Position and the Third Position.
4. A Structure as claimed in 1, 2, and 3, whereby the fasteners of the Second Position insert leaves, and the holders for the principle Surface Leaves, move conjointly from the Second Position to the Third Position.
5. A Structure as claimed in 1, whereby the Third Position insert leaf contains two flat positioning disks that hold the Third Position insert leaf in place and align it when the surface is extending.
6. A Structure as claimed in 1, whereby the outer edge of the 'L' shaped slot is notched to receive a leaf-lock with a holding bolt that runs through the leaf-lock and fixes it to the outer edge of the Structure.
7. A Structure as claimed in 1 and 6, whereby an extra space between the leaf-lock and the facing edge of the square grooved holder in the Third Position accommodates for the extra expansion space needed for the passage of dowels in the Third Position.
8. A Structure as claimed in 1, 2, 3, 4, 5, 6, and 7, whereby it is applied in the field of extensible tables, such as the Cross-Insert Table as applied to dining room tables, boardroom tables, game tables, and other such fields.
9. A Structure as claimed in 1, 2, 3, 4, 5, 6, and 7, whereby it is applied in the field of extensible load bearing surfaces, such as extensible theatre stages, platforms on ships, ocean oil platforms, tractor trailers and other such fields.

10. A Structure as claimed in 1, 2, 3, 4, 5, 6, and 7, whereby it is applied in the field of extensible surfaces for the presentation, collection, or support of various elements as applied to such fields as extensible signs, solar panels, or other such fields.

FIG. 1

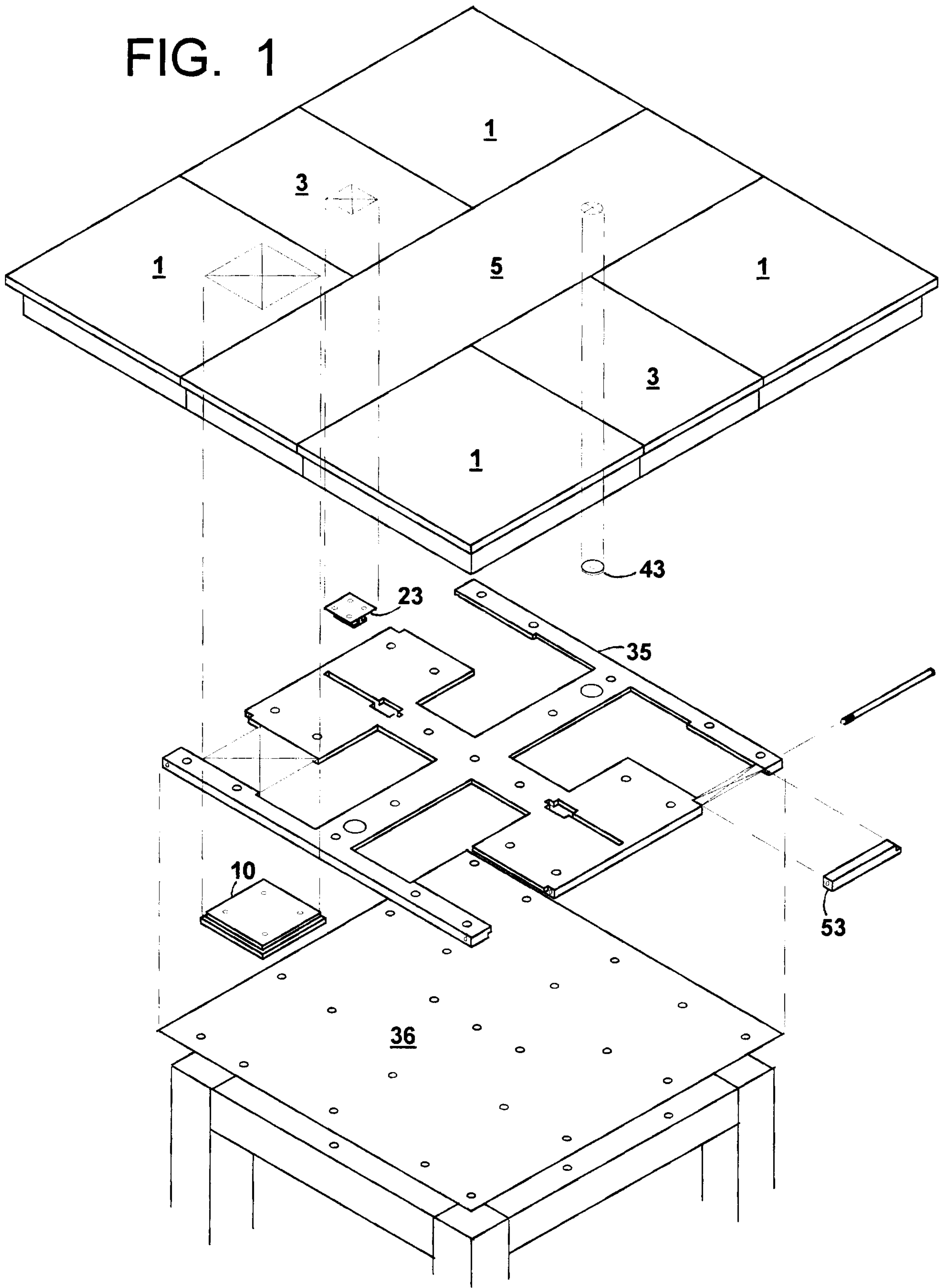


FIG.2

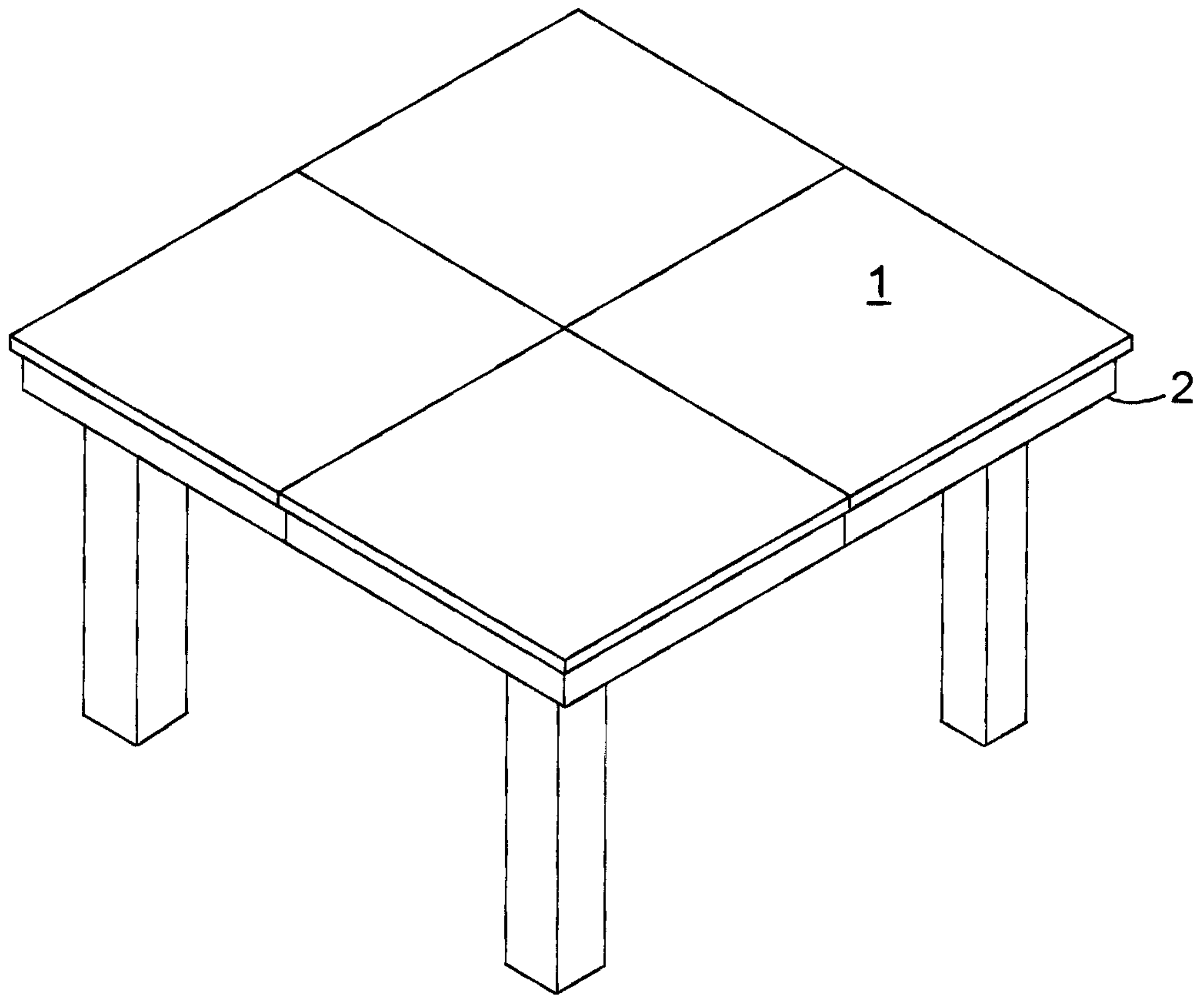


FIG. 3

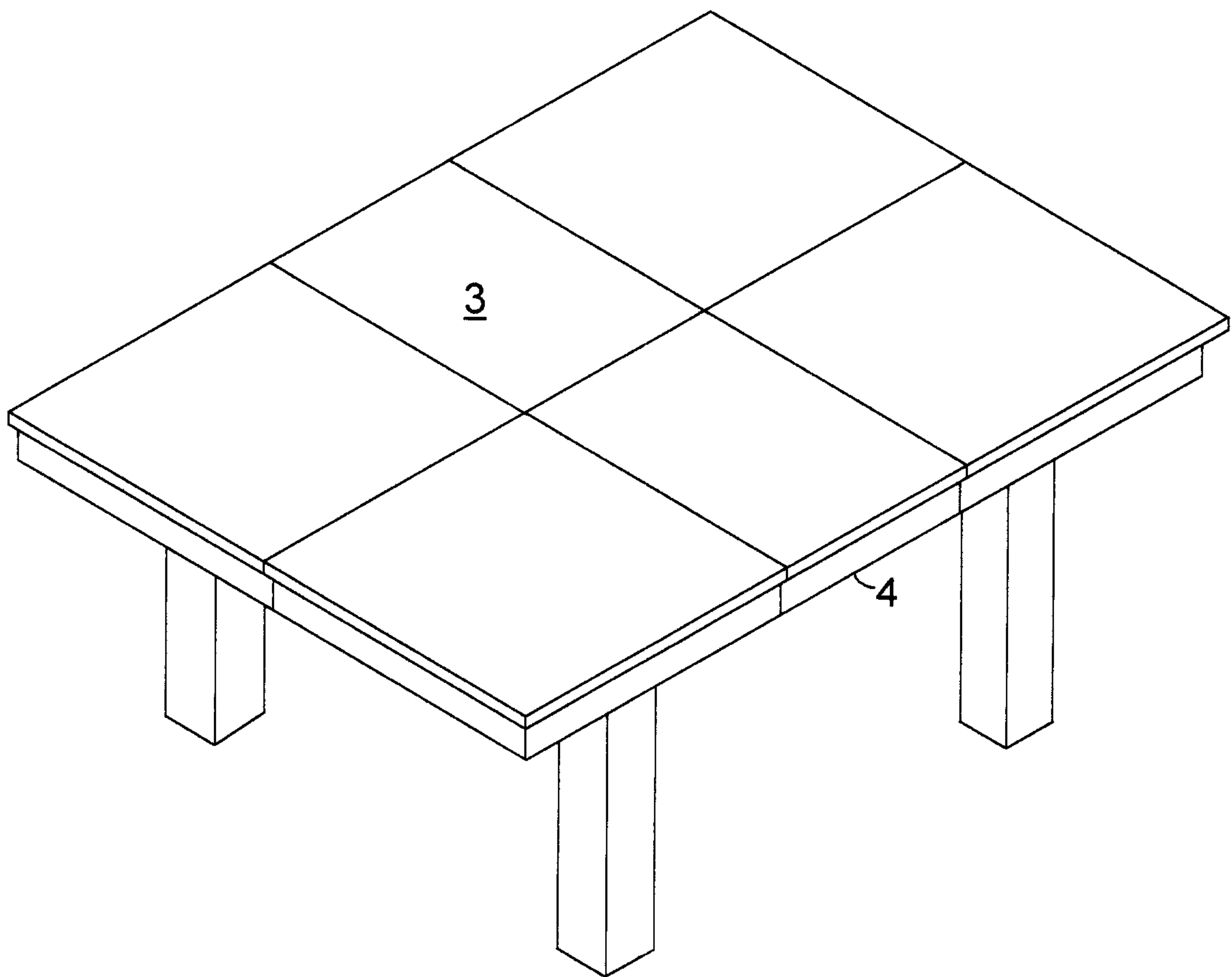


FIG. 4

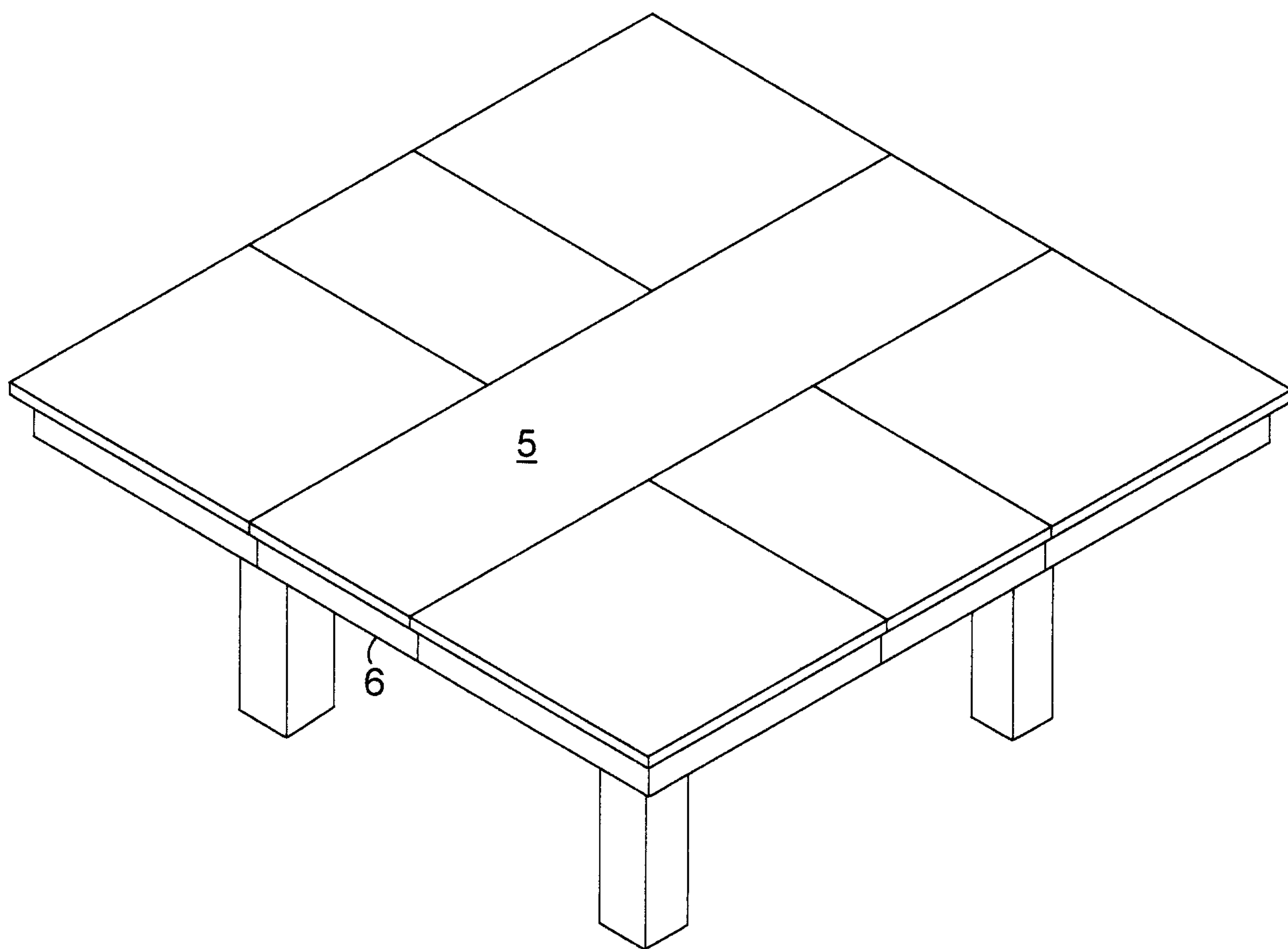


FIG. 5

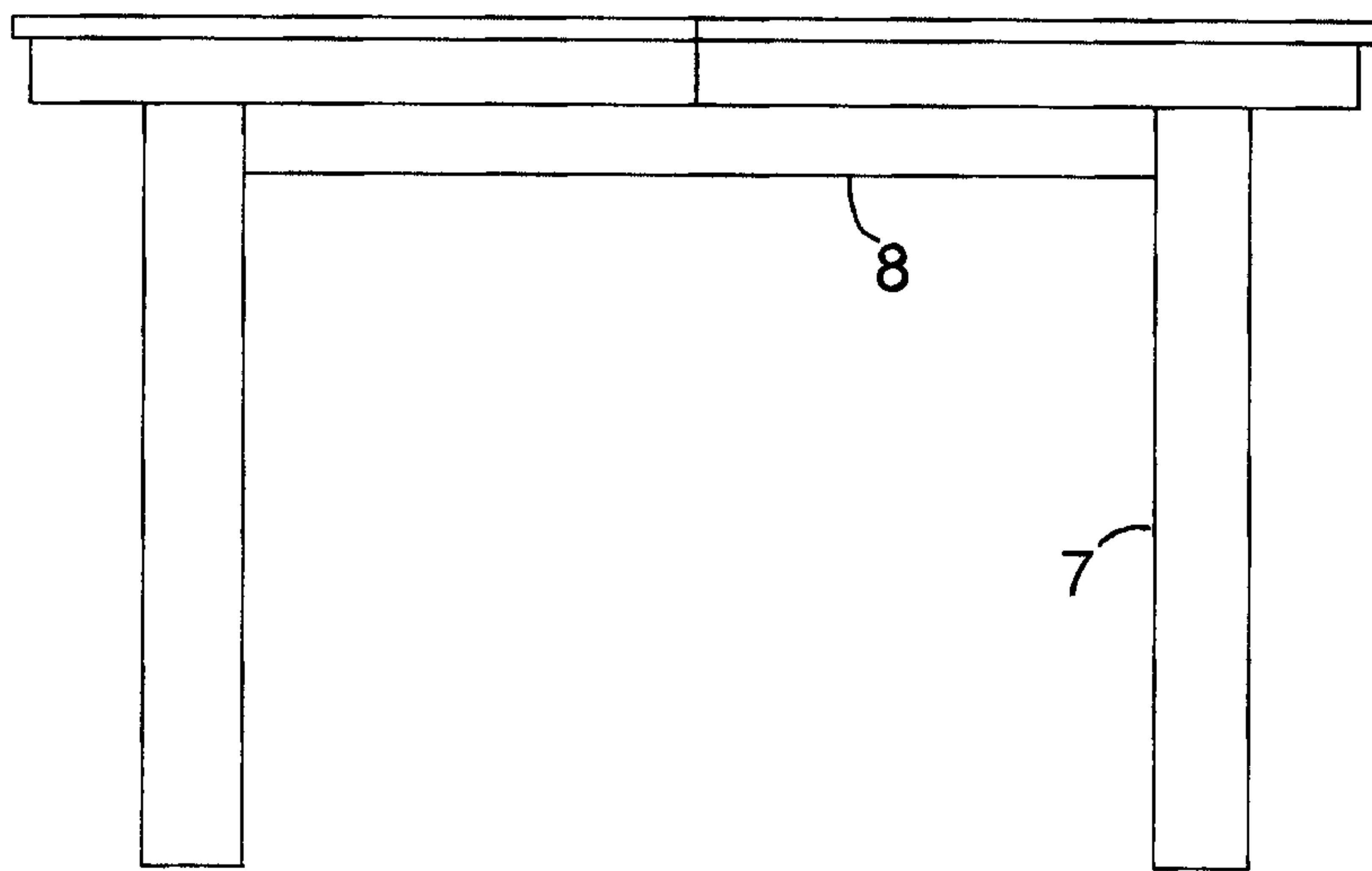


FIG. 6

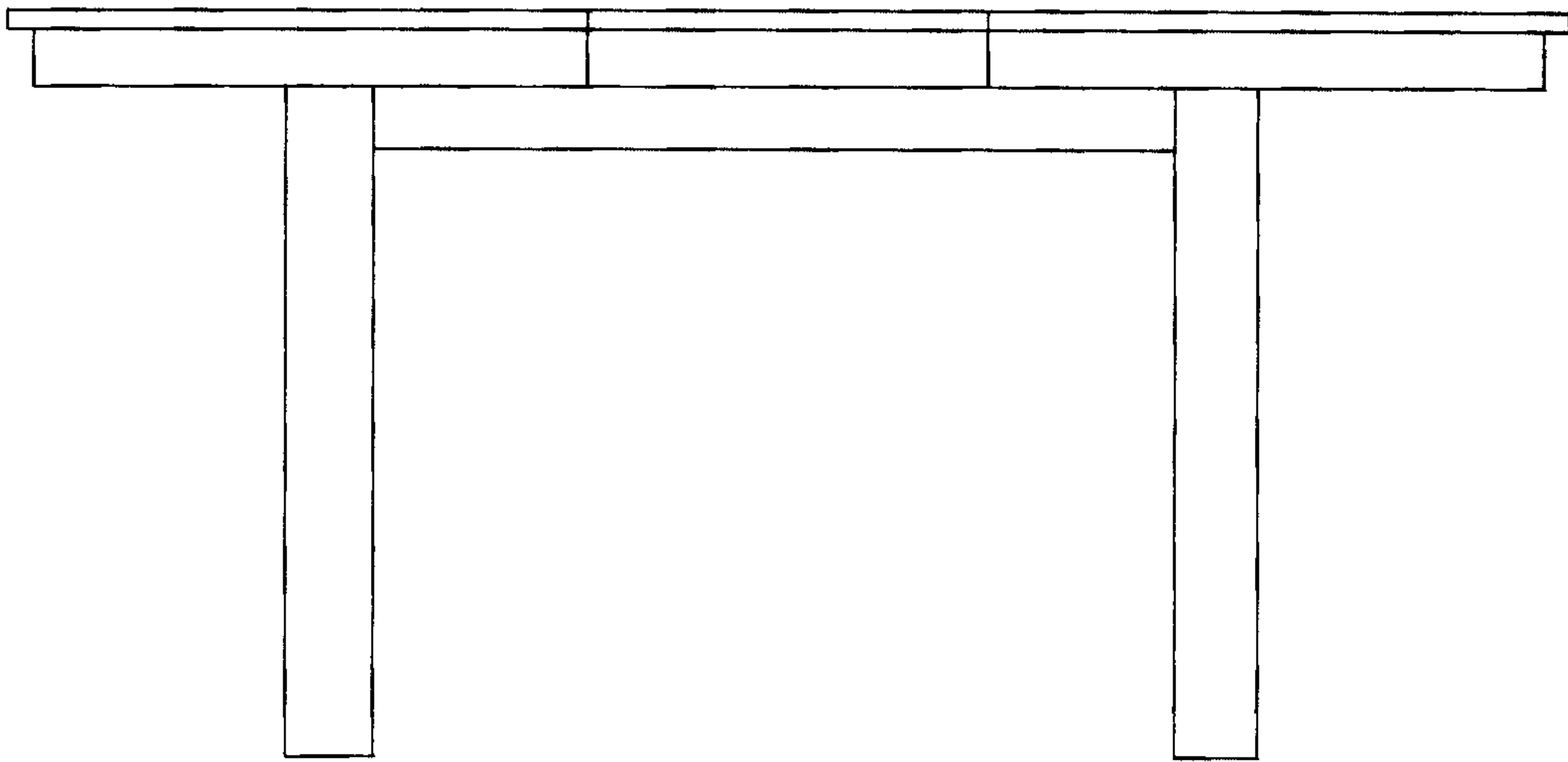


FIG. 7

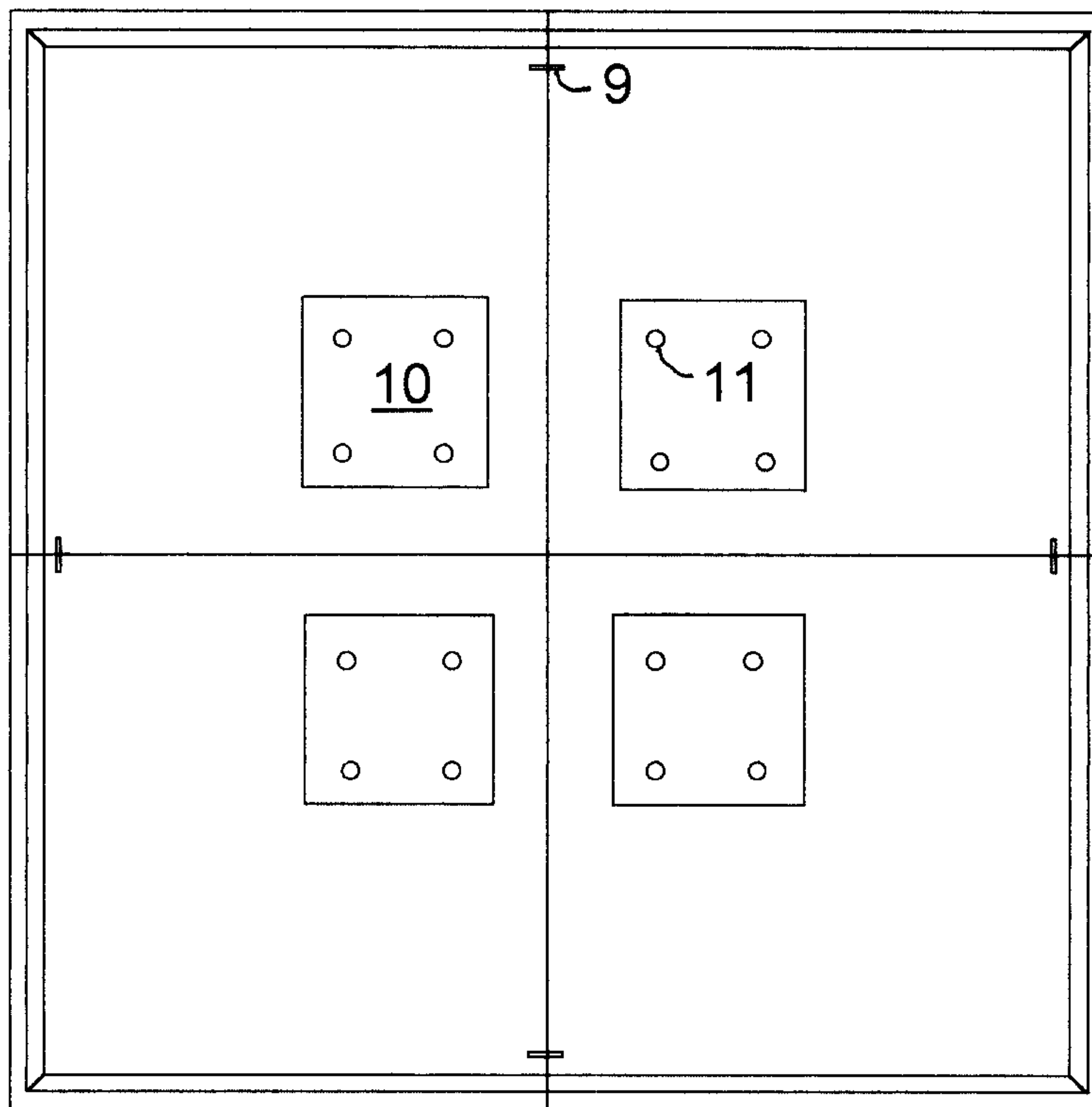


FIG. 8A

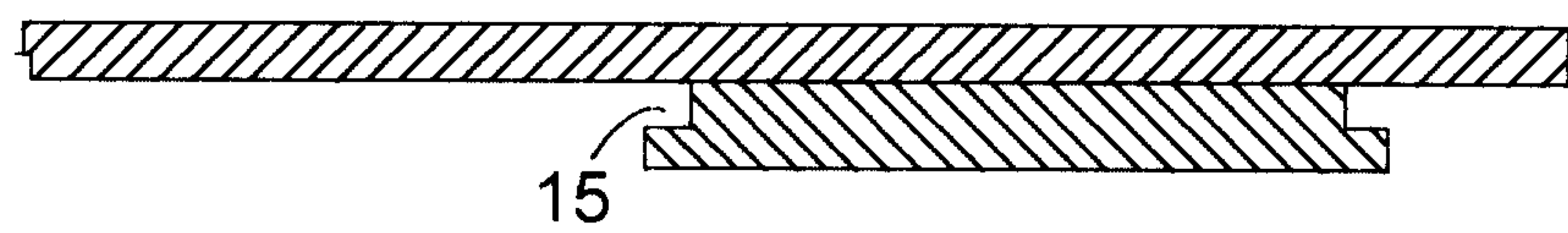
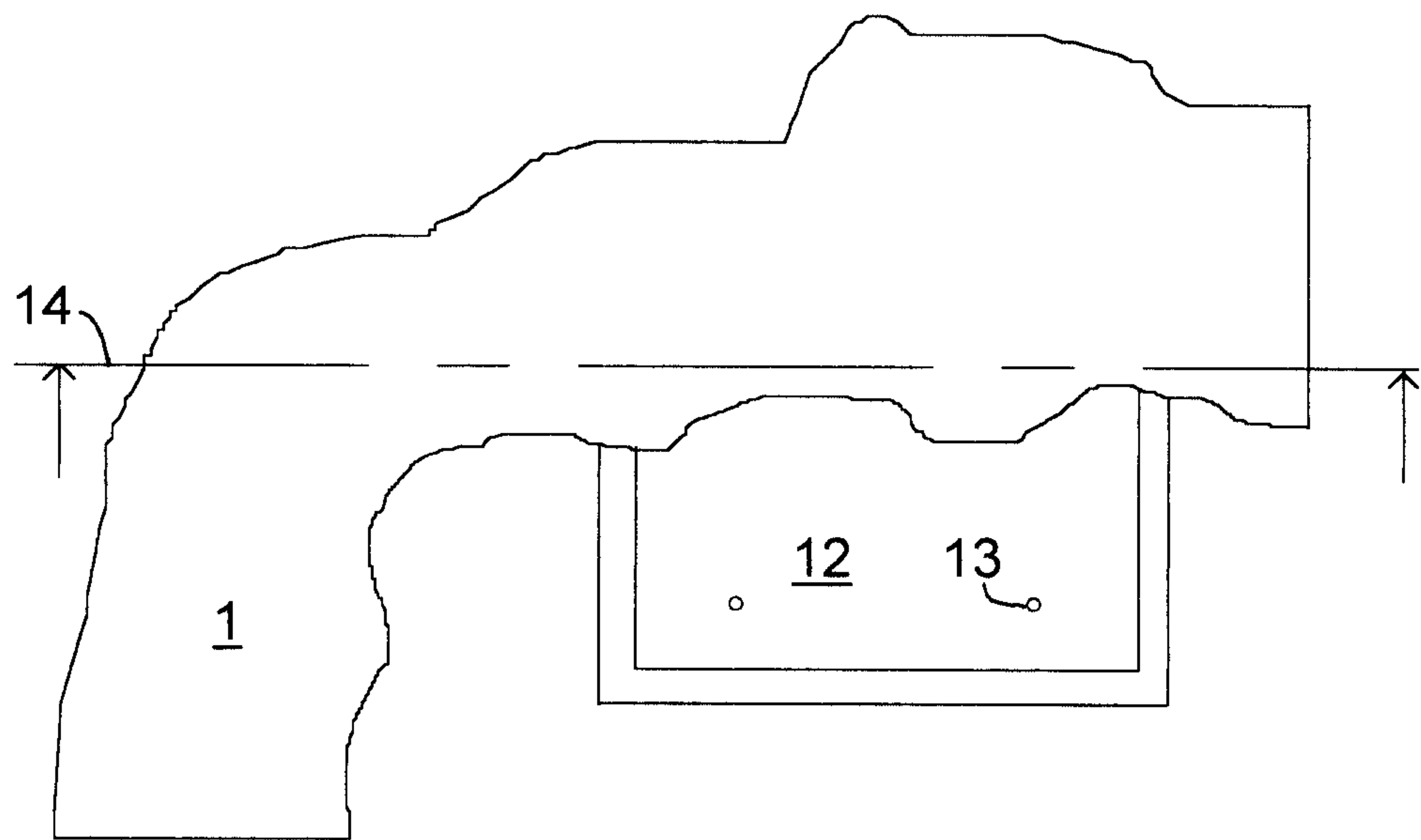


FIG. 8B

FIG. 9

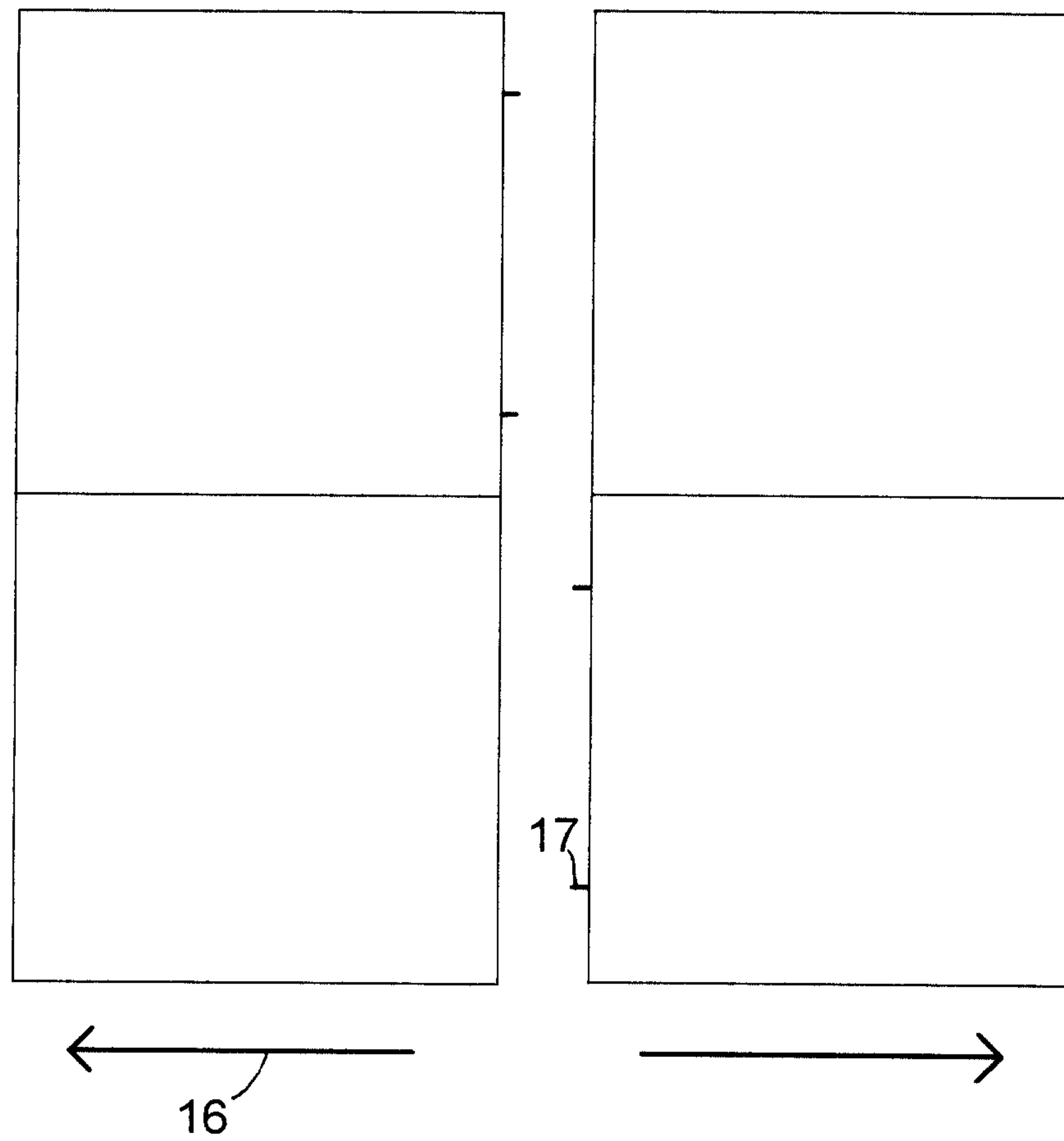


FIG. 10

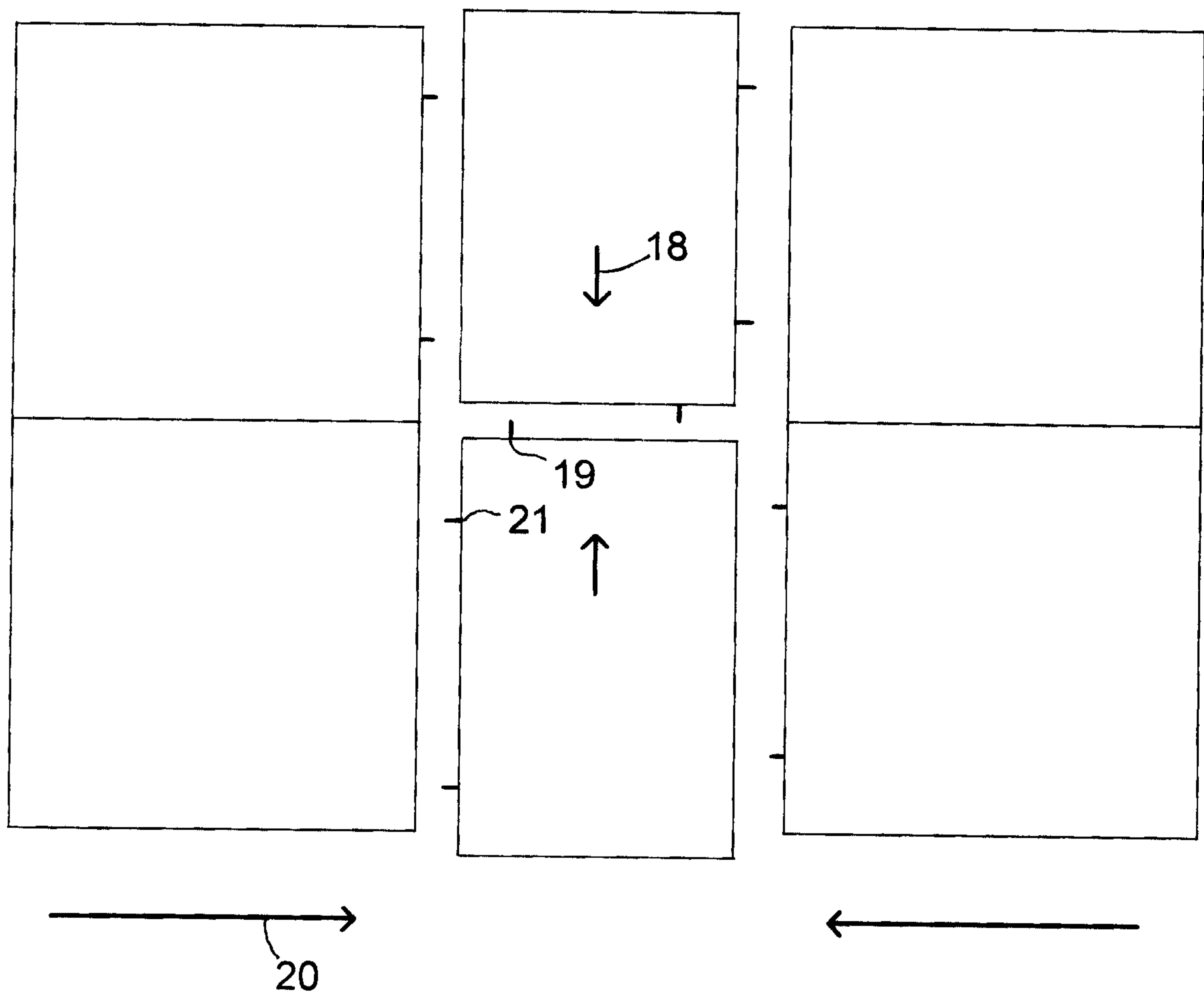


FIG. 11

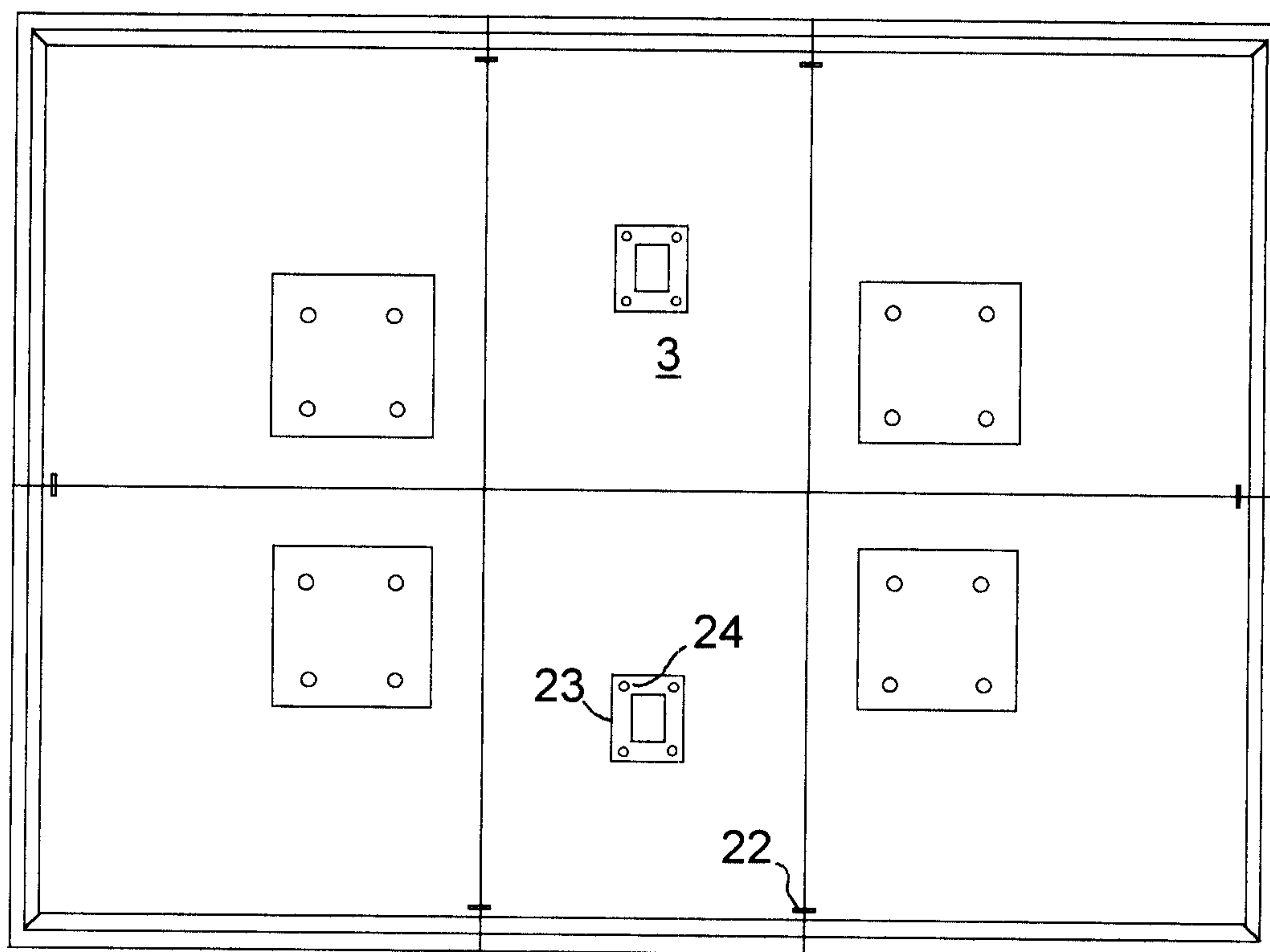


FIG. 12A

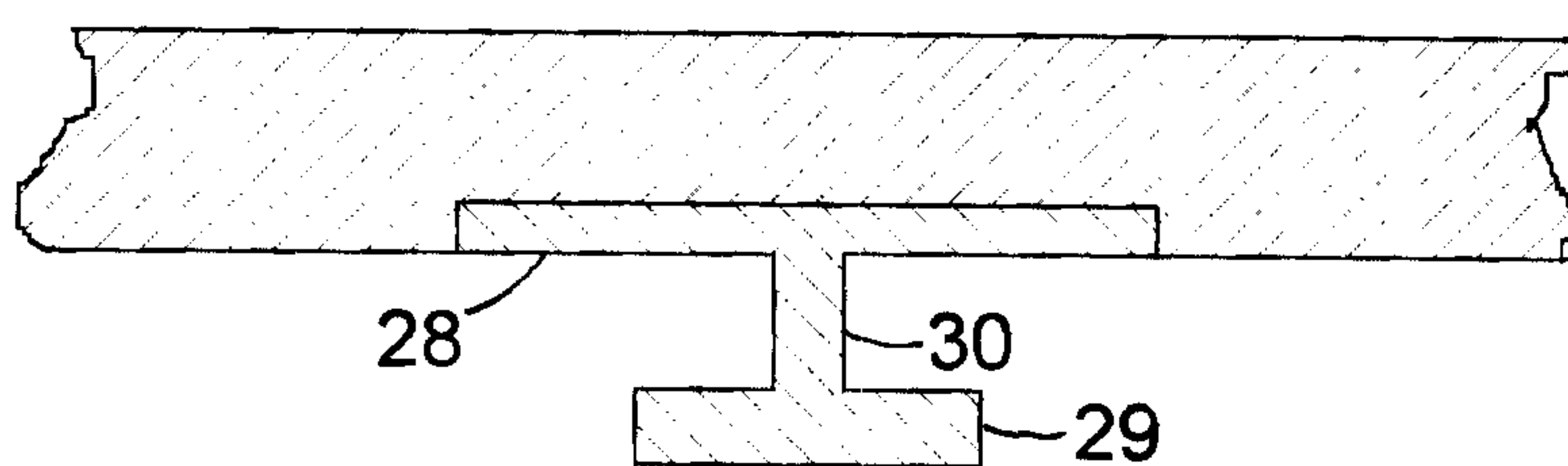
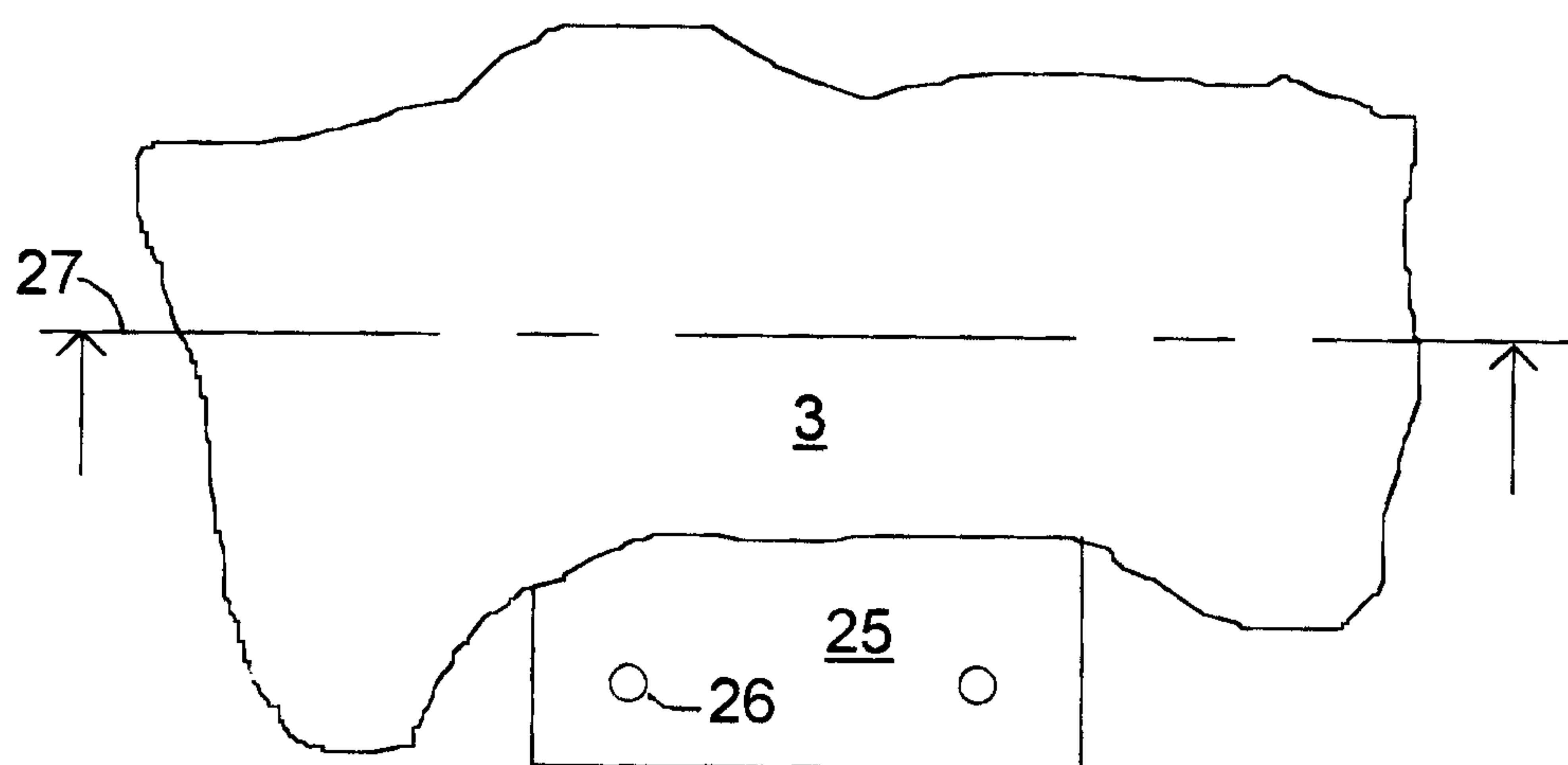


FIG. 12B

FIG. 14

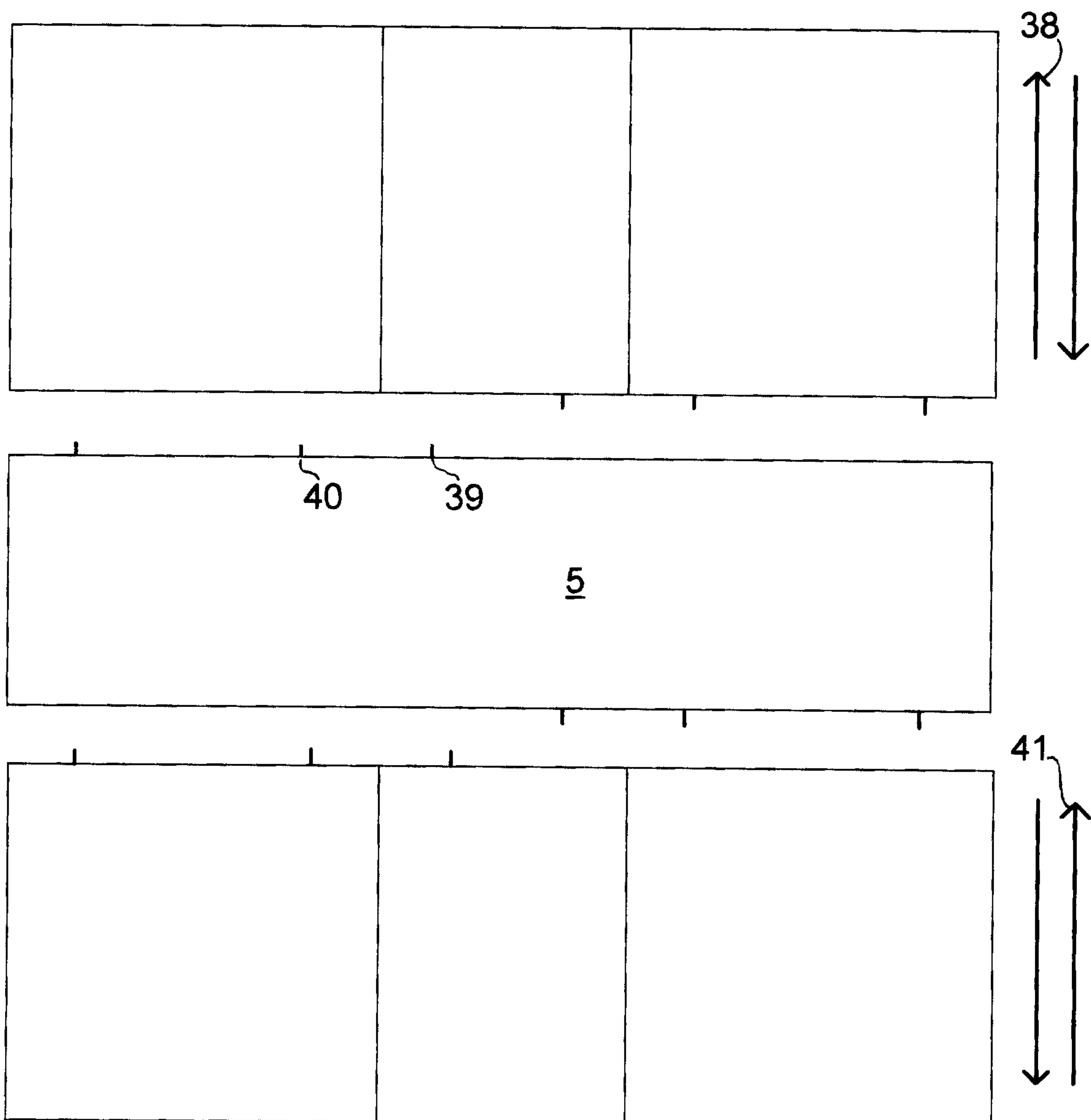


FIG. 15

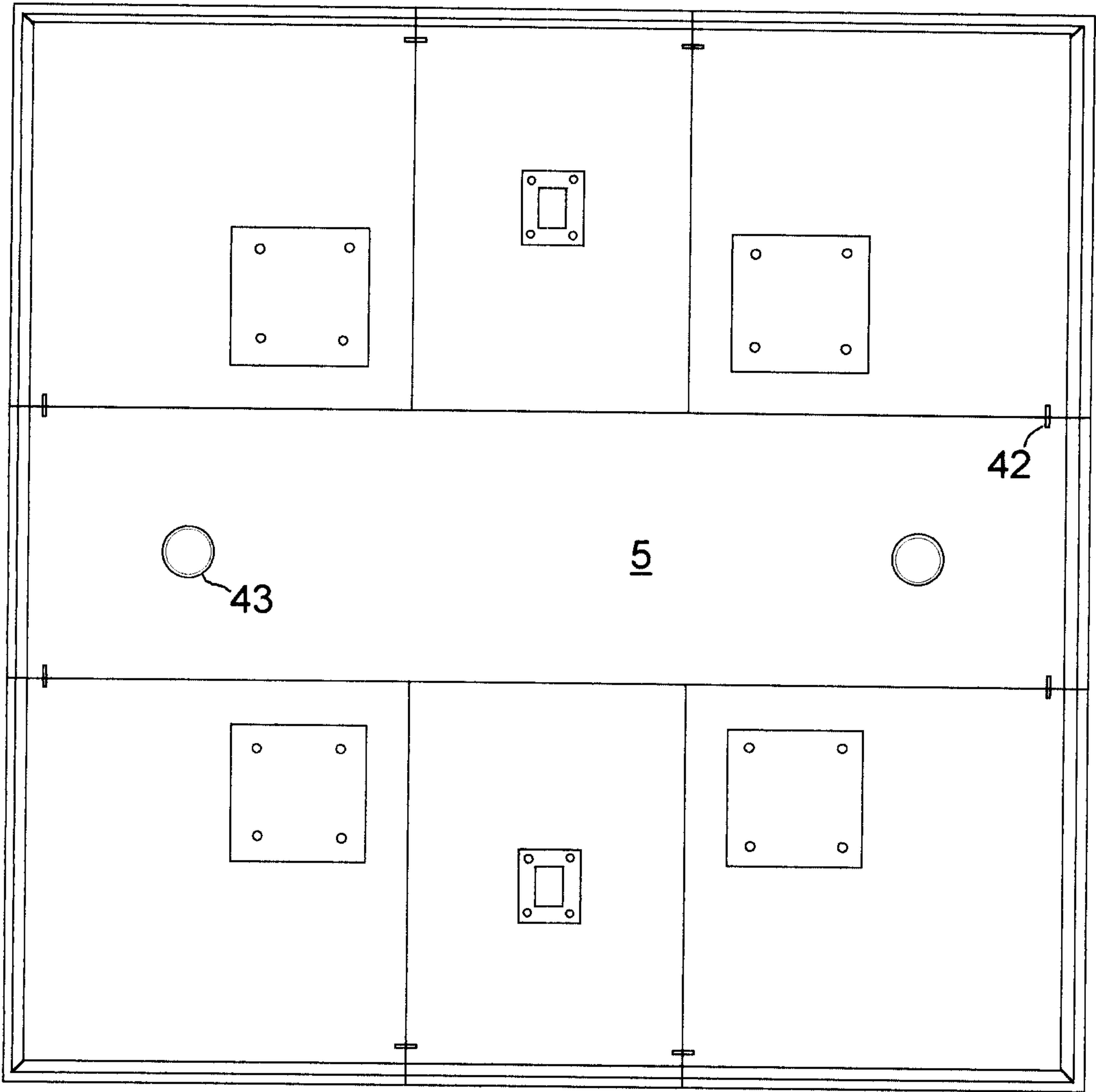


FIG. 16A

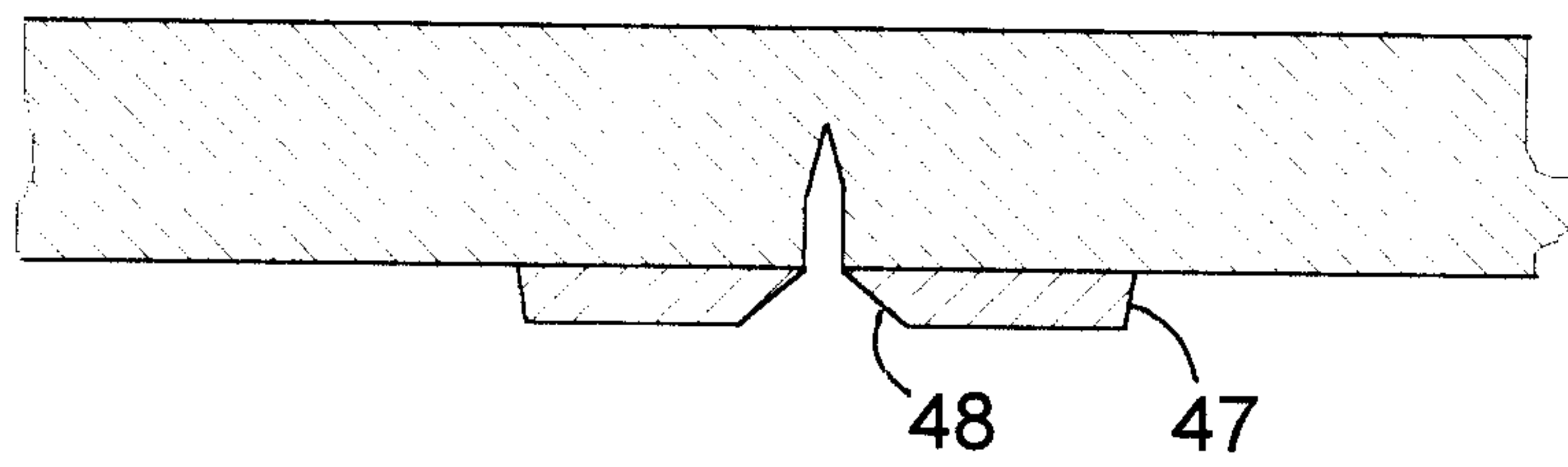
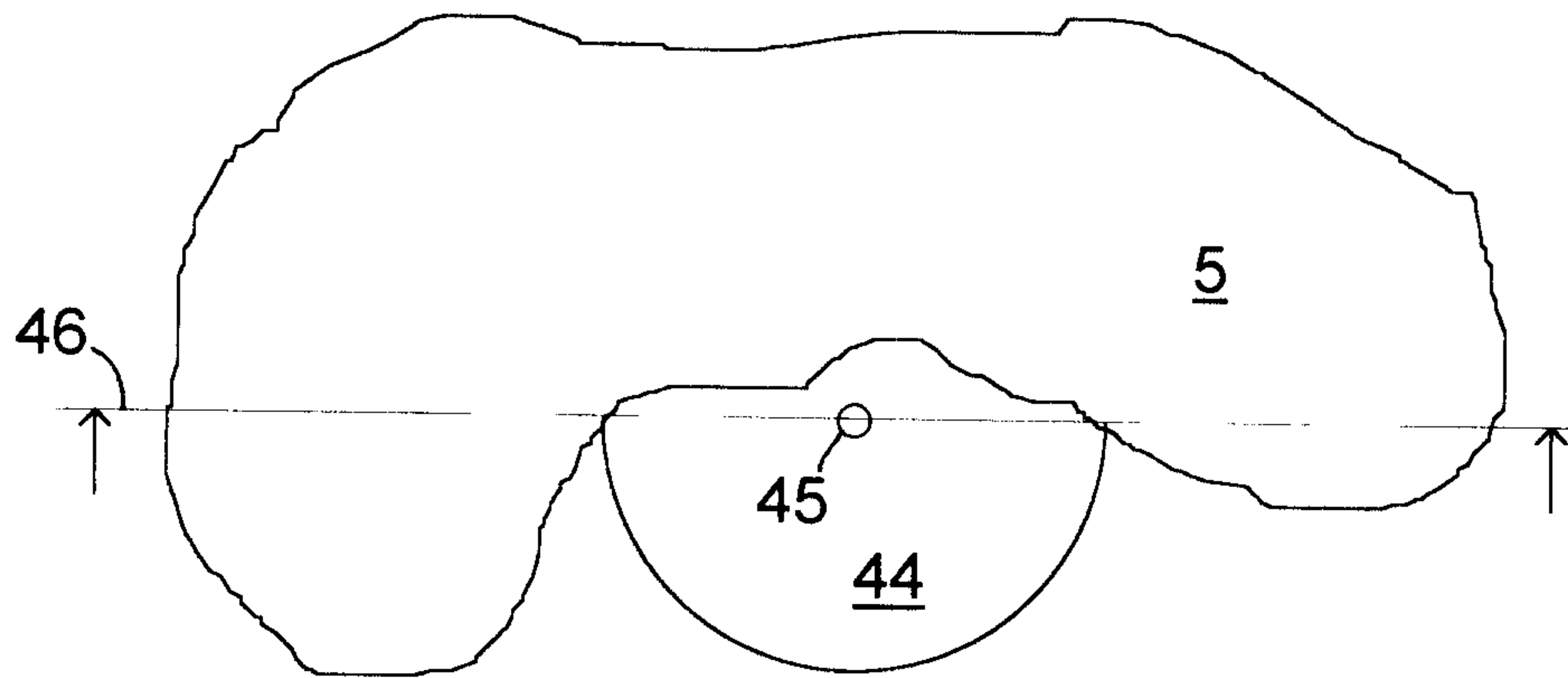


FIG. 16B

FIG. 17

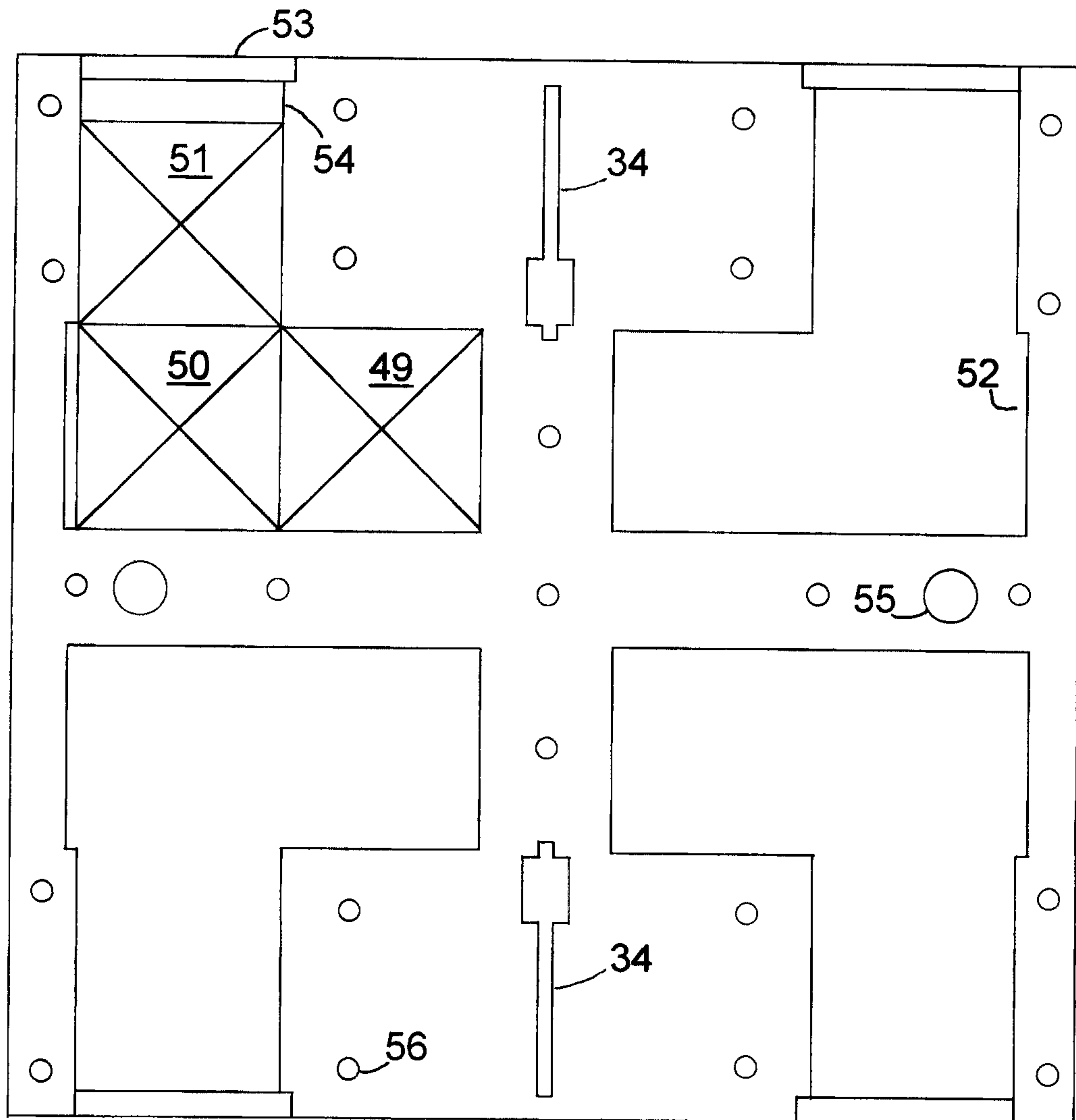


FIG. 18A

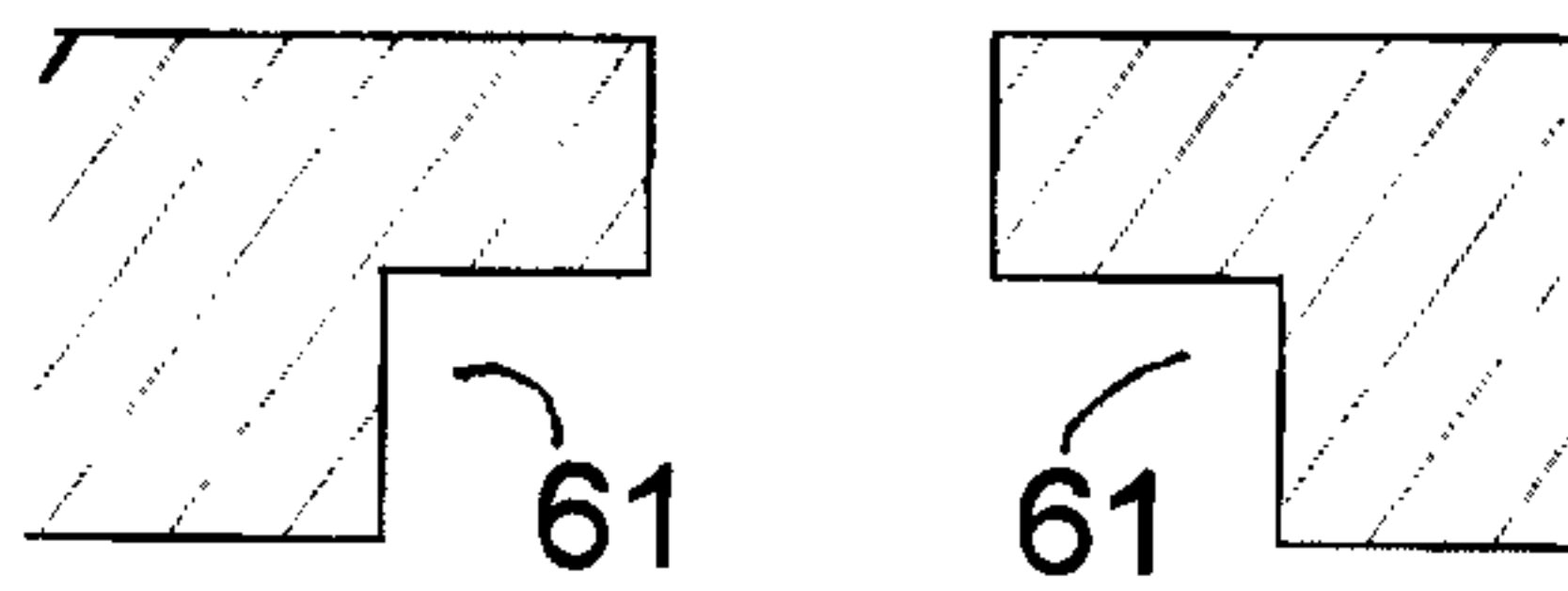
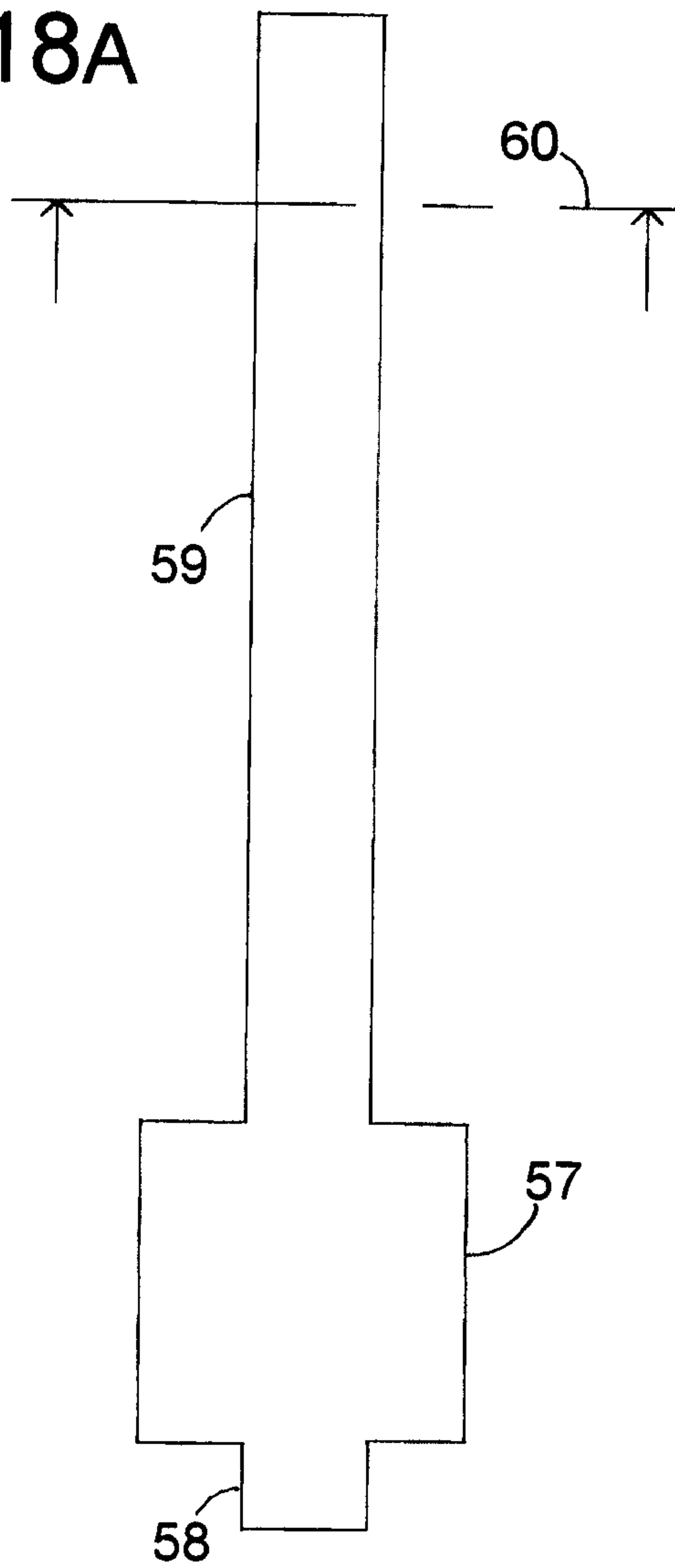


FIG. 18B

FIG. 19A

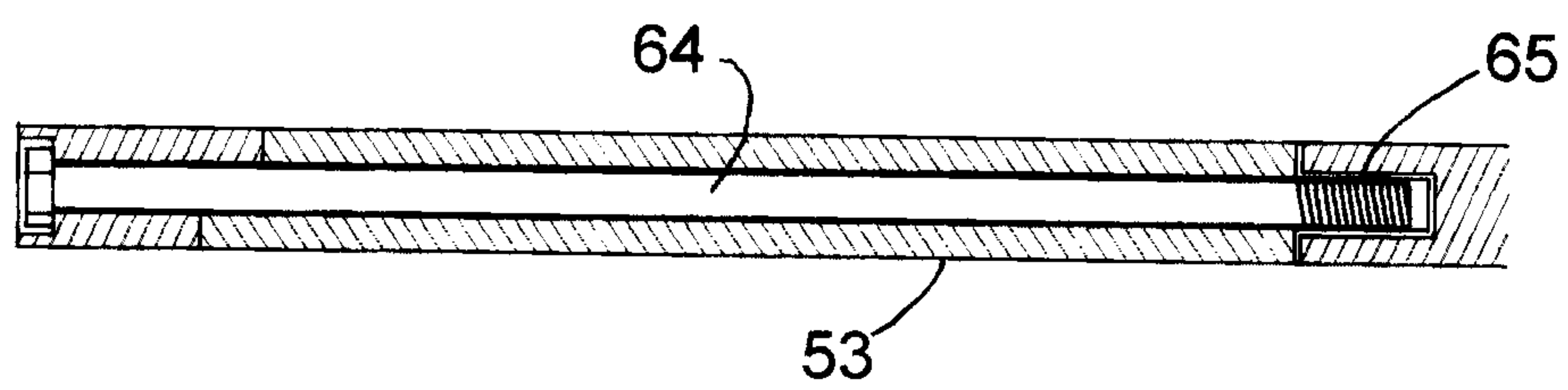
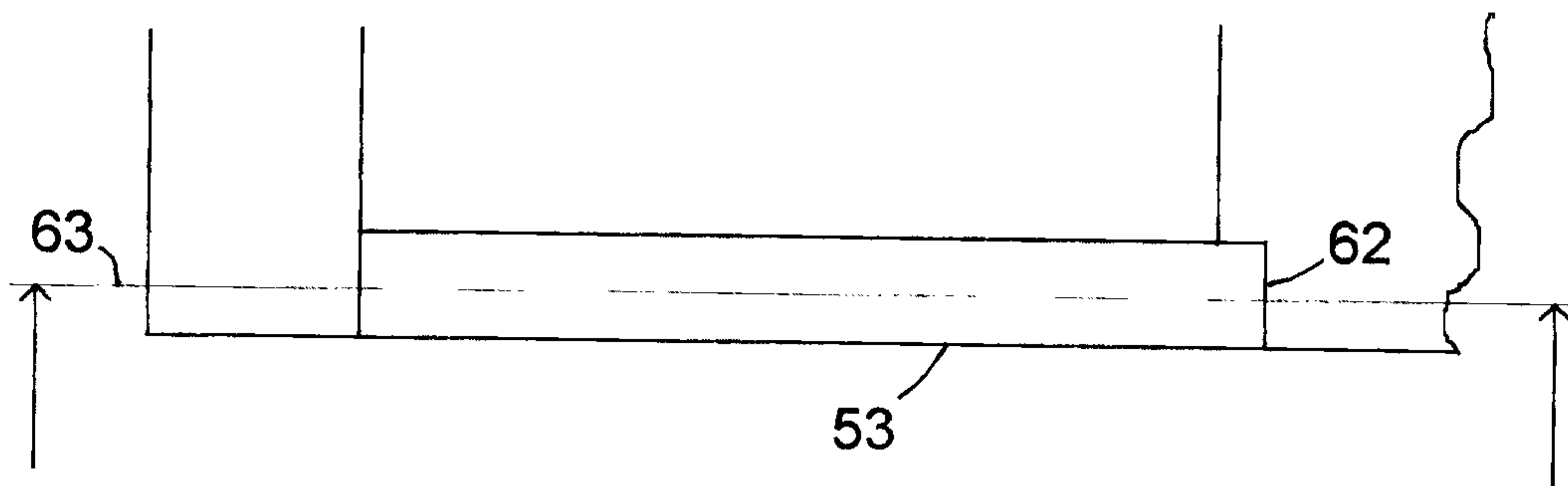


FIG. 19B

FIG. 20

