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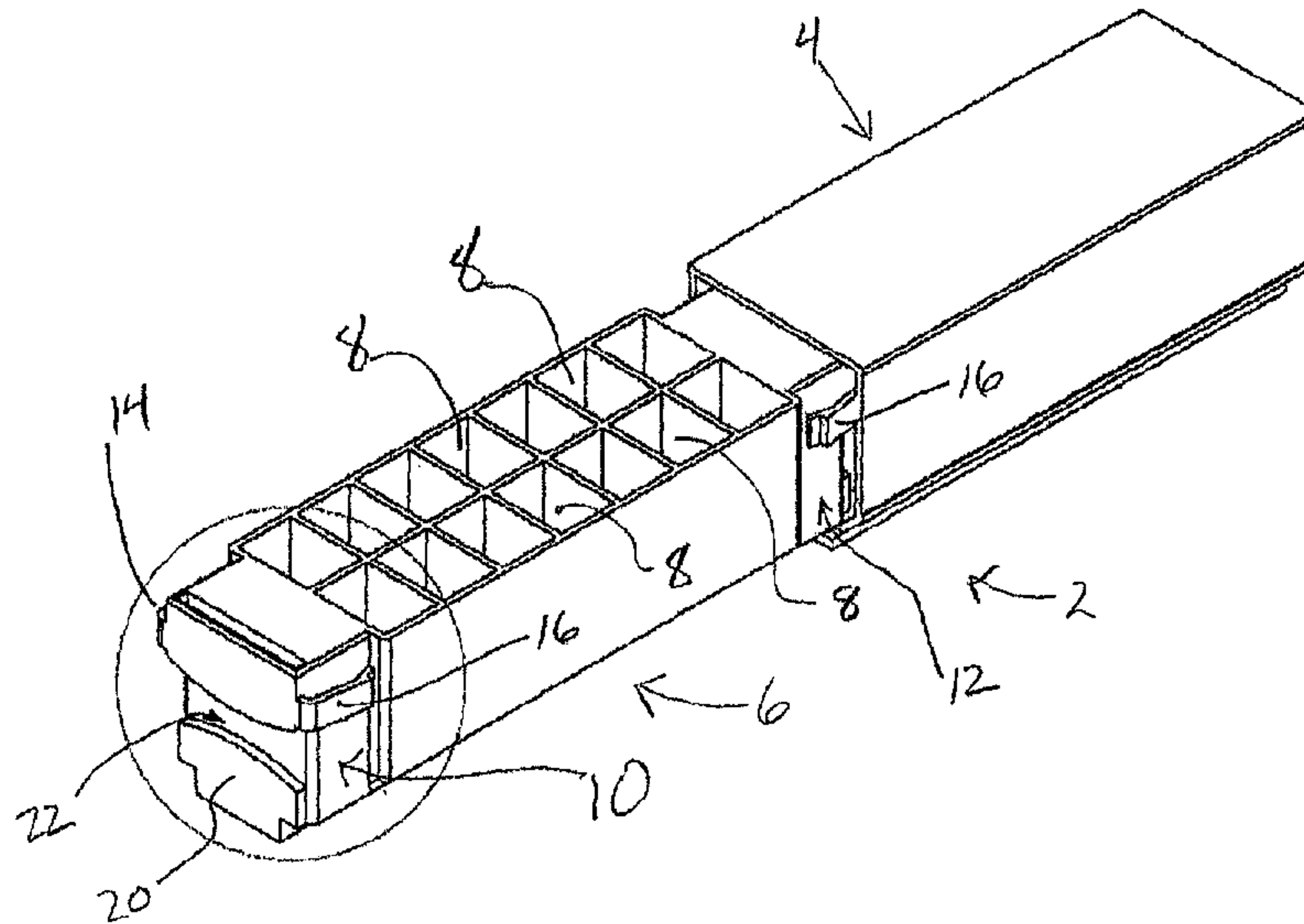
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(54) **Titre : CASSETTE A MEDICAMENT**

(54) **Title: MEDICATION CASSETTE**



(57) **Abrégé/Abstract:**

A medication cassette uses a slidable cartridge having a series of open top medication receiving cells extending in a length thereof. The cartridge slides in an outer sleeve and includes releasable locking arrangements for maintaining the cartridge in a lock position with the sleeve closing the cells, to a release position allowing the cartridge to slide relative to the sleeve and progressively position the cells beyond the sleeve to allow medication to be removed. Both the cartridge and the sleeve are preferably made of a plastic material. The cartridge is preferably a single piece made by injection molding and the sleeve is made by extrusion.

ABSTRACT

A medication cassette uses a slidable cartridge having a series of open top medication receiving cells extending in a length thereof. The cartridge slides in an outer sleeve and includes releasable locking arrangements for maintaining the cartridge in a lock position with the sleeve closing the cells, to a release position allowing the cartridge to slide relative to the sleeve and progressively position the cells beyond the sleeve to allow medication to be removed. Both the cartridge and the sleeve are preferably made of a plastic material. The cartridge is preferably a single piece made by injection molding and the sleeve is made by extrusion.

TITLE: MEDICATION CASSETTEFIELD OF THE INVENTION

5 The present invention relates to packaging for medication having individual cells for a particular single medication dosage such as a pill, tablet or capsule.

10 BACKGROUND OF THE INVENTION

Blister packaging is one of the more common forms of medication packaging where individual medication dosages are retained in individual cells of the blister pack. The user typically rips the back surface of the
15 cell to gain access to the particular medication.

A different form of medication packaging involves individual pill boxes having a series of cells with each cell having an attached closable lid. These types of
20 containers are typically used by an end user to organize the particular medications that are to be taken at different times each day, and are typically sized for a week or two week period.

25 There are also a number of different dispensing systems that are available for in-home use to assist the user in the correct dispensing of pills throughout the day. Some of these systems use a blister packaging principal, and there are different geometries that are
30 used for organizing the medications for dispensing. These systems have not been largely adopted, and are somewhat difficult to use as the blister pack is typically designed to provide a tamper proof type packaging that is manually opened by a user having
35 sufficient dexterity. Examples of automated systems for dispensing medication are shown in US Patent 6,848,593 and US Publication 2001/0028308.

It is also known to have individual pharmacies
organize a user's series of medications such that they
are appropriately packaged for daily intake. This type
of system is helpful if the patient is capable of opening
5 the package and taking the medication at the appropriate
times.

The present invention provides a medication
cassette that simplifies the packaging of the medication
10 and can also be used in automated equipment. This
medication cassette can also be used in a manual manner.
The packaging cassette is of a low cost and in a
preferred embodiment is disposable.

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SUMMARY OF THE INVENTION

A medication cassette according to the present
invention comprises an outer sleeve releasably receiving
a slidable cartridge having a series of open top cells
20 for receiving medication. The slidable cartridge
includes opposed ends with each opposed end including a
releasable lock arrangement moveable between a lock
position and a release position. The releasable lock
arrangements in the lock position engage the sleeve at
25 opposite ends thereof and restrict movement of the
cartridge within the sleeve with the sleeve closing the
open top cells. Each releasable lock arrangement in the
release position allows sliding movement of the cartridge
relative to the sleeve to progressively position the open
30 top cells beyond the sleeve to allow removal of any
medication within the cells.

According to an aspect of the invention, each
locking arrangement includes a locking member with a
35 spring bias urging the locking member to a locking
position.

In a further aspect of the invention, each locking member is a spring arm connected to an end of the cartridge and moveable towards the cartridge against the spring bias to said release position.

5

According to a further aspect of the invention, the cartridge is of a length greater than the length of the sleeve, such that the cartridge in the lock position of the lock arrangements extends beyond the sleeve either
10 end of the cartridge.

In a preferred aspect of the invention, the sleeve is a plastic extruded member, and preferably is of a opaque plastic.

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In a further aspect of the invention, the cartridge is of an injection molded plastic construction.

In a preferred aspect of the invention, the
20 cartridge is made of a translucent plastic allowing visual detection of medication in any of the cells when the cells are open due to the position of the sleeve.

In a different aspect of the invention, each end
25 of the cartridge includes an undercut recess open to one side of the cartridge for engaging and sliding said cartridge relative to said sleeve.

In a preferred aspect of the invention, the
30 cartridge includes two rows of cells extending between the ends of the cartridge.

A modified medication cassette according to the present invention comprises an outer sleeve releasably
35 receiving two slidable cartridges, with each cartridge having a series of open top cells for receiving medication. Each slidable cartridge includes opposed ends, with each opposed end including a releasable lock

arrangement moveable between a lock position and a release position. The releasable lock arrangements of each cartridge in the lock position engage the sleeve at opposite ends thereof and restrict movement of the
5 cartridge within the sleeve, with the sleeve closing the open top cells. Each releasable lock arrangement in the release position allows sliding movement of the cartridge relative to the sleeve to progressively position the open top cells beyond the sleeve to allow removal of any
10 medication within the cells.

In a preferred aspect of the modified medication cassette, each cartridge includes a base portion spaced from the open top of the cells. The base portions of the
15 cartridges are positioned adjacent to one another and centrally located along a length of the sleeve. According to a preferred aspect of the invention, the sleeve includes a fixed partition separating the cartridges.

20

In yet a further aspect of the invention, the sleeve adjacent the partition is inwardly recessed along each side of the sleeve and the recess extends the length of the sleeve. With this arrangement each cartridge can
25 only be received in the sleeve in one orientation of the cartridge.

According to a further aspect of the invention, the open cells of one cartridge face in a first direction
30 and the open cells of the other cartridge face in an opposite direction.

In yet a further aspect of the invention, the cartridge is made of a translucent plastic allowing
35 visual detection of medication in any of the cells when the cells are exposed beyond the sleeve.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention are shown in the drawings, wherein:

5 Figure 1 is a perspective view of the medication cassette with the slidable cartridge in an extended position;

 Figure 2 is a partial perspective view showing details of the end configuration of the cartridge;

10 Figure 3 is a cross-sectional view through an intermediate portion of the extended cartridge;

 Figure 4 is a sectional view through the length of the cartridge and sleeve;

15 Figure 5 is a perspective view of the slidable cartridge;

 Figure 6 is an enlarged perspective view of the end of the cartridge;

 Figure 7 is a perspective view of the outer sleeve of the cassette;

20 Figure 8 is a partial perspective enlargement of the end of the sleeve of Figure 7;

 Figure 9 is a perspective view of an alternate medication cassette having a double cartridge arrangement;

25 Figure 10 is a partial perspective view of one end of one of the cartridges of Figure 9;

 Figure 11 is a sectional view through the alternate medication cassette;

30 Figure 12 is a longitudinal cross sectional view through the alternate medication cassette of Figure 9;

 Figure 13 is a partial perspective view showing the alternate medication cassette with both cartridges in a lock position;

35 Figure 14 is a partial perspective view of the two ends of the cartridge of Figure 13;

 Figure 15 is a sectional view through the alternate medication cassette;

Figure 16 is a longitudinal sectional view through the alternate medication cassette;

Figure 17 is a perspective view of the medication cassette used in Figure 13;

5 Figure 18 is a partial perspective view of the end of the medication cassette of Figure 17;

Figure 19 is an end view of the medication cassette of Figure 17;

10 Figure 20 is a sectional view of the medication cartridge of Figure 17;

Figure 21 is a perspective view of the partitioned sleeve of the alternate medication cassette;

Figure 22 is a partial perspective view of the outer sleeve of Figure 21;

15 Figure 23 is an end view of the outer sleeve of Figure 21;

Figure 24 is a sectional view through the sleeve of Figure 21;

20 Figure 25 is a side view of a medication cassette with a label including a bar code portion; and

Figure 26 is a side view of an alternate medication cassette with a label and bar code portion.

25 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The medication cassette 2 includes an outer sleeve 4 that retains the slidable cartridge 6. The slidable cartridge includes a series of medication receiving cells 8 and each of these cells is sized to receive a single
30 dosage such as an individual tablet, capsule or pill. The size of the individual cells is selected according to the particular medications to be packaged in that some medication capsules, for example, can be quite large. In this case, the cartridge may only have a single row of
35 cells. The preferred form of the cartridge is shown in Figures 1 through 5, where the cartridge includes a double row of cells 8.

The cartridge 6 includes a locking arrangement 10 at one end of the cartridge and a locking arrangement 12 at the opposite end of the cartridge. Each locking arrangement 10 and 12 includes a pair of spring arms shown as 14 and 16 with respect to locking arrangement 10, and these spring arms are positioned to engage and lock with the end of the sleeve. In order to allow the cartridge to slide along the length of the sleeve, one pair of these arms are forced inwardly against the spring bias to allow the arms to clear the outer walls of the sleeve and slide within the sleeve.

As shown in more detail in Figure 2, the locking arrangement 10 is inwardly recessed and the locking arms 14 and 16 project outwardly or beyond the sides of the cartridge. This position allows the ends of the spring arms to engage and lock with the end of the sleeve 4.

The locking arrangement 10 is formed at an end of the cartridge and includes an end tab 20 and an opposed end tab 21 used during automatic loading or dispensing. An engaging recess 23 is defined between the two tabs 20 and 21. End tab 21 includes a downwardly projecting lip such that a bar member can be moved between the two end tabs and end tab 21 will engage and retain the bar member to allow the cartridge to slide within the sleeve to expose the individual cells as the cartridge slides out of the sleeve.

Figure 5 shows details of the slidable cartridge 6. Each end of the cartridge includes a top opening recess 22 and a bottom opening recess 24 as shown in Figure 4. These end portions serve to retain at least a portion of the cartridge in the sleeve during loading or dispensing of medication. Recesses 22 and 24 also assist in the injection molding of the cartridge. In injection molding, certain maximum wall thicknesses are desired to reduce the amount of plastic material required, and to

locate the plastic to provide the desired structural characteristics. Problems associated with cycle times and warping during cooling can also be avoided by eliminating areas that are difficult to cool. These
5 cavities provide these functions, but other cavity arrangements can be used.

The sleeve 4, as shown in the view of Figure 3, has a flat top portion 30, two opposed sides 32 and 34,
10 bottom guide sections engaging the diagonal sides of the cartridge, and a bottom portion 37. The bottom portion 37 is U-shaped and is sized to provide a guide arrangement with the bottom guide rails 28 and 29 of the cartridge. The spring arms 14 and 16, shown in Figure 3
15 have not moved fully inwardly relative to the end portions, and are not fully received within the sleeve 4.

As can be seen with respect to the sectional view of Figure 4, the slidable cartridge 6 is moveable in
20 either direction out of the sleeve 4, but is also moveable to a locked position with the cells 8 of the cartridge 6 fully received and covered by the top portion of the sleeve. In this way, the cartridge may be progressively displaced out of the sleeve to allow access
25 to the individual cells 8 and allow medication in the form of capsules, tablets, pills, etc. to be individually loaded into one of the cells or dispensed therefrom. Preferably, the cartridge 6 is made of a translucent plastic to allow visual detection of any medication in
30 individual cells when exposed beyond the sleeve 4. The sleeve is preferably an opaque plastic.

Details of the slidable cartridge 6 of Figure 1 are shown in Figures 5 and 6, and details of the sleeve 4
35 are shown in Figures 7 and 8. Figure 8 clearly shows how the bottom surface of the sleeve 4 also includes outwardly extending flanges 37 and 38 to define the slide recesses 39 and 40. These slide recesses assist in

movement of the medication cassette in an automated dispensing apparatus.

Figures 9 through 16 show details of a modified cassette 2a having two displaceable cartridges 6a and 6b, both received within the common sleeve 4a. The cartridges 6a and 6b include a similar type end configuration having a lock arrangement indicated as 10a with spring arms 14a and 16a. These slidable cartridges each include a series of cells 8.

The cartridges 6a and 6b are received within the common sleeve 4a in a back to back type manner with the open cells opening in opposite directions. Each cartridge can only be received in the sleeve in one orientation. The sleeve 4a also includes two recesses 7 and 9 on opposite sides of the sleeve, and these provide the bottom guiding surfaces for each of the slidable cartridges. The sleeve 4a also includes an interior partition 11a running the length of the sleeve. This partition provides the slide surface for the individual cartridges. The top and bottom surfaces 15a and 17a as shown in Figure 15, close the open top of the cells 8 when the cartridges are received within the sleeves. The locking arrangements of the cartridges cooperate with the end portions of the sleeve to effect locking of the cartridge within the sleeve in a similar manner to the locking action described with respect to Figures 1 through 5. Other locking arrangements can be used and the locking arrangement could be reversed.

Figures 17 through 19 show further details of the modified slide cartridge 6a.

Figures 21 through 24 show further details of the sleeve 6a.

Figures 25 and 26 show the use of a bar code label 100 having an indicia receiving portion 102 which can identify the particular medications that are loaded in the cartridge, and dosage and frequency of the medications. The barcode 104 can also provide this information to an automated dispensing-type device or an automatic filling-type device. The embodiment of Figure 25 shows the label 100 attached to a side of a medication cassette having the double slidable cartridges. The label 100a of Figure 26 includes a similar indicia receiving portion 102a and a bar code portion 104a, and this is attached to a medication cassette having a single slidable cartridge.

The slidable cartridges of the medication cassette are preferably made by injection molding and of a plastic material. Preferably, the cartridges are of translucent plastic that transmits a large portion of light. The outer sleeves are preferably made of an opaque plastic that greatly limits light transmission. The translucent plastic of the cartridge allows visual detection signals to confirm a medication has been received and is retained in each individual cell. The sleeves of the medication cassette are typically extruded plastic, cut to length to reduce packaging costs.

The medication cassette as shown in the drawings is preferably designed as a recyclable disposable cassette and would be typically purchased by a user from an authorized source such as a pharmacy. The pharmacy would preferably have an automated machine for loading of the medication cassette, or this loading could be done by hand. The medication cassette can also include a tamper-type seal that requires breaking for sliding of the cassette.

Preferably the user would then take the medication cassette home and load the cassette into a dispensing

device. This dispensing device preferably can read the bar code, and based on the bar code, identify the particular medications, the frequency at which the medications are to be taken, and the dosage of the individual medications loaded in the individual cells. This automated dispensing device preferably will allow dispensing of the medication in an appropriate manner at different times of the day. Dispensing of the medication includes sliding of the cartridge relative to the sleeve to allow the contents of individual cells to be dispensed. In the case of the double row of cells, this dispensing device will typically cover one of the cells to allow each cell to be dispensed individually.

Although various preferred embodiments of the present invention have been described herein in detail, it will be appreciated by those skilled in the art, that variations may be made thereto without departing from the spirit of the invention or the scope of the appended claims.

WH-13407CA

SN 2,646,029

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

1. A medication cassette comprising an outer sleeve releasably receiving a slidable core having a series of open topped cells for receiving medication; said slidable core including opposed ends with each opposed end including a pair of opposed spring arms provided on the sides of the slidable core and movable between a lock position and a release position; said spring arms in said lock position engaging side edges of said sleeve at opposite ends thereof restricting movement of said core within said sleeve with said sleeve closing said open topped cells and the ends of said core each extending beyond the ends of said sleeve; each spring arm in said release position is receivable in said sleeve allowing sliding movement of said core relative to said sleeve to progressively position said open topped cells beyond said sleeve and allow removal of any medication within said cells; and wherein each spring arm when moved to said release position moves inwardly into a side recess in the respective end of said core to allow said spring arm and the end of said core to enter said sleeve.

2. A medication cassette as claimed in claim 1 wherein said core when said sleeve is in said lock position includes an exposed machine readable identifier providing details of medication within the cells and the dosage of the medication.

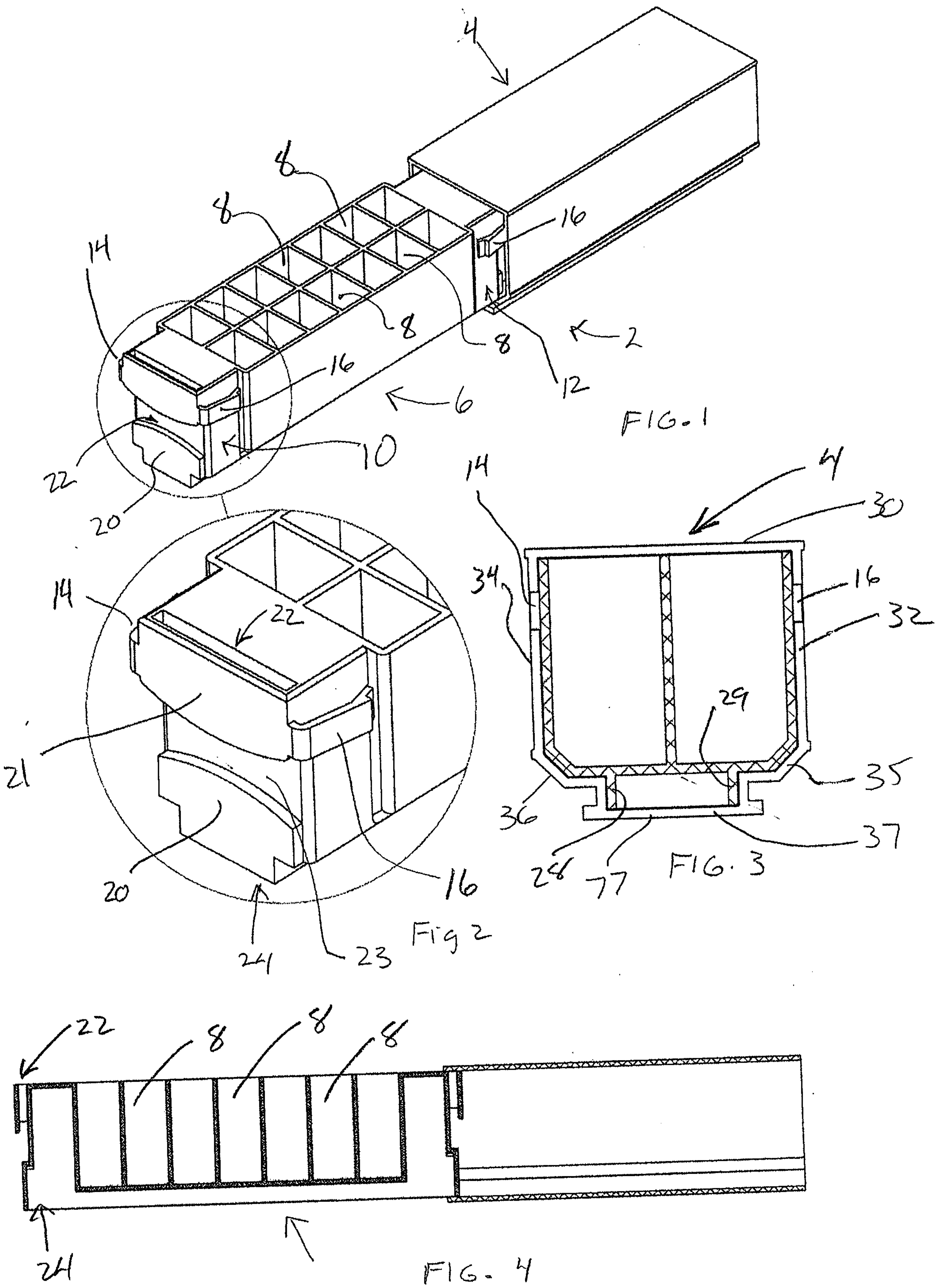
3. A medication cassette as claimed in claim 1 or 2 wherein each spring arm is cantilevered and has one end thereof connected to the end of said core with an opposite end of the spring arm angled outwardly and movable inwardly towards said core against said spring bias to said release position.

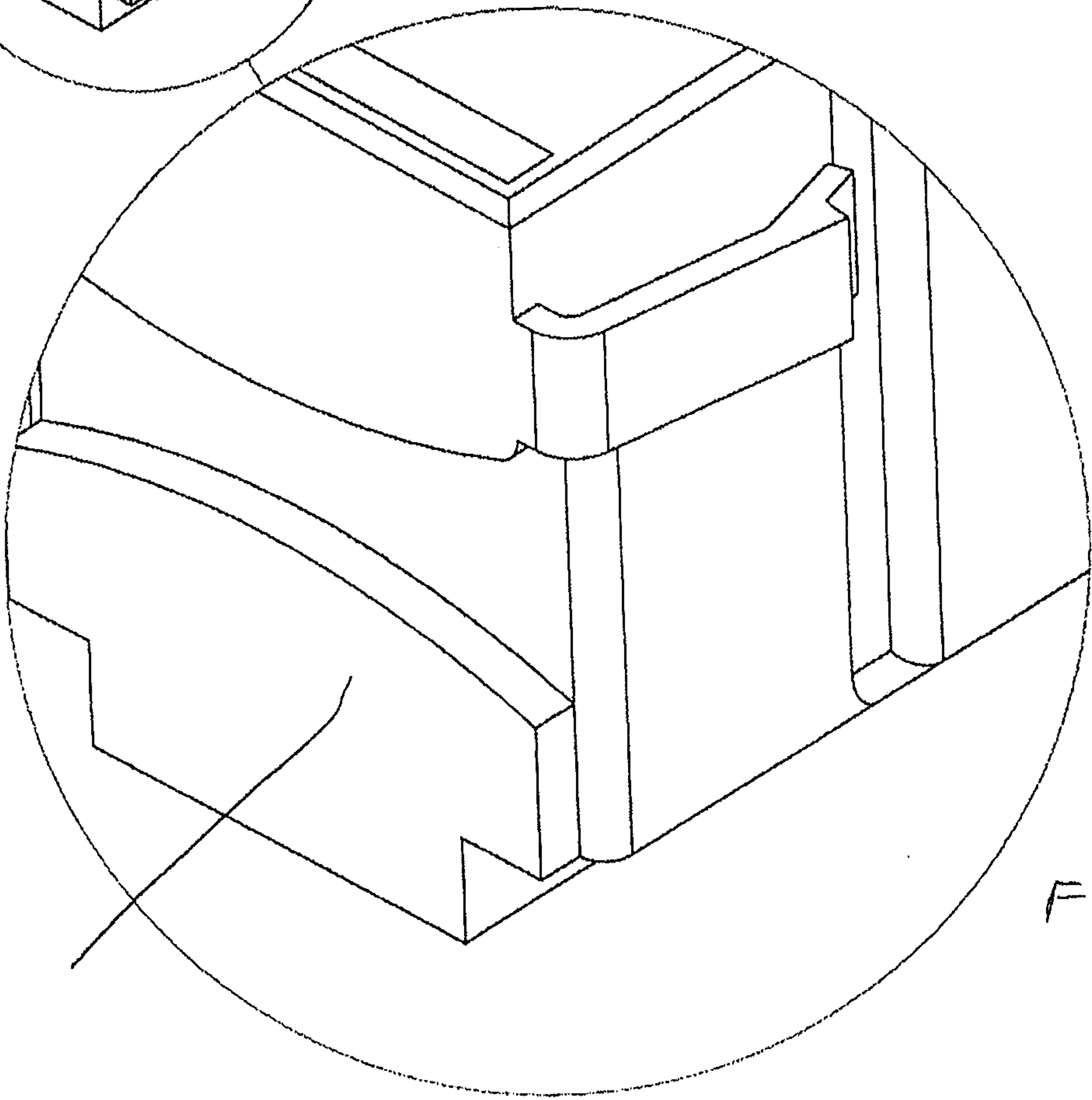
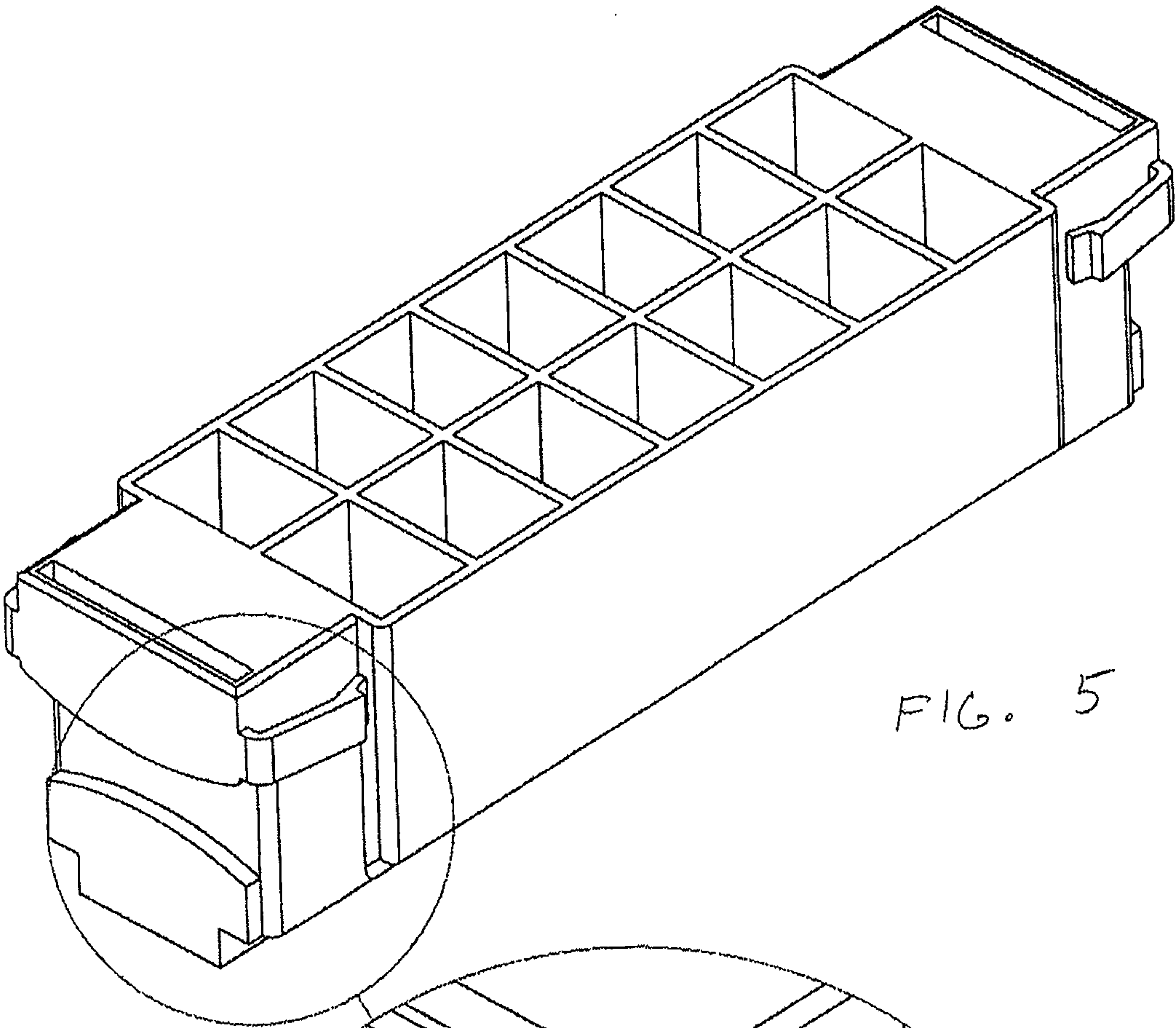
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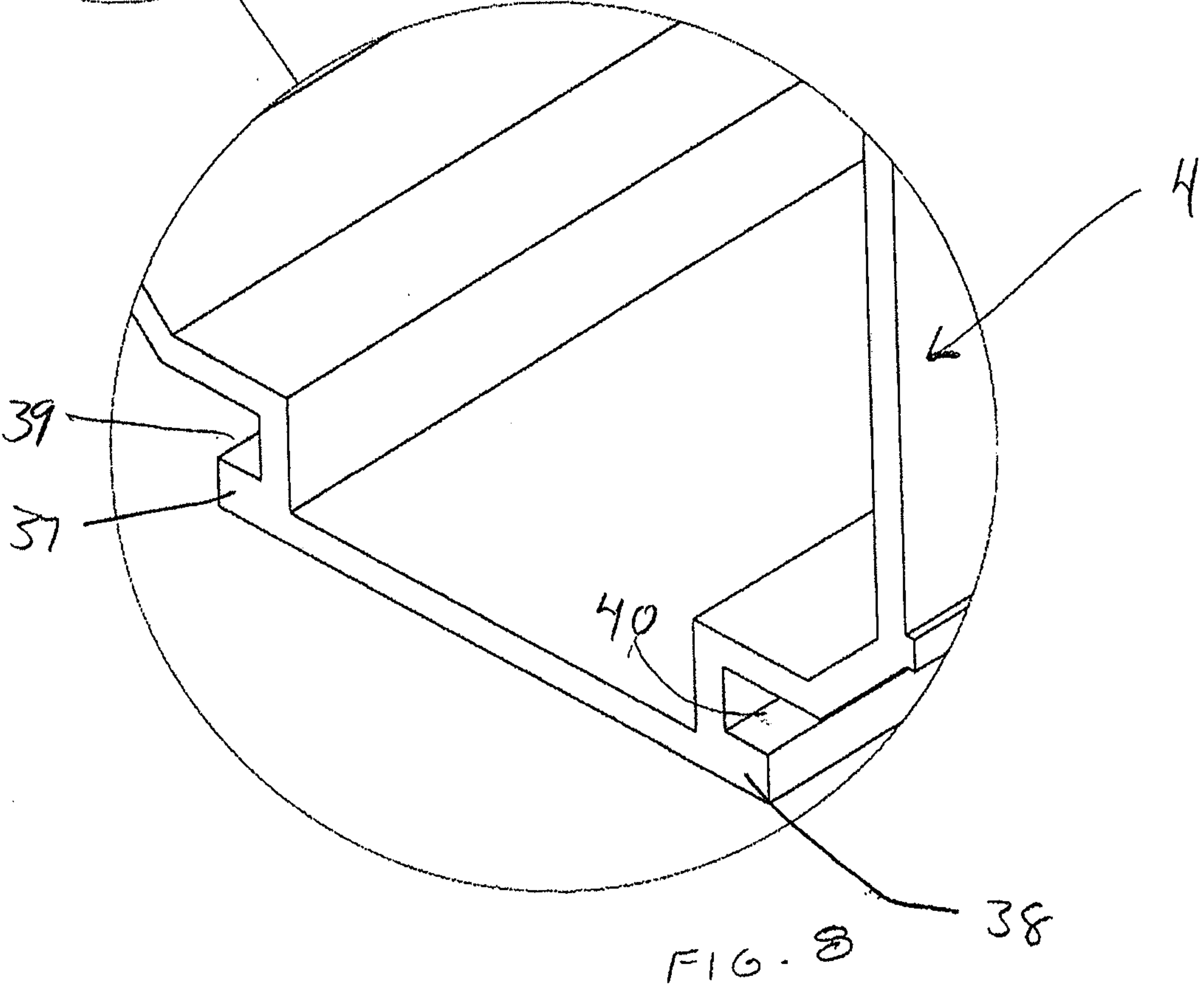
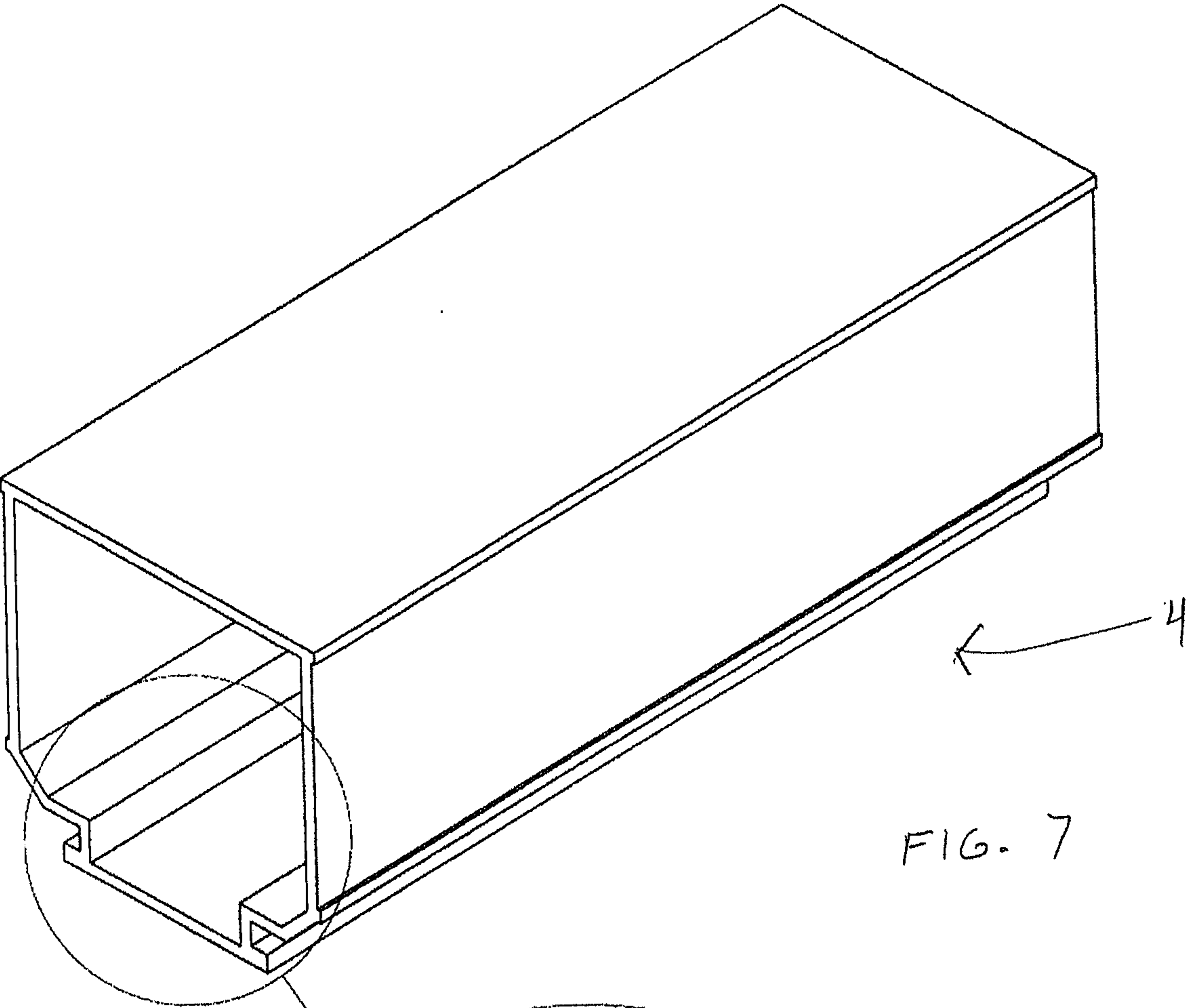
4. A medication cassette as claimed in claim 1, 2 or 3 wherein said core is of a length greater than a length of said sleeve whereby said core in said lock position of said lock arrangements extends beyond said sleeve either end of said core and includes a labeling area on at least one of said ends including a label identifying the contents of the medication cassette.

5. A medication cassette as claimed in claim 1, 2, 3 or 4 wherein said core includes a series of rows of cells extending between the ends of said core.

6. A medication cassette as claimed in claim 1, 2, 3, 4 or 5 wherein said sleeve is a plastic extruded member of an opaque plastic, and said core is of an injection molded plastic construction, and said core is made of a translucent plastic allowing visual detection of medication in any of said cells when exposed beyond said sleeve.







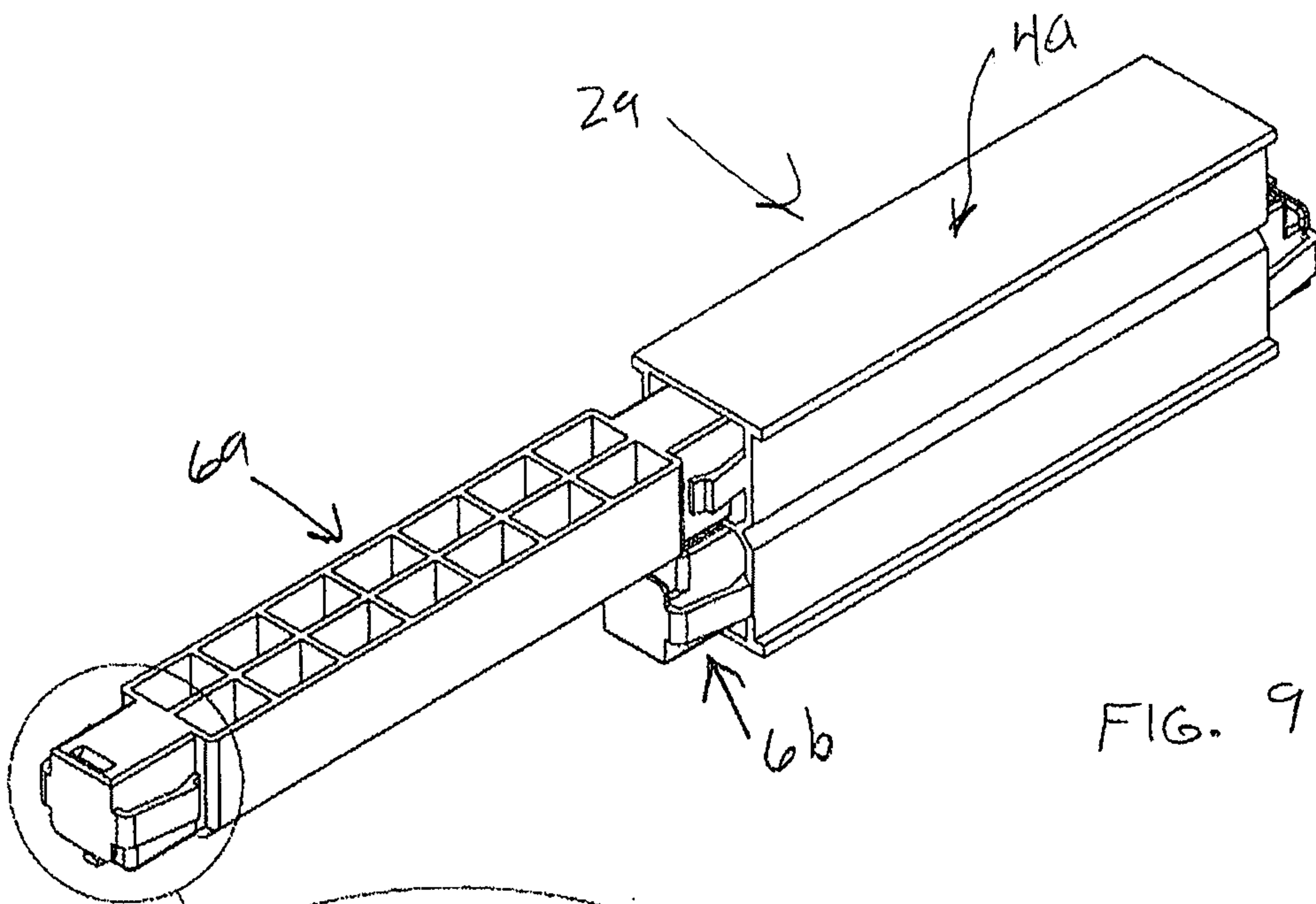


FIG. 9

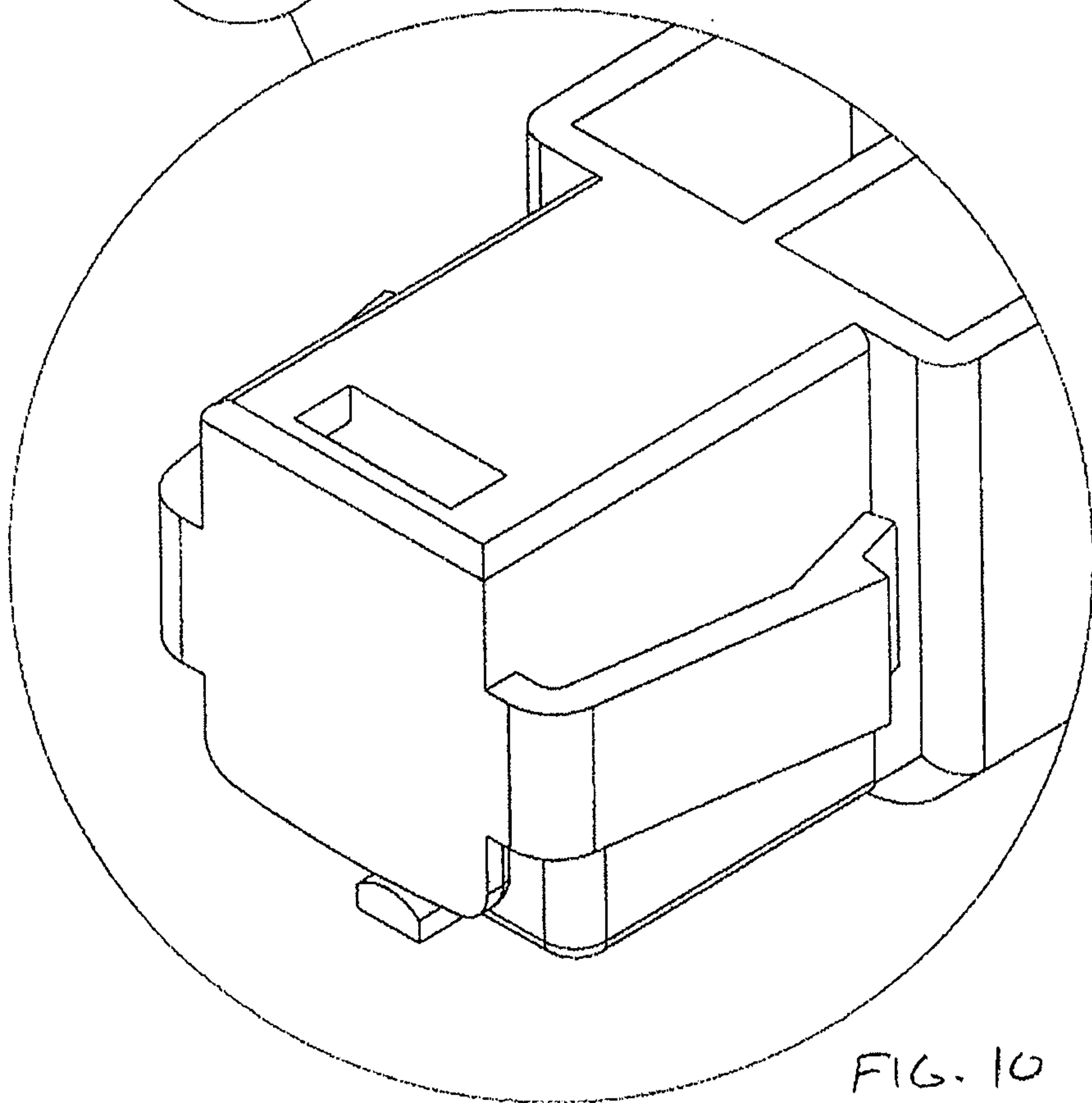


FIG. 10

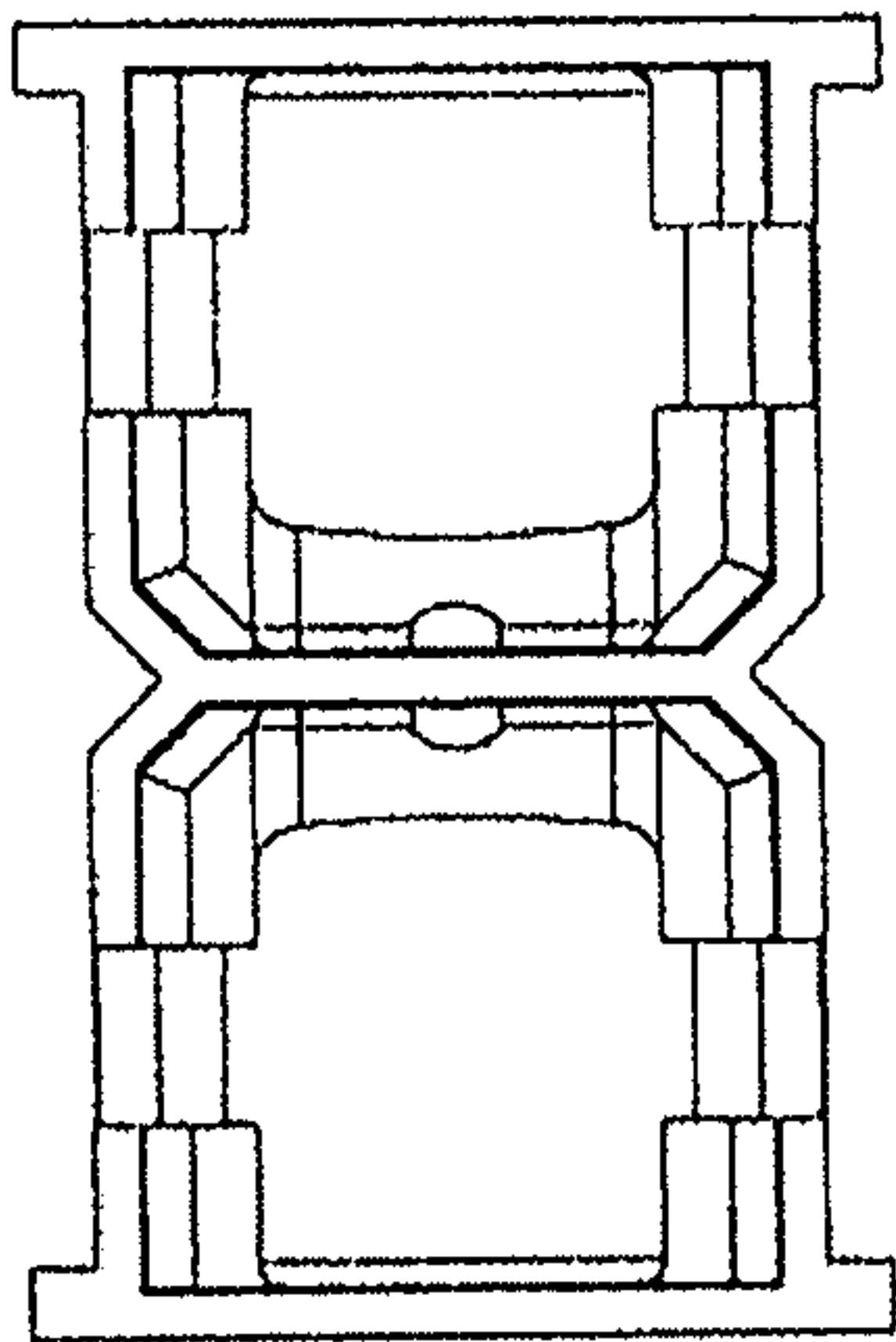


FIG. 11

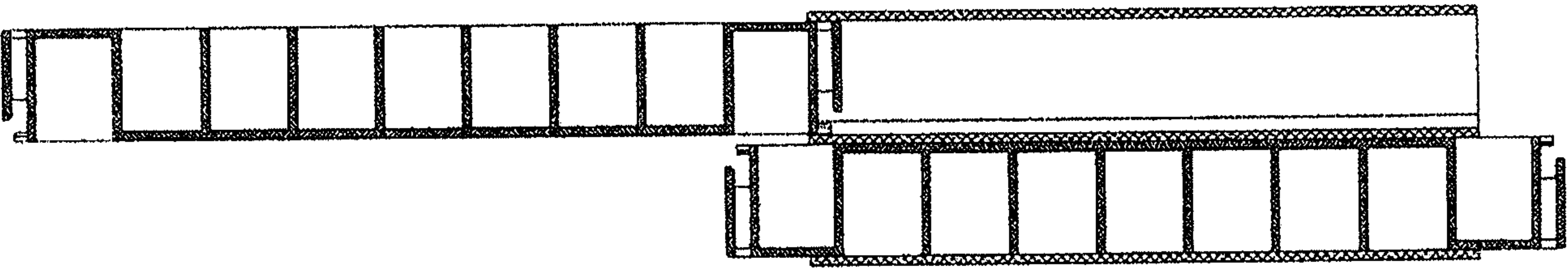


FIG. 12

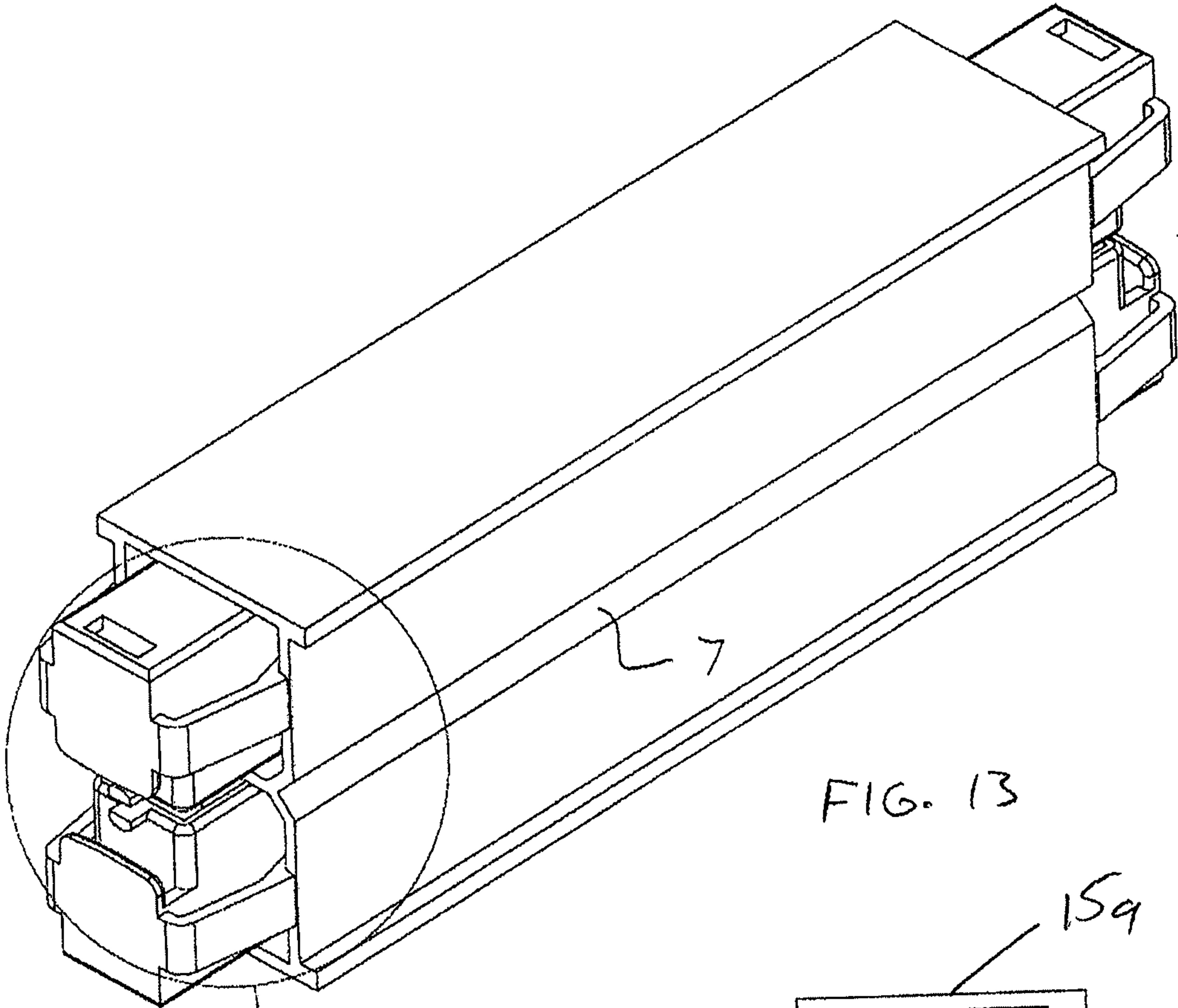


FIG. 13

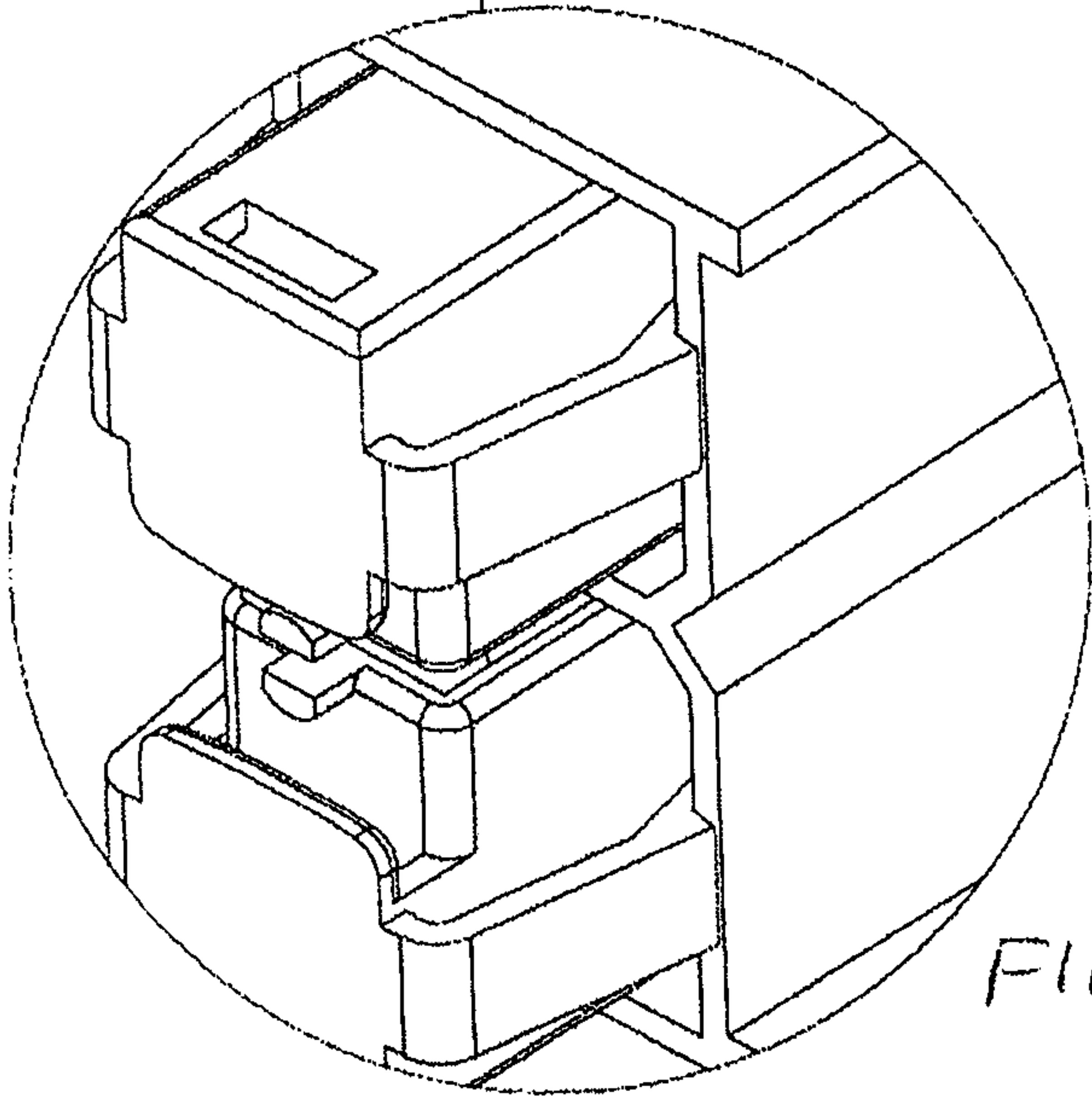


FIG. 14

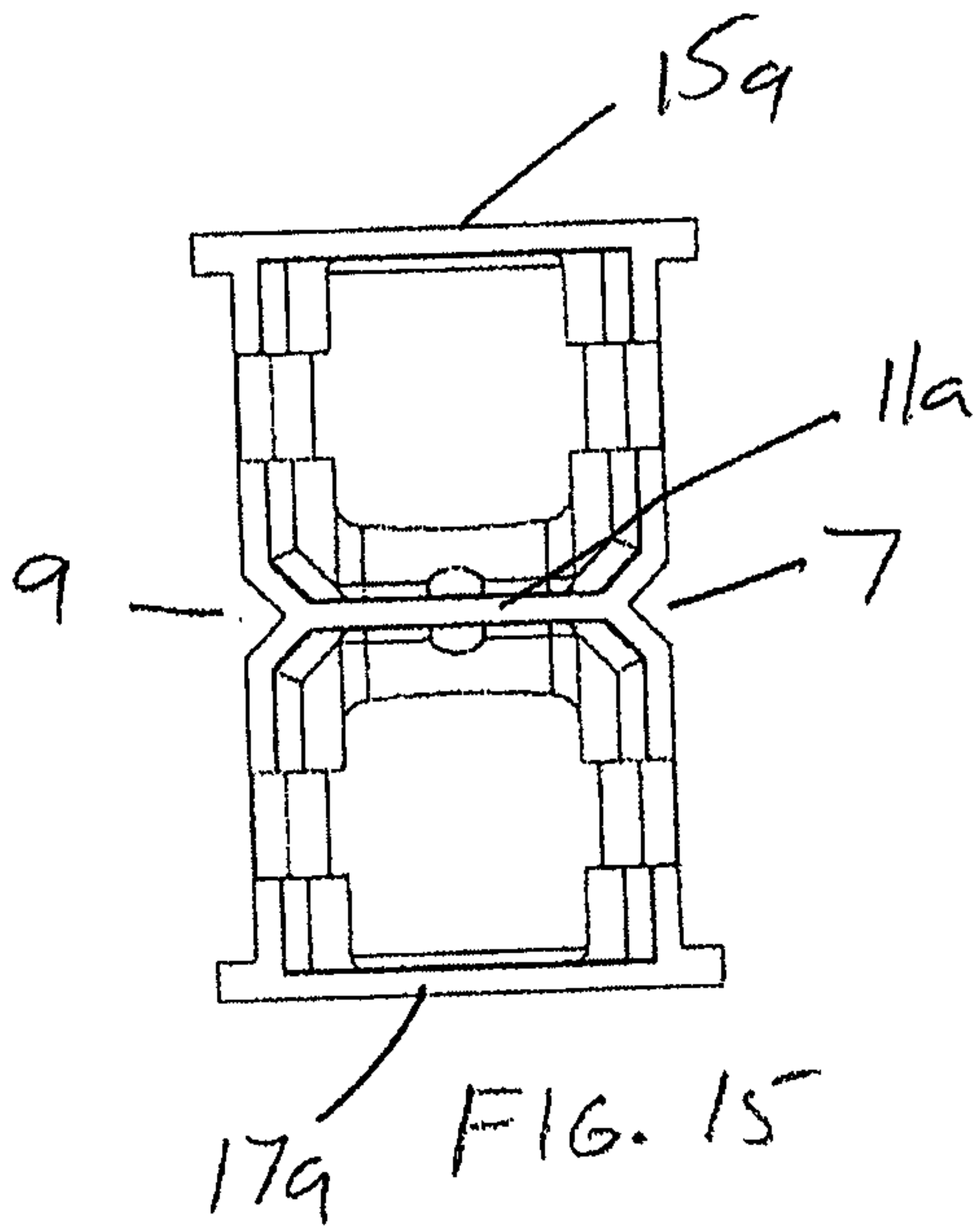


FIG. 15

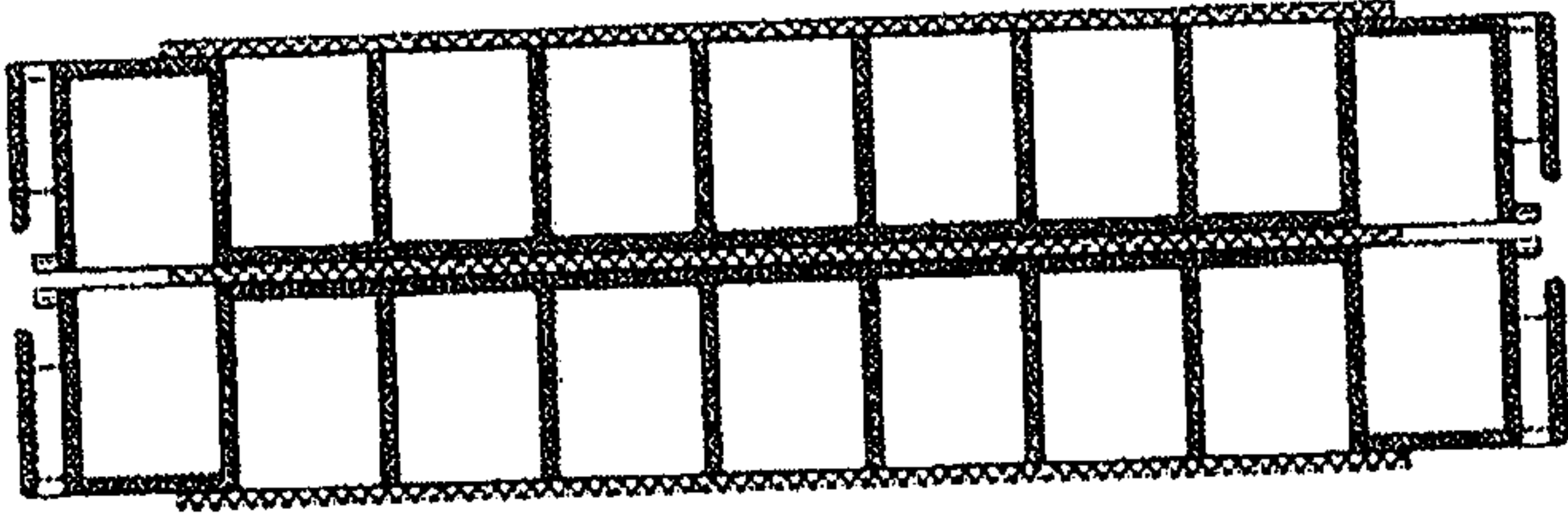


FIG. 16

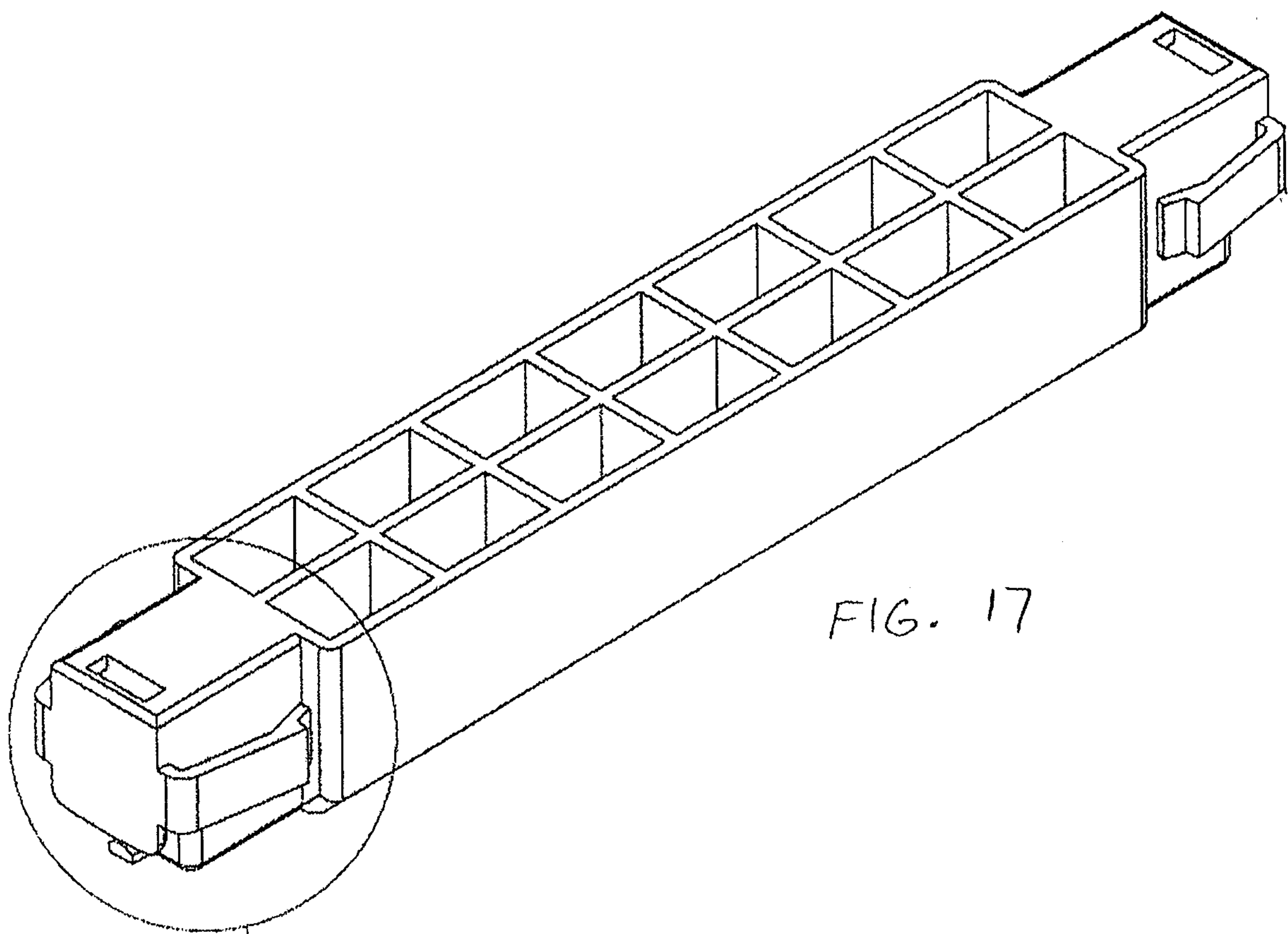


FIG. 17

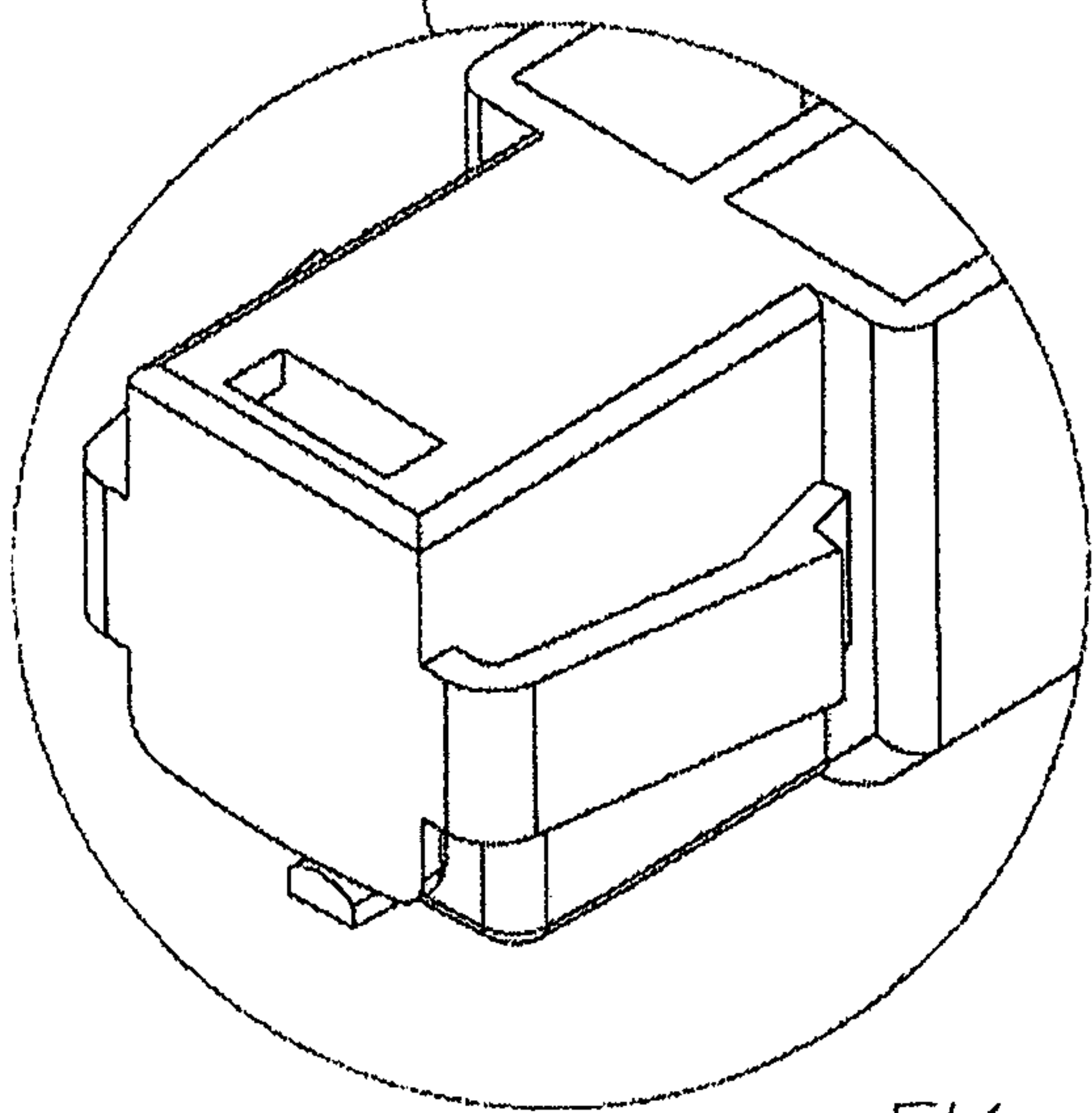


FIG. 18

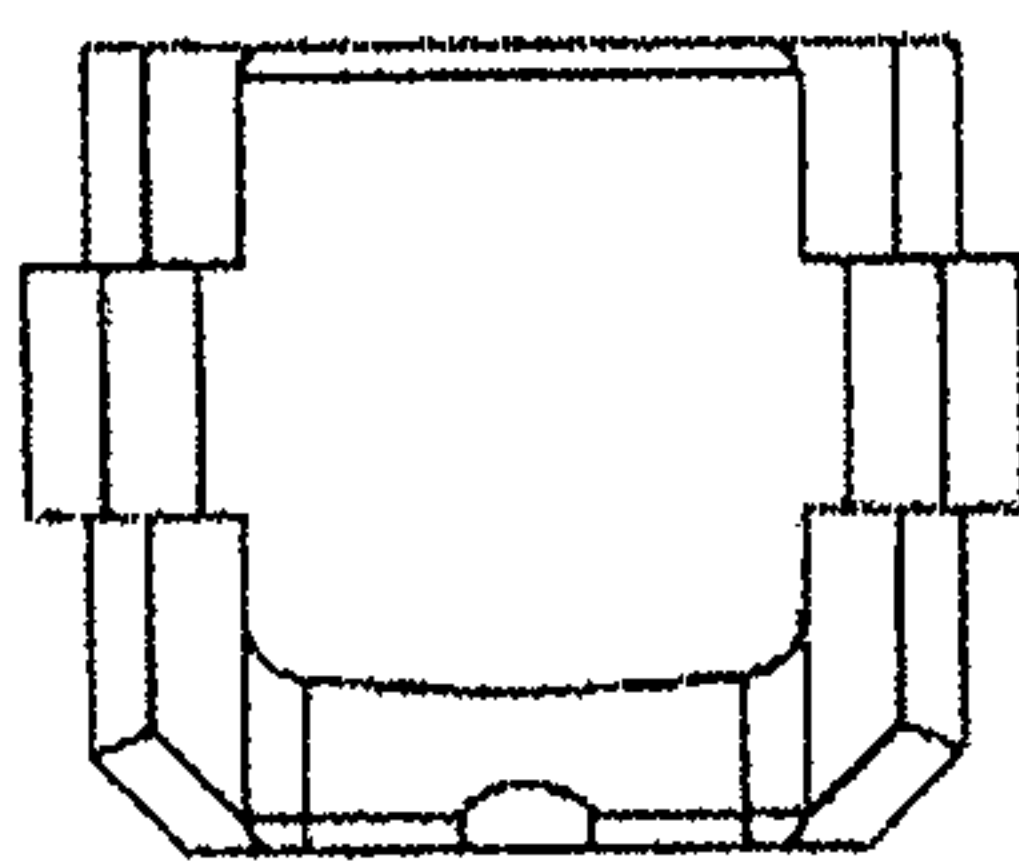


FIG. 19

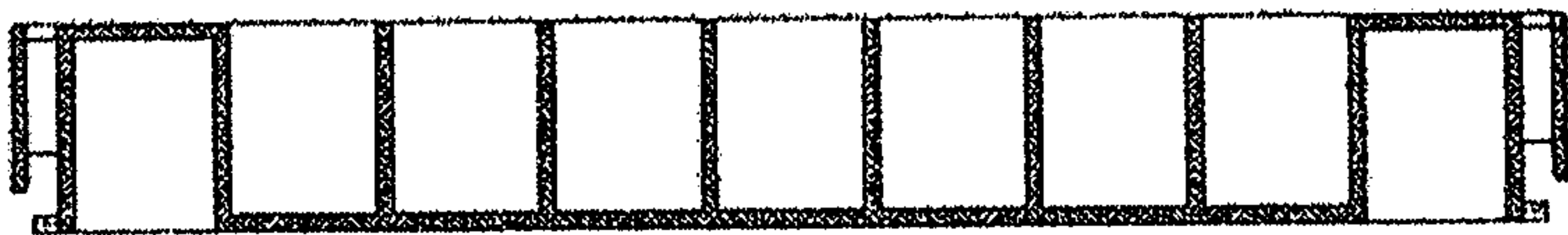


FIG. 20

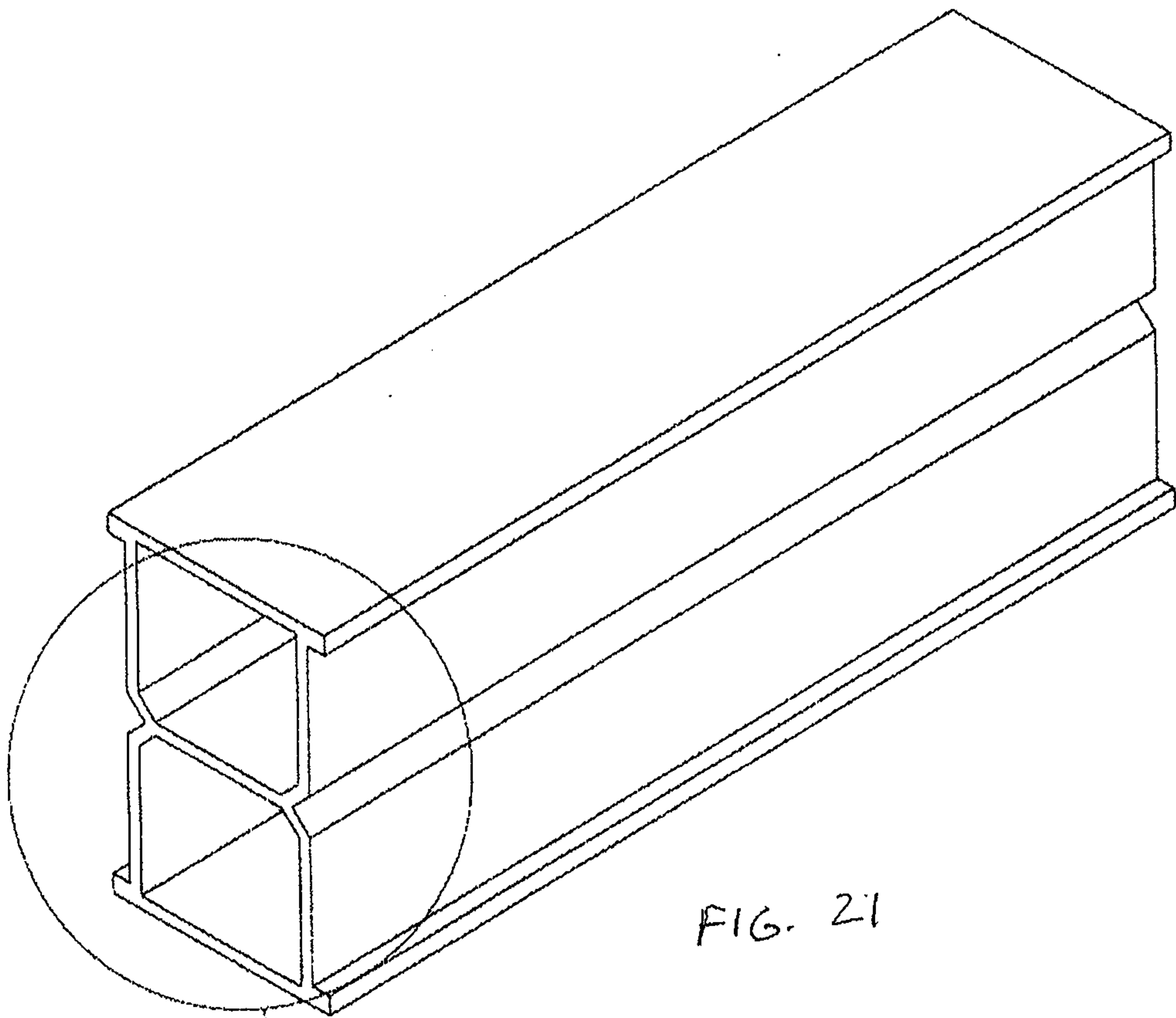


FIG. 21

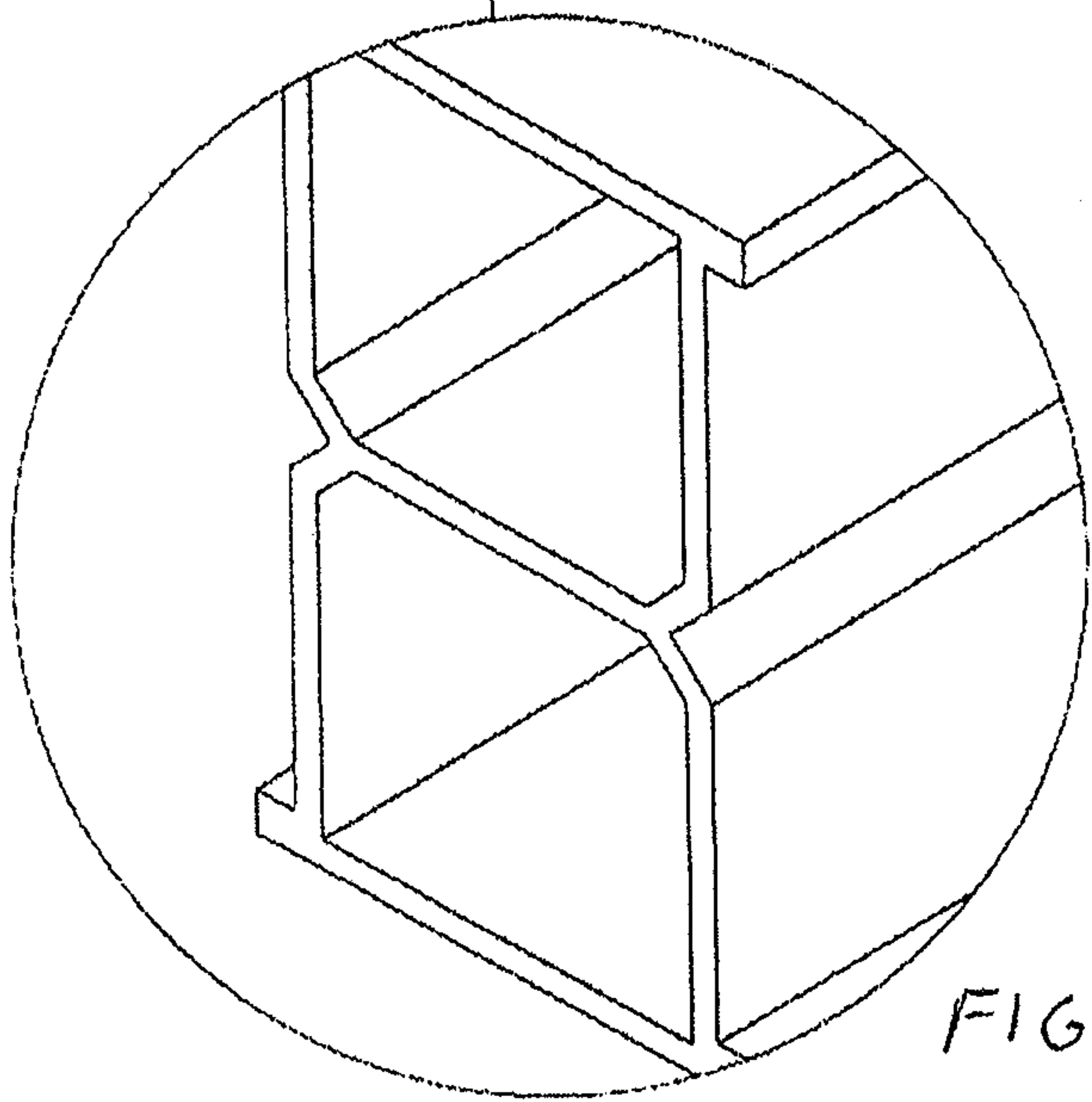


FIG. 22

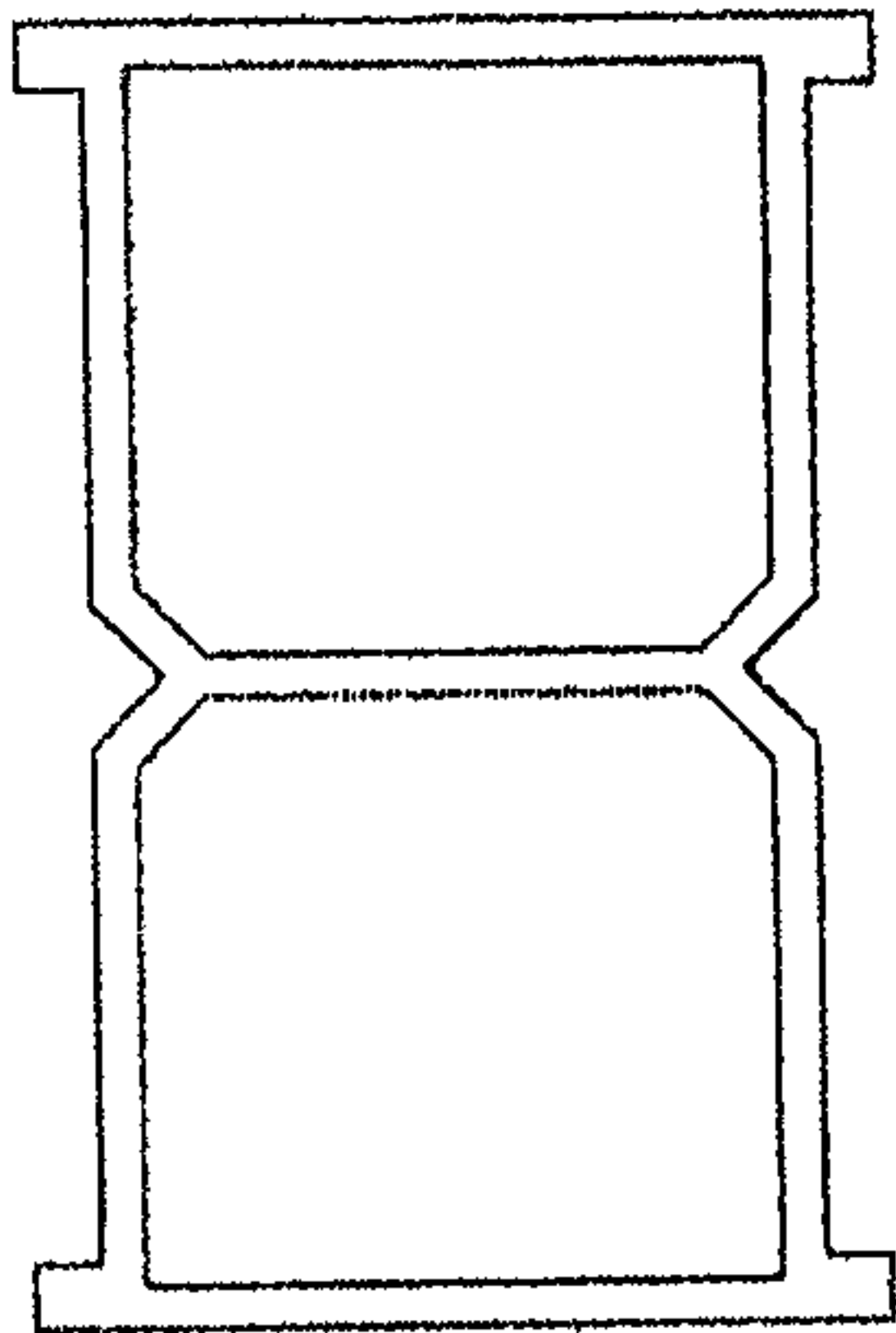


FIG. 23

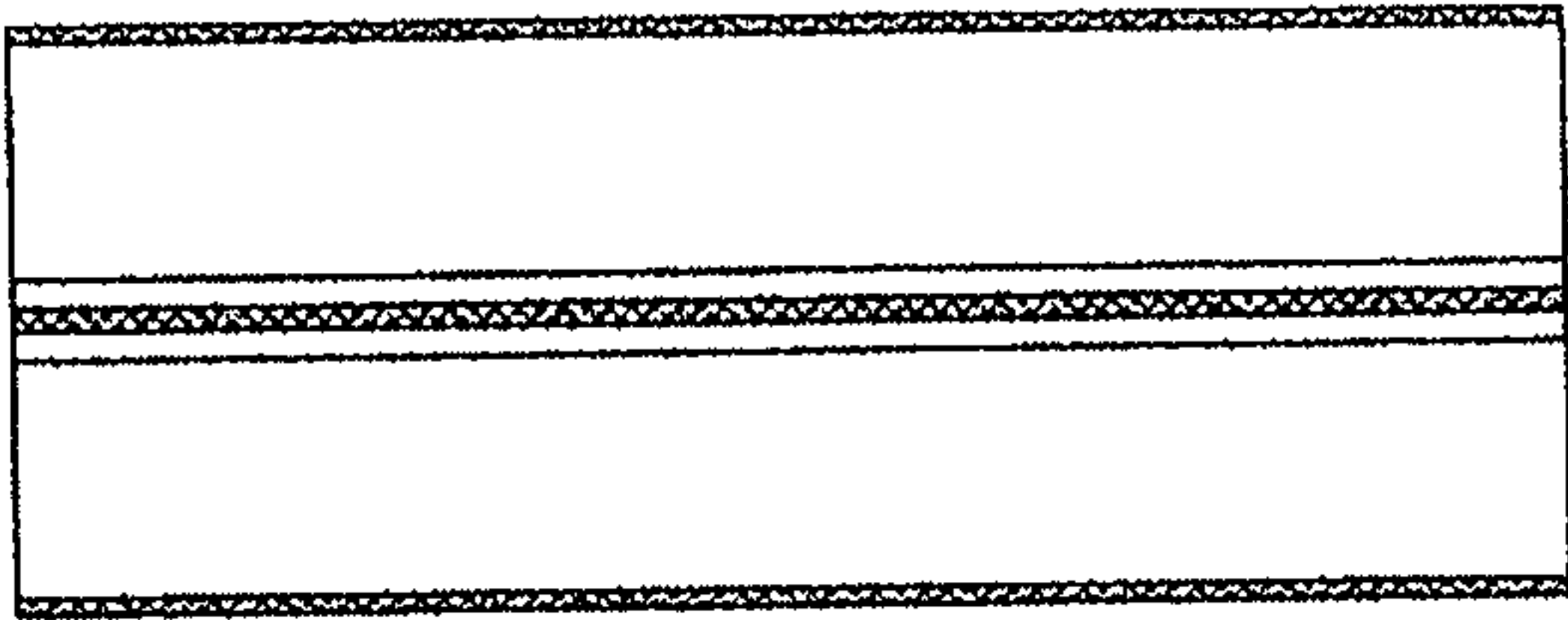


FIG. 24

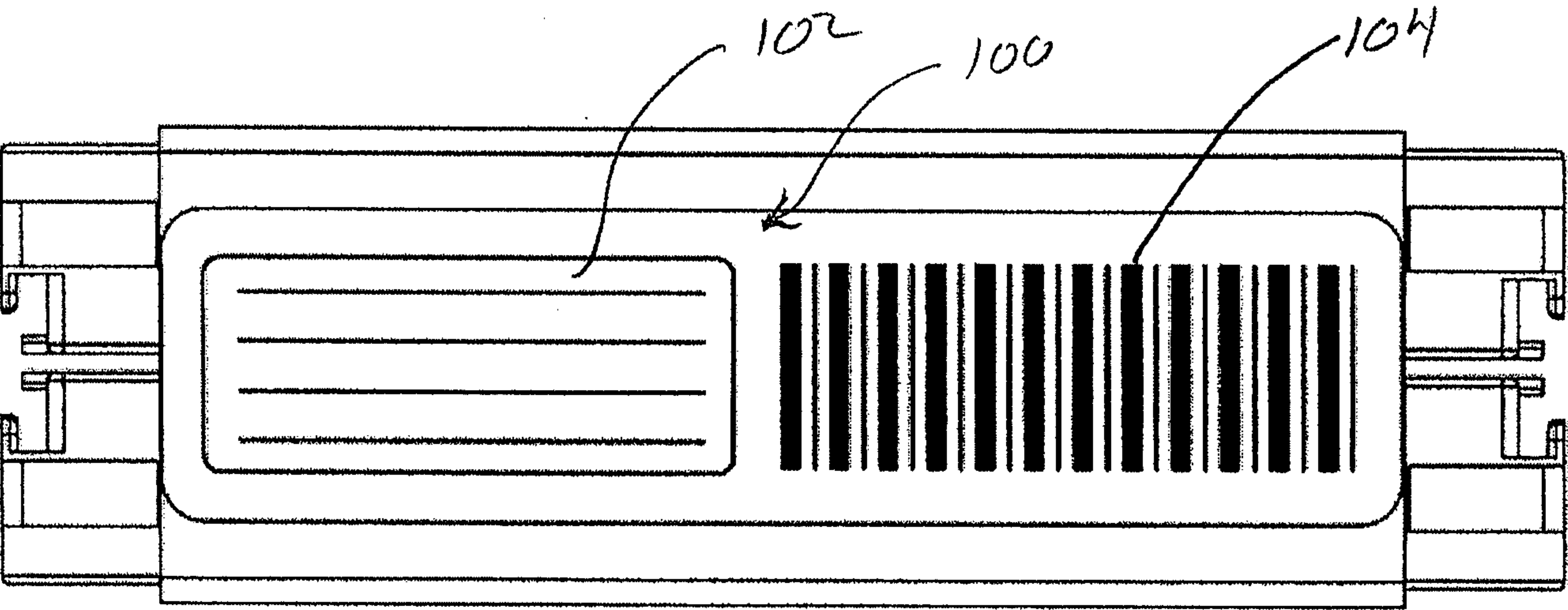


FIG. 25

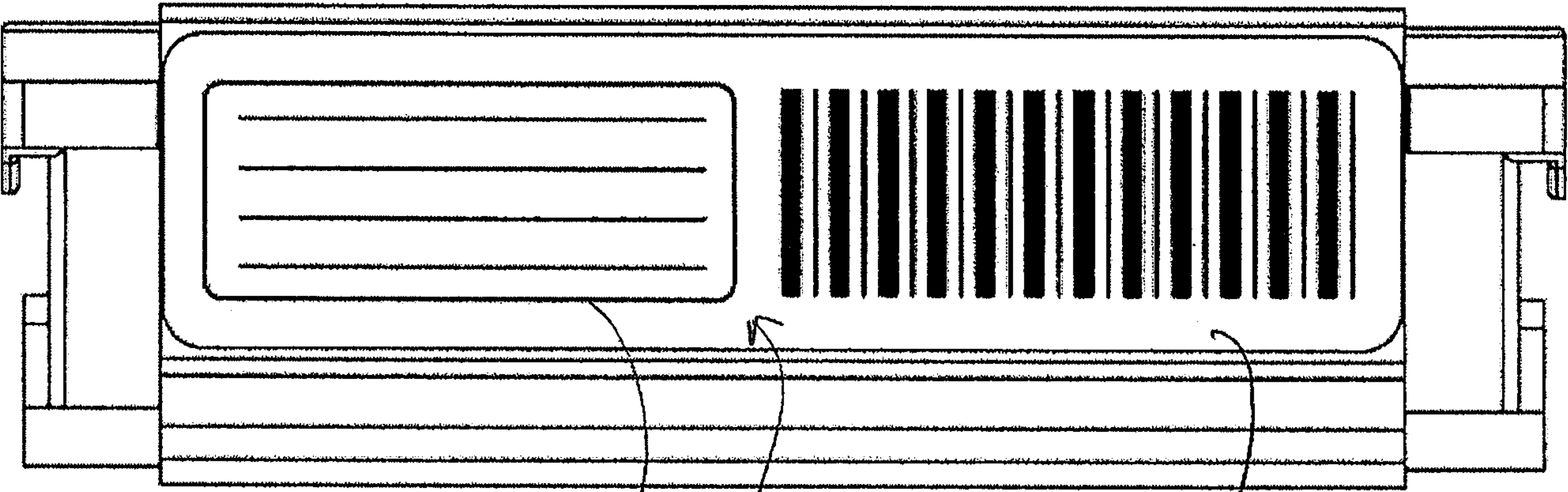


FIG. 26

100a
102a
104a

