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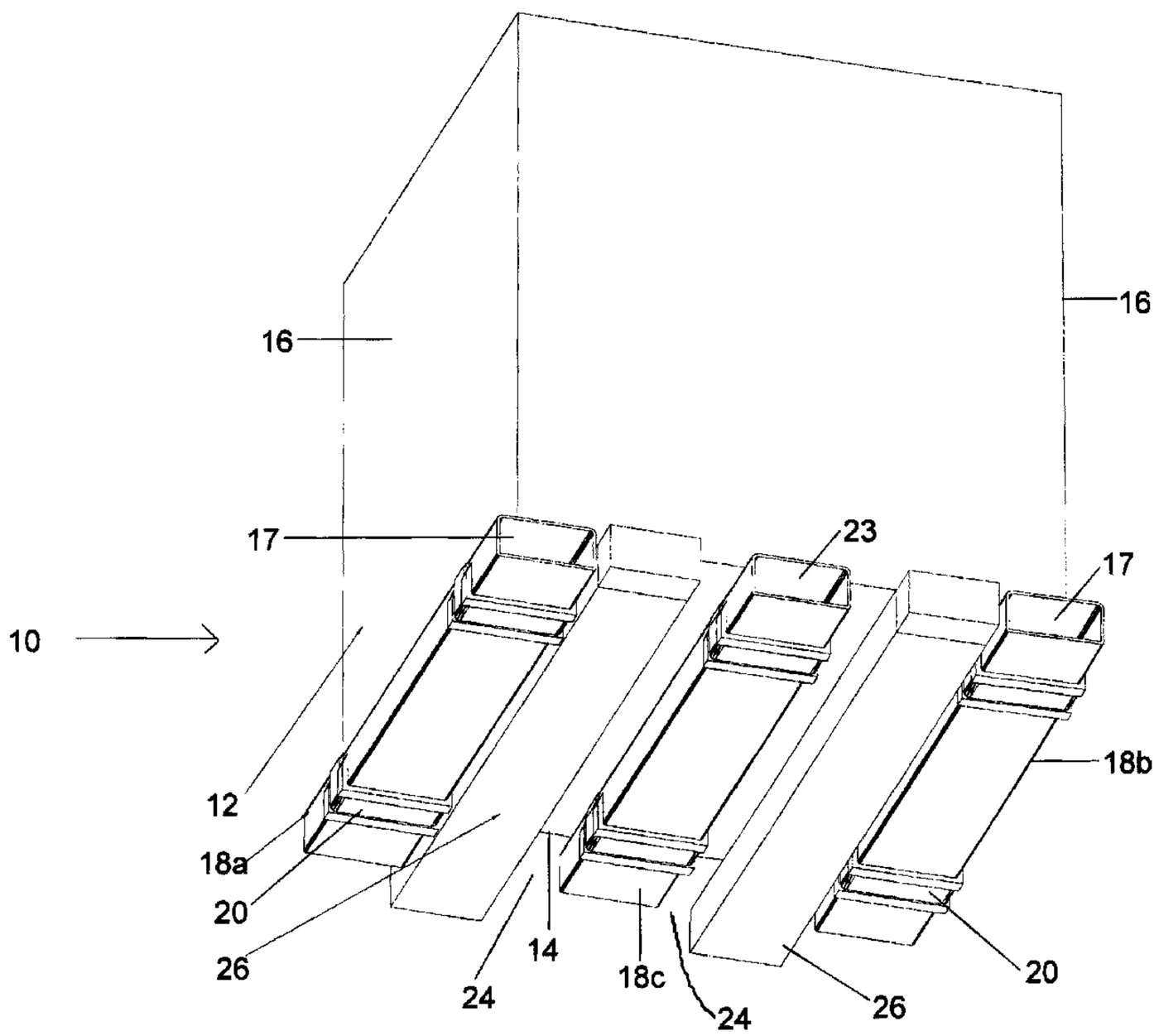
(54) Titre : ENSEMBLE DE MANUTENTION DE SACS EN VRAC
(54) Title: BULK BAG HANDLING ASSEMBLY



(57) Abrégé/Abstract:
A bulk bag handling assembly, includes a bulk bag having a bottom and opposed pairs of peripheral side walls. A pair of outer lifting tine receiving channels are provided along the bottom in parallel spaced relation to one of the opposed pairs of peripheral side walls. A pair of inner lifting tine receiving channels positioned between the outer lifting tine receiving channels. The bulk bag handling assembly described can be used with a wide variety of lifting equipment.

ABSTRACT OF THE DISCLOSURE

A bulk bag handling assembly, includes a bulk bag having a bottom and opposed pairs of peripheral side walls. A pair of outer lifting tine receiving channels are provided along the bottom in parallel spaced relation to one of the opposed pairs of peripheral side walls. A pair of inner lifting tine receiving channels positioned between the outer lifting tine receiving channels. The bulk bag handling assembly described can be used with a wide variety of lifting equipment.

TITLE OF THE INVENTION:

Bulk Bag Handling Assembly

FIELD OF THE INVENTION

The present invention relates to an assembly, which has been developed to facilitate handling of bulk bags by lifting equipment.

BACKGROUND OF THE INVENTION

Bulk bags are used to transport a wide variety of products. In order to facilitate movement of the bulk bags using lifting equipment, bulk bag handling assemblies are used which include tubular lift tine receiving members are secured to a bottom of the bulk bag. United States Patents 6,213,305 and 6,467,625 are examples of such bulk bag handling assemblies.

SUMMARY OF THE INVENTION

According to the present invention there is provided a bulk bag handling assembly, which includes a bulk bag having a bottom and opposed pairs of peripheral side walls. A pair of outer lifting tine receiving channels are provided along the bottom in parallel spaced relation to one of the opposed pairs of peripheral side walls. A pair of inner lifting tine receiving channels positioned between the outer lifting tine receiving channels.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings, the drawings are for the purpose of illustration only and are not intended to in any way limit the scope of the invention to the particular embodiment or embodiments shown, wherein:

FIG. 1 is a bottom perspective view of a bulk bag handling assembly fabricated in accordance with the teachings of the present invention.

FIG. 2 is a front elevation view, in section, of the bulk bag handling assembly illustrated in **FIG. 1.**

FIG. 3 is a side elevation view of the bulk bag handling assembly illustrated in **FIG. 1,** being used with a pallet truck.

FIG. 4 is a front perspective view of the bulk bag handling assembly illustrated in **FIG. 1,** being used with a pallet truck.

FIG. 5 is a bottom perspective view of the bulk bag handling assembly illustrated in **FIG. 1,** being used with a pallet truck.

FIG. 6 is front perspective view of a variation of the bulk bag illustrated in **FIG. 1**, with a drop belly bottom.

FIG 7. is a bottom perspective view of the variation illustrated in **FIG. 6**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiment, a bulk bag handling assembly generally identified by reference numeral 10, will now be described with reference to **FIG. 1** through **5**. A variation will be described with respect to **FIG 6** and **7**.

Structure and Relationship of Parts:

Referring to **FIG. 1,** bulk bag handling assembly 10 includes a bulk bag 12 having a bottom 14 and opposed pairs of peripheral side walls 16. A pair of enclosed outer lifting tine receiving channels 17 are formed by two tubular supports 18a and 18b. Tubular supports 18a and 18b are secured along bottom 14 in parallel spaced relation to one of the opposed pairs of peripheral side walls 16. Tubular supports 18a and 18b have walls 19, which define outer lifting tine receiving channels 17. A pair of open inner lifting tine receiving channels 24 are positioned between outer lifting tine receiving channels 17. Inner lifting tine receiving channels 24 are formed by securing an elongated intermediate support 18c in parallel spaced relation to tubular supports 18a and 18b along bottom 14 of bulk bag 12 in an intermediate position between tubular supports 18a and 18b. Intermediate support 18c supports bottom 14 of bulk bag 12 and thereby creates inner lifting tine receiving channels 24 on either side of intermediate support 18c.

In the drawings intermediate support 18c is illustrated as being tubular. It will appreciated that intermediate support 18c need not be tubular. However, when it is tubular it will, like tubular supports 18a and 18b, have walls 21 that define an enclosed intermediate lifting tine receiving channel 23.

Tubular supports 18a and 18b, as well as intermediate support 18c are illustrated as being secured to bottom 14 of bulk bag 12 by means of straps 20. A great deal of the patent literature deals with alternative ways to secure tubular tine receiving channels to the bottom of bulk bags. It will, therefore, be appreciated that there are other alternatives.

Operation:

The use and operation of bulk bag handling assembly 10 will now be described with reference to **FIG. 1** through **FIG. 5.** Referring to **FIG. 2,** tubular supports 18a and 18b, along with intermediate support 18c, are secured to bottom 14 of bulk bag 12. Referring to **FIG. 1,** in the illustrated embodiment, this is done by means of straps 20. This enables lifting tines to be inserted into outer channels 17, as is well known in the art. However, this also enables lifting tines 26 to be inserted into inner channels 24. If required, intermediate channel 23 may also be used.

Advantages:

An impediment to the universal adoption of bulk bag handling assemblies has been the wide variety of lifting equipment employed with differing lift tine spacing. Often a combination of lifting equipment is used within the same facility. Almost invariably, a combination of lifting equipment is used to move bulk bag 12 from the originating facility, through transportation and warehousing facilities to the end user's facility. Bulk bag handling assembly 10, as described above, provides what has been missing. Bulk bag handling assembly 10 can be used with virtually any type of lifting equipment. Fork lifts can lift bulk bag 12, by inserting their lifting tines into outer channels 17. Pallet trucks 22 (also commonly known as pallet jacks) can lift bulk bag 12 by inserting their lifting tines into inner channels 24. In the past, should one of tubular supports 18a or 18b become damaged, problems were experienced in moving bulk bag 12. With bulk bag handling assembly 10, fork lift operators can temporarily change the spacing of their lifting tines, and insert one of their lifting tines into one of inner channels 24 or even into intermediate channel 23. This same "staggered" lifting technique, using one of outer channels 17 and one of inner channels 24, can be used with lifting equipment having lift tine spacing other than that normally used for fork lifts or pallet trucks. 22.

Variations:

Referring to **FIGURES 6** and **7**, there is illustrated a variation of bulk bag handling

assembly generally referenced by numeral 100. In the variation, handling assembly 100 includes a bulk bag 120 having a bottom 140 and opposed pairs of peripheral side walls 160. As with bulk bag 10, a pair of enclosed outer lifting tine receiving channels are formed by two tubular supports 180a and 180b, however, with variation 100 there is no intermediate support 18c. With the variation, there is a "drop belly" portion 150 intermediate tubular supports 180a and 180b on bottom 140 of bulk bag 120 which creates open inner lifting tine receiving channels 240 on either side of "drop belly" portion 150. Referring to **FIGURE 7**, in the illustrated embodiment, "drop belly" portion 150 has a downwardly protruding rectangle shape, although it will be appreciated that it could have other shapes as well.

In this patent document, the word "comprising" is used in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be one and only one of the elements.

It will be apparent to one skilled in the art that modifications may be made to the illustrated embodiment without departing from the spirit and scope of the invention as hereinafter defined in the Claims.

What is Claimed is:

1. A bulk bag handling assembly, comprising in combination:

a bulk bag having a bottom and opposed pairs of peripheral side walls;

a pair of outer lifting tine receiving channels along the bottom in parallel spaced relation to one of the opposed pairs of peripheral side walls; and

a pair of inner lifting tine receiving channels positioned between the outer lifting tine receiving channels.

2. The bulk bag handling assembly as defined in Claim 1, wherein two elongated supports are secured in parallel spaced relation across the bottom of the bulk bag, the supports having walls defining the outer lifting tine receiving channels.

3. The bulk bag handling assembly as defined in Claim 1, wherein the walls of the supports are tubular and enclosing the outer lifting tine receiving channels.

4. The bulk bag handling assembly as defined in Claim 2, wherein an elongated intermediate support is positioned in parallel spaced relation to the supports and is secured to the bottom of the bulk bag in an intermediate position between the supports, the intermediate support supporting the bottom of the bulk bag and thereby creating the inner lifting tine receiving channels on either side of the intermediate support, the inner lifting tine receiving channels having open bottom access.

5. The bulk bag handling assembly as defined in Claim 2, wherein the bottom of the bulk bag has a central drop belly portion positioned in an intermediate position between the supports, the drop belly portion being spaced from the supports, thereby creating the inner lifting tine receiving channels on either side of the drop belly portion between the drop belly portion and the supports, the inner lifting tine receiving channels having open bottom access.

6. A bulk bag handling assembly, comprising in combination:

a bulk bag having a bottom and opposed pairs of peripheral side walls;

a pair of outer lifting tine receiving channels formed by two tubular supports secured along the bottom in parallel spaced relation to one of the opposed pairs of peripheral side walls, the tubular supports having walls defining the outer lifting tine receiving channels; and

a pair of inner lifting tine receiving channels positioned between the outer lifting tine receiving channels and formed by securing an elongated intermediate support in parallel spaced relation to the tubular supports along the bottom of the bulk bag in an intermediate position between the tubular supports, the intermediate support supporting the bottom of the bulk bag and thereby creating the inner lifting tine receiving channels on either side of the intermediate support between the intermediate support and the supports.

7. The bulk bag handling assembly as defined in Claim 6, wherein the intermediate support is tubular and has walls that define an intermediate lifting tine receiving channel.

8. The bulk bag handling assembly as defined in Claim 6, wherein the tubular supports are secured to the bottom of the bulk bag with straps.

9. A bulk bag handling assembly, comprising in combination:

a bulk bag having opposed pairs of peripheral side walls, and a bottom with a central drop belly;

a pair of outer lifting tine receiving channels formed by two supports secured along the bottom in parallel spaced relation to one of the opposed pairs of peripheral side walls, the supports having walls defining the outer lifting tine receiving channels; and

a pair of inner lifting tine receiving channels positioned between the outer lifting tine receiving channels and defined by the relative positioning of the drop belly spaced from and in an intermediate position between the supports.

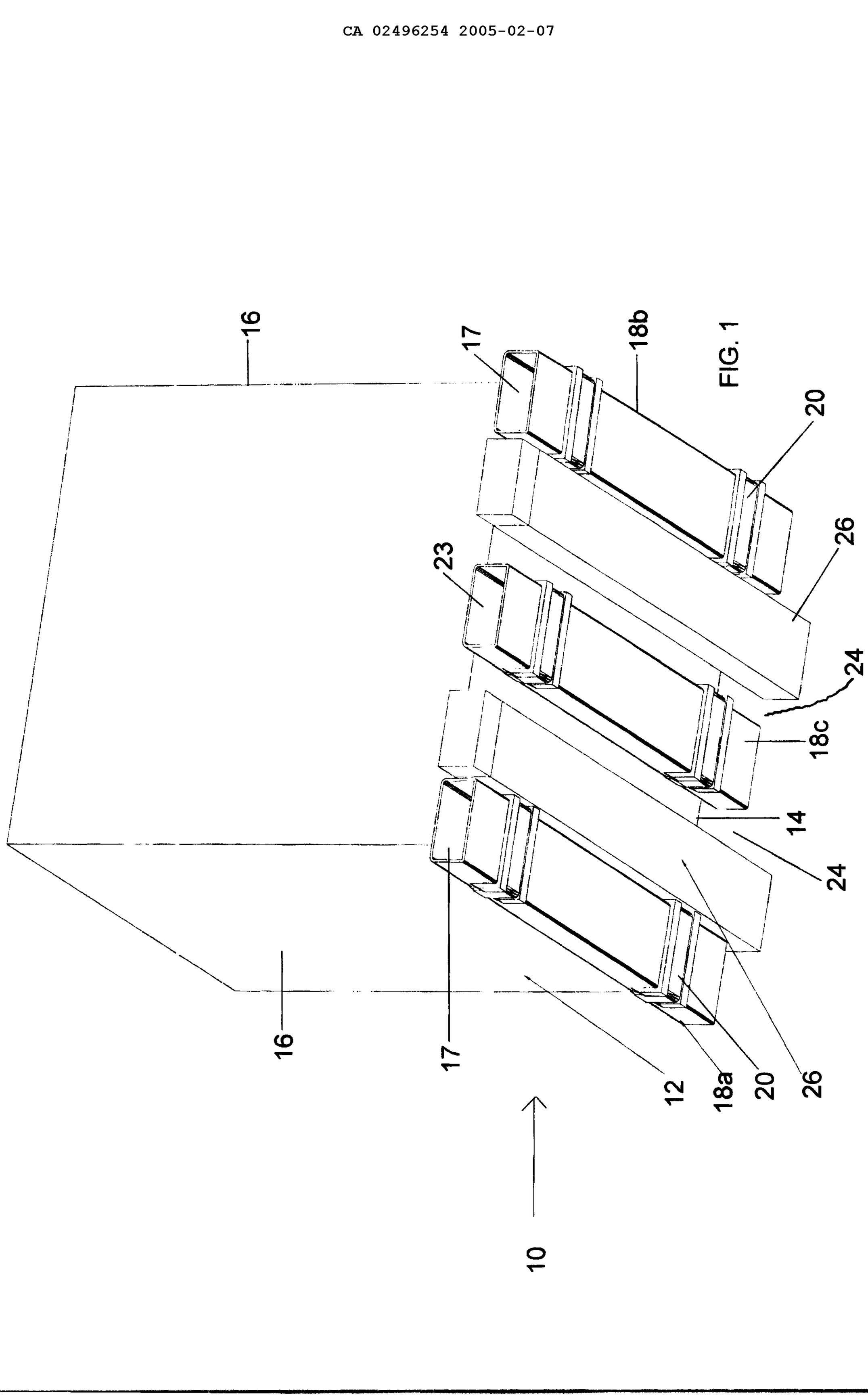

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FIG.
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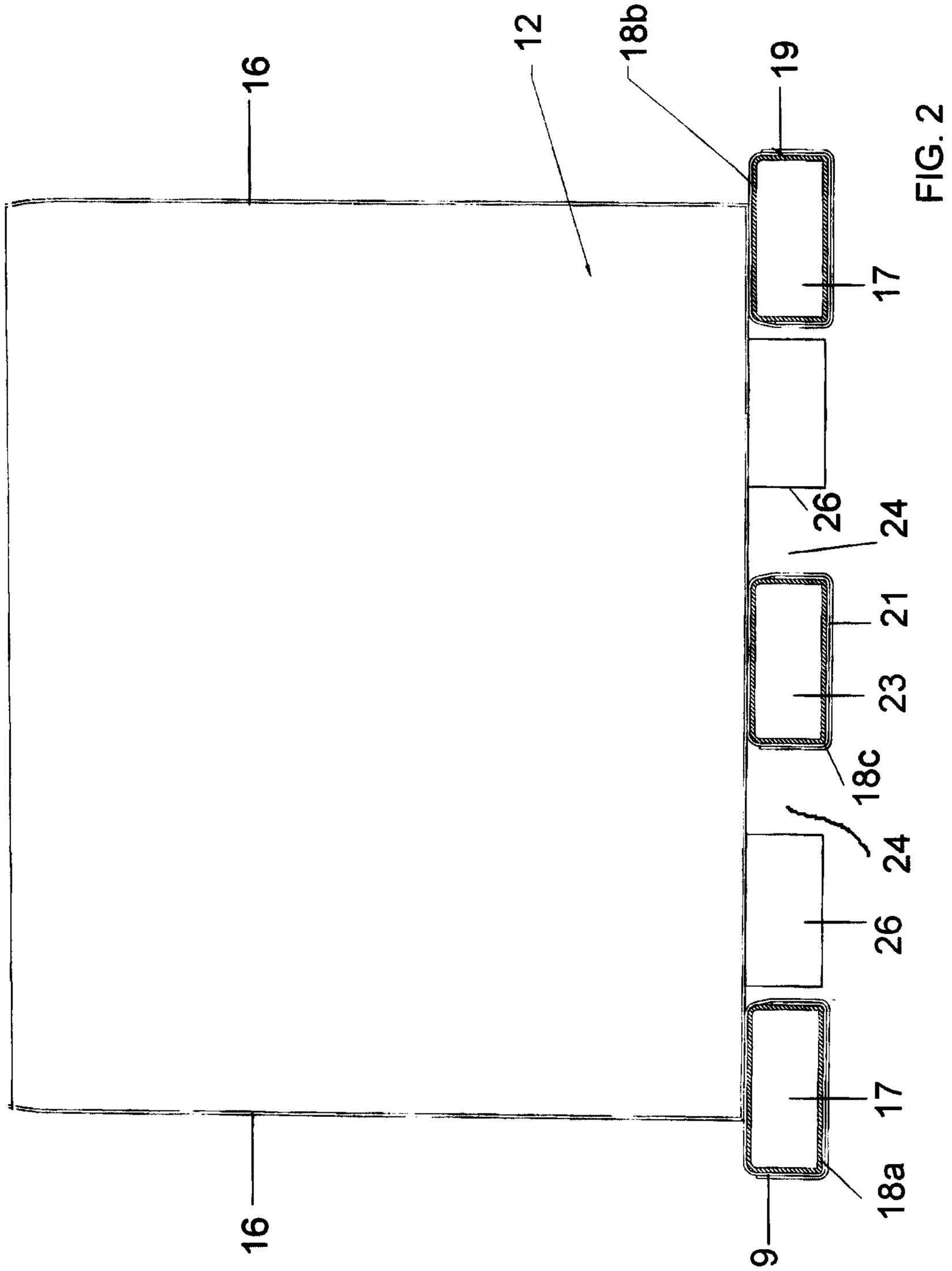


FIG. 2

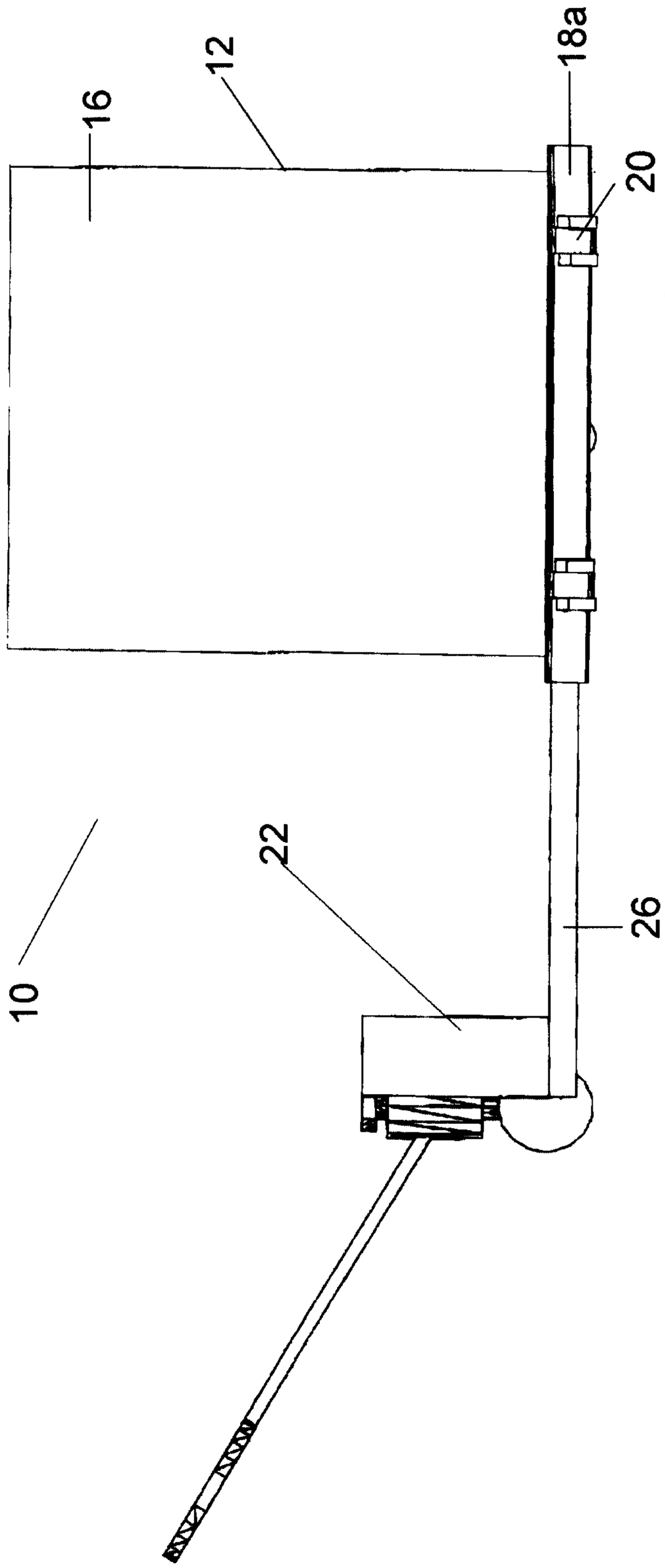


FIG. 3

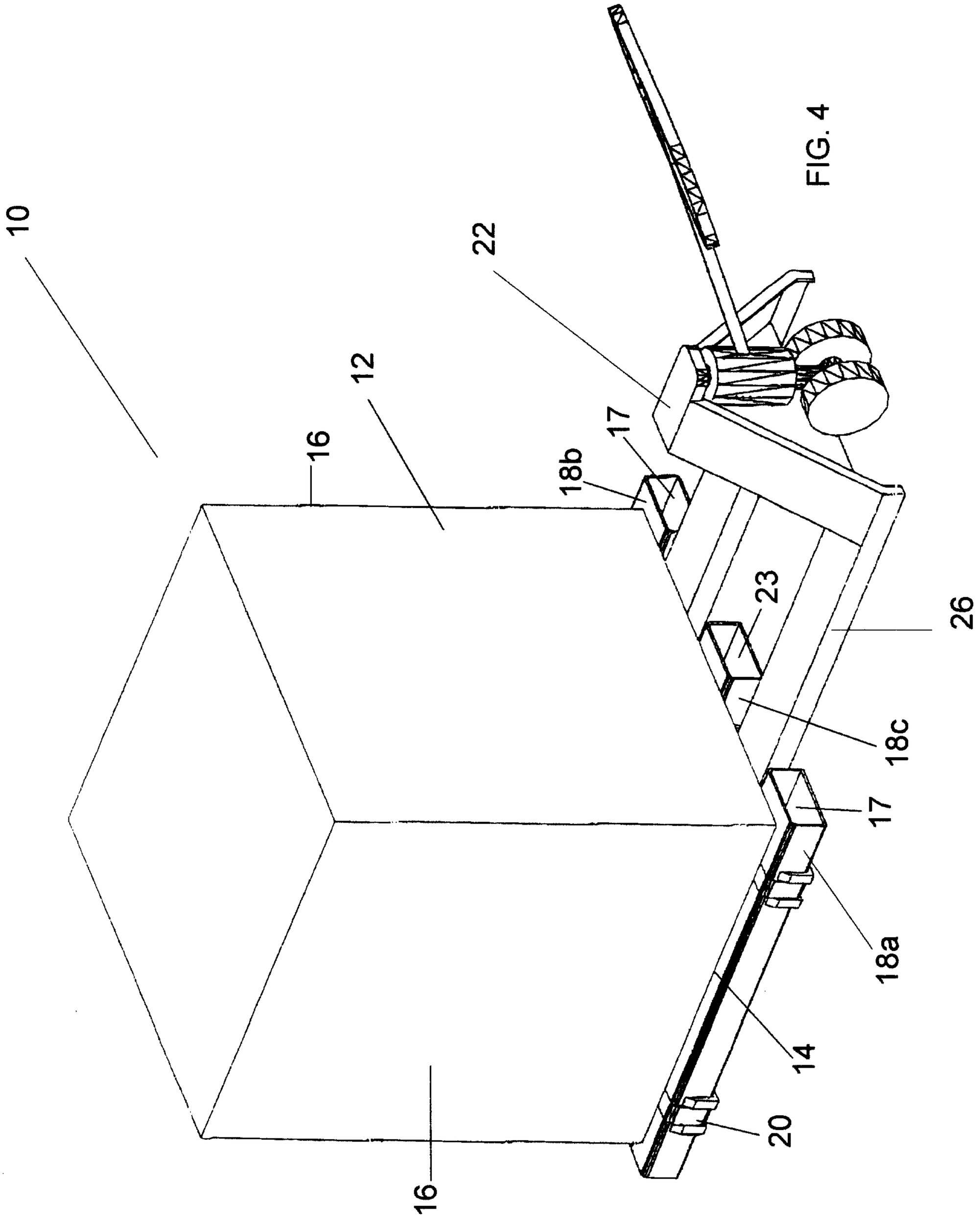


FIG. 4

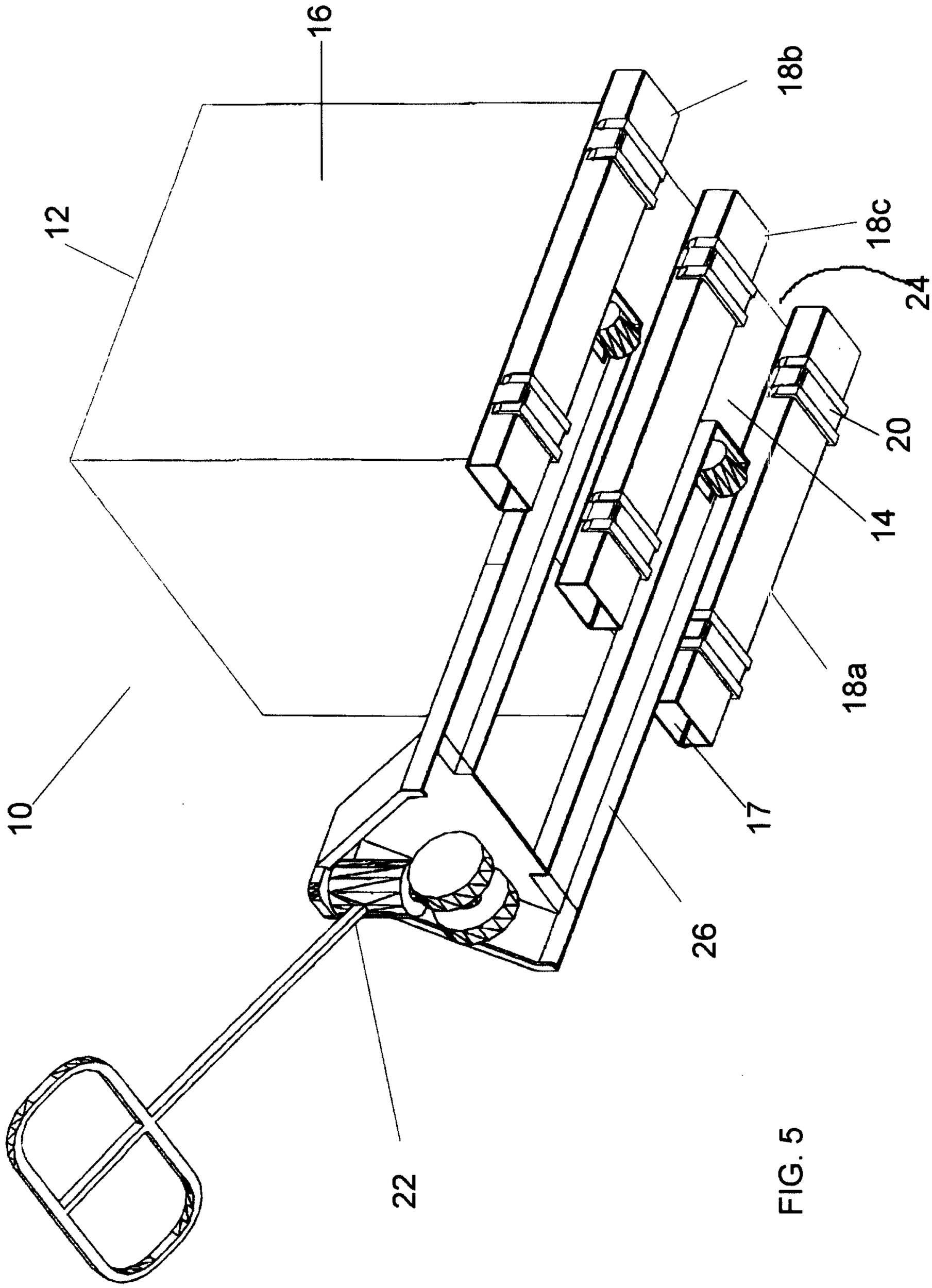


FIG. 5

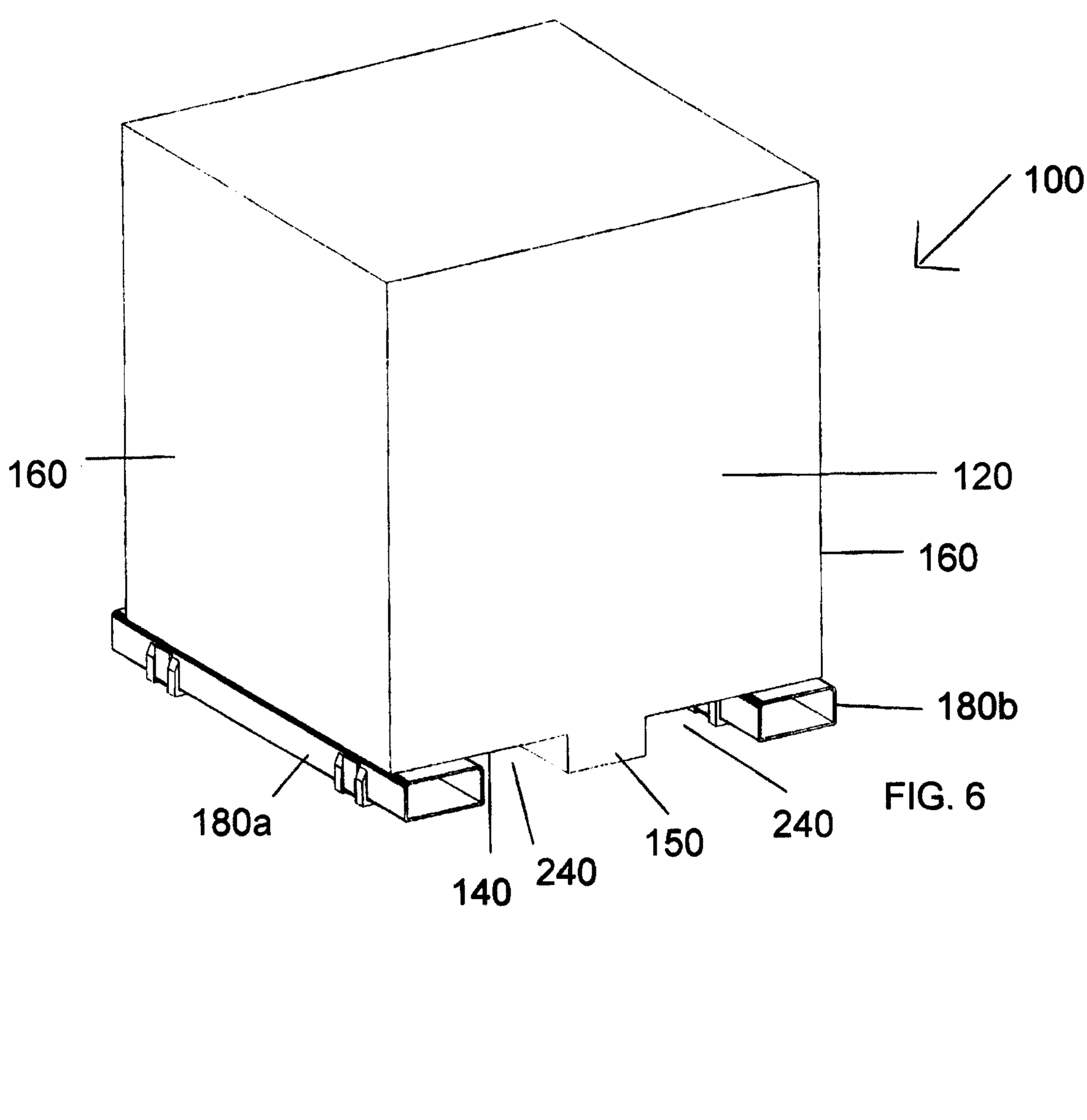


FIG. 6

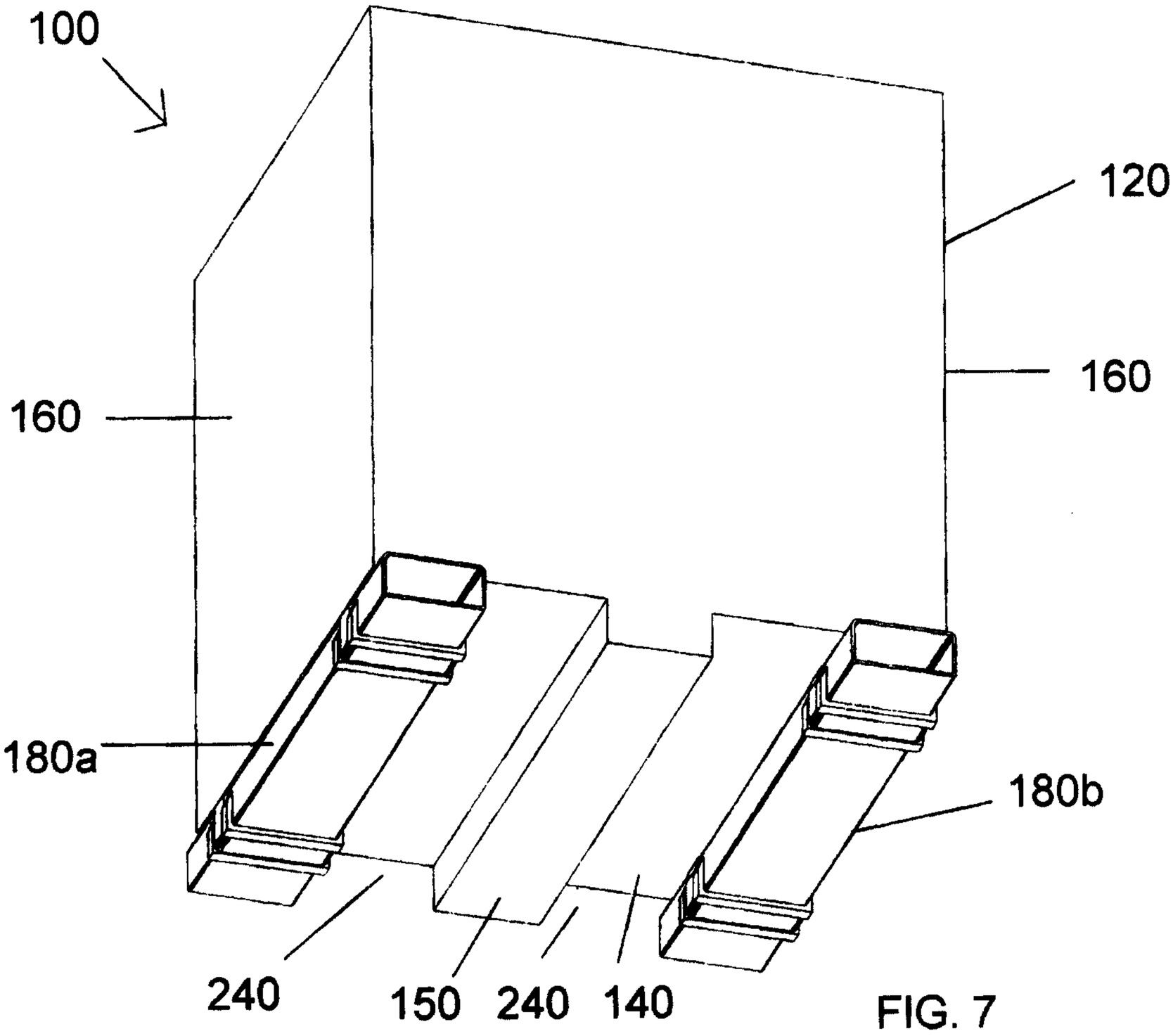
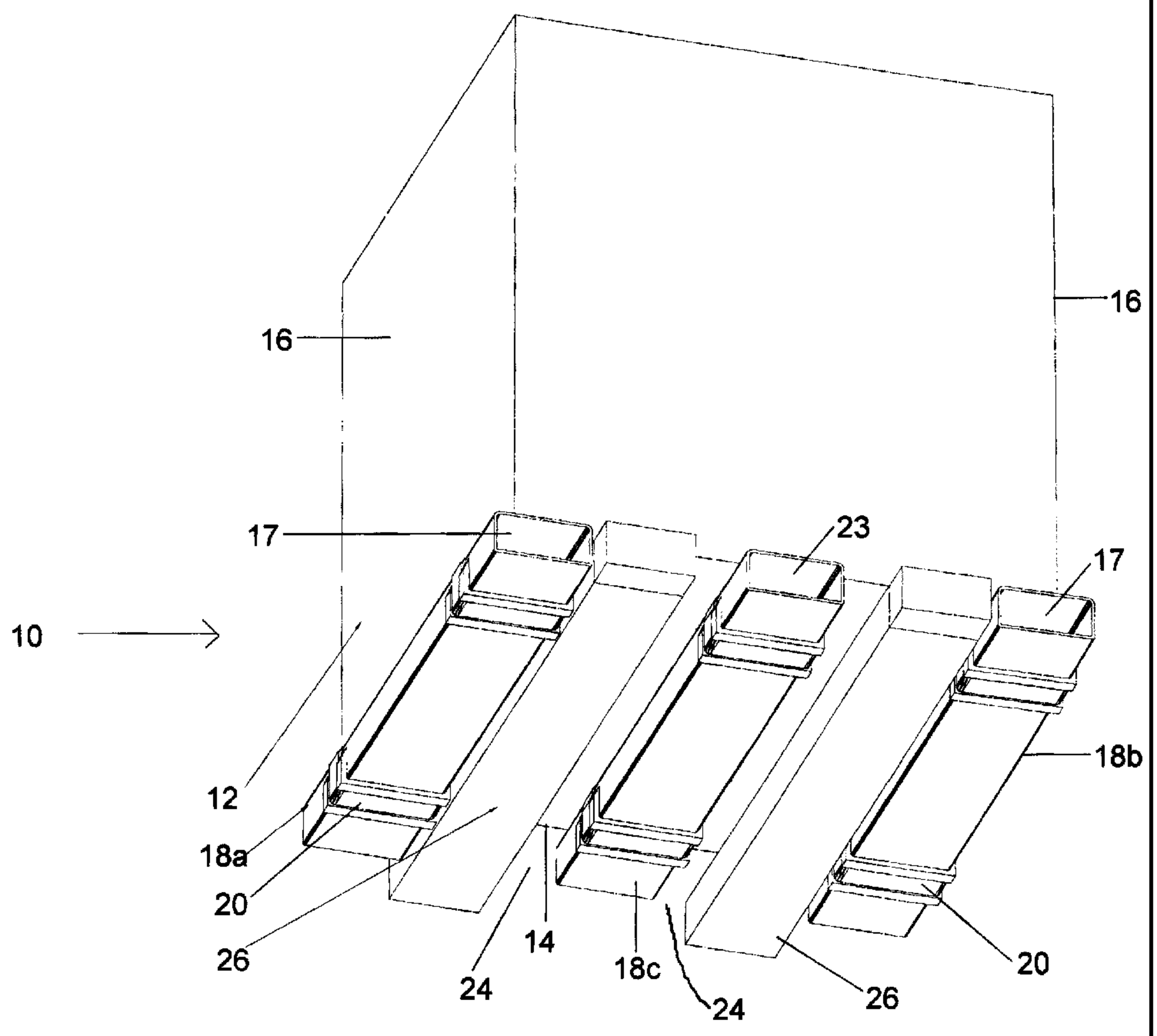


FIG. 7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18c
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