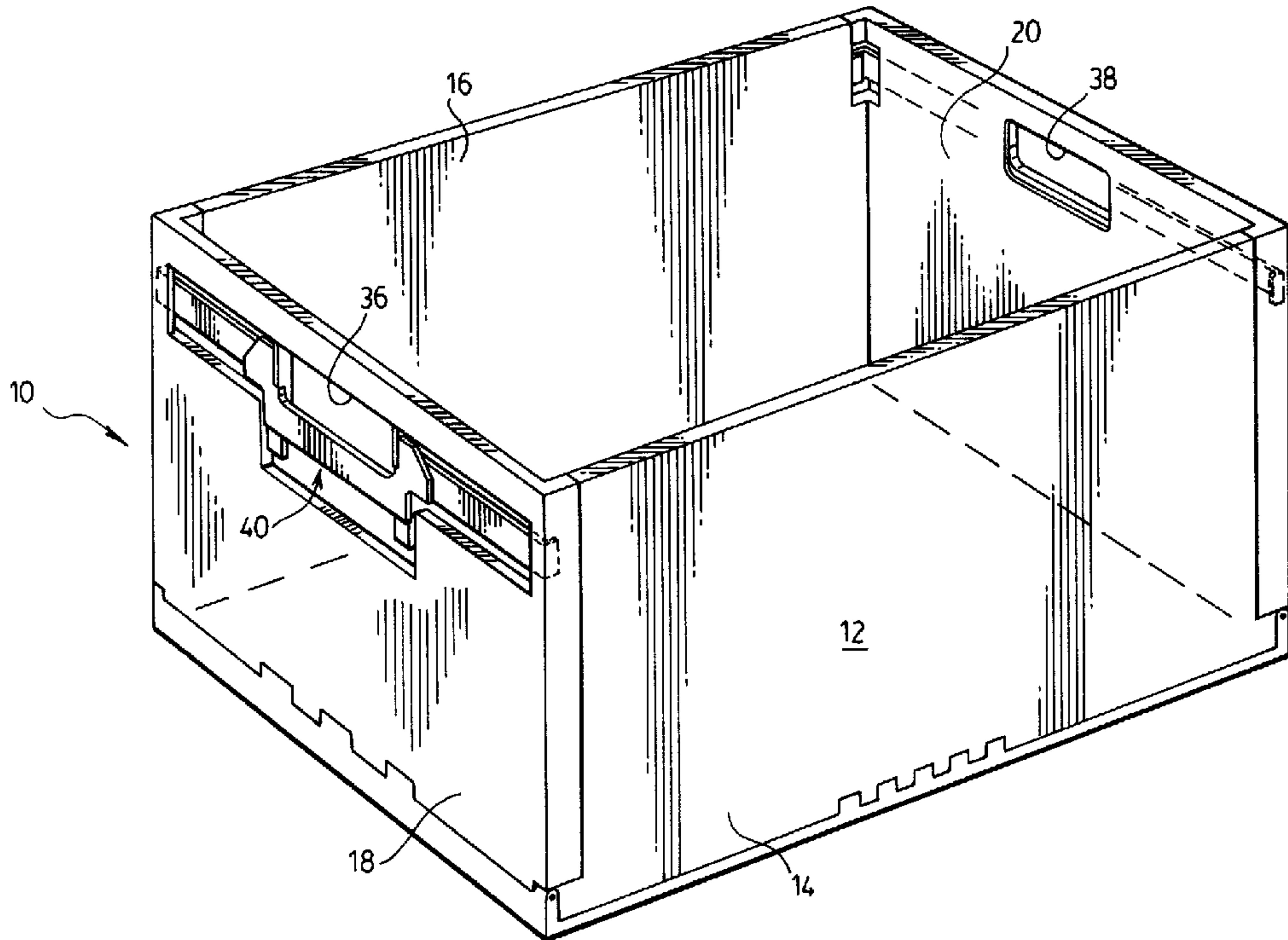




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(51) Int.Cl.⁶ B65D 6/24, B65D 6/26
(54) **CONTENANT PLIANT**
(54) **FOLDABLE CONTAINER**



This invention relates to a plastic container which is intended to hold produce such as fruit and vegetables. The container unfolds from a condition in which it is relatively flat for storage to an open, unfolded position for use. More particularly the invention relates to a latch for such a container.

The latch of the invention is described with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a container open for use and showing the outside and inside walls of the latch of the invention;

Figure 2 is a perspective view of container showing the manner in which its panels are unfolded for use;

Figures 3 and 5 are perspective views of portions of the inside wall of an end panel of the container;

Figure 4 is a section on line 4-4 of Figure 3;

Figure 6 is a section on line 5-5- of Figure 3 showing the latch closed;

Figure 7 is a section on the same line as in Figure 6 except that the latch is shown open; and

Figure 8 is a perspective view of the inside walls of portions of the side and end panels of the container.

Like reference characters refer to like parts throughout the description of the drawings.

With reference to Figures 1 and 2, the illustrated container, indicated generally 10, has a bottom panel 12, side panels 14, 16 and end panels 18, 20. The side panels are joined to the bottom panel by means of elongated hinges 24, 26 and like hinges 28, 30 join the end panels to the bottom panel. Elongated openings 36, 38 are formed on the end panels and serve as handles for the container.

The container is of the type which folds for storage but which unfolds for use in holding produce such as fruit and vegetables. As is conventional, the hinges are located such that the panels are relatively flat when the container is folded for storage.

Usually the container is composed of moulded plastic for lightness and ease in cleaning and is provided with a number of slots (not illustrated) for aeration of its contents. Such containers are illustrated in a number of patents of the United States such as no. 5,515,987 to Jacques et al.

With reference to Figures 1, 3 and 4, a latch, generally 40, is positioned beneath each opening and serves to interconnect the end panels to the side panels. The latch includes a slider 42 which is located beneath opening 36. The slider is mounted for sliding to the inner wall of the end panel by means of a barb 44 which is formed on the inside wall of the end panel. A slot 46 is formed on the wall of the slider which

faces the end panel. The slider is free to slide up and down in the slot and is held therein by cooperation of the projecting edge 44a of the barb with the facing inside surface 46a of the slot. A like slot 48 and a barb are formed on the opposite side of the slider

Preferably the latch assembly is covered by a panel (not illustrated) to protect it when the container is in use.

The direction of movement of the slider is indicated by arrow 60 and that direction is preferably vertical when the container is resting on a horizontal surface. To that end, the longitudinal axes of slots 46, 48 are oriented vertically. Vertically extending ridges or guides 62, 64 are provided on the end panel for contacting the side edges 66, 68 of the slider. The slots and ridges cooperate to ensure that the movement of the slider is in the desired direction.

A lateral extension 70, 72 is provided at opposite sides of the slider and a pin 74 extends outwardly from each extension. The pin is received in a slot 76 formed in an end of a latch bar 78. Preferably the angle between the longitudinal axis of the slot and the direction of movement of the slider is about 30 degrees.

With reference to Figures 6 and 7, the end of the latch bar opposite the slot 76 ends at a finger 80 which extends normally from the longitudinal axis of the latch bar. The

finger serves to release a detent or catch 82 which is formed on side panel 16.

With reference to Figure 6 the detent is shown within a recess 84 formed on the end of end panel 20. In this position, the detent serves to connect the side panel with the end panel.

With reference to Figure 7, when the slider is moved downward, finger 80 moves inward and applies an inward force on the detent. The detent is composed of resiliently deformable material and bends inward under such force. As it bends it moves out of recess 84 and unlatches the side panel from the end panel. The side panel can then be separated manually from the end panel.

The detent only bends when a significant downward force is applied to the slider. Otherwise the detent is in the undeformed position illustrated in Figure 6. Thus when the end panel is to be reconnected or re-latched to the side panel, the two panels are returned to the position illustrated in Figure 6. When the edge 88 of the end panel contacts the outer panel of the detent, the end panel is pushed manually toward the side panel to order to cause the edge to push against the detent. Under such force the detent will bend inward to clear the edge.

When the detent reaches the recess, the detent will snap

outward thereby re-latching the end panel to the side panel. As the detent snaps back it will contact the finger and cause it to move likewise such that it returns to the position illustrated in Figure 6.

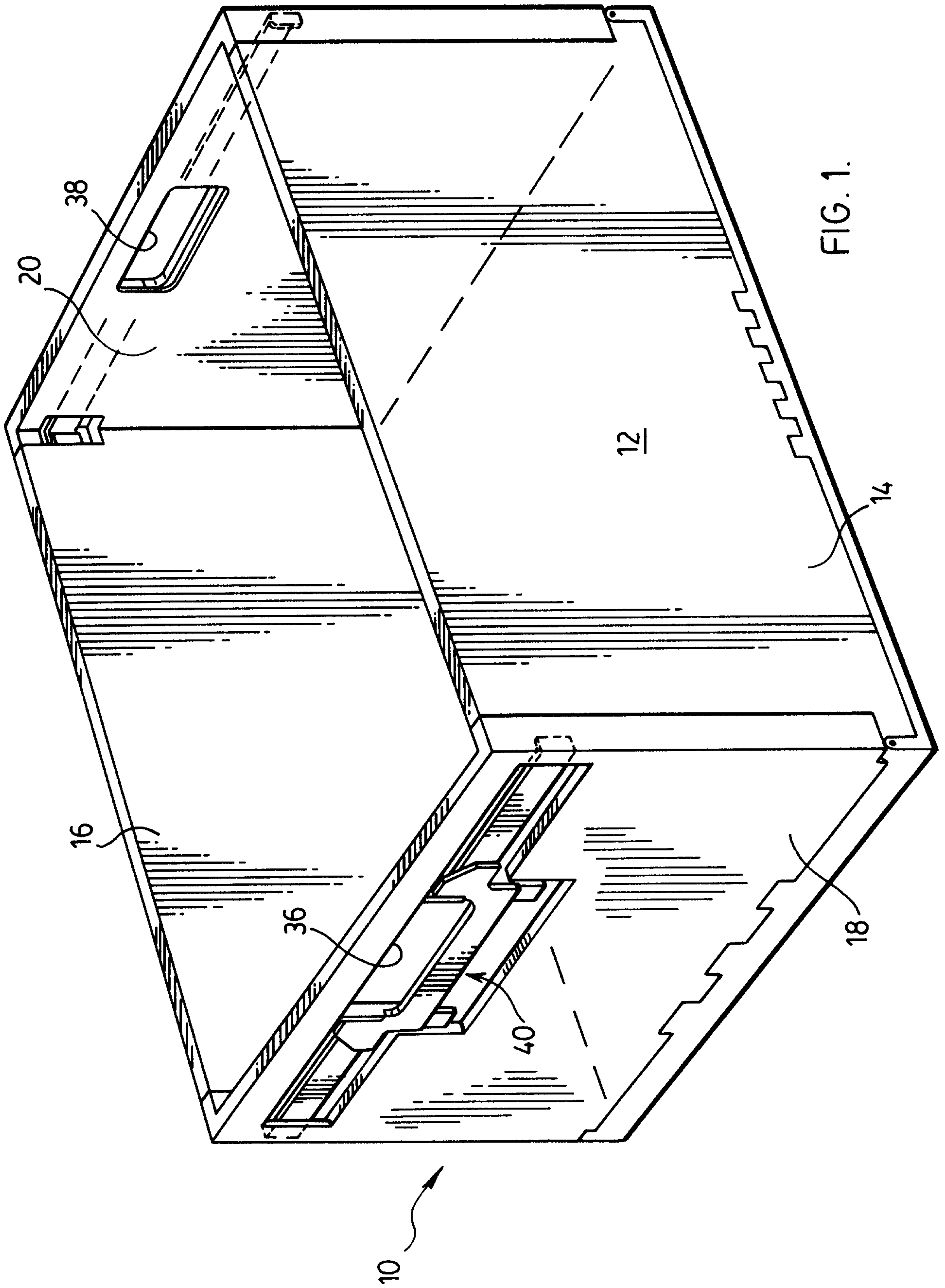
With reference to Figure 8 an elongated groove 90 is formed along the edge of the end panel 20 beneath the latch bar and an elongated tongue 92 is formed along the edge of the side panel beneath detent 82. When the two panels are interconnected the tongue is accommodated in the groove. A smaller groove 94 and tongue 96 are formed above the detent and latch bar. The grooves and tongues cooperate to strengthen the corner of the container at which the two panels meet.

In operation, the container is folded from the position illustrated in Figure 1 by placing a hand in opening 36 and pushing downward on slider 42. As the slider moves downward, latch bars 78 on opposite sides of the slider are pulled simultaneously inward toward the slider. At the same time the fingers 80 open detents 82. The end panel may then be separated from the side panels. The operation is repeated at the other end of the container.

After the end panels are separated, the container is folded flat by first folding side panels inward. Next, the end panels are folded inward on top of the side panels. The container will then be ready for storage.

Unfolding involves opening the panels as illustrated in Figure 2 and rotating the side and end panels upward until their edges are adjacent to each other. One end panel is then positioned such that its grooves 90, 94 are adjacent to the tongues 92, 96 at both sides. The end panel is then pushed into contact with the two side panels. As the fingers of the latch contact the detents, they are forced outward by the detents and the latch bars force the slider upward. No springs are necessary for this purpose.

It will be understood of course that modifications can be made in the preferred embodiment illustrated and described herein without departing from the scope and purview of the invention as described herein.



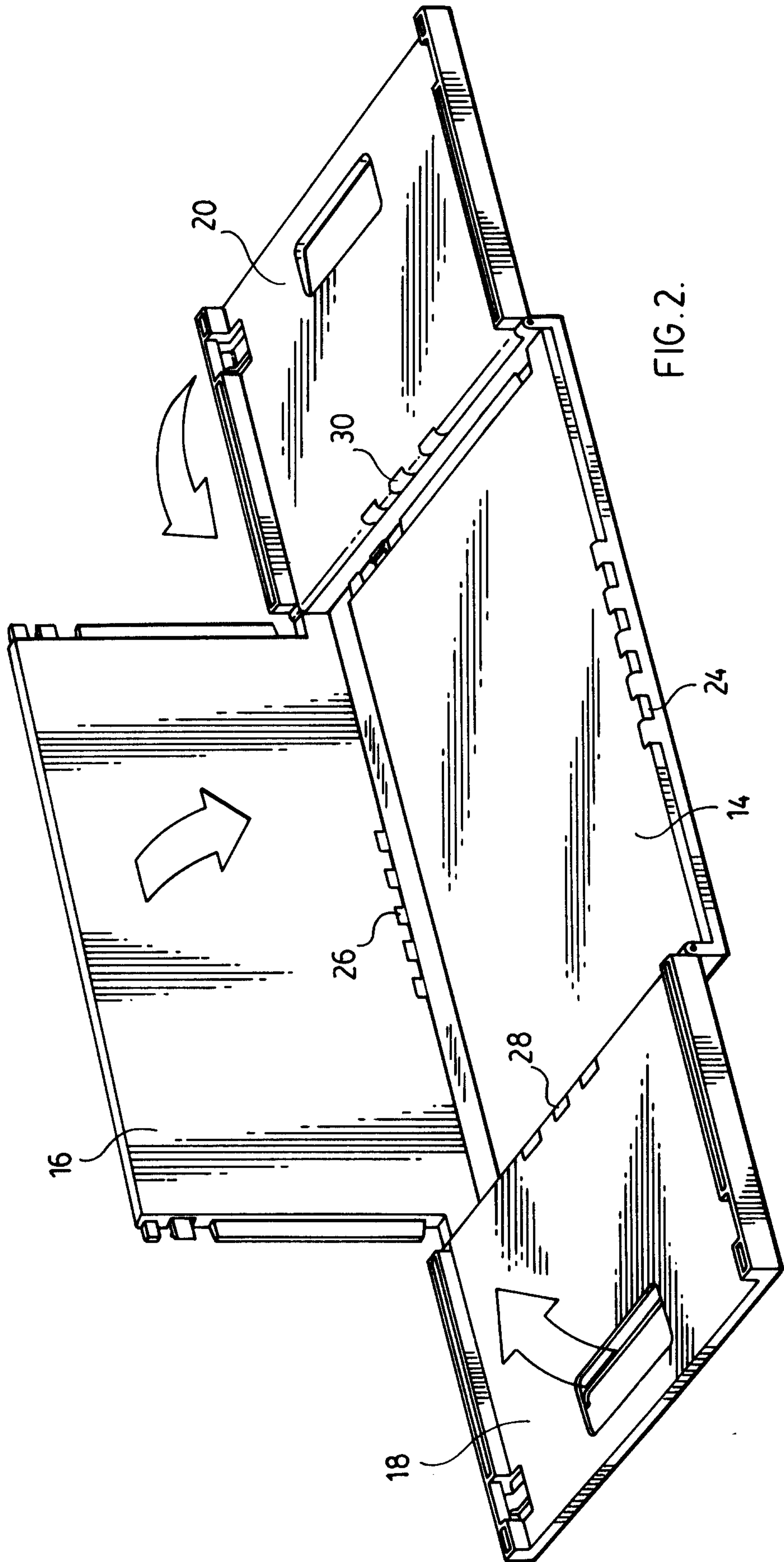


FIG. 2.

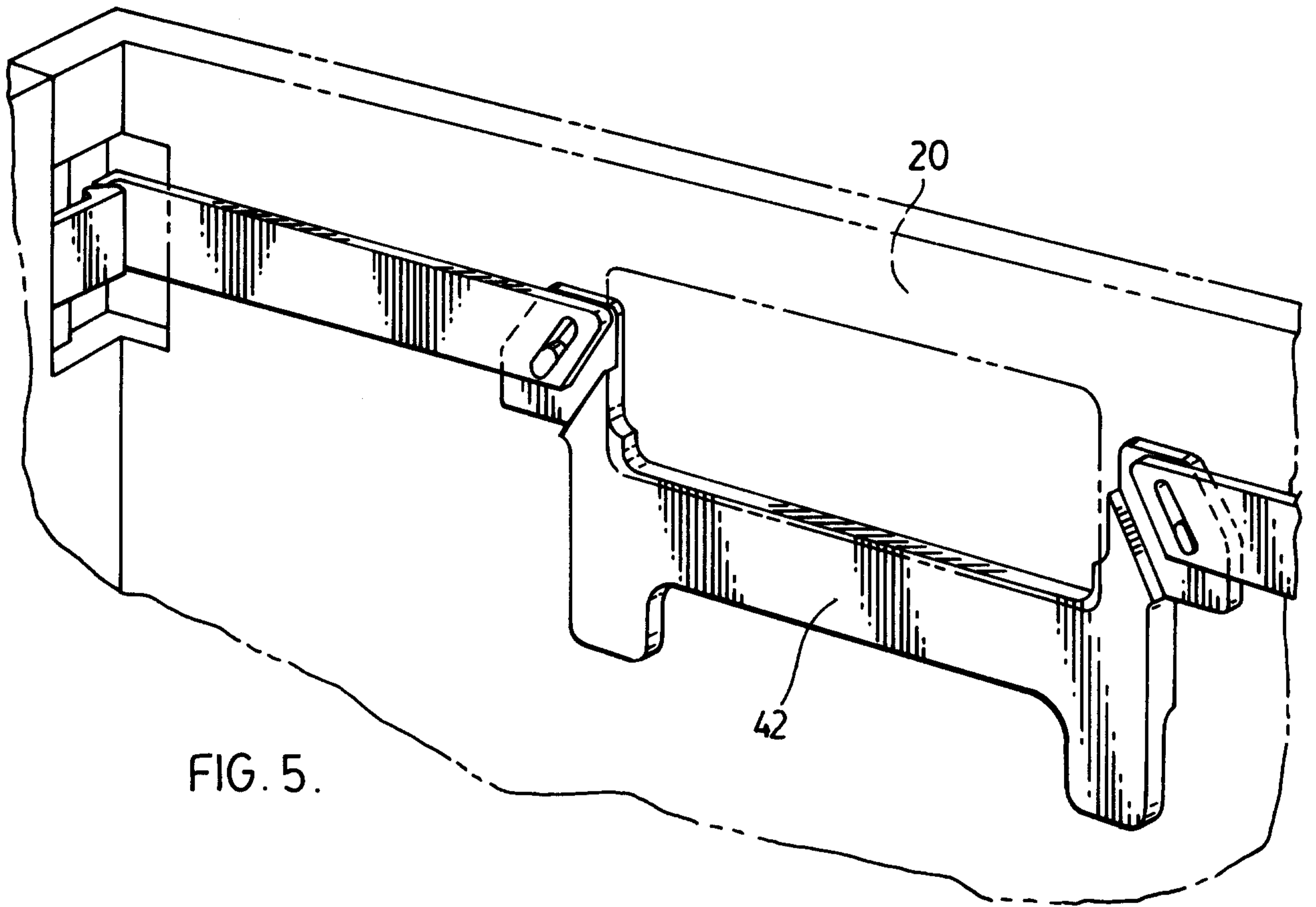


FIG. 5.

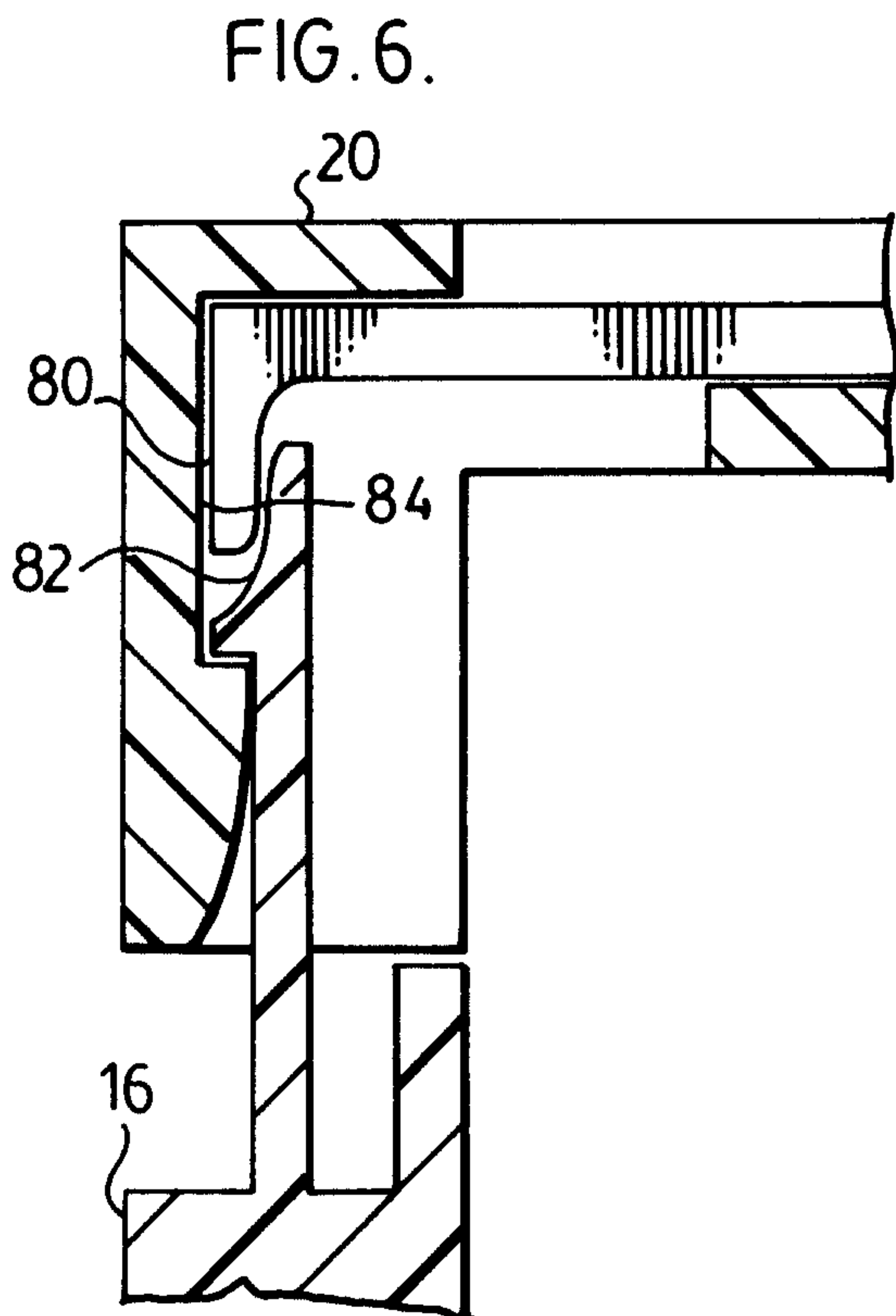


FIG. 6.

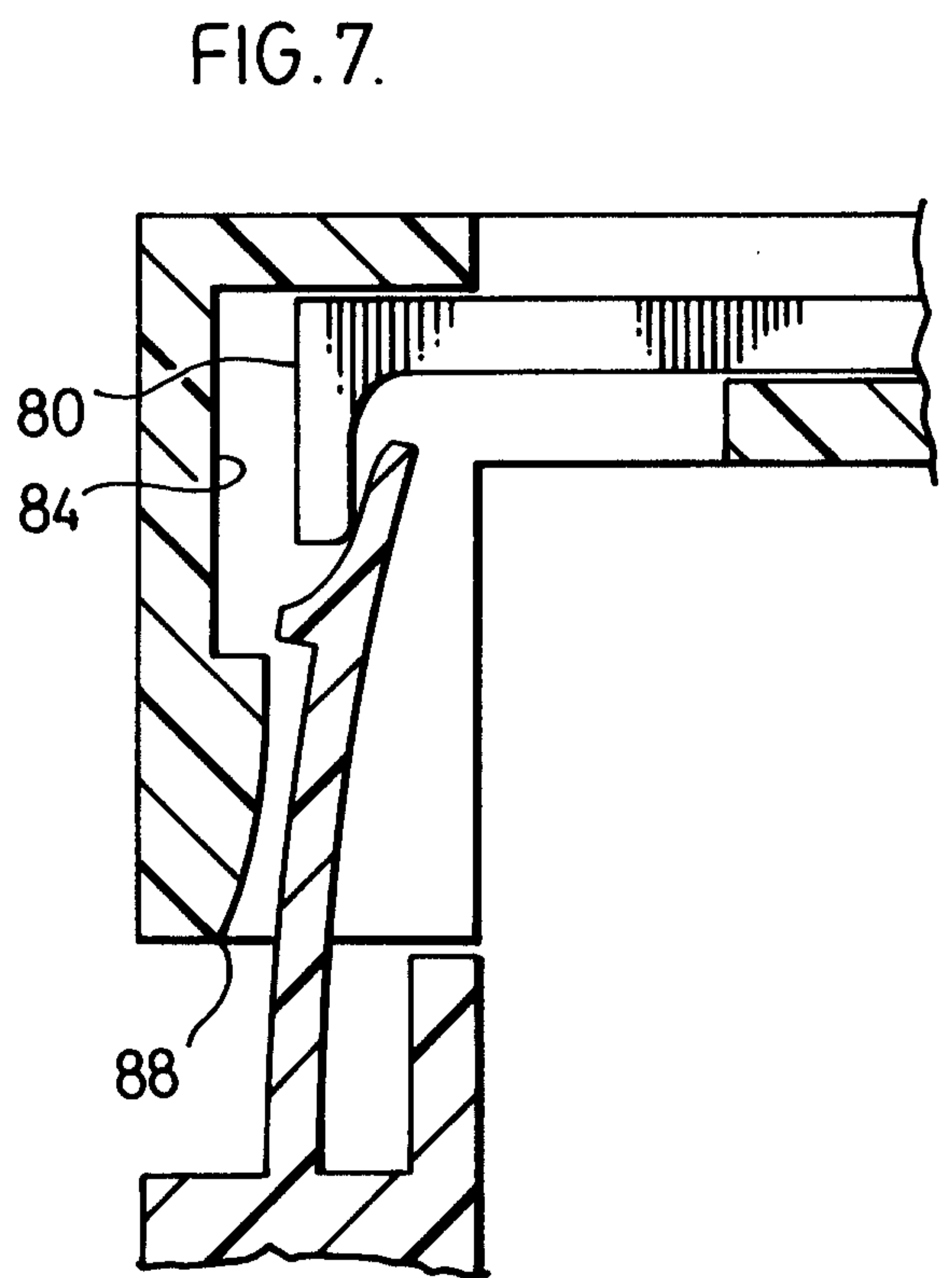


FIG. 7.

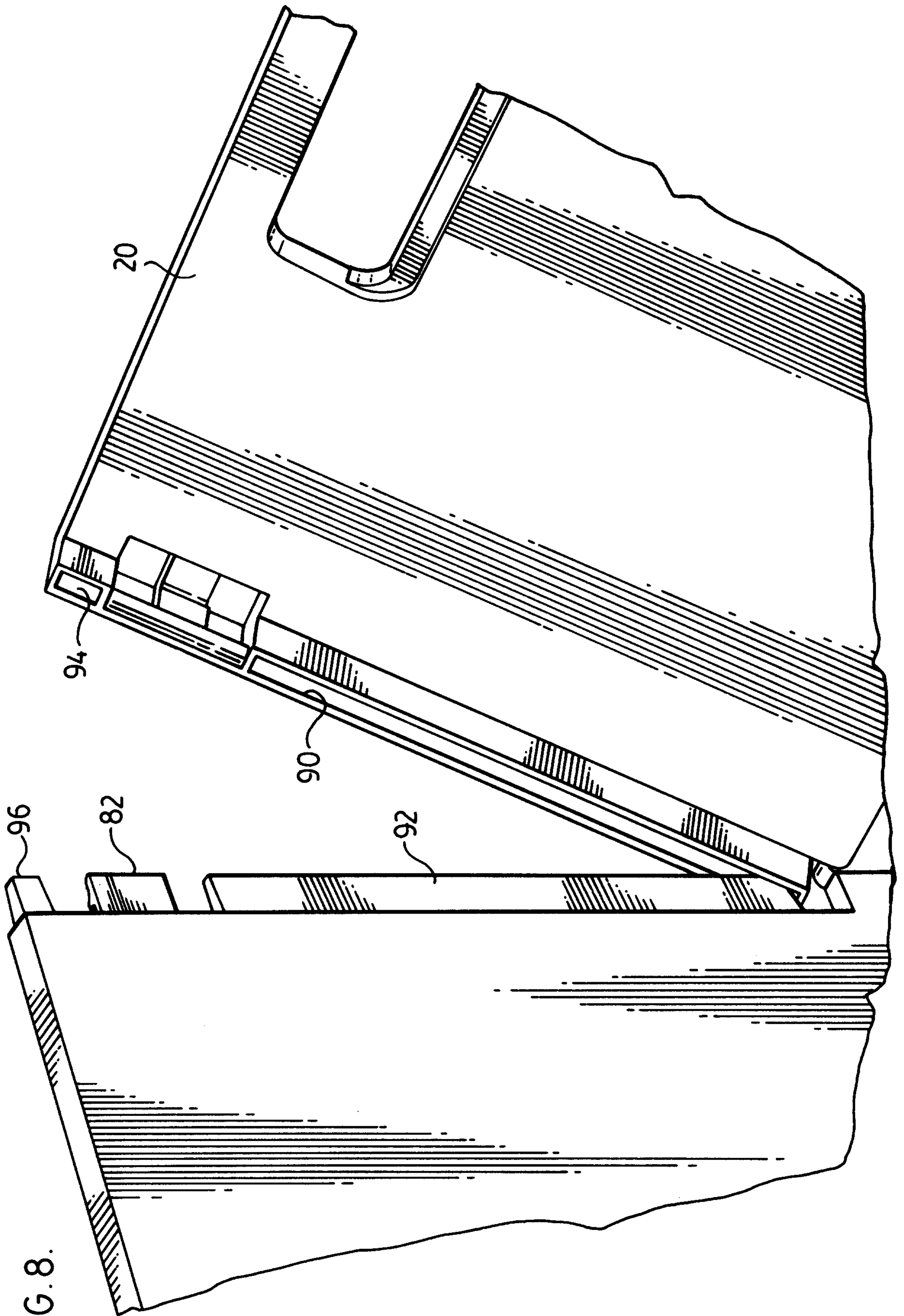


FIG. 8.

