Nov. 26, 1940. E. W. HANDLEY ET AL 2,223,284

MECHANICAL DEVICE

Filed Feb. 19, 1940 2 Sheets-Sheet 1

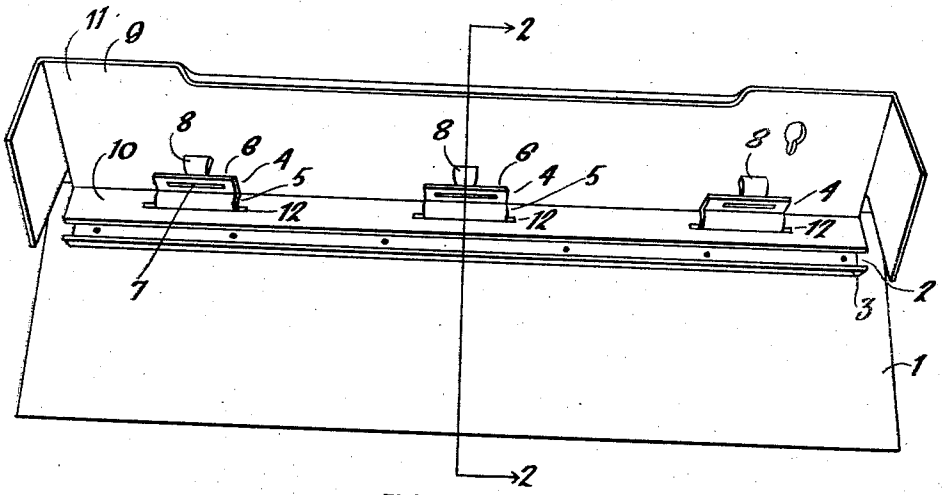

Fig. 1

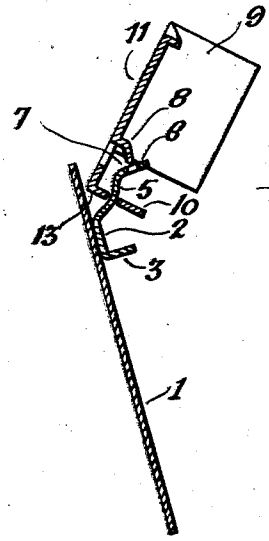

Fig. 2

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MECHANICAL DEVICE

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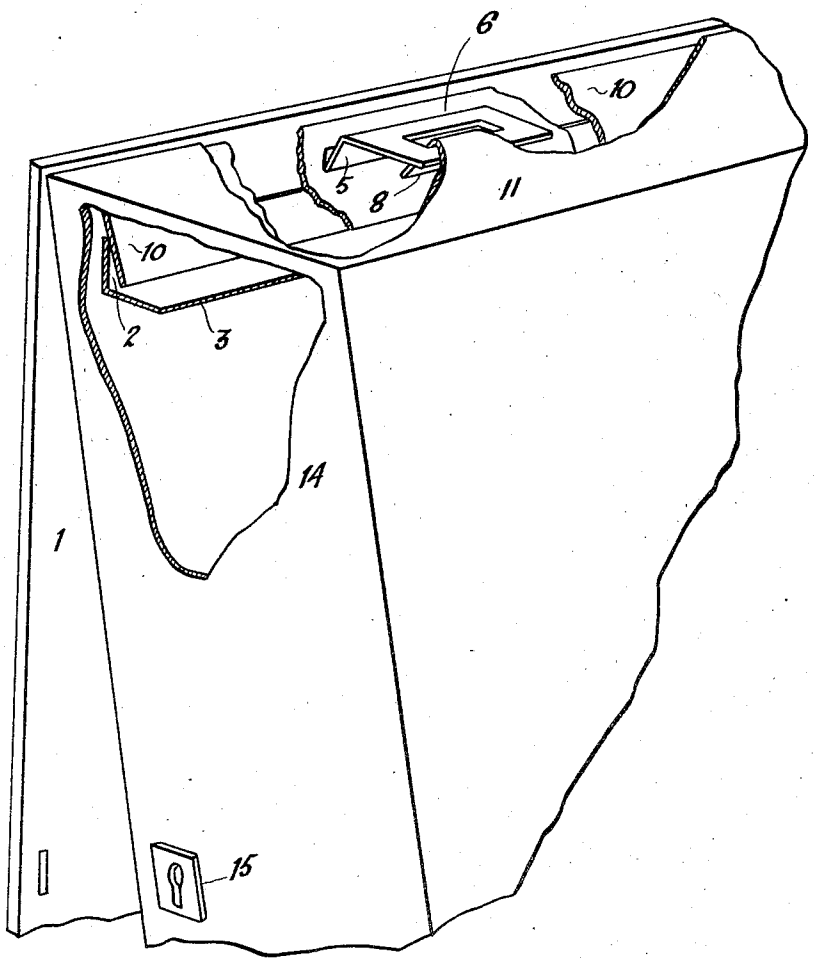

Fig. 3

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UNITED STATES PATENT OFFICE

2,223,284

MECHANICAL DEVICE

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Application February 19, 1940, Serial No. 319,780

5 Claims. (Cl. 16—172)

The present invention relates to a mechanical construction as applied to a frame or box which will permit the frame to be opened on a hinge and which will also allow disassembly of the elements of the box. The present invention is more particularly applicable to large boxes or frames where one portion forms the cover which, from time to time must be raised, and which, more infrequently must be removed. The invention further relates to a device for performing the functions previously stated in such a way that the person wishing to remove the cover must know exactly how this is to be accomplished. In particular the present invention is applicable to vending machine cases where the cases are locked after the material to be vended is inserted and which normally are filled simply by tilting the cover without removing it. At times however in such machines it is useful to be able to remove the whole cover and this is done in the present invention without any tools and with great ease without in any way lessening the locking effect or safety of the contents within that is ordinarily provided with an internal hinge. In the present invention the arrangement is such that the operator must definitely know how the locking arrangement is arranged in order that it may be withdrawn, and further the cover can only be removed after the lock is opened. While the device provides a positive safety element in this respect, the arrangement and mechanism in itself is simple and is constructed out of simple mechanically stamped metal sheets.

The invention will be more fully described in connection with the drawings in which:

Figure 1 shows a perspective view of the invention with the pieces in a partially opened position.

Figure 2 shows a section on the line 2—2 of Figure 1, and,

Figure 3 shows a perspective view with fragments removed to indicate the cooperation of the various parts of the mechanism and also to show the construction as applied to a cover of a vending machine.

The various elements of the mechanism will be indicated by the same numbers in the drawings.

In Figure 1 there is indicated a back frame 1 to which an angle element 2 is riveted having a forwardly extending plate or bracket 3. The plate 2 may extend the whole width of the frame and is provided at intervals with outwardly projecting tongues 4, 4, 4, indicated in Figure 1. These tongues are composed of an arcuate section 5 and a flat portion 6 extending from the end of the arcuate portion. The flat portion 6 is preferably in a plane at right angles to the back frame 1, although other angles may be used, but preferably the direction normal to the back surface is desired. A slot 7 is positioned within the flat plate 6 which serves to receive the tongue 8 pressed out of the other element 9 of the frame. The element 9 of the frame may be a portion of the cover 14 or it may be welded to it. The element 9 is provided with a flange 10 extending at right angles to the plate 11 of the element 9. This downwardly extending flange is provided with slots 12, 12, 12, which engage the projecting tongues or elements of the angle element 2. The element 9 by virtue of the plates 11 and 10 has a corner 13 which bears against the back element 1 of the frame. In the closed position the plate 10 has its slot 12 locked in the lower end of the arcuate element and in this position the plate 10 bears against the inner surface of the plate 2 while the plate 11 on its inner surface rests upon the top of the member 6 with the tongue registering in the slot 7. As the cover 14 is raised (Figure 3), the corner 13 pivots against the back 1 and the slot 12 in the plate 10 follows the curved plate 5. At the same time the curved projection 8, projecting from the top plate 11, withdraws from the plate 6. It will be noted in the position indicated in Figure 2 that with the plate 11 tilted at quite a vertical angle, that the tongue 8 has just completely withdrawn from the plate 6. By curving the plate 6 slightly downward, this angle, at which the tongue 8 clears the plate, can be lessened. After the tongue has cleared the plate, the whole cover may be removed by swinging the plate 11 in a curve to permit the plate 10 to be removed from the curved portion 5 and the flat portion 6.

Without knowing the construction of various elements, and some little experience in handling the cover, considerable difficulty is experienced in taking the cover off. Apart from this however, which is highly desirable, it is very easy to raise the cover to insert things inside or make any necessary changes. It is obvious that a support may be used to hold the cover in a raised position, and when the case is locked by the lock 15 on the cover to the back 1, there is no possibility of removing the cover without freeing the lock.

Having now described our invention, we claim:

1. In a frame having at least two elements linked together, comprising in combination a plate having an arcuate section and terminating in a flat section projecting from one of said elements, the second element of said frame having

members, respectively, enveloping and passing through said plate member, said enveloping member being proportioned to engage the arcuate and flat plate after said other member has become clear of said plate in the relative movements of said two elements.

2. In a frame having two elements comprising a back member and a cover, a plate having an arcuate section and terminating in a flat section mounted on said back member with said flat section projecting substantially normally to the surface of the back member, said flat section having a perforation therein, said cover having a tongue engaging in said flat section and a flange having a slot engaging said flat and arcuate plate, said flange in the normally closed position of said cover engaging the arcuate section of said plate.

3. In a frame having two elements comprising a back member and a cover, a plate having an arcuate section and terminating in a flat section mounted on said back member with said flat section projecting substantially normally to the surface of the back member, said flat section having a perforation therein, said cover having an angle element, the corner of which normally comes in contact with the back member said angle element having a plurality of members engaging said arcuate and flat plate and having such proportions that one of said members disengages before the others.

4. In a frame having two elements comprising a back member and a cover, a plate having an arcuate section and terminating in a flat section mounted on said back member with said flat section projecting substantially normally to the surface of the back member, said flat section having a perforation therein, said cover having an angle element, the corner of which normally comes in contact with the back member, one member of said angle element having a slot therein engaging said plate, and the other of said angle elements having a projecting tongue engaging the perforation in said plate, said tongue being of such a length that it disengages said plate while the first member of said angle element still engages said plate.

5. In a frame having two elements comprising a back member and a cover, a plate having an arcuate section and terminating in a flat section mounted on said back member with said flat section projecting substantially normally to the surface of the back member, said flat section having a perforation therein, said cover having an angle element, the corner of which normally comes in contact with the back member, one member of said angle element being normally parallel to said back member when said cover is closed and the other member being normally perpendicular thereto, the said parallel angle element having a slot therein engaging said plate and the said perpendicular element having a projecting tongue engaging the perforation in said plate, said tongue being of such a length that it disengages said plate while the parallel member of said angle element still engages said plate as the cover is being raised.

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