May 29, 1934. L. BENOIT 1,960,238

MACHINE FOR SETTING UP CARTONS

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Fig. 2



Fig. 1

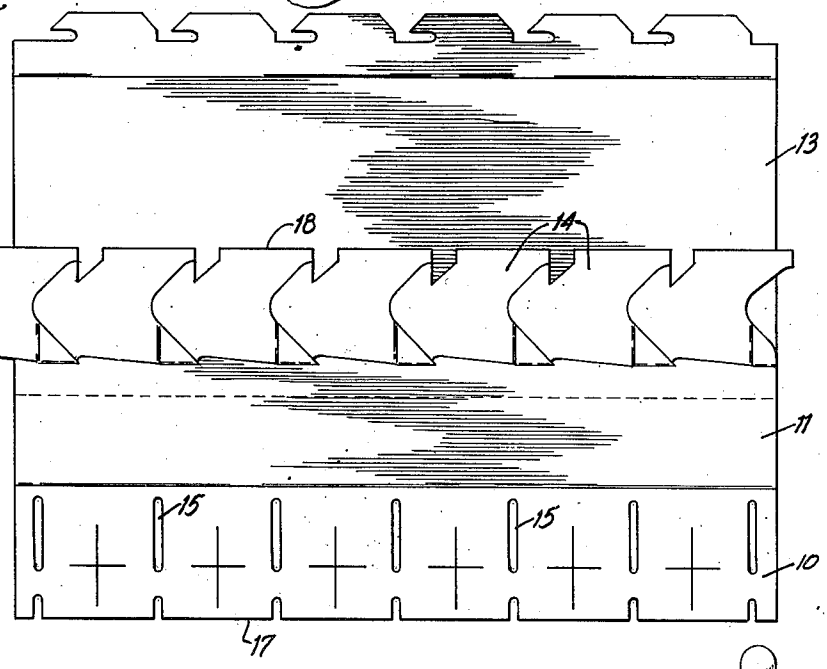
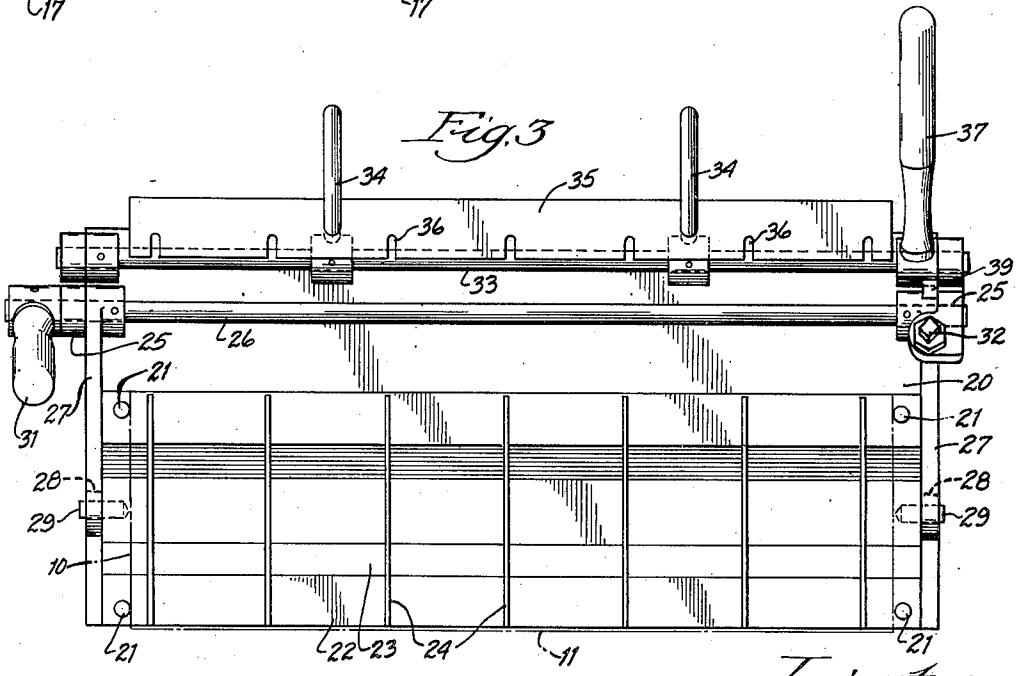


Fig. 3



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Fig. 4

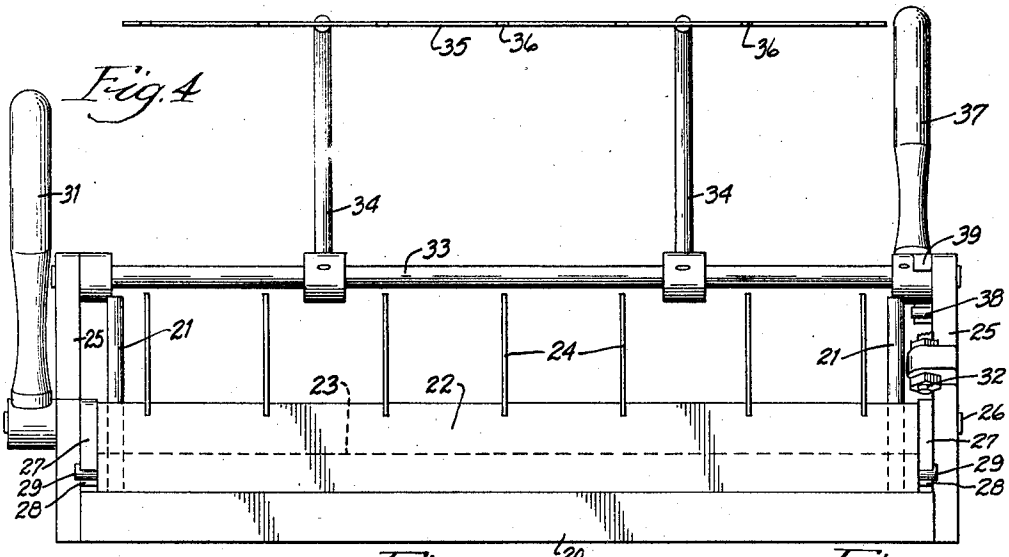


Fig. 5

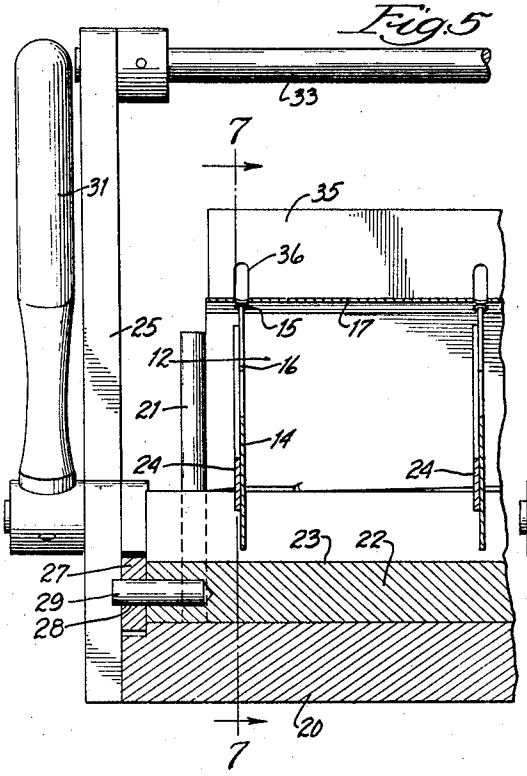
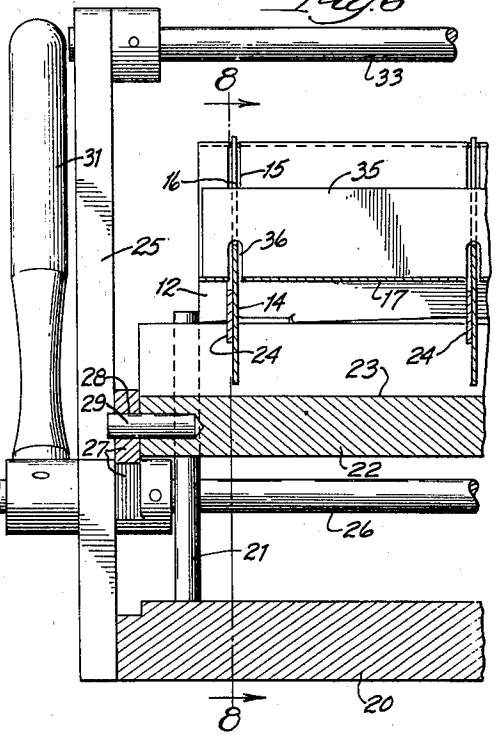


Fig. 6



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MACHINE FOR SETTING UP CARTONS

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Fig. 7

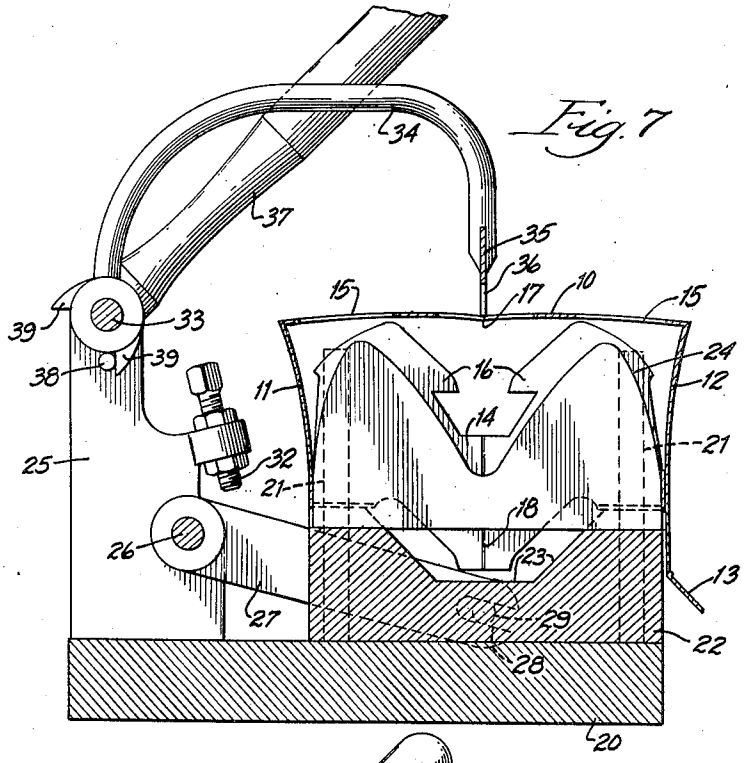
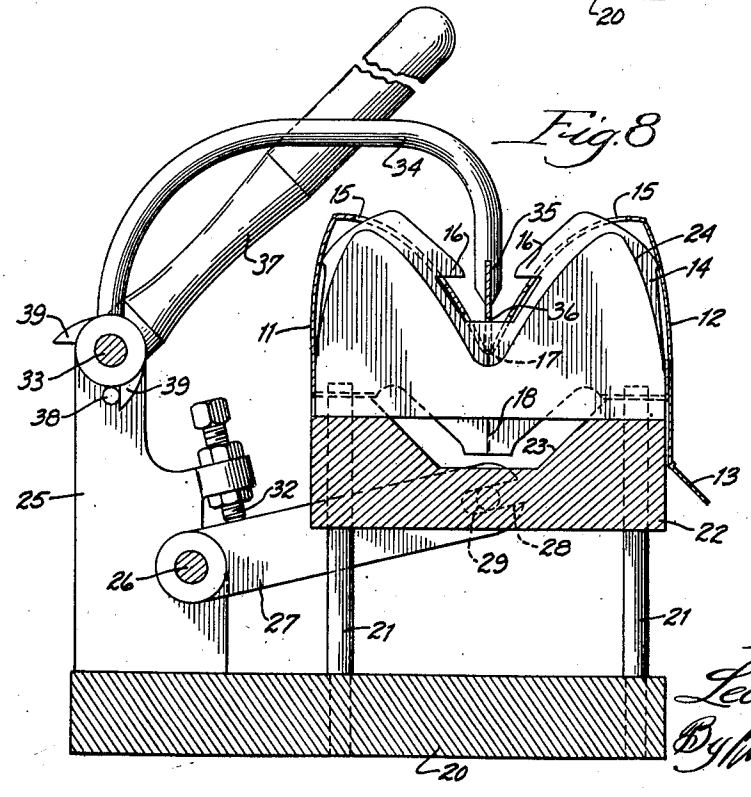


Fig. 8



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Patented May 29, 1934 1,960,238

UNITED STATES PATENT OFFICE

1,960,238

MACHINE FOR SETTING UP CARTONS

Leon Benoit, Chicago, Ill.

Application November 18, 1931, Serial No. 575,813

3 Claims. (Cl. 93—37)

This invention, which relates to a machine for setting up cartons, is particularly adapted for operation upon cartons of the type having transverse partitions integral with the body, these partitions being swingable into vertical position for hooking at their lower ends through slots in angular adjacent walls. These cartons may be delivered to the user in a collapsed or flattened condition. To facilitate setting up of the cartons, the walls to be interlocked are scored and bent at their centers so that one half of each will lie adjacent the other half. It is the primary object of this invention to provide a simple and improved machine for setting up a carton of the type above described.

As an exemplification of my invention, reference is made to the accompanying drawings in which—

Figure 1 is a plan view of the carton in folded position for shipping;

Fig. 2 is an end elevation of the same;

Fig. 3 is a plan view of the setting-up machine with the movable parts in normal position prior to operation;

Fig. 4 is a view in front elevation of the setting-up machine;

Fig. 5 is an enlarged fragmentary sectional view of one end of the machine, showing a carton in position to be assembled, the section being taken through the center of the carton;

Fig. 6 is a view similar to Fig. 5 with the parts operated to their final position;

Fig. 7 is a transverse sectional view taken as indicated by the line 7—7 of Fig. 5; and

Fig. 8 which is a view similar to Fig. 7, is taken as indicated by the lines 8—8 of Fig. 6.

The carton to be assembled may be made of a single piece of sheet material, as shown in Figs. 1 and 2, and comprises an angular bottom section 10, two side wall sections 11 and 12, a cover 13, and a false top divided into a series of cross walls or partitions 14, each integrally united with the two sides at one end, so that it may be swung into a vertical position when the carton is to be set up. The bottom of the carton is provided with a series of transverse slots 15 through which the lower ends of the cross walls may extend so as to be interlocked with the bottom of the carton. Each of the cross walls has two hooks 16, as shown in Figs. 7 and 8, one on each side of the center thereof and positioned oppositely to each other. The bottom of the carton is scored along its center at 17 so as to facilitate folding along the center line for flat shipment or opposite folding to provide a transverse partition when the carton is assembled. The false top is similarly scored at 18 so that the carton may be conveniently folded upon itself to lie flat.

Briefly, the carton is assembled in the following manner: The folded carton is opened up by pressing the two scored edges 17 and 18 toward each other until the bottom 10 and walls comprised in the false top 14 are in substantial parallelism; the carton is then placed upside down on the machine, the cross walls being moved to a vertical position within the carton in doing so; and finally the bottom is angularly bent to V-shape along the scored edge 17 whereupon the ends of the cross walls are inserted through and hooked in the slots 15 of the bottom.

Other machines of this same general type are defective in that the carton is not always held securely during the first stage of the setting-up operation, i. e., when the cross walls are being turned upwardly. The present device utilizes one means for holding the carton bottom, and another for effecting the hooking of the cross walls into the bottom. By proceeding in this way, the carton cannot shift during operation of the machine.

The present apparatus comprises a base 20 having upstanding guide members 21 upon which slides a block 22. The block is provided with a longitudinal groove 23 for receiving the extensions of the cross walls as shown in Figs. 7 and 8. A plurality of spaced plates 24 are secured to the block and upstand therefrom to move the cross walls to vertical position coincident with the placing of the carton upon the block 22.

Bearing blocks 25 extend upwardly from the base to support a rock shaft 26 to which is secured levers 27, each lever being bifurcated at 28 to slidably receive therein a trunnion 29 extending outwardly from the block 22. At one end of the rock shaft is secured an operating handle 31 for moving the levers through a predetermined arc, as shown in Figs. 7 and 8, the upward movement thereof being limited by a stop 32.

A second rock shaft 33 having arms 34 rigidly secured thereto, support a blade 35, of substantially the same length as the carton, the blade having notches 36 spaced to straddle the cross walls. Secured to the rock shaft 33 is a handle 37 for moving the blade from its normal elevated position to the position shown in Fig. 7 where the blade contacts with the center of the carton bottom to hold the same during the process of assembly. Suitable stops may be employed for limiting the movement of the blade, such as a pin

38 mounted on the bearing block in the path of two bosses 39 formed on the handle.

The setting-up operation proceeds as follows: A folded carton is opened up as previously described and placed upsidedown upon the block 22 between the guides 21, the cross walls being turned transversely of the carton by contact with the plates 24. The handle 37 is then moved forward to the position shown in Fig. 7 so that the blade contacts the center of the carton bottom, and is held in this position during the remainder of the operation, manually or otherwise. The handle 31 is then moved rearwardly to raise the block 22, thereby moving the carton with it. During this movement the carton bottom is angularly bent on opposite sides of the blade, and at the same time the cross wall ends are inserted through the slots 15 in the bottom where they are hooked over the edges thereof to complete the interlocking of the carton components. Both the operating handles are then returned to their normal position and the carton lifted from the block.

It will be noted that the plates 24 are of such a width as to spread the sides of the carton to their fullest extent without breaking the connection between the side walls and the cross walls. Thus the cross walls are pulled taut while being inserted through the slots in the bottom.

I claim:

1. In a machine for setting up a slotted carton, a base, a block slidable thereon, plates rigidly upstanding from the block and adapted to support a plurality of partitions in a position transversely of the carton, means for holding the center of the carton bottom stationary relative to the base, and means for moving the block away from the base toward the carton bottom whereby the partitions are inserted through the carton slots.

2. A carton setting up machine in which is combined means for centering a one-piece slotted carton in position to be erected, rigid means for supporting a plurality of partitions in a position transversely of the carton and in alignment with the slots, means movable to a position along the longitudinal center of the carton bottom, and means for moving the carton toward the means last mentioned whereby its bottom is bent into a substantial V-shaped longitudinal wall with its slots moved interengagingly over the transversely positioned partitions.

3. In a machine for setting up a one-piece slotted carton having slits which define a plurality of partitions adapted to be swung into positions of parallelism, the combination of a block mounting a plurality of rigid plates each adapted to support a partition in transverse relation to the carton when the latter is positioned invertedly upon the block, a base whereon the block is mounted, a blade supported by the base in a central position longitudinally of the carton bottom, and means for moving the block and blade relatively toward each other whereby the partitions are advanced through slots in the carton bottom concurrently with the forming of a trough-like bend in the latter in response to pressure on the blade.

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