Dec. 8, 1936. M. BURGER 2,063,364

SETTING-UP MECHANISM

Original Filed May 29, 1933 2 Sheets-Sheet 1

Fig. 1.

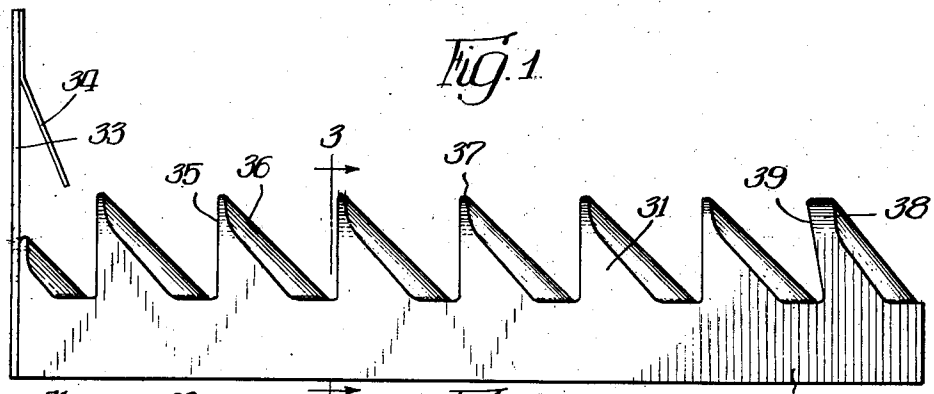


Fig. 2.

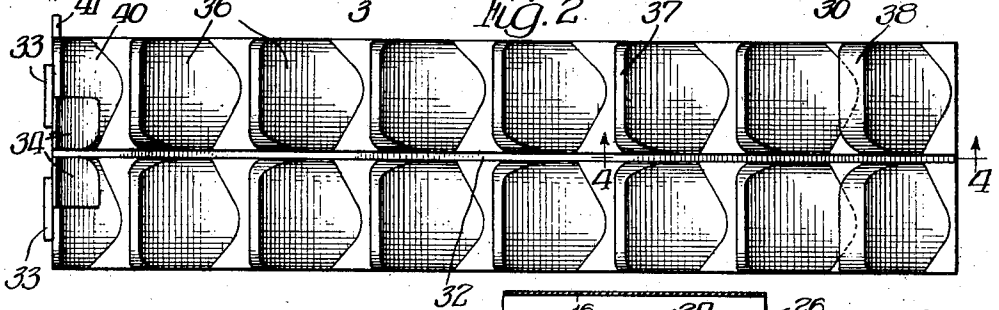


Fig. 3.

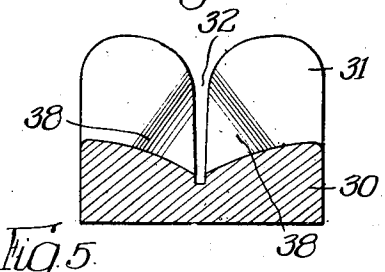


Fig. 4.

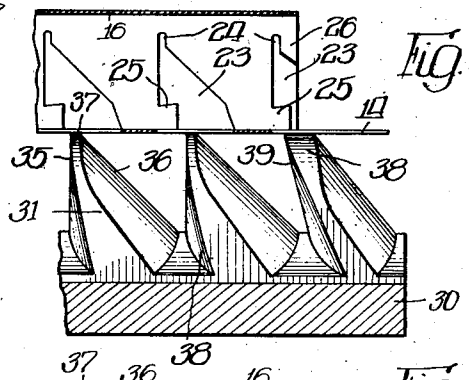


Fig. 5.

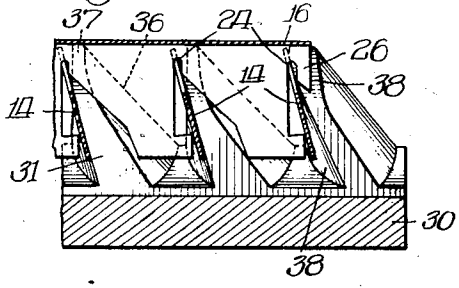
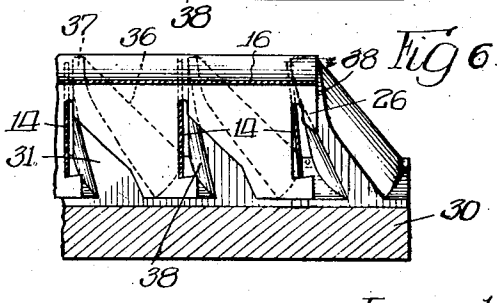


Fig. 6.



Inventor
Martin Burger,
By Cromwell, Greist & Warden
attys.

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Fig. 7.

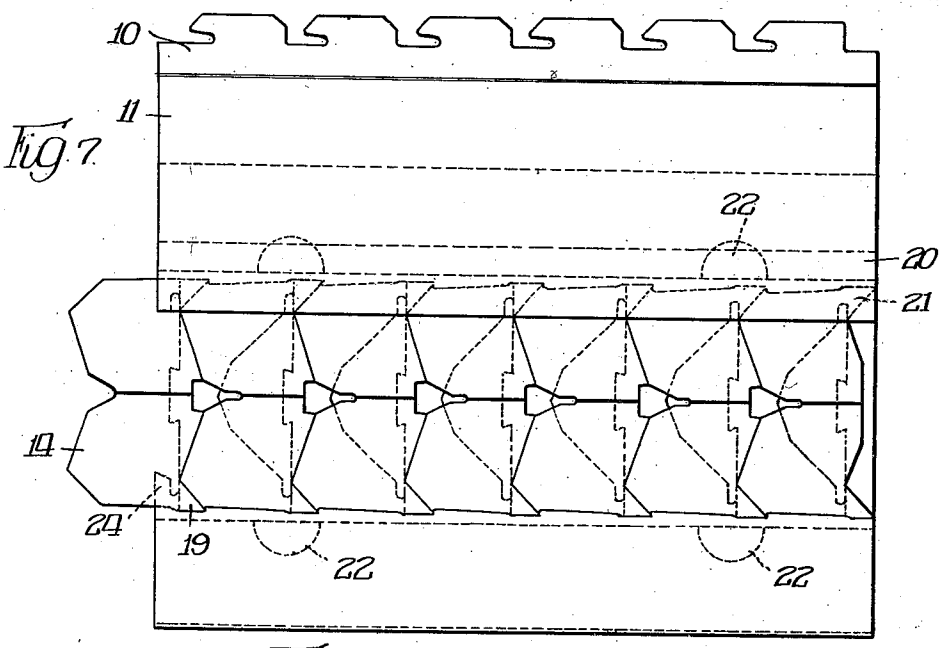


Fig. 8.

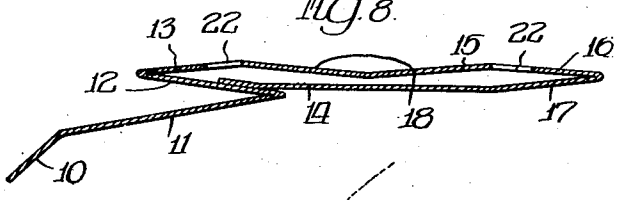


Fig. 9.

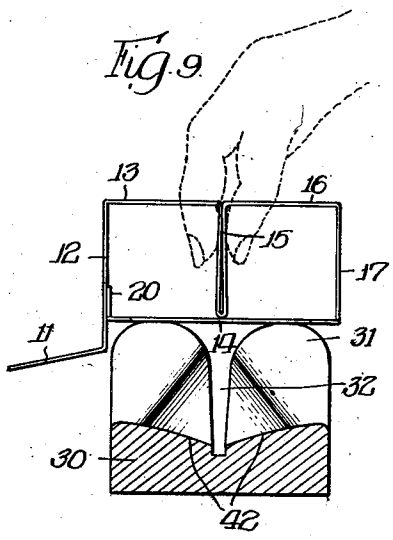


Fig. 10.

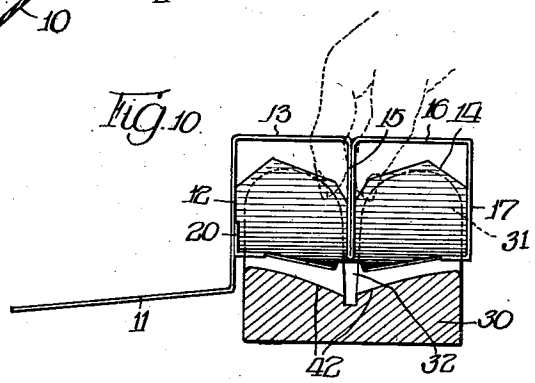
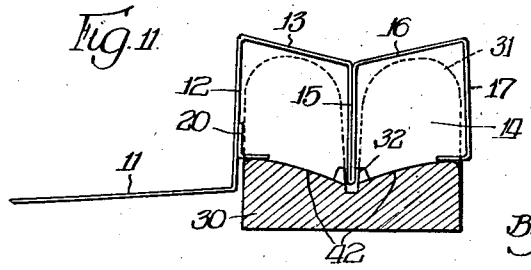


Fig. 11.



Inventor.
Martin Burger.
By Cromwell, Greist & Warden
attys

Patented Dec. 8, 1936 2,063,364

UNITED STATES PATENT OFFICE

2,063,364

SETTING-UP MECHANISM

Martin Burger, Morris, Ill., assignor to Self-Locking Carton Co., Chicago, Ill., a corporation of Illinois

Application May 29, 1933, Serial No. 673,457
Renewed August 14, 1935

6 Claims. (Cl. 93—37)

The present invention relates to the setting up or erection of cellular cartons, and has particular reference to an improved setting-up device for the erection of cartons of the type described in my copending application, Serial No. 673,458, filed May 29, 1933.

The principal object of the invention is to provide an apparatus for setting up cellular egg cartons of the type described in my aforesaid copending application, which cartons are provided with cross partitions hinged to their front and rear walls, longitudinal partition-forming sections adapted to engage the cross partitions when the latter are in vertical position and preferably openings in the bottom section of the carton which permit the operator to distend the walls of the carton and to bring the longitudinal partition sections together by engagement of the carton through the openings and pressing the material of the carton together.

This and other objects will be evident from a consideration of the following illustrative and explanative description and by reference to the accompanying drawings, in which

Fig. 1 is a side view of a setting-up mechanism constructed in accordance with my invention;

Fig. 2 is a plan view of the structure;

Fig. 3 is a cross section taken along lines 3—3 of Fig. 1;

Fig. 4 is a fragmentary longitudinal section taken along line 4—4 of Fig. 2 and shows a carton about to be erected upon the structure;

Fig. 5 is similar to Fig. 4 and shows the second stage in the erection of a carton upon the structure;

Fig. 6 is a similar view to Fig. 4 and shows the third stage in the erection of a carton upon the structure;

Fig. 7 is a plan view of a carton adapted to be set up on the device, shown in collapsed or flattened condition;

Fig. 8 is a sectional view of the carton shown in Fig. 7;

Fig. 9 is an end view of the setting-up device showing a carton about to be erected;

Fig. 10 is a similar view to Fig. 9 and discloses the second stage in the erection of the carton; and

Fig. 11 is a view similar to Fig. 9 and showing the third and final stage in the erection of the carton.

The carton which is particularly adapted to be erected on the device described is formed by suitably cutting, scoring and folding a blank to provide a cover locking strip 10, a cover 11, a rear wall 12, a rear bottom section 13, a rear longitudinal partition section 18, a front longitudinal section 15, a front bottom section 16, a front wall 17, cross partitions 14 hinged to the top of the front wall by means of triangular webs 19 and an attaching strip 20 glued to the rear wall and hinged to the cross partition by means of triangular webs 21. The elements specified are separated by suitable score lines running longitudinally of the carton. In the bottom sections and adjacent the score line which separates the bottom sections from the longitudinal partition sections are provided openings 22 which serve as finger holds whereby the longitudinal partition sections may be pressed together as shown, for example, in Fig. 9. The longitudinal partition sections are provided with cross partition-receiving openings 23, at the bottom of which are partition-engaging slots 24. Hooks 25 extend into the openings 23 over the slots 24. In collapsed condition the cross partitions 18 of the carton extend in substantially horizontal relation. Adjacent the front cross partition-receiving opening 23 is provided an upwardly extending hook 26 which prevents outward movement of the front cross partition when the latter is inserted in the slot 24 and beneath the hook 25.

To a base or frame portion 30 of the setting-up device shown in Fig. 1 are mounted two longitudinally extending rows of cross partition-engaging blocks 31, the blocks in one row being in parallel position with respect to the blocks in the other row. Between the two rows is a longitudinal partition-receiving opening 32 which extends downwardly below the lower portion of the blocks 31, as shown in Fig. 3. The adjacent blocks in each row are transversely spaced to provide openings for receipt of cross partitions. Adjacent one end of the base member 30 are positioned two vertical plates 33 mounted on each side of the longitudinal partition-receiving opening 32. Two downwardly extending longitudinal partition-receiving members 34 are secured to the plates 33 and these members serve to receive the longitudinal partition of a carton when in the position shown in Fig. 9, whereby the longitudinal partition is guided into the partition-receiving opening 32.

The blocks 31 have substantially vertical face portions 35 on one side and on their opposite sides or backs 36 the blocks 31 slant downwardly to a point adjacent the lower portion of the next block. At their upper portions the faces 35 and the backs 36 ordinarily will be spaced slightly, as shown in Fig. 1, to form top portions 37. The backs 36 are rounded, as are the tops 37. As a result of the rounding of tops 37, the edges of the tops slant

downwardly toward the longitudinal partition-receiving opening 32. The rounded effect of the backs 36 provides cut-away spaces adjacent the base of the blocks 31, as shown in Fig. 2, the outer cut-away portion receiving the triangular hinges 19 and 21 of the carton, and the inner cut-away portion providing space for longitudinal movement of the partitions.

Adjacent the lower inner portions of the faces 35 the blocks 31 are undercut as will be seen at 38 in Fig. 4. At these points a considerable space is provided between the cut-away portions 38 and the backs of the blocks 31, the purpose of which will appear hereinafter.

The end blocks 38 are similar to the blocks 31 except that their tops are wider and their faces 39 are undercut, thereby forming a forward projection adjacent the top of the block as indicated in Fig. 1.

Adjacent the opposite end blocks 40 may be provided a projection 41 against which the top of the carton may be pressed when the carton is about to be erected upon the device, whereby the carton is properly positioned with respect to the blocks 31.

In erecting a carton, the fingers of the operator are inserted in openings 22 and the walls of the carton are distended into vertical position by pressing the fingers together, the body of the carton assuming the shape shown in Fig. 9. In Fig. 9 the carton is positioned properly with respect to the guide element 34 and the guide element 41. In this position the front and rear walls of the carton are vertical and the bottom sections are horizontal, the longitudinal partition sections extending inwardly of the carton. The carton is positioned so that the cross partitions point toward the vertical faces 35 of blocks 31.

The second stage in the erection of the carton consists of pressing the latter downwardly with respect to the setting-up device, as shown in Fig. 10. As the carton is pressed downwardly the free ends of the cross partitions 14 are rotated by contact with the top of the blocks 31. The tops of the cross partitions 14 engage the backs 36 of the blocks 31 as the carton is pressed downwardly, and thereafter the motion of the carton follows the slant of these backs, this motion being downwardly and longitudinally of the device.

When the carton is pressed downwardly as far as it will go over the blocks 31 the faces 35 of the blocks will have rotated the cross partitions into vertical position. Due to the projection of hooks 25 across the plane of the cross partitions the top portions of the latter are distorted out of plane shape as will be seen in Fig. 5. However, the bottom portions of the cross partitions will have been pressed inwardly sufficient for them to be positioned above the cross partition-receiving slots 24, this position also being shown in Fig. 5. The end cross partition adjacent blocks 38 must be pressed inwardly beyond the upstanding hook portions 24 which lock the cross partition against outward movement, this projection ordinarily extending upwardly a greater distance than the corresponding securing means of the other cross partitions. In order to press the end cross partition beyond the upstanding hook the end blocks 38 are provided with the overhanging face portion 39 which extends inwardly a greater distance than do the face portions of the remainder of the blocks.

As before stated, the second stage of the erection of the carton is completed when the carton has been pressed downwardly as far as possible over the blocks 31 and the cross partitions have been rotated into substantially vertical position. The final stage in the erection of the carton consists simply in pressing downwardly on the inner portion of the bottom sections whereby the bottom sections are pressed into substantially inverted V-shape, as will be seen from Fig. 11. When the bottom section is pressed inwardly in the manner described the hook portions 25 extend below the edges of the cross partitions and the resiliency of the material from which the carton is constructed causes the partitions to snap into engagement beneath the hooks 25 thereby locking the cross partitions into place and completing the erection of the carton. The carton may then be removed from the setting-up device and filled with eggs in the usual manner.

In the case of the particular carton shown in the drawings, the top edges of the cross partitions of which are higher than the hinged portions 19 and 21, the base 30 of the setting-up device is cut away towards the longitudinal partition-receiving opening 32 to provide downwardly and inwardly slanting surfaces 42.

My invention, as described specifically herein for purposes of explanation and description, is susceptible of modification and all variations coming within the spirit of my invention are intended to be included in the appended claims.

I claim:

1. A device for setting up cellular cartons, comprising a base member, two rows of transversely and longitudinally spaced partition-engaging blocks mounted on said base and extending upwardly therefrom, said blocks having an upright face and a back slanting downwardly from the upper portion of said block toward and adjacent the lower portion of the next adjacent block.

2. A device for setting up cellular cartons, comprising a base member, two longitudinal rows of transversely spaced partition-engaging blocks extending upwardly from said base member and having a longitudinal partition-receiving opening therebetween extending below the lower portion of said blocks, substantially upright faces on one side of said blocks, and back sides on said blocks slanting downwardly from the upper portion thereof adjacent said faces toward and adjacent the lower portion of the faces of the next adjacent blocks, said faces being undercut adjacent their lower inner portions.

3. A device for setting up cellular cartons, comprising a base member, two longitudinal rows of transversely spaced partition-engaging blocks extending upwardly from said base member and having a longitudinal partition-receiving opening therebetween extending below the lower portion of said blocks, substantially upright faces on one side of said blocks, and back sides on said blocks slanting from the upper portion thereof adjacent said faces downwardly toward and adjacent the lower portion of the faces of the next adjacent blocks, said faces being undercut adjacent their lower inner portions, and the tops of said blocks being inclined downwardly adjacent said longitudinal partition-receiving opening.

4. A device for setting up cellular cartons, comprising a base member, two longitudinal rows of transversely spaced partition-engaging blocks extending upwardly from said base member and having a longitudinal partition-receiving opening therebetween extending below the lower portion of said blocks, substantially upright faces on said blocks having undercut portions adjacent their lower inner portions, rounded back sides on said blocks slanting from the upper portion there-

of adjacent said faces downwardly toward and adjacent the lower portion of the faces of the next adjacent blocks, the tops of said blocks being cut away adjacent said longitudinal partition-receiving openings, and the faces of the blocks adjacent one end of said device being undercut.

5. A device for setting up cellular cartons, comprising a base member, two longitudinal rows of transversely spaced partition-engaging elements extending upwardly from said base member and having a longitudinal partition-receiving opening therebetween, and guiding means for directing the longitudinal partition of a carton into said opening.

6. A device for setting up cellular cartons, comprising a base member, two longitudinal rows of transversely spaced partition-engaging blocks extending upwardly from said base member and having a longitudinal partition-receiving opening therebetween, said blocks having upright front sides cut away at their lower inner portion and downwardly sloping back sides cut away at their inner and outer portions.

MARTIN BURGER.