May 16, 1950 K. T. BUTTERY ET AL 2,507,489

EGG CARTON FILLING APPARATUS

Filed Oct. 15, 1945 2 Sheets-Sheet 1

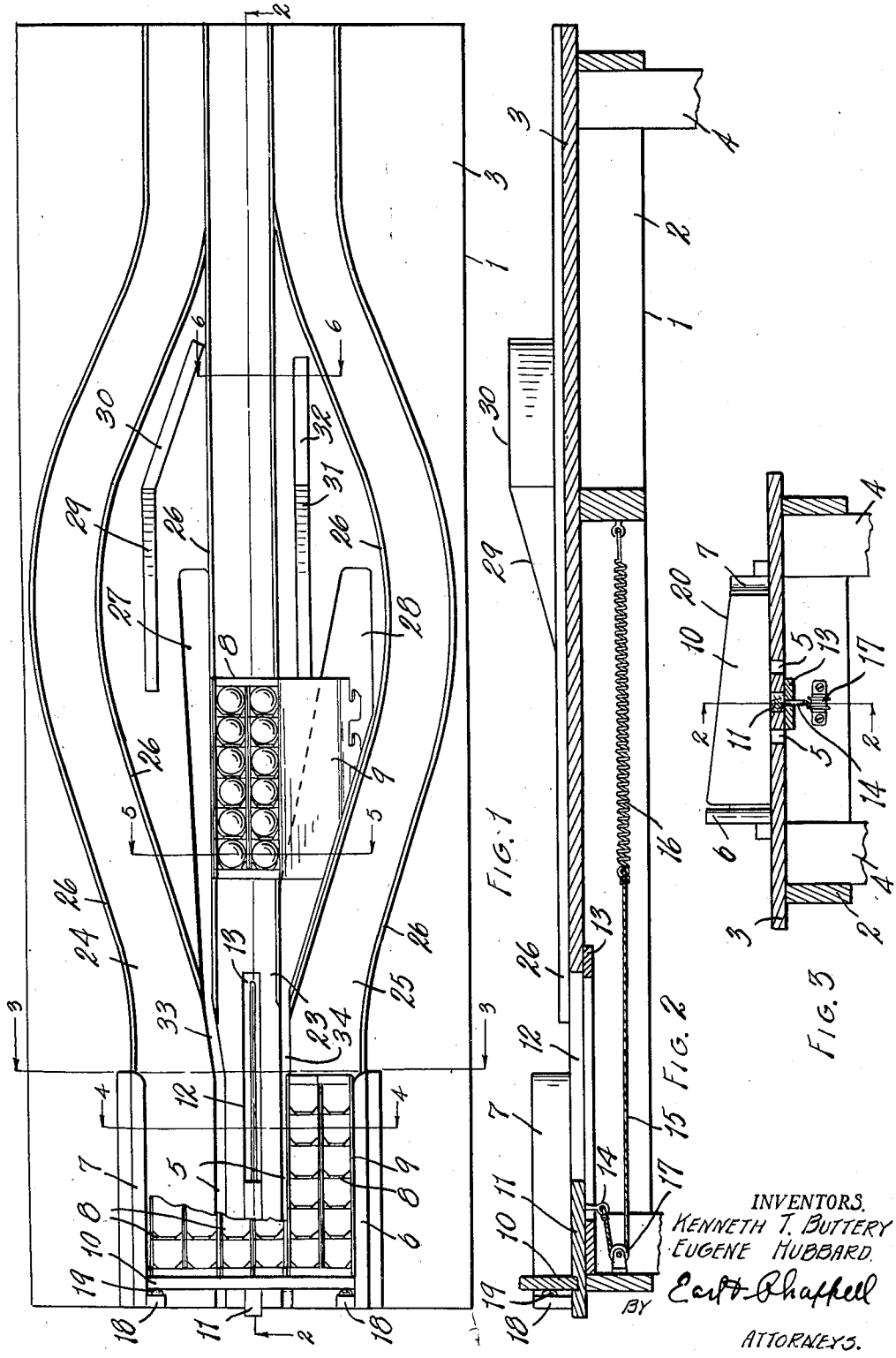


FIG. 1

FIG. 2

FIG. 3

INVENTORS.
KENNETH T. BUTTERY
EUGENE HUBBARD.
BY Earl B. Chappell
ATTORNEYS.

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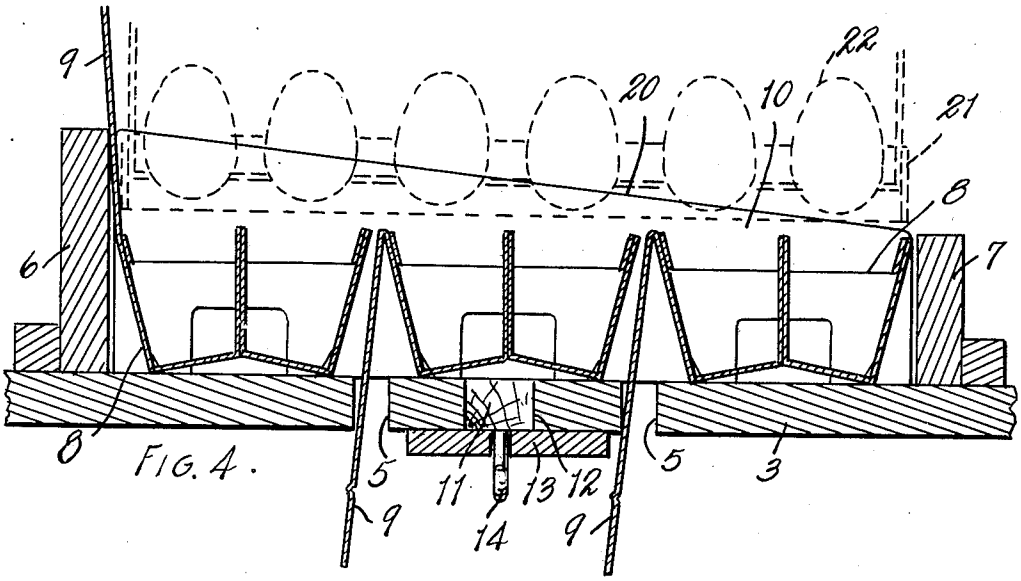


FIG. 4.

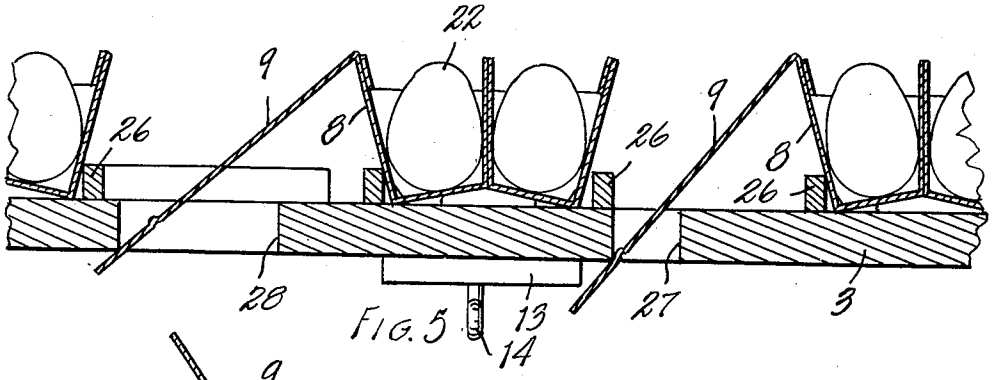


FIG. 5

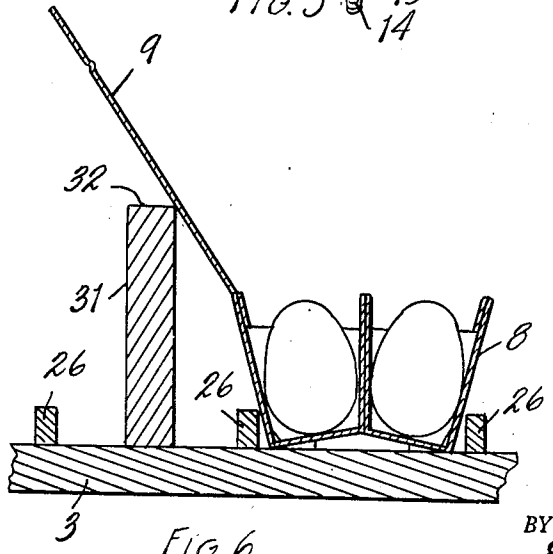


FIG. 6

INVENTORS.
KENNETH T. BUTTERY
BY EUGENE HUBBARD
Earl V. Rhappell
ATTORNEYS.

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EGG CARTON FILLING APPARATUS

Kenneth T. Buttery and Eugene Hubbard, Kalamazoo, Mich., assignors to Sutherland Paper Company, Kalamazoo, Mich., a corporation of Michigan

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3 Claims. (Cl. 226—14)

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This invention relates to improvements in egg carton filling apparatus.

The main objects of this invention are:

First, to provide a filling apparatus for egg cartons which greatly facilitates the filling thereof and the closing of the cartons.

Second, to provide an apparatus of this character which occupies a relatively small amount of space, the structure being in the form of a table which may be readily transported to desired position of use and arranged in the position most convenient to the operators.

Further objects relating to details and economies of the invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of the invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a plan view of an apparatus embodying our invention, egg cartons being shown conventionally and partially broken away in a filling position, and one filled carton being shown in one of its positions of translation.

Fig. 2 is a longitudinal section on line 2—2 of Figs. 1 and 3.

Fig. 3 is a fragmentary transverse section on line 3—3 of Fig. 1, the cartons being omitted.

Fig. 4 is an enlarged fragmentary view in transverse section of line 4—4 of Fig. 1.

Fig. 5 is an enlarged fragmentary view in transverse section on line 5—5 of Fig. 1, with filled egg cartons in position.

Fig. 6 is an enlarged fragmentary view of line 6—6 of Fig. 1.

The embodiment of the invention illustrated comprises a table designated generally by the numeral 1 and consisting of suitable frame work 2 on which the top 3 is supported. The table is provided with legs 4. At its front end the table top is provided with longitudinal slots 5, and has longitudinal walls 6 and 7 spaced laterally relative to each other and to the slots, these longitudinal walls coacting with the table top to provide a holder for a group of cartons 8 disposed in side by side relation between the walls, as is shown in Figs. 2 and 4.

The cartons are of the cell type and are each adapted to receive a dozen or other predetermined number of eggs, commonly one dozen. The cartons are provided with covers 9 and they are arranged in the holder or between the walls 6 and 7 with the cover of one of the cartons adjacent the higher wall in upright position, as shown in Fig. 4, the covers of the other cartons being disposed through the slots 5 as shown in that figure.

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We provide a pusher 10 which is disposed between the walls and slidable on the table to eject the cartons from filling position. This pusher is manually operated on its ejecting stroke but is automatically returned to its initial position. The pusher is provided with a slide 11 traveling in the slot 12 in the table top, a slotted support 13 being secured to the under side of the table top to support the slide. The slide is provided with an I-bolt 14 projecting through the slot of the support 13 to which the cable 15 is connected, the cable being biased by the spring 16 connected at one end to the frame work. The cable passes over the guide pulley 17. With this arrangement the pusher is automatically returned against the stops or abutments 18 which are provided with resilient bumpers 19.

The pusher is preferably provided with an inclined edge 20, being inclined inwardly from the top edge of the wall 7 to the top edge of the higher wall 6. The pusher thus projects above the level of the tops of the cartons whereby it, together with the wall 6 which also projects above the tops of cartons, provides means for engaging the loading tray 21 for accurately positioning the same above the cartons for transfer of the eggs from the loading tray to the cartons as shown by dotted lines in Fig. 4, the eggs being indicated at 22. Suitable loading trays are commercially known in the art and therefore we do not illustrate the details thereof.

The trays are adapted to receive three dozen eggs and to support them when the tray is positioned as shown in Fig. 4 above the cells of the cartons. The tray is designed to release the eggs, allowing them to drop into the cells. A group of loaded cartons are ejected by the pusher into the ways 23, 24 and 25. These ways are formed by securing rib-like strips 26 in spaced pairs to the top of the table. The way 23 is straight while the ways 24 and 25 are bowed outwardly, their rear ends coming into parallel position with the intermediate way. The table top is provided with elongated openings 27 and 28 which communicate through the throats 33 and 34 with the slots 5 in the holder section of the table.

As the cartons are pushed rearwardly in the ways the downturned covers enter the openings 27 and 28 which are of such width as to permit the covers to spring upwardly and therethrough without substantial stress on the covers. The cover of the carton traversing the way 24 is drawn upwardly over the edge of the slot adjacent the way and as the carton is translated engages cam 29 which swings the cover to fully upright position by the time it reaches the rear portion 30 of the cam. The cover of the carton traversing the

way 23 is swung upwardly through the opening 28 by the inclined edge thereof adjacent the way and is picked up by the cam 31 and finally swung to erected position by the rear portion 32 of the cam. The cartons are moved along the ways by the thrust of the succeeding cartons. When the cartons reach the rear end of the table they are brought into side by side relation for the convenience of the operator in closing the covers. The cartons are supported so that this can be very rapidly and easily effected and the cartons lifted from the table.

We have illustrated and described our invention in a high practical embodiment thereof. The structure is simple and convenient to use and it is used most efficiently by two operators, one filling cartons and the other closing the covers and removing the cartons from the table. We have not attempted to illustrate or describe certain modifications or adaptations, particularly in structural details, which we contemplate for particular embodiments as it is believed this disclosure will enable those skilled in the art to embody or adapt our invention as may be desired.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

1. A carton filling apparatus comprising a table top having spaced parallel longitudinal slots at its front end communicating with longitudinal openings of a width substantially exceeding that of the slots, parallel walls of different heights laterally spaced relative to each other and to said slots, one of the walls being substantially the height of the side walls of the cartons to be filled and the other being substantially higher, the walls being spaced to constitute a holder for a group of cartons disposed in side by side relation with the cover of one carton of the group disposed in upright position and supported by the higher wall, the covers of the other cartons of the group being disposed downwardly through said slots, said table also having a slot constituting a pusher slideway, a pusher slidably mounted on said table to engage the rear ends of a group of cartons between the said walls and provided with a slide engaging said slideway, the upper edge of said pusher being inclined toward the lower of the walls but projecting above the cartons in the holder to constitute a guide for one edge of a loading tray, spring means for returning said pusher to its initial position, pairs of ribs arranged on said table top to constitute an intermediate and side ways for the cartons, said carton ways extending rearwardly from the holder to receive the cartons ejected therefrom, the intermediate way being straight, the side ways having outwardly bowed portions and terminating at their rear ends in portions parallel with the intermediate way, the said openings in said table being of such width as to permit the swinging of the downturned covers therethrough as the cartons are translated along the ways, and cover erecting cams disposed between the intermediate and outer ways and acting to swing the covers which were disposed in downwardly directed position while the cartons were in the holder to an upright position.

2. A carton filling apparatus comprising a table top having spaced parallel longitudinal slots at its front communicating with longitudinal openings, parallel walls of different heights laterally spaced relative to each other and to said slots the walls being spaced to constitute a holder for a group of cartons disposed in side by side relation with the cover of one carton of the group disposed in upright position and supported by one wall, the covers of the other cartons of the group being disposed downwardly through said slots, said table also having a slot constituting a pusher slideway, a pusher slidably mounted on said table to engage the rear ends of a group of cartons between the said walls and provided with a slide engaging said slideway, the upper edge of said pusher being inclined toward the lower of the walls, but projecting above the cartons in the holder to constitute a guide for one edge of a loading tray, spring means for returning said pusher to its initial position, pairs of ribs arranged on said table top to constitute an intermediate and side ways for the cartons, said carton ways extending rearwardly from the holder to receive the cartons ejected therefrom, the intermediate way being straight, the side ways having outwardly bowed portions and terminating at their rear ends in portions parallel with the intermediate way, the said openings in said table being of such width as to permit the swinging of the downturned covers therethrough as the cartons are translated along the ways, and cover erecting cams disposed between the intermediate and outer ways and acting to swing the covers which were disposed in downwardly directed position while the cartons were in the holder to an upright position.

3. A carton filling apparatus comprising a table top having parallel longitudinal slots at its front end and carton holder walls disposed laterally of said slots and adapted to receive a group of open cartons between them with the cover of one carton disposed in an upright position and the covers of the other cartons of the group disposed downwardly through said slots, a pusher slidably mounted on said table to engage the rear ends of a group of cartons between said walls, said pusher constituting guide means for one edge of a carton loading tray, one of the walls being of substantially the height of the walls of the carton, the other wall being of such height as to constitute a positioning stop for another edge of the loading tray, ways extending rearwardly from said walls adapted to individually receive the cartons when they are ejected from between said side walls by said pusher, the outer ways being bowed outwardly, the table top having openings therein communicating with said slots and adapted to receive the downturned covers and being of such width as to permit the covers to swing upwardly therethrough as the cartons are translated along the ways, the edges of the openings adjacent the ways in which the cartons are translated being forwardly inclined, and cover erecting cams disposed between the intermediate and the side ways and adapted to swing the covers which were disposed in downwardly directed position while in filling position to an upright position facilitating the closing thereof.

KENNETH T. BUTTERY.
EUGENE R. HUBBARD.

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