April 14, 1959 H. E. ENGLESON ET AL 2,881,682

CARTON CONVEYING AND TRANSFER MECHANISM

Filed Dec. 29, 1955 4 Sheets-Sheet 1

FIG. 1

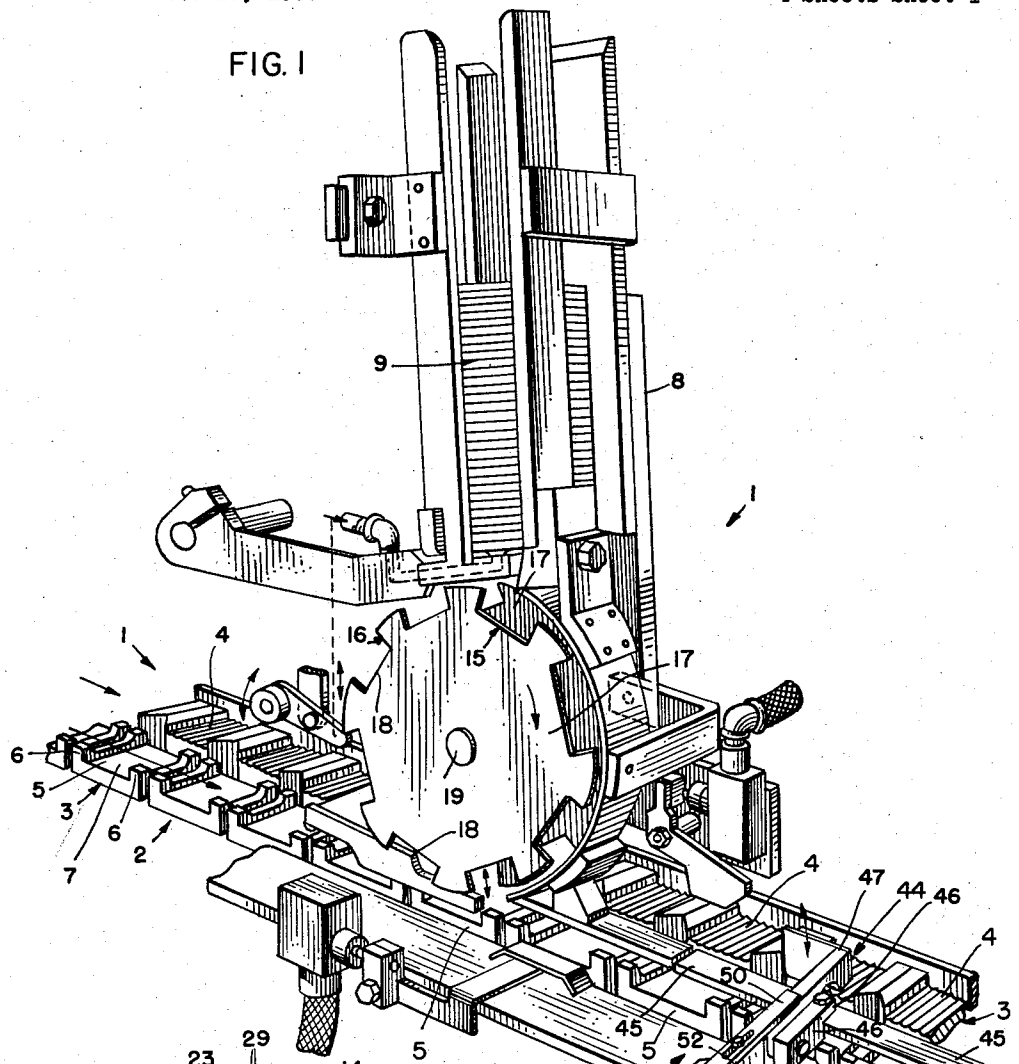
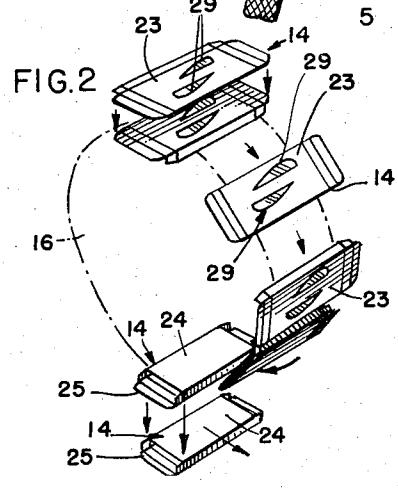


FIG. 2



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FIG. 3

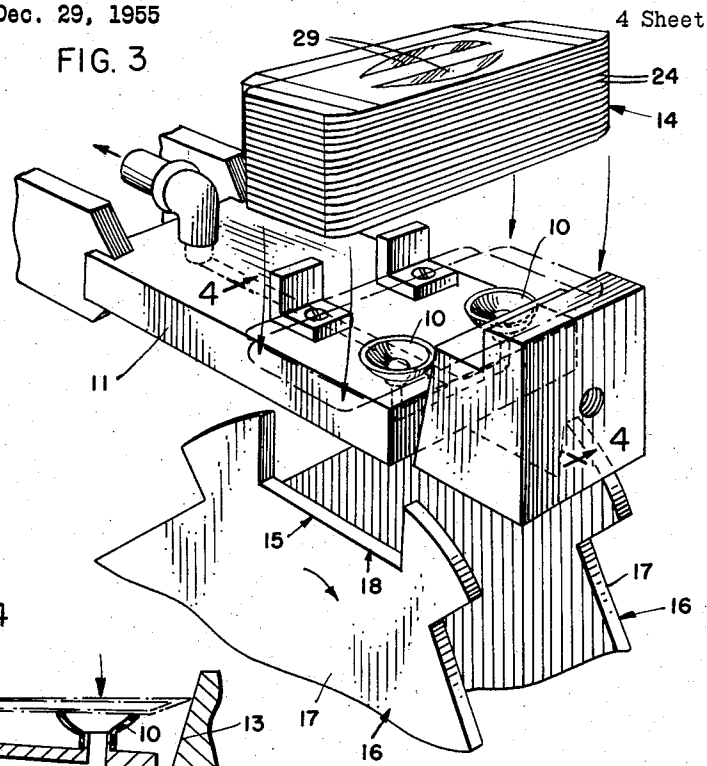
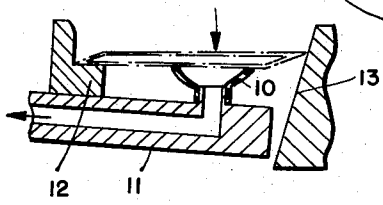


FIG. 4



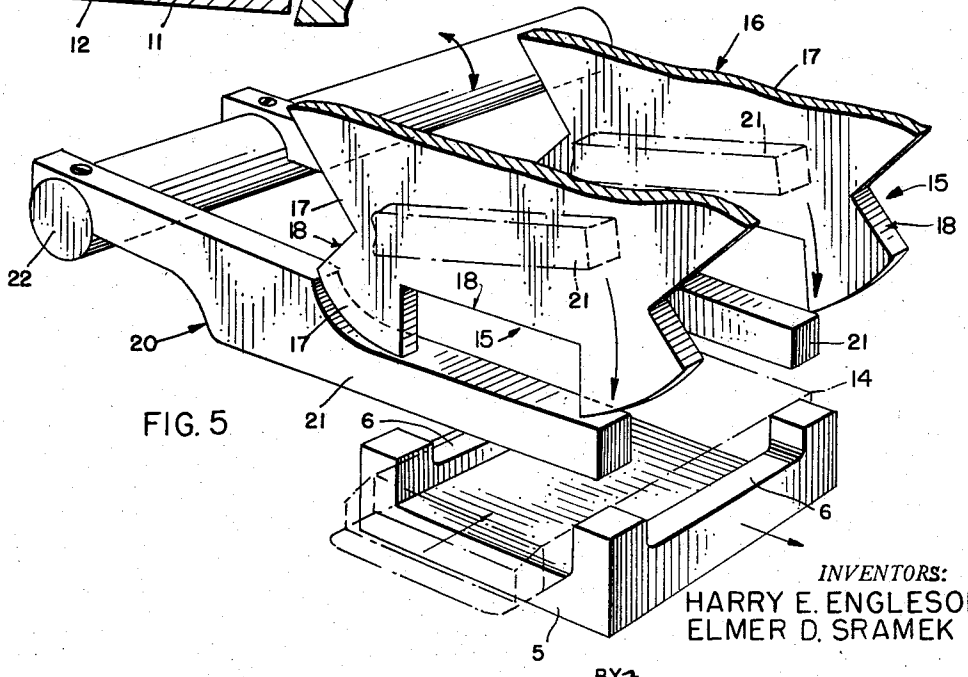


FIG. 5

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CARTON CONVEYING AND TRANSFER MECHANISM

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FIG. 6

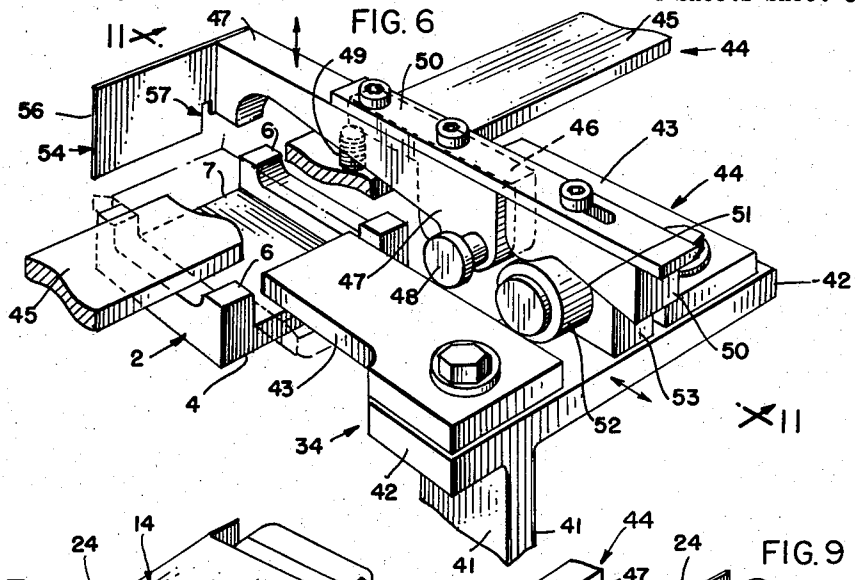


FIG. 7

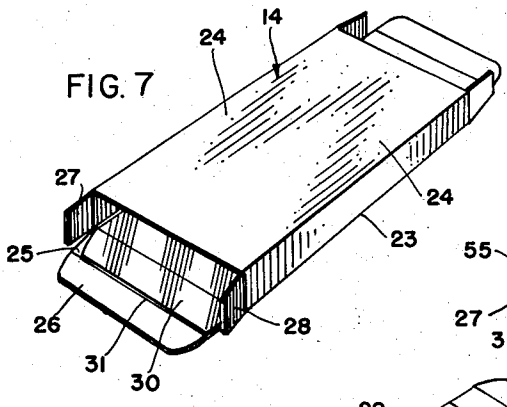


FIG. 9

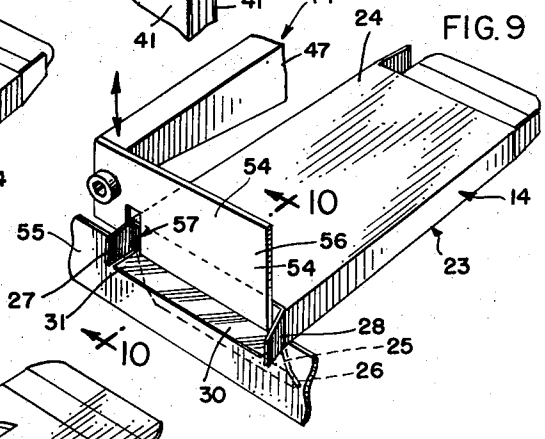


FIG. 8

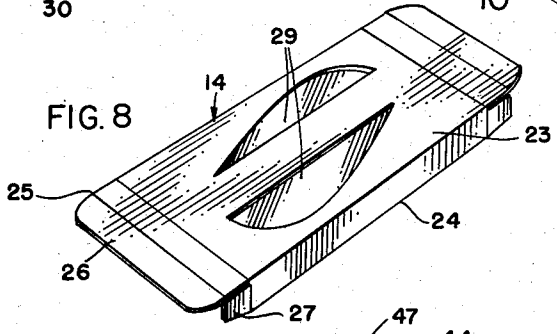
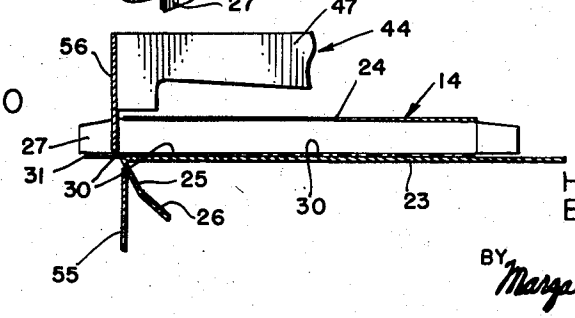


FIG. 10



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CARTON CONVEYING AND TRANSFER MECHANISM

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FIG. 11

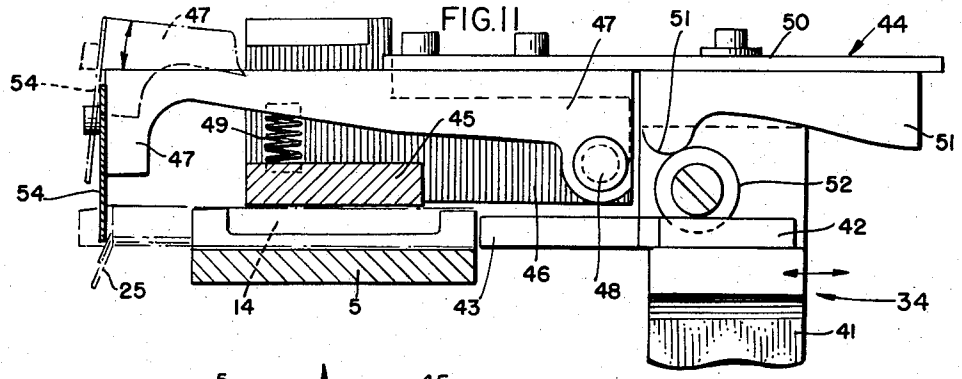


FIG. 12

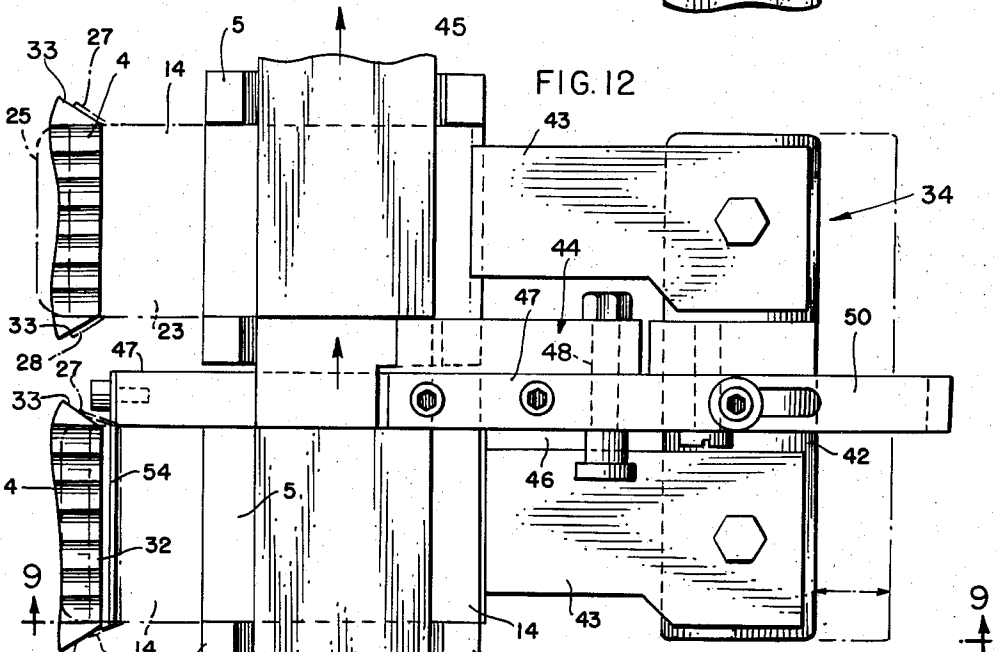
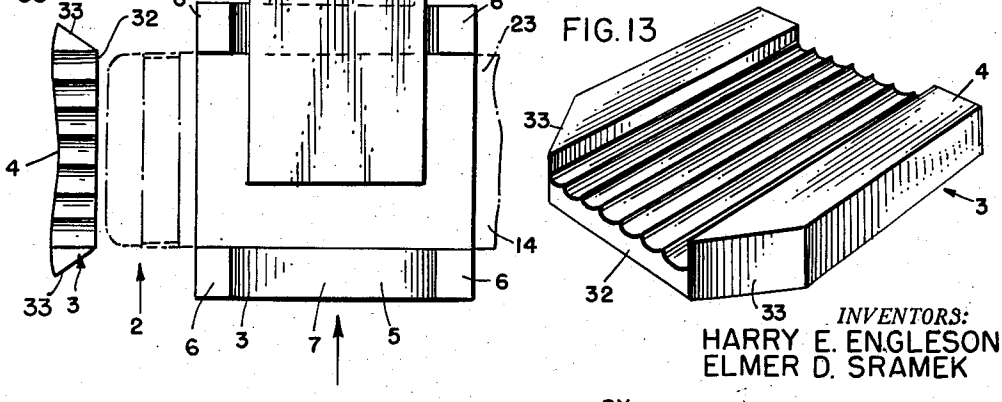


FIG. 13



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United States Patent Office 2,881,682 Patented Apr. 14, 1959

2,881,682

CARTON CONVEYING AND TRANSFER MECHANISM

Harry E. Engleson, Chicago, and Elmer D. Sramek, Cicero, Ill., assignors to F. B. Redington Co., Chicago, Ill., a corporation of Delaware

Application December 29, 1955, Serial No. 556,118

12 Claims. (Cl. 93—53)

This invention relates, in general, to a machine or device for arranging cartons in position to receive articles, and particularly to conditioning or arranging cartons so that articles may be inserted freely and easily therein. More specifically, the invention relates to mechanism for arranging parts of a special type or kind of carton to maintain the parts in position to effect easy filling of the carton.

The invention comprises mechanism for the removal of the lowermost carton of a stack of collapsed special type cartons, and expanding the flattened carton into expanded form as the carton is being removed from the stack. The collapsed cartons in the stack are arranged front face up and are retained in that position after removal from the stack in the magazine. The flattened carton, after removal from the stack, is then arranged in a transfer wheel and transported to a carton support on a bucket of an intermittently moving bucket conveyer. The carton is of a special specific type, even though the main body is of a conventional nature. The carton has its outer or front face provided with cutouts, and a sheet of clear material, such as acetate or cellophane, is secured to the inner side of the front or top face thereof. The acetate sheet is slightly longer than the normal length of the carton and, therefore, a part of the acetate sheet projects outwardly of the carton a predetermined distance. The extension or projection of the acetate liner or sheet is provided to prevent the acetate sheet from becoming fouled by the articles as they are being moved from the article receiving tray of the bucket into the carton. The carton is transferred from a transfer wheel to a bucket in reverse position, so that the carton will be face down with its bottom side facing upwardly. Means are provided to cause the end carton closure flap, which is integral with the bottom of the carton, to be sprung outwardly away from the bottom side of the carton for easy filling purposes. Also, the carton side flaps or tucks are caused to be spread outwardly. Means are also provided for causing the projected end of the acetate sheet to be bent backwardly so that there will be no interference with the articles as they are being inserted into the open filling end of the carton.

The primary object of the present invention consists in the provision of new and novel means for transferring flat collapsed cartons from a magazine into an intermittently operating transfer wheel with the carton arranged therein in expanded formation, the rotation of the wheel being in a direction opposite or reverse to the longitudinal directional movement of the buckets of a conveyer which receives the expanded cartons.

Another important object of the invention consists in the provision of new and novel means for causing the side tucks or flaps of the carton, on at least one end thereof, to be spread outwardly by the engagement of inclined side edges on the article support of the bucket, there being means to depress the carton closure and the projecting end of an inner attached acetate sheet, and

to maintain said parts in an out-of-the-way position to prevent fouling of the said parts with the articles as they are being inserted into the carton.

A further important object of the invention consists in the provision of new and novel means for causing the operation of an operating member to cause the projecting end of the sheet or liner to be held away from the filling end of the container so that articles to be inserted in the carton will not become fouled with the sheet, the panel or with the flaps of the container.

A further object consists in the provision of new and improved operable means which operate in proper timed relation with other parts or elements of the machine so that each of the operable means will operate in correlation with certain other parts to effect uninterrupted progressive steps of operation for expanding a collapsed carton, transferring the expanded carton to predetermined positions, and maintaining the carton closure and flaps and the projection on the liner or sheet in a proper predetermined position for free and easy insertion of articles into the container.

Still another object of the invention resides in providing a specific type of bucket on a conveyer cooperating with a special type of carton, whereby new and novel mechanism will maintain the carton and certain of its associated parts in a predetermined position and arrangement.

Numerous other objects and advantages will be apparent throughout the progress of the specification which is to follow.

The accompanying drawings illustrate a certain selected embodiment of the invention, and the views therein are as follows:

Fig. 1 is a detail perspective view of a part of a conveying, transfer and container conditioning machine, and embodying the invention;

Fig. 2 is a detail diagrammatic or schematic perspective view showing the manner in which the cartons are transferred from the carton magazine into a transfer wheel and then to a carton support of a conveyer bucket;

Fig. 3 is a detail perspective view of the suction device and a part of the transfer wheel, and showing the manner in which the lowermost carton is engaged by pneumatic or suction mechanism for placing the same into the pockets of a transfer wheel;

Fig. 4 is a detail sectional view on the line 4—4 of Fig. 3, disclosing the manner in which the flattened cartons are caused to become expanded when the pneumatic means is operated;

Fig. 5 is a detail perspective view showing a part of the transfer wheel and certain mechanism associated therewith for discharging a carton from the transfer wheel and causing the carton to be placed on the carton support of a bucket;

Fig. 6 is a detail perspective view disclosing certain mechanism for shifting the carton to a position adjacent the article tray of a bucket to spread the side flaps and to deflect the acetate sheet and the closure panel;

Fig. 7 is a detail perspective view of the carton of the invention with its bottom side up, the article receiving end of the carton being at the left-hand side;

Fig. 8 is a detail perspective view of the carton with its top facing upwardly;

Fig. 9 is a detail perspective view showing certain operating mechanism for deflecting the acetate sheet and the end closure panel, and for holding those parts and the side flaps in position;

Fig. 10 is a detail transverse sectional view on the line 10—10 of Fig. 9;

Fig. 11 is a detail longitudinal sectional view on the line 11—11 of Fig. 6;

Fig. 12 is a detail top plan view of certain of the mechanism shown in Figs. 6 and 11; and

Fig. 13 is a detail perspective view of the article receiving trays of the buckets.

The particular construction herein shown for the purpose of illustrating the invention comprises a machine, device or mechanism for conditioning or processing cartons to be filled with articles which have been previously gathered in a predetermined formation or arrangement, and then arranging the cartons in position on the carton supports of buckets of a bucket conveyer. The article conveyer part of the bucket comprises a rigid part connecting the carton support and the article tray which have their cooperating end arranged in close proximity.

The articles to be cartoned or packaged may be any kind of articles for which the machine of the present invention is adapted, but the present invention is for the specific purpose of packaging .22 caliber rifle cartridges. Of course, other articles than rifle cartridges are adapted to be cartoned in a carton of the specific type herein shown and described.

The particular part of the machine comprising the present invention is for arranging certain specific cartons in a certain preferred manner. That part of the machine for gathering articles for packaging purposes is shown and claimed in applicants' copending application Case 153 and assigned to the present assignee.

The machine **1** of the present invention, Fig. 1, includes an intermittently endless conveyer **2** made up of a plurality of hingedly connected buckets **3**. Each bucket **3** comprises an article tray **4** and a carton support **5**, Fig. 1. The article tray **4** is provided with rows of grooves to receive a plurality of rows of articles (cartridges). The carton support **5** is provided with upstanding sides **6**, **6** which extend a predetermined distance from its bottom **7**. The space between the upstanding sides **6**, **6** is substantially equal to the width of a carton upon which it is to be supported in expanded condition. The articles, such as cartridges, which are received in the grooves on the cartridge tray **4**, are adapted to be shifted therefrom and placed in a carton on the carton support **5**. Each bucket **3**, including the article tray **4** and the carton support **5** are integrally connected together and are in the same plane. This arrangement maintains the parts in relative proper position and prevents shifting movement of one member with respect to the other.

The construction, arrangement and operation of the bucket conveyer **2**, the buckets **3**, the construction of the buckets, including the article tray **4** and the carton support, as well as the operation thereof are described in the aforesaid copending application.

The present invention has to do primarily with the transferring and conveying of the cartons, and to arranging the cartons in a specific manner so that the articles on the article trays **4** may be inserted easily and readily within the cartons.

A carton magazine **8**, Fig. 1, is rigidly mounted on a suitable part of the frame **1** to hold a stack **9** of collapsed, flattened cartons which are arranged in superposed relation, as shown in Figs. 1 and 3. The lowermost carton of the stack is adapted to be engaged by suction cups **10**, **10**, Figs. 3 and 4, which are carried by an oscillating support **11**. As the cups **10** successively engage the lowermost carton of the stack **9**, they are pulled downwardly out of the magazine, as shown in Fig. 4. The lowermost carton, as it is being removed from the stack **9** by the pneumatic means **10** and **11**, will engage an inner side wall **12** and an outer opposed inclined block **13** at the discharge end of the magazine. The engagement of the carton with the parts **12** and **13** will cause the carton to expand, and be in the condition shown in Figs. 2, 7 and 8 to form expanded cartons **14**, Figs. 7 to 10. The expanded cartons **14** are arranged in successive pockets **15**, Figs. 1 and 3, of a transfer wheel **16**.

The transfer wheel **16** comprises spaced apart disks **17**, **17** having opposed cutouts **18** formed therein, Figs. 1, 3 and 5, which cutouts form the pockets **15** in the transfer wheel **16**. The disks **17** are rigidly connected together, being mounted on a driven transfer shaft **19** which is intermittently rotated in a clockwise direction and in correlation with the intermittent movement of the conveyer **2** and its buckets **3**.

The conveyer **2** operates in the linear direction shown by the directional arrows in Figs. 1 and 5, while the transfer wheel **16** rotates in a clockwise direction, as indicated by the directional arrows, also shown in Figs. 1 and 3.

Successive expanded cartons **14**, Fig. 2, are arranged top side up in successive pockets **15**, Figs. 1 and 3, at the top of the transfer wheel and then are carried in a clockwise direction by the transfer wheel **16** to the bottom thereof, Fig. 5, where they are ejected bottom side up from their respective pockets by means of ejector means **20**.

The ejector means **20**, Fig. 5, comprise spaced apart arms **21**, **21** which are arranged between the side disks **17**, **17** of the transfer wheel **16**. The arms **21** are oscillated in timed relation with the intermittent rotation of the transfer wheel **16**, and with the oscillatory movement of the support **11**, as well as the intermittent horizontal traveling movement of the conveyor **2**. The arms **21** are secured to an oscillating shaft **22** which receives oscillatory movement by a moving part of the machine, such as from an operating shaft (not shown). The arms **21** normally lie between the side plates **17** of the rotary transfer wheel **16**, but are caused to oscillate downwardly from the dotted line position to the full line position, shown in Fig. 5, when the transfer wheel **16** transfers an expanded carton **14** to the bottom end of the wheel. The shaft **22** causes the arms **21** to oscillate downwardly and eject a formed carton **14** from its pocket **15** and deposit it bottom side up in a bucket **3**, and then returns upwardly ready for the next succeeding ejecting operation.

The collapsed cartons in the stack **9**, Fig. 1, are superposed one on the other with their upper sides or faces facing upwardly. The lowermost carton from the stack **9**, after leaving the stack, is received in a pocket **15** in expanded condition with the top face thereof also facing upwardly, Fig. 2. However, as the transfer wheel **16** rotates in a clockwise direction approximately one hundred and eighty degrees, the expanded carton **14** will be placed on top of the carton support **5** with the top **23** of the carton facing downwardly, and its bottom face **24** contacting the bottom **7** of the carton support **5**, Figs. 9 and 10. The bottom face **24** of the carton, which now faces upwardly, has its integral end closure panel **25** and its tuck flap **26** projecting outwardly toward the article tray **4**. A right-and flap **27** and a left-hand flap **28**, at the sides of the carton also, extend outwardly and forwardly toward the article tray, Fig. 7.

The upper face or surface **23** of the carton **14**, Figs. 2, 3, and 8, is provided with cutouts **29** so that articles inserted in each carton **14** may be seen readily through the front face **23** of the carton. An inner sheet or liner **30** is arranged inside of each carton to cover the openings.

The sheet **30**, Figs. 7 to 10, is preferably made of transparent material, such as acetate or cellophane, being arranged against the inner side of the top surface **23** of the carton **14**, and preferably adhesively secured thereto by glue, or the like. It is desirable, if not necessary, that the sheet **30** extend forwardly out of the carton **14** a predetermined distance, as indicated at **31**, Figs. 7 to 10, to prevent articles, being inserted in the carton, from becoming snagged or otherwise fouled by engagement of the articles with the sheet during the article insertion operation. Should the sheet **30** be of less

length than the carton 14, the articles would likely engage the forward edge of the sheet 30 and cause it to become snagged with the articles being inserted. However, by lengthening the sheet 30, so as to provide for a protruding edge 31, the forward end of the sheet 30 may be bent back or depressed so that the oncoming articles, to be inserted in the carton, are free to be slid easily and smoothly along the acetate surface, and be deposited easily and readily inside of the carton 14. In order to prevent any obstruction to the articles as they are being inserted into the carton, the side flaps 27 and 28, the end panel 25 and its tuck flap 26, as well as the acetate sheet 30, are turned over and thus prevented from obstructing free entrance into the carton.

The side flaps 27 and 28 are continuations of the side edges of the carton and are integral therewith, being hinged to the carton sides by score lines at the outer side ends of the carton. Normally, these side flaps have enough springiness to prevent them from extending inwardly in front of the open receiving end of the carton. This is particularly true of the trailing left-hand flap 28, as the normal shiftable movement of the conveyor tends to hold outwardly the left-hand side flap.

The grooved article tray 4, Figs. 1 and 13, is juxtaposed immediately opposite the carton support 5 of the bucket 3, Fig. 12, so that the discharge end 32 of the article receiving tray 4 will be in very close proximity to the open or receiving end of the expanded carton 14. The side edges of the article tray 4, at the discharging end thereof, are beveled on each side, as indicated at 33, Fig. 13, so as to assist in maintaining the flaps 27 and 28 out of the way of the oncoming articles in the grooves of the article tray 4, Fig. 12.

Carton shifting means 34, Figs. 1, 6, 11 and 12, are provided to move each successive carton 14 close to its cooperating article tray 4, so as to assist in holding the end flap 25 down, and to cause the side flaps 27 and 28 to be spread apart because of the action of the carton with the cooperating adjacent end of the article tray 4.

The holding means 34, Figs. 1, 6, 11 and 12, includes a pivotally mounted reciprocating arm 35, Fig. 1, which is pivotally mounted intermediate its ends, being operated in an up and down position by means of a link (not shown). The mechanism for causing such vertical reciprocation of the arm 35 is not shown, but it is operatively driven from a correlated part of the operating mechanism of the machine so as to assume proper timed relation and correlated movement with respect to the conveyor 2 and the transfer wheel 16.

The reciprocating arm 35, Fig. 1, is pivotally connected at its outer end, as at 36, to a rod or crank arm 37. The upper end of the rod 37 is pivotally connected at 38 to a block 39 which is fixed to a cross shaft 40. The cross shaft 40 is suitably mounted in bearings to permit oscillatory movement about its horizontal axis. Vertical reciprocation of the arm 35 causes the arm 37 to reciprocate vertically. The vertical reciprocation of the crank arm 37 will cause oscillatory movement of the block 39. The block 39 is rigid with an arm 41 which carries an integral cross plate 42, Figs. 1, 6, 11 and 12. The cross plate 42 moves in a horizontal path, being suitably supported and guided on the machine frame.

The cross plate 42, Figs. 1, 6, 11 and 12, carries two adjustable fingers 43 that push the carton inwardly against the inclined side edges 33 of the article tray 4, Fig. 12. The fingers 43, when pushed inwardly, cause the side flaps 27 and 28 to be spread outwardly and the end panel 25 to be held downwardly.

Oscillating means 44, Figs. 1, 6, 9, 11 and 12, is provided to depress the projecting end 31 of the sheet 30 and to depress the end panel 25 to a position where these two elements may be held in an out-of-the-way position.

The oscillating means 44, Figs. 1, 6, 11 and 12, comprises a horizontal disposed rigid bar 45 which overlies the top of successive cartons 14 in their respective buckets 3 to hold the cartons forwardly in a downward position and to prevent them from shifting upwardly and away from their positions between the side guiding edges 6 of the carton support 5, the cartons merely sliding beneath the rigid bar 45 as the cartons are being moved by the conveyor 2. The bar 45 is a hold-down bar which may be pivotally mounted along one side, and then locked in proper position by a holding latch (not shown). The bar 45 holds the cartons in position by its own weight, being a gravity weighted bar. This hold-down bar 45 has fastened thereto a block-like member 46, Figs. 1 and 6, to which an arm 47 is pivotally connected, as indicated at 48, Figs. 1, 6 and 11. A spring 49, Figs. 6 and 11, is arranged on top of the bar 45 and beneath the arm 47, normally to urge the arm 47 upwardly, Fig. 6. A flat bar or strap 50 is fastened to the arm 47 and to a cam member 51. The flat plate or bar 50 is slotted, Figs. 6 and 12, to provide adjustable movement of the cam member 51 with respect to the arm 47. The under side of the cam member 51 includes a cam surface which is engaged by a cam roller 52 mounted to a member or support 53 rigidly secured to the cross arm 42, Fig. 1, also 6. The cross arm 42 is adapted to be shifted back and forth, whereupon the roller 52 will engage the cam member 51, thus causing the forward end of the arm 47 to be forced downwardly against the tension of the spring 49.

The forward or inner end of the arm 47 carries a blade 54 which is operated by the arm 47. The arm 47 is controlled by the reciprocating movement of the bar 42, and inasmuch as the arm 47 operates in proper timed relation with the movement of the conveyer 2 when a carton 14 on the support 5 of a bucket 3 arrives at a predetermined position, the blade 54 will engage the protruding end closure panel 25 and the projecting part 31 of the acetate sheet 30, and cause them to be pressed downwardly in the manner shown in Figs. 6, 9 and 10. The downward movement of the blade 54 engages the end closure panel 25 and the projection 31 of the sheet 30 and forces them downwardly. The projection 31 on the acetate sheet 30 is pressed downwardly to underlie the bottom surface of the article tray 4 which is immediately adjacent the discharge end of the carton support 5. The natural resiliency or springiness of the sheet 30, after depressed, will snap upwardly and, therefore, be maintained beneath the article tray 4. The projecting end 31 of the sheet 30 is then in an out-of-the-way position, whereupon articles on the article tray 4 are free to be moved into the carton without any interference with the acetate sheet 30. The blade 54 also moves the end closure panel 25 downwardly to a position so that it will be located beneath the lower edge of a thin bar or strip 55 which is rigidly secured to a part of the machine frame. Therefore, the blade 54 causes the projecting edge 31 of the acetate sheet 30, and the integral closure panel 25, to be first moved in a downward position and then maintained in the depressed position because the projecting end 31 underlies the lower surface of the tray 4 adjacent its discharge end, and the closure panel 25 underlies the bottom of the rigid transverse bar or strip 55, Fig. 9.

The face of the blade 54, Figs. 6 and 9, is such that its free outer edge 56, Fig. 9, lies within the left-hand side of the carton and its right-hand side flap 28. The opposite end of the blade 54 is connected to the arm 47 and overlies the opposite side edge of the carton. The blade 54, therefore, is provided with a slot 57, Figs. 6 and 9, to accommodate the right-hand side flap 27 (to the left, Figs. 7 and 9). Thus, when the blade 54 is moved to its downward position to deflect or depress the end panel 25, its tuck flap 26 and the projections 31 of the sheet 30, the right-hand side flap 27 will be received in the slot 57 of the blade 54. After the depression of the end panel

25 and the projection 31 of the sheet 30, the arm 47 is moved upwardly by the spring 49, as shown in Fig. 6. The open receiving end of the carton 14 is now left free and unobstructed to permit articles to be shifted from the article tray 4 directly into the carton 14 on the carton support 5. The carton parts remain in the unobstructed position until the conveyer 2 moves the buckets 3 to article filling position.

The means for closing the closure panel and the side flaps at each end of the carton, after the articles are ejected from the tray 4 and inserted into the carton, are not shown, and do not comprise any part of the invention. These operations and the mechanism for carrying out the operations may be done by means heretofore used and well known in the art.

The invention, therefore, comprises moving a conveyer in a predetermined direction, and feeding expanded cartons successively into a transfer wheel which operates in a direction opposite to the directional movement of the conveyer. The cartons are then mounted on top of a supporting plate of the bucket, the plate lying immediately adjacent the grooved article tray which supports the articles. The arm 47 is periodically reciprocated or oscillated in proper timed relation with the movement of the conveyer 2 so that when a carton 14 in a bucket 3 of the conveyer 2 arrives at a predetermined position, the end panel 25 and the projecting end 31 of the sheet 30 are moved to an out-of-the-way position. After the arm 47 has been raised by the spring 49, the projecting end 31 of the sheet, the closure panel 25 and the flaps 27 and 28 will remain in place free from any interference with the articles on a tray 4 when the time has arrived to eject the articles from the tray 4 into the carton 14.

The invention is relatively simple in construction and operation, comprises but few and simple parts, all of which operate in proper correlation and in proper timed relation so that each individual operation will occur at precisely the proper time interval and in proper sequence. The driving mechanism, the gearing device and the appurtenances for causing the timed operation and relation of the parts are not shown, as they may comprise conventional elements. The invention, however, lies in that the parts are properly correlated, and even though the mechanism for causing this correlation is not shown, it is believed that the parts as described herein, and the purpose and mode of operation are such that a distinct and clear understanding is evident.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fall fairly within the scope of the following claims.

The invention is hereby claimed as follows:

1. In a device of the class described, comprising a magazine containing a stack of superposed collapsed cartons, an intermittently operating conveyer arranged in a plane below the magazine, an article tray and a carton support on said conveyer, an intermittently rotating transfer wheel having spaced peripheral pockets and arranged adjacent the magazine and the conveyer and operating in timed relation with the conveyer, said conveyer operating in a direction opposite to the directional movement of the wheel, means for removing the lowermost carton from the stack, means for expanding the carton during the removal thereof from the magazine, movable means for pressing the expanded carton into the transfer wheel, oscillating means pushing a carton from said pockets of said wheel and applying it on said support, said carton having an end closure panel and side flaps at its filling end, and oscillating means operating in timed relation with the movement of the conveyer and wheel and engaging the end panel to depress said panel to a predetermined position below the top of the support to provide an unobstructed opening for the carton.

2. In a device of the class described, comprising a magazine containing a stack of superposed collapsed cartons, an intermittently operating conveyer arranged in a plane below the magazine, an article tray and a carton support on said conveyer, an intermittently rotating transfer wheel arranged adjacent the magazine and the conveyer and operating in timed relation with the conveyer, said wheel comprising spaced disks having cut-outs forming pockets said conveyer operating in a direction opposite to the directional movement of the wheel, means for removing the lowermost carton from the stack, means for expanding the carton during the removal thereof from the magazine, means for inserting the expanded carton into the pockets of the transfer wheel, oscillating means pressing a carton from said wheel and forcing it on said support, said carton having an end closure panel and side flaps at its filling end, oscillating means operating in timed relation with the movement of the conveyer and wheel and engaging the end panel to depress said panel to a predetermined position below the top of the support to provide an unobstructed opening for the carton, and means to shift the carton on its support for engagement with a part of the tray to spread the carton flaps apart.

3. In a machine of the class described for transferring and conveying successive cartons, each having an extending end closure panel including a tuck flap and opposed end flaps, a liner sheet inside of each carton between the flaps, there being an end of the liner sheet projecting beyond the open filling end of the carton, an intermittently operated bucket conveyer having adjacently arranged hingedly connected buckets each provided with an article tray and a juxtaposed carton support, means for applying a carton on a support of adjacent buckets successively, movable depressing means for depressing said projecting end of the sheet and said extending end panel including the tuck flaps in an out-of-the-way position at the open filling end of the carton and maintaining said end and the projecting end of the liner sheet in such position, means to shift the carton toward the article tray including an oscillating arm, a blade at the end of the arm, and means for operating the depressing means.

4. In a machine of the class described for transferring and conveying successive cartons each having an extending end closure panel and spaced side flaps, a liner sheet inside of the carton over said end and between the flaps, there being an end of the sheet projecting beyond the open filling end of the carton, an intermittently operated bucket conveyer having adjacently arranged hingedly connected buckets each provided with an article tray and a juxtaposed carton support, means for applying a carton on a support of adjacent buckets successively, movable depressing means for pressing said projecting end of the liner sheet and said extending end panel in an out-of-the-way position at the open filling end of the carton, means maintaining said extending panel and said projecting end in such latter position, said last named means comprising a horizontally reciprocating member to shift the carton on its support toward the article tray and in engagement therewith, and reciprocating means operated by the reciprocating member for operating the depressing means.

5. In a machine of the class described for transferring and conveying cartons successively, said cartons each having an extending end closure panel at one end and opposed side flaps, a sheet arranged inside of the carton between the flaps, said sheet having a projecting part thereof extending beyond the end of the carton, an intermittently operated endless bucket conveyer having adjacently arranged hingedly connected buckets provided with an article tray and a juxtaposed carton support, means for applying a carton on the carton support of each bucket, a bar on the machine underlying at least one bucket of the conveyer, depressing means to depress the closure panel to a point beneath the bar to maintain said panel in depressed position, and means to shift successive cartons on their supports towards their adjacent article

trays of each bucket, said depressing means depressing the projecting end of the sheet beneath the bottom of a tray opposite the carton support.

6. In a machine of the class described for transferring and conveying cartons successively, said cartons each having an extending end closure panel at one end and spaced side flaps, a sheet arranged inside of the carton, said sheet having a projecting part thereof extending between the flaps and beyond the end of the carton, an intermittently operated endless bucket conveyer having adjacently arranged hingedly connected buckets provided with an article tray and a juxtaposed carton support, means for applying a carton on the carton support of each bucket, a bar on the machine underlying at least one bucket of the conveyer, depressing means to depress the closure panel to a point beneath the bar to maintain said panel in depressed position, and means to shift successive cartons on their supports towards their adjacent article trays of each bucket, said depressing means depressing the projecting end of the sheet beneath the bottom of a tray opposite the carton support, said depressing means depressing the closure panel and the sheet projection simultaneously.

7. In a machine of the class described, comprising an intermittently operating conveyer having adjacent hingedly connected buckets, said buckets each having an article receiving tray and an adjacently positioned carton support, a carton inserted face down on the carton support, said carton including side flaps and an end closure panel, a sheet arranged inside of the carton and having a projecting end extending a predetermined distance outward of the free open filling end of the carton, means to move said side flaps outwardly in an out-of-the-way position, means for depressing said projecting end of the sheet and the closure panel to provide a free and unobstructed opening at the filling end of the carton, said last named means comprising a horizontal shiftable member for shifting the carton on the carton tray toward the article tray, and vertically reciprocal means for engaging the projecting end of the sheet and the closure panel to depress said end and panel to a predetermined position.

8. In a machine of the class described, comprising an intermittently operating conveyer having adjacent hingedly connected buckets, said buckets each having an article receiving tray and an adjacently positioned carton support, a carton inserted face down on the carton support, said carton including side flaps and an end closure panel, a sheet arranged inside of the carton and having a projecting end extending a predetermined distance outward of the free open filling end of the carton, and means to move said side flaps outwardly in an out-of-the-way position, said last named means including a transverse horizontal reciprocating member engaging a rear end of the carton to shift the carton toward the article tray, and beveled side edges on the tray engaging said side flaps.

9. In a machine of the class described, comprising an intermittently operating conveyer having adjacent hingedly connected buckets, said buckets each having an article receiving tray and an adjacently positioned carton support, a carton inserted face down on the carton support, said carton including side flaps and an end closure panel, a sheet arranged inside of the carton and having a projecting end extending a predetermined distance outward of the free open filling end of the carton, and means to move said side flaps outwardly in an out-of-the-way position, said last named means including a transverse horizontal reciprocating member engaging a rear end of the carton to shift the carton toward the article tray, and beveled side edges on the tray engaging said side flaps, and depressing means operated by said horizontal reciprocating member to depress said sheet end beneath the bottom of a tray.

10. In a machine of the class described, comprising an intermittently operating conveyer having adjacent hingedly connected buckets, said buckets each having an article receiving tray and an adjacently positioned carton support, a carton inserted face down on the carton support, said carton including side flaps and an end closure panel, a sheet arranged inside of the carton and having a projecting end extending a predetermined distance outward of the free open filling end of the carton, and means to move said side flaps outwardly in an out-of-the-way position, said last named means including a transverse horizontal reciprocating member engaging a rear end of the carton to shift the carton toward the article tray, beveled side edges on the tray engaging said side flaps, and depressing means operated by said horizontal reciprocating member to depress said sheet end beneath the bottom of a tray, said depressing means depressing the end panel simultaneously with the depressing operation of the sheet end.

11. In a machine of the class described, comprising an intermittently operating conveyer having adjacent hingedly connected buckets, said buckets each having an article receiving tray and an adjacently positioned carton support, a carton inserted face down on the carton support, said carton including said flaps and an end closure panel, a sheet arranged inside of the carton and having a projecting end extending a predetermined distance outward of the free open filling end of the carton, and means to move said side flaps outwardly in an out-of-the-way position, said last named means including a transverse horizontal reciprocating member engaging a rear end of the carton to shift the carton toward the article tray, beveled side edges on the tray engaging said side flaps, depressing means operated by said horizontal reciprocating member to depress said sheet end beneath the bottom of a tray, said depressing means depressing the end panel simultaneously with the depressing operation of the sheet end, and a rigid strip underlying a predetermined bucket, said strip overlying the panel after said panel is depressed by the depressing means.

12. In a device of the class described, comprising a magazine containing a stack of superposed collapsed cartons, an intermittently operated conveyer comprising hingedly connected buckets arranged in a plane below the magazine, said buckets including an article tray and a carton support, means to operate said conveyer, an intermittently rotating transfer wheel comprising a pair of spaced apart disks having oppositely disposed cut-outs forming carton receiving pockets, means to operate the transfer wheel in timed relation with the buckets, means movable between said disks to insert an expanded carton in a pocket of the transfer wheel, means for operating said conveyer in a direction opposite to the directional movement of the transfer wheel, ejector means arranged between said disks at the lower end of the transfer wheel and above the buckets for forcing an expanded carton from the pocket into the carton support of a bucket, and means to operate said ejector means in timed relation with the conveyer and transfer wheel.

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