Sept. 26, 1950 C. E. PALMER ET AL 2,523,667

PACKAGING MACHINE

Filed April 19, 1945 6 Sheets-Sheet 1

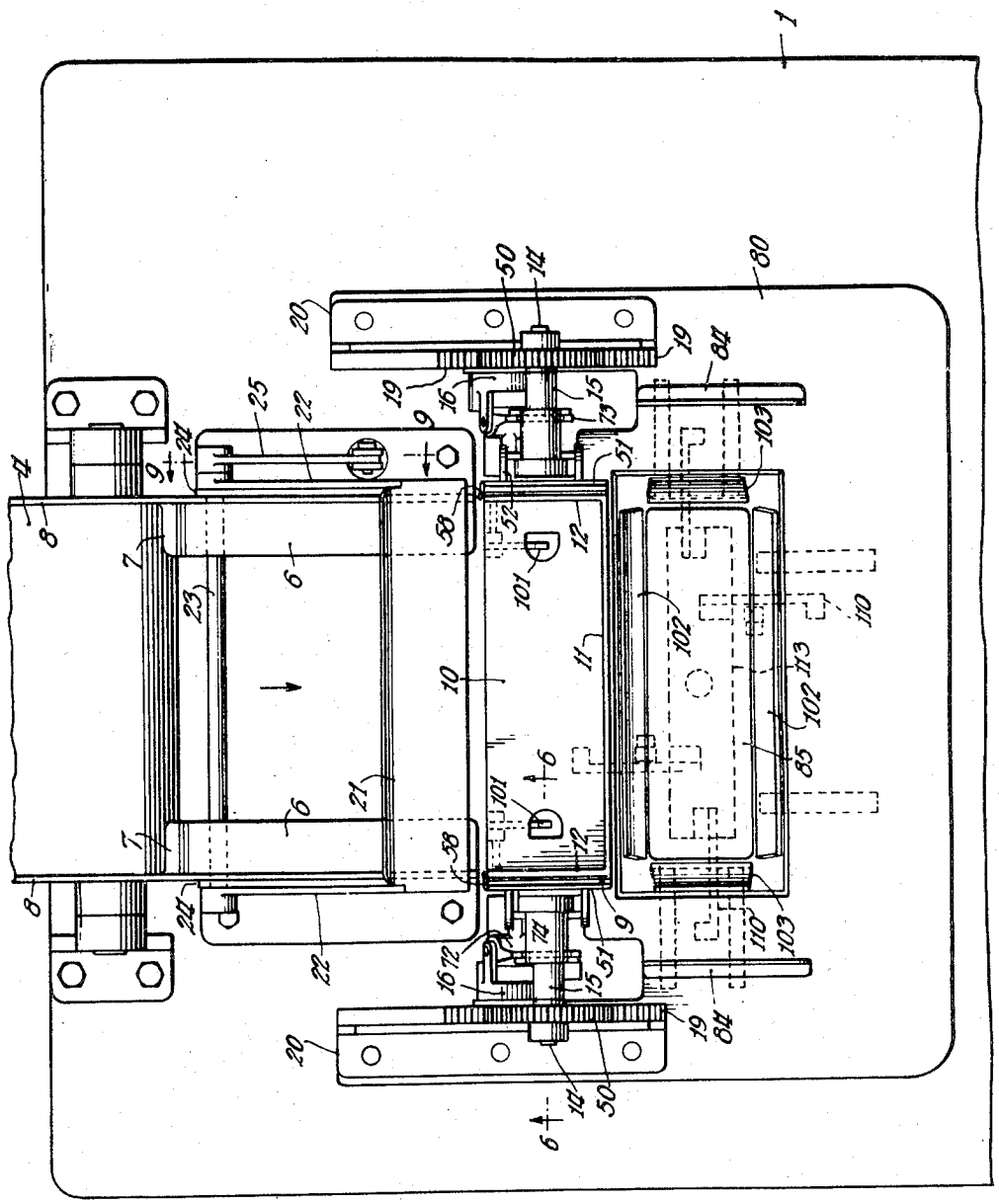


Fig. 1

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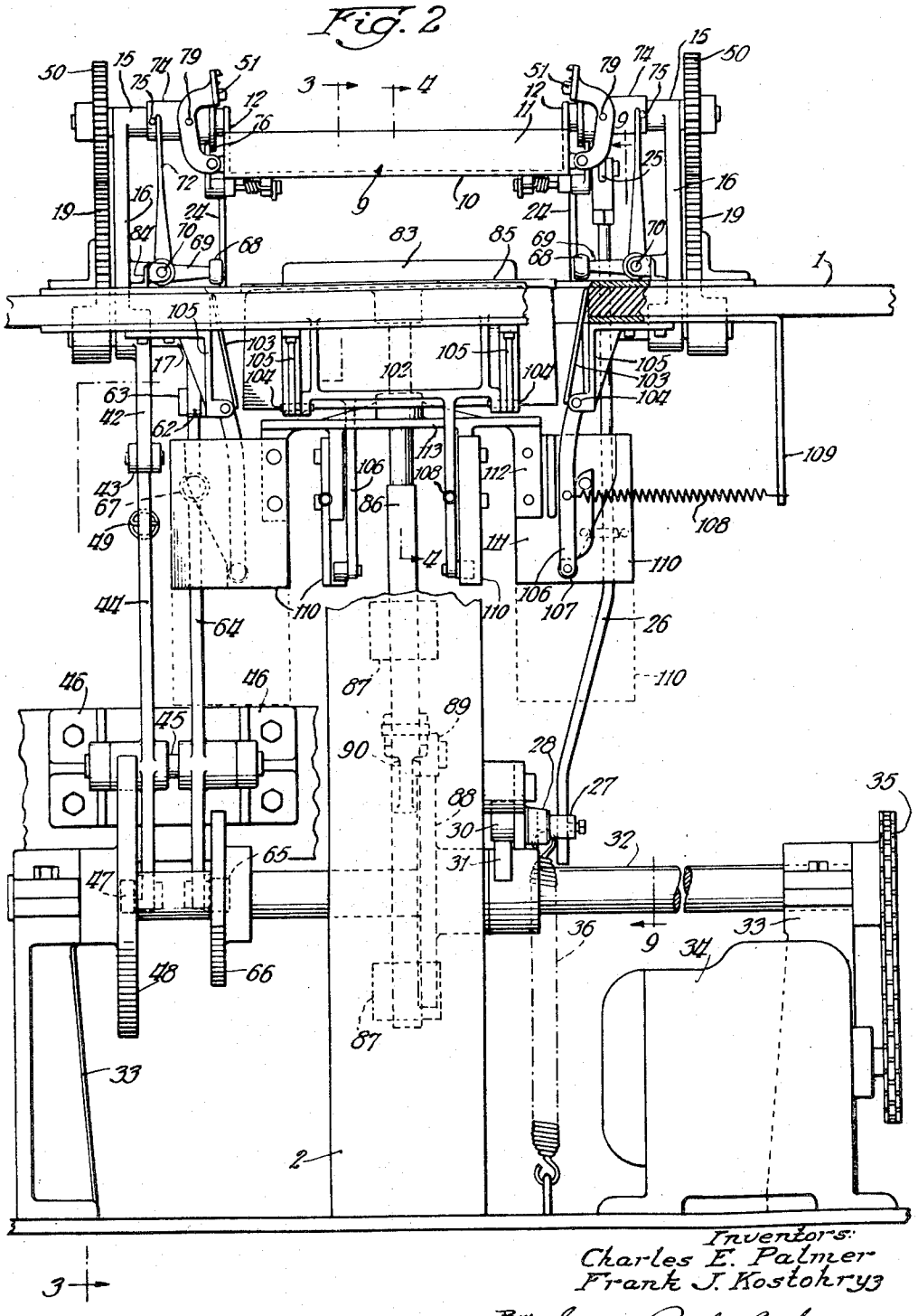
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PACKAGING MACHINE

Filed April 19, 1945 6 Sheets-Sheet 2

Fig. 2



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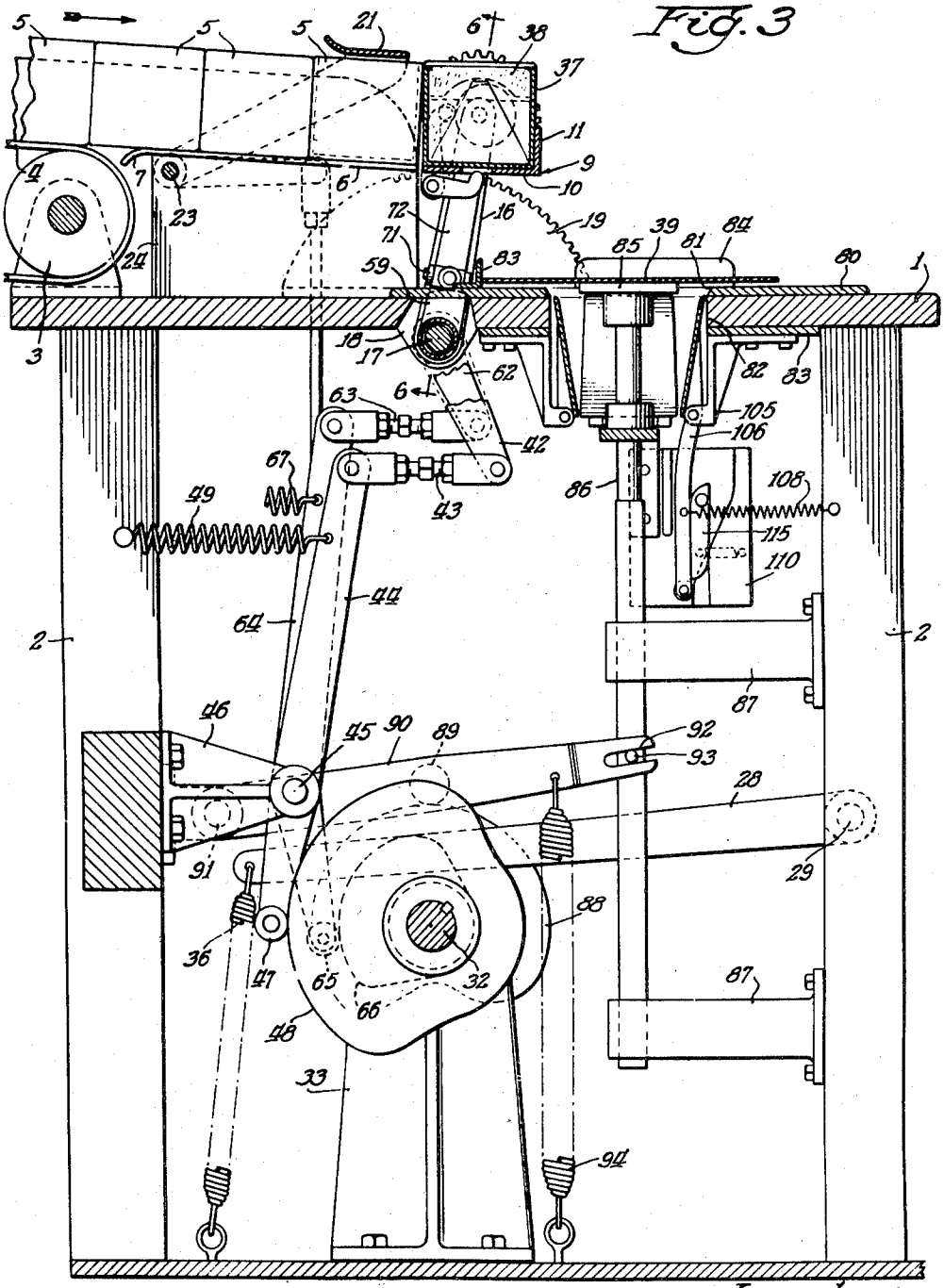
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Sept. 26, 1950 C. E. PALMER ET AL 2,523,667

PACKAGING MACHINE

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Fig. 3



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PACKAGING MACHINE

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Fig. 4

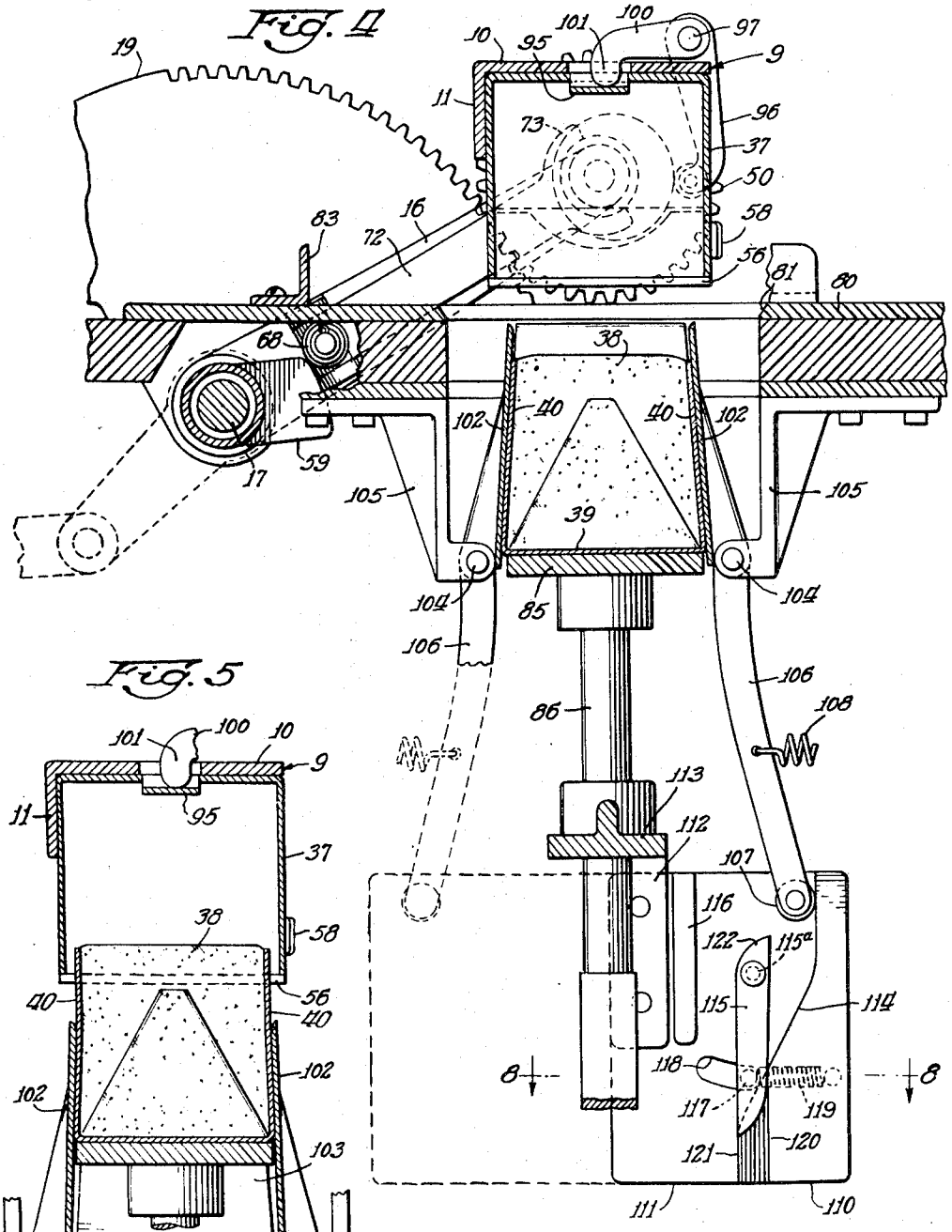


Fig. 5

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PACKAGING MACHINE

Filed April 19, 1945 6 Sheets-Sheet 5

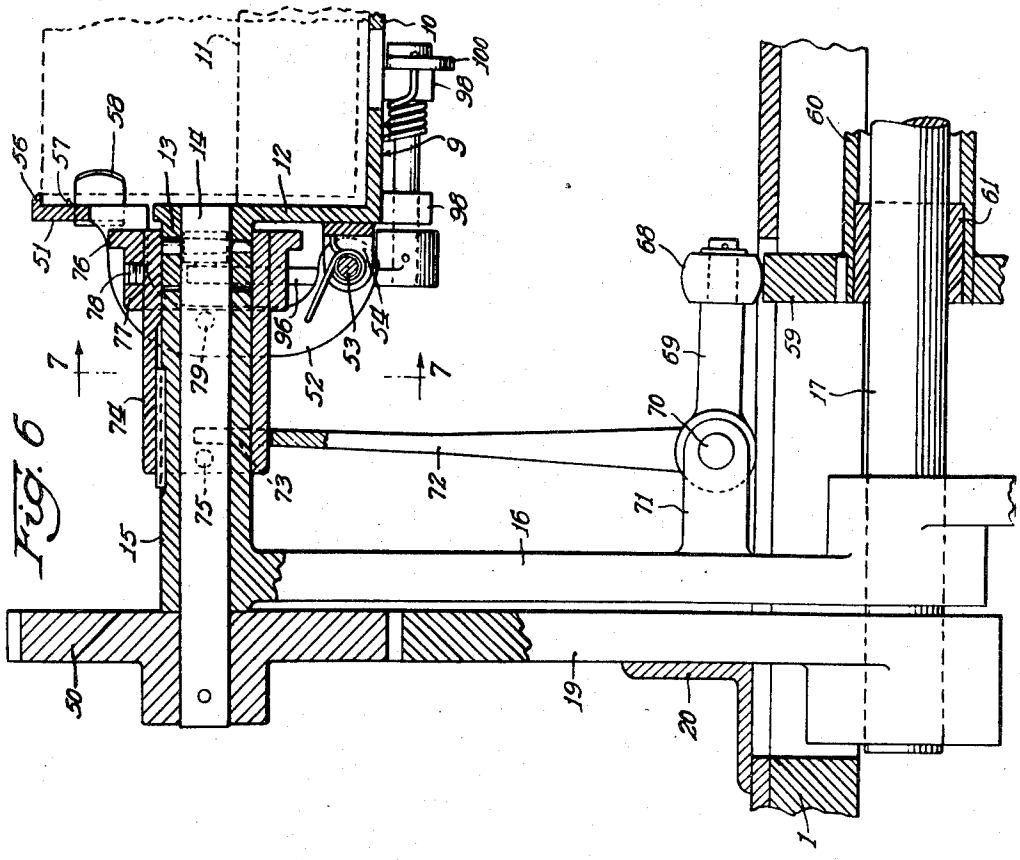


Fig. 6

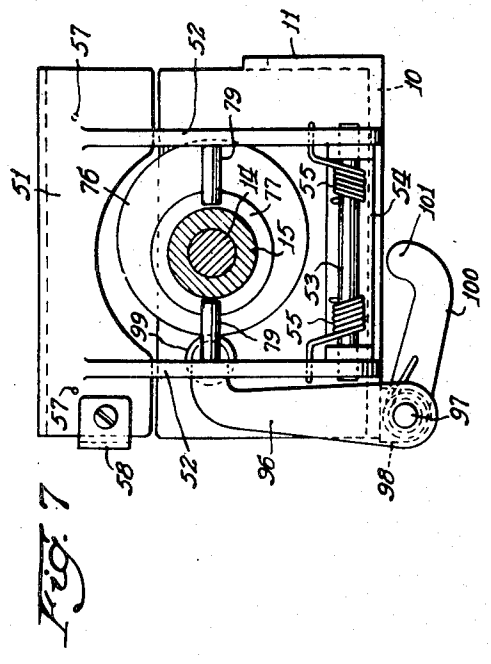


Fig. 7

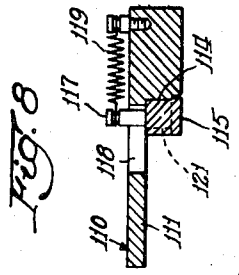


Fig. 8

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PACKAGING MACHINE

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Fig. 10

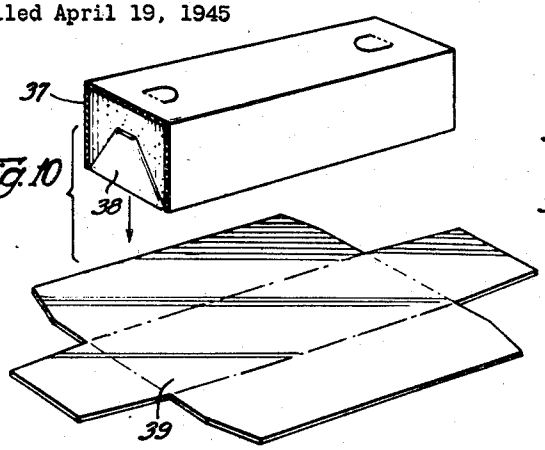


Fig. 12

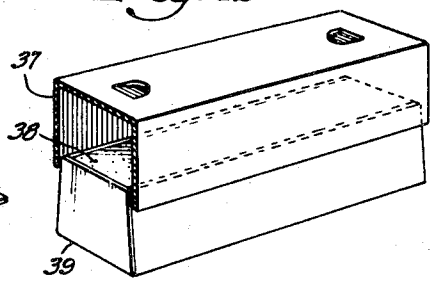


Fig. 13

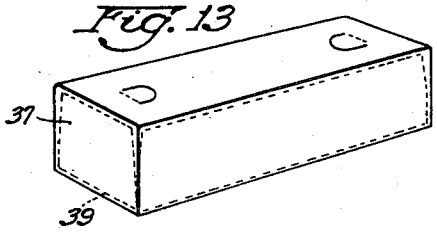
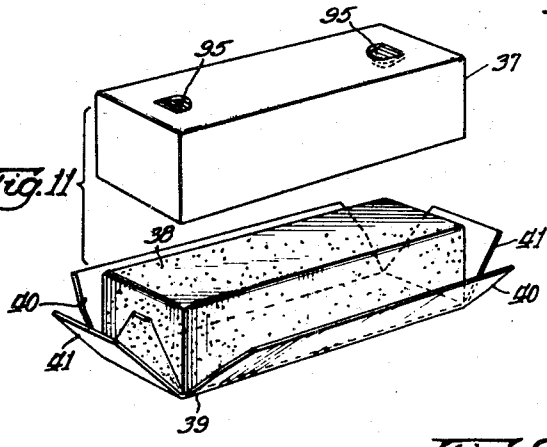


Fig. 11



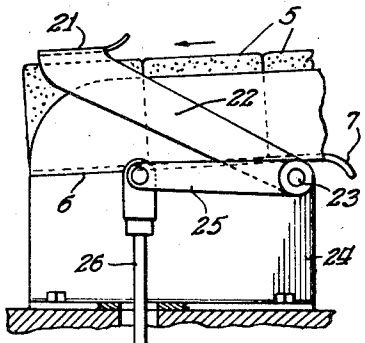
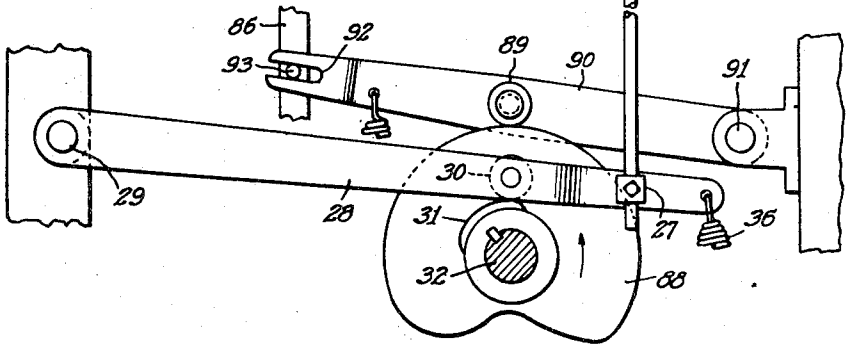


Fig. 9



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Patented Sept. 26, 1950 2,523,667

UNITED STATES PATENT OFFICE

2,523,667

PACKAGING MACHINE

Charles E. Palmer and Frank J. Kostohryz, Chicago, Ill., assignors to Frank D. Palmer, Incorporated, a corporation of Illinois

Application April 19, 1945, Serial No. 589,172

6 Claims. (Cl. 93—3)

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This invention relates to a packaging machine, and it has particular reference to a machine for applying an inner receptacle to a package consisting of a receptacle and a wrapper enclosed more or less fluid content.

As an example, it may be explained that in the packaging of cheese, an open topped receptacle having a liner covering the inside of its bottom and side walls and extending upwardly beyond the top edges of the side walls, is fed into position under a filling nozzle which delivers molten or fluid cheese into the lined receptacle. Thereafter the filled lined receptacle is moved to another station or through equipment which closes the upwardly extending portions of the liner over the top of the content.

The present invention has to do with equipment for applying another receptacle to the package to cooperate with the open topped receptacle to form a completely closed package, the two receptacles being made of paper board or other suitable material which will afford a satisfactory degree of protection for the thin and more flexible liner or wrapper which encloses the content. The equipment may, of course, be adapted to the packaging of materials other than cheese, which is mentioned only for illustrative purposes.

The main objects of the invention are to provide a relatively simple and inexpensive machine for performing the above described packaging operation; to provide such equipment which will be capable of operating at a speed which is consistent with the ability of an attendant to supply carton blanks and to remove the completed packages from the equipment; and to provide a machine of the character indicated which can be readily operated by a substantially unskilled person, and which will be safe for such a person to operate.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawings (six sheets) wherein there is illustrated a machine embodying a selected form of the invention.

In the drawings,

Fig. 1 is a plan;

Fig. 2 is a front elevation;

Figs. 3 and 4 are sections on the lines 3—3 and 4—4 respectively of Fig. 2, the position of the parts in Fig. 4 being changed from the position shown in Figs. 2 and 3;

Fig. 5 is a fragmentary section corresponding to a portion of Fig. 4 but showing a changed position;

Fig. 6 is a section on the line 6—6 of Figs. 1 and 3;

Fig. 7 is a section on the line 7—7 of Fig. 6;

Fig. 8 is a section on the line 8—8 of Fig. 4;

Fig. 9 is a fragmentary section on the line 9—9 of Figs. 1 and 2, and

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Figs. 10, 11, 12 and 13 are perspectives illustrating successive steps in the formation of the completed package as effected by the mechanism shown.

The operations performed by the apparatus are illustrated in Figs. 10 to 13 inclusive. As there shown, a package comprising a paper board receptacle 37 contains a content wrapped in a liner 38. The liner 38 may or may not be sealed but it should be closed so as to effectively retain the content which, in the case of packaging of cheese, may be in a semi-liquid state. A package comprising the receptacle 37 and wrapped content 38 is delivered from the filling machine and liner closing mechanism or station, in normal upright position; that is to say, with its open side facing upwardly. The apparatus forming the subject matter of this application operates to first invert the package to the position illustrated in Fig. 10, and to deposit the liner enclosed content centrally on a blank 39 which is suitably formed and scored to facilitate the formation of a receptacle around the wrapper enclosed package content.

The wrapper enclosed package content 38 is deposited on the blank 39 in such a manner that the weight and downward force of the wrapped content will effect initial breaking of the crease or fold lines of the blank and partial folding of the side and end wall panels 40 and 41 respectively of the blank upwardly over the sides of the wrapper enclosed package. The mechanism completes the folding of the side and end wall panels and the package, now consisting of the wrapper enclosed content 38 and the box formed from the blank 39, is moved upwardly into the receptacle 37 from which the wrapper enclosed content 38 was first discharged. The result is the production of a package comprising the wrapper enclosed content 38 and a slip box consisting of the box formed from the blank 39 and the outer box 37, as shown in Fig. 13.

The apparatus shown in the drawing comprises a supporting table or bench 1 which is suitably supported by legs 2, the top 1 and legs 2 being united and braced in any desirable manner.

At the rear of the table 1 there is supported a pulley 3 which supports one end of a continuously traveling conveyor belt 4. Packages 5 are delivered to the apparatus by the belt 4, the packages being delivered to angle iron or similar guides 6 arranged to receive the opposite end portions of the package (see Figs. 1 and 3). The guide members 6 have their receiving end portions curved downwardly as shown at 7 to facilitate movement of the packages from the belt 4 to the said guides, side portions 8—8 of the said guides being extended rearwardly to embrace the opposite ends of the package while they are on the conveyor belt so as to insure centering of the

same for delivery to the horizontal guide portion 6.

Adjacent the front ends of the guides 6 there is located a carriage 9 which consists of a bottom plate 10 and a front edge upwardly extending flange 11. Said carriage also includes end plates, such as indicated at 12 (see Figs. 1, 2 and 6) each of which have outwardly extending bosses 13. The bosses 13 are suitably bored out to receive outwardly extending shafts 14 to which the carriage bosses 13 are pinned or otherwise rigidly secured.

The shafts 14 are journalled in elongated bearings 15 formed at the upper ends of arms 16 which are mounted on a rotatably supported shaft 17. The shaft 17 is supported by suitable bearing brackets 18 which are formed integrally with normally stationary gear segments 19 which extend upwardly from the table 1 at opposite sides of the apparatus. The gear segments 19 and their bearing portions 18 are suitably mounted on the table 1 by means of angle iron members 20 which are fastened to the top of the table and to the segments 19.

The conveyor 4 operates through its frictional engagement with the bottoms of the packages thereon to feed said packages 5 along said guide chutes 6 and on to said carrier 9, the forward movement of the packages being limited by the upstanding front edge flange 11 of the carrier. The carrier with a package thereon is then rocked about the axis of the shaft 17 and also rotated about the axis of the shafts 14 to invert the package and deposit it on a blank which is to form the bottom receptacle of the completed package.

For the purpose of stopping the forward movement of the packages on the guides 6 during the time that the carriage 9 is being advanced to deposit the carton on a box blank, there is provided a holder or gripper 21 in the form of a plate extending across the top surface of the package 5 on the front ends of the guides 6. Said gripper 21 is secured at its ends to arms, such as indicated at 22, which extend rearwardly and are secured to a shaft 23, which is rotatably mounted in suitable bearings carried by bracket plates 24 which support the guides 6. The gripper member 21 is rocked so as to clamp the underlying box 37 to its supporting guides 6. The ends of the box are stiff enough to permit such locking of the package without reliance on the application of any pressure on the liner enclosed content of the package.

To rock the gripper 21 as aforesaid, the shaft 23 is rocked by suitably timed cammed mechanism so that the gripper 21 will be moved down into gripping engagement with the top of the package 5 thereunder during the time that the carriage 9 is being advanced as aforesaid and returned to its receiving position, as shown in Fig. 3.

The cam actuating mechanism for the gripper 21 is best shown in Figs. 2 and 9. As there shown, the shaft 23 has secured to it an arm 25 which has its free end pivoted to a vertically extending connecting rod 26, the lower end of which is adjustably connected as indicated at 27, to the free end portion of an arm 28 which is pivotally mounted as shown at 29 on a portion of the supporting frame structure.

The arm 28 is equipped with a cam engaging roller 30 which engages the periphery of a cam 31 carried by a cam shaft 32 which is journalled in suitable supporting brackets 33 mounted on base plate of the machine. The cam shaft is driven at a predetermined speed by means of a suitable driving motor 34 and a transmission chain 35 which engages suitable sprockets carried by the motor shaft and the cam shaft.

A spring 36 connected between the free end of the arm 28 and the base plate of the machine serves to hold the cam engaging roller 30 in engagement with the cam 31. The cam 31 is such that the gripper 21 is elevated as shown in full lines in Fig. 9 for only a short time interval during which a package is fed from the guides 6 to the carriage 9. During the remainder of the cycle of operation of the machine, the gripper is pulled down into gripping engagement with the package thereunder by reason of the tension of the spring 36.

The arms 16 which support said carrier 9 are rocked with the shaft 17 through the agency of an arm 42 which, in this instance, is formed integrally with one of the arms 16, the lower end of said arm 42 being connected by means of an adjustable link 43 to the upper end of a lever 44 which is pivoted intermediate its ends on a shaft 45. The shaft 45 is suitably supported by means of brackets, such as indicated at 46, carried by the supporting frame of the machine. The lower end of the arm 44 is provided with a roller 47 which engages the periphery of a cam 48 carried by the cam shaft 32. A spring 49 tensioned between a portion of the supporting frame structure 2 and a portion of the arm 44 serves to maintain the lower end roller 47 in contact with the cam 48 and to effect rocking of the arm 44 as permitted by the cam 48 which is keyed to the rotating shaft 32.

During the rocking of the arms 16 and the carrier 9, the carrier is rotated about the axis of its end shafts 14. Such rotation of the carrier 9 is effected by means of the stationary gear segments 19 which mesh with gears 50 carried by the outer ends of the respective shafts 14. The starting position of the arms 16 and carrier 9 is shown in Fig. 3 and the rocked and inverted position of these parts is shown in Fig. 4.

In order that the package in the carrier will be retained therein during the movement of the carrier from its receiving position to its inverted discharge position, means are provided for gripping the package while it is in the carrier. This gripping means comprises, at each end of the carrier, a member 51 which, in its gripping position, is in effect a continuation of the end wall 12 of the carrier. The gripping member 51 is carried by a pair of arms 52—52 which are bowed outwardly so as to clear certain elements of mechanism which will presently be described, and the lower ends of said arms are pivotally mounted on a pivot rod 53 which is supported by a bracket 54 attached to the end member 12 of the carrier.

Torsion springs, such as shown at 55, are provided for yieldingly urging the gripping member 51 towards the end of the package delivered to the carrier. The gripping members 51 have narrow ledges 56 which are adapted to extend over the upper edge of the end of the package and sharp tooth 57 to more or less impale the package end when the grippers are in gripping position, as shown in Fig. 6. Each gripper is also provided with a clip element 58 which engages the rear side of the package to assist in holding it against the front ledge 11 of the carrier.

The grippers 51 are controlled by cams, such as indicated at 59, there being one such cam associated with each end of the carrier and said cam being keyed or otherwise suitably secured to a tubular shaft 60 disposed about the shaft 17 and

journalled thereon by means of end bearings, such as shown at 61 in Fig. 6. The tubular shaft 60 and its cams 59 are adapted to be rocked by means of an arm 62 rigidly connected to the tubular shaft and extending downwardly therefrom. The lower end of said arm 62 is connected by means of an adjustable link 63 to the upper end of an arm 64 which is pivoted intermediate its ends on the said shaft 45. The lower end of said arm 64 is provided with a roller 65 which engages the periphery of a cam 66, which is keyed to said cam shaft 32 so as rotate therewith. A spring 67 tensioned between the upper portion of the arm 64 and a suitable accessible portion of the supporting frame structure serves to yieldingly hold the lower end roller 65 in engagement with the cam 66.

The cams 59 are arranged to act against rollers 68 carried by the short arms 69 of bell crank levers pivoted as indicated at 70, in lugs such as indicated at 71, carried by the arms 16. The bell cranks have longer arms 72 which extend upwardly and are provided at their upper ends with forked portions 73 (see Fig. 4) which fit around sleeves 74 which are horizontally slidably mounted on the bearing members 15 (see Fig. 6).

The sleeves 74 are keyed to the bearing members 15 so as to be held against rotation while being longitudinally slidable as already indicated. At their outer ends, the sleeves 74 are equipped with radially outwardly extending pins 75 which are adapted to be engaged by the forked bell crank arm ends 73 for effecting outward movement of the sleeves as an incident to rocking of the cams 59. At their inner ends, the sleeves 74 have mounted thereon cams, such as indicated at 76, the said cams having central bosses 77 which fit snugly on the sleeve 74 and through which bosses fastening screws, such as indicated at 78, are threaded for holding the cams in fixed relation to the sleeves 74. The outer ends of the cam bosses 77 thus constitute shoulders on the sleeves, and such shoulders are adapted to engage pins 79 which extend inwardly from the arms 52 of the end grippers 51.

When the cam 59 is adjusted to the position shown in Fig. 3, the bell crank arms 69 and 72 are rocked in such a manner as to move the sleeves 74 outwardly whereby the gripper arms 52 and the grippers 51 are moved outwardly to an open position as best shown in Fig. 2. Such outer movement of the grippers is against the tension of the torsion springs 55.

The cam 66 which operates the cam 59 is so designed as to permit the grippers 51 to be closed against the package ends immediately after the package is delivered to the carrier, the grippers remaining in such closed position until the package and the carrier are moved to their inverted positions as shown in Fig. 4. The grippers 51 are held in their closed position so that the receptacle 37 will be held in its inverted position as shown in Fig. 4, until just before the gripper is to be returned to its receiving position.

The table 1 is provided with a die plate 80, preferably of metal, the said die plate having an opening 81 which is registered centrally with the discharge position of the carrier, as shown in Fig. 4. The table 1 is similarly apertured, as shown at 82, and a similarly apertured reinforcing bottom plate 83 is secured to the under side of the table 1 in registration with the die plate opening 81.

A box blank 39 is manually positioned over the opening 81 in properly registered relation thereto, such registration being facilitated by the provision of a rear stop 83 and suitable side guides 84.

A vertically movable member 85 is centrally aligned with the die plate opening 81. Said member 85 is carried by a post 86 which is vertically slidably mounted in suitable supporting brackets 87—87 carried by the supporting frame structure. In the starting position of the apparatus, as shown in Fig. 3, said vertically movable member 85 has its upper surface slightly above the surface of the die plate 80 so that the box blank 39 initially rests on said member 85, as shown in Fig. 3.

The vertical movement of the post 86 and its head member 85 is controlled by means of a cam 88 which is secured to the cam shaft 32 so as to rotate therewith. Said cam 88 acts against a roller 89 carried by an arm 90 which is pivotally secured at one end, as indicated at 91, to a suitable bracket carried by the main frame structure, the other end of said arm being forked and slotted, as indicated at 92, to embrace the ends of a pin 93 which extends diametrically through a portion of the shaft 86. The spring 94 is tensioned between a portion of the arm 90 and the bed plate of the machine, as best shown in Fig. 3. The cam 88 is operative to effect upward movement of the shaft 86 and its head 85 and the spring 94 serves to effect downward movement thereof as limited by engagement of the cam roller 89 with the cam 88.

When the package is delivered to its inverted position, as shown in Fig. 4, the wrapped package content tends to drop out of the box 37, this being especially true in respect of a non-rigid package content which does not have sufficient frictional engagement with the side walls of the box 37 to prevent its dropping out of the inverted box.

The main resistance to the escape of the wrapped package content from the box is the vacuum effect which would be produced in the box upon downward movement of the wrapped package content. In order to overcome such vacuum resistance to discharge of the wrapped package content, and to otherwise expedite the movement of the wrapped content out of the box, the boxes are provided in their top walls with inwardly depressible ears 95 which are partially slit from the top wall of the box 37 and hingedly connected thereto. The mechanism is further provided with means for pressing said ears 95 inwardly to thereby provide an opening for permitting air to enter the box behind the outwardly moving wrapped package content. The means for depressing the ear 95 is best shown in Figs. 4, 6 and 7. As there shown, said ear depressing means comprises at each end of the carriage, an arm 96 which is secured at one end to a shaft 97 journalled in suitable bearing legs 98—98 which depend from the bottom 10 of the carrier 9.

The upper end of each of said arms 96 is equipped with a roller 99 which engages the periphery of the adjacent cam 76 whereby, when the carrier is turned 180 degrees about the shaft 14, said arm 96 will be rocked outwardly about the axis of the shaft 97. Said shaft 97 also has secured to it an arm 100 which is formed with a laterally extending toe 101 which is arranged to be engageable with the adjacent inwardly depressible ear 95 in the box 37 (see Figs. 4 and 7).

It should be observed that the inward pressure exerted by the ear 95 on the wrapped package content is not necessarily relied upon to positively force the package out of the box 37 since

said wrapped package content would readily drop out of the box by reason of its weight when the box is vented as by means of the inwardly pressed ear 95. The soft condition of the wrapped package content precludes any frictional engagement between the wrapped package content and the side walls of the box 37 which would prevent escape of the wrapped package content from the box.

At about the time that the box 37 arrives at its inverted position, the plunger head 85 begins to move downwardly by reason of the spring 94 and the formation of the cam 88. The weight of the wrapped package content is normally sufficient to cause the box blank 39, which is prescored for folding along lines which will approximately coincide with the bottom corners of the wrapped package content, to fold at said corners as an incident to its downward movement.

Initial breaking of the fold lines of the blank 39 is insured by timing the downward movement of member 85 so that at the time the liner enclosed package content comes into engagement with the central panel of the blank 39, the member 85 will be spaced downwardly from the top surface of the die plate to the extent of about one-fourth of an inch; the blank 39 will then be supported only by engagement of its outer marginal portions with the top of the die plate so that the relatively small force of the liner enclosed package content (for example, about 2 lbs.) will be adequate to break said fold lines and cause the blank to catch up with the descending member 85. The weight of the package is sufficient to continue the movement of the package through the die plate opening while also maintaining the package in engagement with said descending member 85, to thereby continue the folding of the side and end walls 40 and 41 of the blank 39 to a partially folded position.

The die opening 81 is of such dimensions that it does not fold the side or end wall portions 40 and 41 of the blank 39 tightly against the sides of the wrapped package content and separate, positively actuated folding means are provided for this purpose.

The side wall folding means referred to, comprises side and end folder plates 102 and 103 respectively, each of which is pivoted near its lower edge on a shaft, such as the shaft 104 carried by suitable brackets 105 depending from the table 1. Each folding plate has a downwardly extending arm 106 which is rigid with the folding plate and equipped at its lower end with a roller 107. A tension spring 108 stretched between a portion of each downwardly extending arm 106 and a stationary bracket or similar means, indicated at 109 (Fig. 2) serves to normally urge the arm 106 to rock the folding plate inwardly about its pivot.

The folding movement of each folding plate is, however, controlled by a cam device 110 associated with each of the roller equipped lower ends of the respective arms 106. One of said cam devices 110 is shown in Fig. 4 from which it will be seen that it includes a plate 111 carried by a bracket arm 112 depending from a cross head 113 which is secured to the vertically movable post 86 (see also Fig. 2).

On the plate 111 there is fixedly mounted a cam member 114, a pivoted cam member 115 and a guide member 116. The pivoted cam member 115 is pivotally mounted at its upper end as indicated at 115a, the lower end portion of the member 115 being provided with a pin 117 which extends through an arcuate slot 118 in the plate 111. A suitable spring 119 stretched between the pin 117 and a pin projecting from a portion of the plate 111 serves to yieldingly hold the pivoted cam member 115 in closed position relative to the lower portion 120 of the fixed cam element 114.

The cam devices 110 move vertically with the post 87 and head 85 so that in the starting position, the roller 107 at the lower end of the arm 106 is engaged with the lower end high portion 121 of its cam 114. When the cam device 110 moves downwardly, the pivoted cam member 115 will pass under the roller 107 so that the pivoted cam member 115 is effective to hold the corresponding folding plate in its outwardly offset or open position, as shown in Fig. 2, until the roller 107 is permitted to roll across the upper end portion 122 of the pivoted finger whereupon the spring 108 is permitted to rock the lever 106 and its folding plate to closed or folded position, as shown in Fig. 4. As an incident to such rocking of the folding plate, the corresponding flap of the box blank 39 is folded to a position slightly inwardly of its normal vertical position relative to the bottom panel of the blank substantially as illustrated in Fig. 4.

Upon upward movement of the post 86 and its plunger head 85, the package will be ejected from between the closed folding plates 102 and returned into the overlying receptacle 37 from which it previously dropped. The fluid state of the package content permits the package to be deformed to the extent illustrated in Fig. 4, whereby entrance of the upper end of the package into the cover member 37 is insured. As an incident to said upward movement of the plunger head 85, the folding plates 102 may be forced outwardly by the normal width portion of the package at its bottom. The upper portion of the side and end walls of the package will, however, have entered the overlying receptacle 37 before such outward movement of the folding plates is sufficient to permit such expansion of the upper portion of the package that entrance thereof into the receptacle 37 would be hindered.

At about the time that the wrapped package content with the lower or inner receptacle formed from the blank 39 is fully inserted into the upper box or cover 37, the cams 59 are actuated in the manner already explained, to open the end grippers 51 so as to thereby release the receptacle 37 from the carrier 9 whereupon the carrier is returned empty to its initial or starting position (shown in Fig. 3). The operator of the machine then removes the completed package from the plunger head 85 and places another carton blank 39 in position thereon whereupon the operation of the machine is repeated.

The cam shaft 32 is rotated continuously so that all of the parts of the machine are operated in continuously repeated cycles and the operator of the machine merely removes the completed packages and delivers box blanks to the plunger head. The speed of the machine may be adjusted in any suitable manner to permit its operation at whatever speed the operator can deliver the carton blanks and remove the filled packages. Also, a conveniently located switch may be provided for stopping or starting the machine for any reason which may require the operation of the machine to be interrupted. Such switch means forms no part of the present invention, and hence is not illustrated.

Various changes in the described structure may be made without departing from the principles of the invention.

We claim:

1. In apparatus of the class described, a combination of means for guiding a row of packages, means for effecting movement of said packages along said guiding means, movable means for receiving and inverting the leading package of said row, means for stopping the movement of said row of packages upon delivery of the leading package to said receiving and inverting means, means for effecting movement of said receiving and inverting means to discharge the content of the receptacle carried thereby in a predetermined position, a die plate having an opening therein, means for positioning a box blank in predetermined relation to said opening, said box blank being prescored to facilitate folding thereof around said package content, said die plate and said blank positioning means being disposed in such relation to said receptacle content discharge position as to cause said content to force said blank through said die plate opening as an incident to the weight of the content and its movement upon being discharged from said receptacle, thereby to fold said box blank around said content, means for effecting movement of said content and the folded box blank upwardly through said die plate opening and into said inverted receptacle to thereby effect enclosure of said package content in inner and outer box sections, means for returning said filled receptacle receiving means to its starting position, and means for releasing said package movement stopping means to permit another filled receptacle to be delivered to said receiving means.

2. In apparatus of the class described, a receiver adapted to receive in upright position a filled open topped receptacle, an arm pivotally mounted at one end and having said receiver pivotally mounted in its other end, means for effecting rocking of said arm, means for effecting rotation of said receiver to inverted position as an incident to the lateral movement thereof effected by rocking said arm, the content of said receptacle being discharged therefrom as an incident to the inversion thereof with said receiver, and means for applying another box section to said discharged package content and returning the same together with said box section into said receptacle to thereby effect enclosure of said content in a slip cover box.

3. An apparatus according to claim 2 wherein said receiver is provided with movable means for gripping the filled open topped receptacle so as to hold the receptacle in fixed position in the receiver when the receiver and receptacle are inverted, and wherein there is provided means for moving said gripping means to release the package upon completion of insertion of the content and box section into the inverted receptacle, thereby to permit return of the receiver to its initial position for receiving another package.

4. An apparatus according to claim 2 wherein said receiver includes a bottom wall, a front wall, and an end wall, said end wall having a shaft secured thereto, said shaft being rotatably mounted in one end of said arm so as to pivotally support the receiver in said end of the arm, and wherein there is provided means for gripping and holding the filled receptacle on said receiver, said gripping means comprising a plate member constituting, in effect, an extension of said end wall, arms extending from said plate member on opposite sides of said shaft and pivotally mounted on said end member, spring means normally urging said plate member into receptacle gripping position, a cam and cam actuated means for moving said gripping plate to open position against the pressure of said spring, and means for actuating said cam so as to open said gripping means at a predetermined time in the operation of the apparatus.

5. In apparatus according to claim 2 wherein said receiver comprises bottom, front and end walls and wherein said end wall is provided with a shaft extending endwise therefrom and rotatably mounted in one end of said arm to thereby pivotally mount said receiver in said arm, a receptacle ear opening finger pivotally mounted on said receiver, a cam non-rotatably mounted on said arm, and means connected to said finger and having operative engagement with said cam for effecting rocking of said finger as an incident to rotation of said receiver about the axis of its pivot mounting on said arm to thereby open the receptacle ear as an incident to the inversion of the receiver and the receptacle positioned therein.

6. In apparatus of the class described, a receiver adapted to receive in upright position a filled open topped receptacle, an arm pivotally mounted at one end and having said receiver pivotally mounted in its other end, means for effecting rocking of said arm, intermeshing gear and segment means for effecting rotation of said receiver to inverted position as an incident to the lateral movement thereof effected by rocking said arm, the content of said receptacle being discharged therefrom as an incident to the inversion thereof with said receiver, and means for applying another box section to said discharged package content and returning the same together with said box section into said receptacle to thereby effect enclosure of said content in a slip cover box.

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The following references are of record in the file of this patent:

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