

Feb. 20, 1962

O. S. PURDY  
PACKAGING DEVICE

3,021,657

Filed April 10, 1961

2 Sheets-Sheet 1

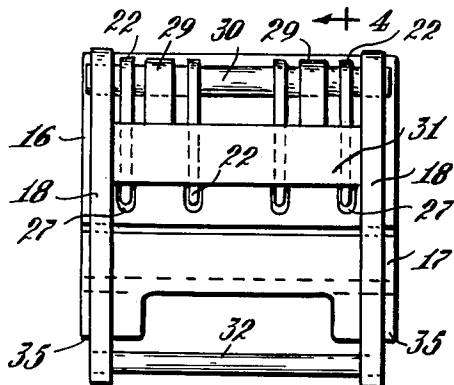


Fig. 1

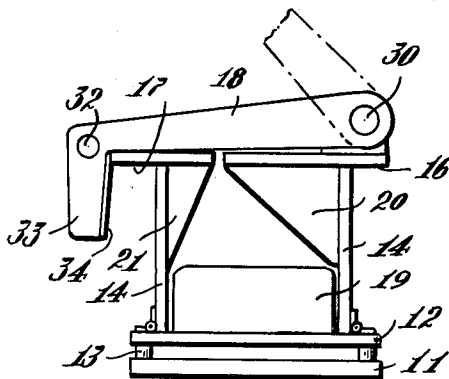


Fig. 2

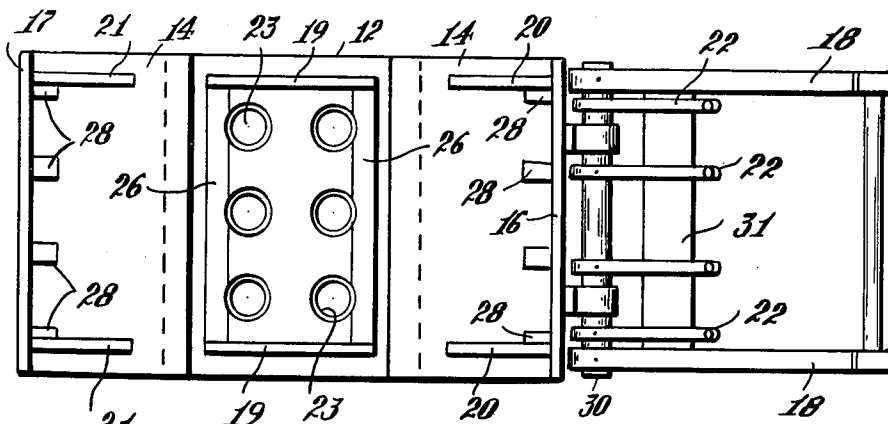


Fig. 3

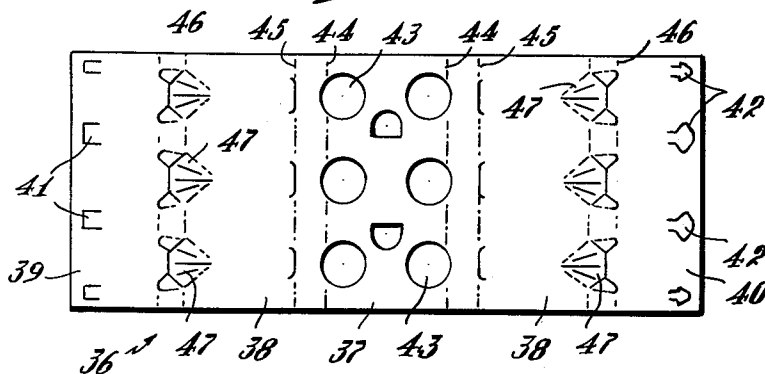


Fig. 5

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2 Sheets-Sheet 2

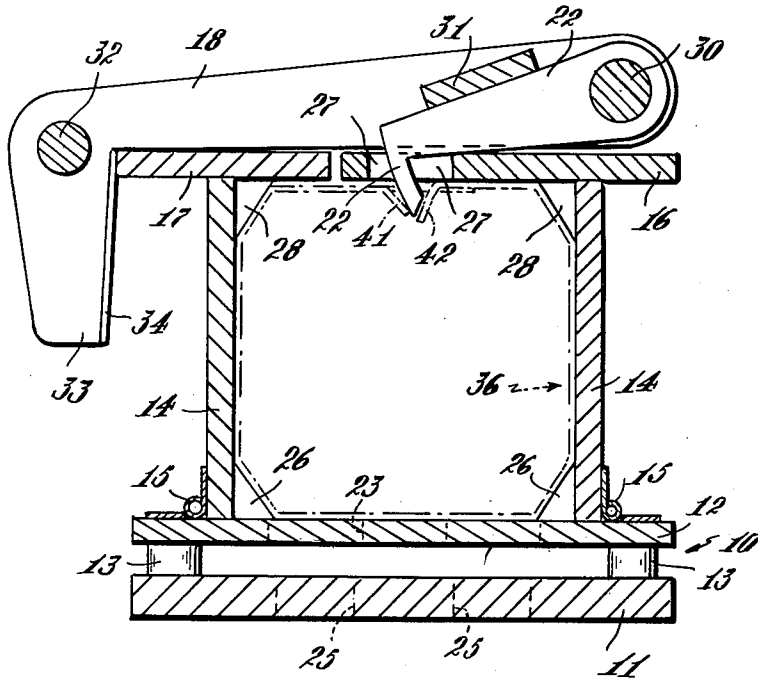


Fig. 4

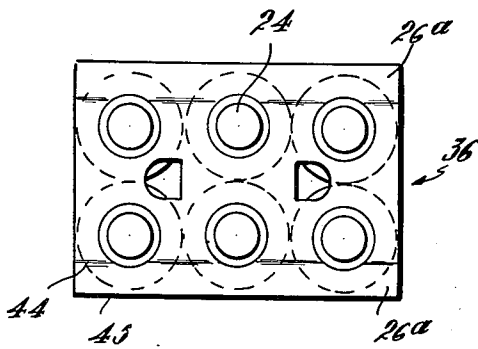


Fig. 6

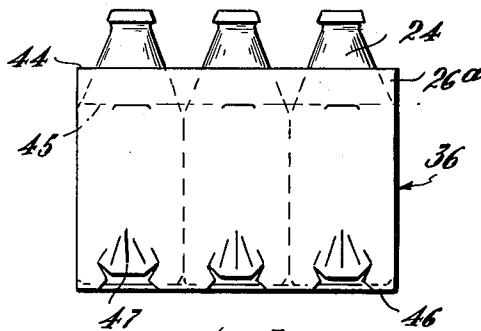


Fig. 7

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3,021,657

**PACKAGING DEVICE**

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8 Claims. (Cl. 53-390)

This invention relates to a device for packaging a plurality of containers in a cardboard carton adapted to be folded about the containers and having interlocking means for securing the carton in folded position, and relates more particularly to a hand-operable device adapted for efficient use where the volume of operation is insufficient to justify purchase of the expensive automatic packaging equipment heretofore employed.

Objects of the invention include provision of an inexpensive hand-operable packaging device of the above type which is readily and rapidly operable, positive in action, inexpensive to manufacture, and which is readily portable. These and other objects and advantages will be more readily apparent from the following more detailed description and by reference to the accompanying drawings wherein:

FIG. 1 is a plan view of one embodiment of the present invention;

FIG. 2 is an end elevation of the device shown in FIG. 1;

FIG. 3 is a plan view of the device with pivotal portions folded open into collapsed or horizontal position;

FIG. 4 is a section on the line 4-4 of FIG. 1;

FIG. 5 is a plan view of a prefabricated cardboard carton of a known type which the device of FIGS. 1-4 is adapted to assemble;

FIG. 6 is a plan view of the carton of FIG. 5 assembled with six bottles; and

FIG. 7 is a side elevation of the assembled carton of FIG. 6.

Referring to FIGS. 1-4 of the drawings, the device comprises a base 10 having a bottom member 11 and an upper member 12 separated by legs 13; opposed side members 14-14 pivotally secured to base member 12 by hinges 15-15; top members 16 and 17; opposed end members having lower portions 19-19 and divided upper portions 21-21 and 20-20; arms 18-18 and a plurality of fingers 22.

Base member 12 is provided with a plurality of openings 23 spaced to receive the necks of bottles 4 (FIG. 7), base member 11 being provided with a series of cutouts 25 into which the tops of the bottles extend. The lower portions 19-19 of the opposed end members are fixed to the upper member 12 of the base 10 and transverse members 26-26, triangular in cross-section, are fixed to the base member 12 transversely of end members 19-19. Members 26-26 are adapted to form the edges 26a-26a of the upper part of the finished carton (FIG. 6). In combination, bottom member 12, lower end members 19-19 and transverse inclined members 26-26 form the upper surface of the completed and assembled carton.

Top members 16 and 17 are rigidly fixed one to the top of each of the side members 14-14. Top member 16 is provided with a spaced transverse series of openings 27 through which fingers 22 pass as described below. Divided upper portions 20-20 and 21-21 are in the form of gussets affixed between side member 14 and top member 16, and side member 14 and top member 17, respectively. The second series of smaller gussets 28 are also affixed at the junction of the top and side members to function as described below.

Bearings 29-29 are fixed to the upper surface of top member 16 and carry axle 30. Arms 18-18 are fixed to axle 30 and are spaced apart by a cross brace 31 and handle 32. Fingers 22 are also fixed to axle 30 and are further fixed to the underside of cross member 31 so as

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to pivot with arms 18-18 as the latter are rotated towards and away from the top members.

Arms 18-18 carry at their ends depending elements 33-33 having at their inner edges metal cam surfaces 34-34 which are inclined to engage outward edges 35-35 of top member 17 thereby forcing the top members 16 and 17 towards each other as arms 18-18 are downwardly pressed.

A carton blank 36 of a known commercial type is shown in FIG. 5 having a central panel 37 adapted to form the top of the completed carton, opposed sides 38-38 and opposed ends 39 and 40 adapted to be folded together with ends overlapping to form the base of the carton. End 39 has cutout tabs 41 which are adapted to be pressed downwardly while end 40 carries a plurality of flaring tabs 42 which are depressed through the opening created by depression of tab 41 and which interlock therewith.

Central panel 37 is provided with a plurality of holes 43 adapted to receive the tapered necks of containers 24, thereby aligning holes 43 with holes 23. Lines 44, 45 and 46 are fold lines facilitating assembly of the carton. Cutouts 47 are provided at the base of each side member 38-38 to receive the lower peripheral edge of the containers.

In operating the device, the blank 36 is placed over the device in the open position shown in FIG. 3 with holes 43 in alignment with holes 23. Six containers 24 are placed through holes 43 and 23 with their necks extending downwardly into cavities 25 in base member 11. Side members 14-14 are then raised to a vertical position, folding carton side panels 38-38 upwardly, and lever arms 18-18 are lowered. The downward movement of arms 18-18 causes cam edges 34-34 to engage edges 35-35 forcing the top members 16 and 17 closely together and simultaneously pressing fingers 22 downwardly through openings 27, forcing tab members 42 to pass through an interlock with tab members 41 to assemble the carton.

In the closed position transverse members 26-26 form the inclined edges 26a-26a between fold lines 44 and 45 of the assembled carton. End members 19-19, 20-20 and 21-21 engage the two side edges of the carton 36 to align the carton and hold it in alignment as it is folded and the tab members 41 and 42 interlocked. Gusset members 28 press against the lower side edges of the carton between cutouts 47 to press the carton firmly between the bottles to lock them in position.

After completion, arms 18-18 are raised, side members 14-14 outwardly collapsed, and the completed carton as shown in FIGS. 6 and 7 removed from the device.

It should be understood that the foregoing description is for the purpose of illustration only and that the invention includes all modifications falling within the scope of the appended claims. If desired, a plurality of packaging devices can be mounted for simultaneous operation.

I claim:

1. A hand-operable device for packaging containers in a prefabricated foldable carton having interlocking members adapted to hold the carton in assembled relation about a plurality of said containers; said device comprising:
  - a base having means for positioning a plurality of containers;
  - opposed side members pivotally mounted to said base;
  - opposed top members secured respectively to the outer end of each side member, one of said top members having openings aligning with the interlocking members of the folded carton;
  - lever arm pivotally mounted to one of said top members;
  - cam means carried by said arm engaging the other top member to force the top members towards each other, thereby folding the carton tightly about said container; and

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a plurality of fingers mounted for pivotal movement with said lever arm, said fingers being adapted to pass through said openings in the top member to interlock the tab members of the carton.

2. A hand-operable device for packaging containers in a prefabricated foldable carton having holes adapted to receive the neck of the containers and having interlocking tab members adapted to hold the carton in assembled relation about a plurality of said containers, said device comprising:

a base having receptacles for the tops of a plurality of containers, said receptacles being aligned with the holes in said carton when the latter is placed in the device;

opposed side members pivotally mounted to said base; opposed top members secured respectively one to the outer end of each side member, one of the top members having openings aligned with the interlocking tab members of the folded carton;

at least lever arm pivotally mounted to one of said top members;

cam means carried by said arm engaging the other top member to force the top members towards each other, thereby folding the carton tightly about said container; and

a plurality of fingers mounted for pivotal movement with said lever arm, said fingers being adapted to pass through the opening in said top member to interlock the tab members of the carton, said cam means and fingers being so arranged as to operate simultaneously whereby the carton is tightly folded about said container and locked in said position by said fingers.

3. A device according to claim 2, further characterized by opposed end members adapted to receive and laterally align said carton.

4. A device according to claim 3, wherein said end members comprise a lower portion fixed to the base and divided upper portions carried by said side members.

5. A device according to claim 2, further characterized by means movable with said side members for compressing the lower corners of the cartons between said containers.

6. A device according to claim 2, whereby one of said top members has bearings supporting an axle, said axle carrying a plurality of lever arms, said lever arms carrying depending cam surfaces engaging outer edges on the opposite top member, said cam surfaces being offset such that downward movement of the lever arm forces the top members towards each other, said lever arms being spaced apart by a transverse brace and a transverse handle, said fingers being secured to said axle and to said transverse brace for pivotal movement with said lever arms toward and away from said top members.

7. A hand-operable device for packaging a plurality of necked containers in a prefabricated carton of the type

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adapted to be formed from a flat sheet and folded about said containers, said carton having holes for receiving the necks of the containers and adapted to hold the carton in assembled relation about said containers, said device comprising:

a base having receptacles for the necks of said containers, said receptacles being aligned with the holes in said carton;

opposed side members hinged to said base;

opposed top members rigidly secured respectively one to the outer end of each side member, one of said top members having openings aligning with the interlocking members of the folded carton;

end members having a lower portion fixed to said base and divided upper portions secured between said top and side members for transversely aligning said carton as the latter is folded;

a plurality of lever arms pivotally mounted to one of said top members;

depending cam means carried by said arms adapted to engage the other top member to force said top members towards each other, thereby folding the carton tightly about said containers; said arms being spaced apart by a transverse brace member;

a plurality of fingers affixed to said cross brace member so as to pivot with said arms, said fingers being adapted to pass through said openings in the top member to interlock the tab members of the carton; and

a plurality of gusset members fixed at the junction of said side and top members, said members being so spaced as to compress the lower side edges of the folded carton inwardly between the bottoms of adjacent containers.

8. A hand-operable device for packaging containers in a prefabricated foldable carton having interlocking members adapted to hold the carton in assembled relation about a plurality of said containers; said device comprising:

a base having means for positioning a plurality of containers;

opposed side members pivotally mounted to said base; opposed top members secured respectively to the outer portion of each side member;

a lever arm pivotally mounted over the end of one of said side members;

cam means carried by said arm adapted to force said side members toward each other, thereby folding the carton tightly about the containers; and

a plurality of fingers mounted for pivotal movement with said lever arm, said fingers being adapted to assemble said interfitting members of the carton.

No references cited.