

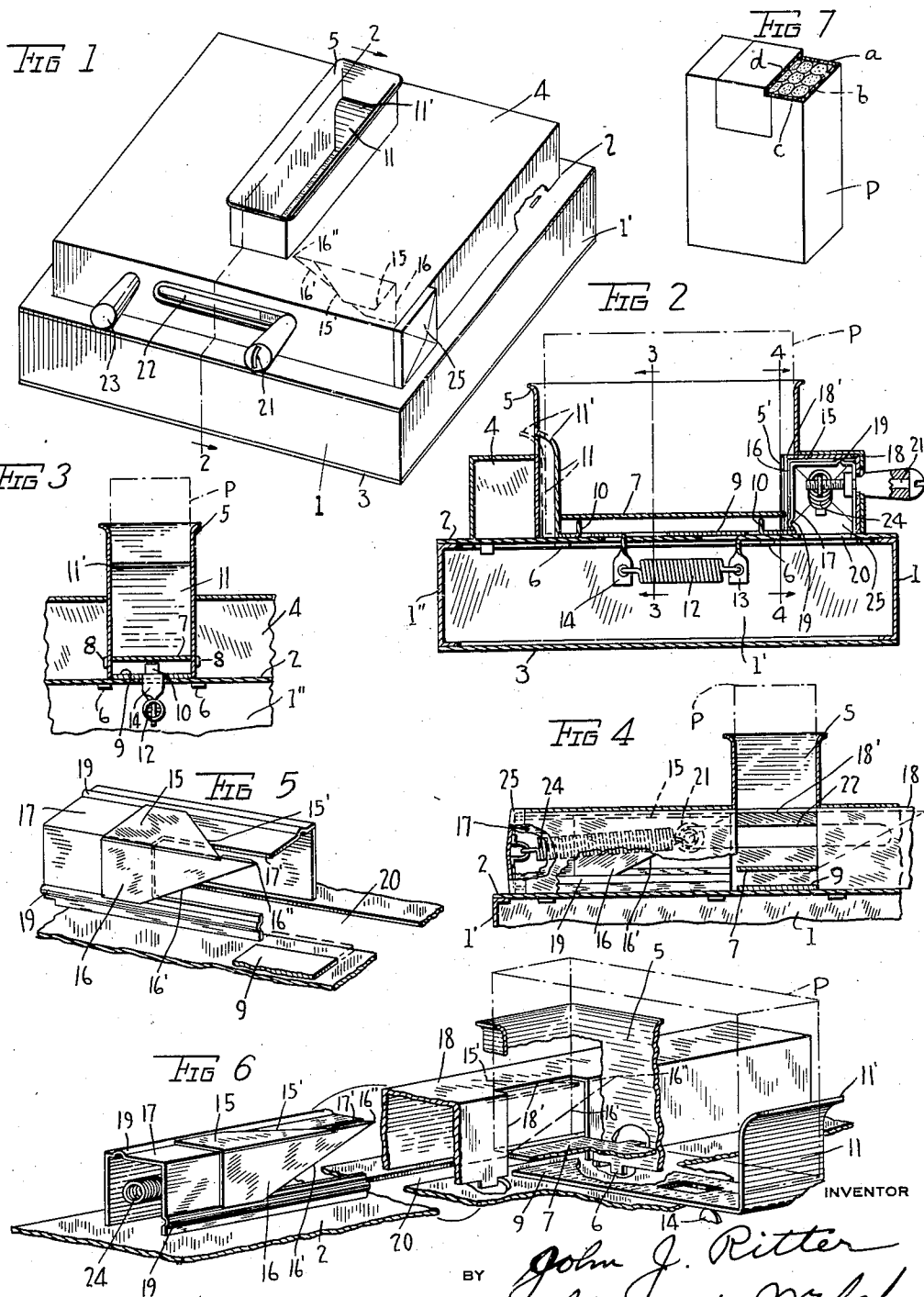
Feb. 5, 1935.

J. J. RITTER

1,989,945

PACKAGE OPENING DEVICE

Filed Sept. 11, 1933



INVENTOR

BY

John J. Ritter
Staley & Welch

ATTORNEYS

UNITED STATES PATENT OFFICE

1,989,945

PACKAGE OPENING DEVICE

John J. Ritter, Urbana, Ohio, assignor to The
W. B. Marvin Manufacturing Company,
Urbana, Ohio, a corporation of Ohio

Application September 11, 1933, Serial No. 689,047

10 Claims. (Cl. 131—59)

This invention relates to package opening devices, it more particularly relating to that class of package opening devices which remove a portion of an end of the container whereby one or more of the articles contained in the package may be exposed; the devices in the present case being particularly adapted to open the end of cigarette packages.

An object of the invention is to provide a simple and effective mechanism by means of which a small portion of the end of a package may be removed bodily, leaving the remainder of the package intact in order to preserve the freshness of the articles until taken from the package through the small opening made therein.

Another object is to provide a mechanism having a safety device whereby the user is protected against any injury that may occur.

Other objects will appear from the accompanying description.

In the accompanying drawing:

Fig. 1 is a perspective view of the device.

Fig. 2 is an enlarged sectional view taken on a vertical plane indicated by the line 2—2 of Fig. 1, the plane mentioned being transverse to the path of the slidable knife mechanism employed.

Fig. 3 is a fragmentary vertical section taken on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary vertical section taken on the line 4—4 of Fig. 2.

Fig. 5 is a perspective view of the knife slide, together with a portion of a plate on which the knife slide moves, and a portion of one of the details of the safety attachment.

Fig. 6 is a perspective view of fragments of details of the mechanism such as the knife slide, the plate on which it rests, the safety slide, the package chute and support.

Fig. 7 is a perspective view of a package after the same has been acted on by the device showing the type of opening made by the device.

Referring to the drawing, the device is preferably constructed principally of sheet metal; and in the present instance there is provided a sheet metal base consisting of a front wall 1, side walls 1', a rear wall 1'', a flat top 2 and a removable bottom 3, and into whose hollow interior the cuttings from the packages are dropped. On the top 2 of the base portion there is secured a second hollow sheet metal casing 4 in the forward portion of which the operating mechanism is located.

Located in the casing 4 and extending through the top wall and upwardly therefrom a suitable

distance is a hopper 5 to receive the packages to be opened. The lower edges of the side wall of the hopper are secured to the top 2 of the base, the lower edges of the side walls of the hopper being provided with small tabs 6 which extend through openings in the top 2 of the casing and are clinched to the under side thereof as shown in Fig. 3. In the lower portion of the hopper is a stationary supporting plate 7 upon which the package rests, this plate 7 being secured to the side walls of the hopper by small tabs 8 as shown in Fig. 3.

Mounted upon the top plate 2 within the hopper and below the support 7 is a slide 9, this slide having small tongues 10 projecting upwardly therefrom and cooperating with the support 7 to keep the slide in position upon the top plate 2. Formed on the rear end of the slide and projecting upwardly therefrom is a wall 11, this wall 11 extending through a space between the support 7 and the wall of the hopper, this space being sufficiently large to permit of a limited movement of the slide. The slide is drawn forwardly by a coil spring 12, one end of which is fastened to an ear 13 struck from the metal of the top plate 2 and the other to an ear 14 struck from the metal of the slide, the top plate 2 being formed with a slot to accommodate the ear 14. The supporting plate 7 cooperating with the wall 11 acts as a stop for the slide in the forward direction of its movement.

The space between the wall 11 and the forward wall of the hopper is somewhat less than the length of the cigarette package, indicated at P, shown in full lines in Fig. 7 and in dot-dash lines elsewhere, so that when a package is inserted and one end thereof makes contact with the rounded upper edge 11' of the wall 11 it will force the wall to the dotted line position shown in Fig. 2 against the tension of the spring 12 and thus yieldably hold the opposite end of the cigarette package against the forward wall of the hopper and in a position to be operated upon by the severing devices. The insertion of a cigarette package and the consequent movement of the slide 9 also withdraws the slide from the path of movement of the severing devices; the slide normally lying in the path of movement of the severing devices so that the machine cannot be operated until a package has been inserted in the hopper as a safeguard against injury, the forward end of the slide normally lying in front of the beaded vertical leg of the part 17.

The severing device is of peculiar formation and is adapted to remove entirely a portion of

the end of the paper carton or container which accommodates the cigarettes. To that end the cutting device is adapted to cut through three of the side walls of the carton immediately adjacent the end wall, as indicated at *a*, *b* and *c*, and also adapted to make a transverse cut through the end wall of the carton as indicated at *d*. The cutting device consists of two blades 15 and 16 positioned at right-angles to each other, the blade 15 being horizontally disposed and having an inclined cutting edge 15' and the blade 16 being vertically disposed and having an inclined cutting edge 16', the cutting edge of the blade 16 projecting beyond the cutting edge of the blade 15 so as to provide an entering point 16''. These blades are attached to an inverted U-shaped slide 17, this slide being cut away at a point adjacent the cutting edges of the knife blades as indicated at 17' to give clearance for the cuttings. The slide 17 is mounted in a knife housing 18 secured to the top plate 2 of the base, this top plate forming in effect the lower wall of the housing and upon which the slide 17 rests. One of the vertical walls and the top of the slide 17 are each provided with a bead 19 which cooperates with the walls of the housing 18 to provide for the proper clearance of the knife blades and reduce the friction. The top plate is also provided with a long slot indicated at 20 to permit the cuttings to drop into the interior of the base.

The cutting device thus described is operated by a finger piece 21 connected therewith which projects through a slotted opening 22 in the forward vertical wall of the casing 4; a stationary finger piece 23 secured to the vertical wall of the casing being also provided to cooperate with the finger piece 21. The cutting device is moved to a position to open the carton by pressure upon the finger piece 21 and is returned to inoperative position by a coil spring 24, one end of which is connected to the inner end of the finger piece 21 and the other end of which is connected to a cap 25 which closes one end of the knife housing.

The upper portion of the forward end of the hopper 5 slightly overhangs the knife housing and is cut away as indicated at 5' in Fig. 2, and the knife housing is also cut away as indicated at 18' in Fig. 6, these cutaway portions coinciding so that when a cigarette package has been inserted in the hopper a portion of the end thereof will be positioned in the knife housing in the path of the cutting blades.

The operation is as follows:

A cigarette package is inserted in the hopper and pressed downwardly to force the wall 11 rearwardly so as to put a pressure upon the package to hold a portion of the forward end thereof firmly in the cutaway portion 18' of the knife housing. At the same time this removes the forward end of the slide from the path of the knife slide as shown in Fig. 5 to unlock the cutting device. The package is so inserted that one of its narrow sides rests upon the support 7 and a portion of one of its ends extends into the knife housing. The operator then presses upon the finger piece 21 with one of his fingers, with his thumb positioned upon the stationary finger piece 23, and presses the cutting blades transversely across the cutaway portion 18 of the housing. The point 16'' of the blade 16 first enters the carton at the juncture between *a* and *d* and then severs the side walls of the carton along the lines *a*, *b* and *c*, the blade 15 acting to sever the end wall of the carton along the line *d*. This results in the complete removal of a portion of the carton bounded

by the lines *a*, *b*, *c* and *d*. The operator then releases pressure upon the cutting device to permit the device to be returned to its normal position by the spring 24. When the package is removed from the hopper, the spring 12 returns the slide 9 to normal position to then lock the cutting device against movement. It will be observed that the forward edge of the supporting plate 7 extends slightly into the cutaway portion 18' of the knife housing and to a position to be flush with the side of the cutting knife 16 so that the cutting knife 16 will sever along the line *b*, with a shearing action. The same thing happens in severing along the line *c*, a vertical edge of the cutaway portion 18' cooperating with the cutting blades 16 with a shearing action. Also, the horizontal, longitudinally-extending edge of the cutaway portion 18' of the knife housing cooperates with the cutter 15 with a shearing action in cutting on the line *d*. In severing along the line *a*, that wall will be supported by the contents of the package.

Having thus described my invention, I claim:

1. In a carton-opening mechanism, a holder for the carton, and a slidably mounted severing device, said holder being so disposed with relation to the severing device as to position a portion of the carton in the path of said device, said device having a pair of cutting edges, one positioned to sever the three exposed side walls of the carton immediately adjacent an end wall thereof and the other cutting edge positioned to sever transversely across the end wall.

2. In a carton-opening mechanism a holder for the carton, and a slidably mounted severing device having two blades arranged at right-angles to each other, each blade having an inclined cutting edge, said holder being so disposed with relation to said blades as to position a portion of the carton in the path of said blades, one of said blades being arranged to sever the three side walls of said portion of the carton immediately adjacent the end thereof and the other blade positioned to sever that portion of the end wall of the carton which has been freed from said walls.

3. In a carton-opening mechanism, a holder for the carton, a slidably mounted severing device, said holder having an opening to allow a portion of the carton to be positioned in the path of the severing device, and a spring-pressed device in said holder to press the carton in operative position, said movable severing device having a pair of cutting edges, one positioned to sever the three side walls of said portion of the carton immediately adjacent the end thereof and the other edge positioned to sever that portion of the end wall of the carton which has been freed from the walls.

4. In a carton-opening mechanism, a holder for the carton, a severing device, a housing in which said severing device is slidably mounted, said holder and housing having adjacent openings to allow a portion of the end of the carton to be positioned in the path of the severing device, said severing device having a pair of cutting edges, one positioned to sever the three side walls of said portion of the carton immediately adjacent the end wall thereof and the other positioned to sever that portion of the end of the carton which has been freed from the walls.

5. In a carton-opening mechanism, a hopper-like holder for a carton, a slidably mounted severing device, a housing for said severing device arranged adjacent the holder and communicating therewith to allow a portion of the carton to be positioned in the path of the severing device,

said severing device having two cutting blades arranged at right-angles to each other and each formed with an inclined cutting edge, one of said cutting edges being adapted to sever the three side walls of said portion of the carton immediately adjacent the end wall thereof and the other cutter adapted to sever that portion of the end wall which has been freed from the side walls.

6. In a carton-opening mechanism, a stationary holder for the carton having an opening to expose a portion of the carton, a sliding cutting device having two blades movable across the plane occupied by the exposed portion of the carton, one of said blades having an inclined cutting edge, the point of which is adapted to enter a wall of said carton immediately beneath the end of the exposed portion of the carton so that the cutting edge will sever through three of the side walls of the carton, the other cutting blade having an inclined cutting edge positioned to make a transverse cut through the end wall of the carton beginning with the place where the point of the other blade enters the carton and terminating at the place where said point leaves the carton.

7. In a carton-opening mechanism, a base plate, a casing mounted upon said base plate, a hopper-like holder for cartons carried by said casing, a housing in said casing, a severing device slidably mounted in said housing and having a pair of blades arranged at right-angles to each other each having an inclined severing edge, the lower portion of said hopper being in communication with said housing to allow a portion of the carton to be positioned in the path of said blades, one of said blades being positioned to sever through the three side walls of said portion

of said carton immediately adjacent the end wall and the other blade being positioned to sever through the end wall of the carton whereby a complete section of said end is removed.

8. In a carton-opening device, a holder for the carton, a movable severing device, said holder being so disposed with relation to the severing device as to position a portion of the carton in the path of said device, and a lock for said device having a part thereof positioned in said holder to be engaged by a carton when inserted in said holder to move said lock out of locking position.

9. In a carton-opening mechanism, a holder for the carton, and a slidably mounted severing device, said holder being so disposed with relation to the severing device as to position a portion of the carton in the path of said device, a spring-pressed slide in the bottom of said holder normally pressed to a position to lock said severing device, and a member connected with said slide and projecting upwardly in said holder to be engaged by a carton when inserted in said holder to remove said slide from the path of said severing device.

10. In a carton-opening mechanism, a holder for the carton, a slidably mounted severing device having two cutting blades disposed at right-angles to each other, a housing for said severing device, said holder and housing having coinciding cutaway portions to permit a portion of a carton to be positioned in the path of said severing device, the bottom of said holder and the walls of said cutaway portion of said housing coacting with said severing device to effect a shearing action.

JOHN J. RITTER.