Oct. 8, 1940. H. KOTT 2,216,884

DEVICE FOR OPENING AND RESEALING CARTONS

Filed Nov. 22, 1938 6 Sheets-Sheet 1

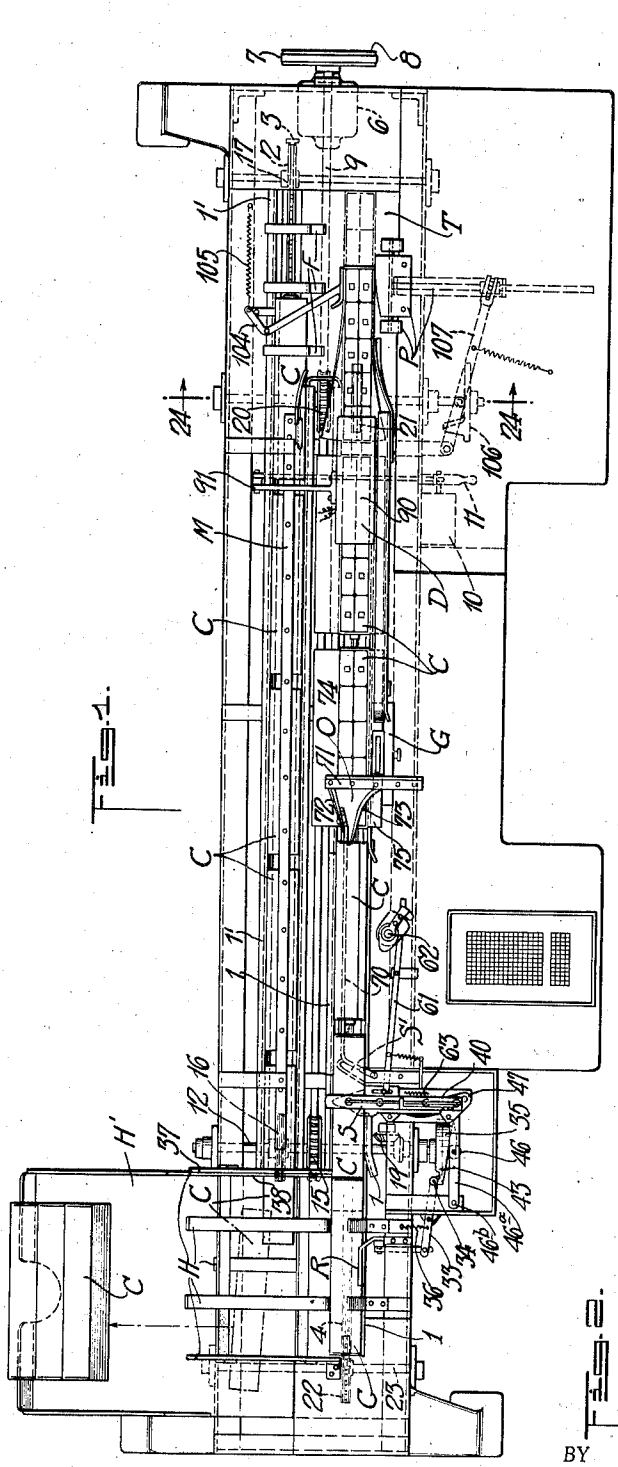


Fig. 1.

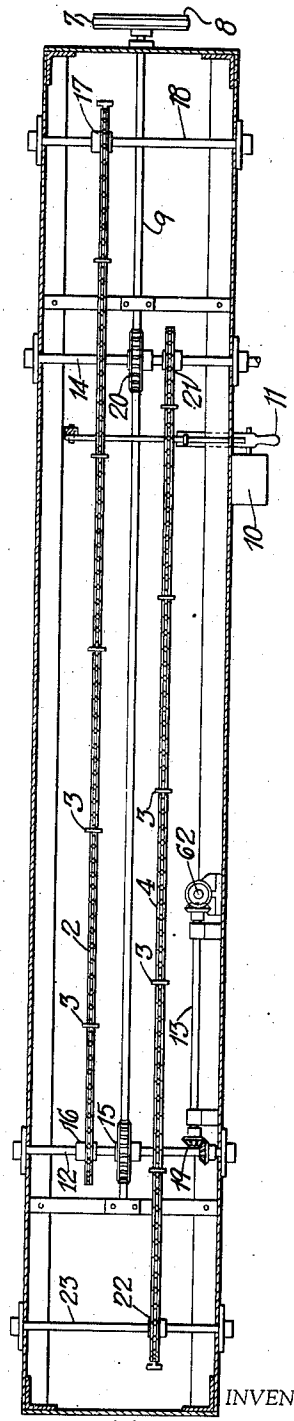


Fig. 2.

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Oct. 8, 1940. H. KOTT 2,216,884

DEVICE FOR OPENING AND RESEALING CARTONS

Filed Nov. 22, 1938 6 Sheets-Sheet 2

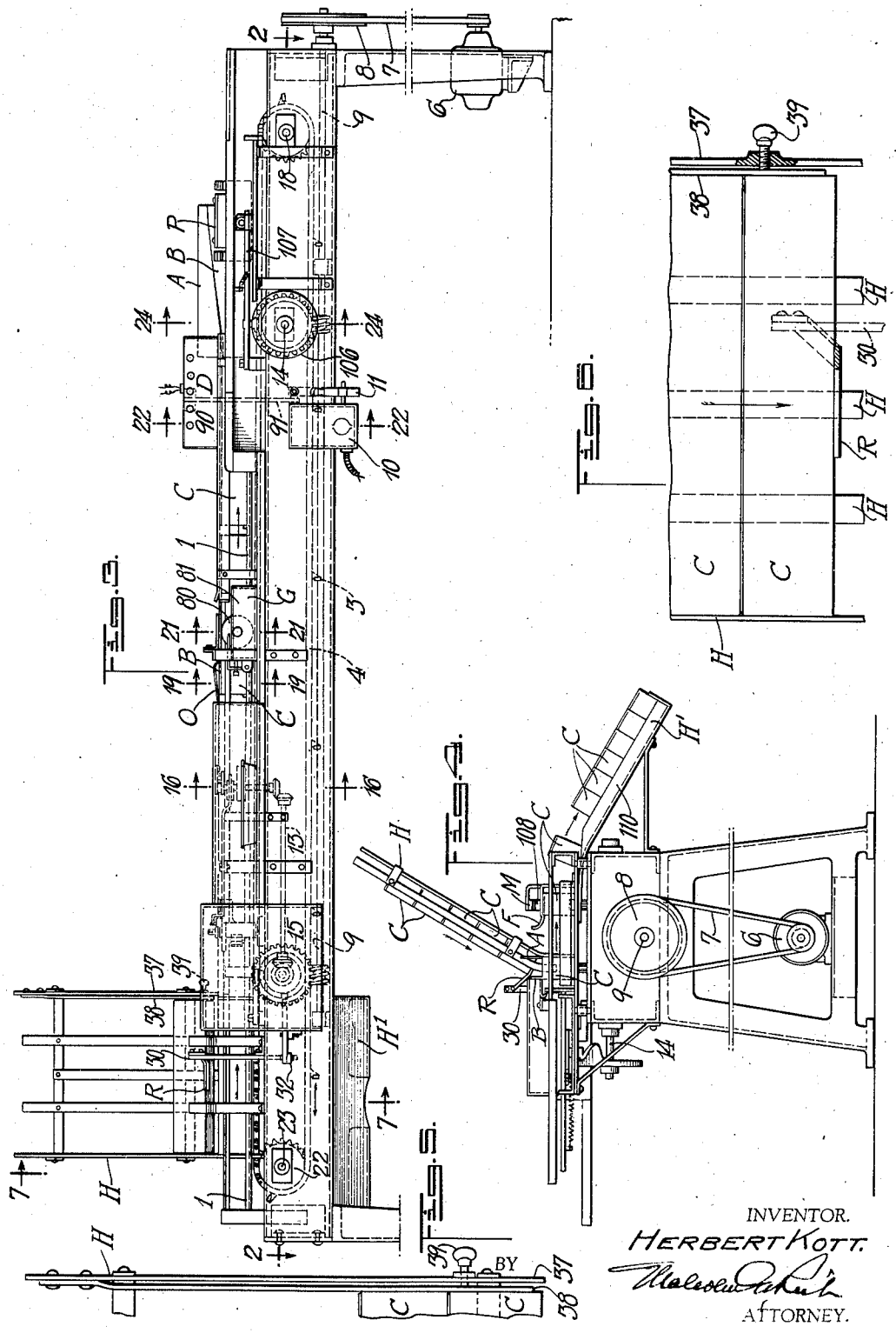


Fig. 3.

Fig. 6.

Fig. 4.

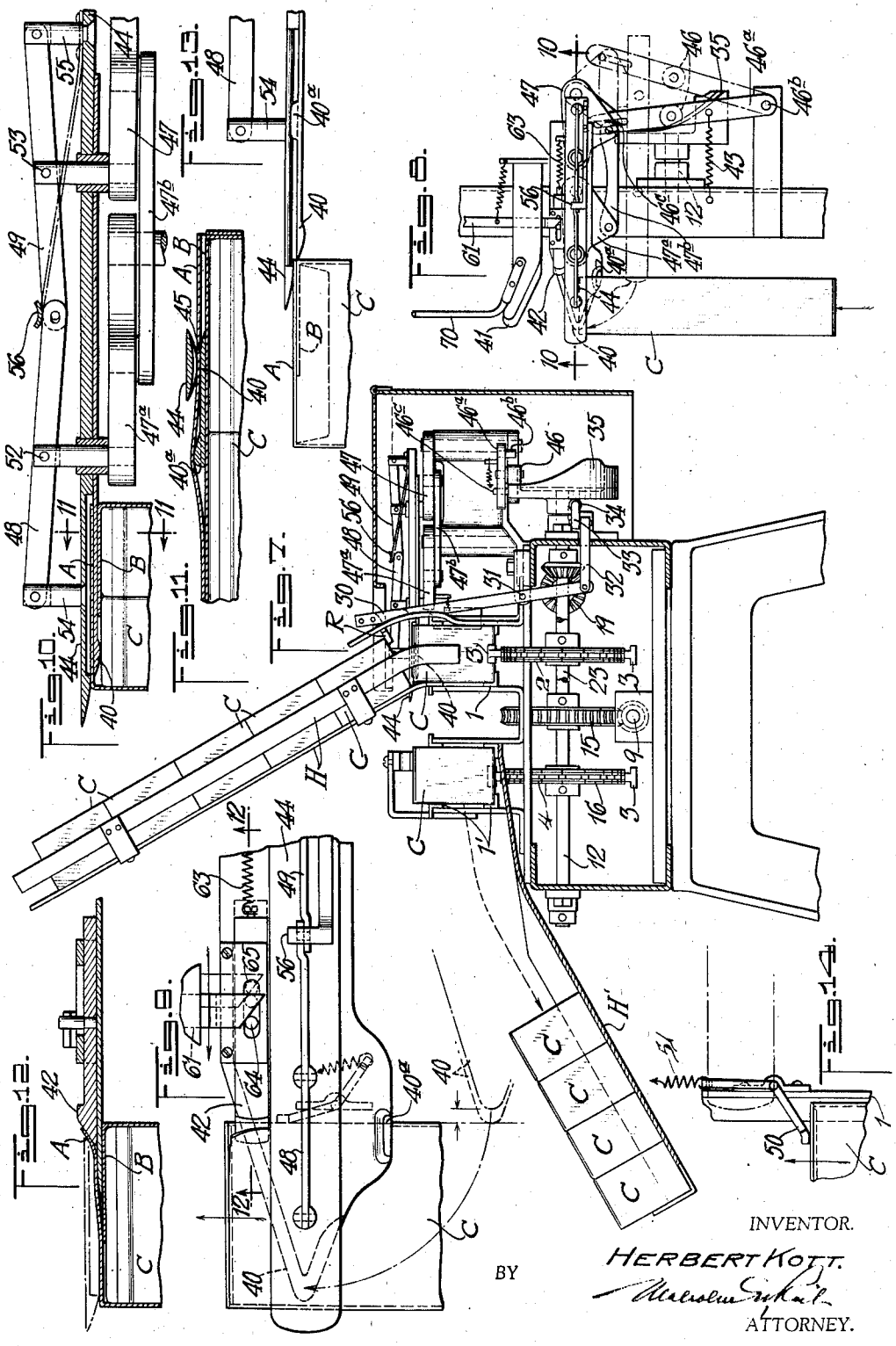
Fig. 5.

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DEVICE FOR OPENING AND RESEALING CARTONS

Filed Nov. 22, 1938 6 Sheets-Sheet 3

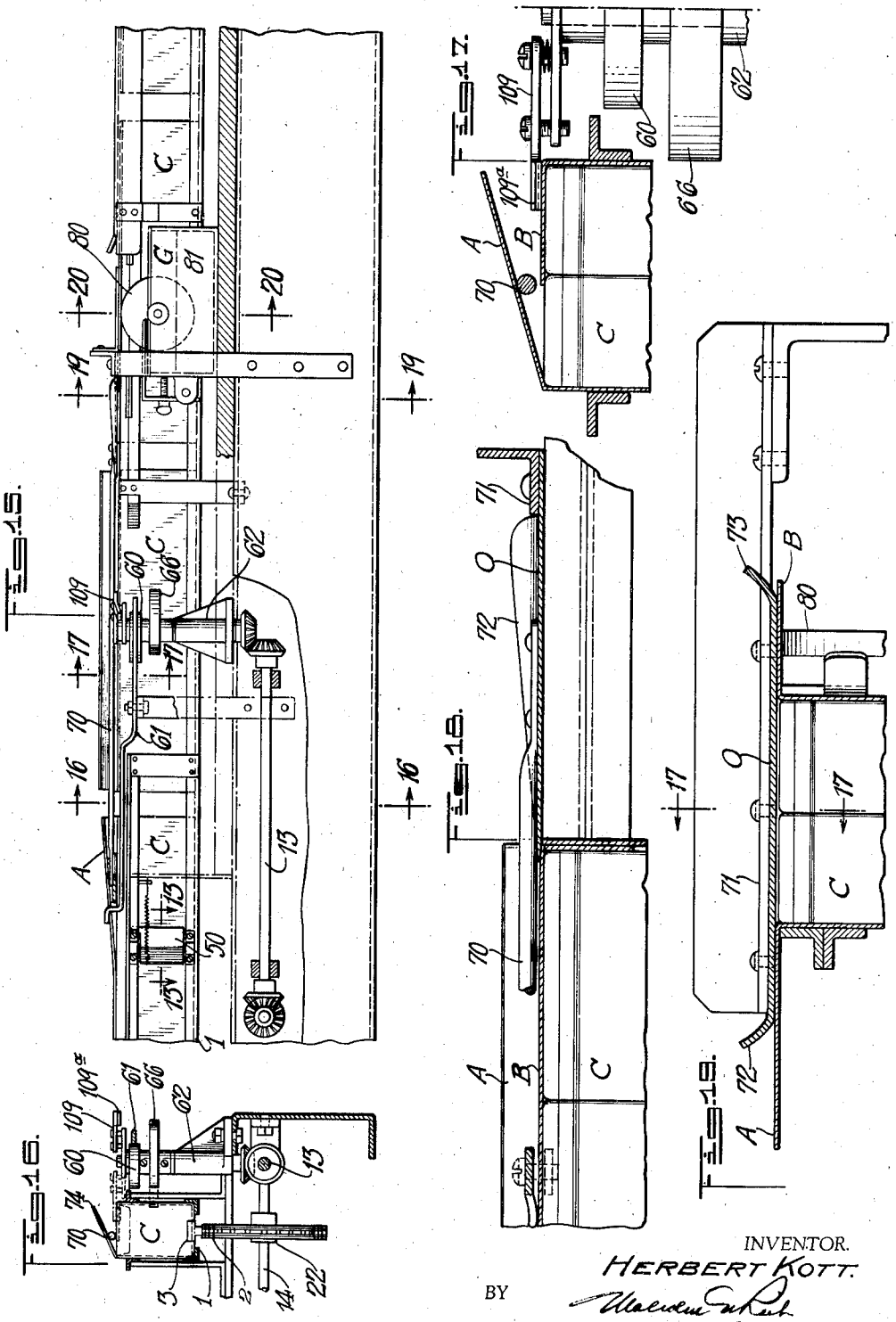


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DEVICE FOR OPENING AND RESEALING CARTONS

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Oct. 8, 1940. H. KOTT 2,216,884

DEVICE FOR OPENING AND RESEALING CARTONS

Filed Nov. 22, 1938 6 Sheets-Sheet 5

Fig. 21.

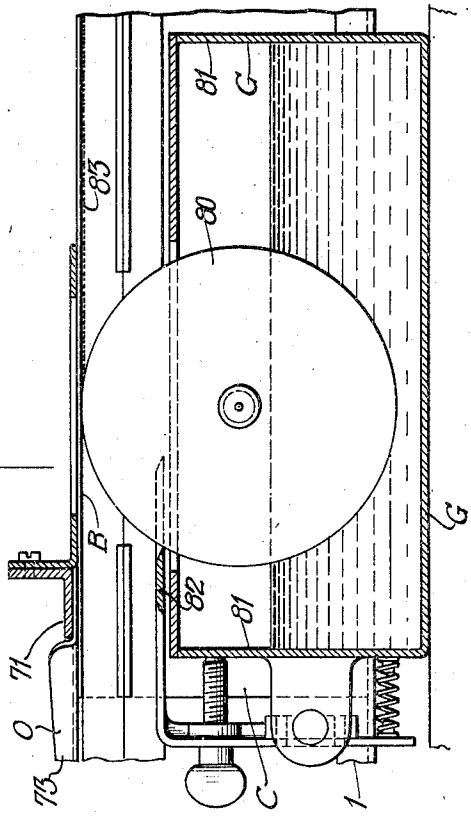


Fig. 23.

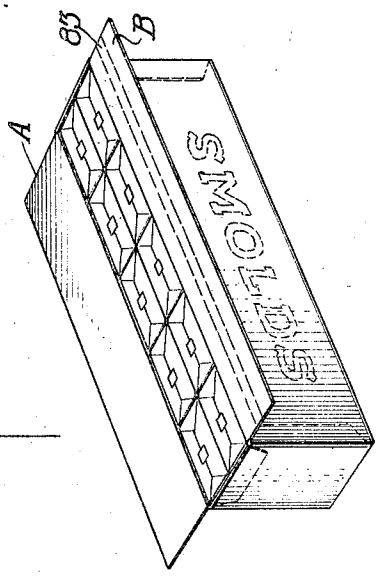


Fig. 20.

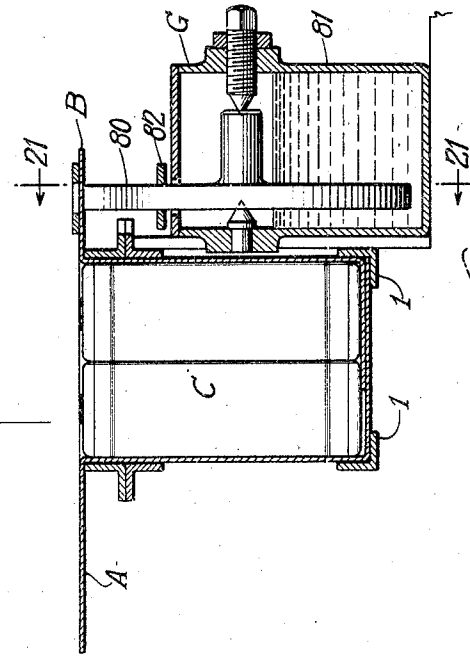
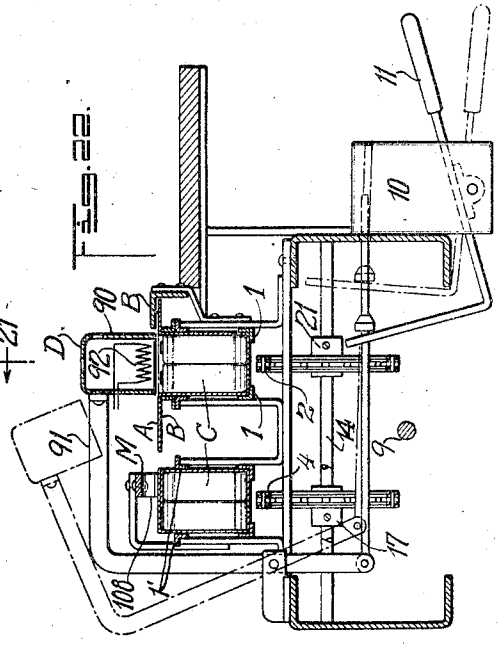


Fig. 22.



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Oct. 8, 1940. H. KOTT 2,216,884

DEVICE FOR OPENING AND RESEALING CARTONS

Filed Nov. 22, 1938 6 Sheets-Sheet 6

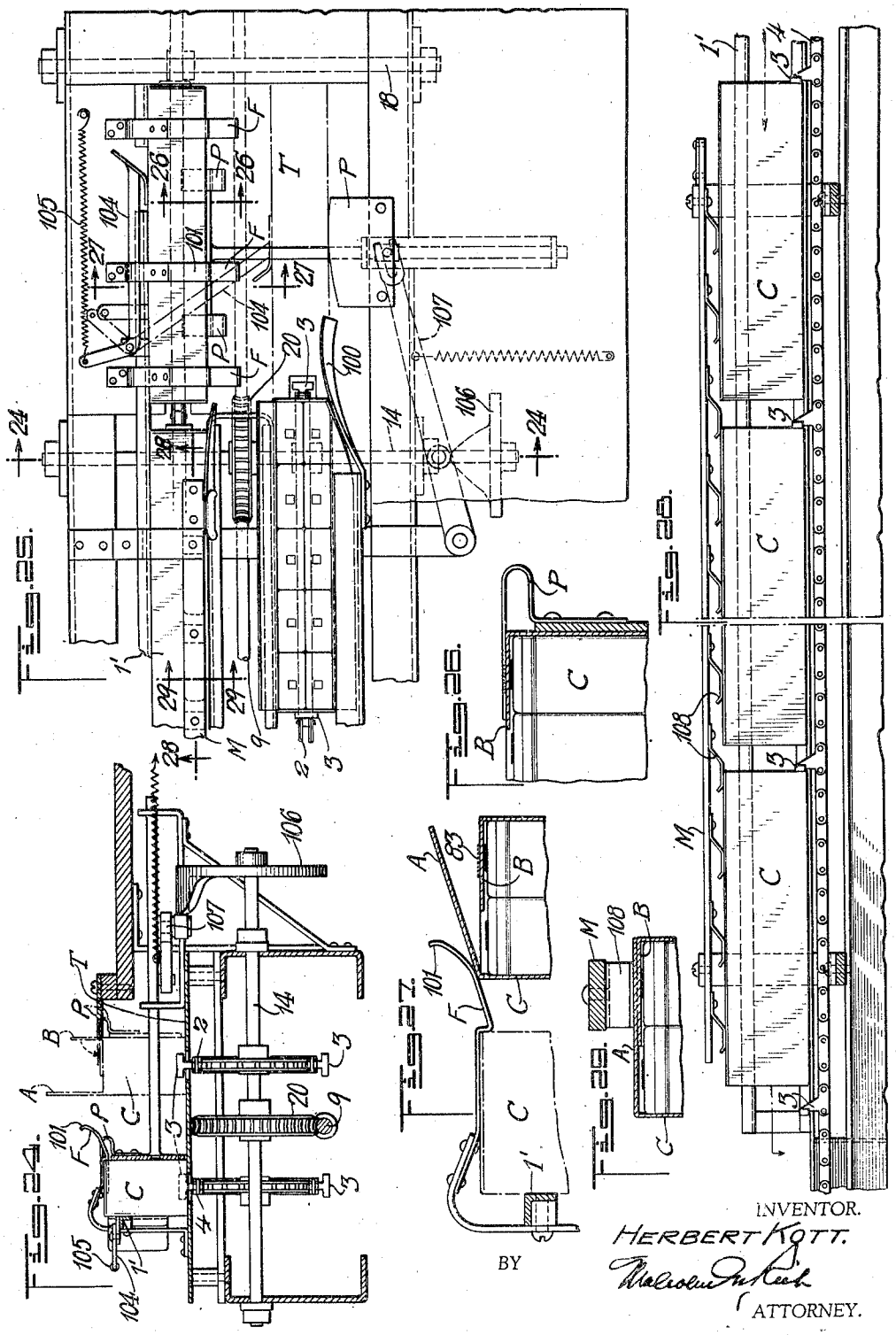


Fig. 25.

Fig. 26.

Fig. 27.

Fig. 28.

Fig. 29.

Fig. 24.

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Patented Oct. 8, 1940 2,216,884

UNITED STATES PATENT OFFICE

2,216,884

DEVICE FOR OPENING AND RESEALING CARTONS

Herbert Kott, New York, N. Y., assignor to Moistener Corporation, New York, N. Y., a corporation of New York

Application November 22, 1938, Serial No. 241,824

16 Claims. (Cl. 93—2)

This invention relates to a device operative mechanically to open in succession a plurality of sealed cartons to expose the packaged contents of each carton for the application thereto of stamps, labels or ink imprints without removing the same from the carton and subsequent to the application of the said stamps to reseal the carton. More specifically the invention relates to a device for opening sealed cartons of packaged cigarettes for the application of tax stamps, labels or ink imprints to the individual packages of cigarettes in the said carton.

One of the objects of the present invention is to provide a device of the character described which will facilitate the application of stamps, labels or ink imprints to packaged goods contained in the carton. Still another object is to provide means to efficiently and economically apply tax stamps, labels or ink imprints to packaged goods enclosed within cartons without removing the packages from the carton. Other objects will be apparent as the invention is more fully disclosed.

As a specific embodiment of the present invention but not as a limitation of the same, the present invention will be described and illustrated as it has been adapted to the opening and resealing of cigarette cartons. Cigarettes are commonly sold to the retail trade in packages containing twenty cigarettes per package. The manufacturer distributes these packages in sealed cartons containing ten packages each. The sizes of the packages and the cartons are substantially uniform throughout the trade. It is often desirable for tax or advertising purposes to apply stamps, labels or ink imprints to the individual packages of cigarettes before distributing the cartons to the retailer who usually breaks open the cartons and distributes the cigarette packages individually to the consumer. It is impractical for the manufacturer to apply these stamps, labels or ink imprints to the packages prior to the placing of the same in the cartons due to the local character of such stamps, labels and ink imprints.

The present invention, illustrated in the accompanying drawings, aims to provide a device particularly adapted to open the cigarette carton in such manner as to expose the cigarette packages contained therein for the application thereto, manually or mechanically, of the desired stamps, labels or ink imprint and to thereafter reseal the carton.

In the drawings, Fig. 1 is a top plan view of the present invention; Fig. 2 is a section along plane 2—2 of Fig. 3; Fig. 3 is a side elevational view of the present invention; Fig. 4 is an end view of the same; Fig. 5 is an enlarged view of one of the means of the present invention; Fig. 6 is a sectional view illustrating a second means of the invention; Fig. 7 is a view taken along plane 7—7 of Fig. 3; Fig. 8 is an enlarged plan view of a third means of the present invention; Fig. 9 is another enlarged plan view of the same; Fig. 10 is a sectional view of the same along plane 10—10 of Fig. 8; Fig. 11 is a sectional view of the same along plane 11—11 of Fig. 10; Fig. 12 is a sectional view of the same along plane 12—12 of Fig. 9; Fig. 13 is an enlarged view of the same along plane 13—13 of Fig. 15 illustrating one operating position of the said means; Fig. 14 illustrates a mechanism cooperating with the said third means; Fig. 15 is an enlarged side elevation of a portion of the present invention partly in section illustrating a fourth means of the present invention; Fig. 16 is a section along plane 16—16 of Figs. 3 and 15; Fig. 17 is a section along plane 17—17 of Figs. 15 and 19; Fig. 18 is a sectional view of the said fourth means; Fig. 19 is a section along plane 19—19 of Fig. 15; Fig. 20 is a section along plane 20—20 of Fig. 15 illustrating a fifth means of the present invention; Fig. 21 is a section along plane 21—21 of Figs. 3 and 20; Fig. 22 is a sectional view along plane 22—22 of Fig. 3 illustrating a sixth means of the present invention; Fig. 23 is a perspective view of a cigarette carton; Fig. 24 is a view along plane 24—24 of Figs. 3 and 25 illustrating a seventh means of the present invention; Fig. 25 is an enlarged plan view of the same; Fig. 26 is a section along plane 26—26 of Fig. 25; Fig. 27 is a section along plane 27—27 of Fig. 25; Fig. 28 is a section along plane 28—28 of Fig. 25; and Fig. 29 is a section along plane 29—29 of Fig. 25.

The device illustrated in the drawings is designed for the opening of cartons of cigarettes. Cigarette cartons, as indicated in Fig. 23, are rectangular in shape and are of such size as to contain ten packages of cigarettes in two rows of five packages each with the top and bottom ends of the packages adjacent opposite side walls of the carton. As commonly constructed, the carton is a folded one piece structure. The ends of the carton are sealed to folded in extensions of both side walls and are provided with top extensions folding under the top flap. The top flap is hinged to the back side wall and is provided with an extension folding under and sealed to the front side wall forming a sealed joint therewith. It is customary to pack the cigarette packages in the carton with the Federal tax stamp, which closes the

top of the package, adjacent the back side wall thereby locating the bottom of the package adjacent the front side wall of the carton and adjacent the sealed joint between the top flap extension and the front side wall. Where it is desired, therefore, to apply stamps, labels or ink imprints onto the bottom of each of the packages in the carton without removing the packages from the carton, means must be provided to open the front side wall of the carton.

Where it is desired to reseal the carton after the application of the stamps, labels or ink imprints to the packages, means must be provided to open the carton along the sealed union of the top flap extension to the said side wall and to provide means to cut the side wall free from the extensions thereon which are folded under and sealed to the two end walls of the carton, thus providing flaps A and B, one of which (flap B) is the top flap extension and the other of which (flap A) is the front side wall, flap A in normal carton closing position overlaps flap B. These overlapping flaps A and B therefore may be subsequently joined together by an adhesive, such as glue, mucilage, etc. which can be applied to the top surface of flap B or the under surface of flap A. The device of the present invention is adapted to so open and reseal a cigarette carton.

Referring now to the drawings, the present invention provides a horizontally sustained guideway 1, a traveling conveyer 2 in the bottom of the guideway 1 provided with spaced dogs 3, the spacing therebetween being approximately that of the length of a carton C, and means to actuate or drive the said conveyer 2 at a substantially constant rate of speed in the direction from left to right of the drawings Fig. 1. This means will be more fully described hereinafter. Hopper H is provided with means R to gravitationally feed a plurality of cartons C successively onto the rear end of conveyer 2 to be carried forwardly thereby. Cartons C are disposed in feed hopper H either manually or mechanically so that the top of the carton will be in view with the front side wall facing up and are delivered periodically by means R onto the conveyer 2 front side wall facing up with the under-lapping flap B of the sealed joint located to the front as viewed in Fig. 3.

Conveyer 2 carries the carton C to a position to be engaged by slitting means S—S', thence through opening means O, gluing means G, dryer means D onto transfer platform T whereon means F closes flaps A and B and means P pushes or transfers the closed carton C onto return conveyer 4 which carries the carton C through sealing means M to discharge hopper H'.

Actuation of the conveyers 2 and 4 and the several means R, S, O, G, D, T, F, P, and M, above identified is obtained (as indicated in Figs. 2 and 4) from a common source of power, such as motor 6, connected by belt 7 to pulley 8 attached to main drive shaft 9. The power to actuate the several said means (R, S, O, etc.) is taken off from the main drive shaft 9 by means of appropriate interlocking worm gears onto shafts 12, 13 and 14, the several said means (R, S, O, etc.) being actuated by means of cam and levers by said shafts 12, 13 and 14 in determined sequence and relation one to the other as will be more fully hereinafter described. Motor 6 is energized by electric current passing from a source of supply (not shown) through control switch box 10 provided with throw switch 11 in a position for ready operation by the operator of the device. Motor 6 may be a constant speed motor or the speed of motor 6 may be regulated in any desired way, as heretofore common in the art, to control the rate of travel of conveyers 2 and 4. The arrangement as shown utilizes a constant speed motor 6 and the gear ratio taking power off from the main drive shaft 9 have been selected to obtain the desired actuating results in the several means above identified.

Upon actuation of motor 6 main drive shaft 9 is rotated and the rotation of shaft 9 is transmitted to shaft 12 by worm gear 15 thereby rotating gear 16 meshing with conveyer chain 2 horizontally sustained between gear 16 and gear 17 on shaft 18 in the bottom of guideway 1.

The rotary motion of shaft 9 also is transmitted by worm gear 19 to shaft 13 and by worm gear 20 to shaft 14 and by gear 21 to conveyer 4 sustained horizontally between gear 21 and gear 22 on shaft 23 in the bottom of return guideway 1'. The direction of travel of the two conveyers 2 and 4 thereby is reversed but the rate of travel of the two conveyers is arranged to be substantially identical.

Referring now to the several means (R, S, O, etc.) above identified:

The periodic operation of release means R may be noted from Figs. 6 and 7. The means R comprises a vertically sustained lever arm 30 pivoted at 31, the bottom end of lever arm 30 being linked by link 32 to spring pressed pivoted lever 33 (Fig. 1) carrying pin 34 on one end engaging rotating cam 35 mounted on the end of shaft 12. The rotation of shaft 12 rotates cam 35 and oscillates lever 33 about its pivot against spring means 36 causing the upper section of arm 30 to move periodically towards and away from the feed hopper H. The upper end of lever arm 30 is provided with a finger (means R) which moves into and out of engagement with the bottom of carton C next above the carton C resting on conveyer 2 with oscillation of arm 30. Feed hopper H is angularly disposed to the horizontal to provide for a gravity feed of the cartons towards conveyer 2 and to provide a space gap between the two lowermost cartons to permit the entry of means R therebetween. The oscillation of arm 30 is regulated by cam 35 to be at such timed intervals with respect to the forward movement of the carton C on conveyer 2 that as conveyer 2 carries the carton C thereon forwardly from under the hopper H by engagement of a cog 3 therewith, the cam 35 operates to retract finger R as the carton C clears the hopper H so that the next following carton C is released to fall onto the conveyer 2 in the next adjacent space on the conveyer 2 to be engaged by the following dog 3 and similarly carried forward. Hopper H accordingly is preferably arranged to carry a plurality of cartons C gravitationally feeding towards the conveyer 2 substantially as indicated in the drawings, and may be of any practical length and design adapted to accomplish this result. Means to supply cartons to the hopper H automatically or manually may be supplied without departure from the present invention. As shown, the hopper H is kept filled with cartons manually.

Means as illustrated in Figs. 5 and 6 may be provided to regulate the rate of gravity feed of cartons C in hopper H. This means essentially comprises spring tension arms 37—38 mounted along each side of hopper H, the outer said arm 37 being mounted stationary on the hopper H and the inner said arm being free to be moved

inwardly to a position frictionally engaging the ends of cartons C in the hopper under the urging of bolt means 39.

Conveyer 2 after picking up carton C in the manner just described, carries the carton forwardly along guideway 1 to a determined position opposite slitting and cutting means S—S'. Referring to Figs. 7–14 inclusive the details of this means S—S' may be noted. The means essentially comprises a movable knife 40 and stationary knife 41. The movable knife 40 is actuated by rotating cam 35 on shaft 12 and operates to penetrate between the flaps A and B and to slit open the forward end of the moving carton C by cutting the side wall free of the flap extension thereon which is sealed to the said end. Means 42 is provided to lift the slit forward edge of the upper flap A so that the stationary knife 41 can enter between flaps A and B as the carton C is advanced by conveyer 2 to the stationary knife 41. Cam 35 meanwhile operates to withdraw movable knife 40 against the action of spring means 43 into a position from which it is released and actuated by the said spring means 43 forwardly for penetrating and slitting the next following carton C as the said next following carton is carried by conveyer 2 to the same determined position relative to the slitting and cutting means S—S'.

To provide for the variations and fluctuations in the horizontal location of the sealed junction between flaps A and B and to positively locate the same relative to the movable knife 40, overlying rider extension 44 is provided on knife 40 which carries a rounded button 45 on the under side thereof which operates to accurately space the pointed forward end of the knife 40 horizontally relative to the upper surface of carton C and relative to the sealed joint between flaps A and B. Knife 40 is floatingly supported to permit free vertical movement under the urging of rider 44 to attain this horizontal positioning of knife 40.

Knife 40 is actuated by cam 35 in the following manner. As cam 35 is rotated by shaft 12, pin 46 is moved outwardly by the rising cam face to high position moving therewith lever arm 46*a*, pivoted at 46*b*. The free end of lever arm 46*a* is attached by pin 46*c* to swinging lever 47 supporting the rear end of knife 40. The front end of knife 40 is similarly mounted on a second swinging lever 47*a* and the two swinging levers 47 and 47*a* are linked together for joint movement and parallel movement by link 47*b*.

Swinging levers 47 and 47*a* are substantially identical and each is mounted to pivot horizontally about a fulcrum under the urging of pin 46*c* oscillated by lever 46*a* by engagement of pin 46 with rotating cam 35. The horizontal rotation of swinging levers 47 and 47*a* carries knife 40 supported thereon from the position shown in solid lines (Fig. 8) to the position indicated in dotted lines as the pin 46 is carried outwardly by rotating cam 35 to high position. As the pin 46 falls over the high point of rotating cam 35 spring means 43 returns lever 46*a* inwardly with consequent inward movement of knife 40 to an intermediate point on the cam 35 which is just sufficient to permit the point of the knife 40 to engage or enter between the overlapping flaps A and B.

Further rotation of cam 35 releases pin 46 from this intermediate point on the cam 35 and spring tension means 43 then urges lever 46*a* to full inward position carrying therewith knife 40 in a rotary movement indicated by dotted arrow (Fig. 8). Further rotation of cam 35 repeats this movement. The angle of movement of lever 46*a* and the points of release on cam 35 to obtain the forward cutting movement of knife 40 are timed relative to the rate of travel of conveyer 2 to obtain a release of the knife 40 when each carton C attains a determined position relative to the knife 40, slightly in the rear of the forward end of the carton C so that on completion of the forward rotary motion of knife 40 the forward edge of the side wall will be slit or cut free from the end wall while the carton C continues to be carried forwardly by conveyer 2.

The rear edge of knife 40 is provided with a thickened portion 40*a* operating as a wedge to spread apart flaps A and B insuring a breaking of any seal joint between flaps A and B prior to the passage of stationary knife 41 between the flaps A and B as will be more fully hereinafter described. This means 40*a* may be widely varied as to size, shape and configuration without departure from the present invention.

To insure that carton C will not be forwardly displaced by knife 40 during this cutting of the forward edge, means (Fig. 14) is provided to restrain forward movement of carton C at this moment. This means substantially comprises a spring pressed lever 50 located in the side wall of guideway 1 in a position to be engaged by the upper portion of the forward end of carton C at the time means S—S' operates. The forward movement of carton C operates to pivot the lever 50 against the spring 51 to a position permitting the carton C to continue unimpeded along the guideway. As the carton C clears the lever 50 the lever is urged by spring 51 back to its original position to engage the next following carton C.

Knife 40 is floatingly supported on the two rotating platforms 47—47*a* respectively by means of lever arms 48 and 49 pivoted respectively on posts 52 and 53. The outer ends of lever arms 48 and 49 are connected by links 54 and 55 respectively to the forward and rear ends of knife 40 and the two inner ends of levers 48 and 49 are loosely connected together. Spring clip means 56 is provided to depress the linked inner ends of levers 48 and 49 thereby permitting relatively free vertical movement of the forward end of knife 40 incident to variations in carton height as indicated by rider 44, thereby positively locating the knife 40 relative to the overlapping joint between the side wall A and the underlying flap extension B of the carton C.

Subsequently to the slitting of the side of carton C by knife 40, wedge 42 is actuated forwardly a sufficient distance to enter between flaps A and B to raise the forward edge of the slit upper flap A a sufficient distance to allow stationary knife 41 to enter therebetween as the carton C is carried thereto by conveyer 2.

Wedge 42 is actuated by pivoted lever 61 oscillated by cam 60 on rotating stub shaft 62 rotated by shaft 13 from shaft 12. It substantially comprises a wedge element maintained by spring means 63 in retracted position and urged forwardly into wedging position by the oscillation of lever 61 pressing against pin 64 retained in groove 65, pin 64 being integral with wedge 42. As cam 60 moves lever 61 forwardly wedge 42 moves against spring 63 and when lever 61 is released spring 63 retracts wedge 42.

As carton C progresses under stationary knife

41, rod 70 raises upper flap A to position enabling opening means O to operate to spread flaps A and B so that the packages of cigarettes in the carton C are exposed fully to view. Just before carton C is carried to a position where means O operates to open the carton exposing the packages contained therein fully to view, rotating lever 109 on stub shaft 62 provided with downwardly extending finger 109a engages the inner edge of flap B and raises the same sufficiently to insure the operation of means O.

Means O substantially comprises a plow 71 having outwardly and downwardly curved sides 72 and 73 adapted to spread flaps A and B outwardly and downwardly to a horizontal position. Flaps A and B thus spread pass under guides 74 and 75 retaining the flaps in this position.

As the rear end of carton C reaches knife 41 the knife edge slits or cuts the side wall free from the rear end wall of the carton C guideway 1 operating to hold the carton and its contents together. At the same time cam 66 operates to frictionally engage the side of carton C restraining the same from rearward displacement.

The thus opened carton passes along under guides 74 and 75 a sufficient distance to permit the application, manually or automatically, of stamps, labels or ink imprints to the exposed bottom ends of the packages in the carton. This distance obviously may be widely varied without departure from the present invention to accommodate the device to the particular stamp, label or ink imprint being applied, the mode of application employed and the speed of application of the said stamp, label or ink imprint.

As the stamps, labels or ink imprints are applied to the packages or immediately thereafter and before carton C approaches the end of guides 74 and 75, the under side of horizontally spread flap B which is the top surface when the flap B is in carton closing position, is coated with an adhesive, such as glue, by means G. This means G substantially comprises a wheel 80 supported in a position to contact with the under surface of flap B and to be rotated by frictional engagement of flap B therewith, the bottom of this wheel dipping into glue pot 81. Appropriate wiper means 82 may be provided to regulate the amount of glue thereby applied to flap B. The strip of glue thereby applied is indicated at 83 (Fig. 23).

Subsequent to the application of the stamps, labels or ink imprints to the packages and prior to the closing of the carton and resealing the same, the open carton should be passed under dryer D to dry the stamps, labels or ink imprints. This means may be widely varied without departure from the present invention and is necessary to accelerate the rate of drying of the stamps, labels or ink imprints to shorten the time interval required before closing and sealing the carton C and to properly secure ink imprints onto the usual "Cellophane" wrappings on said packages. As indicated in the drawings dryer D is an open bottomed oven 90 mounted on a lever arm 91 which is operatively connected with control switch 11 so that when the switch 11 is in closed position oven 90 is moved to operative position over conveyer 2 and out of operative position as indicated in dotted lines when switch 11 is open.

Heat energy is preferably supplied to oven 90 by means of electrical resistance elements 92 common to the art, such as nichrome and the like alloys, and preferably also as a safety measure, though not necessarily, the energization of the heating coils 92 may also be controlled or regulated by the opening and closing of switch means 11 such that the electrical circuit including the heating coils for oven 90 is closed only when switch 11 is closed.

After passing under oven 90, conveyer 2 delivers carton C onto transfer platform T whereon transfer or pusher means P engages the carton and shifts the same over onto return conveyer 4 for delivery to discharge hopper H.

As carton C passes onto transfer platform T means 100 returns flap B to near horizontal carton closing position and as pusher P passes the carton C onto return conveyer 4 spring 101 engages flap B bending it over to fully closed position and arm 104 through spring 105 holds the carton steady as cam 106 on shaft 14 moves lever 107 to push forward the pusher means P moving the carton under spring fingers 101 operating to close flap A in overlying position relative to flap B and thence onto conveyer 4 where it is picked up by dogs 3 and moved towards discharge hopper H' under pressure springs 108 which maintain the flaps A and B in contact along the glued area of flap B until the carton approaches hopper H' thus insuring sealing of the two flaps together.

As the carton reaches hopper H' any convenient means may be provided to unload the carton onto inclined skidway 110 leading thereto. As shown the cartons are delivered by conveyer 4 directly onto the inclined skidway 110.

From the above description of the present invention and from the drawings, it is believed apparent that many modifications may be made therein without essential departure therefrom and all such modifications and adaptations thereof are contemplated as may fall within the scope of the accompanying claims:

What I claim is:

1. A carton opening and resealing device comprising in combination a horizontally sustained conveyer, means to feed a plurality of cartons successively onto said conveyer to be carried forwardly thereby in determined spaced relationship, and separate means located at spaced distances along the path of travel of said conveyer operative first to slit one side of the carton open, then to turn back the slit portions of said side exposing the packaged contents of the carton fully to view, then to return the said portions back to closing position and finally to join the said portions together to reseal the said carton.

2. A carton opening and resealing device comprising in combination a horizontally sustained conveyer, means to feed a succession of cartons on said conveyer to be carried forwardly thereby in determined spaced relationship, and separate means located at spaced distances along the path of travel of said conveyer operative first to slit one side of the carton open, forming two flaps thereof, secondly to turn back the said flaps exposing the packaged contents of the carton fully to view, thirdly to return the said flaps back to closing position and fourthly to join the said flaps together to reseal the said carton.

3. A carton opening and resealing device comprising in combination a horizontally sustained conveyer, means to feed a plurality of cartons in determined spaced relation onto said conveyer, and a plurality of separate means located at spaced points along the path of travel of said conveyer, said plurality of means comprising the following means in the order given; means to slit one wall of the carton open to provide flaps

one overlying the other, means to spread open the said flaps to expose the interior of the carton fully to view, means to apply adhesive to the top surface of the under flap, means to return the spread flaps to carton closing position and means to join the overlapping flaps in sealing engagement closing the said carton.

4. A carton opening and resealing device comprising in combination a horizontally sustained conveyer, means to forwardly drive said conveyer, means to feed a succession of cartons periodically onto said conveyer to be carried forwardly thereby, guide means defining a determined horizontal path of travel for said cartons on said conveyer, and a plurality of means located in spaced relation along the said determined path of travel of said cartons operative successively to slit one side of said carton open, to spread the slit portions of said side to expose the carton contents fully to view, to return the said slit portions to carton closing position and to join the slit portions together in carton sealing relation.

5. A carton opening and resealing device comprising in combination a horizontally sustained conveyer, means to forwardly drive said conveyer, means to feed a succession of cartons onto said conveyer to be forwardly carried thereby, means to position said cartons in determined spaced relationship on said conveyer, a guideway means defining a determined path of horizontal travel for said cartons on said conveyer, and a plurality of means disposed at spaced distances adjacent said path of travel of said cartons operative successively to slit open one wall of said carton, to turn back the slit portions of said wall to a position exposing the contents of the carton fully to view, to return the said slit portions to carton closing position and to join the said slit portions together in carton sealing relation.

6. A carton opening and resealing device comprising in combination, a horizontally sustained conveyer, a guideway defining a horizontal path of travel for said conveyer, means to feed a plurality of cartons successively onto said conveyer to be carried thereby along said guideway, means on said conveyer to locate said cartons thereon in determined spaced relationship and a plurality of means disposed at spaced points along the path of travel of said cartons to engage each said carton successively as it is carried forwardly by said conveyer to each said plurality of means to first slit open one wall of the carton, to secondly open up the slit portions of the said wall exposing the carton contents fully to view and thirdly to return the said slit portions to carton closing position with a seal union therebetween.

7. A device for opening and resealing rectangular shaped cartons one side of which is closed by flaps forming an overlapping joint which comprises in combination a horizontally sustained conveyer, means to forwardly drive said conveyer, means to periodically feed said cartons with the said joint facing upwardly onto said conveyer to be forwardly carried thereby, means spacing said cartons on said conveyer, a guideway defining a determined horizontal path of travel for said cartons, a knife means movably sustained adjacent the path of travel of said carton, means to move said knife means into engagement with said carton between the said flaps forming said joint to separate the same and forwardly to cut free the forward end of said flap from the said carton, a stationary knife means forwardly said movable knife means to engage between said flaps and to cut free the rear end of said flap as the carton is moved past the knife, means to spread open the two said flaps exposing the carton contents to view, means to return the flaps to carton sealing position and means to seal the same together.

8. A carton opening and resealing device for cigarette cartons provided with an overlapped glue-sealed side wall comprising in combination a horizontally sustained conveyer, means to forwardly drive said conveyer, means to supply cartons of cigarettes periodically to said conveyer to be carried forwardly thereby, means locating said cartons in determined spaced end to end relation on said conveyer with the overlapped glue-sealed side wall of the carton facing up, guideway means defining a determined path of horizontal travel for said cartons and means located along said determined path to first open the sealed joint of the said side wall at the forward end of the carton and to cut the forward end of said side wall from the forward end of the carton, secondly to break the sealed joint the entire length of the carton, thirdly to cut the rear end of the side wall free from the rear end of the carton, fourthly to spread open the said flaps exposing the packaged carton contents thereof fully to view for a time interval adapted to permit the application thereto of stamps, labels or ink imprints, fifthly, to dry said stamps, labels or ink imprints, sixthly, to return the said flaps to carton closing position and to join the same together resealing the said carton.

9. A cigarette carton opening and resealing device comprising in combination a horizontally sustained conveyer, means to forwardly drive said conveyer, means to feed a succession of cartons onto said conveyer to be forwardly carried thereby, means locating said cartons in end to end spaced relationship on said conveyer with one side wall facing up, said side wall being that having an overlapping seal joint between said side wall and a flap extension on the adjacent top wall of the carton, a guideway defining a determined path of horizontal travel for said spaced cartons, a movable knife means forwardly said carton feeding means, means actuated by said conveyer drive means to periodically advance and retract the said movable knife means to a position engaging the said knife means between the said joint in said side wall to separate the flap extension from the side wall and to sever the forward edge of the side wall from the forward end wall of the carton, a second knife means forward the first said knife means located in a position to enter the space gap between said flap and side wall and to complete the separation of the two and the severance of the rear edge of the side wall from the rear end of the carton, means to spread open the two said flaps and to maintain the same in spread position for a time interval adapted to permit the application of stamps, labels or ink imprints onto the exposed contents of the carton, means to dry the said stamps, labels or ink imprints to affix the same thereto, means to return the flaps to carton closing position and means to seal the same together closing the said carton.

10. In a cigarette carton opening and resealing device, a horizontally sustained and forwardly driven conveyer, means to feed a succession of cartons periodically onto said conveyer with the sealed side wall of the carton facing upwardly to be forwardly carried thereby, means locating said cartons in determined spaced relation on said conveyer, means located forwardly said car-

ton feeding means to open up the sealed joint of the upwardly facing carton side and to cut free the forward and rear edges of the same as each said carton arrives at a determined position relative said means, means forwardly said opening and cutting means to spread said slit side to expose the carton contents fully to view, means forwardly said spreading means to retain said slit side in fully open position for a time interval sufficient to permit the application of stamps, labels, or ink imprints to said contents, means overlying said retaining means to dry said stamps, labels or ink imprints, means forwardly said drying means to return the slit side to carton closing position and means to reseal the same.

11. In the combination of claim 10, said opening and cutting means comprising in combination a movable knife, a wedge means and a stationary knife, the said movable knife being horizontally sustained adjacent the path of travel and being provided with means periodically advancing and retracting the same towards and away from the said carton a distance and in the direction operative to cause the joint of the knife to pierce the sealed joint of the upwardly facing side of said carton and the cutting edge of the knife to swing in the direction of carton travel a sufficient distance to sever the forward edge of the side free from the forward end wall of the carton, the periodicity of said knife movement being adapted to coincide with the arrival of a carton in a position opposite said knife, the said wedge means being operatively connected to periodically advance and retract in sequential movement of the said movable knife means to raise the severed forward end of said wall a distance above the top of said carton, and the said stationary knife being located in a horizontal position across the path of travel of said cartons to engage the under side of said raised forward end and to finish the separation of the sealed joint and the severing of the rear edges of the said carton side from the said carton.

12. A carton opening and closing device for cartons provided with an overlapping sealed joint located in one wall thereof, said device comprising in combination two horizontally sustained parallel guideways, a traveling conveyer in each said guideway, means to forwardly drive one said conveyer and to reversely drive the other said conveyer, means to feed a plurality of cartons successively onto the one said conveyer with the sealed wall facing upwardly to be forwardly carried thereby along said guideway, a movable knife means disposed forwardly said carton feeding means adjacent said guideway, means to periodically actuate said knife means to engage between the overlapping portions of the sealed wall of each said carton as it reaches a determined forward position opposite said knife means to spread apart the overlapping sealed portions adjacent the forward end of the carton and to cut free the forward end of said wall from said forward end of the carton, a stationary knife means located on said guideway forwardly said movable knife means in a position to enter the space gap between the spread apart portions of the wall as the conveyer carries the carton thereto said stationary knife means being adapted to complete the operation of spreading apart the sealed joint of the said carton and cutting free the rear end of the same from the rear end wall of the carton, means adjacent to and forwardly said stationary knife means to lift up and to bend back the separated portions of said carton wall as the carton is carried by the said conveyer thereto, means retaining said turned back portions in turned back position, a transfer platform at the end of said one conveyer, a transfer means on said platform, said transfer means including means to return said separated portions of the carton wall to carton closing position and means to transfer the said carton onto the second said conveyer, means to join the said separated portions together resealing the same, and means to discharge said resealed carton from said second conveyer.

13. In the combination of claim 12, a dryer means adjacent the discharge end of said first guideway said means being disposed over the top of said guideway in a position to supply heat onto the open carton as it is carried thereunder by said conveyer means.

14. In carton opening and resealing devices for cartons provided with an overlapping sealed joint in one wall thereof formed by a flap extension on a hinged top disposed in underlying position to a side wall, a conveyor means to carry a plurality of said cartons in determined spaced succession along a determined path of travel, a knife means located adjacent the rear end of said conveyor and operatively connected therewith to be periodically actuated to move into a position to engage the forward end of each said carton as it reaches a determined position relative thereto to spread apart the overlapping sealed joint at the forward end of the carton and to cut free the forward end of the overlapping side wall of the carton from the forward end wall thereof, a second knife means disposed forwardly of said first knife means in a position to enter into the space gap between said spread apart portions of the overlapping joint as the carton is moved forwardly thereto and to complete the separation of the overlapping joint as the carton is moved past the knife means and to cut free the rear end of the overlapping side wall of the carton from the rear wall thereof as the carton leaves the said knife means, means to bend back the two flap members thereby produced by the said knife means to expose the carton contents fully to view, means to apply an adhesive composition to the upper face of the underlapping flap member, each said means being automatically operative to perform its said functions as the said carton is conveyed along the said determined path of travel by the said conveyor means, a platform at the forward end of said conveyor to receive the said cartons from the conveyor, and means automatically operative in timed sequence with the movement of said conveyor to close said flap members and to transfer the said closed carton onto a second conveyor and spring means overlying the said second conveyor to retain the said flaps in closed position for a time interval at least sufficient to obtain a sealed joint therebetween.

15. In carton opening and resealing devices for cartons provided with an overlapping sealed joint in one wall thereof, means to convey the cartons in determined end spaced relation along a determined path of travel with the overlapping sealed joint facing upwardly, a knife means located adjacent the rear end of said path of travel and operatively connected with said conveying means to be periodically actuated to a position adapting the same to be inserted between the overlapping sealed joint of each said carton as the forward end of the carton approaches the said knife means and to be forwardly urged in

the direction of carton travel a distance sufficient to cut free the forward end of the overlapping portion of the joint from the forward end of the carton, a wedge means adjacent but forwardly said knife means to enter into the space gap between said overlapping portions formed by said knife means to spread apart the same, and a second knife means disposed forwardly said wedge means across the path of travel of said carton to enter into said space gap behind said wedge means to complete the breaking of the sealed joint and to cut free the rear end of the overlapping portion of the joint from the rear end wall of the carton.

16. In association with the means defined in the device of claim 15, means to lift up and to bend back the two flaps thus formed by the said knife means to expose the carton contents fully to view, means to retain the said flaps in such position for a determined time interval while the said carton is being forwardly carried by said conveyor, means to apply an adhesive onto one of the flap surfaces in a position to be interposed between the two said flaps on a return of the flaps to overlapping position while the said flaps are being retained in fully open position, and means to return the flaps to overlapping position and to seal the same together as the said carton is discharged from the said conveyor.

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