May 6, 1952 M. SALZANO 2,595,815

CIGARETTE CARTON OPENER

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Fig. 1

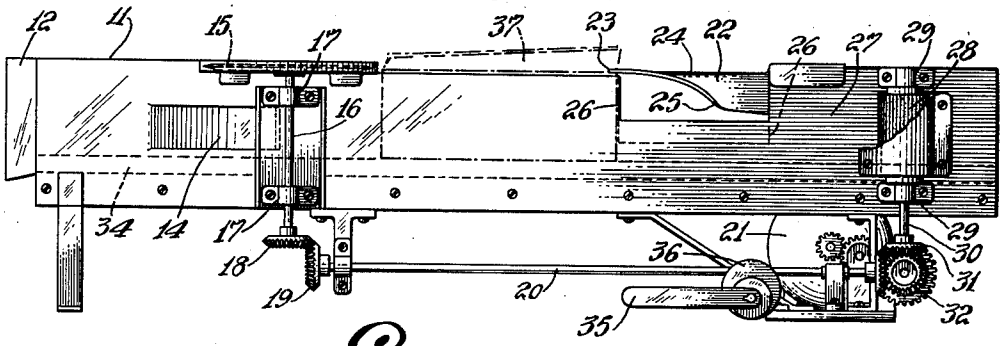


Fig. 3

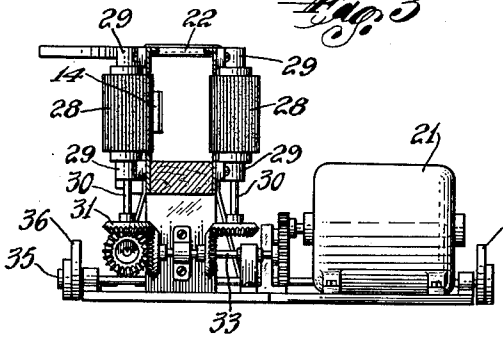


Fig. 2

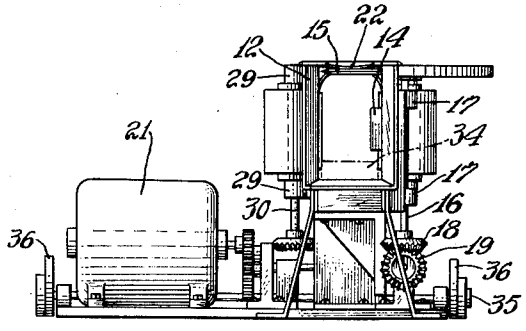


Fig. 4

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CIGARETTE CARTON OPENER

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7 Claims. (Cl. 30—2)

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My invention relates generally to devices intended to open containers having flaps adhesively sealed together, and specifically to devices intended to open cigarette cartons without cutting through any portion thereof, but by separating sealed parts from each other.

Among the objects of my invention is to provide a cigarette carton opener which opens cartons without doing violence to the protection afforded to cigarette packs therein contained.

Another object of my invention is to provide a cigarette carton opener which is simple to operate and relatively inexpensive.

Still another object of my invention is to provide a cigarette carton opening device which enables the speedy and efficient opening of cigarette cartons so that tax stamps may be applied.

Among the further objects of my invention is to provide a cigarette carton opener which is simple in form, easy to construct and maintain.

These objects and advantages, as well as many other objects and advantages, may be attained by the device illustrated in the drawings, in which:

Figure 1 is a side elevational view of my cigarette carton opener;

Figure 2 is a top plan view;

Figure 3 is a rear end view; and

Figure 4 is a front end view.

Referring now to the drawings in detail, my cigarette carton opener is comprised of a body member or conduit 11, having the form of a channel or chute. At the front end, there are outflared edges 12 to facilitate the entry of a carton of cigarettes. Immediately adjacent to the outflared edges, the top of the body member is provided with flanges 13 which extend inwardly. Cigarette cartons are somewhat varying in size and slightly compressible. The flanges 13 slightly compress the carton and insure its proper alignment with the knife 15 hereinafter referred to. The body member 11 is also at this end provided with a resilient tongue 14 that positions the cigarette carton away from the knife 15 as far as possible.

Cigarette cartons are inserted in the body member so that they present an outer flap and an underflap. The carton is inserted in such a way that the attached side of the outer flap is furthest away from the knife 15 and the unattached edge of the outer flap is nearest to the knife 15. The tongue 14 insures that the carton will be pressed to the side of the body member 11 away from the knife 15 so that the attached edge of the outer flap will be beyond the edge of the knife 15. The knife 15 is circular in form

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and extends across the top of the body member 11 almost, but not to the opposite side of the body member 11. This is to avoid severing the outer flap from the carton, a mishap that cannot occur because the knife 15 does not extend all the way across the body memebr 11 and the tongue 14 maintains the attached edge of the outer flap beyond the reach of the knife. The circular knife 15 is mounted on a shaft 16 which rotates on two bearings 17 on the side of the body 11. A bevelled gear 18 is attached to the lower end of the shaft 16 and engages another gear 19. This gear 19 is mounted on a shaft 20 and connected by appropriate gears to the motor 21.

Since the outer flap and underflap of a cigarette carton are cemented together, they are positioned, as aforementioned, in the body member so that the revolving knife 15 enters between the flaps until it encounters the adhesive. Each carton is pushed forward by the succeeding carton. The knife 15 severs the outer flap from the underflap along the line of sealing. Neither flap is severed from the main body of the carton; they are just unsealed from each other by the knife cutting through the adhesive which offers less resistance than the carton flaps. The adhesive yields to the knife, perhaps taking with it a portion of the surface layer of the carton.

As the unsealed carton 37 progresses through the body member 11, it next encounters the hand 22. This hand 22 is attached to the body member and positioned thereon so that its leading edge 23 encounters and enters the end of the cigarette carton below both the outer flap and the inner flap. From the leading edge 23, the hand 22 broadens to the point 24 where it is substantially as broad as the channel. This portion of the hand spreads the flaps of the carton until they are upright.

From the leading edge 23 rearwardly, the hand 22 has downturned edges 25. As the raised flaps encounter the downturned edges 25, they are folded outward and downward. The body member 11 at this point has openings 26, 26 so that the flaps are brought against the sides of the carton. The carton progresses beyond the openings 26, whereupon the side walls 27 hold the flaps folded down.

Near the end of the body member, there are opposite openings in the side walls 27. A roller 28 is positioned in each of these openings. The rollers 28 are provided with ribbed surfaces or a rubber coating to provide good frictional engagement of the carton when it reaches this point. The rollers 28 are mounted on an axle 30 carried by bearings 29 attached to the side walls 27.

The lower end of the axle **30** carries a bevel gear **31** which meshes with another bevel gear **32** mounted on the shaft **33**. The shaft **33** is connected to the motor **21** by appropriate gears. When a carton is engaged by the rollers **28**, it is ejected from the opener into the stamping machine.

A liner **34** may be used in the bottom of the body member **11** to make the opener adaptable to either standard size cigarette cartons or "king" size cigarette cartons. Depending upon which size carton is being opened, the lever **35** may be moved so that the cams **36** will properly position the end of the opener to discharge either size carton into the stamp machine. The lever **35** is connected to the shaft which carries the eccentric cams **36**. The movement of the lever rotates the shaft and consequently the cams **36** will raise or lower the entire machine in accordance with whatever aspect of their eccentricity is presented to the surface upon which the cams rest.

Operation of the opener is as follows. A cigarette carton **37** manually inserted into the body member **11** is moved forward by succeeding cigarette cartons. A revolving knife **15** is intruded between the outer and underflaps unsealing them from each other. A hand raises the flaps and folds them down to the sides of the carton. The side walls **27** of the body member pin the flaps to the sides of the carton. The rollers forcibly eject the opened carton into the machine which tax-stamps them.

The foregoing is intended merely as illustrative of one embodiment of my invention, for many changes may be made in the construction, selection, and arrangement of the various parts, within the scope of the appended claims, without departing from the spirit of the invention.

I claim:

1. A cigarette carton opener comprising a body member substantially as high as a cigarette carton, a longitudinal opening in the top of the body member, a resilient tongue on the body member whereby a carton is positioned therein, flanges on the top of the body member whereby a carton is retained below the flanges, an outflared entrance on the body member, a circular knife below the level of the flanges and intrudable between the flaps of a cigarette carton whereby the cementitiously sealed flaps may be unsealed from each other, a hand having a leading edge whereby the flaps are raised to a substanitally vertical position, downturned edges on the hand whereby the flaps are folded down and parallel with the sides of the carton, an opening in the side wall of the body at the point where the flaps are folded down, said opening ending at the point where the flaps reach the downward position, a roller on the body member adapted to frictionally engage and eject the cigarette carton into a stamping machine and means for rotating the roller and the circular knife.

2. A cigarette carton opener comprising a body member having a bottom wall and side walls, inwardly extending flanges at the top of the side walls at one end of the body member, a rotatable knife attached to a side wall and extending across the body member, an inwardly extending resilient tongue on the side wall, openings in the side walls beyond the knife, a hand positioned over the openings, a leading edge on the hand positioned to enter the end of a cigarette carton under the flaps, downturned edges on the hand at the side, a roller attached to and extending into the body member, and means for rotating the knife and the roller.

3. A cigarette carton opener comprising a body member having a bottom wall and side walls, inwardly extending flanges adapted to engage the top of a cigarette carton and position the flaps thereon with respect to a rotable knife, a rotable knife attached to a side wall, said knife being positioned below the level of the flanges and adapted to enter the space between the top flap and underflap of the cigarette carton and sever them from each other at the point of sealing without cutting through them, a hand having a leading edge positioned to enter the cigarette carton under the underflap, whereby the flaps are raised, downturned edges on the hand whereby the flaps are folded downward, a roller engageable with the cartons whereby they are ejected, and means for rotating the roller and the knife.

4. A cigarette carton opener comprising a conduit, a knife on the conduit positioned to pass under the top flap of a cigarette carton passing through the conduit and to cut through the adhesive between the top flap and the underflap, a hand having a leading edge intrudable under the top flap and underflap whereby the flaps are raised, said hand also having downturned edges engageable with the flaps whereby they are folded downward, and means for rotating the knife.

5. A cigarette carton opener comprising an open conduit adapted to receive cartons of cigarettes, a flange at the top of the conduit to maintain the cartons at the proper level with respect to a knife, a knife positioned to pass between the top flap and the underflap, a means to rotate the knife, and a resilient tongue to position the cigarette carton with the attached side of the top flap beyond the outer edge of the knife.

6. A cigarette carton opener comprising an open conduit adapted to successively receive cartons of cigarettes, a flange at the top of the conduit to maintain the cartons at the proper level with respect to a knife, a knife positioned to pass between the top flap and the underflap of the cartons, a means to rotate the knife, a resilient tongue to position the cigarette carton with the attached side of the top flap beyond the outer edge of the knife, a hand having a tapered leading edge positioned to enter the carton under the flaps whereby they are raised, and downturned edges on the hand whereby the flaps are folded down.

7. A cigarette carton opener comprising a conduit having a bottom, side walls, and inwardly extending flanges on top at one end of the conduit, a circular knife attached to the conduit and extending across the top thereof below the level of the flanges, a resilient tongue attached to a side wall of the conduit normally urging a carton in the conduit away from the knife, a hand attached to the conduit having a tapered leading edge disposed below the level of the knife, downturned edges on the hand, openings in the side walls of the conduit adjacent to the hand, and means for ejecting cartons from the conduit.

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