June 6, 1950 P. A. GOLDSWORTHY 2,510,630

CIGARETTE FEEDING DEVICE

Filed Feb. 20, 1947 2 Sheets-Sheet 1

SHEET 1.

FIG. 1

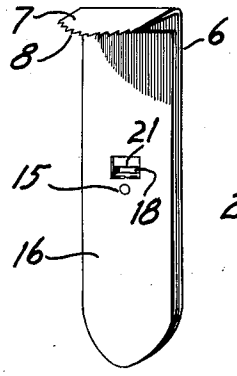


FIG. 2

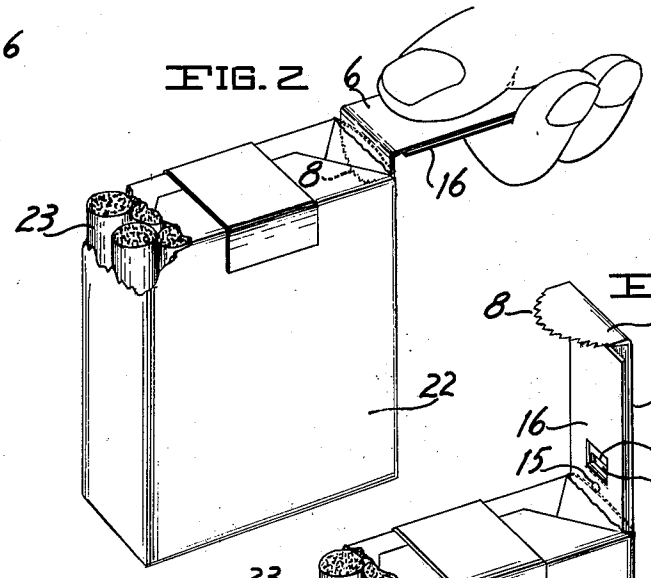


FIG. 3

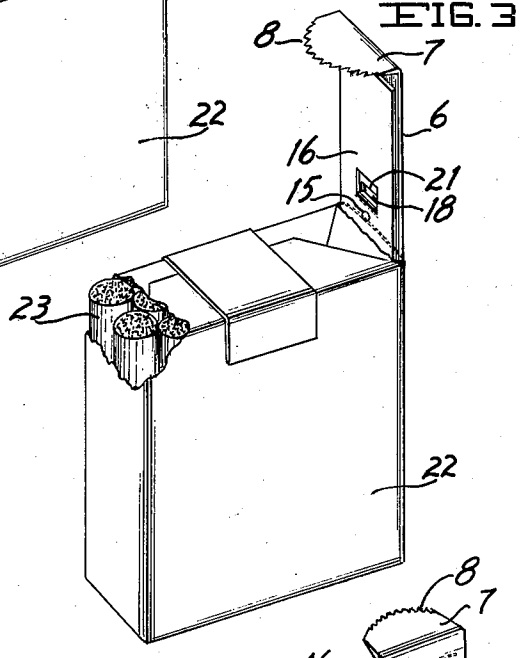


FIG. 4

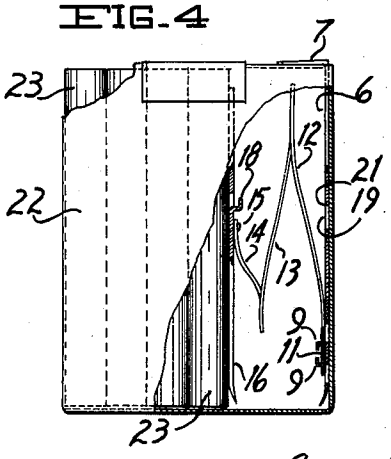


FIG. 5

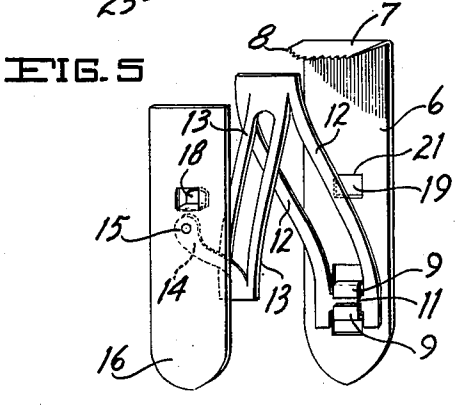
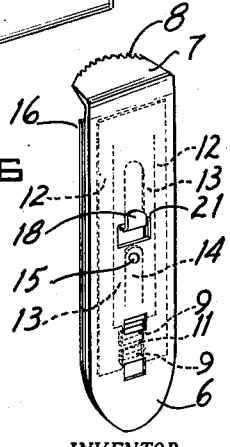


FIG. 6



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SHEET 2.

FIG. 7

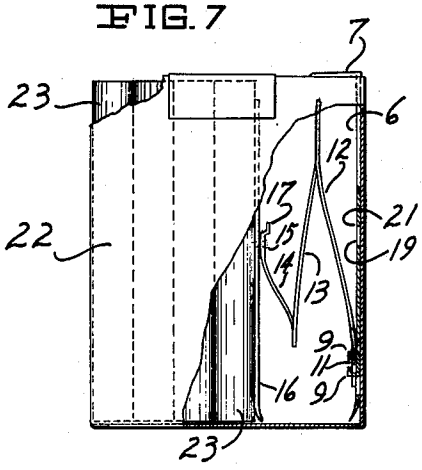


FIG. 8

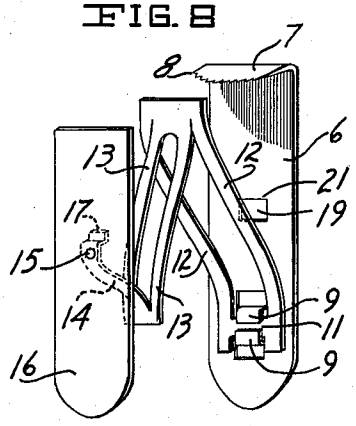


FIG. 9

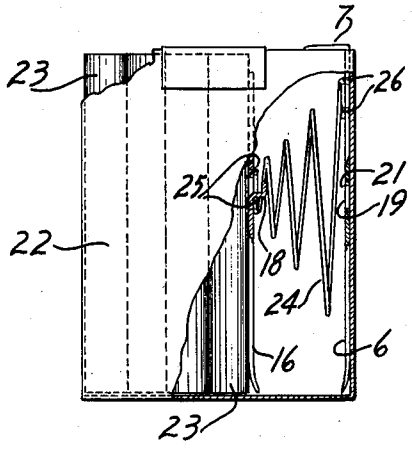
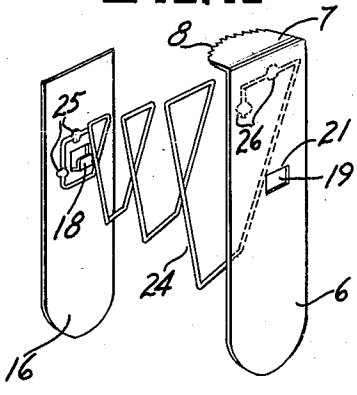


FIG. 10



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CIGARETTE FEEDING DEVICE

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Application February 20, 1947, Serial No. 729,790

4 Claims. (Cl. 206—41.2)

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This invention relates to devices for urging individual articles arranged in stacked relation within a package or wrapper toward a remote opening in the package so that the articles may be conveniently reached and removed from the package through the opening.

It is an object of the invention to provide a device of the class described particularly adapted for insertion into a conventional cigarette packet.

Another object of the invention is to provide in an expansible feeder for insertion within a cigarette packet, a novel telescopic spring for actuating the feeder.

Another object of the invention is to provide a feeder of extremely thin construction which will not crowd the contents of the sealed packet into which it is inserted.

Another object of the invention is to provide a feeder of extremely thin construction which may be recovered for repeated use.

Another object of the invention is to provide a feeder, for insertion into a sealed packet, which embodies a novel expansive member which when compressed becomes no thicker in bulk than any one of its expansive arms.

A further object of the invention is to provide a feeder which may be inserted into a sealed cigarette packet through a very small entrance opening pierced through a wall of the packet.

Another object of the invention is to provide a feeder of extremely thin construction embodying a novel means of latching the device in compressed position to reduce its bulk and so facilitate handling as well as to provide protection for its expansible member.

Still another object of the invention is to provide an expansible feeder which may be inserted into a cigarette packet locked in compressed position and which, after insertion thereof, may be unlocked by a simple motion imparted thereto.

The invention possesses other objects and features of advantage, some of which, together with the foregoing, will be specifically brought out in the detailed description of the invention hereunto annexed. It is to be understood that the invention is not to be limited to the specific form thereof herein shown and described as various other embodiments thereof may be employed within the scope of the appended claims.

Referring to the drawing, Sheet 1:

Figure 1 is a perspective view of the feeder shown in its compressed condition.

Figure 2 is a perspective view showing the manner in which the entrance opening for the feeder is pierced in the cigarette packet.

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Figure 3 is a perspective view, similar to Figure 2, illustrating how the feeder is inserted into the cigarette packet.

Figure 4 is a side elevational view of a cigarette packet showing the feeder of my invention in position therein. A portion of the view is broken away and other portions are shown in vertical section so as to more clearly disclose the internal construction.

Figure 5 is a perspective view of the feeder shown in its expanded condition.

Figure 6 is a perspective view of the feeder as seen from the back and shows the position of the latch when the feeder is latched in compressed position. It also shows the position of the novel leaf spring when so compressed.

Referring to the drawing, Sheet 2:

Figure 7 is a side elevation view, similar to Figure 4, and shows a modified latch hook formed from one of the spring arms.

Figure 8 is a perspective view of the feeder in its expanded position and shows the modified latch hook as a part of one of the spring arms.

Figure 9 is a side elevation view, similar to Figure 7, and shows the novel latch, as in Figures 4, 5, and 6, when using a modified type of expansible member.

Figure 10 is a perspective view of the feeding device in its expanded position, and shows the position of the component parts of the latch device and the modified type of expansible member.

In detail, my invention, which is best shown in Figure 5, comprises a backing plate 6 of sheet metal having at its upper end a tab 7 bent at right angles to the plate and provided along its curved edge with serrations 8. A pair of parallel tongues 9 are cut from the backing plate adjacent the lower rounded end thereof and are clinched over the end bar 11 of a leaf spring so as to slidably secure one end of the latter to the backing plate thus permitting slight longitudinal movement of the leaf spring with respect to the backing plate. The leaf spring is formed, preferably, from a single piece of sheet metal having spring characteristics, such as Phosphor bronze, and is provided with four parallel, longitudinally extending slits which divide the spring into a plurality of integrally connected arms 12, 13, and 14. These arms are flexed beyond their elastic limit so that they assume a normal set expanded position as shown in Figure 5.

A pusher plate 16, which has a rounded lower end complemental to that of the backing plate

6, is secured, intermediate its ends, to the outermost end of the arm 14 by the rivet or spot weld 15. Prior to being put in use, the feeder is compressed, as shown in Figure 1, so that the backing plate 6 and the pusher plate 16 are brought into close proximity with the leaf spring compressed therebetween and a latch is provided for releasably holding them in this position comprising a tongue integrally formed from the pusher plate intermediate its ends and bent outwardly from, and upwardly in parallel relation to, the pusher plate to form a tongue 18 which is adapted to pass through an aperture 19, provided in and intermediate the ends of the backing plate, and to hook over the upper edge 21 of the aperture. Since the pusher plate is secured to the leaf spring, and, since the leaf spring when compressed assumes, substantially, the form of a rigid intermediate plate slidably secured to the backing plate, a slight relative longitudinal movement between the backing and pusher plates permits the tongue 18 to be engaged or released from the backing plate.

A modified form of the tongue 18 is shown in Figures 7 and 8 where a tongue 17 is provided from an extended end portion of the spring arm 14 bent outwardly from and upwardly in parallel relation to the pusher plate, said tongue 17 being adapted to pass through the aperture 19 and to hook over the upper edge 21 of the aperture.

A modified form of the expansible member is shown in Figures 9 and 10, comprising an obelisk spiral spring 24 and attached by welding to the pusher plate at points 25 and to the backing plate at points 26. The flexibility of the spiral spring permits slight longitudinal movement between the backing and pusher plates so that the tongue 18 may be engaged with or released from the upper edge 21 of the aperture 19 of the backing plate 6.

The ordinary smoker, in opening a packet 22 of cigarettes, will usually tear away the wrapper in one corner of the packet, as shown in Figure 2, so as to provide a dispensing opening through which the cigarettes 23 may be removed as required. While the packet is nearly full, the cigarettes may be easily and quickly removed, but at the same time it is possible for the cigarettes to fall loosely from the packet into the pocket or to clutter the handbag with attending mutilation. Moreover, as the contents of the packet are removed, it becomes increasingly difficult to reach and remove the cigarettes since the latter are situated remote from the dispensing opening. There is yet another undesirable feature, since the partially emptied packet will collapse in the user's pocket causing him bothersome fumbling to reopen the dispensing opening when he desires a cigarette and possibly causing breakage of the latter in the attempt to remove it from the packet.

The feeder of my invention obviates these disadvantages. After tearing away one corner of the packet to provide the dispensing opening, as shown in Figure 2, the user grips the collapsed feeder shown in Figure 1 and proceeds, with the serrated edge of the tab 7, to cut a slit through the wrapper in the top of the package at the opposite end thereof from the dispensing opening. The feeder, with the rounded ends of the backing and pusher plates 6 and 16 foremost, is then inserted into the packet as far as it will go. This positions the collapsed feeder inside of the packet between the inner side of the wrapper and the stack of cigarettes as may be seen by

reference to Figure 4. When the feeder has been fully inserted into the packet, the exposed tab 7, Figures 4, 7, and 9 is grasped and drawn sufficiently upwardly to release the latch tongue 18 from the backing plate whereupon the collapsed leaf spring will be released and will forcibly urge the pusher plate 16 against the side of the stack. The tab 7 is then pushed in flush with the top of the packet. It will be readily seen, in Figures 4, 7, and 9 that as successive cigarettes are removed from the packet through the dispensing opening the expanding leaf spring will force the remainder of the stack toward the opening. Thus the cigarettes are maintained within easy reach of the user's fingers. It will also be seen that the presence of the feeder within the packet prevents collapse of the latter when carried in the pocket and prevents the attendant crushing and breaking of the cigarettes. After the last cigarette has been removed from the packet, the latter is torn open so as to recover the feeder and the latter is collapsed and latched ready for insertion into another packet.

While I have shown a feeder particularly adapted to the more common type of cigarette packet, it will be evident that the design may be varied to suit different packet constructions without departing from the spirit of the invention. It will also be evident that a wide variety of suitable materials may be employed in the construction of the feeder and that ordinary spring wire may be substituted for the sheet material shown without losing any of the advantages of the invention.

What I claim is:

1. A feeding device for insertion into a package through the wrapper thereof comprising a backing plate having an aperture therein, a pusher plate, a plate-spring interposed between comprising a strip of material having therein parallel slits dividing said strip into a plurality of integrally connected spring arms, one of said arms being secured to one plate, a second of said spring arms being slidably secured to the other plate, said spring being normally biased to separate the plates, said pusher plate having an integrally formed tongue-like projection engageable with said aperture of the backing plate to hold the spring in compressed relation, said backing plate being longitudinally movable with respect to the pusher plate to release said tongue-like projection.

2. A feeding device for insertion into a package through the wrapper thereof comprising an expansible unit having three substantially contiguously parallel interconnected plates, a pusher plate, a backer plate and a central plate having therein parallel cuts dividing said plate into a plurality of integrally connected arms one of said arms being secured to the pusher plate, a second of said arms being slidably connected to said backer plate by means as an integral part thereof, said plurality of integrally connected arms extended to their elastic limit, means carried by said pusher plate and said backer plate to releasably latch said three plates in substantially contiguous parallel relation and means as an integral part of the backer plate for unlatching said plates to permit said central plate to become a plurality of interconnected arms.

3. A feeding device for insertion into a package through the wrapper thereof comprising three substantially contiguously parallel interconnected plates, a pusher plate, a backer plate, and a central plate having therein parallel slits

dividing said plate into a plurality of integrally connected arms, one of said arms being secured to the pusher plate, a second of said arms being slidably connected to said backer plate by means as an integral part thereof, said plurality of integrally connected arms extended to their elastic limit, said backer plate further having an aperture therein, said pusher plate having an integrally formed tongue-like projection for engagement in said aperture to releasably latch said three plates in substantially contiguous parallel relation, said backer plate being longitudinally movable with respect to the pusher plate to resaid tongue-like projection to permit said central plate to become a plurality of interconnected arms.

4. A feeding device for insertion into a package through the wrapper thereof comprising a backer plate, a pusher plate substantially contiguously parallel with said backer plate, a spring interposed between having a plurality of connected arms, one end of said spring arms being slidably connected to the lower portion of the backing plate by means as an integral part thereof, the other end of said spring arms being secured to the central portion of the pusher plate said spring being biased to separate the plates, said backer plate having an aperture therein, said pusher

plate having an integrally formed offset extension projecting upwardly and engageable in said aperture to hold the spring in contracted relation, said backer plate being longitudinally movable relative to the pusher plate to release said offset extension.

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