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BLADE DISPENSING MAGAZINE WITH FEED SLIDE

Filed April 9, 1948

2 SHEETS--SHEET 1

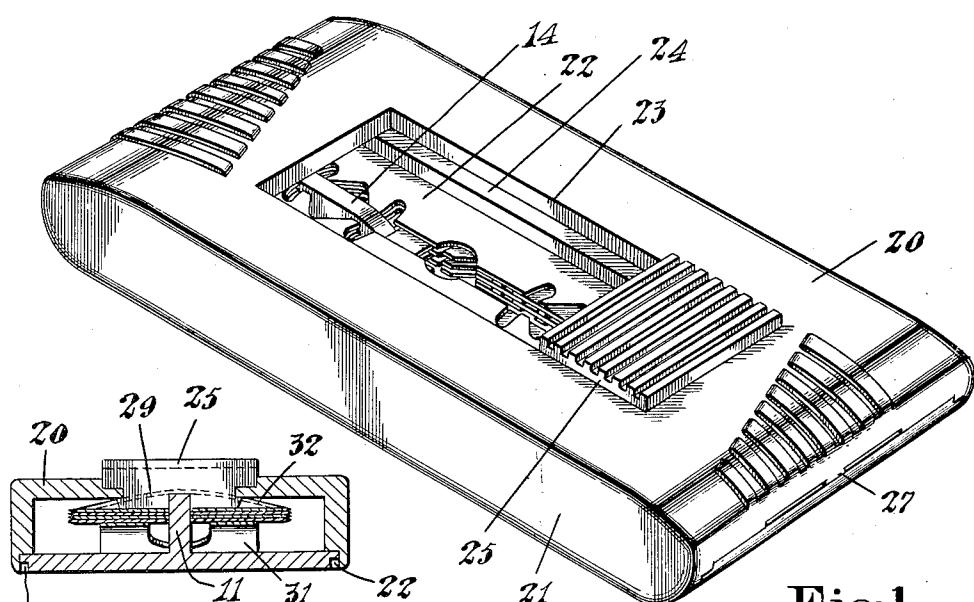


Fig.1.

Fig.2.

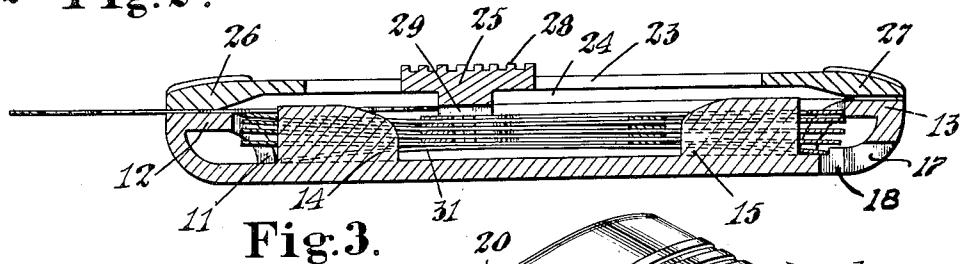


Fig.3.

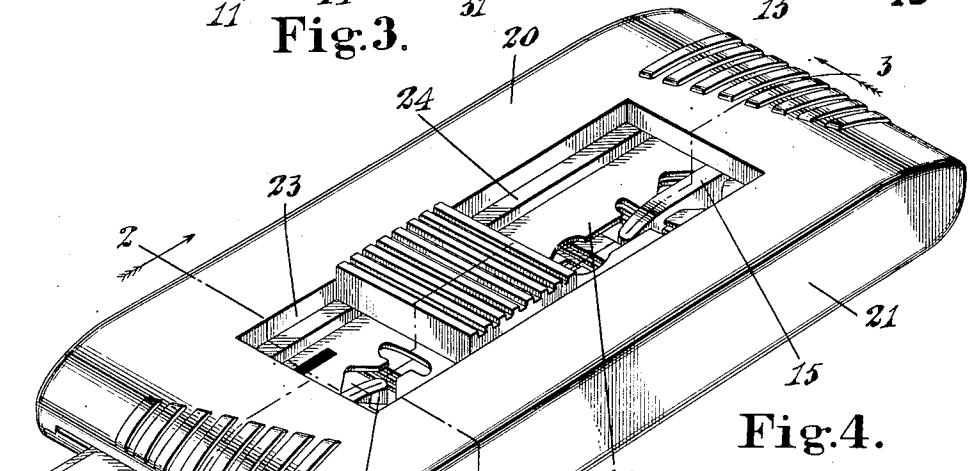


Fig.4.

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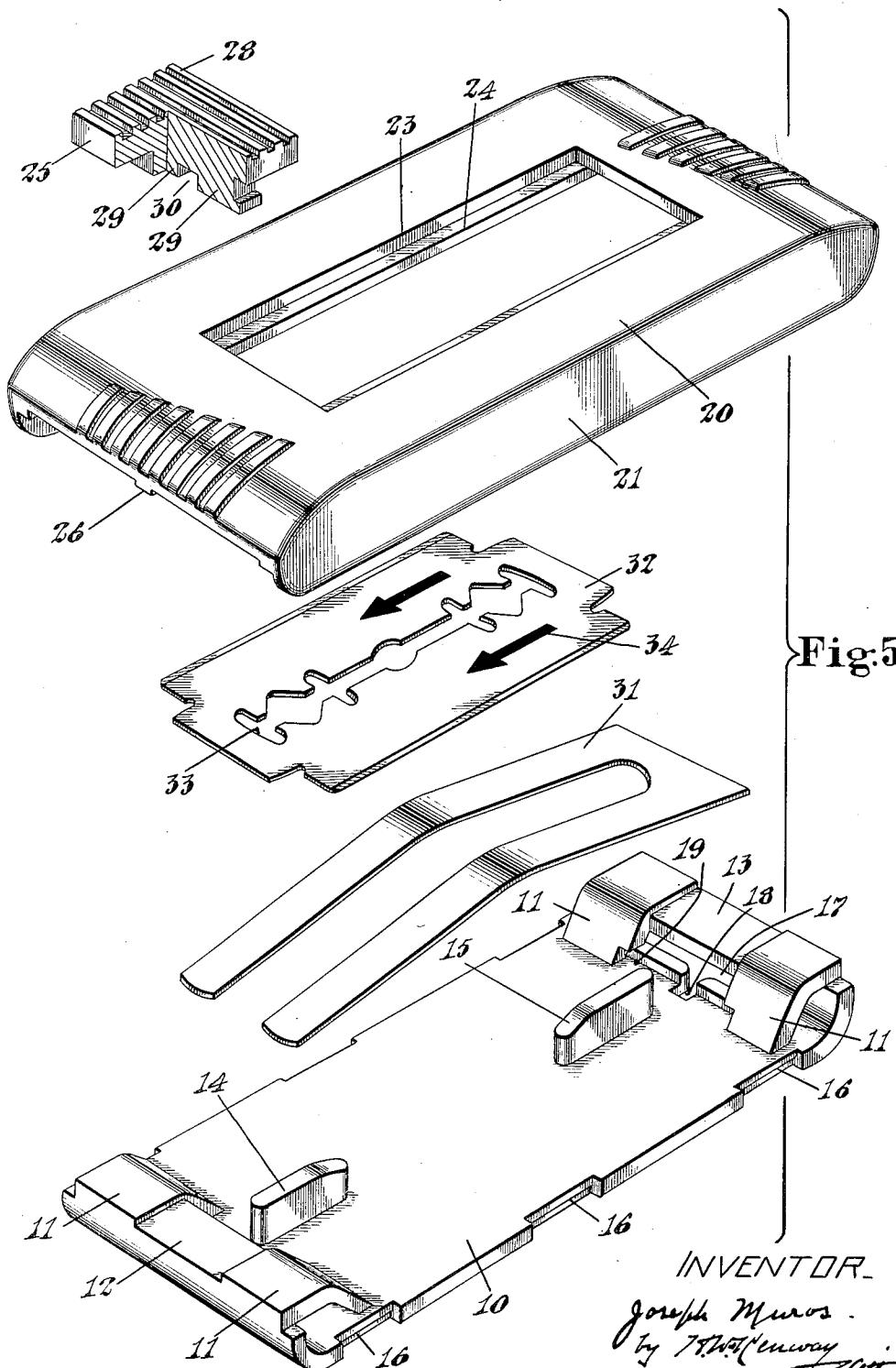
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2 SHEETS—SHEET 2



UNITED STATES PATENT OFFICE

2,624,453

BLADE DISPENSING MAGAZINE WITH FEED SLIDE

Joseph Muros, Newtonville, Mass., assignor to The Gillette Company, a corporation of Delaware

Application April 9, 1948, Serial No. 20,079

1 Claim. (Cl. 206—16)

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This invention consists in an improved magazine for dispensing sharp-edged blades, such as safety razor blades. It consists of a novel combination of a stiff-shelled magazine having delivery openings at either end with a stack of longitudinally slotted blades. The blades are controlled within the shell of the magazine by appropriately located studs which permit the ejection of one blade at a time while preventing movement of any other blade from the magazine that might cause jamming in the delivery openings. The blades are ejected by a feed slide movable in a channel in the top portion of the magazine.

The fine cutting edges of razor blades are susceptible to damage by any contact prior to actual use. Therefore, to insure protection, it is important that the manufacturer of the blades should control the packaging operation.

A very effective method of packaging razor blades is through the medium of a dispenser which provides for the blades to be arranged in alternately staggered relation and subject to being ejected alternately from opposite ends of the device. This arrangement provides separation of the ends of the blades by a thickness equal to the thickness of each blade, and this initial separation is sufficient to expedite removal of one blade at a time alternately at either end, without jamming.

General objects of the present invention are to provide a magazine and blade combination which will be safe, attractive, inexpensive to manufacture and assemble, and which will provide protection for the delicate blade edges prior to use.

An important feature of the invention resides in a feed slide movable along flanges of a window in the top of the magazine. If blades in the staggered arrangement above described are pressed upward by a leaf spring, and the said slide is pushed to a point at either end of the window, permitting the end of the uppermost blade to clear the feed slide, the result will be that a single blade will now be positioned to be smoothly ejected by moving the slide in the direction of the exit opening at the opposite end of the magazine.

A significant advantage of the use of a feed slide is that it enables the user to eject a blade without contact with the upper surface of the blade and the edges of the longitudinal blade slot. A feed slide overcomes the normal disinclination of the user to touch even the slot edge with the unprotected finger or thumb. A feed

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slide further protects the blades stored in the magazine from droplets of water which are frequently upon the hands of the user; if it is necessary for the thumb or finger to make contact with the blades themselves moisture may be introduced into the magazine chamber. However, if the feed slide only need be operated the possibility that moisture will reach the stored blades is greatly reduced.

10 These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawings, in which:

15 Fig. 1 is an enlarged view in perspective of the loaded magazine.

Fig. 2 is a view in cross section on the lines 2—2 of Fig. 4.

Fig. 3 is a longitudinal section view on the lines

20 3—3 of Fig. 4.

Fig. 4 is another enlarged view in perspective to the same scale, showing a blade in the preliminary stages of being ejected.

Fig. 5 is an exploded view in perspective of the 25 magazine with blade, the feed slide being partially cut away to show its construction.

The blade dispensing magazine herein described may be constructed of any of a number of suitable sheet materials, for example by molding synthetic resin, or by die casting light metal.

30 The magazine assembly comprises a base member, a cover member, a feed slide, and a leaf spring. The base and cover members may be made separately and then sprung into interlocking engagement, as herein set forth, or they may be fused together or combined by other means. Since the design of both members is such that the respective cross-sections are substantially uniform throughout, molding is facilitated and any tendency to distort in use is eliminated. The feed slide, constructed of material similar to the base and cover members above, is grooved longitudinally to move reciprocally in a rectangular window in the cover. As will be shown, the feed slide may readily be sprung into engagement with the window flanges either before or after the magazine is loaded with blades. The leaf spring is easily inserted into the magazine after it has been loaded with blades, as will be explained below.

35 The lower, or base member 10 of the magazine, as best shown in the exploded view, Fig. 5, is rectangular in outline and substantially flat except at either end, where the bottom curves upward, both inside and outside the magazine. 40 At each corner of the lower member 10 is a round-

ed shoulder 11 extending in a convex arc from a point near the beginning of the upward concave curve of the base member 10 to the extreme edge of the base member 10. The top portion of each shoulder 11 is flattened to provide part of the lower lip of each exit slot. Between the flattened portions of each pair of shoulders extend the lands 12 and 13 at a level slightly below that of the adjoining shoulders. The purpose of this difference in level will appear hereafter.

A pair of narrow blade-locating studs 14 and 15 project upward from the inner face of the base. These studs, spaced apart a distance approximately two-thirds the length of the blade slot, have an open space between them and have symmetrically tapered inner ends and rounded inner corners. These studs 14 and 15 are aligned with each other in the major longitudinal axis of the base and are of a width enabling them to receive the blade slot with clearance and of a height so as to approach the inner face of the cover of the magazine and to project slightly above the plane of the flattened top portion of the shoulder 11. These studs are designed to accommodate a stack of about twenty blades. Along the parallel side edges of the base member is a series of shallow rectangular recesses 16, here shown as three in each edge.

In the base member is a transverse spring-receiving slot 17 located adjacent to one of its ends and opening in a position approximately at the level of the inner face of the base. The slot 17 is enlarged at its inner edge by a central notch 18. Directly behind the slot, in the inner face of the base, is a transverse recess 19 providing an abrupt shoulder constituting an abutment for one end of the spring when the latter has been once fully inserted in the magazine beneath the blade stack, as will be presently described. The notch 18 extends from the inner edge of the slot 17 through the shoulder of the recess 19.

The cover or upper member 20 of the magazine as best shown in Figs. 3 and 5, is rectangular in outline, with side walls 21 spaced so as to receive between them the base member 10 and shouldered in their lower edges so as to provide a series of shallow rectangular lugs 22, three on each edge, designed to fit with clearance and interlock with the recesses 16 of the base member. There is sufficient resiliency in the material of the cover member to permit it to be sprung into interlocking engagement with the base member, and when so interlocked the lugs 22 positively determine the longitudinal relation of the two parts which are thus assembled and together provide a shell enclosure for the blade stack. A clearance of about .007 is provided between the lugs 22 and the recesses 16 for manufacturing purposes and to relieve strain in the finished magazine.

The cover member is provided with a rectangular aperture or window 23 extending longitudinally and having extending along its parallel sides depressed or inwardly offset flanges 24 upon which track moves the feed slide 25. The cover member is also provided centrally with longitudinal guide ribs 26 and 27 which in the assembled magazine (as shown in Fig. 3) extend downwardly from a point adjacent the exit edge of each stud 14 and 15 into the respective exit slots at each end of the magazine. Examination of Fig. 5 will show how the longitudinal guide ribs 26 and 27 are constructed to fit into the recesses formed by the lands 12 and 13 being slightly depressed below the surface of the shoulders 11,

as was mentioned above. This structural feature is also shown in Fig. 4, and will be touched upon later.

The feed slide 25 shown in Fig. 5 is constructed of somewhat resilient material and rectangular in shape, with lateral ribs 28 in its top surface to facilitate manipulation by the thumb of the user. Two projections 29 from the bottom of the feed slide, separated by the groove, 30, are each channeled along their outer sides to engage the flanges 24 of the cover member 20 as best shown in Fig. 2. Fig. 2 discloses that the outer edges of said projections are tapered inwardly to facilitate snapping the feed slide into place on the flanges 24. The body of the feed slide fits between the side edges of the aperture 23 and is partially contained therein, no portion of the slide overlying the outer surface of the cover.

The magazine includes a forked leaf spring 31, shown in Fig. 5, which is slightly narrower than the width of the spring slot 17 and is forked so that when introduced through the said slot its advancing end and sides will pass freely past the studs 14 and 15. The insertion of the spring 31 is facilitated by the notch 18, which permits the rear edge of the spring to be advanced by a blade or other pointed instrument until its trailing end is fully settled in the recess 19 and positively prevented from being thereafter displaced toward the slot 17. The spring is upwardly bowed and serves to press the blade stack yieldingly upwardly to a position determined by engagement of the uppermost blade in the stack with the inner face of the cover member 20 or the bottom surface of the projections 29 of the slide member 25, as the case may be. The spring 31 may be inserted as one of the last steps of the packaging operation, after the blade stack has been assembled and the magazine closed. While its rear end is anchored against the shoulder of the recess 19, its forward end is unconfined and is free to shift on the surface of the base member 10 as the effective thickness of the blade stack is progressively reduced in use.

The magazine is herein shown as loaded with a stack of about ten blades of a well-known commercial type, that is to say, double-edged blades 32 each provided with a longitudinal median slot 33 and each carrying direction indicia in the shape of arrows 34 which inform the user which way the uppermost blade must be moved to eject it properly. The indicia feature, in combination with a dispensing magazine of the general type is the subject matter of U. S. Letters Patent No. 2,544,410 granted March 6, 1951, in the name of Louis H. Young. Each blade is notched at its corners and those notches define elongated unsharpened end portions, centrally and symmetrically located in the blade.

In preparing the dispensing magazine above described the manufacturer will preferably deliver automatically a stack of ten or twenty slotted blades to the base member, empaling alternate blades upon their respective studs 14 and 15 so that each blade is free to be moved longitudinally for the length of its slot less the length of one of the studs and in one direction only. In supplying the blades in this manner they are reversed end for end so that the direction indicating arrows 34 also alternate in direction and indicate at which end of the magazine the blade at that moment uppermost in the stack should be moved in being ejected.

The cover member 20 may now be snapped onto the base member 10, the cover member's shallow

rectangular lugs 22 described above interlocking with their opposite members, the base member's recesses 11 to form a shell enclosure. Next the feed slide 25 is pressed into position on the flanges 24, the resiliency of the material and the tapered construction of the projections 29 conduced to facilitate this result. The spring 31 is then inserted through the slot 33 in the manner explained above and the blade stack pressed upwardly by the spring to a level determined by 10 the lower surface of the projections 29 of the feed slide 25. In the event the feed slide 25 is at either end of the window 23, the uppermost blade will be pressed against the inner face of the cover member 20. In either case the studs 14 and 15 will project with clearance through the blade slots to a height above the level of the uppermost blade, thus securing the blades from contact with the side walls of the magazine while they are stored in the magazine and while they are in the process of being ejected from it.

The operation of the magazine may be best explained by reference to the longitudinal section view of Fig. 3. Let it be assumed that as the magazine is loaded the uppermost blade 32 of the stack of blades is left in contact with the projections 29 of the feed slide 25. To engage this blade the feed slide must be moved toward the right along the flanges 24 as far as it will go, its right edge then being in contact with the right edge of the window 23. The topmost blade 32 is now afforded clearance to slide upwardly past the projections of the feed slide, and with continued pressure applied by the leaf spring 31 the said blade will assume a position against 30 the inner surface of the cover member 20.

If the user advances the feed slide 25 to the left with his thumb the rectangular projections 29 on the bottom of the feed slide will engage and evenly displace the uppermost blade through the left exit slot. Two structural features here deserve attention. First, as Fig. 3 (clearly) shows, the design of the shoulders 11 and the guide rib 26 cooperate to direct the leading edge of the blade 32 accurately into the exit slot. Second, as Fig. 2 indicates, the two projections 29 of the feed slide, with their contact faces at right angles to the direction of movement of the blade, insure firm pressure along the longitudinal axis of the magazine. This makes for movement in a straight path, with the blade slot smoothly progressing along the flat edges of the stud 14, and this effect is further insured by the guiding function of the rib 26.

The feed slide will be stopped at the left end of its course by contact with the left end of window 23. It will be noted by referring to Fig. 3 that at this stage of the emergence of the blade the projections 29 will have advanced the end portion of the blade to a position approximately 55 midway of the upper surface of the left stud 14. As has been noted above, the studs 14 and 15 project upwardly above the inner face of the cover member 20. Therefore the end portion of the blade 32 is now held in a transversely flexed 60 position, shown by dotted lines in Fig. 2, either side edge being slightly depressed below the level of the center of the end portions of the blade.

The resultant flexure of the blade is sufficient to retain the blade frictionally in place although the magazine is tilted with the emergent blade held down. Therefore the blade is conveniently available for positioning upon the spider of a safety razor, but is not subject to slipping accidentally from the magazine.

As the blade is finally withdrawn from the magazine the end portion slides smoothly along the top of the stud 14 and the edges are protected from accidental contact with the side walls of the magazine or slot by the operation of guide rib 26 which serves to guide and so protect the blade even when it is beyond the effective reach of the stud 14, that is to say, the guiding function of the magazine on the blade passes from the stud 14 to the rib 26.

With the feed slide in its left position last described the blade next to the top will now be afforded clearance to slide upwardly past the projections 29 into a position ready for ejection through the right slot when the feed slide is advanced toward the right. No sooner, therefore, is one blade ejected, than the feed slide is 20 in position to eject another at the opposite exit slot. There can be no confusion concerning the proper direction to move the feed slide; only the uppermost blade in any event is in position for ejection and the uppermost blade may only be advanced in one direction by the slide, namely 25 in the direction of its appropriate exit slot. Thus the question of jamming of blades in one slot, or of emitting simultaneously a blade from each slot, and the operation of engaging and 30 ejecting a single blade is effected without contact with the fingers of the user.

Having thus disclosed my invention and described in detail an illustrative embodiment thereof, I claim as new and desire to secure by 35 Letters Patent:

A blade dispensing magazine comprising a rectangular shell having blade exit slots at both ends, and spaced blade-locating studs within the shell, the shell including a cover having a central longitudinal aperture therein with inwardly projecting flanges at its lower longitudinal edges, and a feed slide grooved at its side edges to engage said flanges, and having a body portion movable in the aperture of the cover partially below the upper face of the cover, the side edges of the feed slide being beveled so that they may be forced between the flanges of the cover in interlocking the feed slide therewith.

JOSEPH MUROS.

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