Aug. 10, 1943. H. W. BRYAN 2,326,202

BLADE MAGAZINE

Filed June 12, 1940

Fig. 1

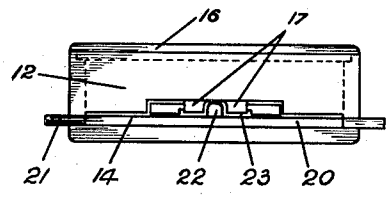


Fig. 2

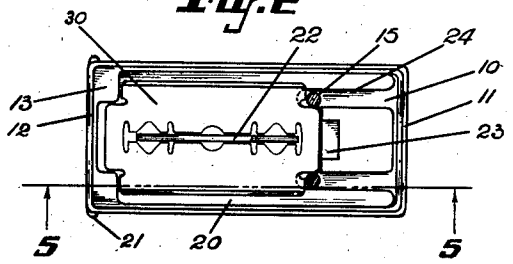


Fig. 3

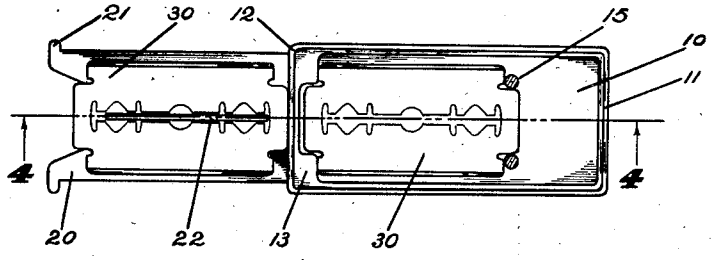


Fig. 4

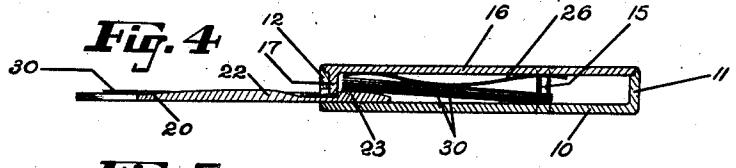
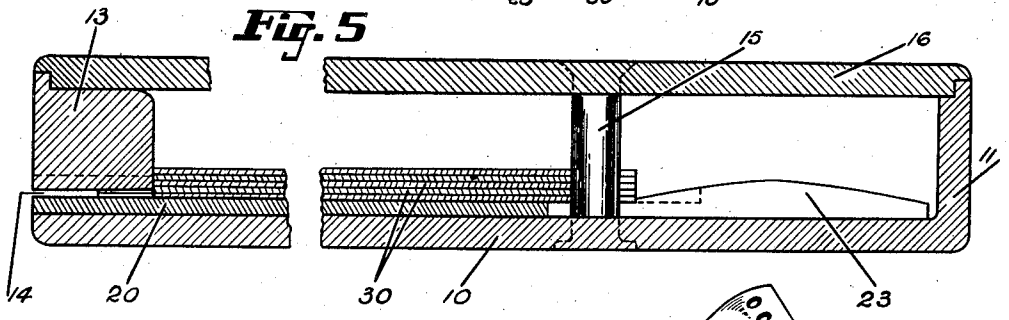


Fig. 5



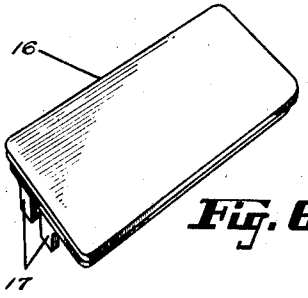


Fig. 6

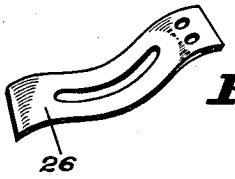


Fig. 7

INVENTOR.

BY Herbert W. Bryan.

J. H. Conway.

ATTORNEY.

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UNITED STATES PATENT OFFICE

2,326,202

BLADE MAGAZINE

Herbert W. Bryan, Boston, Mass., assignor to Gillette Safety Razor Company, Boston, Mass., a corporation of Delaware

Application June 12, 1940, Serial No. 340,017

8 Claims. (Cl. 206—16)

This invention consists in an improved magazine for safety razor blades or other fine-edged blades which it may be desired to dispense and to keep as a reserve supply in fully protected condition and to deliver one by one as required for use in a safety razor or other holder.

The general object of my invention is to improve magazines of this type in respect to security, convenience and safety. It is important that the magazine should be capable of being easily filled by the manufacturer, by automatic machinery, if desired, and that the blades in the magazine should be maintained with their sharp edges out of contact with all parts thereof not only while in the magazine but when being withdrawn therefrom. If that is not done the skill and care of the manufacturer in producing exceedingly fine, keen cutting edges in his blades goes for naught because the slightest contact in withdrawing the blade from the magazine is likely to disturb the delicate structure of its edge. All these conditions are met in the magazine of my invention. The magazine is provided internally with positive means for locating the stack of blades out of contact with the walls of the magazine and in alignment with the delivery opening. The interior of the magazine and the blade-locating means may be fully exposed by removing the magazine cover and when the magazine has been filled the cover may be securely attached without in any way disturbing the blade stack.

An important feature of the invention consists in a blade delivering slide which is freely movable in the magazine and of such shape that it is locked in the magazine against removal therefrom by the simple operation of closing the cover. In other words the feed slide may be freely removed from or inserted within the magazine so long as the cover is removed but interlocking elements are provided which prevent this withdrawal of the feed slide when the cover is in position. The feed slide is arranged to underlie a portion of the blade stack at all times and is of such contour that when one blade is delivered by the slide the blades remaining in the stack are elevated out of range of the delivery opening. This expedient avoids any possibility of more than one blade jamming in the delivery outlet during the feeding movement of the slide.

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 drawing, in which:

Fig. 1 is an end view of the magazine on an enlarged scale;

Fig. 2 is a plan view of the magazine shown in actual size with the cover removed;

Fig. 3 is a corresponding view with the feed slide shown in blade delivering position;

Fig. 4 is a sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a broken sectional view on the line 5—5 of Fig. 2 but on a greatly enlarged scale;

Fig. 6 is a view in perspective of the cover of the magazine; and

Fig. 7 is a view in perspective of the spring for holding the blade stack.

The magazine may be made of sheet metal stamped out and bent to shape or it may be moulded from any suitable thermo-plastic or thermo-setting material. The magazine herein shown is an elongated rectangle in outline and comprises a bottom plate 10 having upstanding side walls, a rear end wall 11 and a front end wall 12. The upstanding walls are grooved or rabbeted in their upper edge to receive a cover 16, presently to be described. The side walls and the front wall 12 merge at the front end of the magazine into the thickened corner posts 13 and these posts provide vertically extending shoulders for locating the blades within the magazine. The front wall 12 is provided at its lower edge with a discharge opening or slot 14 which is flush with the inner face of the bottom plate 10 and which is shouldered in the upper edge as shown in Fig. 1 to provide a widened center portion. A pair of spaced blade-locating pins 15 project upwardly from the bottom plate 10 in positions opposite to the vertical shoulder of the posts 13.

The magazine is herein illustrated as adapted to handle double-edged safety razor blades of the well-known commercial Gillette type. These blades 30 are provided with corner recesses defining elongated unsharpened end portions. They are also each provided with a perforation in the shape of a longitudinal slot of arbitrary design. The corner posts 13 and the spaced pins 15 engage the corner recesses of the blades 30, locating the blades vertically in a stack and holding them in position in the magazine with the foremost end of the blade stack spaced slightly within or behind the delivery opening 14.

The cover plate 16 is shaped to fit snugly within the rabbeted side and end walls of the magazine and at its front end is provided with a stop or stops herein shown as a pair of downwardly extending spaced ears 17. These project downwardly behind the upper portion of the de-

livery opening of the front wall 12 and act to restrict the effective width of the opening and prevent the feed slide from being withdrawn entirely out from the magazine while the cover is in place.

The blade-feeding slide 20 is arranged to reciprocate in the magazine upon the bottom plate 10 and between the side walls of the magazine. It is forked at its forward end, being cut away between the forks to facilitate grasping a blade thereon and provided with a pair of outturned ears 21 by which it may be conveniently manipulated. It is provided also with a central longitudinal upstanding rib 22, designed to fit the slot of the lowermost blade, and at its rear end it is provided with a raised or thickened area 23 which is of such dimension as to engage the spaced stops 17 of the cover as indicated in Fig. 4 when the slide is drawn to the limit of its forward movement. The thickened area 23 is herein shown as being solid but may be formed by a spring plate if desired. The rib 22 which is of substantially the same height but narrow at all times passes freely between the two stops 17. The stops 17 of the cover and the thickened area 23 of the slide constitute interlocking elements that limit the outward movement of the slide and prevent it from being detached from the magazine.

The feed slide 20 is provided in its rear end with a pair of parallel open-ended longitudinal slots 24 which afford clearance for the pins 15. When the slide is moved to the innermost limit of its path, as shown in Figs. 2 and 5, the feed slide 20 underlies the blade stack and is of such thickness that initially the lowermost blade 30 of the stack is supported so that it may pass freely out through the delivery opening or slot 14 while the second blade in the stack is elevated so that its end strikes the upper wall of the slot and is thus positively prevented from advancing with the slide. A bowed leaf spring 26, perforated for the passage of the pins 15, engages the cover of the magazine and the uppermost blade of the stack and tends at all times to press the stack downwardly in the magazine. The magazine is filled by removing the cover 16 and carefully inserting a stack of eight or ten blades located by the posts 13 and pins 15 with their cutting edges out of contact with the side walls of the magazine and spaced from the two end walls. The stack of blades may be mechanically delivered to the magazine by automatic machinery without danger of damage to the sharp edges of the blades. The spring 26 is then put in place and the cover 16 closed, the stops 17 passing between the forward end of the the blade stack and wall 12. As herein shown the cover may be permanently retained in place by riveting the upper ends of the pins 15 or it may be secured by soldering or other convenient means.

When it is desired to withdraw a blade from the magazine it is necessary only to pull the feed slide forwardly by means of its ears 21; thereupon the lowermost blade 30 passes outwardly with the slide, being positioned thereon by the rib 22. The rib prevents displacement of the blade 30 so that it passes through the delivery slot without contacting any part of the magazine and lies flat upon the feed slide where its forward end may be conveniently grasped at the forked end of the slide. The feed slide 20 is arrested at the forward limit of its movement with a blade fully exposed thereon and this limiting action is affected by the engagement of the relatively wide thickened area 23 with the spaced stops 17 at the front end of the magazine. As already explained, the thickened area 23 is too wide to pass between the stops 17 although free passage of the narrow rib 22 between them is facilitated.

During the outward movement of the feed slide the remaining blades 30 of the blade stack are prevented from longitudinal movement by the shoulders of the posts 13. As the feed slide advances it passes out from beneath the inner end of the blade stack and this is then immediately depressed into contact with the bottom plate 10. The thickened area 23 of the slide, however, never passes out from beneath the forward end of the blade stack but pushes this up temporarily into an elevated position as shown in Fig. 4 where it is entirely above the opening of the delivery slot 14. When the feed slide is again pushed inwardly its thickened area 23 passes rearwardly beneath the blade stack, lifting it from the bottom of the magazine and finally depositing the stack upon the flat body portion of the slide with the rib 22 again registering with the slot in the lowermost blade of the stack.

It will be noted that the rib 22 tapers gradually at both ends and is thus adapted to pass smoothly in under the end of the lowermost blade 30 when the slide is moved inwardly. It will be noted also that the forward wall of the thickened area 23 is abrupt in contour and so provides a positive contact surface engaging the rear end of the lowermost blade 30 in the stack. The height of this wall however is not sufficient to engage the second blade in the stack which, as already stated is held against advancing movement by its engagement with the front wall 12 of the magazine.

In assembling the magazine the feed slide may be freely inserted through the delivery slot 14 in the front end wall and its subesequent removal is prevented by closing the cover 16 and bringing the stops 17 into position either inside or outside the end wall 12 to engage the thickened area 23 of the slide when the latter is advanced.

Having thus disclosed my invention and described in detail one embodiment thereof for purposes of illustration but not in any limiting sense, I claim as new and desire to secure by Letters Patent:

1. A blade magazine comprising a rectangular enclosure having one end wall with a transverse delivery slot in its lower edge shaped to provide a wide central opening merging into narrow side openings, means within the magazine for holding a stack of apertured blades with one end directed toward said delivery slot, and a feed slide movable in the magazine beneath the blade stack and outwardly through the delivery slot, said feed slide being provided with a narrow upstanding blade-locating rib shaped to enter the aperture of a blade in said stack and to pass freely through the wide central opening of the delivery slot and with a thickened area in its rear end which is too wide to pass through said central opening.

2. A blade magazine comprising an elongated enclosure having one end wall shaped at its lower edge to provide a transverse delivery slot therein having a wide central opening merging into narrow side openings, means within the magazine for positioning a blade stack in vertical alignment opposite to said delivery slot, and a feed slide movable in the bottom of the magazine, outwardly

through the delivery slot and having a central upstanding rib shaped to enter the lowermost blade of the stack and a laterally extending thickened area located in the rear of said rib.

3. A blade magazine having an end wall apertured to provide a wide delivery slot in its lower edge, a detachable cover for the magazine having spaced stops projecting partially across the slot and forming therewith a restricted central passage, a feed slide movable in the magazine and outwardly through the delivery slot and having a narrow blade-locating rib movable through the said central passage and having at its inner end a transversely extending projection movable into engagement with said stops to limit the movement of the slide and acting to lift above the effective opening of the slot undelivered blades resting on the slide when the projection thereon is advanced into proximity to said apertured wall.

4. A blade magazine having a wall shaped to provide a delivery opening varying in height between its ends, and a feed slide movable in the magazine toward and through said opening and having a longitudinal rib shaped to pass freely through one part of said opening and a raised portion at its inner end extending transversely out of line with the rib and greater in one dimension than the effective width of the said delivery opening.

5. A blade magazine comprising an elongated enclosure having a delivery opening in one end, means for locating a blade stack in the magazine spaced substantially from its other end, and a feed slide shaped to underlie the stack, movable on the bottom of the magazine through the delivery opening and having a raised portion for lifting the blade stack which portion is of limited area and located initially in the space provided in the magazine beyond the inner end of the stack.

6. A blade dispensing magazine having an end wall shaped to provide an exit slot adjacent to the bottom of the magazine, a cover detachable from the top of the magazine to permit filling the magazine with blades and having spaced downturned ears arranged to limit the effective width of the exit slot when the cover is in place, and a feed slide movable in the magazine through said slot and having a projection adjacent its inner end extending to a point at which it is engaged in one position of the slide by the ears of the cover thereby limiting the path of the feed slide.

7. A blade dispensing magazine having an end wall shaped to provide a transverse exit slot adjacent the bottom of the magazine, a cover detachably connected to the top of the magazine to permit filling the magazine with blades and having at one end a downturned ear arranged to restrict the effective width of the exit slot, and a feed slide movable in the magazine and outwardly through the exit slot, said feed slide having a blade-locating rib so located as to pass freely past the ear of the cover and a projection at its rear end shaped to interlock with said ear in one position of the slide and thereby limit the outward movement of the slide.

8. A blade magazine having an end wall provided with a delivery opening in its lower portion, a feed slide movable on the bottom of the magazine toward and into said opening and provided with a longitudinal slot and an elevated portion of restricted area located to the rear of its forward end, and stationary means within the magazine, including a post projecting up from the bottom of the magazine through the slot of the feed slide, for locating a stack of blades in position where they rest on the said slide in position to be lifted by the movement of the elevated portion of the feed slide beneath them.

HERBERT W. BRYAN.