Feb. 16, 1954 C. L. METZLER 2,669,348

BLADE DISPENSING MAGAZINE WITH USED BLADE COMPARTMENT

Filed March 5, 1948

2 Sheets-Sheet 1

Fig. 1.

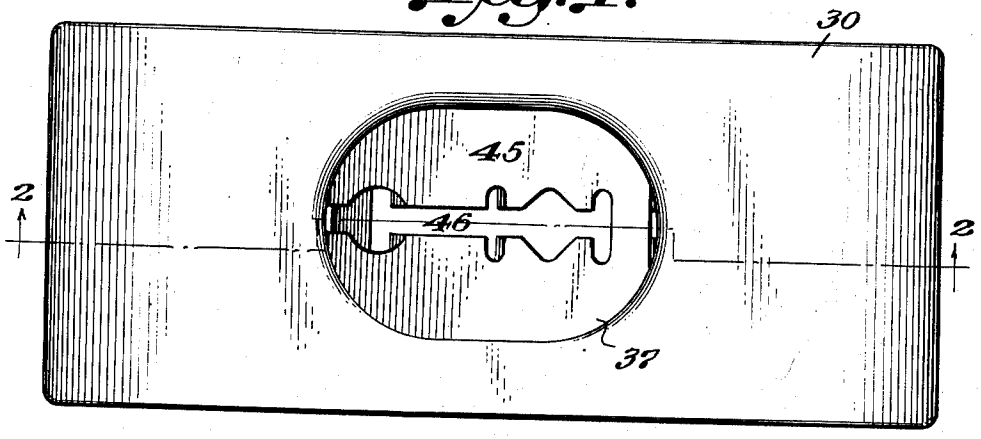


Fig. 2.

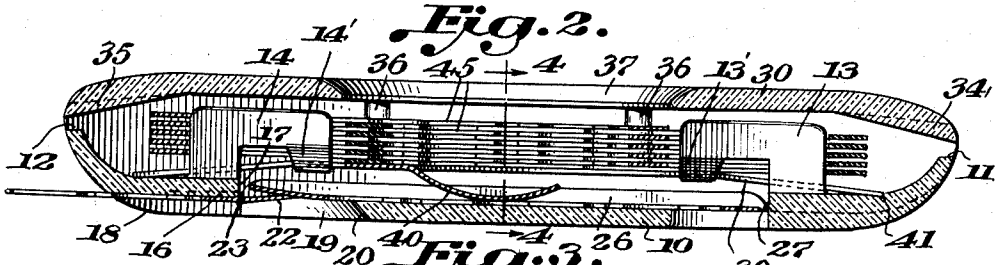


Fig. 3.

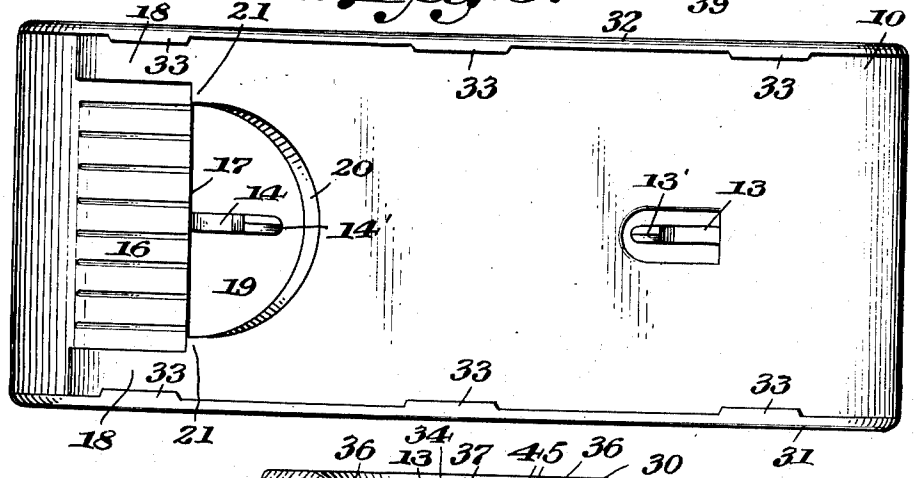
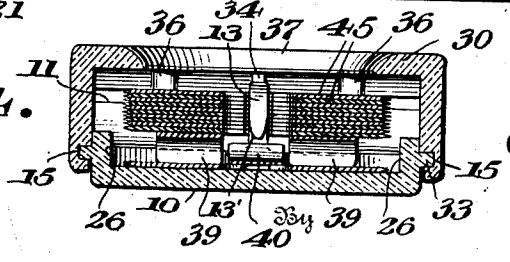


Fig. 4.



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2 Sheets-Sheet 2

Fig. 5.

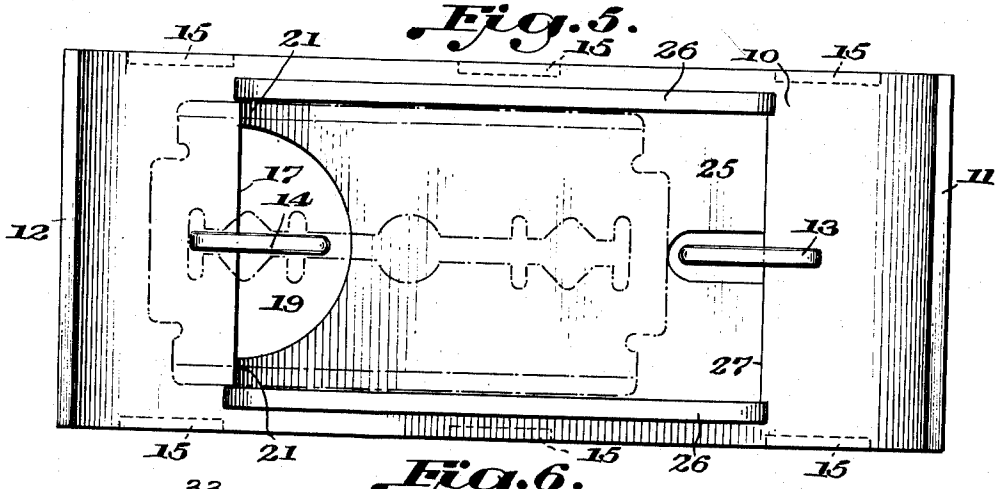


Fig. 6.

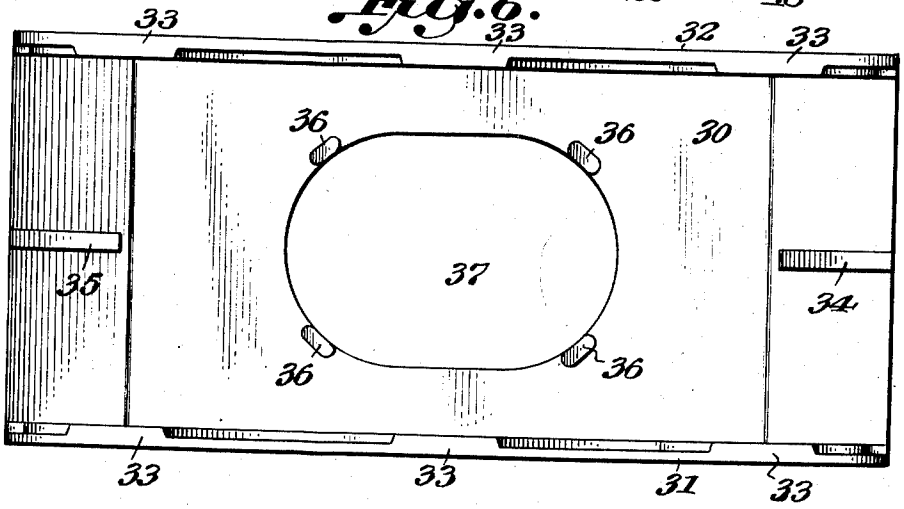
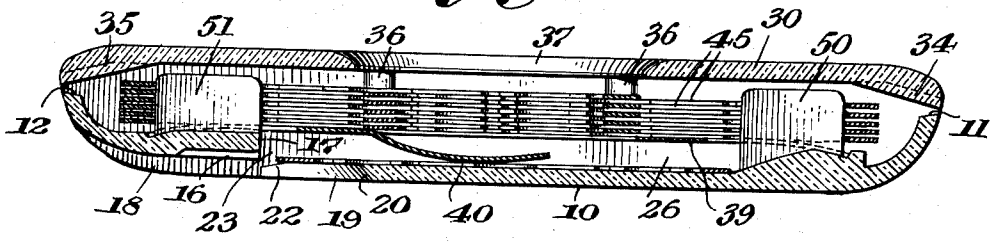


Fig. 7.



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Patented Feb. 16, 1954

2,669,348

UNITED STATES PATENT OFFICE

2,669,348

BLADE DISPENSING MAGAZINE WITH USED BLADE COMPARTMENT

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Application March 5, 1948, Serial No. 13,257

7 Claims. (Cl. 206—16)

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This invention relates to magazines for dispensing sharp-edged blades, such as safety-razor blades, and consists in a novel combination with a magazine having a stiff shell with exit or delivery openings at opposite ends, of a stack of longitudinally slotted blades controlled in their position and movement within the shell by lugs projecting in opposite directions from the top and bottom respectively of the shell, and wherein the shell is constructed to receive used blades in a particular manner so that the used blades, as they are inserted into the shell from time to time, will not interfere with the dispensing of the unused blades.

It has been found that the fine cutting edge of a safety razor blade is so delicate in its structure that it is likely to be easily damaged by any chance contact occurring before actual use of the blade. It is desirable, therefore, that the manufacturer, who is best qualified to produce the fine cutting edge of the blade, should also package and protect the blades as they are finished in order that they may arrive unimpaired in the user's hands.

One of the most satisfactory ways in which safety razor blades are packaged for distribution by the manufacturer is in a dispensing magazine in which the blades are arranged in alternately staggered relation. The blades are thus partially separated when the magazine is loaded and this partial separation facilitates ejection of the blades one by one by the user in that it permits a limited preliminary movement of the outermost blade while the blade is still under full control in the magazine.

After a blade has been dispensed from the magazine in an unimpaired condition, and the blade has been used for shaving purposes until the fine cutting edge thereof becomes dulled so that it is no longer comfortable or useful for its intended purposes, it then becomes desirable to dispose of the used blade. This invention relates to a dispensing magazine wherein the user may receive unused and unimpaired blades from time to time and dispose of the used blades in the magazine. After the supply of unused blades is exhausted and the magazine is filled with used blades, the magazine and used blades may be discarded as a single unit.

The general objects of the present invention are to provide a magazine and blade combination which will insure safety of the blade edge, which may be mechanically assembled and packed at low cost and which will present an

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attractive appearance, and wherein used blades may be easily inserted and conveniently stored.

A particular object of the invention is to provide a magazine and blade combination wherein unused blades may be dispensed with exceptional convenience from time to time in an unimpaired condition, and wherein the used blades may be disposed of in a novel manner in the dispensing magazine.

A further object of the invention is to provide a compartment in a razor blade dispensing magazine for used blades wherein the used blade cannot be extracted from the magazine, and wherein the same may be easily inserted into the magazine without danger of the user cutting himself. A further important object of the invention is to provide a magazine for safety razor blades which will insure dispensing of the blades in an unimpaired condition and wherein the used blades may be stored in the magazine without danger of the used blades contacting the unused blades, thus insuring unimpairment of the fine cutting edge of the unused blades.

One of the structural features of the magazine consists in the provision of a used blade compartment and an entrance slot therefor with provisions for guiding the used blade through the slot and into the compartment. Still more specifically, provision is made for the user to place his thumb only on the flat surface of the used blade and frictionally move the blade longitudinally of the magazine and simultaneously guide the same through the slot and into the compartment. A thumb opening is provided in the bottom of the magazine which is positioned inwardly of the used blade slot so that the thumb of the user may continue to contact the flat surface of the blade with his thumb until the trailing end of the blade is in the compartment. The slot is of a particular construction which causes longitudinal flexing of the blade as it is being inserted into the compartment so that, after the used blade is in the compartment, the blade will assume its natural non-flexed position and the slot will prevent the escape of the blade from its compartment. Also, resilient means are provided to urge the stack of unused blades upwardly against downwardly extending projections for proper dispensing of the unused blades, and the same resilient means maintains the used blades in the used blade compartment and, furthermore, maintains the used blades separated from the unused blades, thereby further insuring unimpairment of the unused blades.

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:

Figure 1 is a plan view on an enlarged scale of the loaded magazine;

Figure 2 is a view in longitudinal section on the lines 2—2 of Figure 1, showing a stack of unused blades in the upper portion of the magazine, one used blade in the used blade compartment formed in the lower portion of the magazine and a portion of a second used blade as it is about to enter the used blade compartment:

Figure 3 is a bottom view of the magazine;

Figure 4 is a cross sectional view on the lines 4—4 of Figure 2;

Figure 5 is a plan view of the base member which forms a part of the magazine, and indicating the position of a used blade as it is entering the used blade compartment;

Figure 6 is a view of the cover member as seen from beneath, or within the magazine;

Figure 7 is a longitudinal sectional view of a modified form of the invention, showing a stack of unused blades in the upper portion of the magazine and a single used blade in the used blade compartment formed in the bottom of the magazine.

The dispensing magazine herein shown may be constructed of any suitable sheet material, as by molding from synthetic resin, or die casting from light metal. In one very attractive form the magazine is molded as a shell of transparent "Lucite." The magazine comprises a base member and a cover member which may be made separately and then sprung into interlocking engagement to enclose the blade stack, or they may be united by fusing or other means. The construction and design of both members is such that they have substantially uniform cross-sections of material throughout, thus facilitating molding and obviating any tendency to distort in use.

The lower or base member 10 of the magazine is rectangular in outline and flat except that it is curved upwardly at both ends so that it terminates in flat horizontally disposed edges 11 and 12 which, in the completed magazine, form the lower sides of blade-exit or delivery slots. The member 10, at its inner surface, extends in a smooth continuous sweep to the edges of the exit slots at its opposite ends. It thus tends to guide the advancing end of a blade to and into one slot or the other according to the direction in which the blade can be moved in the magazine.

The base member is also provided with a pair of narrow blade-locating studs 13 and 14 spaced apart a distance approximately two-thirds the length of the blade slot and having symmetrically tapered ends and rounded inner corners. The locating studs 13 and 14 are provided with a depending hook portion 13' and 14' for purposes later to be described. These studs are aligned with each other in the major longitudinal axis of the base and are of such width as to receive the blade slot with clearance and of such height as to approach the inner face of the cover of the magazine and to accommodate a stack of about twenty blades. The parallel side edges of the base member are provided with a series of shallow rectangular recesses 15, for example three in each edge.

The base member is further provided with an inwardly depressed or recessed portion 16 located adjacent one end thereof as illustrated in Figs. 2 and 3 and which present a longitudinally grooved flat blade-guiding face of substantial area. The depressed portion 16 extends from one end of the base member 10 inwardly and terminates in a straight transverse wall 17. It will be noted that the depressed portion 16 extends to a point short of the marginal side edges of the base member, thus leaving a pair of marginal ribs 18. The distance between the ribs 18 is slightly greater than the width of a safety razor blade, for purposes to be later described. A thumb opening 19 of arcuate or semi-circular configuration is formed in the base 10 and is positioned beyond the depressed portion 16. The outer edge of the base surrounding the opening 19 may be beveled as indicated by reference numeral 20. The outer end of the thumb opening 19 is of a width less than the width of the depressed portion 16 thereby leaving tabs or shoulders 21 which terminate at the wall 17 of the depressed portion 16. As seen particularly in Figure 2, the inner surface of each tab 21 is inclined as at 22, so that the tabs cooperate with the wall 17 of depressed portion 16 to form an upwardly inclined entrance slot 23.

A rectangular used blade compartment 25 is formed in the bottom of the base member 10 and is enclosed by longitudinally extending marginal ribs 26 spaced inwardly from each side of the base member, and a transverse shoulder 27 which forms one end of the compartment and the straight line edge 17 of depressed portion 16, which forms the other end of the compartment. The bottom 10 has a depressed area throughout the used blade compartment, thus forming a shallow well in the bottom of the shell.

The cover or upper member 30 of the magazine, as best shown in Figs. 2 and 6, is also rectangular in outline and has side walls 31 and 32 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 33, three on each edge, designed to fit with clearance and interlock with the recesses 15 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 33 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 inch is provided between the lugs 33 and the recesses 15 for manufacturing purposes and to relieve strain in the finished magazine.

The cover member is provided with a series of downwardly projecting lugs 36, for example four in number, and these lugs in the illustrated magazine are arranged about the periphery of an oval window 37 which is formed symmetrically and centrally in the cover member and which is of sufficient area to admit the thumb of the user. The pair of lugs at each end of the window are thus transversely spaced apart. The cover member is also provided centrally with longitudinal guide ribs 34 and 35 which in the assembled magazine extend downwardly from the point above the studs 13 and 14 into the respective exit slots at opposite ends of the magazine.

When the two parts of the magazine are assembled, the studs 13 and 14 may lie in the magazine outside the outline of the pattern of the downwardly extending lugs 36, and the upper edges of the studs 13 and 14 may be located substantially in the plane determined by the lower faces of the lugs 36 or slightly above such plane.

The magazine includes a forked leaf spring 39 which acts as a partial partition between the used and unused blade compartments and has a central leaf 40 bowed downwardly. The side forks of the spring are upwardly bowed and serve to press the unused blade stack yieldingly upwardly to a position determined by engagement of the uppermost blade in the stack with the inner faces of the lugs 36. While one end of the spring may abut against a shoulder 41, its other 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 twenty blades of a well-known commercial type, that is to say, double-edged blades 45, each provided with a longitudinal median slot 46. Each blade is notched at its corners and those notches define elongated unsharpened end portions, centrally and symmetrically located in the blade and of such width as to be received with a clearance between either pair of lugs 36 at the ends of the window 37.

The modified form of the invention as disclosed in Figure 7 differs from that shown in Figures 1 through 6 primarily in the construction of the upstanding blade locating studs 50 and 51, and in the omission of the shoulder 27 (shown in the preferred form). The blade locating studs 50 and 51 are constructed as shown, and the used blade compartment 25 is defined at one end thereof by the location of lug 50. Otherwise, the construction and operation are substantially the same as that of the preferred construction shown in Figures 1 through 6.

In preparing the dispensing magazine above described, the manufacturer will preferably deliver automatically a stack of twenty longitudinally staggered and slotted blades to the base member, after the leaf spring 40 has been placed thereon, impaling alternate blades upon their respective studs 13 and 14 so that each blade is free to be moved longitudinally for the length of its slot minus the length of one of the studs and in one direction only. The cover 30 is then placed on the base member 10 and the lugs 33 formed on the side edges 31 and 32 of the cover 30 are interlocked with the recesses 15 of the base member. When so placing the cover, the leaf spring 39 is depressed along with the stack of unused blades 45. It will be seen that the leaf spring 39 then presses the unused blade stack 45 upwardly to a level determined by the inner faces of the lug 36. At the same time, the studs 13 and 14 project with clearance through the blade slots to a height slightly above the level of the uppermost blade as determined by its engagement with the lugs 36, that is, the inner ends of the studs 13 and 14, on the one hand, and the lugs 36, on the other hand, overlap vertically by a slight amount.

It will be seen, as shown in Fig. 2, that the concealed outer end of the uppermost blade is held in positive engagement with the outer edge of the left hand stud 14 and that the said blade can be moved only outwardly toward the left. When the user wishes to eject this blade, he may insert his thumb through the window 37 and displace the blade toward the left. As the blade is being ejected, the concealed inner end of the blade, as defined by its corner notches, passes outwardly beyond the two lugs 36 at the left hand end of the window 37, that is, the lugs 36 are now located in the corner notches of the blade. As soon as the end of the blade is thus freed from the obstruction of these lugs, it is lifted by the

action of the spring 39, being thus carried above and freed from the stud 14; at the same time, the blade slot 46 is engaged with the guide rib 35 so that the blade is positively held in a central position with both edges out of contact with the ends of the exit slot. The user is now free to draw the blade fully out from the exit slot, and throughout this final movement the guide rib 35 controls the path of the blade and insures no contact between its edges and the magazine.

After the ejected blade has been used for shaving purposes, until its fine cutting edge becomes dulled to an extent where it is no longer useful for its intended function, the user may then place the used blade on the flat face of the depressed portion 16 of the base member (see Figures 2 and 3). As the distance between the ribs 18 is slightly greater than the width of the blade, the side edges of the ribs act as a guide. The user may then place his thumb upon the flat surface of the blade and frictionally move the blade longitudinally of the magazine so that the forward edge of the used blade enters the slot 23. As the slot 23 is formed with upwardly inclined surfaces, the blade will be guided upwardly into the used blade compartment 25. This longitudinal movement and the inclined position of the forward end of the blade will continue until the forward end of the blade reaches the downwardly bowed portion 40 of the leaf spring. The pressure of the leaf spring will cause the blade to flex longitudinally as it enters the compartment. The thumb of the user will continue to contact the flat surface of the blade and enter the cut-out portion 19 until the trailing end of the blade is in the compartment. After the trailing end passes through the slot 23, the blade will then assume its normal non-flexed position and will lie flat in the compartment, as illustrated in Figure 2. It is impossible for the used blade thus positioned within the compartment to be accidentally or purposely removed therefrom. The spring 40 presses on the upper surface of the used blade, substantially midway thereof, so that it is difficult, if not impossible, to again flex the blade longitudinally so that it could leave its entrance slot 23.

After the used blade has been positioned within the compartment, the user may then eject another unused blade from the right exit slot, in a manner heretofore illustrated. After the second blade has become dulled, it may be inserted in the used blade compartment, under the firs blade, as previously explained. This operation may be continued until all of the unused blades have been dispensed and later inserted in the used blade compartment. At this time, the entire magazine may be discarded as a unit, thus insuring protection of the user and others from being cut by the used blades.

In explaining the above operation, it will be noted that as a used blade is inserted into the used blade compartment, it will always be separated from the unused blades by the leaf spring 40, and the leaf spring will prevent the used blades, after all of the unused blades have been dispensed from the magazine, from being positioned adjacent to either of the exit slots. This latter function is aided by the hook elements 13' and 14' which are parts of the upstanding lugs 13, 14, respectively. These hook elements enter the ends of the slot 46, thus limiting the upward movement of the used blades while the inner edges of the studs positively prevent the used blades from reaching the blade exit slots.

It should also be noted that the upper surface of the bottom 10 of the used blade compartment and the lower surface of the depressed portion 16 lie in substantially the same horizontal plane. Accordingly, a blade resting upon the bottom 10 can not find its way outwardly through the entrance slot 23 but will be arrested by the transverse wall 17.

Having thus disclosed by inevntion and described in detail illustrative embodiments thereof, I claim as new and desire to secure by Letters Patent:

1. A blade magazine comprising a shell of rectangular outline having end exit slots and a bottom with elevated end areas and an intermediate well providing a used blade compartment with an inlet slot at one end of said well, and a bowed spring resting with its ends on said elevated areas, bridging the well and providing separate compartments within the shell for used and unused blades.

2. A blade magazine comprising a shell of rectangular outline having an exit slot in its end and a bottom with an inlet slot therein, the bottom of the shell having elevated end areas and an intermediate well, a forked partition resting at its ends on said elevated areas, and studs rising from said areas and having depending hooked portions projecting downwardly through the said partition and overhanging the well.

3. A blade magazine comprising a shell of rectangular outline having an exit slot at its end and a bottom with an inlet slot therein, a slotted partition overlying said bottom and separating the shell into compartments for used and unused blades, and fixed blade-locating studs in said magazine having overhanging ends which pass downwardly through the slots in said partition into the used blade compartment.

4. A blade magazine comprising a shell of rectangular outline having a blade exit slot in its end and a bottom with an inlet slot therein, a slotted partition dividing the shell into compartments for used and unused blades, studs rising from the bottom substantially within the ends of the shell and having inwardly directed overhanging ends, a stack of slotted blades above the partition threaded upon said studs, and used blades below the partition retained against endwise movement between the studs with their slots registering with the overhanging ends of the studs.

5. A blade magazine comprising a shell of elongated outline having a blade exit slot in its end, a bottom with a blade inlet slot therein, a movable partition dividing the shell into superposed compartments for used and unused blades, and rigidly mounted studs located wholly within the shell and passing through the partition and having ends overhanging the compartment for used blades.

6. A blade magazine comprising a shell of rectangular outline having a blade exit slot in its end, a bottom having a blade inlet slot therein, a movable partition dividing the shell into compartments located one above the other for unused and used blades respectively, and spaced hook-shaped studs within the shell respectively passing first upwardly and then downwardly through said partition and presenting blade-positioning edges in both of said compartments.

7. A blade magazine comprising a shell of rectangular outline having a blade exit slot at one end and a bottom having a depressed area in its inner face forming a shallow well and a blade inlet slot leading into said well, a leaf spring spanning said well and defining therewith a used blade compartment within the shell, and studs projecting upwardly at each end of the well and confining used blades in the compartment against endwise movement, said studs projecting above the leaf spring and locating longitudinally slotted unused blades above the leaf spring.

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