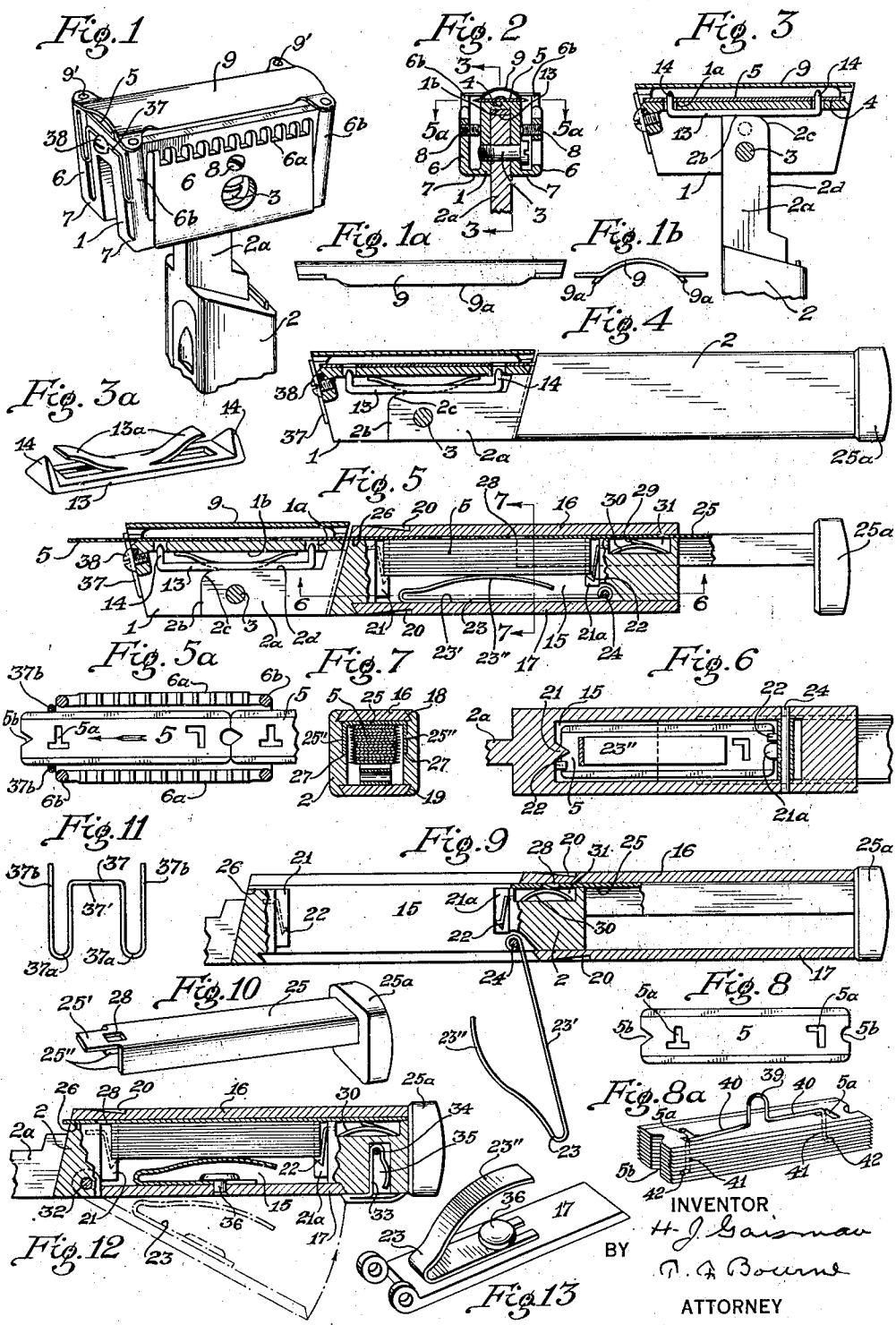
May 17, 1932. H. J. GAISMAN 1,859,083

SAFETY RAZOR

Filed March 30, 1928



INVENTOR
H. J. Gaisman
BY
T. A. Bourne
ATTORNEY

Patented May 17, 1932 1,859,083

UNITED STATES PATENT OFFICE

HENRY J. GAISMAN, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO GILLETTE SAFETY RAZOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

SAFETY RAZOR

Application filed March 30, 1928. Serial No. 265,907.

My invention relates to improvements in the class of safety razors in which a stack of blades is maintained in position to be successively inserted in a blade holder, as occasion may require.

One of the objects of the invention is to provide a blade holder having a guard, means to retain the blade in shaving relation to the guard and means to adjust the position of the guard relatively to the blade edge for shaving and to retain the guard in adjusted position.

Another object of my invention is to provide improved means to permit insertion of the stack of blades in a magazine or container and to retain them resiliently therein. Other objects and advantages will appear in the following description.

My invention comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part hereof, wherein

Fig. 1 is a partly broken perspective view illustrating my improvement with the blade holder in position for use;

Figs. 1*a* and 1*b* are details of the blade retainer;

Fig. 2 is a cross section through Fig. 1;

Fig. 3 is a detail section substantially on the plane of line 3, 3, in Fig. 2;

Fig. 3*a* is a detail of a blade keeper;

Fig. 4 is a partly sectional side view showing the parts in folded positions;

Fig. 5 is a longitudinal section;

Fig. 5*a* is a section on line 5*a*, 5*a* in Fig. 2;

Fig. 6 is a detail section on line 6, 6, in Fig. 5;

Fig. 7 is a cross section on line 7, 7, in Fig. 5;

Fig. 8 is a detail of the blade;

Fig. 8*a* is a detail illustrating a stack of blades with their retainer;

Fig. 9 is a detail section illustrating parts separated to permit insertion of blades into or removal from the magazine, and to permit cleaning and wiping of the latter;

Fig. 10 is a perspective detail of the blade ejector;

Fig. 11 is a detail of the blade guide;

Fig. 12 is a sectional detail of a modification, and

Fig. 13 is a perspective detail of part of Fig. 12.

Similar numerals of reference indicate corresponding parts in the several views.

The numeral 1 indicates a blade holder, and at 2 is a handle shown provided with a reduced portion 2*a* to which the blade holder is pivotally attached. I have shown a screw 3 pivotally connecting the blade holder and the handle, whereby the blade holder may be turned at an angle to the handle for shaving, (Fig. 1), and may be turned parallel to the handle to receive and discharge blades, (Figs. 4 and 5). The blade holder has a relatively flat seat 4 upon which the blade 5 may rest with its cutting edges extending beyond the seat for shaving. Guards for the blade edge are indicated at 6, which guards are shown provided with comb-like teeth at 6*a* in proper position relatively to the blade edges to guard the latter. The guards 6 are connected to the blade holder so as to have movement relatively to the corresponding blade edges, the guards being shown attached to the blade holder material by the connecting pieces 7, and due to resiliency of the metal the guards may be adjusted toward and from the blade edges. I have illustrated screws 8 operative in threaded bores in the guards, adapted to be rotated against the body of the blade holder for adjusting the guards with respect to the blade edges, (Fig. 2). At 9 is a retainer for the blade to keep the latter pressed against the seat 4. The retainer is attached to the blade holder, as by rivets or screws, at 9′, (Fig. 1), and is of resilient material so as to overlie the blade at the free edges 9*a* of the retainer, said edges being suitably spaced from the seat 4 of the holder to receive the blade in the space therebetween, pressure of the retainer upon the blade keeping the latter on its seat. The corners of the retainer are shown secured to posts 6*b* near the ends of the guards.

To permit the blade to slide along the seat 4 of blade holder 1 and to retain the blade in shaving position I provide a plate 13 that is located between seat 4 and the adjacent end of

handle 2, which plate is provided with tapering projections 14 that are adapted to pass through openings 1*a* in the blade holder at the seat 4 and through registering openings 5*a* in the blade, (Fig. 8). The plate 13 is shown provided with outwardly pressed spring-like fingers or tongues 13*a* that bear against the wall 1*b* of the blade holder, (Fig. 5), to normally push the plate toward the adjacent end of handle 2. The extreme end of the handle is shown flat at 2*b* to bear against plate 13 for pushing the plate to extend the projections 14 through the openings 1*a* in wall 1*b* and through the openings 5*a* of blade 5, (Fig. 3), and the adjacent portion 2*c* of the end of the handle is rounded to rock against the plate 13, whereby the latter may bear against the reduced edge portion 2*d* of the handle when the holder and the handle are in parallel relation, whereby springs 13*a* will push the plate 13 away from wall 1*b* to cause withdrawal of the projections 14 from the blade, (Fig. 5). When the parts are in the position shown in Fig. 5 the blades will be free to slide along seat 4 of the holder, and when a blade has been placed in proper position upon the holder and the latter is turned crosswise respecting the handle, the plate 13 will be pushed toward the wall 1*b* and the projections 14 of said plate will pass through the apertures 5*a* of the blade to position the blade and to retain the latter in shaving position on the seat of the blade holder, (Fig. 3). The resiliency of the springs 13*a*, tending to press the plate 13 against the adjacent end 2*b* of handle 2, will serve to retain the blade holder in shaving relation to the handle, (Fig. 3).

The handle 2 is provided with a magazine or compartment 15 to retain a stack of blades in such position that they may be ejected into the blade holder as required. The magazine or compartment 15 is shown open through opposite sides of the handle, and covers 16 and 17 are adapted to close and open the magazine, as in the nature of doors. The cover 16 is shown slidably attached to handle 2, for which purpose the edges of the cover are fitted in grooves in the corresponding edges of the handle, (in dove-tail fashion), as indicated at 18, (Fig. 7), and in the form shown in Figs. 1 to 11 the cover 17 is also slidably attached to the handle, in dove-tail fashion, as indicated at 19. Dents at 20 in the covers permit a finger to push the covers to an open position. The end walls of magazine or compartment 15 are shown provided with projecting guides 21, 21*a* which receive notches 5*b* at the ends of the blades to retain the latter in proper position in the magazine with their edges out of contact with the handle, (Fig. 7). The guides 21, 21*a* are shown of different contour to engage corresponding notches 5*b* in the blades to assure the desired position of the blades in the magazine to receive the projections 14. Spring catches 22 carried by the end walls of the magazine or compartment 15 are adapted to engage a stack of blades when the latter are pushed into the magazine against the closed cover 16 to retain the blades. A spring 23 bears against the stack of blades in the magazine to retain the latter in snug position pressed against cover 16. In the form shown in Figs. 1 to 11 the spring 23 is shown pivotally supported by a pin at 24 within the magazine or compartment 15 so as to swing through an open side of the latter to permit insertion of a stack of blades into the magazine, (Fig. 9). Said spring may be swung back through the opening into the magazine to bear against the blades therein and the parts will be retained, when the cover 17 is closed, as indicated in Fig. 5, the spring pressing the stack of blades against cover 16. The spring 23 is shown provided with a flat portion 23′ to bear against the cover 17, and with a reversely extending free portion 23″ to bear against the blades, (Fig. 5), so organized as to follow the stack of blades as the latter become reduced in quantity in the magazine.

At 25 is an ejector for the blades adapted to be reciprocated within the magazine to push blades therefrom through a space 26 between the adjacent portion of the handle and cover 16 into the blade holder, (Figs. 5, 9 and 12). The ejector 25 is guided to slide within magazine or compartment 15 and is shown comprising a flat blade ejecting portion 25′ and spaced side portions 25″ that are guided in recesses 27 in the side walls of the magazine, (Fig. 7). The ejector 25 is shown provided, at its outer end, with an enlarged head 25*a* for manipulating it, which head is adapted to oppose and stop the covers 16 and 17 when the latter are slid outwardly respecting the magazine, (Fig. 9). The ejector is shown provided with an opening 28 that is adapted to engage a projection 29 struck out or projecting from a curved spring 30 located in a recess 31 in handle 2, (Fig. 9). When the ejector is pulled out the projection 29 will enter the opening 28 to limit the outward movement of the ejector, and when the latter is pushed inwardly it will slide over the forwardly inclined projection 29.

In the form shown in Figs. 12 and 13 the cover 17 is pivotally connected to the handle, at 32, to be swung away from the magazine or compartment 15 to permit insertion of blades 5 therein. A spring catch 33 is retained by a pin 34 in a recess 35 in the handle in position to retain the cover 17 closed. When the cover is to be opened the spring catch may be pushed away from the position shown in Fig. 12 to release the cover. In said form the spring 23 is shown attached to cover 17 by means of a rivet 36 so that when the cover is swung back to the closed position the spring will bear against the stack of

blades in the magazine for the purpose before described.

At 37 is a guide for the blades, located near the blade delivery side of the holder to guide the blade being discharged, (Figs. 1, 5*a* and 11). The guide 37 is shown comprising a resilient wire having a mid-portion 37′ secured by a screw 38 at the end of the blade holder, (Fig. 1), from which portion 37′ arms 37*a* extend, substantially in U-shape, providing the spaced guide-members 37*b*, between which a used blade may slide when being ejected from the holder, (Fig. 5*a*). When a blade advances from the magazine it will push a used blade from the holder, and since the two blades are in contact end to end the guide-members 37*b*, by guiding the blade that is being discharged, will cause the latter to keep the cutting edges of the new advancing blade out of contact with the blade holder as the new blade slides to shaving position along seat 4. The guide-members 37*b* also tend to dull the edges of the discharged blade to resist cutting the fingers of the user.

In order conveniently to handle a stack of blades I have illustrated a holder in Fig. 8*a* shown comprising a spring wire having a loop-like resilient handle portion 39 and two outwardly extending arms 40 having lateral projecting portions 41 adapted to bear upon the upper blade and provided with relatively short laterally extending end lugs 42, the portions 41 being adapted to be passed through the registering openings 5*a* of the blades with the lugs engaging the lowermost blade and retain them in a stack. The handle 39 may be gripped and the stack of blades may be set into the magazine or compartment of the handle 2 without danger of touching the cutting edges of the blades, and by squeezing the handle portion 39 the holder may be released and removed from a stack of blades leaving the latter deposited in the magazine.

When a blade is to be inserted in the holder the latter will be turned parallel with the handle, the ejector 25 will be drawn out permitting the endmost blade of the stack to bear against the cover 16 in register with the ejector, and then the latter will be pushed inwardly to push the blade from the magazine through space 26 into the holder, said blade ejecting from the holder a used blade, (Fig. 5). The sliding of the blade in the holder will be permitted because the projections 14 will be out of the path of the blade, as in Figs. 4 and 5. When the holder is rotated to the shaving position the cooperation of the end portion 2*b* of the handle with the plate 13 will cause the projections 14 to pass through the openings 5*a* in the blade to retain the latter in shaving position, (Fig. 3). By having the covers 16 and 17 movable with respect to the magazine or compartment 15 the insertion of the blades therein is facilitated, as well as their removal therefrom when desired, and also the compartment will be free to be cleaned and wiped when the covers are opened. By having the spring 23 pivotally carried by the handle said spring may be readily manipulated independently of the manipulation of the stack of blades, which will facilitate operations.

Changes may be made in the details of construction set forth, within the scope of the appended claims, without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. A safety razor comprising a blade holder provided with means to detachably retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine having a side opening for admission of blades, a cover for the magazine opening movably carried by the handle to permit insertion of blades into the magazine through said opening, and an ejector carried by the handle, said ejector being slidable separately from the cover, the handle being provided with a space for the passage of blades from the magazine to the blade holder.

2. A safety razor comprising a blade holder provided with means to detachably retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine for blades having a side opening for admission of blades, the handle being provided with a pivotally supported spring adapted to enter said opening of the magazine for pressing the blades to delivery position, and an ejector for the blades the ejector in closed position overlying the blades, the spring serving to press the blades against the ejector.

3. A safety razor comprising a blade holder provided with means to detachably retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine for blades having a side opening for admission of blades, and with a cover, the handle being provided with a pivotally supported spring adapted to enter the magazine for pressing the blades to delivery position, the spring being provided with a portion operable against the cover and with a free portion operable against the blades, and an ejector for the blades, the ejector in closed position overlying the blades, the spring serving to press the blades against the ejector.

4. A safety razor comprising a blade holder provided with means to detachably

retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine for blades opening through opposite sides of the handle, covers for the magazine movably carried by the handle to close the openings and to expose the open sides of the magazine, and an ejector for the blades slidably carried by the handle along one of the covers, said handle being provided with a space for the passage of blades from the magazine to the blade holder.

5. A safety razor comprising a blade holder provided with means to detachably retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine for blades, means to permit insertion of blades within the magazine and to retain the blades therein, an ejector slidably carried by the handle, said handle having a space for the passage of blades from the magazine into the blade holder, and a spring carried by the handle and having a projection, the ejector having an opening to receive said projection to limit the outward movement of the ejector respecting the blade holder.

6. A safety razor comprising a blade holder provided with means to detachably retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine for blades, means to permit insertion of blades into the magazine and to retain the blades therein, movable spring catches carried by the handle and located within the magazine to retain blades therein, and an ejector slidably carried by the handle, the handle having a space to permit passage of the blades from the handle into the blade holder.

7. A safety razor comprising a blade holder provided with means to detachably retain a blade, a handle pivotally connected with the blade holder whereby the latter may extend in the direction of the handle and at an angle thereto, said handle being provided with a magazine for blades, a cover for the magazine slidably carried by the handle, an ejector slidably carried by the handle, said ejector having a head located in position to limit the outward movement of the cover, and means to limit outward movement of the ejector, said handle being provided with a space to permit passage of the blades from the handle into the blade holder.

8. A safety razor comprising a blade holder having a seat for a blade and having guides on opposite sides of the seat, means to retain the blade upon the seat, a handle pivotally connected with the blade holder, a magazine for blades, and means to pass blades from the magazine into the holder with the edges of a blade ejected from the seat by the blade fed onto the seat opposing said guides.

9. A safety razor as set forth in claim 8, in which the blade holder is provided with guides for the edges of used blades to guide the latter as discharged from the holder.

10. A safety razor as set forth in claim 8, in which the blade holder is provided with spaced resilient guides to receive the edges of used blades to guide the latter as discharged from the holder.

11. A safety razor comprising a blade holder having spaced guards, a handle connected with the holder, a magazine for blades, an ejector to push blades from the magazine into the holder, and guiding means for the edges of a used blade to guide the latter as it is discharged from the holder in contact with a new advancing blade to keep the cutting edges of the latter out of contact with the holder.

12. A safety razor as set forth in claim 11 in which the blade holder is provided with a seat for the blade and with a retainer spaced from the seat and having free edges on opposite sides to keep the blade to its seat with its cutting edges adjacent to the corresponding guard.

13. A safety razor provided with a magazine for blades, said magazine having blade-guides of different contour to engage corresponding notches in the blades and thereby preventing insertion of a stack of blades into said magazine unless the corresponding notches in all blades of the stack are in alignment.

14. A safety razor blade having notches in its ends, said notches being of different contour to engage corresponding guides in a safety razor blade magazine whereby the blade can be placed into the magazine in certain positions only.

15. A magazine razor, including a handle forming a magazine adapted to contain a stack of blades, each blade being provided with a notch in each of its transverse edges, the two notches being of different contour, said magazine having a discharge opening, a blade holder pivoted to said handle adapted to be swung to one position for receiving a blade and to another position for shaving, guides on the walls of the magazine extending transversely of the handle in the direction of said discharge opening and being adapted to be seated in the notches of the blades to retain the cutting edges of the blades out of contact with the magazine, the transverse cross-sections of the said guides corresponding to the outlines of the blade notches, thereby allowing insertion of the stack of blades into the magazine only when the corresponding notches of all blades are in alignment, a

spring within said magazine cooperating with the stack of blades for feeding the blades in succession into registry with the discharge opening of said magazine, and an ejector on said handle feeding a blade from the stack toward said discharge opening.

16. A safety razor including a magazine, a stack of blades adapted to be placed into said magazine, and co-acting means on said magazine and said blades located symmetrically in relation to the longitudinal axes of said magazine and blades for permitting said stack of blades to be placed into said magazine only when the corresponding elements of the blades are in alignment.

17. A safety razor comprising a blade holder having a seat for a blade and having guides on opposite sides of the seat, a magazine for a stack of blades, means to feed blades from the magazine onto said seat whereby a blade in the holder is ejected by the blade that is fed thereinto, the cutting edge of the ejected blade bearing during its movement from the holder against one of said guides whereby it is dulled.

HENRY J. GAISMAN.