Feb. 9, 1937. C. P. KEIGHLEY 2,069,920

SAFETY RAZOR

Filed Dec. 3, 1935

Fig. 1.

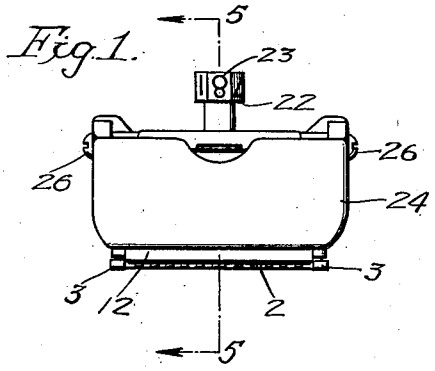


Fig. 2.

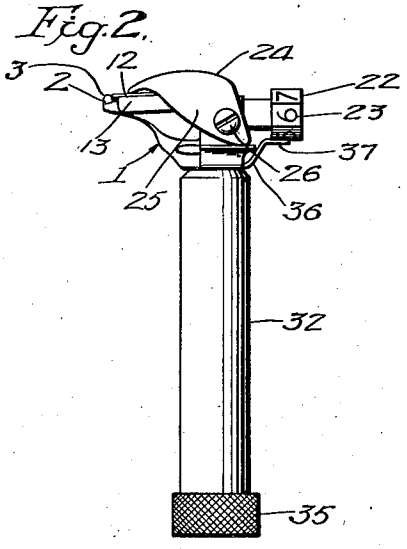


Fig. 3.

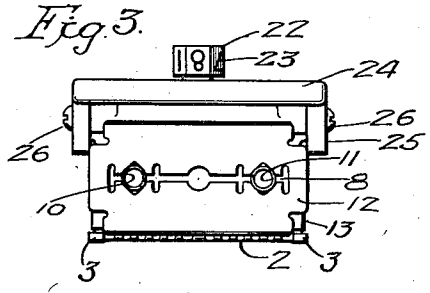


Fig. 4.

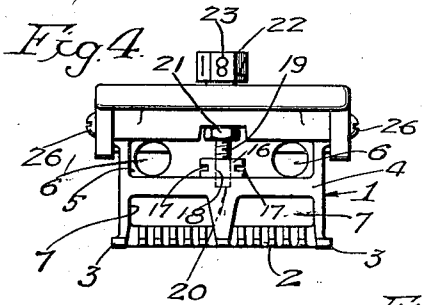


Fig. 5.

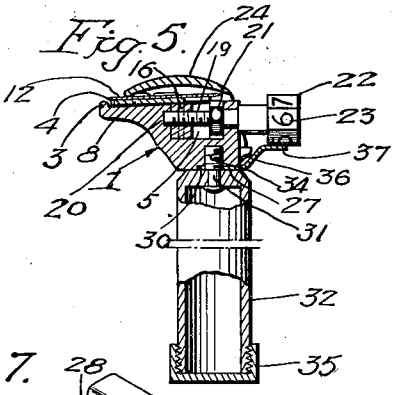


Fig. 7.

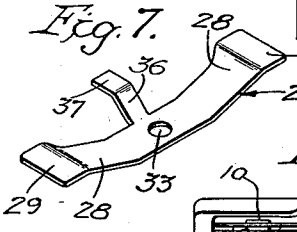


Fig. 8.

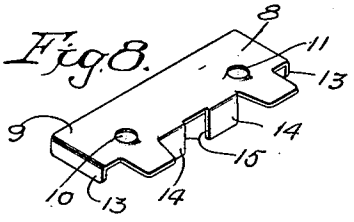


Fig. 6.

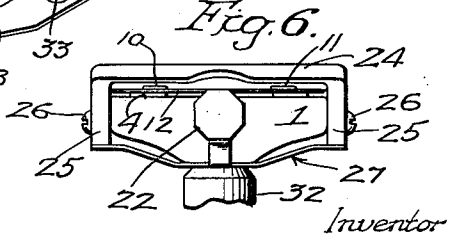
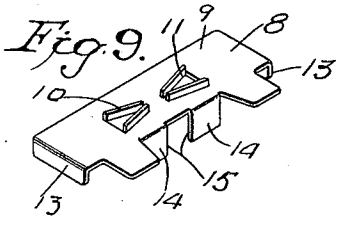


Fig. 9.



Inventor:-
Charles P. Keighley
by his Attorneys
Howson & Howson

Patented Feb. 9, 1937 2,069,920

UNITED STATES PATENT OFFICE

2,069,920

SAFETY RAZOR

Charles P. Keighley, Pitman, N. J.

Application December 3, 1935, Serial No. 52,726

17 Claims. (Cl. 30—59)

This invention relates to new and useful improvements in safety razors and like devices.

The principal object of the present invention is to provide a device of the character set forth which is of a simple and inexpensive character constructed to enable the user to readily adjust the relative positions of the blade with respect to the skin guard to regulate the degree of closeness of shaving.

Another object of the invention is to provide a device of the character set forth which is constructed and arranged to permit the use of various types of both single and double-edge razor blades therein.

These and other objects of the invention and the features and details of construction thereof are set forth hereinafter and shown in the accompanying drawing, in which:

Fig. 1 is a top plan view of the device embodying the present invention.

Fig. 2 is a view in side elevation of the disclosure in Fig. 1.

Fig. 3 is a view similar to the disclosure in Fig. 1 with the blade securing cap in raised position showing a razor blade in operative position.

Fig. 4 is a view similar to the disclosure in Fig. 3 but with the razor blade and carrier removed to better illustrate certain structural features of the blade supporting frame.

Fig. 5 is a fragmentary view in section on line 5—5, Fig. 1.

Fig. 6 is a fragmentary view in rear elevation of the disclosure in Figs. 1 and 2.

Fig. 7 is a view in perspective of a spring member for controlling the blade securing cap and blade adjusting means.

Fig. 8 is a view in perspective of one form of blade carrier member; and

Fig. 9 is a view in perspective of another form of blade carrier member.

Referring now to the drawing, a safety razor made in accordance with the present invention comprises a unitary frame structure designated generally as 1, having an integral skin guard 2 and upstanding lugs 3 at either end of said skin guard for the purpose of limiting outward movement of a razor blade.

In the present instance, the unitary frame structure 1 is provided with a substantially flat blade supporting portion 4 having an elongated recess or slot 5 therein disposed parallel to and adjacent the opposite edge of said frame structure 1 from the skin guard 2, suitable openings 6 and 7 being provided respectively in the bottom of said recess or slot 5 and elsewhere in the blade supporting portion 4 of the frame 1 adjacent the skin guard 2 to permit drainage of water outwardly of said frame.

The blade supporting portion 4 of the unitary frame 1 is arranged to interchangeably receive various blade carriers 8 for different types of razor blades. Two such blade carriers 8 are shown in Figs. 8 and 9 of the drawing and these comprise generally a blade carrying portion 9, having pressed up portions 10 and 11 respectively of suitable configuration to receive particular types of razor blades 12. The blade carriers 8 are also provided with depending guide flanges 13 at opposite ends thereof arranged to overlie the side edges of the blade supporting portion 4 of the frame 1 in the manner shown in Fig. 2 to prevent relative rotation of said carriers with respect to the latter portion.

As will be observed, the blade carriers 8 are in each instance provided with integral depending portions 14 at the rear thereof, which extend inwardly of the recess or slot 5 and are disposed in relatively spaced relation with respect to each other to provide a vertical slot 15 therebetween for engagement by a substantially square nut, lug or like element 16 movable within said recess or slot 5, said nut, lug or like element 16 having vertically disposed grooves 17 in opposite sides thereof for slidable engagement by the adjacent inner edges of said depending portions 14. The nut, lug or the like, 16, is provided with a threaded aperture 18 for the reception of an adjusting screw 19 journalled in the frame 1 and extending through or across the recess or slot 5 therein with its inner end journalled in a socket or the like 20 at the other side of said recess or slot 5, said adjusting screw 19 being secured against displacement with respect to the recess or slot 5 by means of a nut or like means 21 threadably engaging the screw 19 in abutting relation with respect to the rear wall surface of said recess or slot.

From the foregoing description, it will be observed that by rotation of the adjusting screw 19 in a clockwise or counter-clockwise direction, the relative position of the nut or like element 16 within the recess or slot 5 may be varied, and the blade carrier member 8 similarly adjusted with respect to the blade supporting portion 4 of the frame 1 to vary the position of the blade 12 with respect to the skin guard 2. To facilitate operation of the adjusting screw 19 the same is provided at its outer end with a polygonal operating head 22, the respective angularly disposed flat surfaces of which are provided with suitable indicia 23 to enable the user of the razor to

determine the relative position of the blade carrier 8 and blade 12 with respect to the skin guard 2 in accordance with the degree of closeness of shaving desired.

The blade 12 and carrier 8 are clamped in position upon the blade supporting surface 4 of the frame 1 by means of a cap or clamping member 24, preferably shaped as illustrated in the drawing and having downwardly extending ears or portions 25 at opposite ends thereof which are pivotally connected to opposite ends of said frame 1 by means of screws or the like 26. A leaf-spring or other similar resilient member 27 having upwardly diverging portions 28 terminating in substantially flat end portions 29 is mounted at the under side of the frame 1 against a shoulder 30 by means of a screw or the like 31 which projects from a handle 32 and extends through an aperture 33 in said spring 27 into threaded engagement with a tapped hole 34 in the under side of said frame, the shoulder 30 functioning to prevent relative rotation of the spring 27 with respect to the frame 1. As will be observed by referring to Fig. 5 of the drawing, the handle 32 is of tubular form or hollow for the purpose of reducing the over-all weight of the safety razor as well as providing a receptacle for a styptic pencil or the like (not shown), the said handle 32 being closed at its outer end by means of a threaded cap member 35.

In the present instance, the flat end portions 29 of the spring 27 extend laterally beyond the sides of the unitary frame 1 and are engaged by the lower ends of the downwardly extending ears or portions 25 of the cap or clamping member 24 in the manner shown in Figs. 2 and 6 of the drawing, said downwardly extending ears 25 being constructed and arranged to function after the manner of an eccentric cam in cooperation with the spring 27 to maintain said cap or clamping member 24 firmly in either closed or open position. In addition, the spring or other similar resilient member 27 is provided with a rearwardly extending integral finger or the like 36 which terminates in a substantially flat end portion 37 arranged to engage one of the respective angularly disposed flat surfaces of the polygonal operating handle 22 of the adjusting screw 19 in the manner shown in Figs. 2 and 5 of the drawing for the purpose of maintaining said head 22 and screw 19 in the position to which the same may from time to time be adjusted in accordance with the desires of the user of the device.

It will be seen that a safety razor or similar device made in accordance with the present invention is adapted to use interchangeably adjustable blade carriers of the character described. A particular blade and carrier may be removed from said razor by merely opening the cap or clamping member 24 against the action of the spring 27 to the position shown in Fig. 3, and lifting said blade and carrier from the supporting portion 4 and engagement with the nut, lug or the like 16. Various interchangeable blade carriers each adapted to use a different type of blade may be provided, it being understood that each of said carriers are provided with spaced depending portions 14 at the rear and depending guide flanges 13 at opposite ends thereof to prevent relative rotation of the blade supporting surface of the carriers with respect to the unitary frame 1.

While a specific embodiment of the invention has been set forth for descriptive purpises, it is not intended that the same shall be precisely limited thereto but that changes and modifications in the details of construction of the invention may be incorporated within the scope of the annexed claims.

What I claim is:

1. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and engaging said element, and means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard.

2. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and engaging said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, and means for maintaining said element and blade carrier in the position to which the same may be from time to time adjusted.

3. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and engaging said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, a blade clamping member pivotally carried by the frame, means operable to maintain said blade clamping member in both open and closed positions, and means forming a part of said last mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

4. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and engaging said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, a blade clamping member having depending portions pivotally connected to opposite ends of the frame, means engaging said depending portions of the blade clamping member operable to maintain the latter in both open and closed positions, and means forming a part of said last-mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

5. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element having grooves in opposite sides thereof movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and releasably engaging the grooves in said element, and means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard.

6. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element having grooves in opposite sides thereof movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and releasably engaging the grooves in said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, and means for maintaining said element and blade carrier in the position to which the same may be from time to time adjusted.

7. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element having grooves in opposite sides thereof movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and releaseably engaging the grooves in said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, a blade clamping member pivotally carried by the frame, means operable to maintain said blade clamping member in both open and closed position, and means forming a part of said last mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

8. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element having grooves in opposite sides thereof movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and releasably engaging the grooves in said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, a blade clamping member having depending portions pivotally connected to opposite ends of the frame, means engaging said depending portions of the blade clamping member operable to maintain the latter in both open and closed positions, and means forming a part of said last-mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

9. In a safety razor, a frame structure including a flat portion for removably supporting interchangeable blade carriers adapted to hold different types of blades, said portion having a skin guard at one edge thereof and a slot opening thereto, an element movable within said slot, means forming a part of said blade carriers constructed and arranged to extend inwardly of the slot and engage said element, and means operatively engaging the element to vary the relative position thereof in said slot for adjusting the blade carriers relative to the skin guard.

10. In a safety razor, a frame structure including a flat portion for removably supporting interchangeable blade carriers adapted to hold different types of blades, said portion having a skin guard at one edge thereof and a slot opening thereto, an element movable within said slot, means forming a part of said blade carriers constructed and arranged to extend inwardly of the slot and engage said element, means operatively engaging the element to vary the relative position thereof in said slot for adjusting the blade carriers relative to the skin guard, and means for maintaining said element and blade carrier in the position to which the same may be from time to time adjusted.

11. In a safety razor, a frame structure including a flat portion for removably supporting interchangeable blade carriers adapted to hold different types of blades, said portion having a skin guard at one edge thereof and a slot opening thereto, an element movable within said slot, means forming a part of said blade carriers constructed and arranged to extend inwardly of the slot and engage said element, means operatively engaging the element to vary the relative position thereof in said slot for adjusting the blade carriers relative to the skin guard, a blade clamping member pivotally carried by the frame, means operable to maintain said blade clamping member in both open and closed positions, and means forming a part of said last-mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

12. In a safety razor, a frame structure including a flat portion for removably supporting interchangeable blade carriers adapted to hold different types of blades, said portion having a skin guard at one edge thereof and a slot opening thereto, an element movable within said slot, means forming a part of said blade carriers constructed and arranged to extend inwardly of the slot and engage said element, means operatively engaging the element to vary the relative position thereof in said slot for adjusting the blade carriers relative to the skin guard, a blade clamping member having depending portions pivotally connected to opposite ends of the frame, means engaging said depending portions of the blade clamping member operable to maintain the latter in both open and closed positions, and means forming a part of said last mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

13. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending

inwardly of the slot and engaging said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, a handle having a plurality of angularly disposed flat surfaces fixed on said last mentioned means for actuating the same, and resilient means operatively engaging at least one of said surfaces of said handle to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

14. In a safety razor, a frame structure including a flat blade supporting portion and a skin guard, said blade supporting portion having a slot opening thereto, an element having grooves in opposite sides thereof movable within said slot, a blade carrier removably supported by the blade supporting portion of the frame in cooperative relation with said skin guard, means forming a part of said blade carrier member extending inwardly of the slot and releasably engaging the grooves in said element, means operable to vary the relative position of the element with respect to said slot to adjust the blade carrier relative to the skin guard, a handle having a plurality of angularly disposed flat surfaces fixedly mounted on said last-mentioned means for actuating the same, a blade clamping member pivotally carried by said frame, means operable to maintain said blade clamping member in both open and closed positions, and means forming a part of said last-mentioned means operable to engage at least one of the angular surfaces of said handle to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

15. In a safety razor, a frame structure including a flat portion for removably supporting interchangeable blade carriers adapted to hold different types of blades, said portion having a skin guard at one edge thereof and a slot opening thereto, an element movable within said slot, means forming a part of said blade carriers constructed and arranged to extend inwardly of the slot and engage said element, means operatively engaging the element to vary the relative position thereof in said slot for adjusting the blade carriers relative to the skin guard, a handle having a plurality of angularly disposed flat surfaces fixedly mounted on said last mentioned means for actuating the same, a blade clamping member pivotally carried by said frame, means operable to maintain said blade clamping member in both open and closed positions, and means forming a part of said last mentioned means operable to engage at least one of the angular surfaces of said handle to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

16. In a safety razor, a frame structure including a blade-supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by said blade supporting portion of the frame, means forming a part of said blade carrier member extending inwardly of the slot and engaging said element, means operative to vary the relative position of the element with respect to said slot to adjust the blade carrier on said blade supporting portion of the frame, a blade clamping member pivotally carried by said frame, a handle connected to the under side of the frame structure, and means mounted intermediate said handle and frame structure and engaging said blade clamping member to maintain the same in closed position.

17. In a safety razor, a frame structure including a blade supporting portion having a slot opening thereto, an element movable within said slot, a blade carrier removably supported by said blade supporting portion of the frame, means forming a part of said blade carrier member extending inwardly of the slot and engaging said element, means operative to vary the relative position of the element with respect to said slot to adjust the blade carrier on said blade supporting portion of the frame, a blade clamping member pivotally carried by said frame, a handle connected to the under side of the frame structure, means mounted intermediate said handle and frame structure and engaging said blade clamping member to maintain the same in both open and closed position, and means forming a part of said last-mentioned means operable to maintain the element and blade carrier in the position to which the same may be from time to time adjusted.

CHARLES P. KEIGHLEY.