E. B. GIBFORD.

MACHINE FOR STROPPING RAZORS.

APPLICATION FILED DEC. 9, 1912.

1,089,832.

Patented Mar. 10, 1914.

2 SHEETS—SHEET 1.

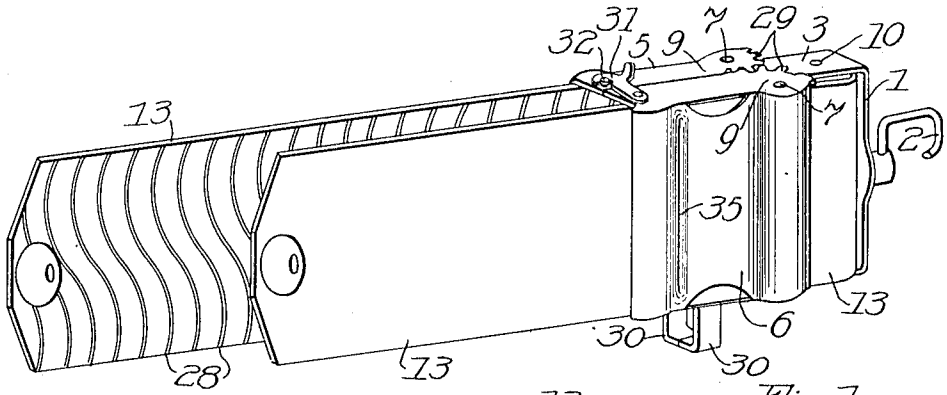


Fig. 1.

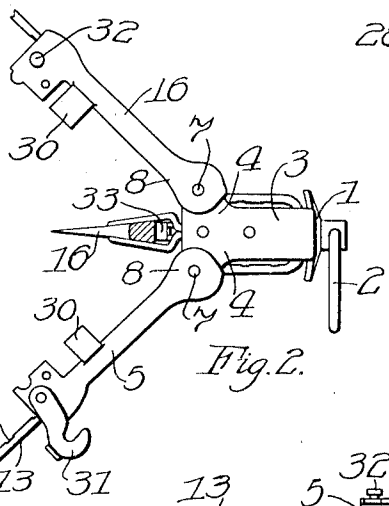


Fig. 2.

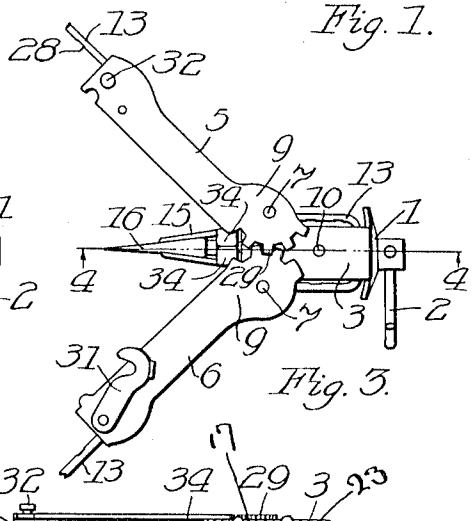


Fig. 3.

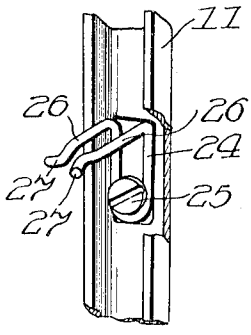


Fig. 5.

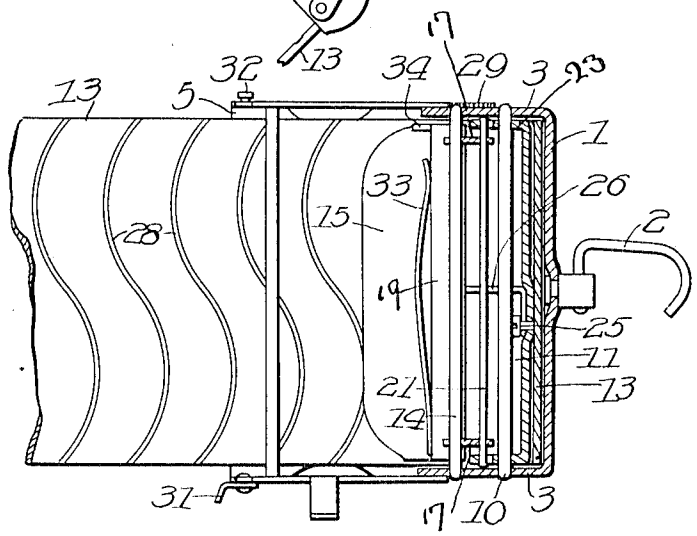


Fig. 4.

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2 SHEETS—SHEET 2.

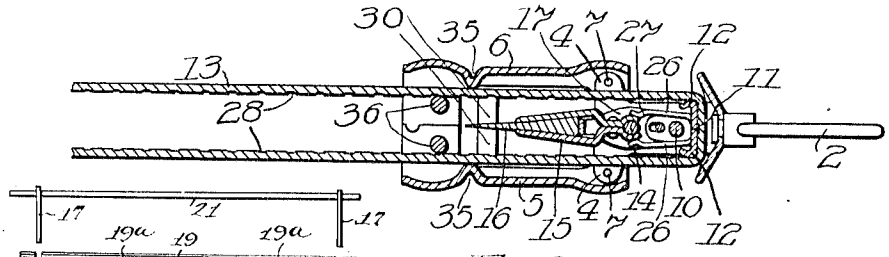


Fig. 6.



Fig. 12.

Fig. 7.

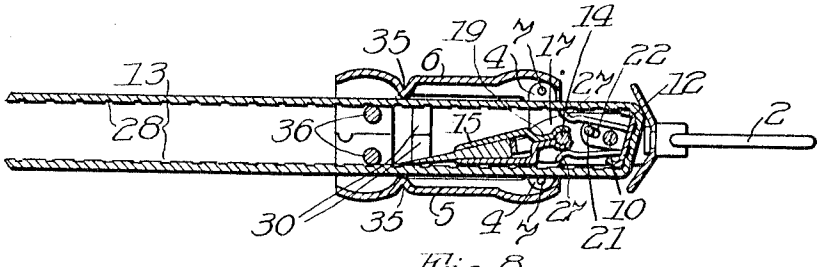


Fig. 8.

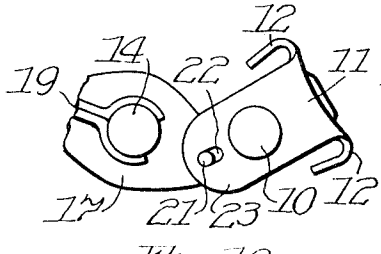


Fig. 10.

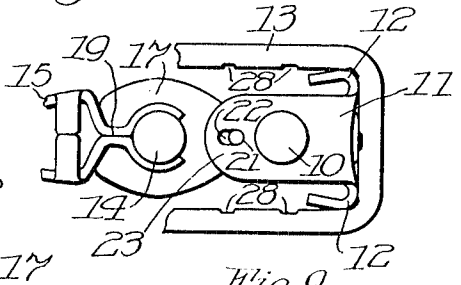


Fig. 9.

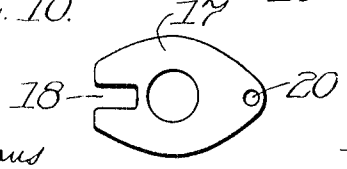


Fig. 11.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR STROPPING RAZORS.

1,089,832. Specification of Letters Patent. Patented Mar. 10, 1914.

Application filed December 9, 1912. Serial No. 735,689.

To all whom it may concern:

Be it known that I, EDWARD B. GIBFORD, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have invented certain new and useful Improvements in Machines for Stropping Razors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to stropping machines designed for stropping the blades of safety and ordinary razors, and consists in the construction and arrangement of parts hereinafter more fully set forth and pointed out particularly in the claims.

The object of the invention is to provide a simple, compact and efficient device for stropping razor blades wherein provision is made for yieldingly maintaining the blade holder centrally of the frame whether in the open or closed position when the device is not in use, and for causing the blade holder to swing automatically from side to side into contact with the running strop when the device is in operation. The invention further contemplates means for swinging the blade away from the face of the strop when the draft or tension upon the strop is relaxed, or at the instant of a change in the direction of the movement of the strop as it is reciprocated to avoid the strop becoming cut. The invention also contemplates means for restricting the swinging movement of the blade holder within certain limits. The invention further contemplates means for exerting sufficient friction between the oscillatory member and the running strop to insure sufficient pressure of the edge of the blade against the strop to effect the desired abrasive action.

The above object is attained by the structure illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of a razor stropping machine showing an embodiment of my invention. Fig. 2 is a plan view of one end of the case showing the hinged sides thereof open, the ends of the strop being broken away. Fig. 3 is a similar view of the opposite end of the case. Fig. 4 is a central longitudinal section of the device parallel with the hinged sides of the case with the blade removed, as on line 4—4 of Fig. 3. Fig. 5 is a fragmentary view in perspective of a portion of the oscillatory member or rocker showing therein the spring which returns the blade holder to the central position after being swung in either direction. Fig. 6 is a central longitudinal section through the machine with the blade holder and blade in the central position. Fig. 7 is a similar view showing the device actuated to swing the blade into contact with one side of the strop. Fig. 8 is a view similar to Fig. 7 showing the blade swung in the opposite direction. Fig. 9 is an enlarged fragmentary view in elevation showing the connection between the oscillatory member and the blade holder which permits of a limited movement of the blade holder only. Fig. 10 is a fragmentary view in elevation showing the relative position of the oscillatory member or rocker and the blade holder when swung to the limit of their movement in one direction. Fig. 11 is an elevation of one of the coupling plates which effect the connection between the pivoted blade holder and oscillatory member. Fig. 12 is a side elevation of the blade holder and of the gripping plates therefor, separated, on a smaller scale than the other views.

Referring to the drawings by the characters of reference marked thereon, 1 designates a yoke having a swiveled hook 2 for engagement with a supporting object during the operation of stropping. The ends 3 of the yoke are provided with lateral projections 4 (see Fig. 2). To these lateral projections the sides 5 and 6 respectively of the case are pivoted by the pins which pass through the lateral extensions of the ends of the yoke and through the flanged ends 8 and 9 respectively of the sides of the case. This arrangement allows the sides of the frame or case to swing to permit the case to be opened as shown in Figs. 2 and 3. Secured in and extending between the ends 3 of the yoke is a shaft 10. Pivoted to said shaft to lie between the ends of said yoke is a rocker or oscillatory member 11 having rounded corners 12 over which the strop 13 is adapted to pass.

Journaled at its ends in the end portions of the yoke is a rock shaft 14. Mounted upon said shaft to swing therewith is a blade

holder comprising the opposed spring jaws 15 which are of the proper shape to receive a razor blade 16 of an ordinary razor, and between which an auxiliary blade holder, not shown, for safety razor blades may be inserted, as will be well understood in the art. Also mounted upon the shaft 14, near the ends thereof, are the elliptical plates 17 which are slotted at one end, as shown at 18 in Fig. 11, which fit into narrow slots across the rear edges of the plates 15 and are mounted on the shaft 14 and firmly embrace the reduced portion 19 of the blade holder adjacent the shaft 14, as shown in Fig. 9. This causes the rear edges of the plates 15 to grip the shaft 14 and holds the blade holder in position on the shaft. These slots in the plates 15 are marked 17ª in Fig. 12, which also shows the rivets 19ª which may pass through the parts 19 of the gripping plates 15 and serve to assist the plates 17 to hold these parts together. The opposite end of each of said plates is provided with an aperture 20 to receive the rod 21 which extends between and connects said plates. To effect a driving connection between the oscillatory member and the pivoted blade holder, the ends of the rod 21 are extended through the slots 22 in the inwardly extending end portions 23 of the oscillatory member. By this arrangement, when the oscillatory member is swung upon its pivot 10, the rod 21 will be swung therewith because of the engagement of its terminals in the slots 22 of the end portions of said oscillatory member, thereby imparting to the blade holder a swinging movement in the opposite direction. The slots 22 are of such length as to permit but a predetermined angular movement between the plates 17 and the end portions 23 of the oscillatory member 11, and they thus limit the movement of the blade holder upon its pivot in either direction, as clearly shown in Fig. 10, wherein the parts are shown as having reached the limit of their pivotal movement in one direction because of the engagement of the rod 21 in the outer ends of the slots 22. This arrangement permits a free movement of a blade holder within certain limits, but prevents an extreme movement thereof in either direction.

The connection between the oscillatory member and the pivoted blade holder just described is such, that, as the strop 13 is drawn longitudinally over the oscillatory member in opposite directions in reciprocal succession, the oscillatory member will be rocked to swing the blade holder and carry the edge of the blade against the inner face of the outwardly running portion of the strop. As the direction of movement of the strop is changed the blade holder will be swung automatically from side to side so that the edge of the blade will always be presented to that portion of the strop which is moving outwardly at the time the blade is swung into contact therewith.

To normally hold the blade holder centrally between the sides of the case, and to quickly swing the blade from contact with the strop to central position and at the instant of the reversal of the strop, I employ a looped spring 24 (see Fig. 5) which is secured by a screw 25, or other fastening means, in a depression within the oscillatory member. Extending from the terminals of the loop 24 of said spring are the right-angle parallel arms 26, each of which is provided with an outwardly bent end 27. These spring arms lie on opposite sides of that portion of the blade holder which embraces the pivotal shaft 14 when the parts are in the normal position, as shown in Fig. 6, but are caused to successively bear forcibly against the sides of the blade holder adjacent its point of pivot as the oscillatory member swings through a reciprocation of the strop, whereby said arms are placed under such tension as to cause a return of the oscillatory member to the central position when the longitudinal stress upon the strop is released, and the consequent return of the blade holder to the central position between the sides of the strop. By this arrangement the blade is yieldingly held in the central position between the strop sides, minimizing the liability of the strop becoming cut by contact therewith. The tension of the spring arms 26 also serves to quickly swing the blade from contact with the strop at the instant of a change in the direction of movement thereof, thereby preventing the strop becoming cut as its direction of travel is changed.

To increase the frictional resistance between the strop and the oscillatory member 11 over which it is drawn, the inner face of the strop is provided with sinuous grooves or channels 28 extending transversely thereof, which, as the strop is drawn over the shoulders 12 of the oscillatory member, afford such frictional resistance as to insure a prompt swinging of the oscillatory member and cause a forcible urging of the edge of the blade against the face of the strop. Said channels 28 also heighten the abrasive action of the strop upon the blade as it is reciprocated.

The inner edges of the flanges 9 of the sides of the case are provided with teeth 29 which mesh like the teeth of gears and cause the hinged sides of the frame to swing in unison when actuated upon their hinges or points of pivot, thereby carrying the sides of the looped strop an equal distance away from the blade when the case is opened.

To obviate the possibility of a razor being introduced into the blade holder of the stropper before the sides of the case shall have been opened to carry the strop away

from said holder to prevent the cutting of the strop as the blade is introduced into the holder, or withdrawn therefrom, there are provided inwardly projecting stops or lugs 30 which extend from one end of the hinged sides of the case, as clearly shown in Figs. 1 and 2, and which, when the sides are closed, meet to form a guard or obstruction which will prevent a blade being introduced into the blade holder, as shown in Figs. 6, 7 and 8. It will be noted that at the opposite end of the case the flanges 9 serve to close the opening into that end of the case when the sides are swung together, leaving only the opposite end of the case for the introduction and withdrawal of the blade.

The sides of the case when closed may be locked together by means of the hooks 31 which are pivoted to the ends of one of the sides thereof, and which are adapted to engage over the pins 32 extending from the end portions of the opposite sides, as clearly shown in Fig. 1.

Mounted between the sides of the jaw members 15 of the blade holder is a curved spring 33 which serves to force the blade outwardly as it is introduced between said jaws and cause it to become firmly held therebetween. At the lower end of the blade holder are the inwardly extending lugs 34 which close the opening therein and prevent a blade being introduced except at the opposite end.

In order to present the strop properly to the edge of the blade as it is swung from side to side in the operation of stropping, each of the sides of the case is provided with an inwardly extending rib 35 which is struck up from the metal thereof, and over which the side portion of the strop passes as it is reciprocated longitudinally. These ribs take the place of rollers which are usually employed for this purpose. At the point where the sides of the strop pass from the case they are held separated by the ribs or rollers 36 behind which they pass, and which serve to cause the sides of the strop to swing with the sides of the case as said case sides are opened and closed.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In a stropping device, the combination of a case, a blade holder pivoted in the case, small plates secured to the blade holder and extending rearwardly therefrom, a rod mounted in the plates parallel to the axis of the blade holder, an oscillatory member mounted in the case, an arm extending forwardly from each end of the member and having a slot to receive said rod, and a spring on said oscillatory member having the ends in engagement with the blade holder to center the same.

2. In a stropping device, the combination of a case, a blade holder pivoted in the case, small plates secured to the blade holder and extending rearwardly therefrom, a rod mounted in the plates parallel to the axis of the blade holder, an oscillatory member mounted in the case, an arm extending forwardly from each end of the member and having a slot to receive said rod, the length of said slots determining the angular movement of the blade holder in the case, and a spring on said oscillatory member having its ends in engagement with the blade holder to center the same.

In testimony whereof, I sign this specification in the presence of witnesses.

EDWARD B. GIBFORD.

Witnesses:
LELAND F. BEAU,
W. G. ENGEL,
JOS. A. RECH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."