July 9, 1929. W. P. ARON 1,719,827

HOLDER FOR ELECTRIC SAFETY RAZORS

Filed June 15, 1927

Fig. 1.

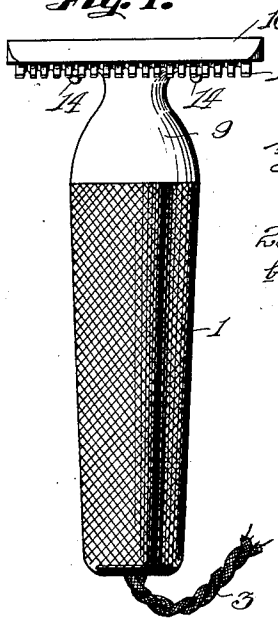


Fig. 2.

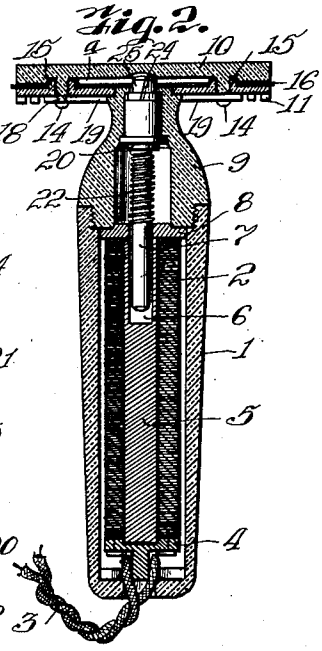


Fig. 3.

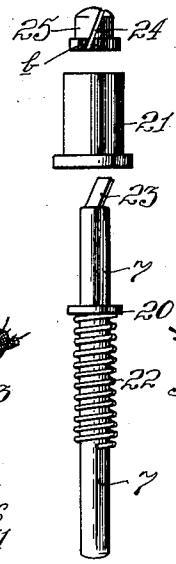


Fig. 4.

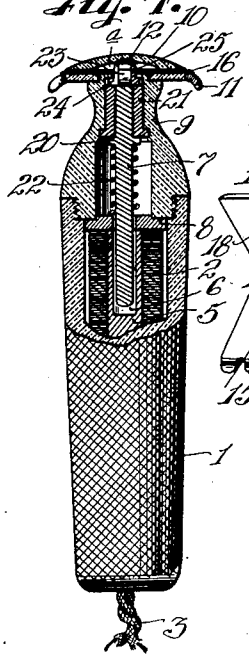


Fig. 6.

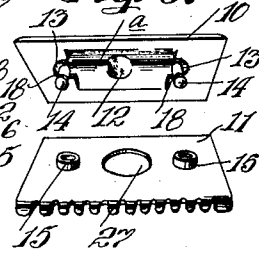
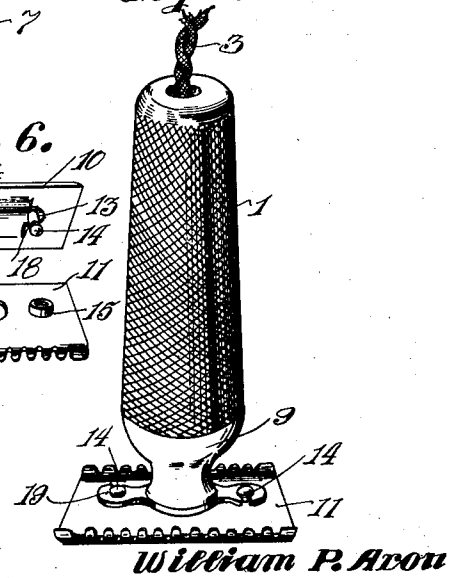


Fig. 5.



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UNITED STATES PATENT OFFICE.

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HOLDER FOR ELECTRIC SAFETY RAZORS.

Application filed June 15, 1927. Serial No. 199,108.

This invention relates to electrically operated appliances and it refers more particularly to certain new and novel improvements in holders for safety razor blades and electrically operated so as to impart to the latter a shuttle like movement longitudinally or with respect to the longitudinal axis of the holder, and the principal object of the invention resides in the provision of a device of the character designated by which to increase the cutting proficiency of the blade by reason of its reciprocating movement combined with the manual downward movement in shaving.

Another object of the invention resides in the provision of a blade holder so constructed as to positively prevent any likelihood of a short in the electric current with which the accessory is supplied which may result in inconvenience to the user.

Still further, the invention comprehends a novel blade actuating mechanism of the simplest construction, yet without impairment to its efficiency.

With the foregoing and other objects and advantages in view, the invention has particular reference to certain novel features of construction and arrangement of parts by which said objects are attained and which will be fully manifested as the description proceeds, taken in connection with the accompanying drawings wherein;

Figure 1 represents a side elevational view of a blade holder constructed according to the present invention.

Figure 2 is a similar view in axial cross-section.

Figure 3 represents detail views of the principal operating parts of the invention.

Figure 4 is a side view of the blade holder in which the head and a portion of the handle are illustrated in section.

Figure 5 is a perspective view of the blade holder, illustrating the manner in which the head and handle are joined together, and

Figure 6 is a detail view of the head parts.

Proceeding now more in detail with the drawings, it may be first mentioned that the blade successfully employed by the invention is one of well known and popular manufacture, having three alined perforations near its central axis, and it is the purpose of the invention to hold this blade against sidewise movement while in operation, yet to transmit to the blade an endwise or guillotine action to increase its cutting proficiency.

With the foregoing in view, reference is primarily made to Figure 2 of the drawings in which is shown a hollow handle 1, containing a solenoid or coil 2, to which latter is connected wires 3, and by which the same is electrically energized. To simplify the connection of the wires, a terminal switch as shown at 4 is provided at the lower end of the coil.

The core 5 of the coil is provided with a short bore 6, in which reposes a plunger stem 7, as illustrated, which latter passes through an aperture in the disc 8, composed of a suitable non-conductive material. Reference will be later made to this plunger and its associated elements.

It will be observed that the handle 1, as well as the neck 9 and head pieces 10 and 11 are all composed of non-conductive material also, preferably bakelite, as a precaution against possible shortage of electrical current.

The elements of the invention including the handle 1, neck 9, cap 10 and shield 11 are detachable one from another in order to simplify removal of the blade and operative parts, as well as a feature of sanitation in enabling the device to be more readily cleaned.

Referring now to the head, composed of pieces 10 and 11; it will be observed in Figure 6 that the cap 10 is hollowed out at *a* and in the center of this hollow portion is provided a recess 12, alining with the position of the plunger 7. The hollow portion *a* has further recesses 13 at its sides to include pins 14, which recesses receive the bushings 15 affixed to the shield 11, to hold the two pieces 10 and 11 against relative displacement. The blade 16, which has not been shown in detail, is placed upon the shield 11 whereby its end holes will receive the bushings 15 while the center hole will aline with the re-

cess in the cap 10 and central aperture 17 in the shield 11. The cap may then be placed upon the shield to permit the pins 13 to pass through the bushings 15 in the manner illustrated in Figure 2. The pins 13, having annular recesses 18 near their ends are enabled to receive the slots in the latching member 19 carried by the neck 9 and shown especially in Figure 5, which slots, as apparent are reversely disposed so that a clockwise movement of the handle 1 will securely bind the head pieces together, consequently holding the blade 16 in operative cutting position.

The plunger stem 7, it will be observed is provided with an annular abutment 20 against which a sleeve 21 rests and so held by a small coiled spring 22 surrounding the plunger stem 7 intermediate said abutment 20 and disc 8 therebelow. The plunger stem is freely operable through the sleeve 21 with a limited endwise motion when the coil 2 within the handle 1 is energized due to the presence of the lower end of the plunger within the core of the coil.

As apparent in Figure 3, the upper end of the plunger 7 has integral therewith a tongue 23, disposed at an angle of approximately 10 degrees, with respect to the longitudinal axis of the plunger, but not so limited. This tongue is arranged to enter a slot 24 conformably cut in the cap 25, resting upon the sleeve 21 as in Figure 2. It is obvious that due to the angular relationship of the tongue 23 with the plunger stem 7 vertical reciprocating motion of the plunger stem 7 will result in lateral displacement of the cap 23, and since the latter protrudes through the central opening in the blade 16, this element will be moved rapidly in an endwise manner between the two sections 10 and 11 constituting the head.

In order to constrain the plunger cap 25 against rotative movements, the flange 26 thereon may be flattened at *b* on either side and the cavity within the neck 9 in which the cap operates may be arranged accordingly.

Having described the several parts of the invention individually and their relationship as illustrated in the drawings; the operation thereof is as follows: The blade 16 is placed upon the shield 11 in such a manner as to permit the bushings 15 therein to enter the holes near either end of the blade, hence the opposed cutting edges of the latter are operatively alined with the several notches in the shield as are conventional. The cap 10 is then placed over the blade, passing the pins 14 through the openings in the shield 11 encircled by the bushings 15. The handle then is applied as shown in Figure 5, by inserting the neck 9 in the aperture 27 in the central portion of the shield 11, whereby the plunger cap 25 will enter the central hole in the blade 16 as apparent in Figures 2 and 4, after which the handle is turned in a clockwise direction to lock the member 19 with the pins 18. Current is then switched on and the device applied to the face in the same manner as in using the conventional safety razor, but having the added advantage of the shuttle-like movement of the blade which very obviously increases its cutting proficiency, as well as obtaining the maximum efficiency thereof.

A blade after having become dull through use, develops a saw-like edge, and a close examination thereof will disclose that the cutting edge has split into a multiplicity of segments, each of which turns in opposite directions, rendering the blade inefficient for shaving. The movements of the blade across the shield straightens and alines these segments and consequently maintains an efficient cutting edge.

Manifestly the construction shown is capable of considerable modification and such modification as is in keeping with the appended claims is also considered within the spirit of the invention.

I claim—

1. The combination in a holder for shaving blades, a handle containing a solenoid coil, a sectional head for attachment to the handle and arranged to support a blade for movement in endwise directions; a plunger; an angular tongue member carried integrally by the plunger; means to energize said coil to attract said plunger at rapid recurring intervals against the resistance of said first means, and means connected with said blade to receive the angularly disposed tongue of said plunger to effect rapid endwise movement of the blade when said plunger is so moved.

2. The combination in a holder for shaving blades; a hollow handle containing a coil; a head detachably mounted on said handle and arranged in sections to receive a blade adapted for endwise movement in the head; a plunger; a tongue-like member integral with said plunger and disposed at an angle with respect to the axis of the latter; means normally urging said plunger upward; means for energizing said coil to magnetically attract said plunger, and means stationary with respect to said blade and arranged to receive said angular tongue to effect endwise displacement of the blade upon vertical reciprocation of said plunger.

3. The combination in a holder for shaving blades, a handle having a head in sections to receive said blade for endwise movement; a coil; a plunger adapted to be magnetically attracted by said coil at rapid recurring intervals; an angular tongue disposed integrally on said plunger, and means stationary with respect to said blade and arranged to correspondingly receive said

tongue whereby to cause endwise reciprocation of the blade when said plunger is actuated.

4. The combination in an article of the character described, a handle having a sectional, detachable head arranged to receive a blade; a coil; a plunger arranged for rapid vertical movement incited by the energization of said coil; an angular tongue carried by said plunger, and means stationary with respect to said blade arranged to correspondingly receive said tongue whereby to cause movement of said blade during such movement of said plunger.

In testimony whereof I affix my signature.

WILLIAM P. ARON.