March 13, 1934. M. M. EELLS 1,950,789

RAZOR

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Fig. 1

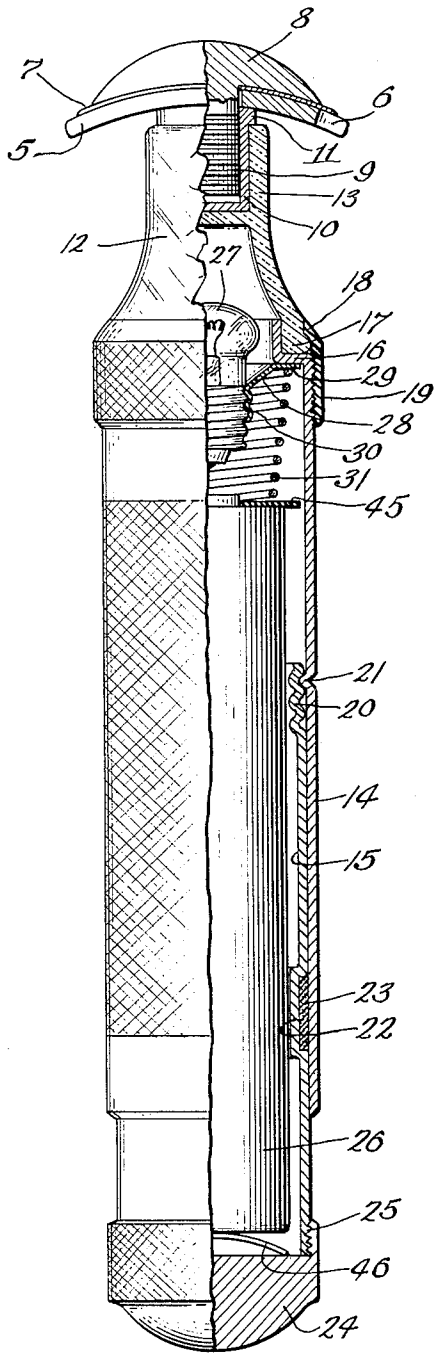
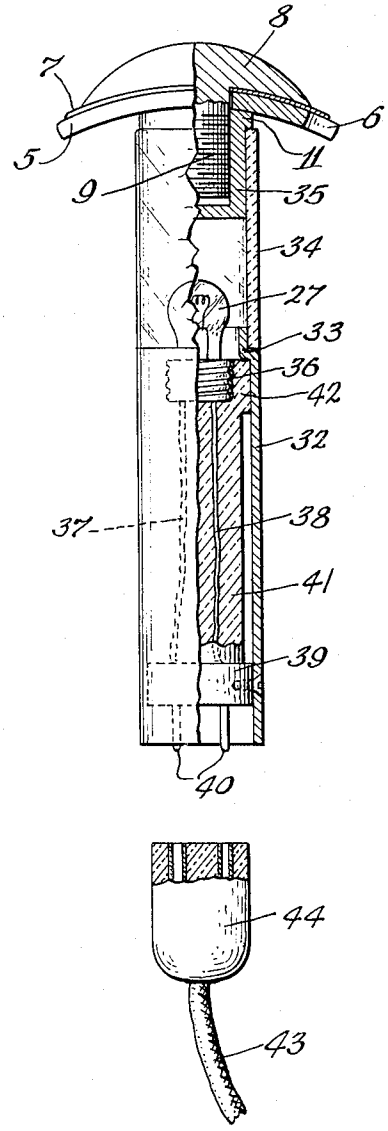


Fig. 2



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Fig. 3

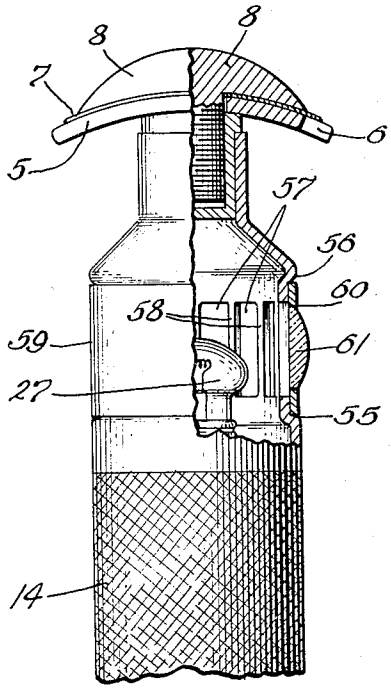


Fig. 4

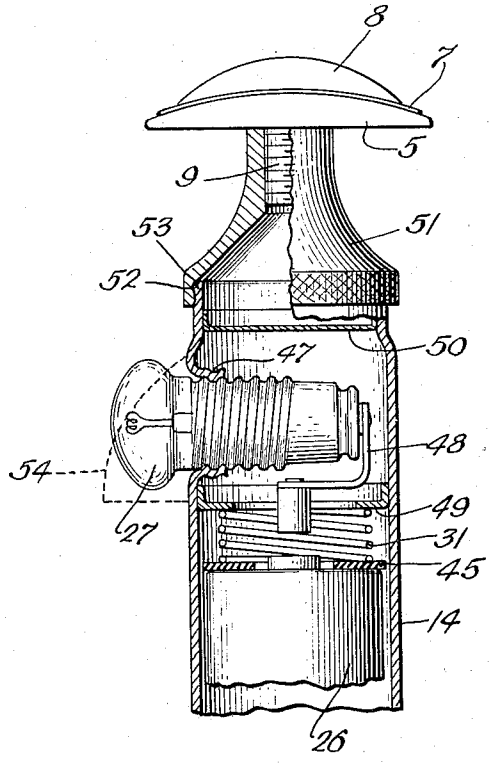
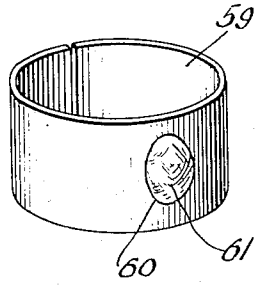


Fig. 5



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UNITED STATES PATENT OFFICE

1,950,789

RAZOR

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Application December 4, 1931, Serial No. 578,890

6 Claims. (Cl. 240—6.46)

My invention relates to razors, and it has particular reference to a safety razor and means whereby illumination is provided for the blade and the surface engaged thereby during the operation of shaving.

One of the features of the present structure resides in the fact that the blade holder, the handle therefor, and the source of illumination are of a unitary character. Another feature of my invention resides in providing a safety razor with a source of illumination, the light rays from which are directed principally upon the surface being operated on and without any of said rays projecting into the direct lines of vision of the user. Still another feature resides in providing a handle for a safety razor in which an electric storage battery, or dry-cell, may be enclosed to provide the current for a miniature electric lamp that is positioned on the handle adjacent the blade holder. A further feature of my invention is the provision of a connecting end portion of the handle, preferably between the lamp and the head or blade holder that is made of light-transmitting material so that the light rays from the lamp will pass through this connecting member and impinge upon the face of the person using the razor. Another feature resides in providing means for projecting light rays in any direction from the handle of a razor in order to create an effectively illuminated zone at the surface where the shaving operation is taking place.

It is also an object of my invention to construct the handle, and the connector end member in such manner, and to assemble the parts thereof so that the electrical elements enclosed within these parts are maintained free from moisture to prevent short circuiting or arcing.

Among the numerous objects of my invention that may be mentioned are that I desire to provide a safety razor device of the character herein disclosed that is simple in construction, easy to operate, effective in performing its numerous functions, is novel in the formation and arrangement of its parts, and is made in such manner that it will not readily get out of order. Other objects will be apparent to others after my invention is understood from the following description.

I prefer to carry out my invention and to accomplish the parts thereof in substantially the manner hereinafter fully described and as more particularly pointed out in the claims, reference is herein made to the accompanying drawings that form a part of this specification.

In the drawings:—

Figure 1 is a longitudinal view of my improved razor, the portion at the left of the axial center line being shown in side elevation and the portion at the right of said line being shown in longitudinal vertical section.

Figure 2 is a view delineated in the same manner as Figure 1 showing a modified construction.

Figure 3 is a view similar to Figure 1 of a modified structure for directing light rays laterally from the end of the handle.

Figure 4 is another view similar to Figure 1 showing an exteriorly disposed lamp or bulb and means for adjusting it to different positions.

Figure 5 is a perspective of an element employed in the modification shown in Figure 3.

The drawings are to be understood as being more or less schematic for the purpose of showing typical or preferred forms in which my invention may be made, and in said drawings the same reference characters are used to designate like parts wherever they appear in the different views.

The device under consideration comprises generally a blade-carrying head and a handle, the former being constructed and operated on the principles of the well-known flexible double-edge blade safety razor. The holder or head of the structure consists preferably, of a guard member 5 that is of rectangular outline and is transversely concavo-convex in shape between its longitudinal sides, and said longitudinal sides are formed with serrations or combs 6 in the usual manner.

The blade 7 is of the two edge flexible type that is engaged by the convex surface of the guard 5 and is maintained in flexed position by a clamp member 8 that has a concave surface that opposes and corresponds substantially with the curvature of the adjacent convex surface of the guard. In the drawings the blade is shown as flexed and clamped between the members of the head.

A threaded stud 9 extends from the concave face of the clamp 8 through openings in the blade and guard and its protruding portion is engaged by an internally threaded member 10 formed as a part of the handle. The portion of the threaded member 10 next the guard is slightly increased in size to provide an abutment 11 that engages the adjacent surface of the guard when the parts are screwed together and which causes a clamping and flexing of the blade between members of the guard.

The handle, in both the types illustrated, is preferably hollow and made with opaque walls. The terminal portion of the handle, that is the portion nearest the head, is constructed in such manner that a lamp mounted within the same will emit its light rays laterally or outwardly from the handle so that said light rays will impinge upon the surface on which the razor is being operated and effectively illuminates the area within a certain range. This illumination may be accomplished in numerous ways and for convenience in illustration I have shown two types.

In Figure 1 the light emitting end portion of the handle consists of a tapered member 12. This

is made, preferably by molding a translucent material such as glass, clear bakelite, celluloid or any other suitable and desirable material. The upper or outer end portion of this tapered member 12 is provided with an axially extending socket 13 in which the internally threaded member 10 is firmly seated, either by means of a cement or by mechanical means employed during the molding of the member 12.

The body or main portion of the handle consists of a pair of telescoping tubes 14 and 15, the former (14) of which has its upper portion reduced in diameter to provide a shoulder or seat 16 and back of this reduced portion and shoulder the exterior surface of the tube 14 is screw-threaded for a short distance. The light transmitting translucent end member 12 of the handle has its base or widest portion shaped to fit or seat on the shoulder 16 and the reduced portion beyond the latter, and it is provided with an external bead or rib 17 that is engaged by the inwardly flanged portion 18 of an exterior collar 19 that is internally threaded so that it may be screwed down upon the threads on the adjacent portion of the tube 14 and thus draw the parts firmly together to anchor the translucent end member in place.

The inner tube 15 of the handle has external threads 20, preferably of the rolled type, upon its upper end portion and the outer tube is provided with a plurality of dents or knicks 21 that are of such shape that they form small inwardly extending projections that fit into the threads 20 of the other tube so that a relative rotative movement of the tube will cause a telescopic movement of one tube with respect to the other. As will be seen in Fig. 1 the tubes overlap each other a considerable distance. This is done for the purpose of stability as well as to provide against seepage of moisture between the tubes. In this latter connection it will be noted that the difference between the internal and external diameters of the respective tubes is very slight so that a snug sliding fit is secured. As a further protection against leakage or seepage of moisture I have provided an off-set annular channel 22 in the outer face of the tube 15 at a location where the outer tube extends over the same. This channel provides a seat for an elastic gasket 23 of rubber or other material that seals the minute space between the respective surface of the telescoped tubes. The lower end of the inner tube 15 is closed in any suitable manner, preferably by a cap 24 having an internally threaded flange 25 that screws onto threads formed on the outer end of said tube in the manner shown. The combined length of the telescoping tubes 14 and 15, when assembled as shown in Figure 1, is sufficient to accommodate within them a small elongated storage battery 26, which, in the type shown in Figure 1, supplies the current for illuminating a bulb 27 housed within the structure of the handle.

The bulb 27 is of the miniature type such as used in flashlights and similar devices and is carried in a socket element that is removably inserted into the handle. The socket element shown is preferably of metal and consists of a downwardly tapered portion 28 having an annular flange 29 at its upper edge that fits against the inner portion of the shoulder 16 of the handle tube 14, while the lower end of the tapered portion terminates in a cylindrical threaded socket 30 to receive the threaded portion of the bulb 27.

A coiled expansion spring 31 is interposed between the flange 29 and the end of the battery 26 to normally maintain the socket element and the bulb in position and to keep the battery terminal out of contact with the bulb terminal. When the tube 15 is rotated to screw it telescopically into the other tube the length of the handle shortens and the battery terminal is moved into contact with the bulb to illuminate the filament therein. The position of the bulb is such that light rays therefrom will pass laterally out of the handle, through the translucent end member 12 thereof and illuminate the surface that is to be engaged by the blade during the shaving operation.

The structure disclosed in Figure 2 is a simplified construction of the light transmitting end member of the handle and the electric current is from an ordinary service tap or external battery. In this form the handle 32 is of one-piece construction and it is of less dimensions, longitudinally and transversely, than the other type shown.

A small shoulder 33 is formed at the upper end of tube 32 and a tubular piece of translucent material 34 is suitably anchored on this shoulder and extends upwardly toward the blade-carrying head of the razor. A metal plug 35 having a central threaded bore is suitably anchored in the upper end of the translucent tube 34 to engage with the threaded stud 9 of the clamp member of the head.

Adjacent the shoulder 33 a miniature lamp socket 36 is mounted in the tube 32 to receive the light bulb 27 and conductors 37 and 38 lead from the socket to an insulating plug 39 in the opposite lower end of the handle tube 32 where said conductors are connected to terminals 40 that project through said plug. The socket 36 is preferably imbedded in the adjacent inner end of a removable core 41 of insulating material that has an enlargement 42 surrounding the socket to snugly fit into the handle tube, while at the other end the core is preferably formed integrally with the plug 39. The construction permits the ready removal of the socket for lamp replacement, and the like, and liability of short-circuiting is overcome by reason of the fact that the conductors 37—38 are imbedded in or molded with the core during the process of manufacture. A small set-screw passing through the handle tube and into the plug maintains the core in assembly with the handle.

In the structure shown in Figure 1, it is preferred to interpose a washer 45 of insulating material between the battery and the lower end of the coiled spring to insure against short-circuiting of the current, and at the bottom of the handle I place a bowed metal spring 46 that acts as a shock-absorber to cushion the battery and associated parts.

In the types hereinbefore described, the end of the handle nearest the blade and surrounding the lamp is made preferably of a transparent or translucent material which permits the light rays from the lamp to project in all radial planes from the end of the handle, but it is possible, of course, to provide means for controlling and limiting the direction of light flow from the handle. Two of such types are shown in Figures 3 and 4 of the drawings, and both figures disclose the fact that I may dispense with the wholly translucent extension on the end of the handle and in lieu thereof I may utilize an adjustable element for controlling or directing the light rays with re-

spect to the cutting edge of the blade that is in use.

Figure 4 shows a tubular metal handle of telescopic character, the upper and outer tube 14 having a lateral opening in its upper portion in which the socket 47 is formed to receive the bulb 27. A spring metal contact bracket 48 extends from the rear of the socket to a point under the latter in axial alinement with the battery 26 and an abutment 49 projects radially into the handle to confine the coiled spring 31. Above the socket, a baffle plate 50 is soldered to the interior of the tube to seal the same to prevent moisture reaching the parts below the same.

The blade carrying head is adapted to be removably and adjustably mounted on a hollow tapered metal extension or cap 51 on the adjacent end of the tube. This cap has a cylindrically shaped basal portion and the inner portion of its wall is slightly undercut as schematically indicated at 52 and the adjacent end portion of the tube has a slight annular flare as at 53. The respective dimensions of the undercut and flare are such that the parts may be forced towards each other and snapped into position when assembled. This construction permits relative rotative movement between the handle and head, in the manner of a swivel, in order that the cutting edge of the blade may be positioned in the manner desired by the user to direct the rays from the bulb upon the surface being shaved. If desired, an inverted visor 54 may be placed around the bulb in the manner suggested in dotted lines, and said visor will also perform the function of a guard to protect the protruding portion of the bulb against injury.

In Figure 3 the lamp or bulb is disposed inside the end of the tubular handle and the upper portion of the outer tube 14 of the handle is provided with an annular channel or guideway that is formed between shoulders or off-sets 55 and 56 spaced longitudinally of the tube. Between these shoulders the tube wall is provided with a plurality of openings or wide slots 57 that are close together so that narrow ribs 58 remain between them. This permits light rays from the lamp to be projected through the wall of the tube in practically all radial directions or planes. For the purpose of controlling and adjusting the direction of flow of light rays I place a rotatable sleeve in the channel which is in the form of a split ring 59 that is substantially as wide as the guideway so that it may be slipped on over one of the shoulders and seated in the channel. Preferably the sleeve is of opaque material such as spring metal and it is provided with a window or opening 60 in which a lens 61 or other transparent or translucent material is seated.

After the blade has been tightened in the head between the guard and clamp members the sleeve 59 may be rotated until the light rays opposing through the window are directed upon the surface to be operated upon by the blade. This construction permits the different control of the light rays in any direction desired by the user.

What I claim is:

1. A device of the kind described comprising a head including a razor blade, a threaded stud projecting centrally from said head, a handle, an extension at one end of said handle and formed with a continuous translucent wall, a threaded cylindric member in the outer end of said extension that cooperates with said stud to maintain said head and blade in position transverse to said handle, a lamp adjacent said extension and surrounded by said translucent wall through which latter light rays from said lamp are emitted in all radial directions, and means for supplying electric current to said lamp.

2. A device of the kind described comprising a head including a razor blade, a threaded stud projecting centrally from said head, a handle, a removable hollow cap at one end of said handle having a continuous translucent wall, a threaded cylindric member in the outer end of said cap that cooperates with said stud to maintain said head and blade in position transverse to said handle, a lamp adjacent said cap and surrounded by said translucent wall through which latter light rays from said lamp are emitted in all radial directions, and means for supplying electric current to said lamp.

3. A device of the kind described comprising a head including a razor blade, a threaded stud projecting centrally from said head, a handle, a tapered hollow cap of translucent material at one end of said handle, a threaded cup in the outer end of said cap that cooperates with said stud to maintain said head and blade in position transverse to said handle, a lamp surrounded by said cap through which latter light rays from said lamp are emitted, and means for supplying electric current to said lamp.

4. A device of the kind described comprising a head including a razor blade, a threaded stud projecting centrally from said head, a hollow handle, an extension at one end of said handle and formed with a continuous translucent wall, a threaded cylindric member in the outer end of said extension that cooperates with said stud to maintain said head and blade in position transverse to said handle, a lamp adjacent said extension and surrounded by said translucent wall through which latter light rays from said lamp are emitted in all radial directions, and an electric battery housed within said handle for supplying electric current to said lamp.

5. A device of the kind described comprising a head including a razor blade, a threaded stud projecting centrally from said head, a removable hollow handle, a hollow cap at one end of said handle having a continuous translucent wall, a threaded cylindric member in the outer end of said cap that cooperates with said stud to maintain said head and blade in position transverse to said handle, a lamp adjacent said cap and surrounded by said translucent wall, through which latter light rays from said lamp are emitted in all radial directions, and an electric battery housed within said handle for supplying electric current to said lamp.

6. A device of the kind described comprising a head including a razor blade, a threaded stud projecting centrally from said head, a hollow handle, a tapered hollow cap of translucent material at one end of said handle, a threaded cup in the outer end of said cap that cooperates with said stud to maintain said head and blade in position transverse to said handle, a lamp surrounded by said cap through which latter light rays from said lamp are emitted, and an electric battery housed within said handle for supplying electric current to said lamp.

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