Aug. 25, 1936. J. SONNE 2,052,495

ELECTRIC SANITARY SAFETY RAZOR

Filed June 17, 1935

Fig. 1.

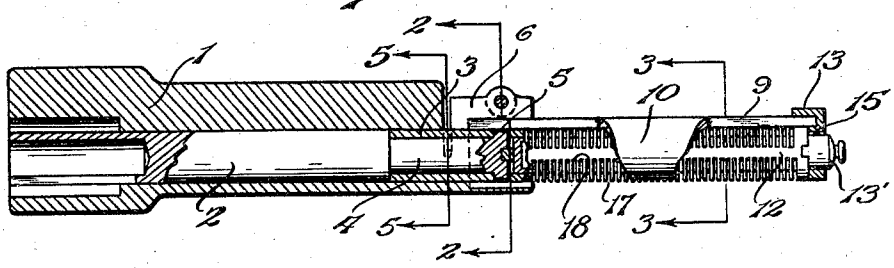


Fig. 2.

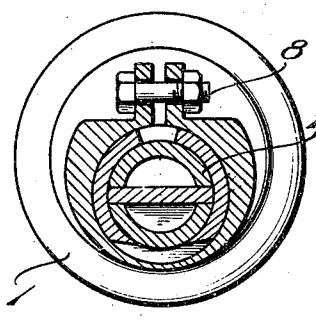


Fig. 3.

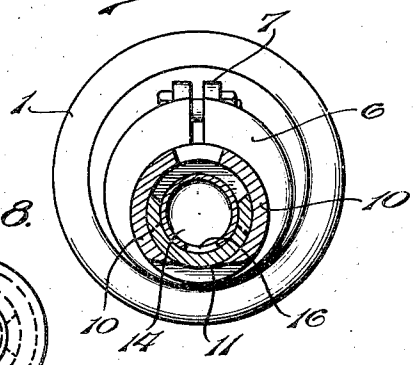


Fig. 8.

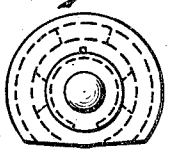


Fig. 4.

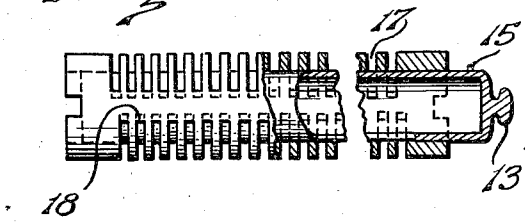


Fig. 6.

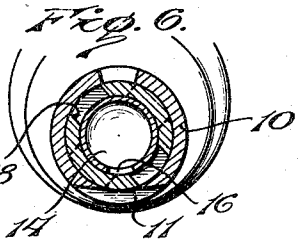


Fig. 7.

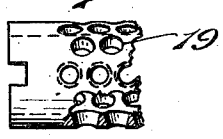
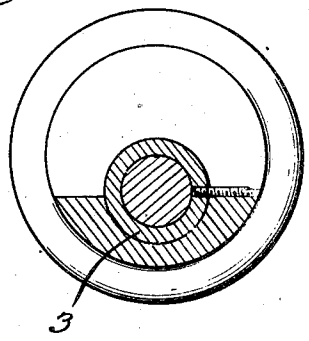


Fig. 5.



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ELECTRIC SANITARY SAFETY RAZOR

John Sonne, Akron, Ohio

Application June 17, 1935, Serial No. 27,100

3 Claims. (Cl. 30—43)

This invention relates to a power driven safety razor and has for the primary object the provision of a device of this character which is convenient to use, easy to clean and maintain in a sanitary condition and is capable of shaving dry, moist or lathered skin without irritation thereto and is self-sharpening and reversible so that either group of cutting mediums thereof may be used while the other group is being sharpened during the use of the device.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a vertical sectional view illustrating a power driven safety razor constructed in accordance with my invention.

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a plan view, partly in section, showing the rotor and retainer of the razor.

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Figure 6 is a fragmentary transverse sectional view illustrating a modified form of my invention.

Figure 7 is a fragmentary plan view, partly in section, showing the form of rotor employed in my modified form of invention.

Referring in detail to the drawing, the numeral 1 indicates a handle of a suitable shape so as to permit convenient use of the razor. The handle 1 has journaled therein an arbor 2, one end of which is shaped for connection with a shaft or drive medium of a power source (not shown). It is to be understood that the power source may be of any form such as an electric motor and its connection to the arbor 2 be through a flexible shaft. Removably mounted in the handle 1 is a bearing sleeve 3 acting as a journal for a reduced portion 4 of the arbor. The reduced portion 4 provides to the arbor spaced annular shoulders 5. The ends of the bearing sleeve abut said shoulders to prevent endwise movement of the arbor in the handle but still permit free rotation or oscillation of the arbor. While I have referred to the arbor as being driven by an electric motor, it will be understood that some conventional type of power source may be employed which will impart to the arbor an oscillatory movement.

One end of the handle is reduced and slotted to form a chambered split type clamp 6 having apertured ears 7 to receive a bolt or like fastener 8. The clamp receives one end of a shell 9 and provides an effective means of detachably securing said shell to the handle. The shell is of tubular formation and includes companion sections 10. Adjacent edges of the companion sections 10 are beveled or cut away to define cutting edges 11. The cutting edges 11 are spaced to define a longitudinal slot in the shell. The other edges of the companion sections are spaced so that said companion sections through the manipulation of the clamp may be adjusted to a rotor 12 operating in the shell for the purpose of compensating for wear. The rotor is of tube form and extends substantially the full length of the shell 9 and has one end constructed to form a detachable drive connection with the end of the arbor 2. The free end of the shell 9 is closed by a removable cap 13 which acts to prevent endwise movement of the rotor away from the arbor 2 and also aids the clamp in supporting the companion sections 10 of the shell in proper relation to one another. It is to be understood that the cap 13 can be removed from the shell to permit removal of the rotor for cleaning purposes. Located in and extending substantially the full length of the rotor is a tubular receiver 14 which also projects through an opening in the cap in the form of a finger piece 13'. A projection 15 is formed on the receiver 14 and enters a notch of the cap to hold said receiver against rotation. The receiver is provided with a longitudinal slot 16 arranged opposite the slot defined by the cutting edges 11 in the shell 9.

The receiver 14 acts to collect hair removed by the cutting edges 11 and the rotor during the movement of the device over a person's skin. The receiver 14 can be easily removed and emptied after the shaving operation.

The rotor 12 is of tubular formation and has series of relatively spaced slots 17 formed therein, the end walls of which are undercut or beveled or otherwise shaped to define cutting edges 18. Therefore, it will be seen that the rotor constitutes a series of closely related cutting edges for cooperation with the cutting edges 11 in severing hair that may pass into the slots 17 between the cutting edges 11 during rotation or oscillation of the rotor and the movement of the shell over the skin. The slots 17 of one group are staggered relative to the slots of the other group.

While I have described the rotor as being slotted to define the cutting edges, cutting edges 19 may be formed by providing in the rotor rows of closely related openings wherein the openings of one row are staggered relative to the openings of the adjacent rows. The shapes of the openings may vary.

The construction of the first rotor described by employing the slots 17 will provide to said rotor four groups of cutting edges 18 so that during rotation of the rotor in one direction one pair of groups of cutting edges cooperate with the cutting edges 11 in severing the hair while the other pair of groups of cutting edges have wiping contact with the cutting edges 11 and thereby become sharpened and also have a sharpening action on the cutting edges 11. The rotor is constructed so that it may be reversed in the shell 9 whereby another group of cutting edges 18 may be caused to operate in conjunction with the cutting edges 11 when the other group of cutting edges 18 have dulled from use and the last-named cutting edges 18 then are sharpened during the use of the device.

In operation, the shell is brought lightly in contact with the skin and moved over the skin in a direction at right angles to the razor. The hair of the skin enters the slot of the shell defined by the cutting edges 11 and is cut by the moving cutting edges of the rotor cooperating with the cutting edges 11. The severed hair enters the receiver 14 by way of the slots therein. Irritation of the skin is prevented by the skin contacting the non-cutting part of the razor when the cutting parts thereof become active. For a delicate skin, with soft hair the cutting edges 11 of the shell are brought closer to each other by loosening the fastener 8 and turning the companion sections of the shell slightly until the desired adjustment of the cutting edges 11 is reached. Thus the irritation of the skin is almost completely eliminated. After the shaving operation, the receiver may be readily removed and washed due to the fact that one end of the receiver is entirely open so that water may readily surge into and out of the receiver thoroughly cleasing the latter.

Having described the invention, I claim:

1. A safety razor comprising a handle, a shell secured to said handle and having spaced longitudinally extending cutting edges adapted to be brought in contact with the skin of a person to permit hair to enter the shell, a rotor operating in the shell, cutting means provided to the rotor for cooperation with the cutting edges in severing the hair, an arbor carried by the handle and connected to the shell and adapted for connection to a power source, and a receiver removably mounted in the rotor to collect hair severed.

2. A safety razor comprising a handle, an arbor journaled in said handle and adapted for connection to a power source, a shell detachably connected to the handle, relatively spaced cutting edges provided to the shell and forming therein a slot, a rotor journaled in the shell and connected to the arbor, groups of cutting edges provided to the arbor and the cutting edges of said groups being closely related and arranged in staggered relation to the edges of adjacent groups for cooperation with the cutting edges of the shell in severing hair during the turning of the rotor, a removable cap closing one end of the shell and non-rotatable relative thereto, and a slotted receiver mounted in the rotor with its slot opposed to the cutting edges of the shell to permit severed hair to pass therein and collect, and a detachable connection between the cap and the receiver.

3. A safety razor comprising a handle, an arbor journaled in said handle and adapted for connection to a power source, a shell detachably connected to the handle, relatively spaced cutting edges provided to the shell and forming therein a slot, a rotor journaled in the shell and connected to the arbor, groups of cutting edges provided to the arbor and the cutting edges of said groups being closely related and arranged in staggered relation to the edges of adjacent groups for cooperation with the cutting edges of the shell in severing hair during the turning of the rotor, a removable cap closing one end of the shell and non-rotatable relative thereto, a slotted receiver mounted in the rotor with its slot opposed to the cutting edges of the shell to permit severed hair to pass therein and collect, a detachable connection between the cap and the receiver, said shell including companion sections whereby said shell may be decreased in diameter to bring about a comparatively snug fit with the rotor when wear occurs.

JOHN SONNE.