

Nov. 3, 1942.

V. R. ABRAMS

2,300,397

SHAVING DEVICE

Filed June 18, 1941

FIG. 2.

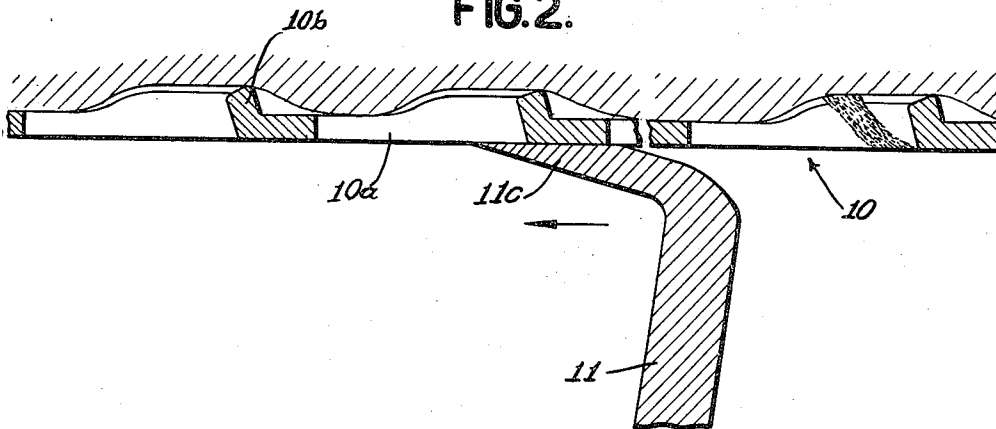


FIG. 1.

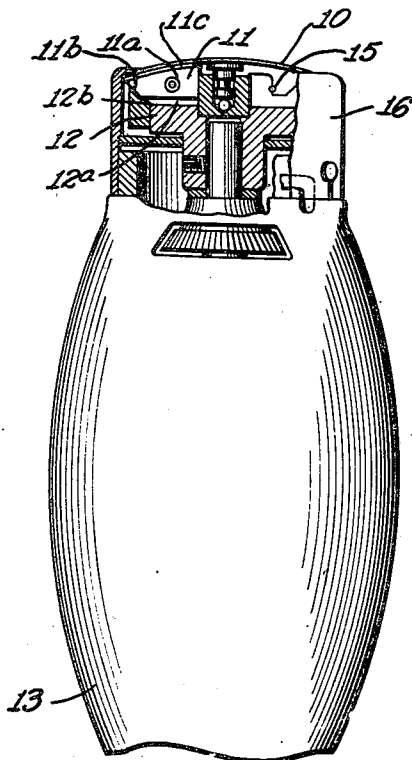
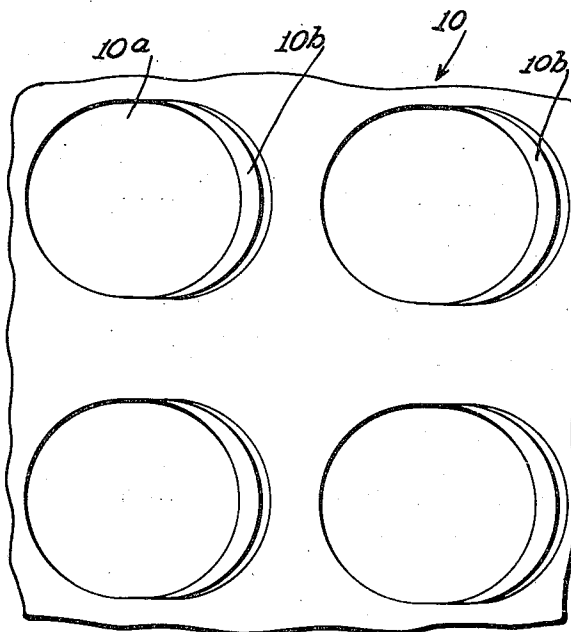


FIG. 3.



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2,300,397

SHAVING DEVICE

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Application June 18, 1941, Serial No. 398,522

6 Claims. (Cl. 30—43)

This invention relates to improvements in shaving devices and relates particularly to improvements in the shear plates of dry shaving devices.

Dry shaving devices are not as effective in the removal of long hairs as they are in removing short hairs, for the reason that the shorter hairs normally tend to stand erect and will spring into the small apertures in the shear plate where they are severed by the moving cutting element or elements while the longer hairs are flattened against the skin by the shear plate. Inasmuch as such plates are smooth, they do not pick up the ends of the longer hairs readily and cause them to pass through the slots or other apertures in the shear plate. Therefore, only the tips of these longer hairs may be cut and then only at random and repeated passage of the shaving device over the skin is required in order to reduce their length so that they can be severed closely to the skin.

In accordance with the present invention, I have provided a novel form of shear plate which overcomes the disadvantages of prior types of dry shaving devices and which assures quick and close removal of the longer as well as the shorter hairs.

Generally, the present invention includes apertured shear plates having minute flanges thereon which are adapted to engage the ends of, pick up and guide the flattened longer hairs into the apertures for severance by the moving cutters.

For a better understanding of the invention, reference may be had to the accompanying drawing, in which:

Fig. 1 is a side view of a shaving device, partly broken away to show details thereof;

Fig. 2 is a view in vertical section of a portion of a shear plate, embodying the invention, shown greatly enlarged to disclose details thereof, and

Fig. 3 is a plan view of an enlarged portion of the shear plate.

Illustrative of one form of shaving device to which shear plates embodying the invention may be applied, Fig. 1 shows a shaving device of the type disclosed in the Moskovics and Abrams Patent No. 2,238,278, dated April 15, 1941. It will be understood from the following description, that the invention is not limited to shaving devices of the type disclosed in this patent, but may be applied with equal facility to any type of dry shaving device.

The shaving device disclosed in Fig. 1 is characterized by a dome-shaped shear plate 10 which

cooperates with a plurality of blades 11 extending substantially radially of a rotatable blade support 12 which is rotated by an electric motor (not shown) mounted in the handle 13 of the device. The blades 11 are loosely mounted in slots 12a of the blade support 12 and are capable of limited radial and axial movement relatively to the blade-support 12. The blades are retained in the slots 12a by means of a spring ring 15 which passes through apertures 11a of larger diameter than the cross-sectional diameter of the ring. The blades 11 are provided with inclined outer ends 11b which engage inclined surfaces 12b at the outer ends of the slots 12a so that upon rotation of the blade support 12, the blades 11 move outwardly and upwardly against the undersurface of the shear plate 10.

The shear plate 10 may be mounted in a collar 16 which is detachably connected to the upper end of the handle 30.

As shown particularly in Fig. 2 the blades 11 may be provided with cutting edge portions 11c which project in the direction of movement of the blade and are honed to a sharp cutting edge.

As shown in Figs. 2 and 3, the shear plate 10 embodying the present invention is provided with a multiplicity of generally circular apertures 10a, each having adjacent one end thereof an inclined outwardly projecting arcuate flange 10b. The flanges 10b are inclined at an angle of about 15° to the tangent to the shear plate 10 at the flange. The height of the flanges 10b is substantially equal to the thickness of the shear plate. The shear plate preferably is about .003 of an inch thick. It will be clear, therefore, that the flanges 10b are of insufficient height to interfere with close shaving. However, these flanges are sufficiently high to engage the end of a hair and direct it through an adjacent aperture 10a where it may be engaged and severed by a blade 11. While I prefer to provide a flange 10b adjacent each aperture, as illustrated, the flanges 10b may, if desired, be omitted in certain rows, either circumferentially or radially although less effective severance of the longer hairs may result with this construction. The flanges 10b preferably are arranged transversely to the radii of the shear plate, although they may be otherwise disposed, if so desired, so that some of the flanges are effective in picking up the hairs regardless of the direction of movement of the device relatively to the skin. The flanges 10b may be readily formed during the production of the shear plate 10, if the apertures 10a are punched in the shear plate 10. The

punching operation produces burrs around the apertures 10 which may be ground down to the desired height and the unwanted portion of the burr ground away substantially completely.

In operation, as the shear plate 10 is moved over the face, the longer hairs will be flattened against the skin initially. The ends of the hairs will be engaged by the flanges 10b and the inclined surfaces of these flanges will direct the ends of the hairs into the apertures 10a where they are severed by the rapidly moving blades 11. The cutters may cut the long hairs into several sections as the hairs are progressively projected into the apertures and the ultimate result is to sever the hairs close to the skin.

From the preceding description of a typical form of shear plate embodying the invention, it will be clear that I have provided a simple and effective shear plate which will overcome the deficiencies of prior types of smooth shear plates without adversely affecting the ability of the device to sever the hairs close to the skin.

I claim:

1. A shear plate for a dry shaving device comprising a thin plate having a multiplicity of apertures therein and flanges on the skin engaging surface of said shear plate adjacent a portion, only, of the peripheries of said apertures.

2. A shear plate for dry shaving devices comprising a thin plate having a multiplicity of apertures therein, and flanges on the skin-engaging surface of said shear plate, adjacent to a portion of said apertures, said flanges extending only

partially around the peripheries of said apertures.

3. A shear plate for a dry shaving device comprising a thin, flexible plate having a plurality of hair-receiving apertures therein, a plurality of flanges projecting from the skin engaging surface of said shear plate, each flange being adjacent to and extending only partially around the periphery of an aperture.

4. A shear plate for a dry shaving device comprising a thin, flexible plate formed as a portion of a surface of revolution having a plurality of hair-receiving apertures therein and a plurality of flanges integral with and projecting from the skin engaging surface of said shear plate, each flange being adjacent to and extending only partially around the periphery of an aperture.

5. A shear plate for a dry shaving device, comprising a thin plate formed as at least a portion of a surface of revolution, a plurality of circular hair-receiving apertures in said plate, and a plurality of arcuate flanges projecting from said plate, each flange forming a portion, only, of the periphery of an aperture.

6. A shear plate for a dry shaving device, comprising a thin plate formed as at least a portion of a surface of revolution having a plurality of circular apertures therein, and a plurality of flanges substantially equal in height to the thickness of said plate projecting from and inclined at an acute angle to the surface of said plate, each flange forming a portion, only, of the periphery of an aperture.

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