Dec. 8, 1959 N. A. GRAY 2,915,816

ELECTRIC SHAVER INNER CUTTER

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Fig. 1.

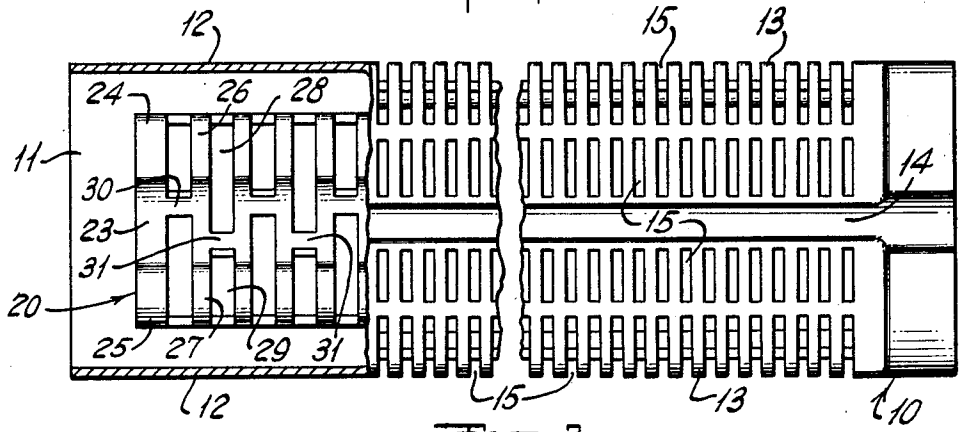


Fig. 2.

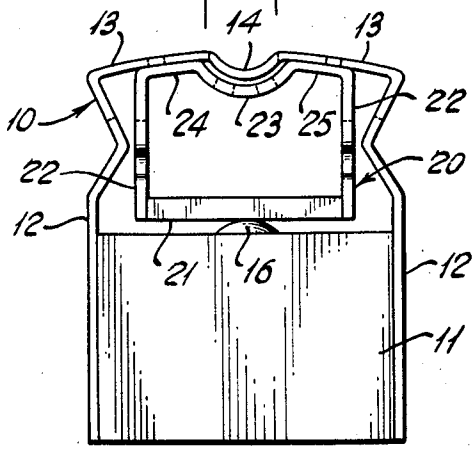
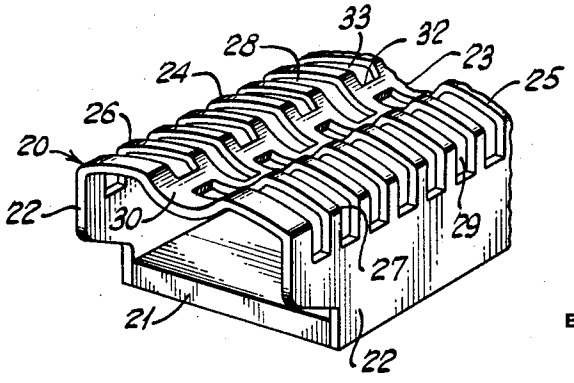


Fig. 3.



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ELECTRIC SHAVER INNER CUTTER

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2 Claims. (Cl. 30—43)

This invention relates to electric shavers of the kind incorporating an outer cutter and a reciprocated inner cutter, the former including a shear plate portion having hair receiving openings and the latter including top portions, separated by a longitudinal groove or valley. The inner cutter top portions are adapted for shearing engagement with the under side of the shear plate and, to that end, are provided with transverse, alternating slots and bars, with the slots and bars of one portion respectively aligned with the slots and bars of the other portion.

In the use of shavers of the foregoing type, it has been found that the inner cutter groove, which is like a small trough running the length of the inner cutter between the slot ends, tends to function as a trap for some of the shaving debris. This material usually includes a certain amount of natural grease or oil from the skin, which causes it to adhere to the cutter and the condition is aggravated when pre-shave lotions are used. Unless the shaver is kept meticulously clean, the debris may cake up and accumulate to an extent sufficient to prevent the inner cutter from maintaining that uniform, close engagement with the nether surface of the shear plate which is essential to the most effective shearing action. As is well known, the inner cutters of these shavers are spring supported and, in the aggravated situation described, the accumulation in the groove forces the inner cutter springs to yield slightly and the inner cutter to lose contact with some or all of the shear plate.

The object of the present invention is to provide an inner cutter of the above kind which has its slots and bars so arranged as to avoid the accumulation described and its resulting impairment of the shaver action.

The invention will be readily understood from the following description of the preferred form illustrated in the accompanying drawings, of which Fig. 1 is a broken out top plan view of a shearing head incorporating the said preferred form, Fig. 2 is an end elevation of the same, and Fig. 3 is a perspective view of a portion of the inner cutter of Figs. 1 and 2.

This shearing head will be recognized as being of a well known type consisting of an outer cutter, generally designated **10**, and an inner cutter, generally designated **20**.

The outer cutter includes a base **11**, side walls **12** and a top or shear plate portion provided with appropriate hair receiving apertures. As shown, there are two shear plate portions **13** separated by a longitudinally extending trough or groove **14** and each transversely slotted, as at **15**. The outer cutter base **11** houses spring means (not shown) for sustaining the inner cutter, as by means of spring pressed balls, of which the top of one is indicated at **16**, in Fig. 2.

The inner cutter **20**, which is designed to be reciprocated lengthwise within and in contact with the nether surface of the top of the outer cutter, is also shown as including a base **21**, side walls **22** and a top or shearing portion incorporating a longitudinally extending groove **23** of a form more or less complementary to that of the outer cutter groove **14** but with clearance between the adjacent surfaces of the two groove portions to ensure

close contact between the shearing surfaces of the two cutters. As will be understood, it is in this zone between the grooves of the two cutters that the debris tends to accumulate.

The groove **23** separates the top of the inner cutter into two portions **24**, **25**, each of which is provided with alternating, transversely disposed bars **26**, **27** and slots **28**, **29**, the bars and slots of one portion being aligned, respectively, with the bars and slots of the other portion. The continuity of the aligned slots is interrupted by what, in effect, are short, longitudinally disposed bars **30**, **31** which serve to unite adjacent pairs of the transverse bars **26**, **27**.

As will be seen in the drawing, these longitudinally disposed bars are not located in the bottom or centrally of the valley or groove **23** but at one side of its center line, so that the bottom of the groove is actually open. Accordingly, there is no support in this critical zone for the debris mentioned above and it is free to fall through into the interior of the inner cutter.

In the preferred form illustrated, the longitudinal bars will be seen to be staggered; that is, all of the alternate bars **30** are disposed above the center line of the groove (as viewed in Fig. 1) and all of the intervening alternate bars **31** are disposed below the groove center line. This particular arrangement provides the additional advantage of making the top or shearing portions of the inner cutter virtually self-cleaning. This results from the fact that debris can adhere to the bars **30**, **31** only in the form of separate spots or miniature, individual piles, rather than in the form of a straight, continuous mound running the full length of the groove **23**. Consequently, as the inner cutter is reciprocated, each such spot or miniature pile is subjected to a scraping or rubbing action which displaces it longitudinally of the groove into an adjacent zone where there is no support for it and where it falls through into the interior of the inner cutter, thus eliminating the possibility of the debris continuing to adhere and accumulate to the point of interfering with the action of the inner cutter.

As will be noted, the longitudinal bars of the inner cutter can be and preferably are disposed wholly within the groove **23** so that, while adequately reinforcing the top of the inner cutter, the outer or higher edges of these bars do not obstruct the preferably open inner ends of the inner cutter slots. This is most clearly shown in Fig. 3, where the outer or higher edge of one of the bars **30** is marked **32** and the open end of the adjacent slot **33**.

In the light of the foregoing exemplification of the principles of the invention the following is claimed:

1. In an electric shaver inner cutter of the kind having two top portions for engagement with the under side of the shear plate of an outer cutter and which top portions are separated by a longitudinal groove and are provided with alternating transverse slots and bars, each bar and slot in one portion being aligned with a bar and slot in the other portion, the improvement which comprises: longitudinally disposed bars uniting adjacent pairs of transverse bars and thereby interrupting the continuity of the intervening aligned slots, each of the said longitudinally disposed bars located in the said groove at one side of the center line thereof.

2. In an electric shaver inner cutter of the kind having a longitudinal groove and, on each side of it, shearing portions provided with aligned transverse bars and intervening slots the improvement which comprises: longitudinal bars disposed within the groove and uniting adjacent pairs of transverse bars, alternate longitudinal bars being disposed at one side of the center line of the groove and the intervening alternate bars being disposed at the other side of the center line of the groove.

No references cited.