Dec. 18, 1962 J. SCHNAPP 3,068,568

SHAVER HEAD PLATE MOUNTING STRUCTURE

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Fig. 1.

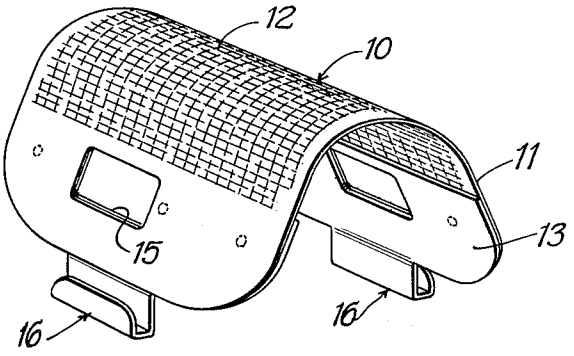
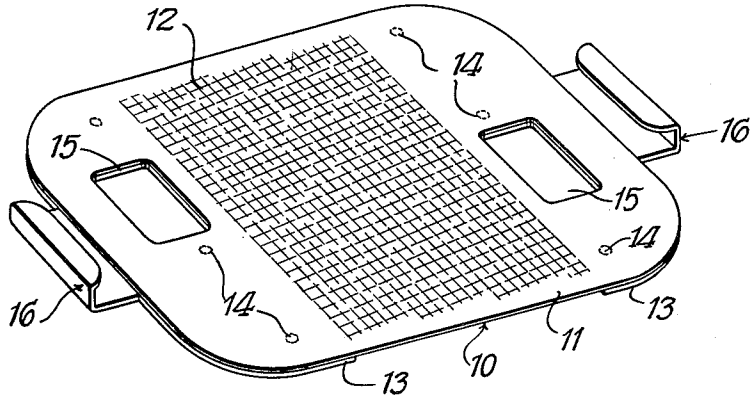


Fig. 2.



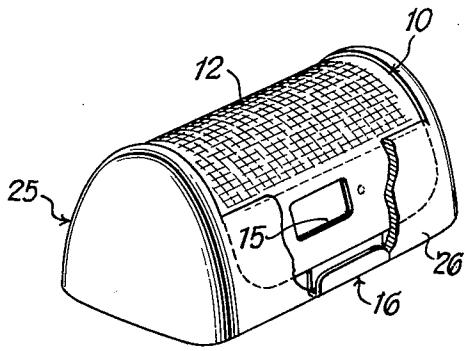


Fig. 3.

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Fig. 4.

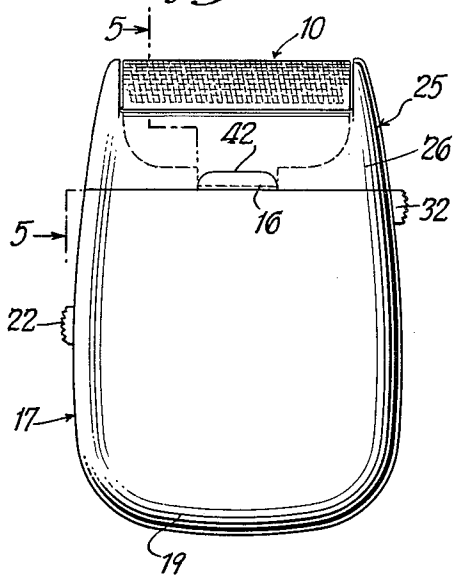


Fig. 5.

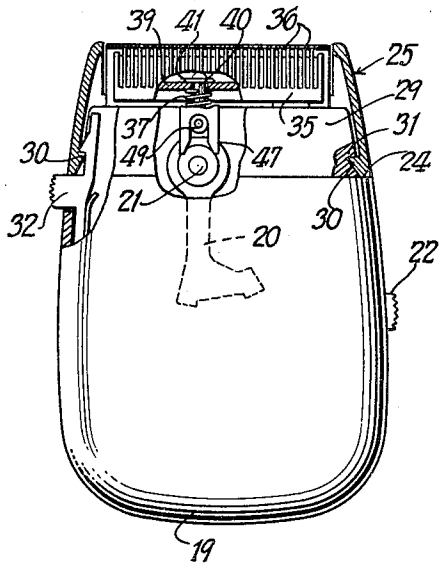
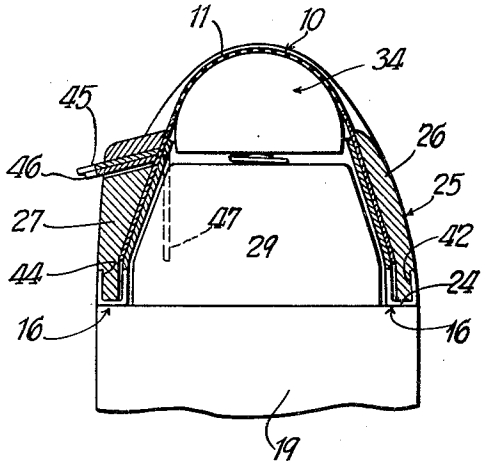


Fig. 6.



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SHAVER HEAD PLATE MOUNTING STRUCTURE

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1 Claim. (Cl. 30—43)

The invention relates to power driven shavers of the type employing an exceedingly thin and freely flexible head plate which serves as a stationary cutter, for example as shown in the U.S. patent to Schnapp et al. No. 2,873,520 issued Feb. 17, 1959, the head plate being mounted within a head frame which is detachable from the body of the shaver, and which holds the head plate in working relation to the movable cutter of the shaver when the head frame is in operative position. At times it is desired to remove or replace a head plate for various reasons, for example to substitute another head plate of different thickness or having larger or smaller apertures therethrough, as may be preferred to secure a closer or coarser cut.

The present invention aims primarily to provide a head plate mounting structure which will enable the head plate to be readily installed in and detached from the head frame in the field, without requiring special skill or tools, and with a minimum of risk of injury to or malpositioning of the head plate in so doing. Further objects and advantages of the invention will be in part obvious and in part specifically referred to in the description hereinafter contained which taken in conjunction with the accompanying drawings discloses a preferred form of head plate mounting structure constructed to operate in accordance with the invention; the disclosure however should be considered as merely illustrative of the invention in its broader aspects.

In the drawings:

FIG. 1 is a perspective view of a preferred form of head plate constructed in accordance with the invention, and showing it in fixed position for operative relation to the head frame;

FIG. 2 is a perspective view of the head plate shown in FIG. 1 in detached and unflexed condition;

FIG. 3 is a perspective view, partly broken away, illustrating the head plate in operative position in the head frame;

FIG. 4 is a rear elevational view of a power driven shaver embodying the present invention;

FIG. 5 is a front view similar to FIG. 3 but with certain portions of the head structure cut away to expose its inner construction; and

FIG. 6 is a sectional view taken along the line 5—5 of FIG. 3.

Referring now to FIGS. 1 and 2, there is shown a head plate or stationary cutter **10** in accordance with the present concept. This stationary cutter comprises an exceedingly thin, polished, resilient metal plate **11** of the order of .0018 inch in thickness and perforated as at **12**. Outwardly of the area of the perforations **12**, and at each side thereof, the stationary cutter is provided with a relatively stiff metal sheet **13**, each such sheet lying against an unperforated part of the thin, flexible plate and being appropriately secured thereto as by spot welding, as indicated at **14**. The plate **11** and the sheets **13** may be formed with openings **15** at each side of the perforated area for a purpose to be described hereinafter. The sheets **13** are preferably fabricated of spring steel of the stainless type of a gauge of the order of .012 to .10 inch, for example, and are formed to provide generally U-shaped clips **16** extending outwardly of the opposite side portions of the plate **11**.

Referring now to FIGS. 4 to 6, there is shown a power shaver **17** in connection with which the stationary cutter

or head plate **10** is used. The shaver **17** may include a main body portion or casing **19** which need not be described in detail but which may be understood as provided with an appropriate cutter actuating member, indicated by the reference numeral **20** in FIG. 5, extending upwardly therein. This actuating member **20** is illustrated as a rocker arm which is mounted to swing about the stud **21**. An appropriate motor (not shown) for actuating the arm **20** is to be understood as being carried by the casing and a button **22** is provided for turning the power on and off. As shown in FIGS. 5 and 6, the casing **19** is formed with a shoulder **24** which extends circumferentially around the casing.

The head structure of the shaver includes a hollow, open bottomed head frame **25** provided with opposite side walls **26** and **27** and end walls extending between the respective side walls. This frame is telescopically engageable around a hub **29** extending upwardly at the top of the casing **19** so that the head frame seats against the shoulder **24** on the casing, as shown. The interior surface of the end walls of the head frame **25** may be formed with a pair of keepers or detents **30**, one of which engages a complementary part **31** on the hub **29**, while the other is engaged by a depressible latch member **32** to hold the head frame detachably in position relative to the casing.

A movable cutter **34** provided with a base **35** and a series of arcuately shaped spaced cutting blades **36** anchored in the base is connected to the actuating member **20** so that it remains in place when the head structure is detached from the casing. As shown in FIG. 5, the actuating member **20** is provided with an extension **37** which passes through a plate **39** which in turn may be connected to the under surface of the movable cutter base **35**. A spring **40** urges the plate **39** and the movable cutter upwardly relatively to the head frame **25** toward a split ring or washer **41**.

As shown in FIGS. 4 and 6, the clips **16** on the stationary cutter **10** are so proportioned as to enable them to frictionally embrace portions of the lower edges of the side walls **26** and **27** of the head frame **25**. In order to receive the clips **16**, these side walls may be recessed as at **42** and **44**, respectively (FIG. 6), these recesses preferably extending along the lower edges of the side walls, and being of a depth substantially equal to the thickness of the clips **16** so that when the clips are in operative position relatively to the head frame, their outer legs are nested within the outer surface of the head frame. Additionally, the bight portions of the clips are locked in place between the head frame **25** and the casing shoulder **24**, as shown in FIGS. 4 and 6, thus supporting the flexible plate **11** in position to engage and conform to the upper edges of the cutting blades **36** of the movable cutter. Since the clips and the recesses are symmetrically disposed, it makes no difference which clip engages a particular recess, the stationary cutter thus being reversible relatively to the head frame. In this connection it is important to note the plate **11** is supported by the clips **16** so as to extend inwardly of the head frame side walls **26** and **27**, and that the perforated intermediate portion of the plate **11** is thus retained in a bowed attitude without additional support.

Some of the power shavers presently available embody a trimming assembly that is located at one side of the head frame. As shown in FIG. 6, the present invention may readily be utilized in connection with shavers having this feature. The trimming assembly includes a stationary blade **45** and a reciprocating blade **46**. The reciprocating blade has a downwardly extending forked tongue **47** (FIGS. 5 and 6) that extends through one of the openings **15** in the stationary cutter to engage a driving stud **49** when the head frame is mounted in one position on the casing. The driving stud is connected to the rocker arm

20 and thereby transmits reciprocating movement to the trimmer blade 46. However, when the head frame is reversed so that the trimming assembly is disposed on the side of the casing opposite the stud 49, the movable trimming blade will remain motionless thereby permitting the full power of the motor to be delivered to the main cutting blade 34. In any event, it will be seen that the forked tongue 47 may extend through either of the openings 15, so that the openings 15 in the stationary cutter permit the use of the trimming assembly without regard to the positioning of the stationary cutter relatively to the head frame, these parts being reversible, as explained heretofore.

From the foregoing description, it will be seen that the present invention contributes a stationary cutter or head plate which may be readily attached to and detached from the head frame without the need of tools or special skill.

Although certain particular embodiments of the invention are herein disclosed for purposes of explanation, further modifications thereof, after study of this specification, will be apparent to those skilled in the art to which the invention pertains. Reference should accordingly be had to the appended claim in determining the scope of the invention.

What is claimed and desired to be secured by Letters Patent is:

In a power shaver having a head frame and a movable cutter: a stationary cutter comprising a flexible plate adapted to be mounted within the head frame, said plate having an intermediate perforated portion adapted to be exposed through an opening in the head frame and also having opposite side wall portions adapted to be disposed within and respectively adjacent the inner surfaces of the side walls of the head frame, and means for mounting said plate for attachment to and detachment from the head frame respectively by relative upward and downward sliding movements of said side wall portions with respect to the side walls of the head frame, said means comprising relatively stiff metal sheets lying against each side wall portion and secured thereto, said sheets being formed with U-shaped clip members extending outwardly from said side wall portions and being respectively adapted frictionally to engage the side walls of the head frame to hold said plate detachably in position within the head frame.

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