June 24, 1958 D. R. LOCKE 2,839,828

MEANS FOR RETAINING AND OPERATING A PIVOTED HAIRPOCKET

Filed Aug. 17, 1956

FIG. 1

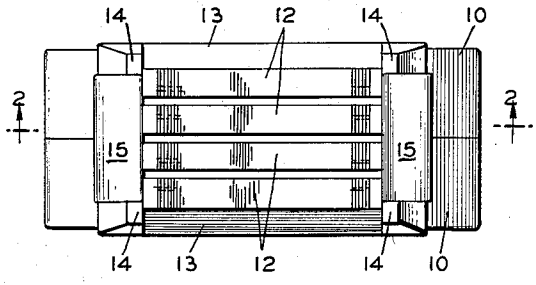


FIG. 2

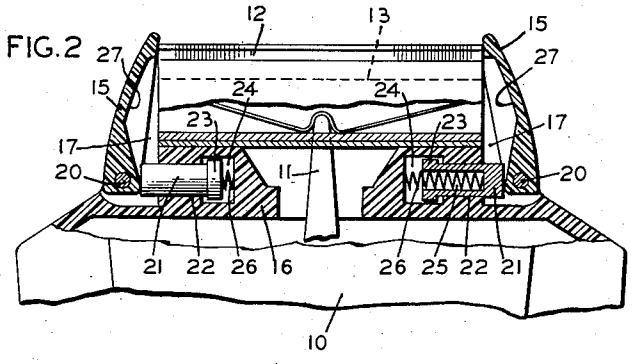


FIG. 3

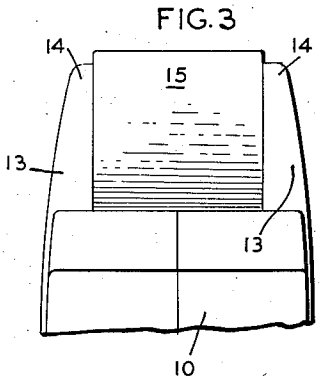


FIG. 4

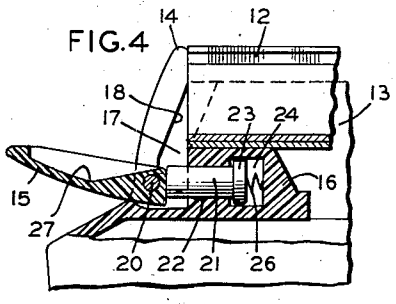
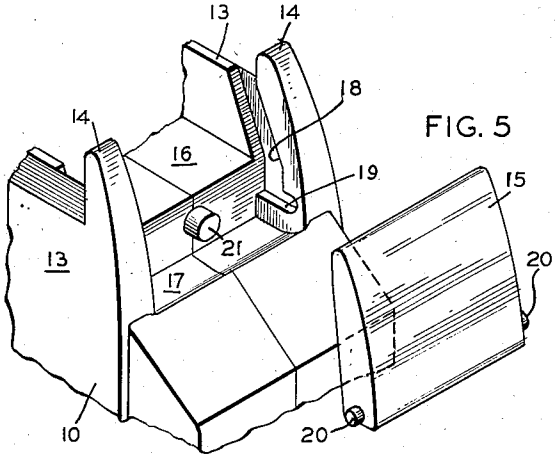


FIG. 5



INVENTOR
DAVID R. LOCKE
BY Clyde A. Norton +
Robert J. Hulsizer.
ATTORNEY

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MEANS FOR RETAINING AND OPERATING A PIVOTED HAIRPOCKET

David R. Locke, Westport, Conn., assignor to Sperry Rand Corporation, New York, N. Y., a corporation of Delaware

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3 Claims. (Cl. 30—41)

This invention relates to shavers and concerns more particularly the constructional improvement of a hair pocket thereof.

In electric shavers of the general type shown in U. S. Patent No. 2,561,241 issued July 17, 1951 to one Jan Streng and entitled "Electric Dry Shaver," the cutter units therein are housed within a removable casing which is disposed on top of the usual lower handle or body portion of the device. In such a form of shaver a hair pocket is formed between the removable casing and the housed cutter units as described therein. In order to remove the collected hair the casing must be lifted off the body portion whereupon the hair may be blown out of the pocket and from within the reciprocatory cutter elements.

The present invention has to do with shavers of the same general type but with the upper casing housing the cutter units preferably but not necessarily formed as an integral part of the lower casing. This upper casing has end walls which are in the form of pivoted plates which can be swung down to expose the hair pocket and the ends of the cutter units so that the entrapped hair may be easily blown out as before but without having to remove the upper casing or cap portion as before and merely by the swinging of the end plates down as above mentioned.

The present invention more particularly has to do with the manner in which the pivoted end plates are connected to the upper casing whereby they can be easily and quickly inserted into position and as easily removed therefrom without the use of any special fastening means, such as hinges and the like, whereby the constructional expense is reduced to a minimum. It also concerns the manner of construction by means of which the said end plates are held securely in either open or closed position automatically when moved to either of said positions.

Briefly and generally, the invention is applied to a shaver of the general form stated, in which the upper housing around the cutter units is integral with the lower casing and has pivoted end walls adjacent the open ends of the cutter units. The side walls of this upper housing near their ends are provided with guide means leading to pivot recesses therein into which trunnions or pivot pins on the end plates are moved to advance said pins to a pivotal position. Latch means is disposed within the upper housing and is positioned to contact the lower portion of the pivoted plate below the pivot axis and to exert pressure along a line below said axis to hold the plate either in open or closed position when it is moved to either of these positions.

More particularly the inner faces of the side walls of the upper housing surrounding the cutter units near their ends are provided with downwardly extending slots leading to horizontally disposed recesses into which said trunnion pins are to be disposed. This forms a sort of bayonet slot arrangement with one end of the slot opening into the top of the side wall of the upper housing and the other end of the slot is the horizontally disposed portion in the end of which the plate pivot pins are held by means of a spring pressed plunger disposed within the said housing and bearing against the lower portion of the plate slightly below the pivot axis so as to hold the plate in either an open or a closed position as will later be apparent.

The present preferred form of the invention is illustrated in the drawings, of which,

Fig. 1 is a plan view of a shaver embodying the invention;

Fig. 2 is a partial vertical longitudinal section taken on the line 2—2 of Fig. 1, showing the end plates closed;

Fig. 3 is an end elevation of the upper portion of the device;

Fig. 4 is a partial section similar to Fig. 2 showing an end plate in open position; and,

Fig. 5 is a fragmentary exploded isometric view of one end of the upper portion of the device.

Referring to the particular form of the invention shown in the drawings, the shaver comprises a two-piece casing **10**, the lower portion of which houses the usual drive motor (not shown) operating a drive arm or arms **11** connected to the usual open ended cutter units **12** comprising the usual stationary and reciprocable cutter elements of the general type shown in Patent No. 2,561,241 issued July 17, 1951, to J. Streng.

These cutter units are housed in the upper part of the casing **10** which in this form is integral with the lower part, whereas in the mentioned patent it is a separate removable portion. This upper portion of the casing **10** comprises side walls **13** which along the major part of their length extend up to a level slightly below the tops of the cutter units as shown. These side walls at their ends rise even with the tops of the cutter units as shown at **14** (Fig. 4).

In the patent mentioned, the end walls **23** therein are integral with the side walls **24** whereas in the form presented herein the end walls comprise pivoted plates **15** which when in closed position rise slightly above the tops of the cutter units as shown in Fig. 2. With the open-ended type of cutter units as shown herein and as generally indicated in the mentioned patent, the space within the upper portion of the casing **10** forms a hair-pocket portion especially at the ends of the trunk portion **16** to the upper surface of which the cutter units are connected in any desired manner. Between the pivoted end plates **15** and the open ends of the cutter units **12** there is a space **17** forming a hair pocket. It is to be noted that the width of the pivoted plates **15** is such as to fill the space between the ends of the side walls **13** as clearly seen in Fig. 3.

It is old to provide pivoted end plates on shavers but the invention herein has particularly to do with the construction of the pivoted plates and the physical relation of them with the upper portion of the casing **10** whereby the plates may be easily removed and inserted and are securely held in open or closed position without the use of special fastening means such as hinges and the like.

To this end the side walls **13** of the casing **10** are provided with downwardly extending tracks or slots **18** which extend downwardly from the top edges of the side walls near their ends and along the inner surfaces thereof to a point or level below the top surface of the trunk portion **16** where the slots connect with horizontal recesses **19** extending away from the adjacent vertical face of the trunk toward the outer end of the casing **10**. The pivoted plates **15** are provided at their lower opposite sides with trunnion pins **20** which, when the plates are to be inserted into operative position, are slid downwardly in the slots **18** and then into the recesses **19** to the end thereof. The slots **18** and recesses **19** are thus in the form of a bayonet slot.

Projecting from the vertical wall of the trunk **16** at each end thereof are plungers **21**, preferably of nylon

each of which slides in a bore 22. The rear end of the plunger 21 has an enlarged head 23 which slides in a larger bore 24. The plunger is hollow throughout part of its length as at 25 (Fig. 2) and a spring 26 in this hollow portion bears against the rear end of the bore 24 to urge the plunger to project from the wall of the trunk.

From an inspection of Figs. 2 and 4 it will be seen that the inner face of the plate 15 is concave as at 27 and that the lower portion of it is of increasing thickness toward the bottom. As shown in Figs. 2 and 4, the relative location of the recess 19, the trunnion pin and the plunger 21 is such that when the plate 15 is in closed position, as seen in Fig. 2, the thrust of the plunger 21 against the lower inner corner of the plate 15 is along a line slightly below the axis of the trunnion pins and therefore the plate is held in this closed position. However, when the finger of the operator engages the top of the plate 15 and swings it down, the corner of the plate will press the plunger 21 back until the plate assumes the position shown in Fig. 4 in which position the plunger is bearing against the flat bottom of the plate and will hold it in this position until the operator wishes to restore the plate to closed position. This closure can be achieved by merely swinging the plate upwardly whereupon the corner of the plate presses the plunger back until the plate assumes the position shown in Fig. 2 where it is there held as above described.

In inserting the trunnions in the slots, the plate is preferably held in an inwardly inclined position as the trunnions are thus slid down the slots and therefore the bottom of the plate will be at an angle to encounter the top edge of the plunger and cam it back until the trunnions can enter the recesses. The plate is removed by disposing the plate in the position shown in Fig. 4 and then pushing the plate back and up so that the trunnion pins can move to the inner end of the recess and then up and out of the slots 18.

It is thus apparent that the pivoted hair pocket plates can be easily swung from closed to open position quickly and will remain in either position until swung to the other at will. The plates can be easily and quickly inserted and removed from their cooperative position on the casing and except for the plunger no other elements are involved in the insertion, removal, and operation of the plates.

While I have described what I consider to be a highly desirable embodiment of my invention, it is obvious that many changes in form could be made without departing from the invention, and I, therefore, do not limit myself

to the exact form herein shown and described, nor to anything less than the whole of my invention as hereinbefore set forth, and as hereinafter claimed.

1. In a shaver having a casing, cutter units housed within said casing, a pivoted plate forming an end wall of said casing, guide ways on the side walls of the casing, said guide ways opening into the top of the side walls, trunnion pins extending from opposite lower side of the plate and extending into said guide ways to permit the pins to be moved down into the lower ends of the guide ways whereby the plate is thus disposed in a pivotal position, and a spring pressed plunger disposed within the casing and adapted to engage the lower end of the plate in this position thereof to hold the plate in an open or closed position.

2. In a shaver having a casing, cutter units housed within said casing, a pivoted plate forming an end wall of said casing adjacent an end of said cutter units, the inner surfaces of the side walls of said casing near said end thereof provided with downwardly extending slots having horizontally extending recesses at the lower ends thereof, the upper end of the slots opening into the top of the side walls of the casing and trunnion pins projecting from opposite lower sides of said plate and adapted to be moved into said slots to establish the pins at the end of said recesses in a pivotal position.

3. The invention of claim 2 in which a spring-pressed plunger is disposed in said housing to be pressed against the adjacent face of the pivoted plate along a line slightly below the pivot axis of the plate in either the open or closed position of the plate whereby the plate is held in either position until manually moved therefrom.

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