Jan. 12, 1943. E. C. BRULL 2,308,049

SHAVER

Filed May 18, 1940

Fig. 1.

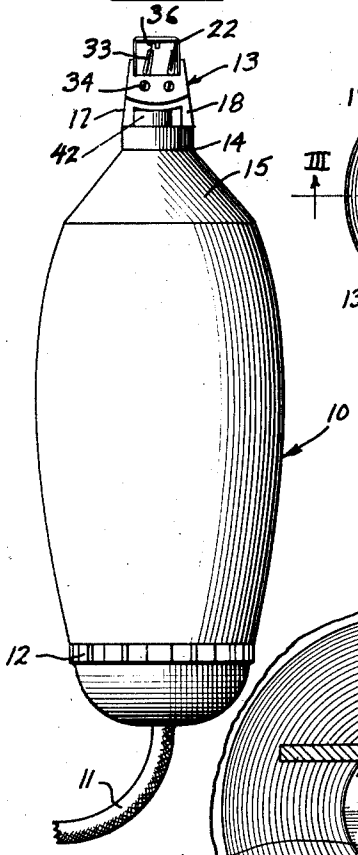


Fig. 2.

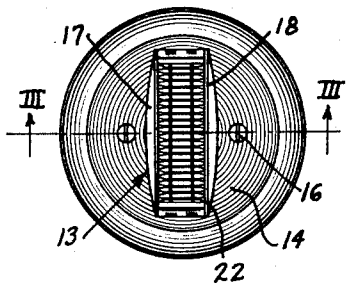


Fig. 3.

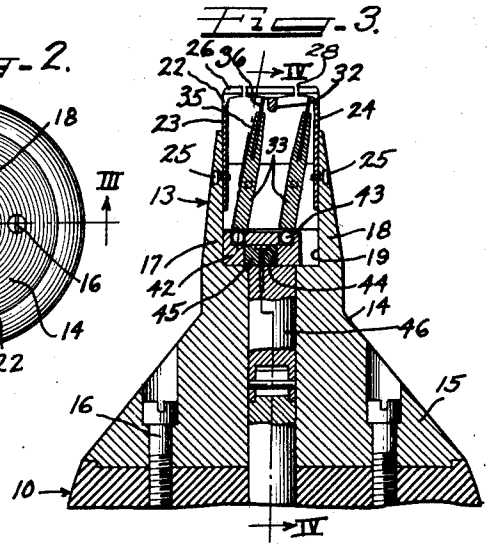


Fig. 5.

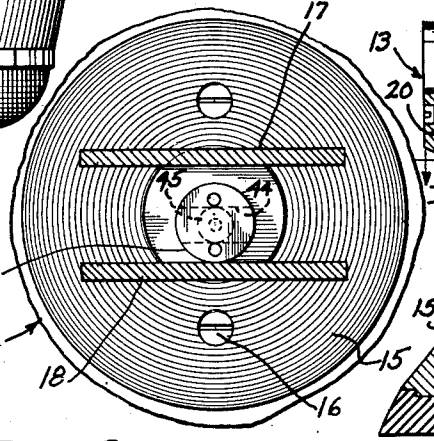


Fig. 4.

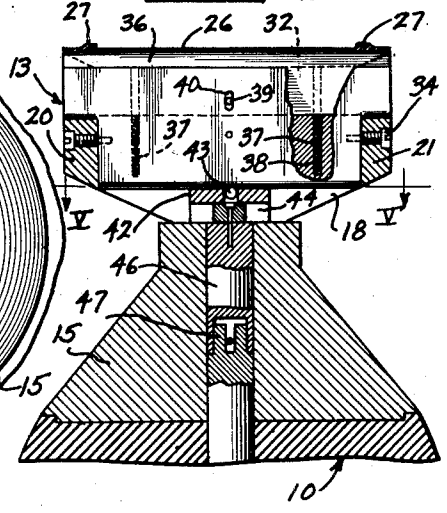
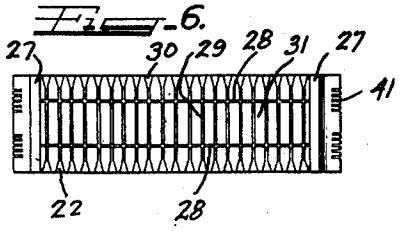


Fig. 6.



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Patented Jan. 12, 1943 2,308,049

UNITED STATES PATENT OFFICE

2,308,049

SHAVER

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Application May 18, 1940, Serial No. 335,873

12 Claims. (Cl. 30—43)

The present invention relates in general to devices for clipping hairs, especially mechanically actuated shavers, and is particularly concerned with improvements in the cooperatively associated clipping and shaving instrumentalities.

More specifically, the present invention seeks to provide an improved cutting head construction and associated cutter blade mechanism, which are simple in construction, efficient in operation and which are not apt to get out of order or give trouble over long periods of use.

A further object is to provide a shaving device having an improved cutting blade arrangement.

Still another object of the herein described invention is to provide a multiple shaving implement of the above type, wherein a plurality of independently mounted blades are actuated by a single motive device.

Other objects and features of the invention will more fully appear from the following detailed description taken in connection with the accompanying drawing which illustrates a preferred embodiment thereof, and in which:

Figure 1 is a side elevational view of a shaver embodying the features of the herein described invention;

Figure 2 is a plan view of the same as seen when looking toward the cutting head;

Figure 3 is an enlarged transverse sectional view through the head portion of the shaver, taken substantially on line III—III of Figure 2;

Figure 4 is an enlarged fragmentary longitudinal section through the head, taken substantially on line IV—IV of Figure 3;

Figure 5 is an enlarged fragmentary view having a section taken horizontally substantially on the line V—V of Figure 4 to disclose certain details of the driving mechanism for the blades; and

Figure 6 is an enlarged plan view of the outer guard plate showing the slot arrangemeht therein.

As shown on the drawing:

The present invention is susceptible of use in mechanical shavers and may be actuated by any suitable power source. In the present instance, the invention is illustrated as being embodied in a shaver of the electric type wherein a casing 10 is provided for enclosing the power mechanism, in this instance an electric motor. As is the usual practice, this casing may be provided with a connection cord 11 at one end by means of which the motor may be connected to a suitable source of electric energy. In the particular arrangement shown, there is also provided at this end of the casing a rotatable member 12 by means of which an electric switch may be actuated to energize and de-energize the motor relative to the power supply. The shaver head assembly, as generally indicated at 13 is mounted at the opposite end of the casing 10, this head embodying the hair cutting instrumentalities.

More specifically, the head comprises a base member 14 which may be constructed of any suitable material, but is preferably of a light strong metal. The base member has a bottom frustroconical or flared portion 15 which is adapted to seat against the associated end of the casing 10 so as to provide an end extension to the casing. The base member may be secured to the casing by suitable bolts or screws 16 arranged to extend through suitable passageways in the base member, provision being made to have the heads of these bolts countersunk or depressed below the outer surface of the base member, as shown in Figure 3.

At the uppermost end of the base member, there is integrally formed a pair of spaced upwardly projecting wing portions 17 and 18, which have their outermost side surfaces in beveled relation and their innermost surfaces straight and at right-angles to a bottom forming portion so as to form an elongate groove 19 having an open top.

The wing or side portions 17—18 are preferably interconnected at their ends by bridging portions 20 and 21 which may be integrally formed with the wing portions and preferably have their uppermost edges disposed below the adjacent uppermost edges of the wing portions.

The open upper end of the groove 19 is closed by a cutter guard member 22 which is generally of inverted U-shape cross section, the spaced leg portions of the member being defined by depending walls or flanges 23 and 24 which are adapted to be inserted within the wing portions 17 and 18 of the base structures. These flanges may be secured as by suitable screws 25—25 so as to rigidly support the cutter guard in predetermined position on the base structure.

As shown in Figures 3, 4 and 6, the bridging portion of the cutter guard, as indicated at 26 is arranged so as to present a substantially flat outer surface. This surface is of elongate proportions and is provided at each end with an upstanding rib or thickened portion 27—27, these ribs being inwardly spaced from the ends of the bridging portion of the cutter guard.

As shown in Figure 6, the bridging portion of the cutter head is provided with a pair of par-

allel longitudinally extending slots 28—28 which extend between the ribs 27 and 27. The bridging portion is further provided with a plurality of parallel hair guiding slots 29 in right-angular relation to the first pair of parallel slots, the hair guiding slots having end entrance openings 30 along the corners connecting the bridging portion with the side flanges 23 and 24. It will be noted that the hair guiding slots extend entirely across the bridging portion of the cutter guard and intercept the parallel slots 28—28. These slots conjointly circumscribe and define medial rectangular portions 31 which are aligned longitudinally of the cutter guard. These rectangular portions are supported on a central longitudinally extending rib 32 which is integrally formed with the rectangular portions and also has its ends integrally formed with the thickened ribbed end portions 27—27 of the cutter guard.

Within the groove 19, I have provided a pair of blade carrying members 33—33 which are pivotally supported at their ends by pivot pins 34 in the bridging portions 20 and 21 of the base member.

Each of the blade carriers is in the form of a substantially flat elongate plate which is provided with an edge groove 35 adapted to receive edgewise therein a flat thin blade 36.

The lowermost edge of the blade is arranged to abut the pair of spaced coiled springs 37—37 which are disposed in suitable sockets 38 in the blade carrier. The springs acting against the lowermost edge of the blade act to push the blade edgewise away from the carrier and press the free edge of the blade against the under surface of the bridging portion of the cutter guard. It will be noted that the under surface on either side of each longitudinally extending slot 28 is of arcuate construction to permit swinging movement of the blade in lateral direction to oscillate it from one side of the associated longitudinally extending slot to the other. Each of the blades is respectively associated with one of the longitudinally extending slots 28.

Each blade is restrained against longitudinal movement in the groove 35, but is permitted limited edgewise movement in the groove toward its cutting edge by means of a pin 39, the ends of this pin being disposed in an elongate slot 40 in the blade carrier.

The construction just described enables the use of elongate parallel slots which may have a width of approximately .008 of an inch, and the hair guiding slot may have a width of substantially .007 of an inch. The cutting blade may be made extremely thin and may even have its unconfined side surfaces tapered to form a peak having a line edge. It has been found that such a line edge peak provides extremely close adjacent cutting edges which maintain their full-sharp characteristics much longer than the more widely spaced cutting edges of thicker blades. The cutting edges of thick blades become rounded and dull while the wear on a line edge peak tends to form a flat surface of progressively greater width and whose edges remain sharp much longer than those of a thick blade having an initially wide flat surface.

Where the blade is of less thickness than the longitudinally extending slot, the blade is prevented from engaging with the slot edges due to the fact that the end portions of the blade extend outwardly past the thickened or ribbed portions 27—27 of the bridging portion of the cutter guard. The adjacent end portions thus serve as a bearing for the cutting edge of the blade.

As an added feature of construction, the end portions just mentioned are provided with a series of axially extending edge slots 41 which are traversed by the ends of the cutting edges of each blade. These slots 41 are of particular advantage in severing hairs which might not be readily severed in the usual operation of the shaver.

The blade carriers 33—33 are arranged to be simultaneously oscillated on their pivots. For such purpose, the edges of the carriers opposite from those edges which support the blade are connected by a yoke member 42, each carrier being connected with the yoke by a ball and socket connection as shown at 43.

The yoke member is arranged to be reciprocated transversely of the groove 19, and for such purpose, there is provided a groove 44 on the under surface of the yoke, this groove being adapted to receive a roller crank pin 45 carried by a rotatable shaft 46 having connection with the driving motive device. If desired, connection of the shaft 46 may be made through a suitable disengageable coupling as shown at 47.

From the foregoing description, it will be apparent that the present invention provides an improved shaver having a cutting head construction and associated cutter-blade mechanism which are simple in arrangement, efficient in operation, and which are not apt to get out of order or give trouble over long periods of use; and in which an improved multiple shaving implement is provided, wherein a plurality of independently mounted blades are actuated by a single motive device.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope and spirit of the appended claims.

I claim as my invention:

1. In a shaver, a cutting head having a plurality of spaced apart slots extending in one direction and a plurality of spaced apart slots extending in another direction, said sets of slots intersecting, and a plurality of blades having cutting edges associated with said cutting head and being movable for traversing said intersecting slots.

2. In a shaver, an elongated cutting head having longitudinally extending spaced apart slots and transversely extending spaced apart slots intersecting said first slots, a plurality of cutting blades having cutting edges associated with said cutting head, and means individually pivoting said blades for swinging movements in a direction across said longitudinal slots.

3. In a shaver, a cutting head having a plurality of slots including a pair of spaced apart slots in parallel relation and extending longitudinally along said head, cutting blades having cutting edges contiguous to the under surface of said head, and means mounting said blades for swinging movements in directions to carry their cutting edges in transverse arcuate paths across said pair of slots.

4. In a shaver, an elongated cutting head having a plurality of perforations in an intermediate portion thereof, a thickened rib portion inwardly spaced from each end of the cutting head and extending transversely of the head between

its ends and said perforated intermediate portion, said head having edge slots in at least one end thereof disposed outwardly from the adjacent rib portion, an edgewise disposed movable blade extending longitudinally of the cutting head and having a cutting edge cooperable with the slots of said edge and the intermediate perforated portion.

5. In a device of the character described, an elongated cutting head having longitudinally extending thickened edge portions connected by an intermediate thin portion, a transversely extending thickened rib portion at and inwardly spaced from each end of the cutting head, said cutting head having a plurality of perforations between said ribs and edge slots at the ends thereof disposed outwardly from said ribs, an edgewise disposed movable blade extending longitudinally of said cutting head and having a cutting edge cooperable with said perforations and said slots.

6. In a device of the character described, an elongated cutting head having longitudinally extending and transversely curved arcuate surfaces on one side thereof, a transversely extending thickened rib portion at and inwardly spaced from each end of the cutting head, said cutting head having spaced parallel slots extending longitudinally between said ribs and transversely extending slots intersecting said parallel slots, a reinforcing rib connecting said thickened ribs and the portions of said head defined by said intersecting slots, edgewise disposed blades extending longitudinally of said cutting head and having cutting edges movable laterally over said arcuate surfaces, said ends of the cutting head adjacent said ribs having longitudinally extending edge slots cooperable with said cutting edges.

7. In a device of the character described, an elongated cutting head having longitudinally extending and transversely curved parallel arcuate surfaces on one side thereof and a substantially planar surface on the other side thereof, a transversely extending thickened rib at and inwardly spaced from each end of the cutting head, said cutting head having parallel longitudinal slots extending radially therethrough at the thinnest portion between said planar and each of said arcuate surfaces and between said ribs, said cutting head also having transversely extending radial slots intersecting said parallel slots, the ends of said cutting head adjacent said ribs having outwardly extending edge slots, a longitudinally extending reinforcing rib between said arcuate surfaces integrally connecting said thickened ribs and the portions of said head defined by said intersecting slots, edgewise disposed blades having tapered surfaces forming a line cutting edge and disposed on either side of said reinforcing rib and extending longitudinally of said cutting head with the cutting edges movably laterally over said arcuate surfaces.

8. A cutter guard for shaving devices and the like comprising a member supported along opposite edges and having a planar surface on one side thereof and adjacent arcuate surfaces on the other side thereof, said member also having parallel longitudinal slots therethrough located in the thinnest portions between the planar surface and each arcuate surface thereof and other slots extending transversely thereof and intersecting said parallel slots, and a reinforcing rib between said arcuate surfaces for integrally connecting the portions of the guard member defined by said intersecting slots.

9. In a shaver, an elongated cutter head having a longitudinally extending slot in an intermediate portion thereof and having end portions adapted to provide bearing surfaces for the end portions of a cutting blade, and an elongated cutting blade arranged movable across said slot and having end portions adapted to bear against the end portions of said head.

10. A shaver comprising an elongated cutting head having a portion thereof perforated, a pair of elongated and spaced opposed cutting blades, and means pivotally mounting said blades for laterally rocking movements.

11. A shaver comprising an elongated cutting head having a portion thereof perforated, a pair of spaced opposed blade carriers pivoted for lateral swinging movements, a blade in each of said carriers, respectively, and supported edgewise in the carrier and having a cutting edge extending longitudinally of the under surface of said perforated portion of said head, and means resiliently pressing said blades against said head.

12. In a shaver, an elongated cutting head having longitudinally extending spaced apart slots and transversely extending spaced apart slots intersecting said first slots, a plurality of blades having cutting edges, said blades being mounted on said shaver and being swingable to traverse said slots.

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