Feb. 18, 1936. D. M. WINANS 2,031,519

SHAVING DEVICE AND THE LIKE

Filed Oct. 5, 1935

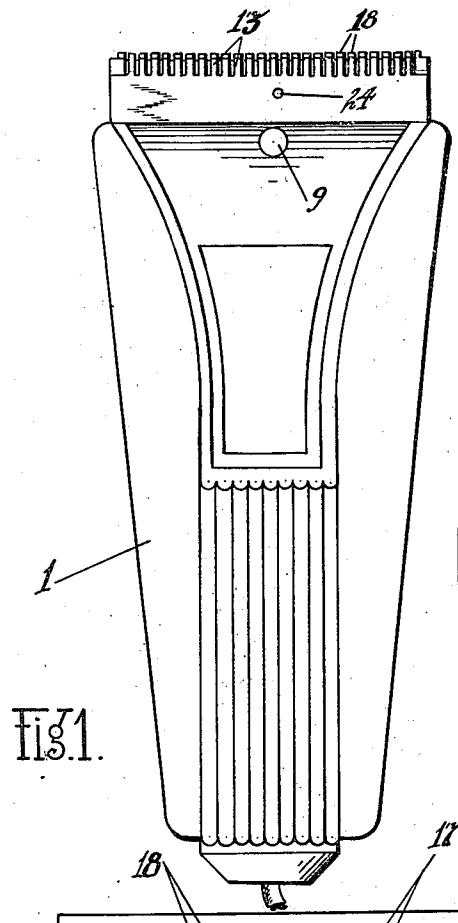


Fig. 1.

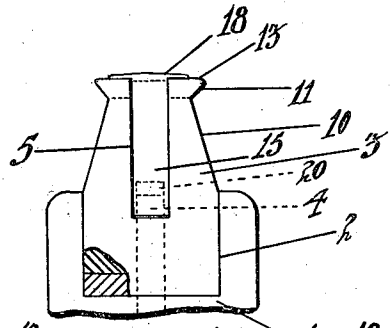


Fig. 2.

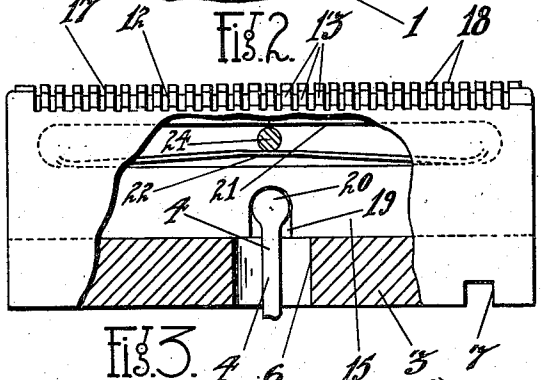


Fig. 3.

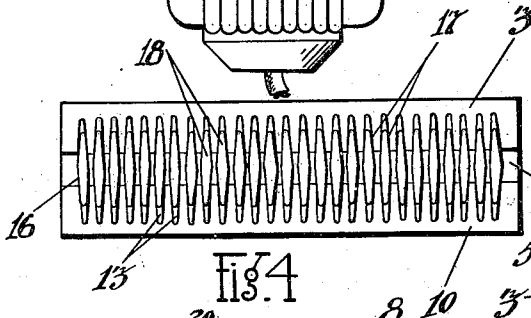


Fig. 4.

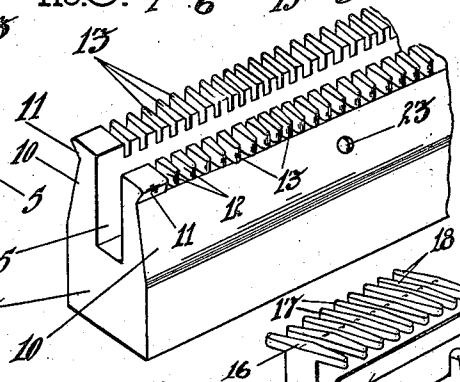


Fig. 5.

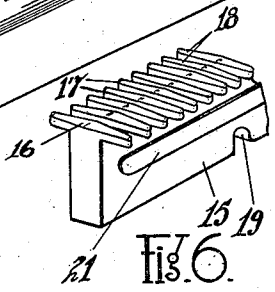


Fig. 6.

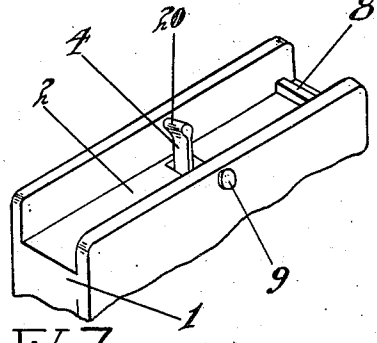


Fig. 7.

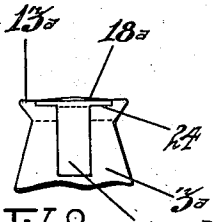


Fig. 8.

INVENTOR.
DANIEL M. WINANS.

BY Philip S. Hopkins

ATTORNEY.

Patented Feb. 18, 1936 2,031,519

UNITED STATES PATENT OFFICE

2,031,519

SHAVING DEVICE AND THE LIKE

Daniel M. Winans, Binghamton, N. Y.

Application October 5, 1935, Serial No. 43,722

6 Claims. (Cl. 30—43)

My invention relates to improvements in shaving devices and the like and has for its primary object to provide a device for cutting whiskers or other hair from the skin without injury to the skin and without the use of water, soap, lather, or other preparations applied to the skin or hair.

One important object of my invention lies in the provision of a cutting head consisting of a fixed or stationary cutter member and a movable cutter member associated therewith and on the outside thereof for direct engagement with the skin.

Another object of my invention lies in the provision of a cutting head from which the cut hair falls readily and freely, thereby eliminating the necessity for dismantling the head for cleaning it.

A further object lies in the provision of a cutter head of few parts, simple and economical of manufacture, easily assembled, and requiring a minimum of care and attention.

More specifically my invention includes a fixed member provided with cutting teeth and with a groove or channel disposed longitudinally of the fixed head and at right angles to the cutting teeth, and a movable reciprocating cutter member disposed in such channel and provided with teeth lying directly upon the upper or outer surface of the teeth of the fixed member for reciprocation thereover and in contact therewith, the reciprocating cutter member being adapted to engage directly against the skin.

Still another object lies in the provision of means for holding the movable cutter member in engagement with the fixed member.

Other objects and advantages will be apparent as the description proceeds, reference now being had to the figures of the accompanying drawing forming a part of this application and wherein like reference numerals indicate like parts.

In the drawing:

Figure 1 is a side view of an assembled razor with handle embodying my invention.

Figure 2 is a detail and partly broken view of the cutter head and handle in assembled relation.

Figure 3 is a side view of my improved cutting head, certain parts being broken away for clearness of illustration and to show the cooperation between the head and the actuating part for the movable cutter.

Figure 4 is a top plan view of the cutter head.

Figure 5 is a detail perspective view of the fixed portion of the cutter head.

Figure 6 is a detail perspective view of the movable cutter member.

Figure 7 is a detail perspective end view of the handle or carrier to which the cutting head is attached and illustrating the actuating member for the movable cutter.

Figure 8 is a detail end view of a modified arrangement of the fixed and movable cutters.

Although my invention has been referred to as a razor for use in shaving whiskers from the face, it will be clear that the same is equally adaptable for cutting longer hair than whiskers and may be used as a clipper for that purpose.

The reference character 1 designates generally a handle which may be of any suitable design and size and is provided at one end with a channel or recess 2 adapted to receive the cutting head 3. The handle may enclose an electric motor or other power device adapted to oscillate longitudinally of the recess 2 an actuating arm 4 extending from within said handle into said recess, for operative engagement with the cutter in a manner to be described.

The particular type and design of electric motor or other mechanism for oscillating the actuating arm 4 forms no part of this invention and it will, of course, be understood that the size and design of the handle 1 will be such as to properly accommodate the particular power operating mechanism used.

The cutting head consists of the fixed member 3 which is preferably a solid block substantially rectangular in shape and provided with a groove or channel 5 extending from end to end longitudinally through the block adjacent its upper side. The block 3 is provided on its underside and centrally thereof with an opening 6 communicating with the groove 5 and of sufficient size to receive the actuating member 4 and permit oscillation thereof within such opening 6 and groove 5.

The block 3 is received within the recess 2 on the end of the handle and is provided adjacent one end and on its underside with a notch 7 adapted to fit over and engage a lug 8 provided across one end of the recess 2 of the handle. This interlocking arrangement prevents longitudinal movement of the cutter block on the handle. A set screw 9 is also provided on the end of the handle and adapted to engage against the side of the cutter block 3 whereby to lock the cutter head in position on the handle. Obviously loosening this set screw 9 permits the ready removal of the cutter head from the handle if desired.

The sides of the fixed cutter block 3 are beveled inwardly from a point spaced above the bottom of

the block to a point adjacent the upper side thereof, as at 10. Adjacent the upper side, the sides are again beveled outwardly as at 11. These upper parts of the fixed head 3, on opposite sides of the channel 5, are provided with a plurality of spaced aligned grooves or slots 12 between which are left the spaced and aligned cutting teeth 13. The top surfaces of these fixed teeth 13 are polished smooth and the outer ends thereof are slightly pointed as shown whereby the whiskers or hair may be readily guided into the slots 12. The slots 13 are preferably of a depth at least equal to the width of the beveled portion 11 of the block. It may be said here also that the outer ends of the teeth 13 are polished smooth, so that they may be moved over the skin without injury or unpleasant feeling thereto. The side edges or corners of the teeth 13 extending from the outer ends thereof inwardly to the channel 5 are left perfectly square and sharp as such edges constitute the cutting edges of the fixed cutter.

Adapted to be slidably received within the channel 5 of the fixed block 3, is a movable cutter block 15, of a length slightly less than the length of the fixed block 3 and of such a size as to provide a close fit within the channel 5 though permitting free and easy reciprocation therein. The top side 16 of the cutter block 15 is wider than the channel 5 and extends on either side thereof to a point just short of the ends of the fixed cutter teeth 13. This top side is provided with spaced grooves 17 extending clear across the cutter block from side to side to thus provide the spaced teeth 18 comprising the movable cutter teeth. The grooves 17 are of such width as to readily receive whiskers or hair therein between the teeth 18 but are too narrow to admit the skin entering the same when the cutter is placed against it. The grooves 17 and teeth 18 are preferably of the same width though not necessarily. Likewise the grooves 12 and teeth 13 of the fixed block 3 and the grooves 17 and the teeth 18 of the movable block 15 are preferably of substantially the same width, though not necessarily.

The underside of the top portion 16 of the movable cutter 15, namely, the undersides of the teeth 18 extending outwardly on either side of the block 15, are formed perfectly flat and smooth and are adapted to lie directly upon and in contact with the upper sides of the teeth 13 of the fixed block. The ends of the teeth 18 of the movable cutter may also be slightly beveled or pointed to more readily receive the whiskers or hair.

The teeth 18 of the movable cutter are ground or otherwise formed very thin, particularly adjacent their ends where the cutting action takes place. These teeth 18 at their ends are preferably of a thickness on the order of .004 or .005. As shown, the ends of the teeth 18 are formed slightly thinner than the middle or central portion thereof. Such an arrangement provides for a closer cut adjacent the ends of the teeth where the cutting action largely occurs and also adds strength to the teeth by the additional material at the central portion thereof.

The underside of the cutter block 15 is provided centrally with a notch 19 adapted for alignment with the opening 6 through the fixed block 3, to receive the rounded end 20 of the actuating arm 4, whereby upon oscillation of the arm 4, the cutter block 15 will be reciprocated longitudinally within the channel 5. The amount of movement is very slight, it being merely necessary to move the teeth 18 of the movable cutter a distance sufficient to cause their lowermost side edges to alternately pass over and away from the adjacent upper side edges of the teeth 13 of the fixed cutter block. The total extent of the movement of the cutter 15 is within the confines of the length of the fixed block 3.

The cutter block 15 is provided below the teeth 18 with an elongated slot 21 within which is disposed a light leaf spring 22. The sides of the fixed block 3 are provided with aligned openings 23 registering with the elongated slot 21 and through which passes a pin 24 adapted to engage with the upper side of the spring 22 when the movable member 15 is centrally positioned within the block 3, exerting a tension on the spring 22 which serves to normally resiliently hold the cutter member and the teeth 18 thereof downwardly in engagement with the upper surface of the teeth 13 of the fixed member. By this arrangement there is no danger of the movable cutter member becoming displaced or separated from the fixed member and thus eliminating the possibility of the instrument pinching or cutting the skin.

In Figure 8 is shown a slightly modified form of cutter and in which 3—*a* represents the fixed cutter block within which is longitudinally reciprocable the movable cutter member 15—*a*. In this form the cutter teeth 18—*a* of the movable cutter member instead of lying directly upon the upper flat surface of the fixed member are set down within a groove or recess 24 formed in the upper sides of the fixed cutter member 3—*a*, the teeth 13—*a* of such fixed member being recessed to receive the teeth of the movable cutter member whereby the upper surfaces of the fixed teeth and of the movable teeth are substantially flush. Otherwise the construction of the device in this modification is identical with that shown in the other figures.

The assembly and operation of this shaving or cutting device, is as follows:

In assembling the head, the movable block 15 is first inserted within the channel 5 of the fixed block 3 and slid therein a distance sufficient to bring the end of the slot 21 in the movable block into alignment with the openings 23. The pin 24 is then inserted through the openings 23 and through the slot 21 at its end and at a point where the spring 22 lies against the bottom edge of the slot 21 whereby to permit free insertion of the pin 24 through such slot. The movable cutter block 15 is then slid inwardly to central position and with its ends located evenly within the ends of the fixed block 3. In this position the pin 24 now engages the central raised portion of the spring, thus resiliently holding the teeth of the movable cutter member down into flat engagement with the upper surface of the teeth of the fixed member. The assembled head is now placed in the groove or channel 2 in the end of the handle, the notch 7 engaging over the lug 8 and the actuating lever 4 extending upwardly through the opening 6 of the fixed block and into the recess 19 of the movable cutter block. The set screw 9 is now tightened to rigidly hold the head in position on the handle and the device is ready to use.

When the actuating arm 4 oscillates in a direction longitudinally of the head and of the channel 5, by any desired type of electric motor, flexible shaft, or other means of vibrating the same, the movable cutter block 15 is reciprocated rapidly back and forth within the channel 5 and the teeth 18 of the movable member slide

back and forth over the teeth 13 and slots 12 of the fixed member 3. When the cutter member is placed against the skin and moved thereover during the reciprocation of the cutter 15, the hair or whiskers are guided into the slots 12 by the ends of the teeth 13 and into the slots 17 between the teeth 18 of the movable cutter, whereupon they are cut by the underside edges of the teeth 18 as the same pass over and in contact with the upper side edges of the fixed teeth 13.

As fast as the whiskers and hair are thus cut, they drop downwardly through the slots 12 on to the beveled sides 10 of the fixed block from whence they can easily be wiped or blown.

The only sensation in the use of this shaver is a very pleasant slight vibration to the skin caused by the rapid reciprocation of the cutter member.

It will be understood, of course, that changes may be made in detail without departing from the spirit and scope of my invention, such as for instance, the varying of the distance between the edges of the cutter member teeth and the edges of the fixed member or the angle and depth of the beveled side portions 10 and 11. I do not limit myself, therefore, to the exact form herein shown and described other than by the appended claims.

I claim:

1. A shaving device comprising a toothed stationary cutter member having a recess therein, and a toothed movable cutter member reciprocably mounted in said recess and having substantially its teeth only overlying the teeth of said stationary cutter member, the underside of the teeth of said movable member engaging against the outer surface of the teeth of said stationary member and the outer surface of the teeth of said movable cutter being adapted to directly engage the skin, the teeth of said stationary cutter member being integral therewith and the outer surface of said movable member being wholly free of overlying portions of said shaving device whereby all of said outer surface is directly engageable with the skin.

2. A shaving device comprising a fixed member having a purality of integral spaced teeth and a recess adjacent thereto, the spaces between said teeth being open at one end to permit hair to enter between said teeth, and a movable cutter member in said recess having a plurality of thin spaced teeth reciprocable over and in engagement with the outside surfaces of said first named teeth, said movable cutter member having substantially its teeth only overlying the teeth of said fixed member, the spaces between said last named teeth being open at one end to permit hair in said first spaces to enter between the second named teeth to be cut as said cutter member moves, and the outer surface of said movable member being wholly free of overlying portions of such shaving device whereby all of said outer surface is directly engageable with the skin.

3. A shaving device comprising a fixed member having a plurality of integral spaced teeth and a recess adjacent thereto, the spaces between said teeth being open at one end to permit hair to enter between said teeth, and a movable cutter member in said recess having a plurality of thin spaced teeth reciprocable over and in engagement with the outside surfaces of said first named teeth, said movable cutter member having substantially its teeth only overlying the teeth of said fixed member, the spaces between said last named teeth being open at one end to permit hair in said first spaces to enter between the second named teeth to be cut as said cutter member moves, said second named teeth being shorter than said first named teeth, and the outer surface of said movable member being wholly free of overlying portions of such shaving device whereby all of said outer surface is directly engageable with the skin.

4. A shaving device comprising a fixed member having cutting teeth and a channel guide slot, and a reciprocable member in said guide slot having thin cutting teeth, said reciprocable member engaging the outer surface of said fixed member and directly engageable with the skin to be shaved, and the teeth of said members having spaces therebetween to receive the hair to be cut, said spaces being wide enough to admit at least one hair and narrow enough to prevent the entry of the skin to the cutting edges of said teeth, and means for resiliently maintaining said reciprocable member in flat contact with said fixed member, said means comprising a pin in said fixed member lying within an elongated opening in said movable member and spring means in said opening cooperating with said pin.

5. A shaving device comprising a fixed block provided with a channel groove extending longitudinally therein, the upper surface of said block on each side of said groove being formed with spaced teeth, a reciprocable cutter block in said channel groove having a thin toothed portion overlying and engaging the upper toothed surfaces of said fixed block, and means for reciprocating said cutter block.

6. A shaving device comprising a fixed block provided with a channel groove extending longitudinally therein, the upper surface of said block on each side of said groove being formed with spaced teeth, a reciprocable cutter block in said channel groove having a thin toothed portion overlying and engaging the upper toothed surfaces of said fixed block, and means for reciprocating said cutter block, the teeth of said cutter block lying wholly within the edges of said fixed block.

DANIEL M. WINANS.

DISCLAIMER

2,031,519.—*Daniel M. Winans*, Binghamton, N. Y. SHAVING DEVICE AND THE LIKE. Patent dated February 18, 1936. Disclaimer filed April 4, 1938, by the patentee.

Hereby enters this disclaimer to claims 1, 2, 5, and 6 in said specification.

[*Official Gazette April 26, 1938.*]