S. P. JONES.

ROTARY CUTTING DEVICE FOR RAZORS.

APPLICATION FILED DEC. 18, 1918.

1,338,305. **Patented Apr. 27, 1920.**

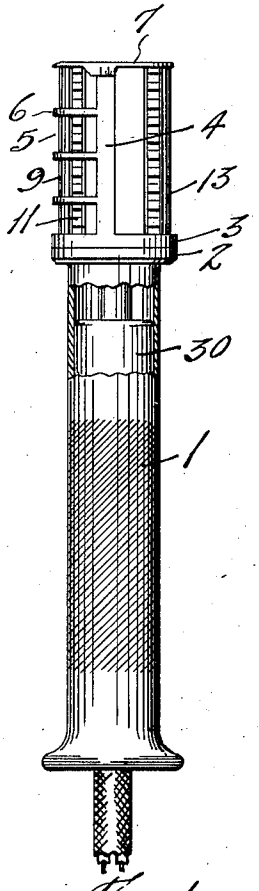


Fig. 1.

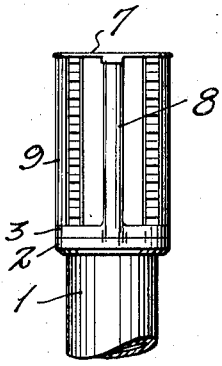


Fig. 2.

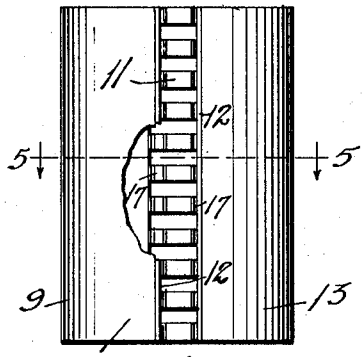


Fig. 4.

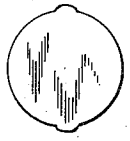


Fig. 5.

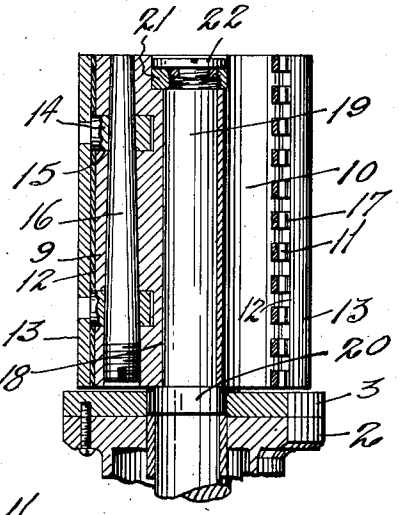


Fig. 6.

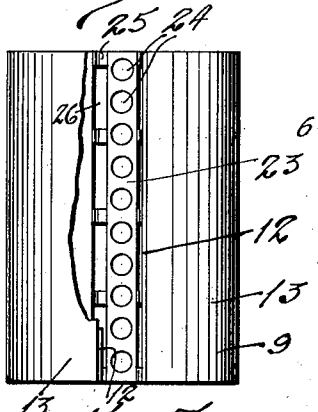


Fig. 7.

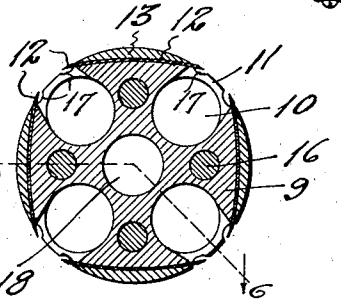


Fig. 5.

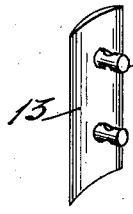


Fig. 8.

Inventor
S. P. Jones.
By Jack A. Ackley
Attorney

UNITED STATES PATENT OFFICE.

SIDNEY P. JONES, OF WACO, TEXAS.

ROTARY CUTTING DEVICE FOR RAZORS.

1,338,305. Specification of Letters Patent. Patented Apr. 27, 1920.

Application filed December 18, 1918. Serial No. 267,251.

To all whom it may concern:

Be it known that I, SIDNEY P. JONES, a citizen of the United States, residing at Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Rotary Cutting Devices for Razors, of which the following is a specification.

This invention relates to cutting devices for mechanical razors and particularly to improvements in rotary cutting devices.

In experimenting with the construction of a cutting device to be used in connection with a shaving guard having openings through which the cutting edges of the device are exposed I have discovered certain facts which led me to make particular improvements in order to gain the most efficient and satisfactory results. I discovered that certain features were absolutely essential in the structure of such a device and without them the cutting device was neither safe nor efficient.

By actual tests I found that the cutting edges of the blades must only project from the surface of the cutting member to a limited degree and the surface of the cutting member must support the skin of the face on each side of the cutting edge, otherwise the cutting edge would cut the skin which protruded into its path. In carrying out the invention it is best to have a substantially smooth surface with a limited portion of the cutting edge of each blade exposed on the surface of the cutting member. This gives a smooth shaving operation, whereas the cutting blade which has no support for the flesh on each side of the cutting edge will give a choppy and unsatisfactory shaving operation.

In a more specific embodiment of the invention a rotatable cutting member is provided. The member is formed with longitudinal lather accumulating pockets having their open sides bridged by ribs forming part of the surface of the member or an equivalent structure. Gage plates are removably fastened on the member between the ribbed panels and have their outer surfaces made smooth so as to form part of the surface of the cutting device in harmony with the smooth outer surfaces of the ribs. When the gage plates are in position the cutting device may have a substantially circular surface, but this is not absolutely necessary and may be varied.

The gage plates hold in place and cover the greater portions of the cutting blades which have their cutting edges projecting from each longitudinal edge of each gage plate. The cutting edges are directed toward the ribbed panels and overhang the edges of the pockets. Grooves or channels are formed immediately under the cutting edges so as to give clearance and prevent an accumulation of lather or other sediment. The cutting edges have only a limited projection and may terminate either slightly above or below the supporting surface of the device which is formed by the ribbed panels and gage plates. By making the gage plates or the cutting blades easily removable said blades may be sharpened or replaced.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is illustrated, and wherein,

Figure 1 is a view of a rotary razor equipped with a cutting device constructed in accordance with this invention.

Fig. 2 is a partial elevation showing the device applied to a razor with a guard,

Fig. 3 is a plan view of the same,

Fig. 4 is a detail of the cutting device,

Fig. 5 is a cross sectional detail on the line 5—5 of Fig. 4,

Fig. 6 is a vertical sectional detail on the line 6—6 of Fig. 5,

Fig. 7 is a detail of a modified form of cutting device, and

Fig. 8 is a perspective view of one of the gage plates.

In the drawings the numeral 1 designates a handle member having a flat head 2 of larger diameter. On the head the base 3 of a shaving guard structure 4 is secured. I have not shown the guard offset from the handle as in my co-pending application filed of even date herewith, although the off-set construction is more advantageous and preferable. The guard structure comprises transverse openings 5 separated by ribs 6 and a cap 7 at the upper end. Various guard formations may be used. Figs. 2 and 3 omit the guard and show the cap 7 supported on posts 8 rising from the base 3.

The feature of the invention is a rotary cutter or blade carrying member or cylinder 9. While the complete cylinder is

circular in cross-section it is to be understood that other cross-sectional shapes may be employed and the term does not limit to the shape shown.

A plurality of pockets 10 extend longitudinally through the cylinder, four being illustrated. Transverse ribs 11 contiguous to the surface of the cylinder bridge the entrance to each pocket. Between each row of ribs the cylinder is reduced in diameter to form seats for cutting blades 12. Each blade is clamped in place by a gage plate 13. The gage plates have their outer surfaces smooth, and conforming to the same arc as the ribs, whereby the cylinder is given a circular cross-section. Each plate has a pair of apertured lugs 14, as are shown in Figs. 6 and 8, which are directed inward and penetrate the blades 12. The lugs are received in radial recesses 15 in the cylinder. Tapered locking pins 16 are secured in the cylinder and pass through the apertures of the lugs 14, whereby the plates are drawn inward and the cutting blades rigidly clamped in place.

The blades project from each side of each gage plate and it is obvious that two single blades could be used instead of one double blade. The plates cover all of the blades except their cutting edges. The cutting edges of the blades overhang the edges of the pockets 10 and those portions of the ribs 11 underlying the cutting edges are cut away or recessed at 17 so that said cutting edges are free throughout their lengths and do not contact with the ribs; whereby no place for the accumulation of matter is left and a highly sanitary structure had. It will be seen that a cutting edge is disposed on each side of each row of ribs. These edges may terminate within, coincident with or slightly beyond the circle of the cylinder.

It will be seen that the gage plates and the ribs present a smooth and continuous surface with the depressions caused by the recesses 17. The cutting edges project into these recesses and are thus exposed on the surface of the cylinder. The skin of the person being shaved is supported by the plates and ribs on each side of the cutting edges and as the edges are only projected to a slight degree, the beard and not the skin is cut.

The cylinder has a central opening 18 which receives a shaft 19 so that the cylinder rests on a collar 20 projecting through the base 3. The shaft has its upper end externally screw threaded to receive a nut 21 which is seated in the upper end of the cylinder. A lock screw 22 is threaded into the upper end of the shaft and overlaps the nut, said screw being countersunk in the upper end of the cylinder. By these means the cylinder is made fast on the shaft. The shaft extends down into the handle 1. I have shown a motor 30 disposed in the handle and connected directly to the shaft for rotating the same, but it is to be understood that the shaft may be driven in various ways.

Where a guard is used the cylinder is disposed in juxtaposition to the inner sides of the ribs 6 so that the cutting edges of the blades 12 are exposed through the openings 5. By limiting the projecting of the cutting edges from the edges of the gage plates the device could be used without a guard, as shown in Fig. 2. The operation of the razor has been fully explained in co-pending applications.

In Fig. 7 I have shown a modified form of structure which substitutes for the ribs 6 a panel 23 having a vertical row of perforations 24. This panel is supported along each side by webs 25 which are recessed under the cutting edges like the recesses 17 and have slots 26 therebetween.

In shaving the lather passes into the pockets 10 either between the ribs and under the cutting edges or through the perforations 24 and slots 26, so that nothing can lodge under the cutting edges.

The salient feature of this particular invention is the smooth supporting surface of the cylinder with the cutting edges exposed to a limited degree over a clearance depression; whereby the skin of the face is supported by the surface portions of the cylinder immediately on each side of the cutting edge and the skin protected from cutting. I have found that diametrically opposite gage plates and their blades can be removed and the shaving operation performed with the remaining plates and blades. When it is desired to replace the blades they are readily removed by unscrewing and withdrawing the pins 16 so that the gage plates and blades may be lifted off.

What I claim is,

1. A razor including a head having a cylindrical outer surface adapted to rotate in contact with the skin and provided with a plurality of pockets opening through the cylindrical surface, arcuate ribs extending across the pockets and having their outer faces concentric with the cylindrical surface of the head to support the skin, said ribs having recesses adjacent the ends thereof, blade seats between the pockets, blades on said seats having their edges exposed slightly beyond the cylindrical surface of the head and lying beyond said recesses, means to clamp the blades on said seats and means to rotate the head.

2. A razor including a head having a cylindrical outer surface, and provided with small pockets opening through the surface, ribs bridging the pockets at the surface of the head and having recesses near the opposite ends thereof, curved blade seats between

adjacent pockets, flexible double-edged blades fitted on said seats, gage plates for clamping said blades on said seats and having outer faces conforming to the cylindrical contour of the outer surface of the head, the blade edges arranged to project slightly beyond the surface of the head and to lie beyond said recesses, means in the head to hold said gage plates in place, and means to rotate the head.

3. A razor including a rotary head, means to rotate the head, blade seats on the head inwardly of the surface thereof, gage plates for clamping the blades on said seats with their edges exposed, said plates having studs entering the head, means in the head engaging the studs to bind the plates in place, and guards beneath the blade edges.

4. A razor including a rotary head having longitudinally extending pockets opening through the outer surface thereof, guard ribs across the openings in the pockets arranged contiguous to the surface of the head and having recesses on the outer faces thereof, blade seats formed in the head between the pockets, gage plates fitting over said seats to hold the blades in place and causing the edges of the blades to lie opposite said recesses in the guard ribs, means for binding the gage plates on the head, and means to rotate the head.

5. A razor including a rotary cylindrical head having an axial bore and longitudinal pockets opening through the periphery thereof, blade seats inward of the periphery and located between adjacent pockets, gage plates adapted to fit over the seats and hold the blades thereon, perforated studs on the plates, tapering pins passing through the perforations in the studs, series of spaced guard ribs extending across the pocket openings and having recesses beneath the edges of the blades, a shaft passing through the axial bore in the head and made fast therein, a handle connected to the head, and a motor in the handle operatively connected to said head.

In testimony whereof I affix my signature.

SIDNEY P. JONES.