E. R. WHARTON.

SAFETY RAZOR.

APPLICATION FILED FEB. 3, 1917.

1,328,024.

Patented Jan. 13, 1920.

2 SHEETS—SHEET 1.

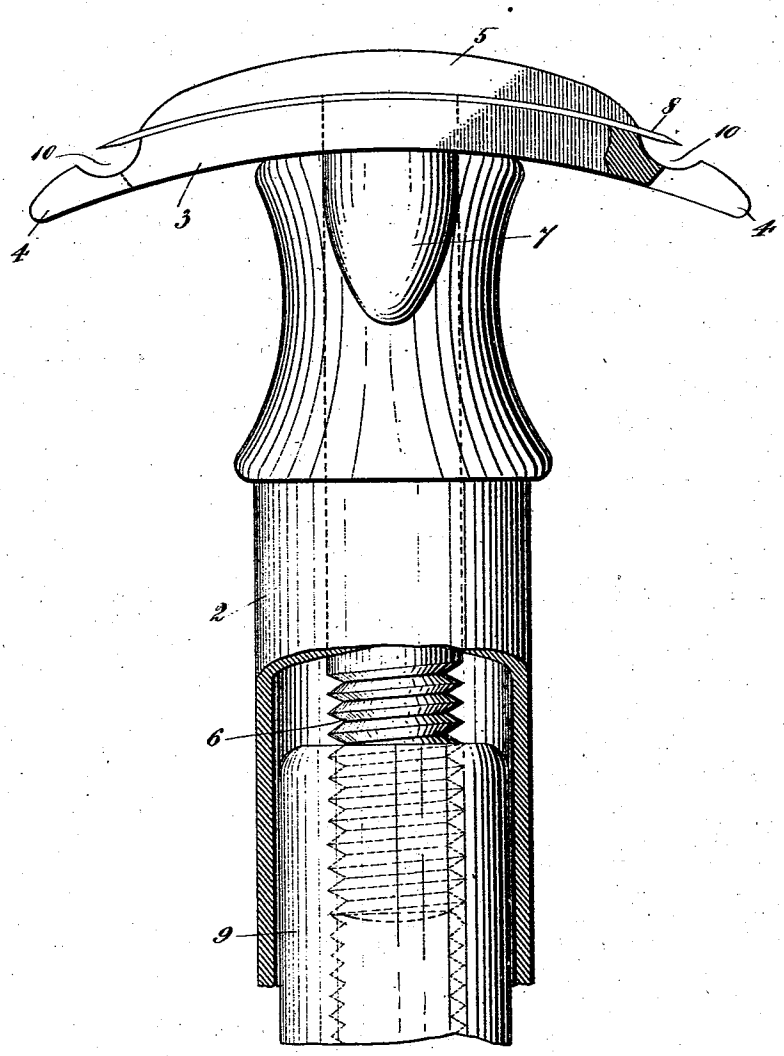


Fig. 1.

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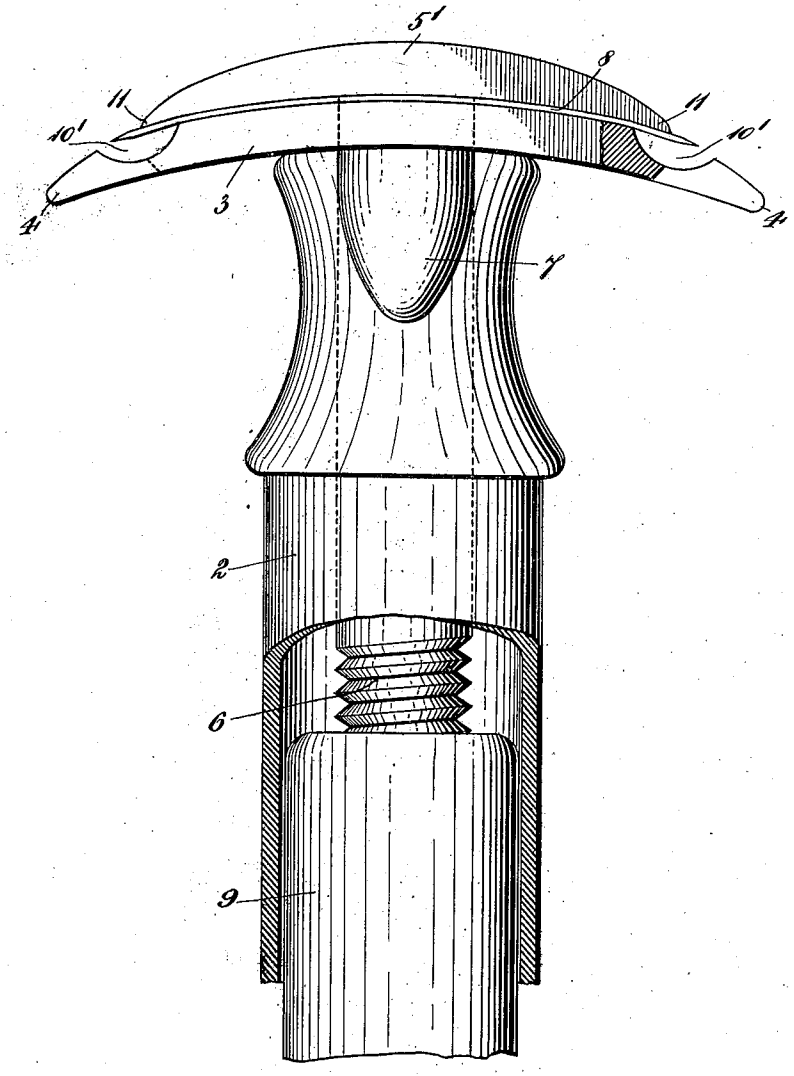


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SAFETY-RAZOR.

1,328,024. Specification of Letters Patent. Patented Jan. 13, 1920.

Application filed February 3, 1917. Serial No. 146,497.

To all whom it may concern:

Be it known that I, EDWARD R. WHARTON, a citizen of the United States, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

This invention relates to safety razors of that type in which the blade is flexed transversely when clamped in the holder and is capable of having its cutting edge adjusted with relation to the guard by varying the extent to which the blade is flexed.

When a safety razor is in use the guard serves not only to protect the skin from being cut but also to smooth it out and depress it slightly in front of the blade edge, and experience has shown that while the shaving qualities of such a razor depend primarily upon the sharpness of the blade they also depend, to an important extent, upon the distance between the blade edge and the point of contact of the guard with the skin and upon the angle at which the blade is presented to the beard in shaving. In prior razors of the flexible-blade type, however, the blade edge is located directly over the guard, so that variations in the adjustment of the edge affect both the distance between the edge and the guard and the distance between the edge and the point at which the skin is depressed in front of the edge by the guard, and in consequence of this fact and of the further fact that the interchangeable blades are liable to differ slightly in width, such a razor when used with different blades varying in width and with different adjustments of a given blade is necessarily held at different angles under certain conditions and does not always give equally satisfactory results, even though the blade edges are properly sharpened.

The present invention has for its object the provision of a safety razor of the flexible-blade type which will be free from the objection above referred to, and is characterized by the location of the cutting edge of the flexible blade directly over a channel which extends lengthwise of the blade behind the guard, so that movements of the blade edge during adjustment take place over the channel. With this arrangement, while the elevation of the blade edge with respect to the guard can be adjusted by flexing the blade more or less, such adjustments do not perceptibly affect the distance of the blade edge from the guard or from the point at which the guard bears upon the skin in the act of shaving, or require the razor to be held at different angles, and consequently the relations which are important for satisfactory shaving remain essentially the same for all blades, even though they vary slightly in width, and for all positions of adjustment of a given blade. My invention also includes certain other features which serve in combination with the foregoing to hold the blade edge equally rigid in all positions of adjustment, as hereinafter explained.

My invention is applicable to razors which vary widely as regards their general construction but is preferably embodied in a razor having a double-edged blade and a guard for each blade edge. Such a razor is illustrated in the accompanying drawings, in which:

Figure 1 is an end elevation, partly in section, showing the principal parts of a razor embodying my invention in one form; and

Fig. 2 is a similar view illustrating a modification.

The razor shown in Fig. 1 of the drawings comprises a handle 2, a blade-supporting head 3 secured to one end of the handle and provided at each of its opposite longitudinal edges with a row of teeth 4 constituting a guard, a blade-clamping cap 5 provided with a central threaded stem 6 and with blade-positioning pins 7, of which one is shown in the figure, a double-edged flexible blade 8 adapted to be clamped between the head 3 and the cap 5 with the stem 6 and pins 7 passing through perforations in the blade and the head, and a nut 9 rotatable in the outer end of the handle 2 and adapted to coöperate with the stem 6 to force the cap and the head together and clamp the blade between them, the opposed surfaces of the cap and head being similarly curved transversely in order to flex the blade.

As described thus far the construction is the same as in the familiar Gillette razor, but in my razor each edge of the blade when positioned in the holder overlies a channel 10 extending longitudinally behind the corresponding guard and preferably formed on a curve of such shape that it descends

abruptly at the rear edge of the guard, leaving an open space between the guard and the blade edge. The parts are so proportioned that when the blade is tightly clamped in the holder each cutting edge is exposed to the minimum extent required for shaving, and if a closer shave is desired an increased exposure of the blade edges is obtained by slightly unscrewing the nut 9 and thereby permitting the blade edges to spring outward, but since the movements of each blade edge, during adjustment, take place behind the corresponding guard instead of over it, the relations which it is important to maintain in order to secure satisfactory results remain unchanged, as previously explained.

In the form of razor shown in Fig. 2 the construction is practically the same as in Fig. 1 except that each of the longitudinal edge portions 11 of the cap 5′ overhangs the corresponding channel 10′ and is so shaped that the various adjustments of the blade edges are produced by flexing the blade about the rear edges of the channels 10′ as a fulcrum, instead of flexing it about the central portion of the head as a fulcrum, said channels being preferably a little wider than the channels 10 in Fig. 1. The adjustment of the blade edges in this manner has the advantage that the marginal portions of the blade, which alone participate in the adjustment, are flexed on a relatively short radius and the cutting edges are thereby given great rigidity in all positions. Furthermore, the sharply-defined and closely-adjacent straight edges provided by the longitudinal edges of the cap 5′ and the rear edges of the channels 10′ serve to straighten the cutting edges of the blade in case the latter is not perfectly flat; whereas the edges of such a blade are liable to deviate slightly from a straight line if the blade is flexed on the curved head as a fulcrum, since in such case the only parts which bear on the blade are the extreme edges of the cap and a variable and undefined portion of the curved surface of the head and therefore the restraint to which the blade edges are subjected cannot be relied on to straighten them. The overhang of the cap is also advantageous, independently of the flexing of the blade on any particular fulcrum, for the reason that it affords rigid support for the blade close to the cutting edges of the latter without undesirably limiting the width of the channels beneath.

In both forms of razor above described each blade edge is located at such a distance behind the guard that the beard is presented to the exposed edge throughout the length of the latter without being deflected at any point by contact with the guard itself, and provision is made for permitting the lather and the hairs removed in shaving to escape from the channels beneath the blade edges by passing out at the bottom of the head. This is preferably done by extending the guard teeth backward far enough to cause their rear ends to intersect the corresponding channels over the greater part of their width, as shown, but this and the other details of construction may be modified in various ways, and it will be evident that my invention is not limited to a razor having a double-edged blade or more than one guard.

I claim:

1. A safety razor comprising a transversely-flexible blade having a longitudinal cutting edge, in combination with a blade holder having a guard, a channel located behind the guard, means for positioning the blade with its cutting edge extending lengthwise over the channel, and means for adjustably flexing the blade transversely.

2. A safety razor comprising a transversely-flexible blade having a longitudinal cutting edge, in combination with a blade holder having a guard, a channel located behind the guard, a fulcrum edge at the rear of the channel, means for positioning the blade with its cutting edge extending lengthwise over the channel, and means for adjustably flexing the blade on said fulcrum edge.

3. A safety razor comprising a transversely-flexible blade having a longitudinal cutting edge, in combination with a blade holder having a blade-supporting head, a guard, a channel located behind the guard, means for positioning the blade on said head with its cutting edge extending lengthwise over the channel, a blade-clamping cap overhanging the channel behind the cutting edge of the blade and shaped to flex the latter transversely, and means for forcing the cap and head together.

4. A safety razor comprising a transversely-flexible blade having a longitudinal cutting edge, in combination with a blade holder having a blade-supporting head, a guard, a channel located behind the guard, a fulcrum edge at the rear of the channel, means for positioning the blade on said head with its cutting edge extending lengthwise over the channel, a blade-clamping cap overhanging the channel behind the cutting edge of the blade and shaped to flex the latter on said fulcrum edge, and means for forcing the cap and head together.

5. In a safety razor, a blade holder comprising a blade-supporting head having a guard and a channel located behind the guard, means for positioning a transversely-flexible blade on said head with the cutting edge of the blade extending lengthwise over the channel, and means for clamping the blade to the head and adjustably flexing it transversely.

6. In a safety razor, a blade holder comprising a blade-supporting head having a guard, a channel located behind the guard, a fulcrum edge at the rear of the channel, means for positioning a transversely-flexible blade on said head with the cutting edge of the blade extending lengthwise over the channel, and means for clamping the blade to the head and adjustably flexing it on said fulcrum edge.

7. In a safety razor, a blade holder comprising a blade-supporting head having a guard and a channel located behind the guard, means for positioning a transversely-flexible blade on said head with the cutting edge of the blade extending lengthwise over the channel, a blade-clamping cap overhanging the channel behind the cutting edge of the blade and shaped to flex the latter transversely, and means for forcing the cap and head together.

8. In a safety razor, a blade holder comprising a blade-supporting head having a guard, a channel located behind the guard, a fulcrum edge at the rear of the channel, means for positioning a transversely-flexible blade on said head with the cutting edge of the blade extending lengthwise over the channel, a blade-clamping cap overhanging the channel behind the cutting edge of the blade and shaped to flex the latter on said fulcrum edge, and means for forcing the cap and head together.

9. In a safety razor, a blade holder comprising a blade-supporting head having a row of teeth forming a guard, a channel located behind the guard and intersecting the rear portions of the teeth, means for positioning a transversely-flexible blade on said head with its cutting edge extending lengthwise over the channel, and means for clamping the blade to the head and adjustably flexing it transversely.

10. In a safety razor, a blade holder comprising a blade-supporting head having a row of teeth forming a guard, a channel located behind the guard and intersecting the rear portions of the teeth, a fulcrum edge at the rear of the channel, means for positioning a transversely-flexible blade on said head with its cutting edge extending lengthwise over the channel, a blade-clamping cap overhanging the channel behind the cutting edge of the blade and shaped to flex the latter on said fulcrum edge, and means for forcing the cap and head together.

Signed at Boston, Mass., this thirty-first day of January, 1917.

EDWARD R. WHARTON.