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J. MUROS

1,907,557

SAFETY RAZOR

Filed Nov. 27, 1928

Fig. 1.

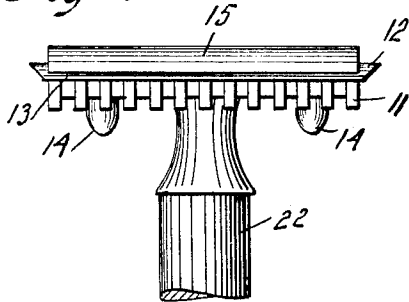


Fig. 2.

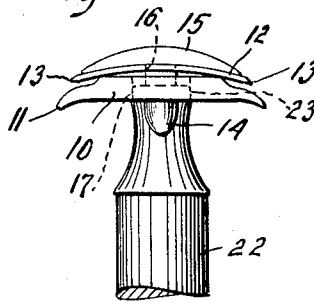


Fig. 3.

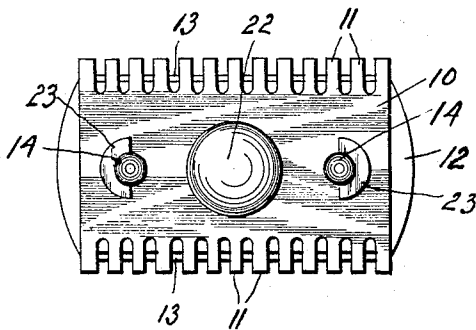


Fig. 5.

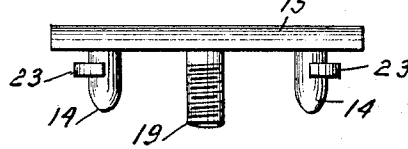


Fig. 6.

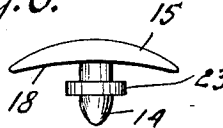


Fig. 4.

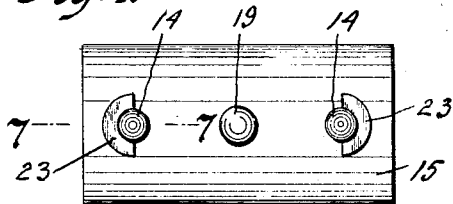


Fig. 7.

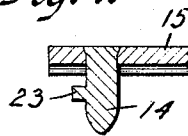


Fig. 8.

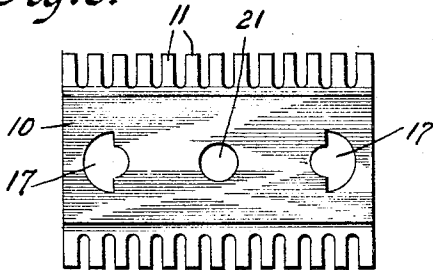
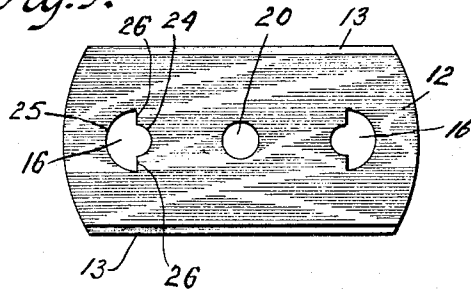


Fig. 9.



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SAFETY RAZOR

Application filed November 27, 1928. Serial No. 322,189.

The present invention relates to improvements in safety razors, and more particularly to the blade holder and blades thereof.

It is a common practice at present in the safety razor trade to manufacture and sell blades which fit the blade holders of other manufacturers. The user may, therefore, purchase several makes of blades fitting his blade holder to the exclusion of the blades manufactured by the maker of the holder. While under certain circumstances there is nothing wrong with this practice, an extended study of the field reveals the fact that the general public is apt to blame the manufacturer of the holder for the faults of inferior blades, resulting in great injury and damage to the reputation of the holder manufacturer.

The main object of the present invention is to provide a blade holder and blade construction which effectively precludes this general practice.

Another object of the invention is to provide a simple and efficient blade holder and blade construction which is capable of manufacture on a commercial scale, or in other words one which is not so difficult to make as to be beyond the reasonable cost of such a contrivance.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawing, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawing, in which:

Figure 1 is a front elevation of the top portion of a safety razor constructed in accordance with the present invention; Fig. 2 is a side elevation thereof; Fig. 3 is a bottom plan view of the same; Fig. 4 is a bottom plan view of the blade clamping element of

the razor; Fig. 5 is a front elevation of this last-mentioned element; Fig. 6 is a side elevation thereof; Fig. 7 is a section taken on line 7-7 of Fig. 4; Fig. 8 is a top plan view of the blade supporting element of a razor; and Fig. 9 is a plan view of the improved blade.

In the drawing, which illustrates the application of the invention to a safety razor of the Gillette type, the numeral 10 indicates a blade supporting plate, suitably curved along its longitudinal edges and provided with teeth 11, forming guards for the well-known purpose. On this plate is adapted to rest a transversely flexible blade 12, having longitudinal cutting edges 13. This blade is positioned upon its support by lugs 14 on a clamping cap 15, which lugs extend through registering openings 16 and 17 in the blade and supporting plate, respectively, the said lugs and openings being of a configuration to be more fully described hereinafter.

The cap is provided with a concaved underface 18, its longitudinal edges resting on the upper face of the blade. From the underface of the cap projects centrally a screw-threaded spindle 19, which extends through registering apertures 20 and 21 in the blade and supporting plate, respectively. The razor is provided with a handle 22, having a screw-threaded bore, not shown, the threads of which mesh with those of the spindle 19. Inasmuch as the construction and operation of the said screw-threaded bore and spindle are well-known, they being embodied in the razor of the type known in the trade as the Gillette razor, a detailed description of the function and operation of these elements seems to be unnecessary.

The positioning lugs 14 are cylindrical and their free ends are somewhat pointed, as usual in construction of this type. Spaced from the underface 18 of the cap, each of these lugs is provided with an enlargement 23 of any suitable configuration. In the case illustrated each of these enlargements is semi-annular in form, the ends of each semi-annulus being located in a line extending at right angles to the longitudinal edges of the cap and the said two semi-annular enlargements projecting in opposite directions be-

yond the two lugs 14, as clearly shown in Figs. 4 and 5 of the drawing. The two semi-annular enlargements are disposed in alignment with one another and at a distance below the longitudinal edge portions of said cap which exceeds the thickness of a razor blade to be used on the improved razor. This relation of the enlargement 23 to the longitudinal edge portions of the cap is clearly shown in Figs. 5 and 6 of the drawing. The purpose of this arrangement will appear hereinafter.

The registering openings 17 and 16 in the supporting plate 10 and the razor blade 12, respectively, are alike in configuration. Their configuration is congruous with the transverse cross-section of a lug 14 through the enlargement 23. As appears more specifically from Figs. 8 and 9 of the drawing, each of these openings comprises a semi-circular edge portion 24 of a diameter corresponding to the diameter of the lug 14 cooperating therewith, and a semi-circular portion 25 of a diameter corresponding to that of the perimeter of the enlargement 23 on said lug. The two semi-circular edge portions are oppositely disposed, and their ends connected by straight lines 26, extending at right angles to the cutting edges of the blade or to the longitudinal edges of the supporting plate, as the case may be. It will be noted from the foregoing that the openings 16 and 17 are arranged symmetrically in relation to the transverse axes of the blade and supporting plate, respectively.

In use, the razor is assembled in the usual manner, Figs. 1 to 3, inclusive of the drawing illustrating the parts assembled in the positions which they occupy for shaving. Attention is called to the fact that in assembling the elements, the lugs 14 and screw-threaded spindle 19 are extended through the openings 16 and aperture 20, respectively, in the blade. The said lugs and spindle are then extended through the corresponding openings and aperture in the supporting plate, after which the handle is brought into engagement with the said spindle and screwed home so as to clamp the blade on said supporting plate. It will be noted that, before the blade is flexed for shaving, the blade is already disposed between the enlargements on the lugs and the inner ends of the latter. The semi-circular edges 24 of the openings 16 are then in engagement throughout their lengths with the lugs, so that, in flexing the blade, the latter is prevented from shifting both longitudinally and transversely on the supporting plate of the razor, and this position will be maintained during the flexing operation and, consequently, after the blade has been clamped to the supporting plate.

It is obvious, that while herein cylindrical lugs and semi-annular enlargements thereon

have been described and razor blade openings of a specific configuration have been shown, lugs, enlargements and openings of any other suitable configuration may be made use of without departing from the invention. It will also be readily seen that the edge portions 24 of the blade openings need not extend through an arc of 180 degrees to perform their functions above set forth. It is possible to reduce the annular distance through which these edge portions extend to an appreciable degree, without impairing their functions.

It is to be observed that the enlargements or excluding portions 23 on the lugs or studs 14 extend outwardly and away from each other. This is an important feature since it facilitates the assemblage and disassemblage of the blade 12 and cap 15. If the vertical spaces between the enlargements 23 and the cap 15 were accurately filled in there would be a tendency to a binding and gripping action between the outermost edges of the blade receiving and positioning apertures and the filled-in vertical portions between the cap 15 and enlargements, unless the blade 12 and cap 15 were kept constantly in parallel relation while assembling and disassembling. It therefore becomes apparent that the undercut feature as applied is important since it not only facilitates assemblage and disassemblage; it also permits the manufacturer of the blade to make the combined positioning and receiving apertures of the blade to accurately correspond to the cross-sectional contour of the combined positioning feature and excluding feature of the lugs or studs.

It is also noted that the large receiving portions 25 of the blade apertures 16 extend transversely of the blade 12, a distance of less than one-third the width of said blade and more than one-fourth the width of said blade. These relative dimensions are pointed out as involving a material feature since it is essential that the receiving portion of the blade aperture should be large in order to receive the excluding enlargements 23. In spite of the fact that specific dimensions have been given, the applicant still claims a range of equivalents legally commensurate with his invention.

The enlargements 23 are also undercut transversely and this too is an essential and material feature since the receiving portions 25 of the apertures 16 are so extensive that a binding and gripping action would take place when the blade is flexed, if the enlargement 23 were not undercut. It follows therefore that blade aperture 16 may be cut to accurately fit the cross-sectional contour of the stud including the undercut enlargement 23.

From the foregoing it appears that the main features of the invention are the provision of positioning lugs which have laterally and oppositely extending projections or

enlargements, both of any desired configuration, and a blade having lug receiving openings through which the lugs with their enlargements may be extended, each of said openings having a portion the configuration of which corresponds to or snugly fits part of the transverse cross-section of the lug, while the other portion permits of extension there-through of said enlargement. It is essential that, while the enlarged portion of a lug receiving opening need not be congruous with the projection or enlargement on the lug, its dimension or dimensions transversely of the blade should be larger than the diameter of a lug. It will be readily seen that, if the lug enlargement receiving portions of the openings were transversely of the same diameter or had transversely the same dimensions as the body portion of the lug, any blade having an oblong opening of a width corresponding to the diameter or width of the transverse cross-section of a positioning lug would fit the lug and prevent shifting of the blade transversely on the supporting plate.

It will be readily understood that, while herein the invention has been described as applicable to a razor of the Gillette type, it may be applied to any other construction without departing from the invention.

What I claim is:

1. The combination of a blade with a blade holder; said holder including blade holding members, one of said members having two positioning lugs rigidly and fixedly secured thereto, said lugs comprising wholly rigid one-piece elements, said lugs having semi-cylindrical positioning portions located centrally of the member, a blade having two openings for co-operation with said lugs, and a laterally projecting semi-annular enlargement on each lug spaced from the blade-abutting surface of said holder a distance that is greater than the thickness of the blade, the said two enlargements extending away from each other in opposite directions from said lugs, the configuration of each opening in said blade corresponding to that of the largest transverse cross-section of a lug co-operating therewith, whereby the blade may be reversibly positioned in its holder.

2. In a combination according to claim 1, the ends of each lug enlargement being in a line extending at right angles to the longitudinal axis of said holder.

3. A blade for a safety razor, having internal blade-locating apertures disposed in the axis of symmetry of the blade and each comprising a large, outwardly-curved, semi-circular portion merging into a smaller, inwardly-curved, semi-circular portion, the edges of said smaller portion serving to locate the blade and those of the larger portion affording clearance in positioning the blade, the diameters of the larger portions of the locating apertures extending trans-

versely of the blade and the diameters of both large and small portions of said apertures being coincident respectively throughout the length of the small diameters.

4. A razor comprising a razor head and a handle, said head including cap and guard members and a blade, said blade having a central aperture and combined positioning and receiving apertures, means located centrally on said cap member, passing through the blade and guard and co-acting with means on said handle for drawing the parts of said head together with the blade clamped between the cap and guard members, one of said members having lugs including blade aligning portions and enlarged blade excluding portions, said aligning portions engaging accurately the adjacent edges of the blade positioning apertures, said enlargements extending away from each other and being spaced or under-cut from said member both longitudinally and transversely whereby gripping or binding action between blade and lugs while the blade and member are assembled and disassembled is prevented, the enlarged or receiving portion of the positioning aperture having substantially the same area and contour as that represented by a cross-section of the enlarged portion of the positioning lug, said lugs comprising rigid one-piece elements secured fixedly and rigidly to one of the members.

5. A flexible razor blade of oblong contour having a central aperture and combined positioning and receiving apertures located symmetrically on opposite sides of the central aperture and in the central zone of the blade, said positioning apertures having relatively small semi-circular lug engaging portions which extend toward each other and are adapted to engage the adjacent portions of positioning lugs, said positioning apertures also having enlarged semi-circular receiving portions extending away from each other and remote from the central aperture, said enlarged receiving portions having their diameters extending transversely of the blade, each diameter being of less length than one-third the width of the blade and greater length than one-fourth the width of the blade and substantially twice the length of the small diameter of the small semi-circular portions.

6. A razor blade according to claim 5 in which the diameters of the small semi-circular portions are coincident respectively with the diameters of the large semi-circular portions throughout the length of the small diameters.

Signed at New York city, in the county of New York, and State of New York, this 26th day of November, A. D. 1928.

JOSEPH MUROS.