Oct. 16, 1923.

1,470,757

A. B. LAUTERBACH

SAFETY RAZOR

Filed Nov. 3, 1920

Fig. 1.

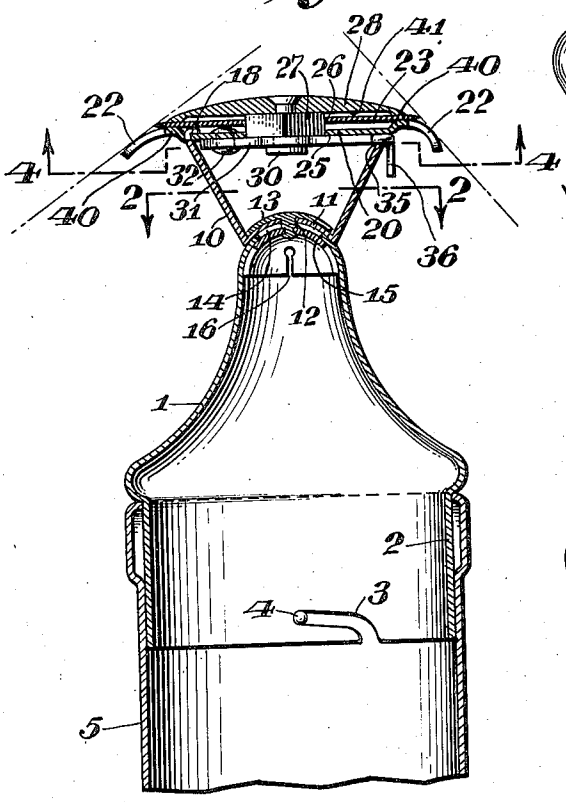


Fig. 3.

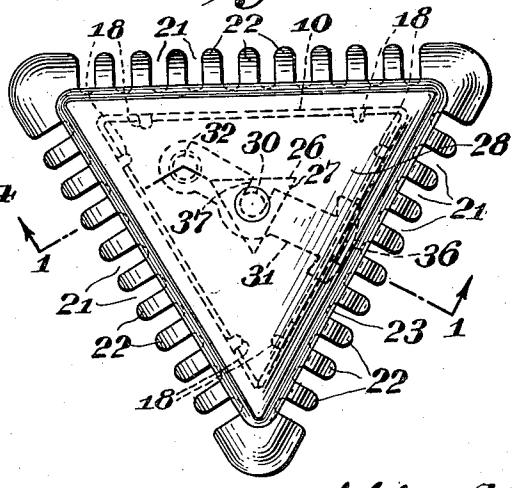


Fig. 4.

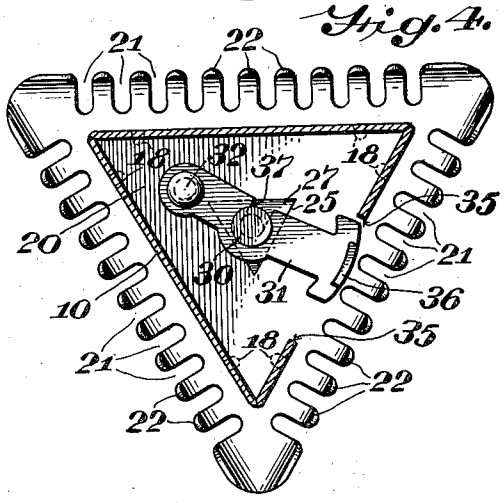
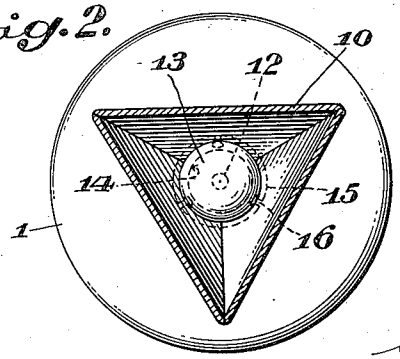


Fig. 2.



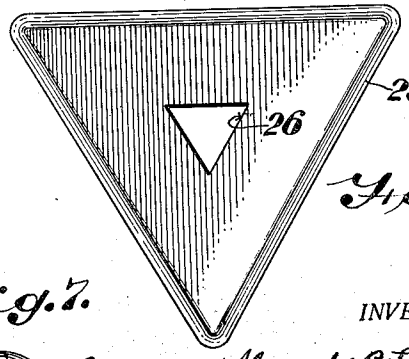
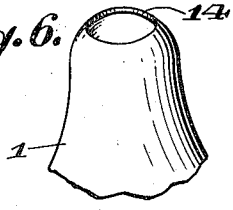


Fig. 5.

Fig. 7.



Fig. 6.



INVENTOR.

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Patented Oct. 16, 1923. 1,470,757

UNITED STATES PATENT OFFICE.

ALEXANDER B. LAUTERBACH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE DE LUXE BRUSH COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

SAFETY RAZOR.

Application filed November 3, 1920. Serial No. 421,456.

To all whom it may concern:

Be it known that I, ALEXANDER B. LAUTERBACH, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an Improvement in Safety Razors, of which the following is a specification.

This invention relates to safety razors and it has for one of its objects to provide an improved universal joint between the head which supports and carries the blade and the handle whereby the head and the blade carried thereby may be adjusted readily to any desired angle with respect to the handle.

A further object of the invention is to provide means whereby after the blade has been secured to the head a closer shave may be effected by the employment or use of one cutting edge thereof than if the other edge or one of the other edges were employed or used.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the construction as herein disclosed may be made within the scope of the claims without departing from the invention.

In order that the invention may be readily understood and its practical advantages fully appreciated, reference may be had to the accompanying drawing forming a part of this specification and in which—

Fig. 1 is a longitudinal sectional view taken on the line 1—1 of Fig. 3 of a safety razor construction embodying my invention, said view including a portion of the upper part of the handle;

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the construction shown in Fig. 1;

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a plan view of the razor blade;

Fig. 6 is a perspective view of the upper end portion of a part of the handle; and

Fig. 7 is a perspective view of a spring washer employed in attaching the head for supporting the razor blade to the upper end of the handle.

Referring to the drawing: 1 designates a part of the handle structure, the upper end portion of which is dome-shaped while the lower end portion 2 thereof is of cylindrical shape and is provided with a bayonet slot 3 into which a pin 4 is adapted to project, the said pin projecting inwardly from the inner surface of a cylindrical part 5 of the handle structure. The said part 5 may consist of a cover for covering the brushes of a shaving brush. However, it is unnecessary that the part 5 be designed for and used as a brush cover but it is merely a matter of convenience that it should be so designed.

The head portion of the structure comprises an inverted cone-shaped three sided member 10 the lower end 11 of which is integral with the lower edges of the sides thereof. The said lower end is pressed upwardly as indicated in Fig. 1 so that its under side forms a spherical surface which is adapted to fit upon the spherical upper end of the member 1. In securing the part 10 to the upper end of the portion 1 of the handle I have provided a short bolt 12, the head 13 of which consists of a wide plate flange which is bent to conform to the convex side of the portion 11 of the part 10. The bolt 12 projects through a relatively large opening 14 in the upper spherical end of the part 1 and is riveted to a spring washer 15 the outer convex spherical side of which fits snugly the inner spherical side or surface of the spherical top end portion of the part 1. The washer 15 is provided with slots 16 extending from its edge upwardly, as indicated in Figs. 1 and 7 of the drawing. The portions of the washer between the slots 16 exert spring pressure against the opposing portions of the inner surface of the spherical top portion of the part 1. The head of the razor, comprising the part 10, together with the spring washer 15, may be adjusted into different angular positions with respect to the top spherical end of the part 1 and the parts are retained in any position to which they may be adjusted by the friction between the inner contacting surface of the part 11 with the portion of the outer surface of the top of the part 1 surrounding the

opening 14 and the friction between the outer surface of the washer 15 and the inner surface of the top of said part 1.

The upper edges of the sides of the part 10 are provided with projections 18 which extend through openings in the guard plate 20 and are bent thereover as indicated in the drawing and preferably soldered thereto. It will be seen, therefore that the guard plate is permanently secured to the upper edges of the part 10 and constitutes in effect an integral part of the head structure. The guard is of triangular shape, as indicated in the drawing, and is slotted along its three edges as indicated at 21 to form teeth 22, the latter constituting guards for the edges of the razor blade 23. These teeth are inclined downwardly as indicated in Fig. 1 of the drawing. In order to control the closeness with which the hair is cut to the skin I have inclined the teeth along one edge, for instance the edge shown at the right hand side in Figs. 1 and 3, to a greater extent than those along the other edge or edges of the guard are inclined. By increasing the inclination of the teeth 22 as indicated at the right hand side of Fig. 1, it will be observed that the angle between the edge of the razor and the said teeth is increased so that the edge of the razor is further away from the guard than is the case along the edges where the teeth 22 are less inclined. By increasing the angle of inclination of the teeth 22 the angle between the said teeth and the razor blade is correspondingly increased with the result that when the razor is in use for shaving it may be held in position with the blade at a greater angle with respect to the surface of the face which is being shaved than would be the case if the teeth were less inclined as along the other edges of the guard. When so held a closer shave is effected.

The guard 20 and the blade 23 are provided respectively with triangular openings 25 and 26 through which a triangular stud 27 projects. The said stud is secured to the under side of a triangular holder or clamp 28 by means of which the razor blade is clamped about and held upon the guard 20. In order to secure the head 28 in clamped relation with respect to the blade 23, I have provided upon the lower end of the stud 27 a small headed stud portion 30 which is adapted to be engaged by an arm 31 pivoted at 32 to the under side of the guard 20. The said arm extends parallel with the under side of the head across and in adjacent relation to the central portion of the head and its outer end projects through a wide notch 35 in the top edge of one of the sides of the part 10 and is provided with a depending projection 36 at its outer end by means of which it may be shifted about its pivot toward and from the headed stud portion 30. The said arm is provided with a notch 37 into which the neck portion of the stud 30 enters and when in such position the head portion of the stud 30 is in contact with the under side of the arm 31 upon opposite sides of the notch 37, in consequence of which the holder 28 is held in position and retains the razor blade in position upon the guard 20. In order to remove the holder 28 and the razor blade 23 it is only necessary to shift the arm 31 out of engagement with the headed stud 30. When this has been done the holder 28 and the razor blade 23 may be removed from the head portion of the structure.

The central portion of the guard plate 20 is depressed as indicated in Fig. 1, the outer portions thereof adjacent the edges being raised or elevated as indicated at 40. The top side or surface of the raised portion is flattened as indicated and it is upon this flattened portion that the razor blade rests and is supported. The under side of the holder 28 is hollowed out as indicated at 41 in Fig. 1, in consequence of which it is only the underneath surface of the outer edge portions of the said holder which contact with and clamp the razor blade against the guard 20. This arrangement produces a relatively light structure without interfering with the efficiency of the holding and clamping action of the holder 28.

Although I have described the top end portion of the part 1 of the handle as being spherical, it will be understood that the invention is not limited to a construction in which such end is of spherical shape, but the said end may be of any other shape which will permit adjustments of the head with respect to such handle substantially in the manner described.

I claim:

1. In a safety razor, the combination of a handle having a dome-shaped hollow upper end, a head comprising sides and a closed end portion, the said end portion being curved inwardly to form a concave surface adapted to hug the convex outer surface of the dome-shaped end of the said handle, and yielding means connected with said head and engaging said handle for connecting said head to the said handle.

2. In a safety razor, the combination of a handle having a dome-shaped hollow upper end provided with a relatively large opening therethrough, a head provided at its inner end with a portion adapted to hug the outer surface of the said dome-shaped end, said head having a projection which extends through the said opening, and a spring washer secured to the inner end of said projection, the said washer being of a shape to hug against the inner surface of the dome-shaped end of said handle.

3. In a safety razor, the combination of

a handle the top hollow end of which is spherical, said end being provided with a relatively large opening, a head the bottom end of which is concaved to form a spherical surface which hugs against the outer spherical surface of the end of said handle, a bolt projecting from the end of said head through the opening in the said handle, and a spherical spring washer secured to the lower end of said bolt, the outer spherical surface of which hugs against the inner spherical surface of the end of said handle.

4. In a safety razor, the combination of a hollow handle the top end of which terminates in a spherical portion having a centrally arranged relatively large opening therethrough, a head comprising an inverted frustum of a pyramid constructed of metal, the lower end of which is projected upwardly to form a concaved spherical surface which hugs against the outer convex spherical surface of the end of said handle, a headed bolt extending through the end of said head, and a spring washer secured to the lower end of said bolt, the portion of the top end of the said handle surrounding the opening therethrough being clamped between the said washer and the opposing lower end of the said head.

5. In a safety razor, in combination, a handle terminating at its top end in a hollow semi-spherical portion having a relatively large circular opening therethrough, a head comprising an inverted truncated cone-shaped portion, the bottom of which is projected upwardly to form a concaved spherical surface which is adapted to fit against and hug the outer convex spherical surface of the top end of said handle, a bolt provided with a relatively wide plate-like flange which is curved to fit the convex upper surface of the lower end of the said inverted truncated cone-shaped portion, the said bolt projecting through the opening in the top end of said handle, and a semi-spherical spring washer situated inside of the hollow semi-spherical end portion of said handle, said washer being secured to the lower end of the said bolt and being adapted to press yieldingly against the inner surface of the semi-spherical end portion of said handle.

6. A safety razor comprising a head portion including a guard plate having elevated portions adjacent its outer edges, a razor blade resting upon said portions, said guard and said blade being provided with alined centrally arranged polygonal openings, a holder for securing said blade upon the said head, said holder having a stud of polygonal shape in cross section projecting downwardly therefrom through said opening, said stud being provided with a reduced headed stud portion at its lower end, and an arm pivotally connected to the under side of the said guard plate and adapted to be moved into engagement with the said headed stud to retain the said holder and the said razor blade in position upon the said head.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 29th day of September, A. D., 1920.

ALEXANDER B. LAUTERBACH.