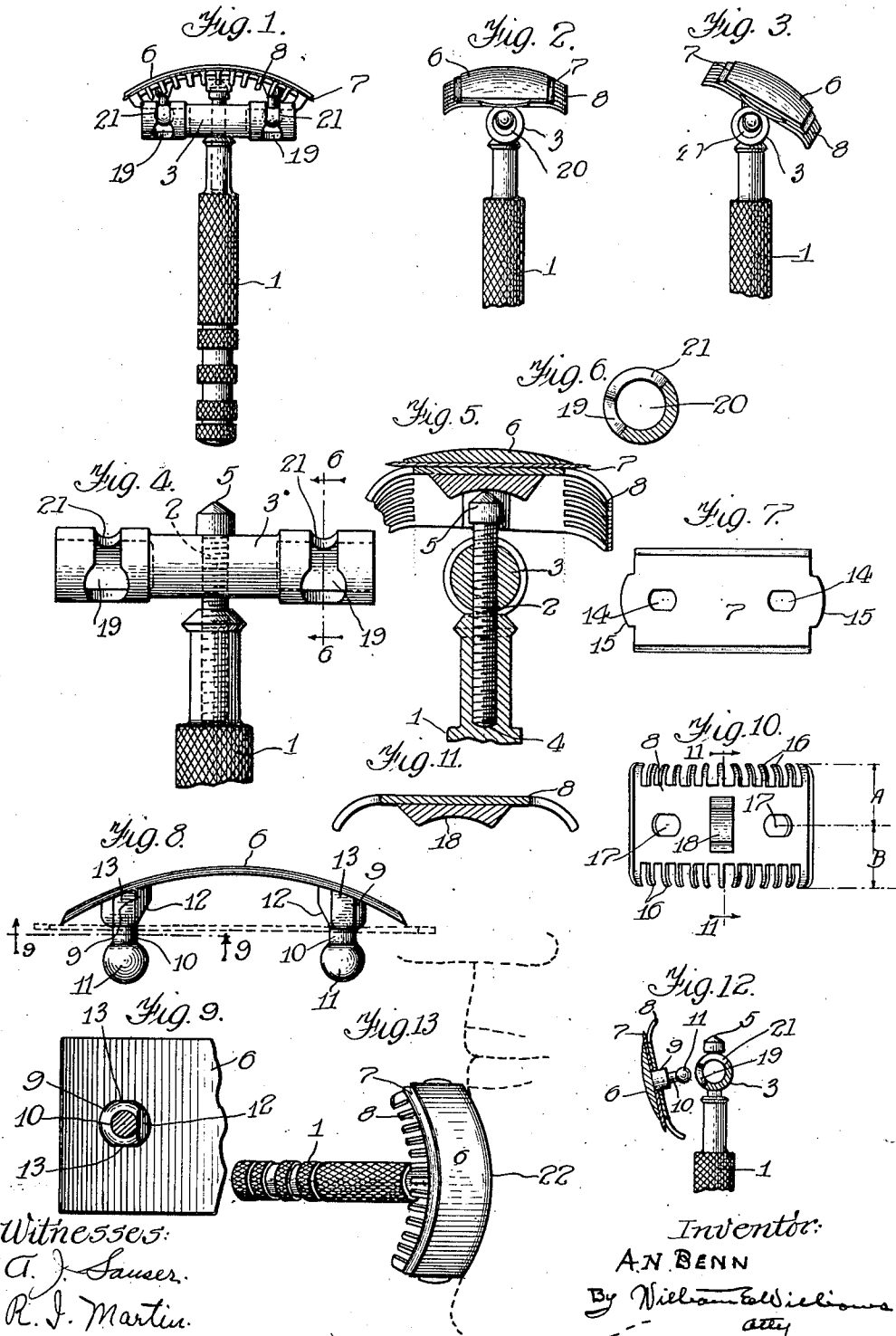


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SAFETY RAZOR.  
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# UNITED STATES PATENT OFFICE.

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## SAFETY-RAZOR.

1,308,730.

Specification of Letters Patent.

Patented July 1, 1919.

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*To all whom it may concern:*

Be it known that I, ALONZO NEWTON BENN, a citizen of the United States, residing at Chicago, in the county of Cook and the State of Illinois, have invented a new and useful Improvement in Safety-Razors, of which the following is a specification.

The object of my invention is to make the most convenient and efficient safety razor possible, having the detailed merits as herein set forth and the invention is described in the claims.

Reference will be had to the accompanying drawings in which:

Figure 1 is a front elevation of the razor assembled for use.

Fig. 2 is a view at right angles to that of Fig. 1.

Fig. 3 is a similar view to that of Fig. 2 when the razor blades is adjusted at an incline.

Fig. 4 is a view on an enlarged scale of a part of the handle looking in the same direction as that of Fig. 1.

Fig. 5 is a central sectional view on an enlarged scale looking in the direction of Fig. 2.

Fig. 6 is a sectional view on line 6—6 of Fig. 4.

Fig. 7 is a plan of the razor blade.

Fig. 8 is an elevation of the blade holder.

Fig. 9 is a plan sectional detail of the left side of Fig. 8 on line 9—9 of Fig. 8.

Fig. 10 is a plan of the guard piece.

Fig. 11 is a central section on line 11—11 of Fig. 10.

Fig. 12 is a sectional view showing the parts in a position when they are being put together or taken apart.

Fig. 13 shows the razor in position of shaving a concave region on the face.

In the drawing 1 indicates a milled handle in a form that is common with safety razors. 2 indicates a threaded stud which is screwed through a threaded hole in a cross-head 3 in a manner to turn freely in the cross-head and then is screwed tightly into a threaded hole in the end of the handle 1, the end 4 of the screw bottoming tightly in the end of the hole in the handle in a manner to hold the screw in place without movement in the handle in the ordinary use of the razor. The screw is provided with a conical pointed head 5 which furnishes an abutment end used in locking the parts together.

The ends of the cross-head 3 are provided with holes 20 extending inward endwise about half way to the center of the cross-head, making as it were tubular ends for the cross-head. Into the sides of the tubular ends are cut slots 21 which are enlarged on the handle side as is indicated by the openings 19.

6 indicates the blade holder and 7 the blade and 8 the guard piece. The blade holder 6 is provided with posts 9 having necks 10 and spherical heads 11. The posts 9 are chamfered off at 12 on the inside faces and at 13 on the sides to assist in assembling the razor blade.

The blade 7 is provided with holes 14 having rounded ends and straight sides as shown. The straight sides register with the flat spots 13 of the blade holder. The blade is provided with projections 15 to facilitate handling of the blade in assembling the same.

The guard 8 is curved in outline to fit the blade holder 6 and is provided with the ordinary guard fingers 16 common with safety razors and is perforated with the holes 17 to fit the posts 9 of the blade holder. A curved faced projection 18 is located on the inside and at the middle of the guard piece 8.

In assembling the razor, the blade, which is a straight flat piece, is placed in position on the blade holder 6 with its holes 14 registering over the posts 9 as shown by the dotted lines in Fig. 8, then the guard piece 8 is placed in contact with the blade and with its holes 17 registering with the posts 9. The parts are then pressed together flexing the blade to the curved form of the blade holder the inclines 12 assisting, as has been said, in guiding and holding the blade as it is pressed toward the holder and passes over the chamfered parts of the studs between which it fits when fully home. The projection 15 facilitates handling the blade, it being possible, obviously, to compress the blade endwise as soon as flexing begins by mere pressure of the fingers. Then the handle 1 with its cross-head 3 is placed in position with its openings 19 in the cross-head passing over the heads 11 of the posts 9 moving in the direction indicated by the position of the parts as is indicated by Fig. 12. The handle is then rocked, bringing the slots 21 of the cross-head over the necks 10 of the posts 9 thus engaging the heads 11 within

the tubular ends of the cross-head. Thereupon the handle 1 is rotated, carrying with it the screw 2 in a direction to cause the threads in the cross-head to drive the head 5 of the screw into the curved faced projection 18 of the guard piece, thus locking the parts together.

The angular relation of the blade holder may be varied to suit the convenience of the user over any angle covered by the curved face of the projection 18 of the guard piece, the axis of this adjustment being the center of the spherically shaped heads 11 of the posts 9.

The holes 17 in the guard piece 8 are a little nearer the guards on one side than they are on the other side, that is the distance A is a little shorter than the distance B, Fig. 10, for the purpose of causing the guard fingers 16 to project over the razor blade a little farther on one side than on the other. This permits a little more clearance and a deeper cut of the blade on one side than on the other, permitting the user to choose what suits him best for the class of shaving he desires.

The curved out-line of the razor is especially serviceable in shaving concave surfaces on the face as is indicated by Fig. 13, wherein the dotted lines indicate the out-line of the chin and 22 indicates the razor in position in shaving the concave space below the lower lip.

Heretofore with safety razors having double edged blades held in place by means of perforations through the blade, it has been necessary to disconnect a greater number of pieces with more trouble and inconvenience in changing blades than with my device.

In the use of my razor I have simply to twist the handle slightly, loosening the screw head 5 just enough to free it from pressure against the projection 18 of the guard piece 8 and then rock the handle and cross-head 3 until the openings 19 register with the heads 11 of the posts 9 whereupon the cross-head 3 becomes disconnected and the parts may then be separated. This operation is much easier and simpler than are the connections ordinarily found in razors of this class.

Besides the facility which my construction permits of in replacing the blades, at the same time without extra means or mechanism, it provides for the adjustment of the handle at different inclined positions in relation to the blade, which is a very desirable convenience for users of razors of this class.

The sanitary features of razors of this class are serious and although a razor may be so shaped and constructed as to shave conveniently, if it has notches, corners and inaccessible places which are not easily cleaned, it is an undesirable instrument. My

construction gives ready access to all parts, which permits them to be easily and thoroughly cleaned, which is a great desideratum.

What I claim is:

1. In a razor, a blade holder curved lengthwise of the blade, and provided with a curved seat adapted to receive a flat blade in a bended position, projections extending from the blade side of the blade holder and within the area covered by the blade, a flat double edged perforated blade adapted to register with its perforations over the projections of the blade holder, a perforated guard piece adapted to register over the projections of the holder and curved lengthwise on the side in contact with the blade and provided with a concave seat as a part of the fastening means on its central portion, a cross-head hinged to the ends of the projections of the holder, a handle mounted in the cross-head and adapted to be adjusted to and from the concave seat whereby the parts are clamped together.

2. The combination with a blade holder having a cylindrically concave surface, to receive a normally plane blade, and studs projecting from said surface and each provided with an incline on the side which faces the other stud, of a flexible blade perforated to pass over said studs, adapted to slide along said inclines when curved, and having cutting edges in planes transverse to the axis of curvature, a guard member having a convex surface adapted to fit said concave surface and provided with elongated apertures to receive said studs, a handle adapted to be detachably connected to the projecting ends of the studs to limit the distance of the holder from the handle, and means carried by the handle for forcing the guard member toward the holder and clamping the blade.

3. The combination with a handle and a holder detachably secured thereto and having a cylindrically curved blade-receiving surface from which project two studs more widely separated near their free ends than at their bases, of a flexible blade perforated to pass over the studs and when curved to fit closely between their bases, a guard member curved like the holder and perforated to pass over the studs, and screw devices carried by the handle and adapted to force the guard member outward to clamp the blade against the holder.

4. A razor of the class described, a blade holder provided with projections extending from the blade side, a flat double edged blade perforated to fit over the projections of the holder, a guard piece adapted to fit over the projections and register against the blade, a cross-head hinged to the ends of the projections by means of slots in the cross-head which engage the heads on the projections; with a handle carried by the cross-head and

adapted to be adjusted to clamp the parts together.

5. In a razor of the class described, a blade holder convex on the outside lengthwise of the cutting edge and correspondingly curved on its inside, projections extending from the inside of the holder and adapted to be hinged to the handle, a perforated flexible blade adapted to register on the projections of the holder and be flexed into cutting position, a guard piece perforated and shaped to fit over the projections and in contact with the blade when in the holder and provided with a central projection or body portion having a concave surface in a direction transversely of the cutting edges of the blade; with a handle hinged concentrically to the concave surface by detachable means to the outer ends of the projections on the holder and provided with an adjusting screw adapted to be screwed into contact with the concave surface in the body of the guard piece and thereby provide means for locking the several pieces together at varying positions of the handle with the other parts.

6. In a razor of the class described, a blade holder provided with projections extending toward the handle side, a flat blade adapted to register on the inside of the blade holder, a guard piece adapted to register on the blade and provided with a concave central portion; with a handle composed of a cross-head and a handle stem and the said cross-head adapted to be connected by a hinged connection, the axis of which is concentric with the said concave portion of the guard piece, to the projections on the blade holder and provided with means for pressing on the said concave portion of the guard piece to hold the same in position.

7. In a razor of the class described, a blade holder curved lengthwise of the blade and provided with projections extending outward on the blade side and located within the blade area, a perforated flat blade adapted to register over the projections of the blade holder, a guard piece also adapted to register on the projections of the holder and clamp the blade in place; with a cross-head hinged to the projections by means of slots adapted to embrace the heads of the projections and a handle connected with the cross-head and provided with means for adjusting it through the cross-head and in contact with the guard piece and thereby clamping the parts together.

8. A blade holder and a flat blade, the said holder curved lengthwise of the blade and provided with posts on the blade side and the said blade perforated in a manner to register over the posts and be flexed into contact with the holder and said perforations having straight sides parallel with the cutting edges in a manner to hold the registration during the flexing; with a handle

hinged to the ends of the posts and adjustable to different positions and means for securing the parts together.

9. In a razor, a blade holder provided with posts extending upward from the blade side, said posts having spherically shaped heads connected by necks to the bodies of the posts, a perforated blade adapted to register over said posts, a guard piece also adapted to register over said posts, with a handle connected to said spherical heads of said posts by hinged connections and provided with means for clamping the guard piece, blade and holder together.

10. In a razor, a blade holder provided with projections extending upward from the blade side of the holder, said projections having spherical heads connected by necks to the main bodies of the posts, a perforated blade adapted to register in the holder with its perforations over the posts, a guard piece adapted to register in contact with the blade, a handle having curved slots adapted to engage the spherical heads of the posts in a manner to form a hinge on the center line of said heads; with means for clamping the parts together.

11. A razor, provided with a blade holder piece which is the face contact piece and said holder provided with projections adapted to hold the blade in registration and provided with means on the heads of the projections adapted to form a part of a hinged connection with the handle, a blade adapted to register on the inside of the holder, a guard piece adapted to register in contact with the blade and provided with a concave surface in its body portion, a handle having a cross-head adapted to form a hinged connection at the ends of the cross-head with the heads of the said projections and provided with adjusting means adapted to register in contact with the concave surface of the guard piece and clamp the several parts together.

12. In a device of the class described, a blade holder, a perforated blade and a perforated guard piece, a handle provided with a cross-head mounted on screw threads on the handle in a manner that the end of the handle will travel forward and back beyond the cross-head by revolving the handle, said cross-head hinged to the said blade holder through the medium of posts connected to the said blade holder and passing through the blade and guard piece and parts clamped into place by the travel of the end of the handle through the said cross-head.

13. In a device of the class described, a blade holder provided with projections extending on the blade side and located within the blade area, a handle connected to the heads of the said projections on the holder by means of apertured slotted hinge holes adapted to permit of the engagement and

disengagement of the parts when in position in relation to each other different from those used in shaving and to be adjusted about the axis of the hinge for different positions of the handle in relation to the blade.

5 14. In a device of the class described, a blade holder, a blade, a guard piece and a handle, said blade holder provided with projections extending on the blade side and said  
10 blade perforated and adapted to fit with its perforations over the said projections and said guard piece adapted to fit on the said projections on the inside of the blade and  
15 the said handle composed of a main stem for the hand of the operator and a cross-head threaded on the stem and the said cross-head having apertured circumferential slots extending across one side of the ends thereof adapted to engage the outer ends of  
20 the projections on the blade holder, and means for clamping the parts together.

15. A blade holder provided with projections extending upward from the blade side of the holder, a perforated blade adapted  
25 to register with its perforations over the projections of the holder, a guard piece adapted to register on the blade within the holder and provided with a concave surfaced projection on its central portion, a handle  
30 hinged to the heads of the said projections on said holder concentric with the said con-

cave surface and provided with means for applying pressure between the concave surface of the guard piece and the handle for holding the parts together.

35 16. In a device of the class described, a blade holder, a blade, a guard piece, a cross-head and a handle, said cross-head adapted to be hinged to the blade holder through the medium of posts on the blade holder and  
40 connected thereto by circular apertures in the ends of the cross-head with means for clamping the parts together.

17. In a razor, a blade holder provided with projections located within the area of  
45 the blade the ends of which are adapted to form part of a hinged connection with the handle, a perforated blade and a perforated guard piece adapted to register over the projections of the holder, a handle adapted  
50 to be hinged to the ends of the said projections on the blade holder; with means for clamping the parts together at varying positions of angularity of the cutting blade with  
55 the stem of the handle.

Signed at Chicago, in the State of Illinois and the county of Cook this 1st day of July, 1916.

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Witnesses:

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