

G. A. JOHNSON.
SAFETY RAZOR.
APPLICATION FILED DEC. 26, 1908.

934,074.

Patented Sept. 14, 1909.

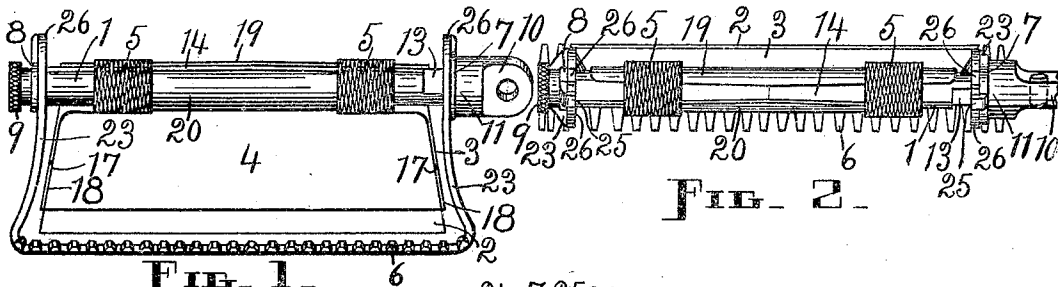


FIG. 1-

FIG. 2-

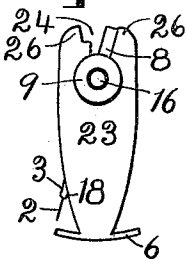


FIG. 3-

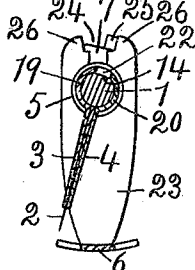


FIG. 4-

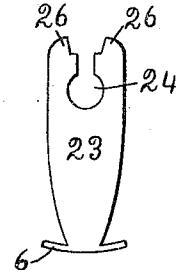


FIG. 5-



FIG. 6-

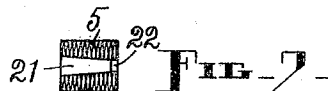


FIG. 7-

FIG. 8-

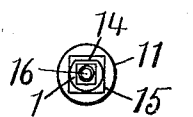
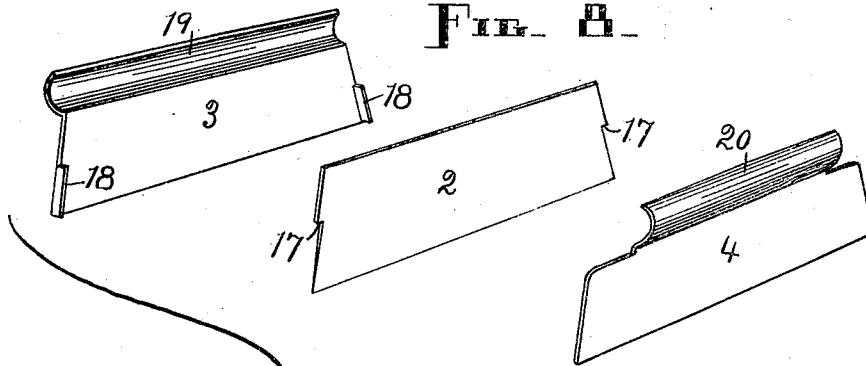


FIG. 9-

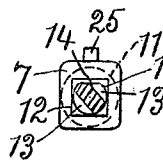


FIG. 10-

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SAFETY-RAZOR.

934,074.

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To all whom it may concern:

Be it known that I, GUSTAF A. JOHNSON, a subject of the King of Sweden, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Safety-Razor, of which the following is a specification.

My invention relates to improvements in razors of the so-called safety variety, and consists of certain peculiar blade-holding members, including a shank, side plates, and binders, and of a specially constructed guard for the blade and means for attaching said guard to said shank and for limiting the movement of the guard, all as hereinafter set forth.

The objects of my invention are, first, to produce a practicable and efficient device that is adapted to hold securely a razor blade in place, either while being used in the act of shaving or while being stropped; second, to provide such a device with a suitable guard to be employed as a protection against said blade during the shaving operation if desired, but which can be readily removed when it is not required at such a time or when the blade is to be stropped, and, third, to furnish positive, strong, and durable, yet simple and convenient, attaching and detaching appliances for the blade and for the guard of a safety-razor.

Attention is called to the fact that this device may be employed either as a safety razor or like an ordinary razor, as suits the convenience of the person using the same.

I attain the objects and secure the advantages above pointed out, as well as others which will appear in the course of the following description, by the means illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the safety-razor complete; Fig. 2, a top plan view of said safety-razor; Fig. 3, a front end elevation of the same; Fig. 4, a transverse, central, vertical section through the device shown in the preceding views, looking toward the rear; Fig. 5, an end elevation of the guard, detached; Fig. 6, an end elevation of one of the binders; Fig. 7, a bottom view of such binder; Fig. 8, a group view of the razor blade and the holding plates therefor, in perspective; Fig. 9, a front end view of the shank, and, Fig. 10, a cross-section through the slotted part of said shank, looking toward the rear and at the dog which is located at this end of the shank. In the first

four views the parts are arranged to show the blade and guard in one of the two relative positions which they assume for the shaving act.

Similar figures refer to similar parts throughout the several views.

In the drawings, which illustrate a practical form of my invention, I show a shank 1, a blade 2, two side plates 3 and 4 for such blade, two binders 5 for said plates, a guard 6 having the usual serrated edges, two dogs 7 and 8 to limit the swing of said guard, and a thumb-nut 9. The shank 1 is the member upon which all of the other members, with the exception of the blade 2, are directly mounted, and from which they may be detached.

I will now describe the aforesaid members in detail and explain their relation to each other and how they function.

The shank 1 consists of a rod having a perforated lug 10 at its rear end to afford means for the attachment of a suitable handle (not shown), and provided with the following features in order from back to front: A shoulder 11, an angular part 12 having a smaller area than the shouldered part in cross-section, oppositely-disposed slots 13—13 oblique to the vertical diameter of said angular part, which latter in the present case is rectangular, a long flattened portion or bearing 14 on top which tapers slightly from the transverse center downwardly in both directions, a second angular part 15 which is similar to the first excepting that it is a little smaller, and a screw-threaded projection 16. Transversely the bearing 14 is parallel with the tops of the parts 12 and 15, although having its ends respectively situated below the top of the former and above the top of the latter. The area of the part 15 is smaller than that of the shank behind such part, in cross-section, and the same is true of the projection 16 relative to said part 15. All of the angular, round and rounded parts of the shank have the same axis.

The blade 2 is very thin and has divergent ends with shoulders 17—17 thereon. The flat portion of the plate 3 is large enough to receive the blade 2 and is provided at the ends on its inside face with lugs 18—18 which are adapted to receive on their upper ends the blade shoulders 17 and to embrace between them the ends of said blade below said shoulders. The top of the plate 3 is in the

form of a roll 19 which extends over the outside face of said plate and is adapted to fit one side of the shank 1 between the slotted portion at 13 and the rectangular part 15.

5 The upper edge of the roll 19 is tapered to correspond to the taper of the bearing 14. The plate 4 is very similar to the plate 3, but is without lugs and its roll 20 is considerably shorter than the roll 19. If the
10 depth of the lugs 13 be greater than the thickness of the blade 2, then the plate 4 must be shorter than the plate 3 so as to enable said plate 4 to be received between said lugs, and this is the preferred construction since the stability of the blade-holding
15 parts is enhanced thereby. These blade-holding parts are so proportioned that the blade extends below the plates.

The binders 5 are employed to secure the
20 plates 3 and 4, with the blade 2 between them and supported by the shoulders 17 on the lugs 18 and held against endwise movement by said lugs, to the shank 1 with a wedging contact and action, said binders
25 engaging the rolls 19 and 20 at opposite ends. Each of these binders consists of a more or less resilient sleeve capable of being placed on the shank and of being forced onto the rolls 19 and 20, a longitudinal opening
30 21 in the binder accommodating the plates 3 and 4 at the bases of said rolls. The edges of the opening 21 in each binder 5 incline or flare outwardly or diverge from their outer ends, and each binder has an interior
35 lug 22 at its outer end directly over said opening, which lug is designed to slide on the shank bearing 14 between the upper edges of the rolls 19 and 20. Now it will be seen that, when the binders and the rolls
40 are in place on the shank, by forcing said binders toward each other they will tightly bind said rolls to said shank owing to the wedging action of the lugs 22 on the bearing 14 and the wedging action of the binders
45 on the tapered rolls. The tapered edges of the openings 21 not only facilitate the initial engagement of the binders with the rolls, but afford wedging means whereby the plates 3 and 4 are tightly bound together
50 at the junctions of the rolls with the flat portions of the plates. It is in the manner just described that the blade is firmly and securely attached to the shank.

Since the roll 20 is shorter than the roll 19,
55 the plate 4 can be released without releasing the plate 3 by moving the binders 5 outward until they clear the ends of said roll 20. This enables the blade 2 to be removed and another one substituted therefor without
60 taking off the plate 3 from the shank. These changes can be made without removing the guard 6.

The guard 6 has arms 23—23 at the ends which bow inward somewhat to simulate in
65 a measure the shape of the ends of the blade

and its plates, and these arms are resilient so that they can be compressed when mounted on the shank and will then offer some frictional resistance to the swinging action of said guard, enough resistance in short to retain the guard, under normal conditions, in
70 whatever position it may be left. In the upper terminal of each arm 23 is an opening 24 of a shape substantially as shown in Fig. 5. The lower, partially circular portion of
75 the opening 24 in each arm 23 receives the shank 1, and it is the edges of this part of said arm that bear on said shank, while the upper portion of said opening receives the inwardly-extending projection 25 from the
80 adjacent dog 7 or 8, such projection being situated between the two horns 26 at the top of the arm. The constricted, middle portion of each of the aforesaid openings is only
85 wide enough to receive either the part of the shank which has the slots 13 therein or the projection 16. The dogs 7 and 8, which are both alike save that the former has a larger rectangular opening in the center than the
90 latter, are respectively mounted on the rectangular parts 12 and 15, which they fit snugly, with their projections 25 directed inwardly or toward each other and extending
95 into the spaces between the horns 26 at the upper ends of the guard arms 23, when the guard is in place. The thumb-nut 9 holds the dog 8 in place on the part 15 between said nut and the shoulder formed by the
100 larger section of the shank which is back of said part 15, and the guard arms are held on said shank under compression between said dog 8 and the dog 7. The guard 6 can be swung to either side of the blade 2, or the
105 latter swung to either side of the former, so that the cutting edge of said blade is located as usual a little above and beyond one longitudinal edge or the other of said guard, and the guard will remain normally in whatever position it occupies relative to said
110 blade because of the frictional contact of the arms 23, which are under tension, with the dogs 7 and 8. Said dogs limit the swing of the guard, through the medium of the projections 25 and the horns 26, the latter being
115 spaced apart sufficiently to provide for this movement, and insure the proper positioning relatively of the guard and blade. It will be noted that there is space enough on the
120 shank between the slots 13 and the part 12 and between the part 15 and the adjacent end of the plate roll 19 to afford bearings for the guide arms 23.

To remove the guard 6 from the shank 1, if it be desired to employ the razor without
125 such guard, or if the blade is to be sharpened, or for any other purpose, unscrew and remove the thumb-nut 9 and take off the dog 8, then move the guard toward the front end of the shank and swing it into such a
130 position that the constricted portion of the

opening 24 in the rear arm 23 coincides with the oblique slot 13, and separate the arms 23 from said shank, the slotted portion of the latter escaping through the aforesaid constricted portion and the projection 16 escaping through the corresponding portion of the opening in the other arm. The guard is restored to position on the shank by having its arms returned to place in the same way as they were removed, and then by replacing the dog 8 and the thumb-nut 9. The slots 13 are cut obliquely in the shank so as to enable the guard to be attached and detached without interfering with the blade and its plates, as it would do if the operation were performed from directly below for the reason that said blade and plates and the arms of said guard all converge as they rise and said arms even when sprung apart or uncompressed are too close together to receive between their upper ends the bottom portion of the blade.

It is conceivable, of course, that some or all of the parts which enter into the construction of this device may be changed somewhat, especially in shape and size, without departing from the nature of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a device of the class described, with a suitable shank, of a razor blade, side plates independent of each other and of such shank and adapted to hold said blade between them, such plates being provided with rolls to fit over said shank without contacting with each other, and longitudinally-movable binders on such shank capable of engaging said rolls on the outside and of pressing them against the shank to confine them thereon.

2. The combination, in a device of the class described, with a shank having a longitudinally-tapered portion, of a razor blade, side plates adapted to hold said blade between them and provided with tapered rolls to fit over said shank without contacting with each other, and longitudinally-movable open-bottomed binders on the shank capable of engaging said rolls on the outside and of pressing them against the shank to confine them thereon, said binders being provided with internal lugs to bear on said tapered portion of the shank between adjacent edges of the rolls.

3. The combination, in a device of the class described, with a shank, of a razor blade having shoulders at the ends, side plates for said blade, said plates having rolls at the top to fit said shank and one of them being provided with end lugs to engage the ends of the plate below said should-

ders, and longitudinally-movable binders on said shank capable of engaging said rolls and confining them to the shank.

4. The combination, in a device of the class described, with a shank, and razor blade-holding means, of a guard having resilient arms at the ends adapted to be mounted and to swing on said shank, means to limit the swinging motion of said arms and guard, and stationary means to hold such arms against displacement while on said shank and at the same time to press them toward each other in order to produce frictional resistance between the arms and their holding means.

5. The combination, in a device of the class described, with a shank having dogs fast thereon, and razor blade-holding means, of a guard having arms at the ends adapted to be mounted and to swing on such shank, such arms having openings therein into which said dogs extend to limit the swinging movement of said arms.

6. The combination, in a device of the class described, with a shank having an obliquely slotted portion and an end projection, and razor blade-holding means, of a guard provided with arms having openings in their upper terminals and edges, such openings being constricted so as to afford bearing means below for said arms on said shank and provided with passages for such slotted portion and such end projection of the shank, the construction of said shank and guard arms being such that the guard can be attached to or detached from the shank by a lateral movement, and means to hold the arms against outward endwise movement on the shank.

7. The combination, in a device of the class described, with a shank having an obliquely slotted portion and an end portion which is screw-threaded, and provided with normally fixed dogs, and razor blade-holding means, of a guard having arms at the ends adapted to be mounted and to swing on such shank between such dogs, such arms having openings therein into which such dogs extend to limit the swinging movement of said arms, such openings extending into the arms far enough to afford bearings therefor and being constricted intermediately to form passages for such slotted portion and such end projection of the shank when the guard is removed or replaced, and a thumb-nut adapted to be screwed onto said end projection against one of said dogs.

GUSTAF A. JOHNSON.

Witnesses:

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A. C. FAIRBANKS.