April 21, 1936. W. BROWN 2,037,849

SAFETY RAZOR

Filed July 9, 1934

Fig. 1.

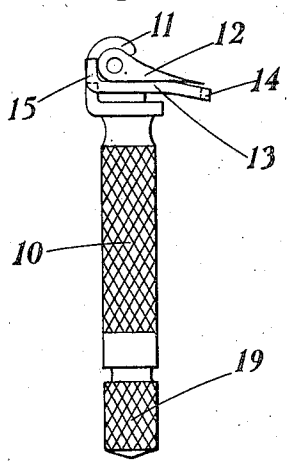


Fig. 2.

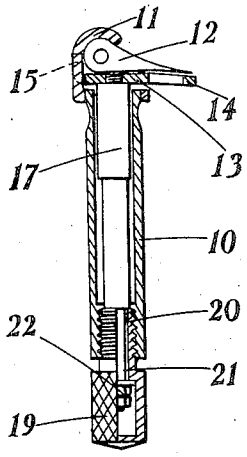


Fig. 3.

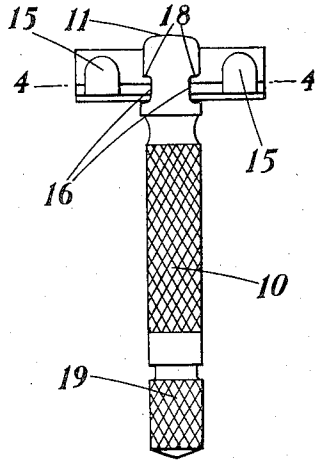


Fig. 4.

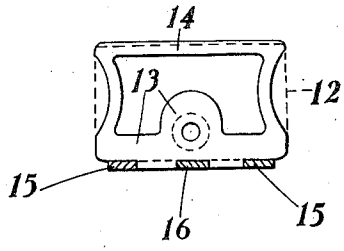


Fig. 5.

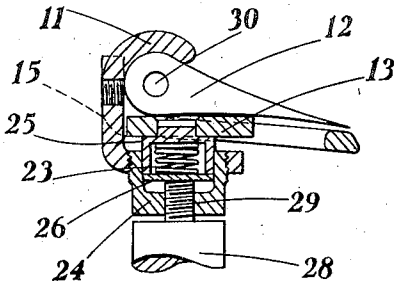
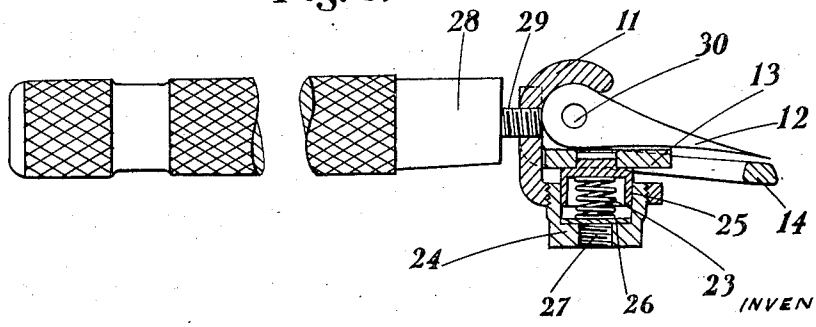


Fig. 6.



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SAFETY RAZOR

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Application July 9, 1934, Serial No. 734,368
In Great Britain July 28, 1933

12 Claims. (Cl. 30—64)

This invention relates to safety razors of the type in which a holder comprising a guard and handle is provided with a securing lug adapted to embrace the back of a rigid blade, which may be hollow ground, and one face of the blade is clamped against the lug by pressure applied to the other face thereof.

The object of the invention is to provide improvements in the construction and operation of the safety razor, and particularly to enable the same clearance to be maintained in the clamped position between the edge of the blade and the guard, even though the clamping movement of the blade in relation to the securing lug may vary owing to circumstances, such as varying thicknesses of blades. A further object is to provide improved means for applying the clamping pressure and for retaining the blade in the holder before the clamping pressure is applied and after it has been relieved when assembling or dis-assembling the parts, or when making adjustments.

Other objects and advantages of the invention will be appreciated from the following description and accompanying drawing.

In the accompanying drawing:—

Figure 1 is an elevation of a safety razor according to the present invention.

Figure 2 is a sectional view of Figure 1.

Figure 3 is a side view of Figure 1.

Figure 4 is a sectional plan on the line 4—4 of Figure 3.

Figure 5 is a sectional elevation on a larger scale of a modification illustrating the parts in the operative clamping position, and

Figure 6 is a view similar to Figure 5 showing the parts in the packing position.

Like reference numerals indicate like parts throughout the drawing.

With reference first to Figures 1, 2, 3, and 4, the holder comprises a hollow body 10 which is in the form of or incorporates a handle with the securing lug 11 fitted to one end, the lug 11 being adapted to embrace the back of a rigid blade 12.

The blade 12 is supported on a sliding clamping base 13 which carries the guard 14. As shown most clearly in Figure 4 one side of a frame provides the clamping base 13, and the opposite side constitutes the guard 14 which, as shown in Figures 1 and 2, is displaced from the plane of the clamping base 13 to provide the shaving clearance between it and the edge of the blade 12. The central portion of the clamping base 13 projects inside the frame as shown in Figure 4 to provide a central support for the blade 12. At its outer edge the clamping base 13 is provided with two positioning stops 15 with which the back of the blade 12 is intended to make contact in order to determine the position of its cutting edge in relation to the guard 14 in the direction of its median plane.

The outer edge of the clamping base 13 is also slotted or notched to embrace a reduced part 16 of a stem portion of the securing lug 11. The clamping base 13 with its guard 14 is movable along guides towards and away from the securing lug 11. As shown in Figure 2 the clamping base is carried on a rod 17 sliding in the hollow body 10, the rod 17 being riveted, spot-welded, screwed or otherwise rigidly secured to the central portion of the clamping base 13. The guides for the clamping base 13 are provided by the rod 17 and by the reduced part 16 of the securing lug where it is embraced by the slotted or notched portion of the clamping base. Rotation of the clamping base in relation to the hollow body is thus also prevented, and stops limiting the movement of the clamping base towards the securing lug 11 are provided by shoulders 18 at one end of the reduced part 16 of the securing lug. These stops 18 are so arranged that when the blade 12 is clamped in the holder there is a clearance between the clamping base 13 and the stops as shown in Figure 3. The rod 17 is operated to move the clamping base 13 towards and away from the securing lug 11 by a screw device and, for this purpose, the rod 17 may be rotatably connected to a knob or the like 19 working on the end of the body 10. As shown in Figure 2 a tubular part 20 of the knob 19 extends between a reduced portion 21 of the rod and the body 10 with which it has a screw engagement. The end of the part 21 is rotatably connected to the knob 19 as shown at 22, and it will be understood that as the knob 19 is turned the rod 17, 21, will be caused to slide axially in the body 10 thereby moving the clamping base 13 towards or away from the securing lug 11.

If desired the screw engagement between the knob extension 20 and the body may be provided by a pin or projection on the extension engaging a helical slot in the body.

In order to fit the blade 12 in the holder the clamping base 13 is first retracted from the securing lug 11 and the blade is then placed on the clamping base with its back against the positioning stops 15. End stops, not illustrated, may be provided on the clamping base to assist in locating the blade and, when the construction is such that in the retracted position of the clamping base the blade can only be inserted endwise, one

or both of the end stops may be movable. Such a movable stop may be provided by a spring controlled ball in a recess of the clamping base.

The blade 12 thus placed on the clamping base 13 will take up a definite predetermined position in relation to the guard 14 and this relative position will be maintained as the clamping base, guard and blade are moved into and out of the clamping position by manipulation of the knob 19.

The parts are preferably arranged for the clamping base 13 to bear upon the blade 12 along a line of contact adjacent to the positioning stops 15, this line of contact being provided in the case of a hollow ground blade by the back edge of the blade on the plane surface of the clamping base 13. In addition to this line of contact the central inwardly projecting portion of the clamping base 13 also bears upon the blade whilst the securing lug 11 bears on the opposite face of the blade preferably between the two contacts of the clamping base therewith. If desired, however, the clamping base 13 may be provided with a projecting rib or edge to bear against the blade 12 or the clamping base may be shaped to correspond with the shape of and to fit closely against the blade 12.

In a modification the rod 17 may be rotatably connected to the clamping base 13 and be provided with a screw engagement with the body 10.

In the modification illustrated in Figures 5 and 6 the clamping base 13 is controlled by a spring 23 which tends to move it towards the securing lug 11, so that the spring is capable of holding the blade in the holder although the blade is preferably clamped against the lug 11 by means of screw pressure rigidly applied.

The securing lug 11 is carried by a suitable body 24 which is conveniently of relatively short axial length as illustrated and is provided with an axial hollow guiding a cup 25 or hollow cylinder which slides in the hollow, and extends from the clamping base to which it is secured by riveting spot-welding or otherwise. The spring 23 is housed in the cup 25, the open end of which is adapted to be closed by a plate 26 also adapted to slide in the hollow of the body 24. The base of this body is provided with a tapped hole 27 (Figure 6) extending to the axial hollow and the handle 28 (which may be solid) is provided with a screw 29 at one end to engage the tapped hole 27.

The screw 29 is of sufficient length to move the plate 26 up to the end of the cup 25 against the action of the spring 23 and to move the clamping base 13 and blade 12 into the clamping position shown in Figure 5 as well as to apply the clamping pressure which will be rigidly transmitted to the clamping base 13 through the plate 26 and the cup 25. On releasing the clamping pressure the spring 23 will retain the blade 12 in place moving the plate 26 towards the base of the recess as the screw 29 is retracted.

It will be understood that the clamping base 13 will be guided in its movements by the cup 25 and by engagement with the reduced part 16 of the securing lug 11 as described with reference to Figure 3.

In order to enable the razor to be packed into a relatively shallow space the handle 28 may be detached from the holder body or clamping base guide 24 and screwed into a tapped hole in the securing lug 11 in substantial alignment with the width of the blade 12 as shown in Figure 6, the plate 26 being then moved by the spring 23 into the base of the guiding recess. If desired the blade 12 may be formed with a hole or groove in its back to receive the end of the screw 29 which will thus locate the blade in the holder and assist the spring pressure to retain it therein. In some cases the screw 29 may engage a tapped hole in the back of the blade itself.

If desired a similar tapped hole, adapted to be engaged by the screw 29, may be provided as indicated at 30 at one or both ends of the blade 12 to facilitate handling the latter when placing it in or removing it from the holder or a stropping appliance, and as an alternative means for reducing the space required for packing purposes. When the handle screw 29 thus engages either of the end blade holes 30, the razor may be used for shaving purposes, the spring 23 holding the blade against the securing lug 11 in correct relationship with the guard 14 and the handle 28 extending parallel to the cutting edge of the blade 12 instead of being in the more usual position at about right angles thereto.

In some cases the plate 26 may be dispensed with, the screw 29 then passing inside the spring 23 to bear against the base of the cup 25 or the clamping base 13 or against a part attached thereto.

It will be appreciated that to insert the blade 12 in the holder or to remove it therefrom, the screw 29 is first retracted and the clamping base 13 may then be moved against the action of its spring away from the lug 11 to give sufficient clearance for the passage of the blade.

What I claim is:—

1. A safety razor blade holder comprising in combination a body, having a hole therein and a shoulder within the hole, a securing lug attached to the body, a clamping base, guiding means for the clamping base comprising a cylindrical cup secured thereto and slidably engaging the hole, a compression spring of uncompressed length greater than that of the cup housed partly therein, a plate capable of abutting against the shoulder and forming an abutment for the spring and screw means for urging the plate against the force of the spring away from the shoulder into contact with the cup thus to apply a positive force to the clamping base in addition to that of the spring.

2. A safety razor blade holder comprising in combination a body having a hole therethrough, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting therefrom, a movable clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade thereon and screw means extending through the hole in the body for applying a thrust to the clamping base to tend to move it relative to the body towards the hook of the securing lug.

3. A safety razor blade holder comprising, in combination, a body having a hole therethrough, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting therefrom, a movable clamping base having a slot therein embracing the securing lug and forming a guide for the motion of the clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the

clamping base, means integral with the clamping base for registering a blade thereon and means for applying to the clamping base a thrust to tend to move it relative to the body towards the hook.

4. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole and a screw-threaded co-axial extension of said hole, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole, a hooked securing lug projecting therefrom, a movable clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade thereon, and screw means engaging the screw-threaded extension in the body for applying a thrust to the guide member to tend to move it and the clamping base relative to the body towards the hook of the securing lug.

5. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole and a screw-threaded co-axial extension of said hole, a hooked securing lug rigidly attached to the body, a movable clamping base, guiding means for the clamping base, a coiled compression spring housed within the hole in the body tending to urge the clamping base towards the securing lug, a handle, a screw-threaded end thereon engaging the screw-threaded extension, and means to transmit to the clamping base the thrust of the screw-threaded end of the handle when the latter is screwed into the screw-threaded hole in the body.

6. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole and a screw-threaded co-axial extension of said hole, a hooked securing lug rigidly attached to the body, a movable clamping base, guiding means for the clamping base, resilient means housed within the hole in the body tending to urge the clamping base towards the securing lug, a thrust transmitting means housed within the hole for transmitting to the clamping base a positive thrust, and a screwed handle engaging the screw-threaded extension for applying a positive thrust.

7. A safety razor blade holder comprising in combination a body having a hole therethrough, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting therefrom, a movable clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade thereon, resilient means disposed between the body and the clamping base for applying a thrust to the clamping base to tend to move it relative to the body towards the hook of the securing lug and means additional to the resilient means for positively constraining the clamping base towards the hook of the securing lug.

8. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting therefrom, a movable clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade thereon resilient means housed within the hole in the body for urging the clamping base towards the securing lug and means for positively constraining the clamping base towards the securing lug.

9. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting thereon, a movable clamping base having a slot therein embracing the securing lug and forming a guide for the motion of the clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade thereon, resilient means housed within the hole in the body for urging the clamping base towards the securing lug and means for positively constraining the clamping base towards the securing lug.

10. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole and a screw-threaded extension of said hole a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting therefrom, a movable clamping base, a guide member secured to the clamping base and slidably engaging the hole in the body to guide the motion of the clamping base, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade therein, resilient means housed within the hole in the body for urging the clamping base towards the securing lug, a screwed handle engaging the screw-threaded extension and means to transmit to the clamping base the thrust of the screw-threaded handle when the latter is screwed into the screw-threaded extension.

11. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the hole in the body, a hooked securing lug projecting therefrom, a movable clamping base having a slot therein embracing the stem and forming a guide for the motion of the clamping base, guiding means for the clamping base, comprising a cylindrical cup secured thereto and slidably engaging the hole in the body, a coiled compression spring of uncompressed length greater than that of the cup housed partly therein, a plate capable of abutting against the shoulder and forming an abutment for the spring and screw, means for urging the plate against the force of the spring away from the shoulder into contact with the cup for positively constraining the clamping base towards the securing lug.

12. A safety razor blade holder comprising in combination a body having a hole therein, a shoulder within the hole and a screw-threaded co-axial extension of said hole, a stem rigidly attached to the body and extending in a direction generally parallel with the axis of the holes in the body, a hooked securing lug projecting therefrom, a movable clamping base having a slot therein embracing the stem and forming a guide

for the motion of the clamping base, guiding means for the clamping base comprising a cylindrical cup secured thereto and slidably engaging the hole in the body, a shaving guard integral with the clamping base, means integral with the clamping base for registering a blade thereon, a coiled compression spring of uncompressed length greater than that of the cup housed partly therein, a handle having a screw-threaded end engaging the screw-threaded extension and means to transmit to the clamping base the thrust of the screw-threaded handle when screwed home in the screw-threaded extension.

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