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J. MUROS

1,897,707

SAFETY RAZOR

Filed May 12, 1931

Fig. 1

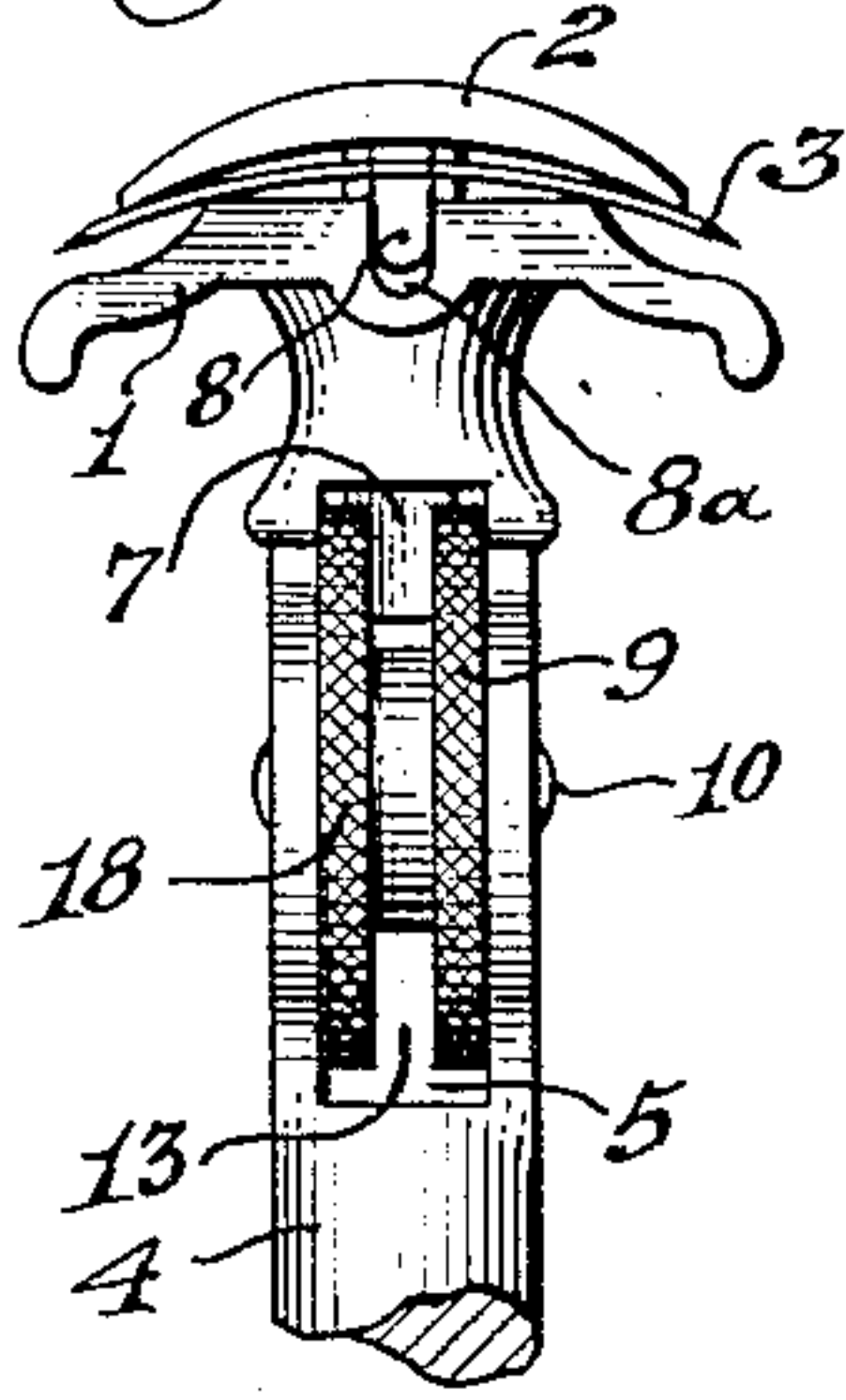


Fig. 2

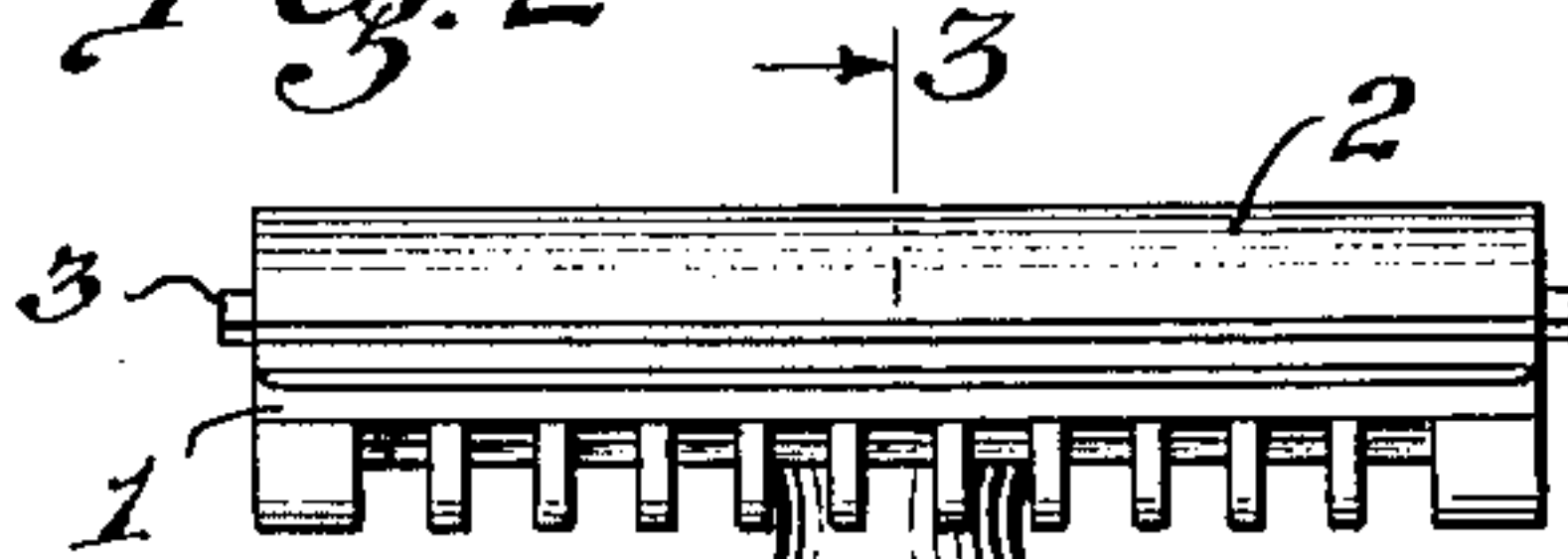


Fig. 3

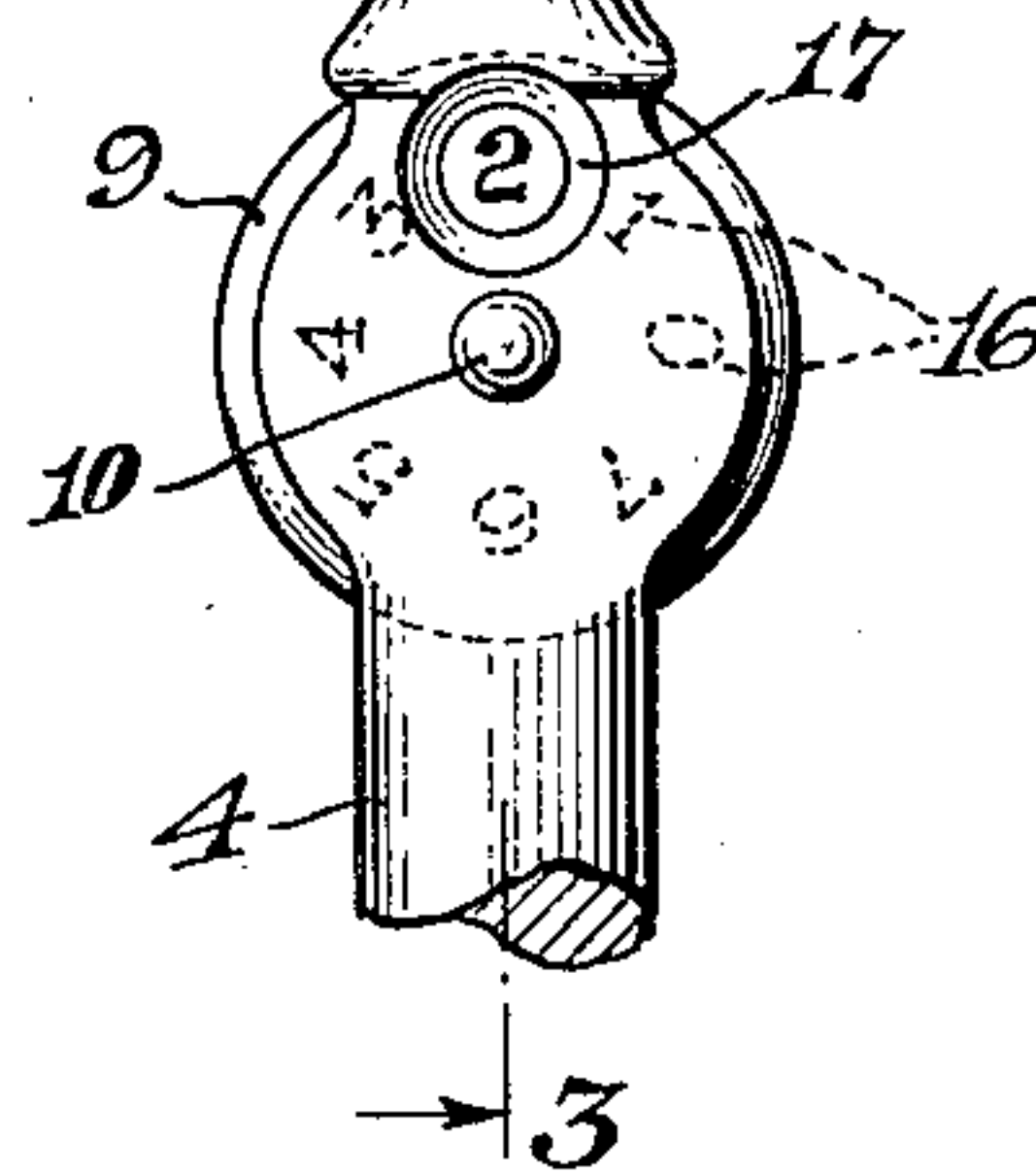
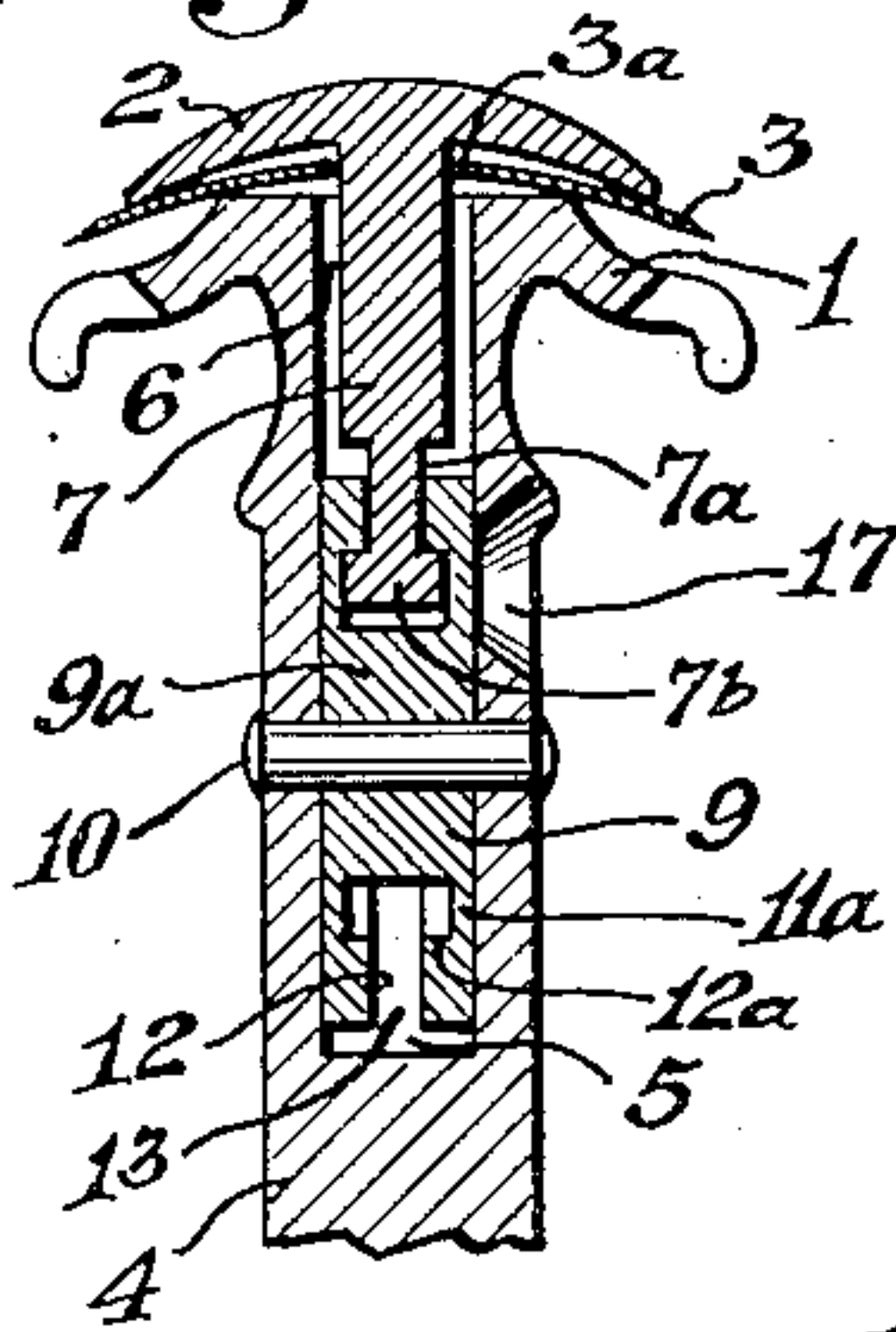


Fig. 4

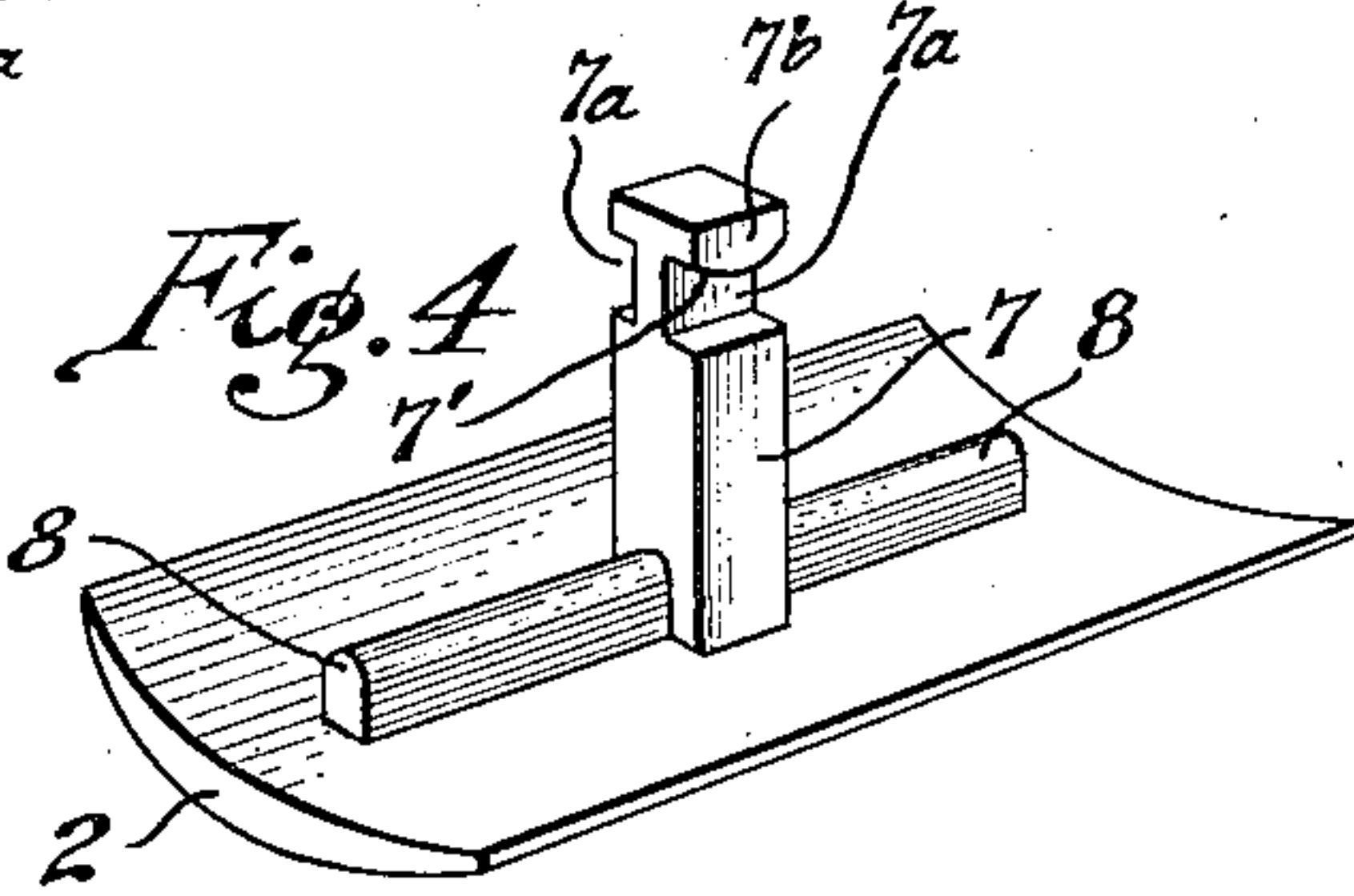


Fig. 3a

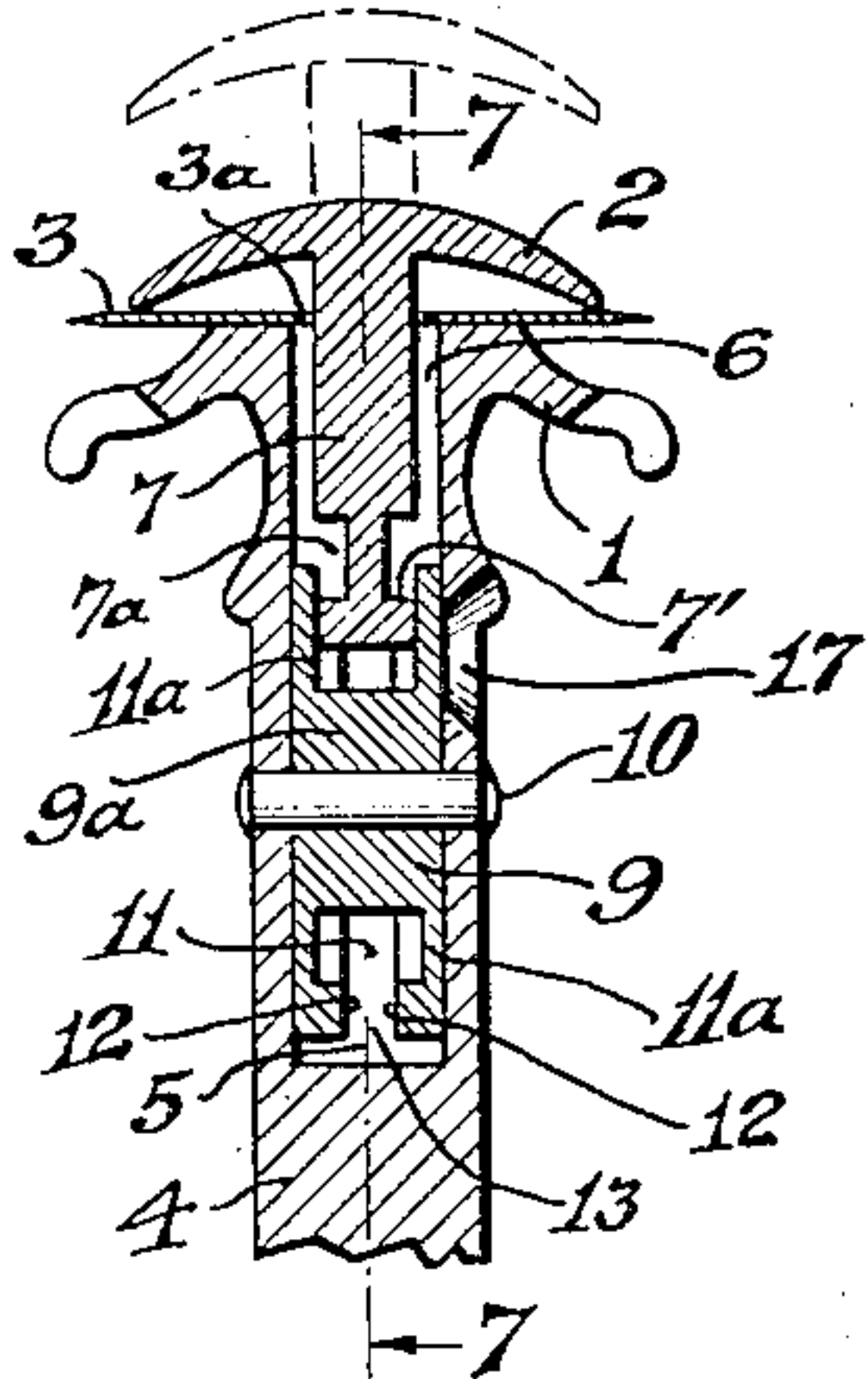


Fig. 5

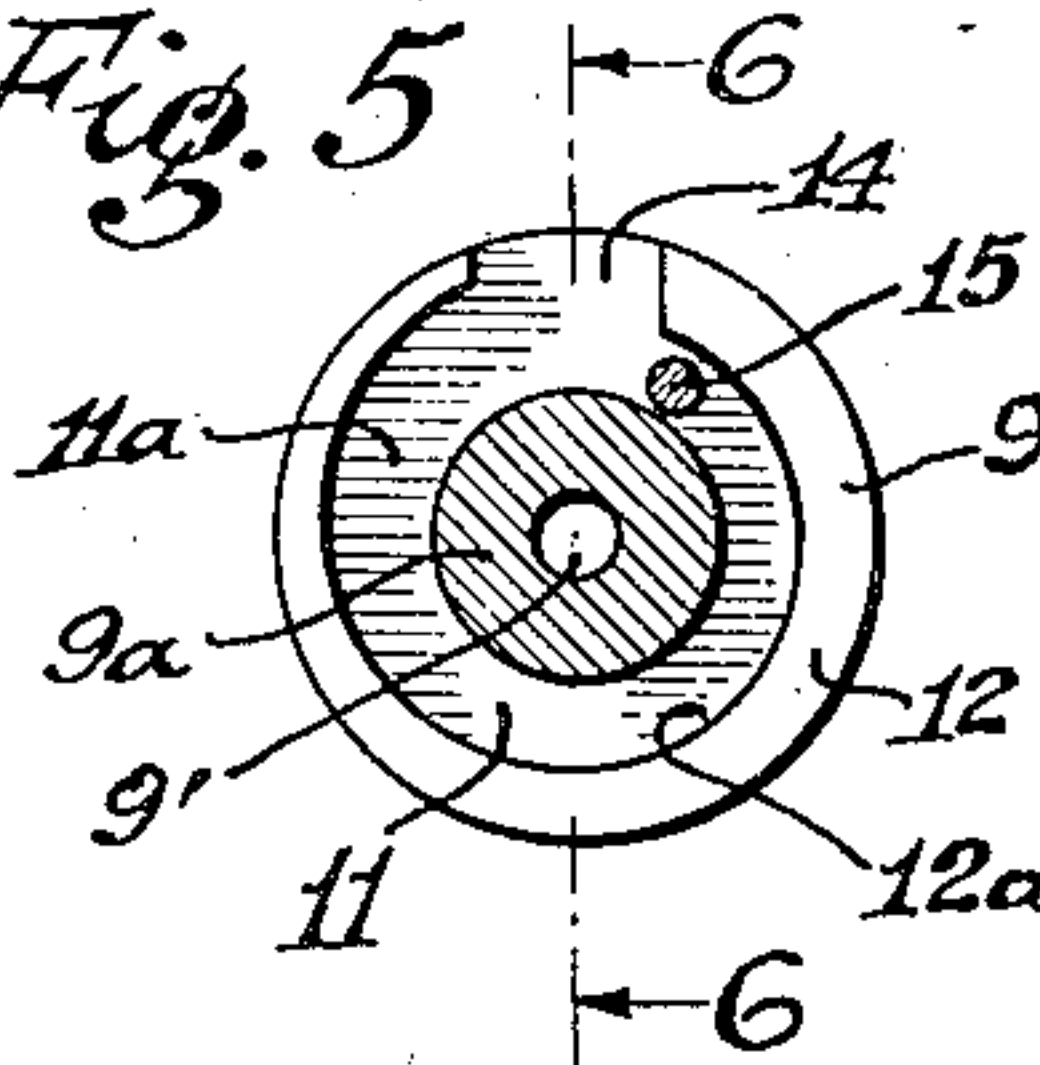


Fig. 6

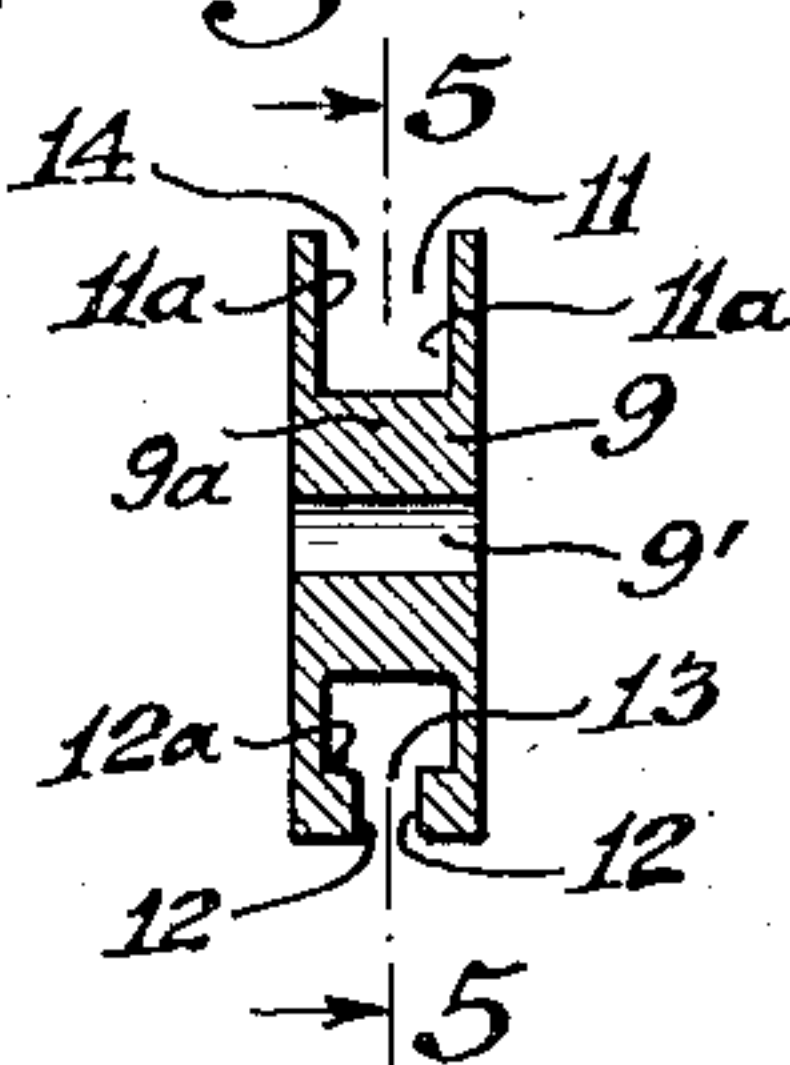


Fig. 7

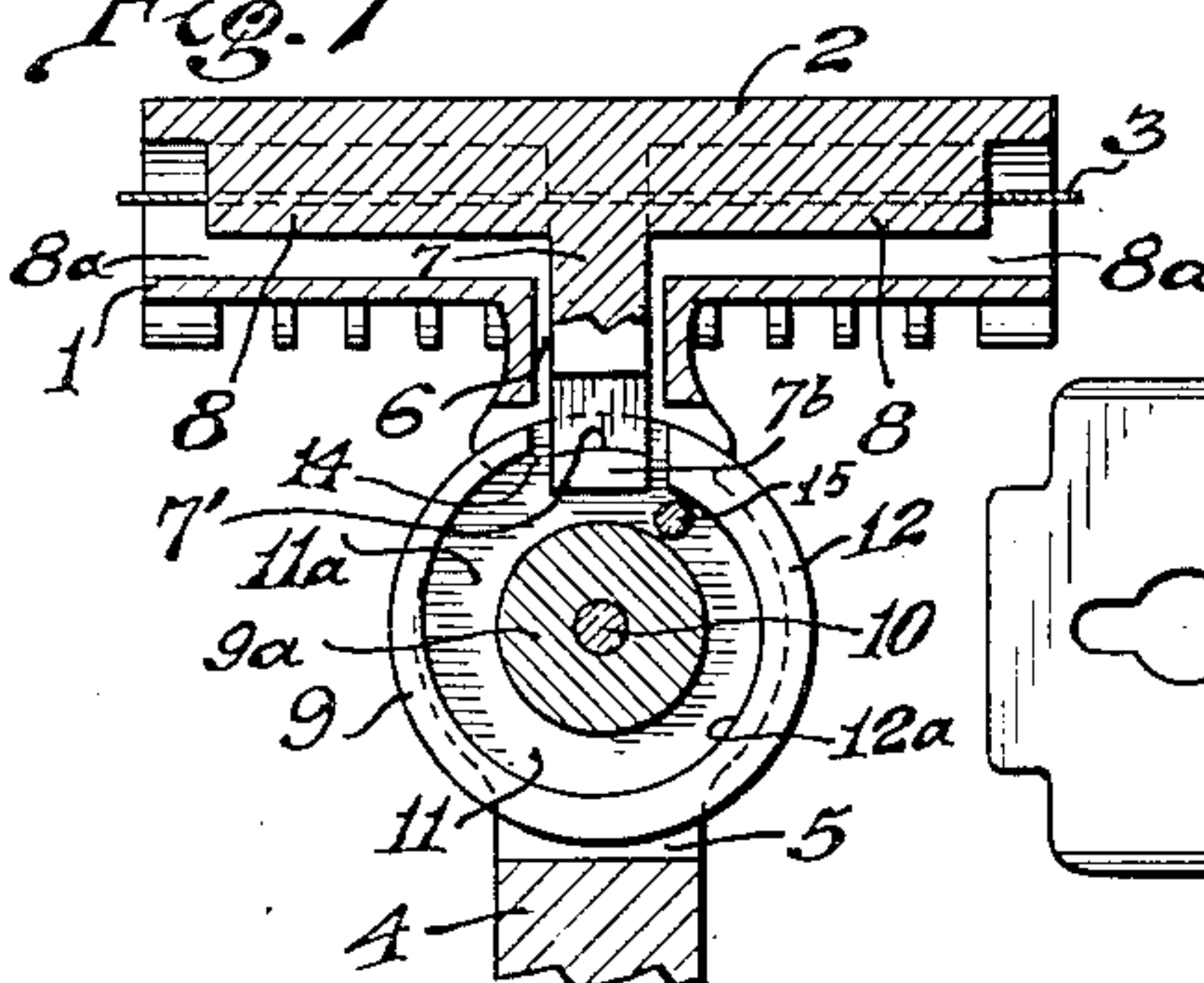
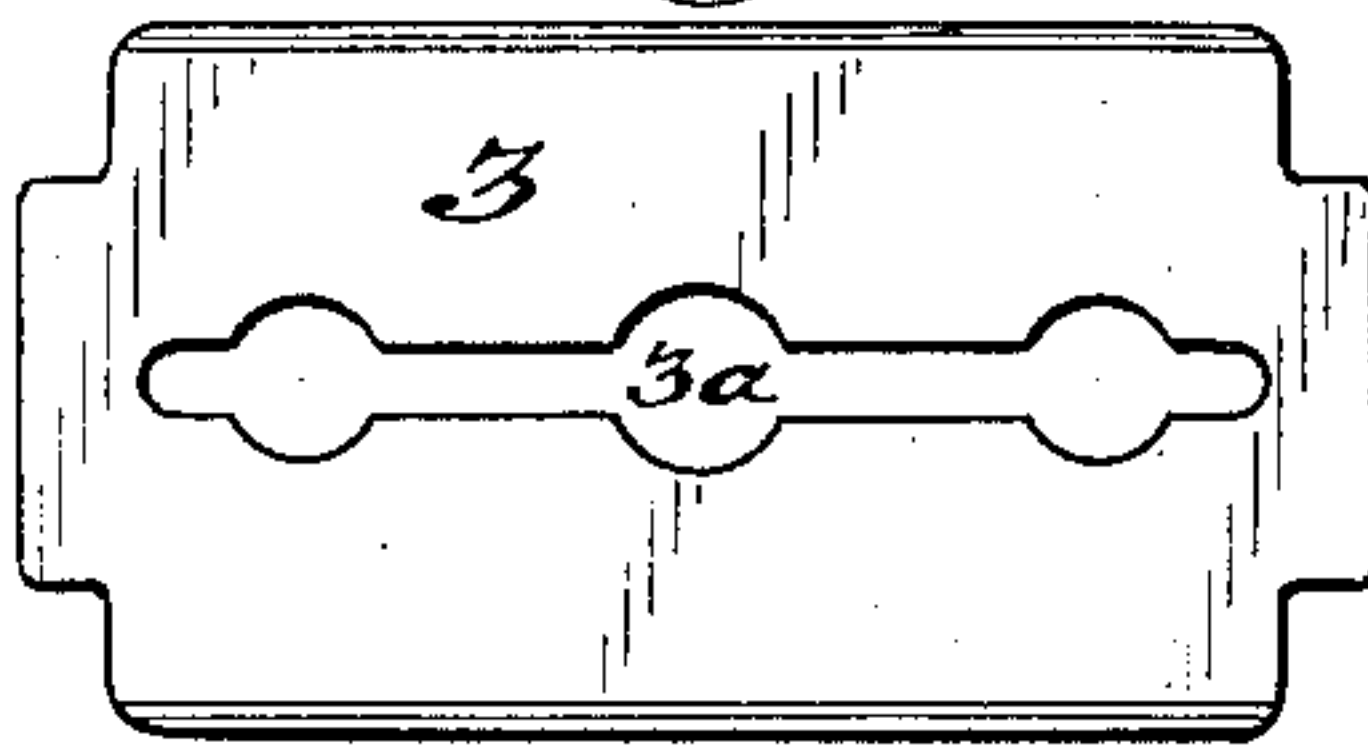


Fig. 8



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SAFETY RAZOR

Application filed May 12, 1931. Serial No. 536,749.

My invention has reference to improvements in safety razors, and is applicable in the variety of safety razors comprising a blade holder including blade clamping members, such as a guard member and a cap or backing member for the blade.

An object of my invention is to provide simple and convenient means for readily clamping the members against a blade and for readily releasing said members for removal and replacement of a blade.

In carrying out my invention I provide blade clamping members, such as a guard member and a blade cap or backing member, and a handle connected with the guard member and provided with a recess, the cap or backing member having a stem to enter said recess, the handle being provided with a movable member or retainer to cooperate with said stem to retain the clamping members against a blade for shaving, said movable member being adapted to release the stem to permit removal of the blade from the holder. By preference said movable member is cooperative with the stem in such a way as to compress or flex the blade more or less between the clamping members for adjustment of the cutting edge of the blade with respect to the guard, the resiliency of the blade between the clamping members tending to prevent displacement of the stem and the movable member when the blade is flexed.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawing, wherein

Fig. 1 is an end view of a safety razor embodying my invention;

Fig. 2 is a side view of the razor;

Fig. 3 is a section on line 3, 3 in Fig. 2;

Fig. 3a is a view similar to Fig. 3, illustrating the parts in a different position;

Fig. 4 is a perspective view of the blade cap or backing member;

Fig. 5 is a sectional detail of the movable member or retainer, in section on line 5, 5 in Fig. 6;

Fig. 6 is a section on line 6, 6 in Fig. 5;

Fig. 7 is a section on line 7, 7 in Fig. 3a illustrating parts in position to engage, and

Fig. 8 is a plan view of a blade.

Similar numerals indicate corresponding parts in the several views.

Numerals 1 and 2 indicate blade clamping members of a blade holder of a safety razor, the member 1 being shown in the form of a guard member and the member 2 in the form of a blade cap or backing member, adapted to receive a blade 3 between them. The construction is such that when the parts are assembled, as illustrated, the blade may be clamped in shaving position between the members 1 and 2, and the blade may be flexed in curved form. At 4 is a handle which may be attached to the guard member 1 in any usual or desired way. The handle 4 is shown provided with a recess or slot 5 in register with an opening 6 in the guard member, said opening and recess being adapted to receive a stem 7 which projects from the cap or backing member 2. Any suitable means may be provided on one or both of the blade clamping members to position a blade between them in shaving relation to the guard teeth of the guard member 1. I have illustrated projecting ribs 8 carried by the cap or backing member 2, adapted to enter corresponding recesses 8a in the outer surface of the guard member for locating the clamping members 1 and 2 in shaving position, (Fig. 1).

At 9 is a movable member or retainer, carried by the handle, adapted to cooperate with the stem 7 to retain the cap or backing member 2 in shaving position against the blade for clamping the blade between the members 1 and 2. The retainer 9 is shown located in the recess or slot 5 of the handle and rotatively carried thereby by means of a pivot 10 extending through the handle and through said retainer. The retainer 9 is provided with means to cooperate with the stem 7 to retain the latter against the blade with the latter on the guard member. I have illustrated the retainer 9 as in disc-like form and provided with an internal recess 11 adapted to receive a portion of the stem 7. The recess 11 opens outwardly through the periphery

of the retainer 9 providing spaced walls 11a extending from a hub 9a. Each wall 11a of the retainer is provided with a rim 12, which rims extend toward each other providing a peripheral space therebetween, indicated at 13, adapted to receive a portion of the stem 7. The rims 12 are shown provided with inner curved surfaces at 12a, which are shown in convolute or eccentric form with respect to the axis of rotation of the retainer at its hole 9' that receives the pivot 10, (Figs. 5 and 6). The rims 12 do not extend completely around the retainer but terminate in spaced relation, as indicated in Fig. 5, providing a space at 14 between the spaced ends of said rims, into which space the outer end of the stem 7 may project. Said stem is shown provided with recesses 7a on opposite sides, at a suitable distance from the outer end of the stem, providing a head 7b on the stem. The surfaces 7' of the stem 7 are perfectly curved to bear smoothly against the surfaces 12a of the rims 12. The retainer 9 is shown provided with a stop or pin 15 extending across the recess 11, near one end of the rims 12, in position to engage the stem 7 to limit rotation of the retainer in one direction when the stem 7 is in the path of said stop pin 15. Although a stop pin 15 is herein shown it is principally for convenience and not necessary to the successful operation of the device. When the stem 7 is not in the path of the retainer 9 said retainer has unlimited rotation in either direction. The retainer may be kept in a set position by friction between the parts 4 and 9.

When the parts are to be assembled the retainer 9 will be placed with its recess 14 in register with the opening 6. The cap may be inverted, as in Fig. 4, and the blade placed thereon, and the guard member may be applied over the blade, the stem 7 being pushed through an aperture 3a in the blade, through the opening 6 into the recess 5 of the handle, and into the recess 14 of the retainer, with the parts substantially in the position shown in Fig. 3a and in Fig. 7. Upon rotating the retainer 9, in a clock-wise direction as viewed in Fig. 7, the rims 12 of the retainer will engage the head 7b of stem 7, and since the surfaces 12a of said rims are convolute or eccentric to the axis of rotation of the retainer, said surfaces will engage the surfaces 7' of the stem and thereby will draw the stem into the handle, causing the cap or blade backing member 2 to bear against the blade and cause the latter to be flexed or bent to the desired position respecting the teeth of the guard member. By rotating the retainer 9 to the desired extent the cutting edges of the blade may be adjusted more or less toward the guard teeth to determine the character of shave desired. The engagement of the rims 12 of the retainer with the head 7b of stem 7 will be with sufficient friction to retain the

parts in a set position, and with a resilient blade 3 flexed between the members 1 and 2 the tension of said blade against the member 2 will aid in causing the head of the stem 7 to be kept pressed against the rims 12 for retaining the parts assembled.

The retainer 9 may be provided with space indicators, such as numerals at 16, illustrated in Fig. 2, which may be observed through a hole or window 17 in the side of the handle. With the construction described it will be understood that the retainer may be adjusted with the zero of the indicators in register with the opening 17 to indicate that the recess 14 of the retainer is in register with the opening 6 of the guard in position to receive the stem 7. When the stem has been set with its head 7b projecting into the retainer, the latter may be rotated to attach the stem of the cap to the guard, the numerals indicating different positions or extents of flexure of the blade and the relation of its cutting edges to the guard teeth for the character of shave desired. When it is desired to remove and replace a blade the retainer may be rotated counter-clockwise to present its recess 14 in register with the opening 6, whereupon the rims 12 release the head of the stem 7 so that the stem and the cap may be removed. The periphery of the retainer 9 extends beyond the handle in position to be engaged for operation, and as a convenience for operating the retainer its periphery may be knurled at 18, as indicated in Fig. 1, whereby the user may readily rotate the retainer by applying the thumb or finger or both to the knurled surface. It will be noted that the retainer 9 is centrally mounted at 10 so that balanced forces may be applied at opposite sides of the handle on the knurled portions 18 at diametrically opposed positions. This particular manner of mounting the retainer is very effective because of the manual control which it affords and in addition the extensive rotary movement makes it possible to apply a camming surface or surfaces of a very slight pitch thereby bringing into operation mechanical advantages very desirable in safety razors of this variety. The use of a cam of slight pitch in combination with the balanced application of forces and the manual control including the enhanced pulling capacity on the stem is unique.

My improvements provide a simple and effective means for detachably connecting together blade clamping members of the blade holder of a safety razor, and the handle may be permanently attached to the guard member whereby it is not necessary to detach the handle from the guard member as is customary in well-known types of safety razors.

Changes may be made in the details set forth, within the scope of the appended claims, without departing from the spirit of my invention.

Having now described my invention, what I claim is:—

1. A safety razor comprising a guard member and a cap member to clamp a blade there-
 5 between, the guard member being provided with a handle having an opening, a retainer rotatively supported in said handle and hav-
 ing graduations arranged to be read through said opening, said retainer having an interior
 10 recess and surrounding spaced rims having a space between their ends, said rims having inner eccentrically disposed surfaces, the cap having a stem adapted to pass through said
 15 space into the retainer, said stem having means to cooperate with the eccentric sur-
 faces of the retainer for clamping the guard and cap against the blade and said gradua-
 tions indicating the degree of such clamping pressure.
2. A safety razor comprising a guard mem-
 20 ber having a handle with a recess therein, a rotary retainer mounted in the handle for ex-
 tensive rotation and having an eccentric an-
 nular surface, a cap member provided with
 25 a stem shaped to project into said recess and to be engaged by the eccentric surface of the
 retainer, and a stop pin carried by the re-
 tainer within the retainer and operative
 30 within said recess to engage the stem and limit rotation of the retainer in one direction,
 said retainer having indicating means there-
 on, said handle having a window in the path
 of the indicating means whereby the position
 35 of the stop pin and the amount of pressure on the blade may be instantly denoted.
3. In a safety razor, in combination, a cap,
 a guard, and a handle, said cap having a stem,
 said guard and handle having openings re-
 40 ceiving said stem, said handle having a slot or recess extending transversely of said han-
 dle and in communication with the opening in the handle, a retainer comprising a cylin-
 45 drical body of disc-like form rotatably mount-
 ed in the slot of said handle, co-acting inter-
 engaging camming portions on said stem and
 retainer, said retainer having finger gripping
 portions amply exposed on opposite sides of
 the handle, whereby balanced forces may be
 50 applied to the retainer to draw the parts to-
 gether, said handle having a window and
 said retainer having indicating means lo-
 cated concentrically thereon in the path of
 the window whereby the amount of pressure
 on a blade may be instantly denoted.
- 55 4. In a safety razor including a cap, a guard, and a handle, said cap having a stem,
 said guard and handle having openings re-
 ceiving said stem, said handle having a slot
 or recess extending transversely of said han-
 60 dle and in communication with the opening in the handle, a retainer comprising a cylin-
 drical body of disc-like form rotatably
 mounted on a pin in the slot of said handle,
 an annular camming portion in said retainer
 65 located eccentrically of said pin, said stem
 having a lug engaging the camming portion,
 whereby the cap and guard may be drawn
 together to clamp a blade in shaving position
 between them, indicating insignia located on
 said retainer in combination with a cut-away
 70 portion on said handle to provide for visual
 display of said insignia whereby the amount
 of pressure on the blade may be readily de-
 noted.
5. In a safety razor including a flexible
 75 blade, a cap, a guard and a handle, said cap
 and guard having opposed blade shaping
 faces, said cap having a stem, said blade,
 guard and handle having openings receiving
 80 said stem, said handle having a slot or recess
 extending transversely of said handle and
 in communication with the opening in the
 handle, a retainer comprising a cylindrical
 body having a plurality of finger gripping
 85 portions amply exposed at opposite sides of
 the handle, said retainer being rotatably
 mounted in said slot, co-acting interengaging
 means on said stem and retainer whereby the
 parts of the razor may be drawn together
 90 into shaving position, indicating insignia on
 said retainer, means on said handle providing
 a window in the path of the insignia whereby
 the adjustment of the blade may be readily
 denoted.
6. A safety razor handle having an open-
 95 ing to receive a stem of a cap member, said
 handle having intermediate its ends a slot
 or recess transverse to the handle and in com-
 munication with said opening, a cylindrical
 100 body rotatably mounted in said slot or recess,
 said body having within its periphery a cam-
 ming surface eccentrically located with ref-
 erence to the axis of rotation of said body,
 said camming surface being extensive and of
 105 slight pitch, and said body being amply ex-
 posed on opposite sides of the handle to form
 finger grips thereby affording balanced ap-
 plication of forces to said rotatable body, in-
 110 dicated insignia on said retainer in combi-
 nation with a window in the handle in the
 path of the insignia.

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