

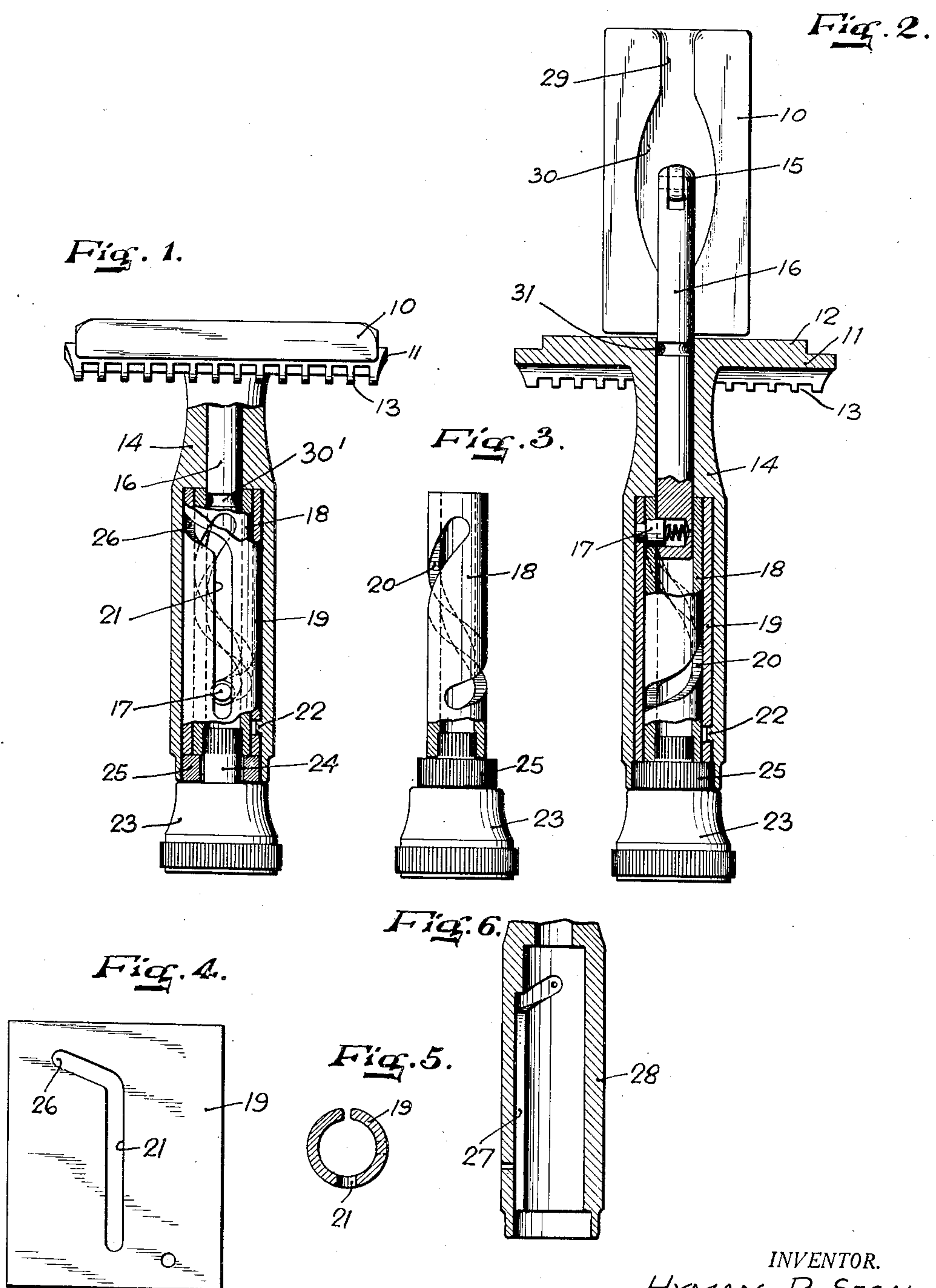
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RAZOR

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# UNITED STATES PATENT OFFICE

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## RAZOR

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This invention relates to a functionally and structurally improved razor.

It is an object of the invention to provide a device of this character of the safety type and by means of which the parts may readily be shifted in an improved manner, from operative to inoperative condition and accordingly by means of which the blade may readily be applied or removed for the purpose of cleaning, drying, etc.

A further object of the invention is that of providing a device of this type in which the parts may readily be adjusted to be used in such manner that, exactly the desired type of shave will result and in which this adjustment may be achieved in a ready and simple manner.

A still further object is that of providing a razor in which the parts will be constructed in such manner that there will be minimum danger of deleterious action by the entrance of foreign agents and in which the parts will be guarded against rust and other destructive actions.

Still another object is that of providing an apparatus of this character the parts of which will be relatively few in number and each individually simple and rugged in construction and capable of manufacture largely by automatic machinery, these parts being capable of assembly by relatively unskilled labor and when so assembled operating over long periods of time with freedom from any difficulties whatsoever.

With these and other objects in mind, reference is had to the attached sheet of drawings illustrating practical embodiments of the invention and in which:

Fig. 1 is a partly sectional side view of a razor and showing the parts thereof in operative condition;

Fig. 2 is a similar view showing the parts in open or inoperative condition;

Fig. 3 is a side elevation (partly in section) of one of the actuating tubes;

Fig. 4 is a similar view of a secondary tube and prior to the forming thereof;

Fig. 5 is a transverse sectional view of this tube after the forming operation and

Fig. 6 shows the manner in which the parts of the secondary tube may be embodied in the sleeve.

In these views reference numeral 10 indicates a clamping plate and 11 a guard. Preferably this guard has extending from its upper face a blade-positioning abutment 12 which, as shown in certain of my preceding applications, may have inclined side edges for cooperation with the end edge of the clamping plate as in a manner hereinafter described. Also in the present application there has not been illustrated the blade. This forms the subject matter of other pending applications presently before the United States Patent Office.

The guard as illustrated may be of the double-edged type and have a comb portion 13 extending along each of its side edges. Also, as illustrated, it is preferably curved so that a blade positioned thereon and retained in position by the clamping plate will be subjected to a greater or lesser extent of transverse flexure. This guard is preferably supported by or may in fact form an integral part of a sleeve 14 which forms the main stem portion of the razor. The clamping plate is pivotally mounted as at 15 by a stem 16 slidably disposed within the bore of the sleeve. The clamping plate tends to tilt. This is accomplished by any suitable provision as, for example, by having one end of the stem over-weighted or by having the pivot sufficiently high that a condition of unbalance is bound to prevail.

Thus, when the stem is projected the clamping plate will move from the position shown in Fig. 1 to the position shown in Fig. 2—conceding that the stem is simultaneously turned in an axial direction. Conversely, if the stem is retracted the clamping plate will ride over the bevelled edges of the blade-positioning abutment and either into contact with the upper blade surface or else into contact with the upper face of the guard and will cam across these surfaces until it reaches the position shown in Fig. 1.

Now with a view to providing means which will serve to shift the parts in these manners, it will be noted that the stem carries a



pin which may be spring-pressed as at 17. Interposed between the stem and the sleeve are primary and secondary tube members 18 and 19 respectively.

5 This is conceding that the structure shown in Figs. 1 to 5 is employed. Otherwise, as will hereinafter appear, the secondary tube member may be eliminated. Referring to the embodiment under consideration the primary  
10 tube member serves as a shift element, the secondary tube member serves as a guide and the spring-pressed pin extends into slots 20 and 21 forming parts of these tubes.

The secondary tube is retained against rotation, with respect to the sleeve, by, for example, forming the same with an opening into which a retaining stud 22 extends, the latter forming an integral part of the sleeve. The primary tube is coupled to an operating  
20 knob 23, the outer surface of which may be knurled and around the extension 24 of which a retaining washer 25 may be disposed. This washer, in addition to preventing improper contact of the sleeve and knob, will also serve  
25 as a guide for the knob and tube associated therewith. Thus, by turning the knob with respect to the sleeve it will be obvious that a corresponding movement will occur between the primary and secondary tubes due to the  
30 fact that the spring-pressed pin rides within the slots of both of these elements. It is apparent that the pin and stem will be shifted within the slot 21 by engagement with the side edges of the slot 20. This shifting will  
35 result in a corresponding movement on the part of the stem and due to the fact that the upper end of the slot 21 is offset, as has been indicated at 26, it is apparent that the final stages of movement will cause the pin to be  
40 turned in a direction axially to the razor. Consequently, in such final stages the stem will turn carrying with it the clamping plate so that the blade may readily be removed from or applied to the razor.

45 With a view to providing for economical manufacture, the secondary tube 19 may be struck from a single flat sheet of material, as illustrated in Fig. 4. This sheet may then be curved, as in Fig. 5, and finally be properly  
50 disposed within the sleeve of the razor. If this is not desired the structure shown in Fig. 6 may be utilized, in which the groove 27 corresponding to the slot 21 is formed in the inner face of the sleeve 28. Usually, how-  
55 ever, due to the smallness of the part and the fact that it is not desired to slot the outer sleeve, it is preferable to employ an inner tubular member or the functional equivalent thereof.

60 So that the clamping plate may lie—when in inoperative position—as close to the stem as possible, it is preferably grooved, as at 29, in line with the abutment accommodating the recess 30. Also, to prevent water and other  
65 foreign substance from entering the razor a

stuffing box structure may be resorted to which will additionally have the advantage of maintaining the parts in well-lubricated condition. This structure as disclosed in Fig. 1 may take the form of an annular  
70 groove 30' formed in the stem and packed with grease, or, as shown in Fig. 2, this groove may receive a felt washer or its equivalent which, if desired, may be impregnated with oil. This element has been indicated at 31.  
75

From the foregoing it will be appreciated that among others the several objects of the invention, as specifically aforementioned, are accomplished. Obviously numerous changes in construction and rearrangements of the parts  
80 may be resorted to without departing from the spirit of the invention as defined by the claims.

Having described my invention what I claim as new and desire to secure by Letters  
85 Patent, is:

1. A razor including a guard, a clamping plate, a sleeve secured to said guard, a member slidable within said sleeve for shifting  
90 said plate, one of said last named elements being formed with a recess and packing means disposed within said recess for cooperation with the second of said elements.

2. A razor including a clamping plate, a guard, a stem secured to said plate, a fixed  
95 sleeve secured to said guard and housing said stem, an actuating member extending beyond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube being  
100 formed with a helical slot and a pin extending from said stem and riding within said slot whereby upon said actuating member rotating said tube said stem will be shifted.

3. A razor including a clamping plate, a  
105 guard, a stem secured to said plate, a fixed sleeve secured to said guard and housing said stem, an actuating member extending beyond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube being  
110 formed with a helical slot, a pin extending from said stem and riding within said slot whereby upon said actuating member rotating said tube said stem will be shifted and means for preventing an accidental turning of said stem.  
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4. A razor including a clamping plate, a guard, a stem secured to said plate, a fixed  
120 sleeve secured to said guard and housing said stem, an actuating member extending beyond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube being  
125 formed with a helical slot, a pin extending from said stem and riding within said slot whereby upon said actuating member rotating said tube said stem will be shifted, said sleeve being formed with a groove accommo-  
130



dating the end of said pin to prevent an accidental turning of said stem.

5 5. A razor including a clamping plate, a guard, a stem secured to said plate, a fixed sleeve secured to said guard and housing said stem, an actuating member extending beyond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube being  
10 formed with a helical slot, a pin extending from said stem and riding within said slot whereby upon said actuating member rotating said tube said stem will be shifted, said sleeve being formed with a groove accommod-  
15 ating the end of said pin to prevent an accidental turning of said stem, a portion of said groove being offset whereby said pin in traversing said portion will cause a rotation of said stem.

20 6. A razor including a clamping plate, a guard, a stem secured to said plate, a fixed sleeve secured to said guard and housing said stem, an actuating member extending beyond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube  
25 being formed with a helical slot, a pin extending from said stem and riding within said slot whereby upon said actuating member rotating said tube said stem will be shifted and a second tube fixed within said sleeve and formed with a pin-accommodating  
30 track.

35 7. A razor including a clamping plate, a guard, a stem secured to said plate, a fixed sleeve secured to said guard and housing said stem, an actuating member extending beyond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube being  
40 formed with a helical slot, a pin extending from said stem and riding within said slot whereby upon said actuating member rotating said tube said stem will be shifted and a second tube fixed within said sleeve and  
45 formed with a pin-accommodating track, said last named tube comprising a sheet of material of substantially constant gauge curved to provide a tube portion.

50 8. A razor including a clamping plate, a guard, a stem secured to said plate, a fixed sleeve secured to said guard and housing said stem, said sleeve being formed with a groove, an actuating member extending be-  
55 yond said sleeve and rotatable with respect thereto, a tube secured to said actuating member and rotatable therewith, said tube being formed with a helical slot of greater  
60 width than the groove in said sleeve, a pin extending from said stem and riding within said slot whereby, upon said actuating member rotating said tube, said stem will be shifted, said pin being formed with a re-  
65 duced end portion for cooperation with a

groove in said sleeve to prevent an accidental turning of said stem.

9. A safety razor comprising a guard member having a tubular handle element projecting therefrom and provided with a  
70 guide-slot having straight and curved portions, a cap member having a stem disposed concentrically within said tubular handle element and provided with a projecting pin entering said slot and confining it to straight  
75 followed by turning movement, and a rotatable sleeve connected to said tubular element, projecting within the same, surrounding the stem of the cap and having a spiral  
80 cam slot for said pin acting to impart longitudinal movement to said stem.

10. A safety razor comprising a guard member having a tubular handle with guide slot therein, a cap member having a stem  
85 slidable within said handle and provided with a cam pin which slides in said guide slot, and a sleeve rotatable within said handle element and having a spiral cam groove in which said cam pin also slides.

11. A safety razor comprising a guard  
90 member with a tubular handle having a guide slot which has a long straight portion and substantially a 90° spiral portion, a cap having a stem slidable within said handle and a pin projecting into said guide slot, a  
95 manually operated rotatable sleeve for advancing said stem, first without turning movement while the pin traverses the straight portion of the guide slot and then  
100 simultaneously with a 90° turning movement while the pin traverses the spiral portion of the guide slot, and means for holding said sleeve against longitudinal movement while leaving it free to be turned.

12. A safety razor comprising co-operat-  
105 ing cap and guard members having telescopically related shanks, a guide slot in one co-operating with a pin in the other to limit the relative movement of the cap and guard to a straight separation followed by a blade-  
110 exposing twisting, and a manually operated rotary actuating sleeve associated with said shanks and held against longitudinal movement.

In testimony whereof I affix my signature. 115  
HYMAN R. SEGAL.

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