No. 733,400. PATENTED JULY 14, 1903.

F., R. & O. KAMPFE.

SAFETY RAZOR.

APPLICATION FILED FEB. 19, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig: 1.

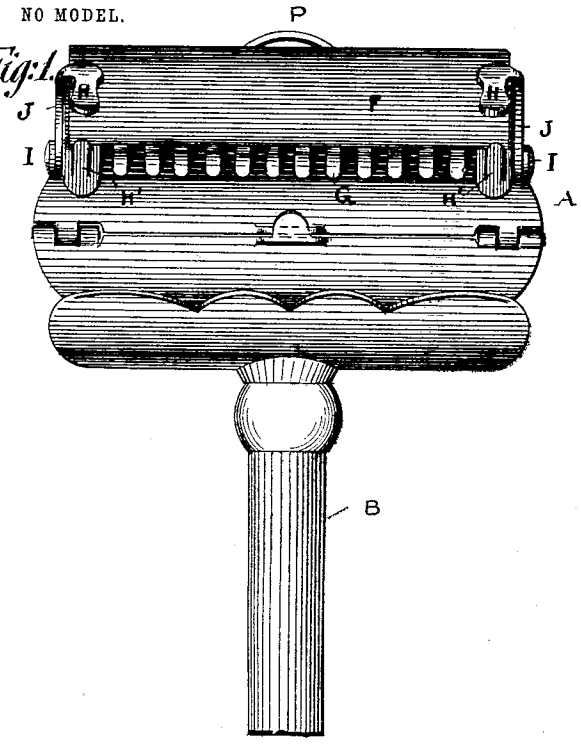


Fig: 2.

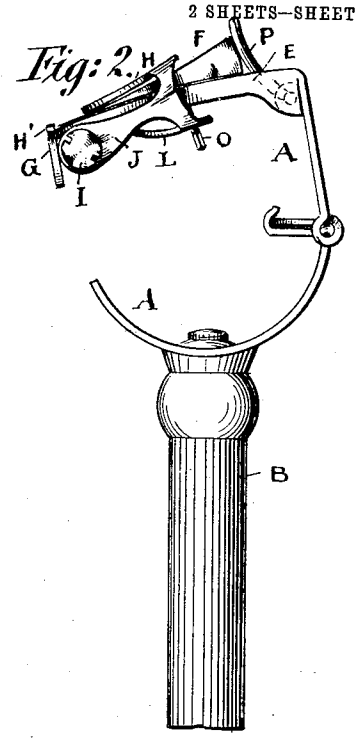


Fig: 3.

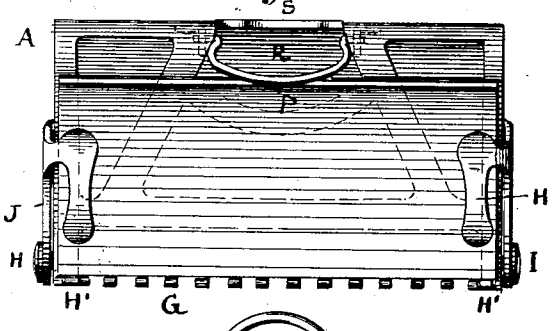
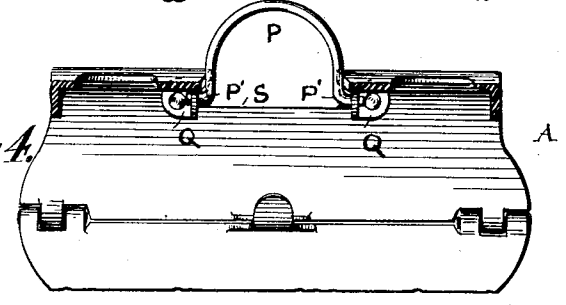


Fig: 4.



WITNESSES

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SAFETY RAZOR.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig: 5.

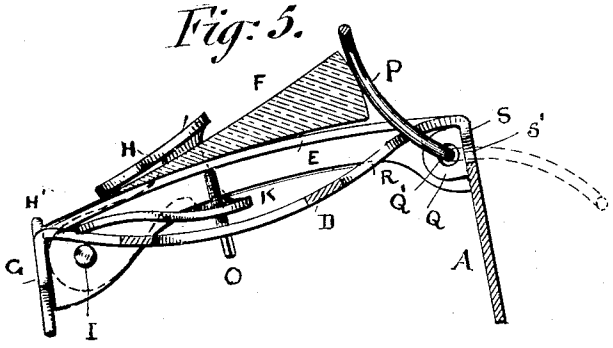


Fig: 6.

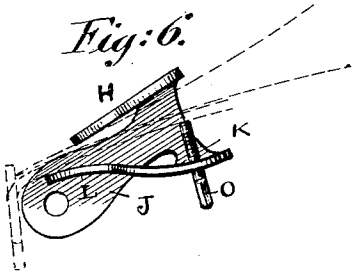


Fig: 7.

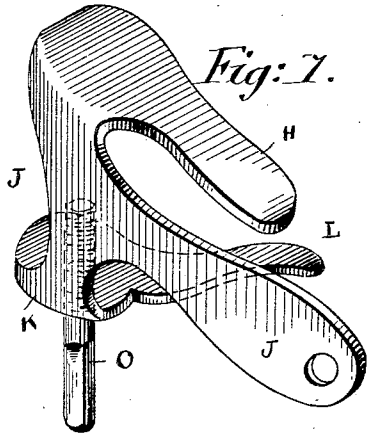


Fig: 8.

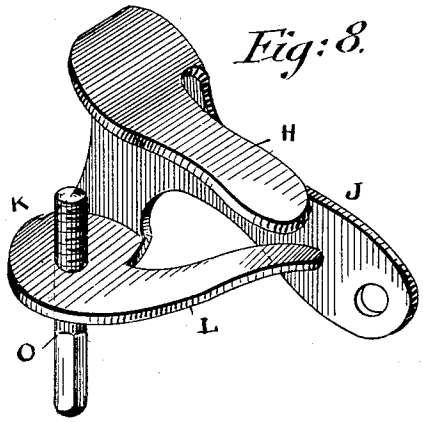
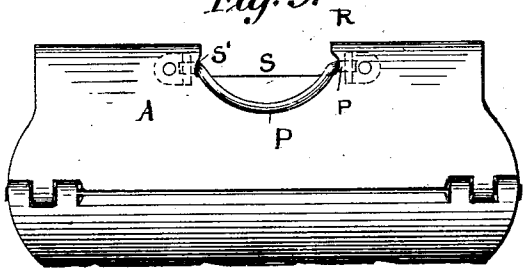


Fig: 9.



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No. 733,400. Patented July 14, 1903.

UNITED STATES PATENT OFFICE.

FREDERICK KAMPFE, RICHARD KAMPFE, AND OTTO KAMPFE, OF NEW YORK, N. Y.

SAFETY-RAZOR.

SPECIFICATION forming part of Letters Patent No. 733,400, dated July 14, 1903.

Application filed February 19, 1903. Serial No. 144,024. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK KAMPFE, RICHARD KAMPFE, and OTTO KAMPFE, citizens of the United States, residing at the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

This invention relates to improvements in safety-razors; and the object of our invention is to provide a new and improved safety-razor which is so constructed that the blade, independent of its shape and size within the limits of the device, automatically adjusts itself into proper position on the blade-holder, so that it will be in proper position for shaving without necessitating the adjustment of any parts and without manipulating any tools or devices for the adjustment of any parts by the user.

In the accompanying drawings, in which like letters of reference indicate like parts in all the figures, Figure 1 is a face view of our improved safety-razor. Fig. 2 is an end view of the same. Fig. 3 is a plan view, the blade being in proper position for shaving. Fig. 4 is a vertical longitudinal sectional view of our improved safety-razor, parts being broken away. Fig. 5 is a vertical transverse sectional view through the top of the casing and blade, showing the self-adjusting clips and the blade-retaining spring. Fig. 6 is a detail side view of the self-adjusting clip. Figs. 7 and 8 are perspective views of the same from opposite sides. Fig. 9 is a rear view of the casing, parts being broken away.

The casing, as shown, is of the conventional shape and substantially U-shaped in cross-section, but may be of any other suitable shape without in any way having any bearing on the present invention, which, as shown, is applied on the conventional shape of casing.

The casing A is provided with a handle B and may be provided with a hinge connection on its back for opening it. As shown in Fig. 5, the top of the casing, between the ends, is curved concavely in transverse direction in the usual manner, as shown at D, and at each end of the casing an inwardly-extending blade-supporting flange E is formed, which is curved convexly and upon which the end parts of the blade F rest. At the front edge of the concave part D the guard-teeth G, of any suitable shape or construction, are located, and at the ends of these guard-teeth upwardly-extending spring-fingers H′ are formed, against which the end parts of the front or cutting edge of the blade rest when the blade is in proper position for shaving, as shown, for example, in Figs. 1, 2, 3, and 5.

For the purpose of holding the blade on the blade-supports E and preventing displacement of the same in the direction of the length of the blade or in the direction from the bottom to the top of the casing clips H are provided, which when the blade is in place extend over the top of the same at the ends thereof. These clips, which extend in the direction from front to rear, are each formed on the free end of an arm J, of which one is pivoted to each end of the casing at the front top corner, so that these arms have their pivots, on which they can swing, at the front corners and at the ends of the top of the casing, thus permitting the clips H to move up and down from and toward the top of the casing. These clips are curved, so that the entire under surface will not bear upon the upper surface of the blade, but only the front end part of the clip, as shown, for example, in Fig. 5. Each arm is provided at its free end with a downwardly-extending extension K, from which a spring-arm L extends upward and toward the pivot I of the arm J, which spring-arm with its free end bears against the under side of the blade-supporting flange E at the front end of the same. The spring-arm L has a tendency to press downward the free rear end of the arm J and its clip H, and thus press the clip with a gentle pressure upon the upper surface of the blade. When the blade is inserted, it forces the clip H upward more or less, according to the thickness of the blade at the point where it contacts with the clip H, thus bringing the spring L into greater or less tension. If the blade is of considerable width—say the greatest width made for the casing—the clip will be forced up but slightly by the entering blade, whereas if the blade is narrower and has been

sharpened and ground repeatedly, so that it has a greater taper, and as it must necessarily be forced forward to bring its cutting edge into proper shaving position on the guard, and as such a blade has greater thickness at the point where it contacts with the clip H, it forces up this clip H a greater distance. Whatever the thickness of the blade may be at the point where it contacts with the clip H the adjustment will always be perfect, as the clip yields according to the thickness of the blade and is always pressed upon the blade by the tension produced by the spring L. As the arm J is pivoted at the front corner of the casing and the spring-arm L extends from the free end of the arm to the front and bears on the under side of the blade-support at the front and the clip H in turn projects from the free end of the arm J toward the front and bears with its free end on the blade, it will be seen that the tension of the spring L is sufficient to hold the blade in place, and that said spring is not subjected to any undue strains whatever, as a very slight bending of the spring is sufficient to compensate for the varying thickness of the blades. As it might happen that one corner of the cutting edge of a blade where it bears against the spring-fingers H′ is broken off, and the blade thus no longer is held parallel with the guard, because the proper abutment for one corner is missing, we provide means for adjusting the arms J in such a manner that they can swing upward only a determined and limited distance. This limiting device consists of a screw O, secured through the L-shaped part K and bearing with its free end against the under side of the blade-support. By means of said screw the upward movement of the clip under the pressure of the blade can be limited, and the clip can thus be adjusted to prevent the retaining-spring from pressing one corner of the broken blade forward to such an extent that the cutting edge will not be parallel with the guard-teeth.

As stated, a retaining-spring is provided for pressing the blade in the direction from the rear of the top of the casing toward the front, which retaining-spring bears against the heel or base of the blade. The retaining-spring shown in the drawings consists of a spring-wire P, bent U-shaped, the ends of the U being bent from each other in opposite directions to form pivots P′. These pivots pass into holes Q′ in lugs or ears Q, projecting from the inner surfaces of the rear wall of the razor-casing at the top. The shanks of the U-shaped retaining-spring pass through an opening R, formed in the top of the casing at the rear edge, which opening has its sides beveled—that is to say, the opening increases in width from the rear to the front—and the side edges of said opening, against which the shanks of the U-shaped retaining-spring bear, are thus inclined.

Communicating with the opening R there is a recess or notch S formed in the upper edge of the rear wall of the casing, and in the end parts of said recess notches S′ are formed. The part P, as stated, is made of spring material, and when this catch is snapped in place, with its end pivots P′ in the lugs Q, there is a lateral or outward pressure in each arm. As these arms rest against the edges of the recess R, inclined toward each other from front to rear, it follows that this action of the spring-shanks of the catch on the inclined edges tends to throw the catch forward and against the heel or base of the blade, which it in turn presses forward until its cutting edge rests against the spring-fingers or stops H′.

When the blade is to be withdrawn, the catch or spring P is swung to the rear and downward until its shanks pass into the recesses S′ in the ends of the notch S, thereby locking the retaining-spring in open and lowered position.

After the blade has been inserted it is only necessary to press up slightly the free end of the retaining-spring P sufficiently to remove the spring-shanks out of the notches S′, whereupon it is instantly thrown forward against the heel of the blade.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a safety-razor, the combination with a blade-support, of arms pivoted at the front corners of the blade-support and having blade-retaining clips extending over the end parts of a blade on the support, and a retaining-spring, substantially as set forth.

2. In a safety-razor, the combination with a blade-support, of arms pivoted at the front corners of the support, blade-retaining clips on said arms extending over the blade on the support and spring-fingers on said arms bearing against the casing to produce a downward pressure in the swinging ends of said arms, and a retaining-spring, substantially as set forth.

3. In a safety-razor, the combination with a blade-support, of arms pivoted at the front corners of the support to swing in planes parallel to the transverse plane of the casing, from top to bottom, clips on the free ends of said arms and extending over the blade on the support and spring-fingers on the swinging ends of said arms and extending in the direction toward the pivots of the arms, and a retaining-spring, substantially as set forth.

4. In a safety-razor, the combination with a blade-support, of arms pivoted at the front corners of the support, blade-holding clips on the swinging ends of said arms, springs formed on the swinging ends of said arms and bearing against the support to produce a downward pressure in the free ends of the arms and adjusting-screws in the swinging ends of said arms, and a retaining-spring, substantially as set forth.

5. In a safety-razor, the combination with

a casing provided in its top at the back with an opening having sides inclined toward the front and outward, of a U-shaped spring-wire having the ends of its shanks passed through said opening and bent laterally to form pivots which are mounted to turn beneath the edges of said opening, substantially as set forth.

6. In a safety-razor, the combination with a casing having an opening in its top, at the rear edge and which opening increases in width from the rear to front, of a U-shaped wire having its shanks passed through said opening and its ends bent laterally to form pivots, which are mounted in suitable supports beneath the edges of the said opening, said casing also having a notch in the top of the rear wall of the casing and recesses formed in the ends of said notch, substantially as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 17th day of February, 1903.

FREDERICK KAMPFE.
RICHARD KAMPFE.
OTTO KAMPFE.

Witnesses:
OSCAR F. GUNZ,
PETER J. DICKE.