May 30, 1939. O. V. RODRIGUES 2,160,370

RAZOR

Original Filed April 4, 1938

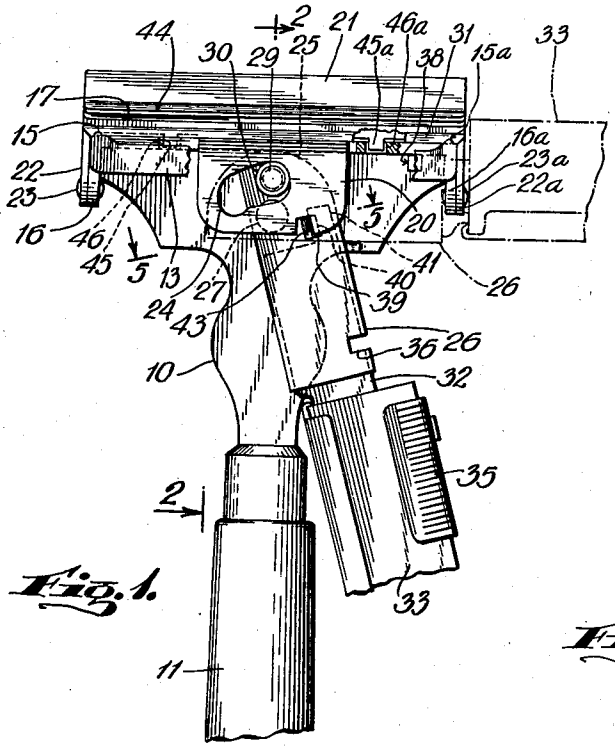


Fig. 1.

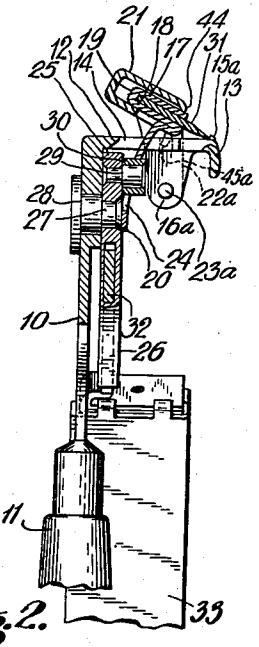


Fig. 2.

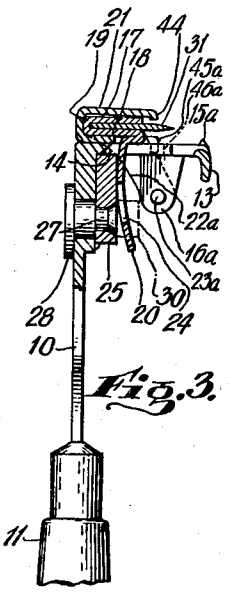


Fig. 3.

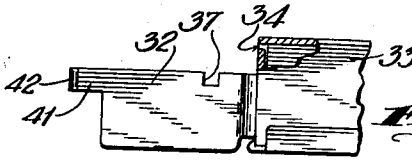


Fig. 4.

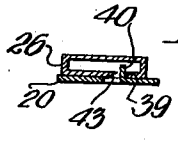


Fig. 5.

Octavius Victor Rodrigues

Inventor

John H. Hilliard

Attorney

Patented May 30, 1939 2,160,370

UNITED STATES PATENT OFFICE

2,160,370

RAZOR

Octavius V. Rodrigues, Fairfield, Conn., assignor to Magazine Repeating Razor Company, New York, N. Y., a corporation of New Jersey

Original application April 4, 1938, Serial No. 199,815. Divided and this application April 29, 1938, Serial No. 204,967

8 Claims. (Cl. 30—40)

This application is a division of my pending application Ser. No. 199,815, filed April 4, 1938, for "Razors".

The invention relates to an improved razor and particularly a razor of the type in combination with which a separate magazine is employed after the manner shown and described in United States Patent No. 1,969,945, issued August 14, 1934—that is to say, the type wherein blades are ejected from shaving position in the head and a substitute blade inserted in the head by means of a magazine provided with a finger for alignment of the magazine with the blade channel in the head, and with a slide or other suitable means for ejecting a blade from the magazine and at the same time ejecting from the razor a blade, if any, located therein.

More particularly, the invention relates to a magazine razor that is constructed in accordance with, and operates on the principle of that illustrated in my United States Patent No. 2,066,800, issued January 5, 1937, and which is provided with means whereby a blade may be ejected therefrom and a substitute blade inserted by means of a magazine provided with the aligning finger and ejector above referred to.

One of the objects of the invention is an improvement on the razor of my said Patent No. 2,066,800, the improvement consisting in the provision of special means for tightly clamping the razor blade in its holder when the blade is swung to shaving position, and relieving the clamping pressure on the blade when it is in position for the transfer of a blade from the magazine.

Referring to the drawing:

Fig. 1 is a front view in elevation of the preferred form of the razor involved in the invention, in association with a magazine of the ejector type;

Fig. 2 is a view on the line 2—2 of Fig. 1;

Fig. 3 is a view similar to that of Fig. 2 showing the parts in position to receive a blade from the magazine;

Fig. 4 is a detail view of one end of the ejector and the aligning finger protruding therefrom;

Fig. 5 is a detail view in cross-section of the line 5—5 of Fig. 1.

Describing the structure shown in the drawing, the shank 10 projecting from the handle 11 is provided with a blade platform comprising a platform 12 at about a right angle to the shank (as shown in Figs. 2 and 3), terminating in a guard 13 and slotted as indicated by the numeral 14. The guard is also provided with stops 15 and 15a which serve as abutments against which the extreme ends of the cutting edge of the blade abut when the blade is brought to shaving position, as will presently be described.

From the ends of the platform 12 two ears 16 and 16a depend, these ears serving as mounting members for the blade-retaining part of the mechanism. The blade-retaining part of the mechanism comprises a blade holder in the form of a spring clip consisting of the upper plate 17 and the lower plate 18 joined together at 19 (the entire structure being resilient), the lower plate terminating in the spring tongue 20, which for reasons hereinafter mentioned is preferably resilient—a quality which may be imparted to it by the resilience of the material of which it is composed.

The blade holder, in turn, is slidably fitted in a blade clamp 21, and from it depend two ears 22 and 22a, the ear 22 being pivotally connected with the ear 16 and the ear 22a being pivotally connected with the ear 16a, as is clearly shown in the figures, particularly Fig. 1. Ordinary rivets 23 and 23a may serve to effect the pivotal connections. It is apparent therefore that the blade holder is capable of swinging on these pivotal connections from the position shown in Fig. 2 (its shaving position) to that shown in Fig. 3 (its retracted position), or vice versa.

The blade clamp 21 just referred to is slotted as shown, and is preferably, although not necessarily, of spring material, and is provided with two lugs 45 and 45a, which in combination with the apertures 46 and 46a in the platform and into which they project constitute virtually a hinge connection between the blade clamp and the platform. The center of rotation of the blade clamp on this hinge connection and the center of rotation of the blade holder are so positioned with relation to each other and with relation to the stops 15 and 15a that, when the blade holder and blade clamp are in the retracted position shown in Fig. 3, they maintain their parallelism with each other without strain, the blade holder being released from pressure, and when they are in the shaving position shown in Fig. 2 the blade clamp is biased against the blade holder, thus exerting a clamping pressure on the blade and holding it firmly in shaving position.

The mechanism for moving the blade holder from one of the described positions to the other comprises an eccentric arrangement operating in the cam slot 24 in the spring tongue 20. The preferred mechanism comprises a lever 25 terminating at one end in a sheath or scabbard 26, which—and the purpose of which—will presently be more

particularly described, and oscillatably mounted on the stud **27**, which projects from the rivet **28** secured in the shank. The lever is provided at its other end with a stud **29** serving as a bearing for the cam following roller **30**, which in turn projects through the cam slot **24**. The cam slot is so shaped that, as the lever is rotated on the stud **27**, it forces the spring tongue **20** upwardly or downwardly, as the case may be, although the stressing of the spring tongue **20** may return the parts. When the lever is swung to the position shown in Fig. 1, which may be termed its "down" position, the plate is forced upwardly, thus swinging the blade holder to its shaving position shown in Fig. 2, with the edge of the blade **31** in contact with the stops **15** and **15***a*, which is the proper position for shaving purposes. When the lever is brought to the position shown in dotted lines in Fig. 1, which may be referred to as its "up" position, the blade holder is withdrawn to its retracted position shown in Fig. 3, in which position a blade may be injected into the blade holder as will be further described.

The lever **25** terminates at one end, as has already been described, in a scabbard or sheath **26**. This scabbard or sheath serves for the reception of the aligning finger **32**, which is made for a sliding but reasonably accurate fit in the scabbard. When the aligning finger is inserted into the scabbard to its full distance and the scabbard and magazine **33** are swung to the position shown in dotted lines in Fig. 1, the discharge orifice **34** of the magazine is in alignment with the blade slot in the blade holder and by operating the ejector slide **35** (all as is described in the patents above referred to), a blade may be injected into the blade holder, and any blade that may at the time be present in the blade holder is ejected therefrom. It is to be understood that, when this operation takes place, the parts are in the position shown in Fig. 3.

It is desirable that some provision be made to insure that the aligning finger shall not be accidentally withdrawn during the operation of transferring a blade from the magazine to the razor. This might happen, for example, when the ejector slide **35** is being retracted preparatory to ejecting a blade from the magazine and transferring it into the razor. Such effects may be avoided with sufficient certainty for practical purposes by providing the slot **36** in the scabbard and a registering slot **37** registering therewith in the aligning finger, registration of these slots taking place only when the aligning finger extends into the scabbard to its fullest extent. The two slots together, in turn, register with a projection **38** extending downwardly from the platform **12**, and this relationship of the parts causes the aligning finger to be locked against withdrawal from the scabbard.

Again, it is desirable that, when the razor is ready for shaving and during the shaving operation, the scabbard should be positively located in its down position—i. e., the position shown in Fig. 1, and that it should not be released except as the operator desires. A convenient way of providing for this contingency is to provide the scabbard with a slot **39** and the spring tongue **20** with a short lug **40**, the slot and the lug being so positioned with relation to each other that, when the scabbard is in the position shown in Fig. 1, the lug projects through the slot **39** struck out from the spring tongue **20**; and therefore being merely spring-pressed in position, it will be readily displaced by the aligning finger when the latter is inserted in the scabbard. To make the operation smooth, the aligning finger may terminate in a projection **41** beveled off as at **42**, and the edge of the slot **39** may be beveled off as at **43**. When, therefore, the scabbard is in the down position shown in Fig. 1 and free from the aligning finger, it is securely locked against rotation and can only be unlocked by the insertion therein of the aligning finger to its full length.

Another feature which assists greatly in the performance of the device as a shaving implement may be observed by reference to Figs. 2 and 3. It will be seen that, in Fig. 3 wherein the blade holder is in retracted position ready for the transfer of a blade (the blade **31** already in the blade holder being retracted from the stops), the blade holder is seated well back into the blade clamp, and that it is withdrawn clear of the lip **44** of the blade clamp formed by turning down the edge of the latter. Preferably, the clamping tension of the blade holder itself is so adjusted in manufacture that the pressure on the blade, insofar as it is produced merely by the tension of the holder itself, is merely sufficient to prevent the blade from falling out. The reason why some frictional grip on the blade is desirable even when the blade holder is in the retracted position of Fig. 3 is in order that the blade that is being ejected from the razor may be easily deposited where it is wanted, and also in order that the incoming blade shall remain located. On the other hand, too much pressure of the blade holder during the transfer of a blade from the magazine is objectionable—first, because it imposes an undue resistance to operation of the magazine ejector slide, and, second, because repeated injection of blades into the slot in the blade holder exerts a broaching action, which if repeated often enough results in weakening it and in widening the slot from its original dimensions. Still, on the other hand efficient and comfortable shaving requires that, when the blade is in shaving position, it shall be held tightly clamped and be held rigidly in place. The latter object, together with avoidance of the objectionable results arising out of too loose pressure of the blade clamp on the blade are accomplished by means of the lip **44** of the auxiliary blade clamp above referred to. Since the blade clamp is capable of only a pivotal motion on the platform **12** (being incapable of moving either backward from or forward toward the stops), and since the blade holder with its blade must oscillate on its pivotal connections **23** and **23***a*, a motion of the blade holder toward the stops results in its partially leaving the blade clamp, as shown in Fig. 2, but in doing so it encounters the lip **44** of the blade clamp which, being spring-pressed by virtue of the resilience of its material and normally making a narrow channel, presses the lip **44** downwardly against the part **17** of the blade holder and thus secures the blade itself rigidly and firmly in position. On the other hand, withdrawal of the blade from contact with the stops to the position shown in Fig. 3 effects a release of the pressure exerted by the lip **44** and thus reduces the clamping pressure on the blade to that exerted by the blade holder alone.

I have described above only the preferred form of my invention, but I wish it to be understood that these are illustrative and not limitative of my invention and that I reserve the right to make various changes in form, construction and arrangement of parts and also to make various changes in process of manufacture falling within

the spirit and scope of my invention, as set forth in the claims.

I claim:

1. A razor comprising a platform, a guard, a blade holder pivotally supported by the blade platform, the axis of the pivot being parallel with the guard, a blade clamp also pivotally mounted on the blade platform and slidably enclosing the blade holder, the pivoting axes of the blade holder and the blade clamp being so positioned with relation to each other that as the blade holder is moved toward the guard the blade clamp is biased against it and thus securely clamps the blade.

2. A razor comprising a platform, a guard, a blade holder mounted for movement toward and away from the guard, a pivotally mounted blade clamp enclosing the blade holder but capable of movement with relation thereto, the pivoting axis of the blade clamp being so positioned that as the blade holder is moved toward the guard the blade clamp is biased against it and thus securely clamps the blade.

3. A razor comprising a guard member, a blade holder supported for oscillating motion toward and away from the guard member, a pivotally mounted blade clamp, the pivoting axis of which is so located that the blade clamp is biased against the blade holder as the latter moves toward the guard and releases the blade holder as the blade holder moves away from the guard.

4. A razor comprising a guard member, a blade holder supported for oscillating motion toward and away from the guard member and provided with a slot for the reception and retention of a blade, and a pivotally mounted blade clamp the pivoting axis of which is so located that the blade clamp is biased against the blade holder as the latter moves toward the guard and releases the blade holder as the blade holder moves away from the guard.

5. A razor comprising a guard member, a blade holder supported for oscillating motion toward and away from the guard member, and a pivotally mounted blade clamp provided with a slot to accommodate the blade holder, the pivoting axis of the blade clamp being so located that the blade clamp is biased against the blade holder as the latter moves toward the guard, and releases the blade holder as the blade holder moves away from the guard.

6. A razor comprising a guard member, a blade holder supported for oscillating motion toward and away from the guard member and provided with a slot for the reception and retention of a blade, and a pivotally mounted blade clamp provided with a slot for the reception of the blade holder, the pivoting axis of the blade clamp being so located that the blade clamp is biased against the blade holder and clamps the blade as the blade holder moves toward the guard, and releases the blade holder as the blade holder moves away from the guard.

7. A razor comprising a guard member, stops near the guard member, a blade holder supported for oscillating motion toward and away from the stops and provided with a slot for the reception and retention of a blade, and a pivotally mounted blade clamp the pivoting axis of which is so located that the blade clamp is biased against the blade holder as the latter moves toward the guard, and releases the blade holder as the blade holder moves away from the guard.

8. A razor comprising a guard member, a blade holder supported for oscillating motion toward and away from the guard member and provided with a slot for the reception and retention of a blade, the razor being provided with a slot for the reception of the aligning finger of an injector magazine, means for moving the blade holder to a position at which the edge of the blade is in shaving position, and also for moving it to a position whereby the blade holder slot is in alignment with the blade ejection orifice of a magazine injector aligned with the slot in said razor, and a pivotally mounted blade clamp the pivoting axis of which is so located that the blade clamp is biased against the blade holder as the latter moves toward the guard, and releases the blade holder as the blade holder moves to said aligning position.

OCTAVIUS V. RODRIGUES.