

**March 31, 1925.**

1,531,311

C. SCHATTE

## SAFETY RAZOR

Filed May 6, 1924

Fig. 1.

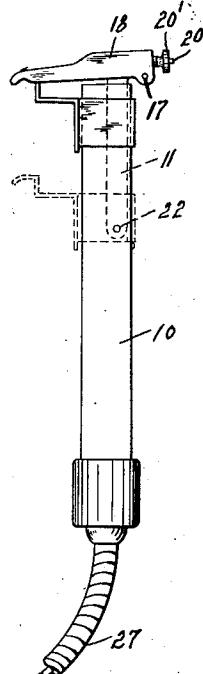


Fig. 2.

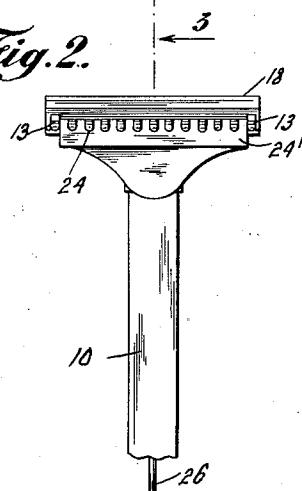


Fig. 4.

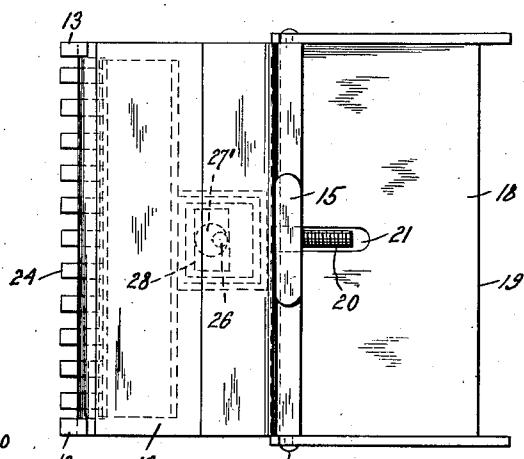
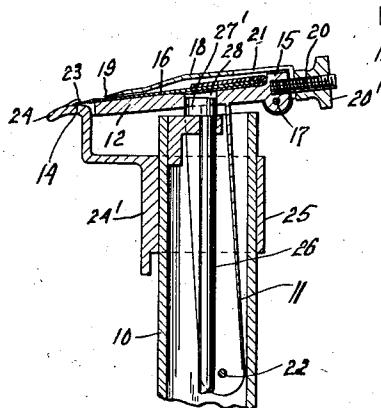


Fig. 3.



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## UNITED STATES PATENT OFFICE.

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## SAFETY RAZOR.

Application filed May 6, 1924. Serial No. 711,369.

*To all whom it may concern:*

Be it known that I, CHARLES SCHATTE, a citizen of the United States, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety Razors, of which the following is a specification.

The present invention relates to improvements in safety razors, and more particularly to power-operated razors, that is to say to that type wherein electrical means are employed for imparting reciprocating movement to the razor blade.

15 In razors of this type the blade is usually reciprocated at right angles to its cutting edge in stationary guides, which are fixed in relation to the razor guard. In other words, the blade is moved in a fixed plane parallel 20 to its surfaces, and consequently has a straight alternating motion parallel to the skin surface from which the hair is to be removed. If, therefore, the razor is held too close to the skin surface, the removal of 25 the hairs is very often painful. On the other hand if the razor is held far enough away from the skin surface, to prevent painful sensation, the shave may not be as close as desired.

30 The main object of the present invention is to overcome these difficulties, by imparting a swinging movement to the razor blade to and fro the guard.

Another object of the invention is to produce a power-operated safety razor which is simple in construction, efficient in operation, durable in use, capable of manufacture on a commercial scale, or in other words one which is not so difficult to make as to be beyond the reasonable cost of such a contrivance.

45 A further object of the invention is to provide a power-operated razor, in which the guard is shiftably mounted in relation to the blade support to permit of a convenient cleaning of the said guard.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many 55 changes may be made in the size and proportion of the several parts and details of

construction within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

60 One of the many possible embodiments of the invention is illustrated in the accompanying drawings in which:—

Figure 1 is a side elevation of a power-actuated safety razor constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a section taken on line 3—3 of Fig. 2, on a larger scale; and Fig. 4 is a top plan view of the same, also on a larger scale, its cover being 70 in its open position.

In the drawings, the numeral 10 indicates a tubular handle, into the upper portion of which is extended an arm 11, having fixed to its upper end a blade support 12, the latter being disposed outside of the said handle. This blade support is made in the form of a plate member, provided at its forward edge with two forwardly projecting lugs 13, one at each end thereof, the said lugs being undercut, as shown at 14 in Fig. 3 of the drawings, and serving, in conjunction with an upwardly projecting lug 15 on the rear of the said plate member, for confining on the said blade support a razor blade 16. Adjacent its rear edge there is pivoted, at 17, to the said blade support a cover 18, the forward edge 19 of which is adapted to rest on the razor blade 16, so as to hold the same in proper position upon the blade support. 80

Suitable locking means may be provided for keeping the cover in its closed position, the said locking means including in the case illustrated in the drawings a screw bolt 20 on the rear edge of the blade support. With the threads of this bolt are adapted to mesh 85

those of a nut 20', which is adapted to abut against the rear face of the cover 18, as clearly shown in Figs. 1 and 3 of the drawings. To permit the cover to be swung into open position (Fig. 4), the said cover is provided with a transverse slot 21, in alignment with the screw bolt 20. The arm 11 is pivoted at 22, adjacent its lower end, to the handle 10, the said pivot extending horizontally in parallel relation to the longitudinal axis of the blade support.

As appears from Fig. 3 of the drawings, the razor blade 16 projects forward of the support 12. In front of the said support and immediately below the cutting edge 23 110 of the razor blade are disposed the teeth

24 of a guard 24' for the cutting edge. This guard is fixed to a sleeve 25, which is shiftably mounted on the handle 10. The handle is of quadrangular cross section, as clearly appears from Fig. 4 of the drawings, the sleeve 25 snugly fitting the said handle so as to prevent a turning movement of the guard on the handle. If it is intended to clean the guard, the latter is shifted downwards on the handle into the position shown in dotted lines in Fig. 1 of the drawings.

In the tubular handle is rotatably mounted a shaft 26, to which is, preferably, detachably connected a flexible operating shaft 27, that is rotated by any suitable power-driven means. On the upper end of this shaft is rigidly mounted a cam 27', seated in a recess 28 in the blade support 12.

In use, the cover 18 is held in closed position shown in Figs. 1 to 3, inclusive, of the drawings, and the guard is kept as close as possible to the underface of the cutting edge of the razor blade. When the shaft 26 is rotated, the blade support 12 and the blade thereon are caused to swing on the pivot pin 22 to and fro the guard teeth 24. The cutting edge of the blade moves thus in an arc of a circle, the center of which is at the pivot pin 22. The further this pivot pin is away from the blade support, the more will the movement of the cutting edge of the razor blade approach a straight alternating motion.

The blade is positively actuated in both directions of its movement by the intermediary of the cam 27' and the recess 28, in contradistinction to devices heretofore in use, in which the blade is usually moved in one direction by a crank or similar device and by a spring in the opposite direction. By doing away with the springs in the construction herein described, a more durable device is obtained and the razor made more reliable in its operation.

It is obvious that, while herein specific means have been described for actuating the razor blade, and a specific device has been shown for confining the blade on its support, any others may be used without departing from the invention, which lies main-

ly in the provision of means for imparting a swinging movement to the razor blade.

What I claim is:—

1. In a power-operated razor, the combination with a handle, of a blade support pivoted thereto, a blade clamped to said support having its cutting edge disposed in front of said support, a guard carried by said handle disposed below the cutting edge of said blade, and power-driven means for causing said blade and said support to swing on the pivot of the latter to and fro said guard. 55

2. In a power-operated razor, the combination with a handle, of a blade support pivoted thereto, a blade clamped to said support having its cutting edge disposed in front of said support, a guard carried by said handle disposed below the cutting edge of said blade, a shaft rotatably mounted in said handle, and a cam on said shaft, said support being provided with a recess in which said cam is seated, whereby upon rotation of said shaft said blade and said support are caused to swing on the pivot of the latter to and fro said guard. 60

3. In a power-operated razor according to claim 1, said guard being shiftable on said handle in the direction of the longitudinal axis of the latter. 70

4. In a power-operated razor according to claim 2, said guard being shiftable on said handle in the direction of the longitudinal axis of the latter. 75

5. In a power-operated razor, the combination with a tubular handle, of a blade support, an arm rigidly secured to said support extending into and pivoted to said handle, a blade clamped to said support having its cutting edge disposed in front of said support, a guard carried by said handle disposed below the cutting edge of said blade, and power-driven means for causing said blade and said support to swing on the pivot of said arm to and fro said guard. 80

Signed at New York, in the county of New York, and State of New York, this 21st day of April, A. D. 1924. 85

CHARLES SCHATTE. 93