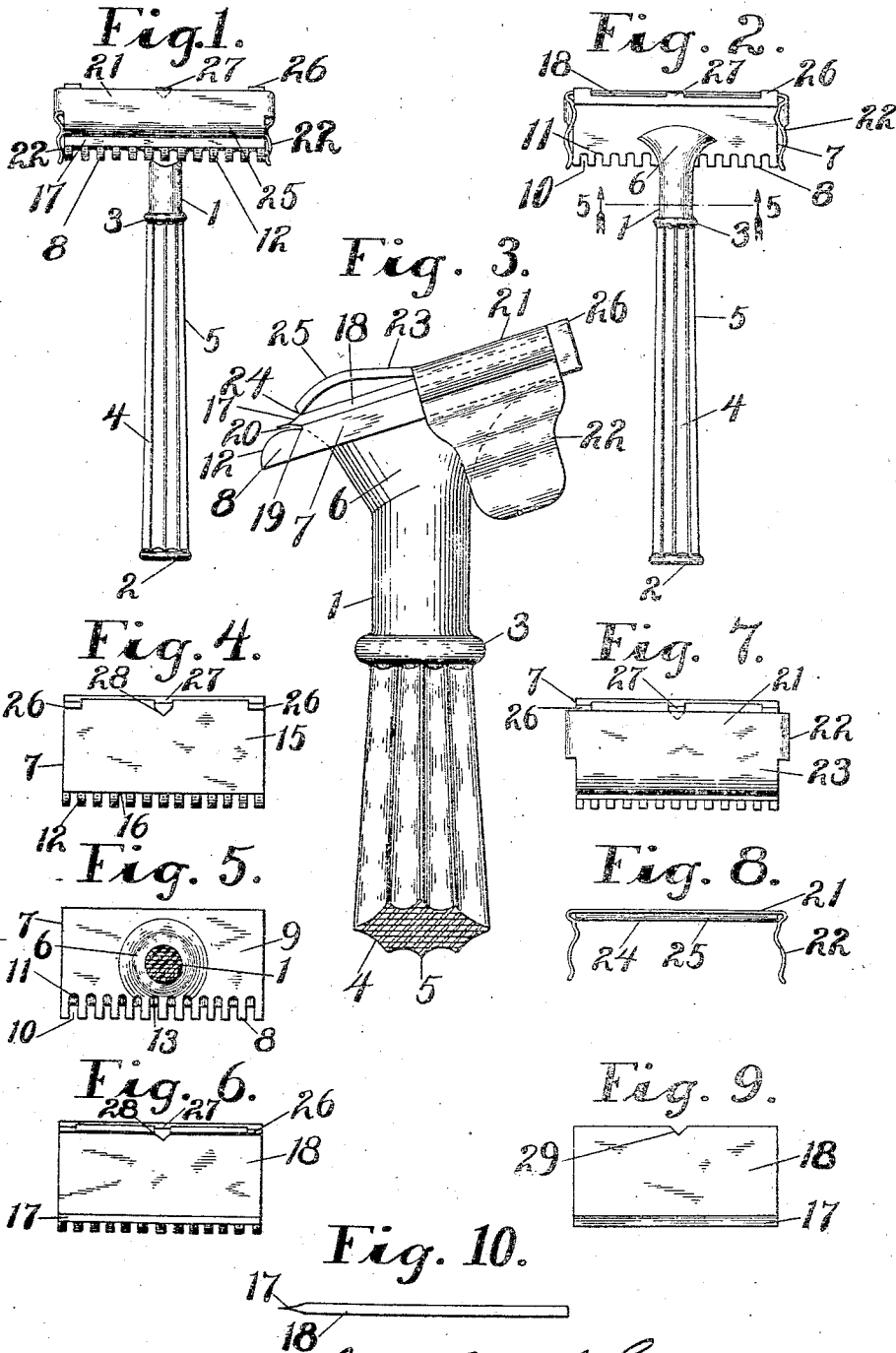


1,167,530.

Patented Jan. 11, 1916.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN RUSSELL SHEARMAN, OF INDIANAPOLIS, INDIANA.

SAFETY-RAZOR.

1,167,530.

Specification of Letters Patent.

Patented Jan. 11, 1916.

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To all whom it may concern:

Be it known that I, JOHN RUSSELL SHEARMAN, a citizen of the United States, residing in Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Safety-Razors, of which the following is a specification.

My invention relates to improvements in that class of safety razors in which the razor head is adapted to be interchangeably fitted with a series of renewable blades, as each of same is dulled by use.

The objects of my improvement are first, to provide a method of holding the razor blade which shall cause its action to be freely elastic and resilient, the same as in the case of the unconfined blades of ordinary non-safety razors, instead of being rigidly and non-resiliently secured in the razor head; second, to provide means for freely washing the lather away from beneath the edge of the razor blade, so as to avoid its accumulating and becoming compacted thereunder, when the razor is in use; third, to furnish means for the instant manual detachment and attachment of the razor blade, without the use of screws, wedges, slots or similar mechanical expedients; fourth, to furnish means for automatically tensioning the skin and presenting the hair thereon at a proper cutting angle to the razor blade while shaving; and fifth, to provide means for making the razor handle and head integral, so as to avoid the separable assembling of one to the other with its attendant expense and lost motion between these parts, as the razor becomes worn in use. I accomplish these objects by the special construction illustrated in the accompanying drawing, in which—

Figure 1 is a true front elevation, natural size, of my complete razor, showing its blade secured in position ready for use, the handle being vertical; Fig. 2 is a rear elevation, also natural size, of the same complete razor with the handle vertical; Fig. 3 is a side elevation of the same razor enlarged to three times its natural size to clearly show the construction and relation of its several parts; Fig. 4 is a top plan view, natural size, showing the razor head, with its blade and clip-cap removed therefrom; Fig. 5 is a base plan view of the same razor head with its blade and clip-cap removed, taken on the line 5—5 Fig. 2, looking in the direction of the arrows, with the handle held vertically; Fig. 6 is a

top plan view, showing the razor head with the blade laid in its proper position thereon but with the clip-cap removed to show the locking of the blade by the key-lug; Fig. 7 is a top plan view of the complete razor, with its blade clamped in position on the blade head by the clip-cap ready for use, the same as shown in elevation by Figs. 1 and 2; Fig. 8 is a rear elevation of the clip-cap removed from the razor; Fig. 9 is a top plan view of one of the interchangeable razor blades; and Fig. 10 is an end view of the same razor blade shown by Fig. 9.

Referring to Figs. 1, 2 and 3, 1 is the handle, which has been specially constructed in my invention to prevent the slipping of it from the fingers when wet, a difficulty hitherto experienced with the plain cylindric or chased cylindric handles of safety razors. The handle 1 is formed as a truncated cone, which tapers from the base ferrule 2 to the cap ferrule 3, and is completely surrounded with deep, sharp grip-flutings 4, of intaglio semi-cylindric cross section presenting a series of sharp gripping edges 5 designed to prevent its slipping from the wet hand when in use and give facility in directing and controlling the razor, which is held with the index finger engaging the cap ferrule 3, and the remaining fingers and thumb engaging the edges 5 of said grip-flutings 4. The apex of the handle is formed into the cap cone 6 upon which is integrally cast the blade head 7 for securely supporting the razor blade. The front edge of the blade edge 7 has integrally formed thereon the guard comb 8, the formation of whose teeth is clearly shown in Figs. 2, 4 and 5. The guard comb teeth 8 have their under sides formed by plane integral extensions of the under face 9 of the blade head 7 and form between them the wash pockets 10, whose base curves 11 are semicircles tangent with the inner faces of the teeth 8. The upper side of said teeth is formed by the guard faces 12, and the rear wall of said wash pockets 10 is formed by the wash curve 13, intermediately tangent to the inner ends of the curves forming said guard faces 12. The interior configuration of these wash pockets 10, is of essential practical importance in the performance of my razor, the same having been developed by experience and being designed to afford the greatest practicable facility in washing out the lather to free the under side of the razor

from compaction, and to give the maximum strength to the teeth 8, for prevention of their breakage from accidental dropping of the razor.

5 The outer face 15 of the blade head 7, as particularly shown in Figs. 3 and 4, is formed with its entire surface plane except its rear edge. The blade shoulder 16 is cut in at right angles to the front edge of said
10 outer face 15, and supports along the top edge of said shoulder the base of the under side of the beveled edge 17 of the blade 18, impingedly held on said outer face. The guard faces 12 of the guard comb teeth 8
15 curve inwardly to the blade shoulder base 19, so as to leave the open lateral lather channel 20 between the upper side of said guard faces and the underside of said beveled edge 17. This lather-channel performs
20 the double function of giving free exit to the lather and hairs from the under side of the blade 18 and through the wash pockets 10, and of leaving a free space beneath the beveled edge 17 of the blade 18, so that said beveled
25 edge, when impingedly supported along the top edge of the blade shoulder 16, shall act as a resilient beam, in the use of the razor. The blade 18 is impingedly clamped
30 upon the plane outer face 15 of the blade head 7 by the clip-cap 21, provided with integrally dependent, manually-expandable spring clips 22 at either end thereof, which securely grip, by their inward compression, the ends of the blade head 7.

35 The clip-cap 21, as clearly shown in Figs. 3 and 7, is somewhat less than half of the width of the blade 18, it being thus designed so that less than half of the blade shall be rigidly clamped down, and the remaining
40 front portion given resilient freedom of action. The attainment of this resiliency is completed by the elastic action of the tension lip 23, whose grip bevel 24 acts as a knife edged retainer, resiliently holding the top
45 edge of the base of the bevel 17 of the blade 18 down upon the top edge of the blade shoulder 16, immediately opposite thereto. The result of this arrangement is of essential importance in the practical utility of my
50 razor as it combines the three resiliencies of the preferably hollow-ground bevel 17, the body of the blade 18 and the arched tension lip 23 in a combined elastic action, giving to the blade in my safety razor the same elasticity as that of the unconfined blades of ordinary non-safety razors, and thereby con-
55 ducting to its close adhesion to the skin in shaving and efficiency in removing the hair from parts of the skin-presenting inequalities of surface. The special action of my
60 razor, which entirely differentiates it from the action of other safety razors, is primarily due to said resiliencies of its parts combined with the peculiar tensioning it gives to the
65 skin being shaved, which is accomplished by

the skin being tautly drawn under the beveled cutting edge 17 of the blade 18 by the simultaneous impinged adhesion of the specially formed upwardly curve guard faces 12 of the guard comb teeth and outwardly
70 curved tension arch 25 of the tension lip 23, which causes the skin to maintain substantially the condition of a tensioned plane between said guard faces and tension arch, presenting the hairs thereon at a sharp angle to
75 the cutting edge 17 of the blade 18 which is thus adapted to smoothly pass over the skin and shave it closer with safety than would be possible without such adhesive tensioning thereof. This resilient action of a free elastic
80 cutting edge of a razor blade upon an automatically tensioned surface of skin being shaved, I claim to be essentially new and mechanically different from the action of any razor previously devised, whether of
85 the safety or non-safety type of construction.

The back-lugs 26, formed integrally outward from the plane outer face 15 of the blade head 7, are of such height as to
90 alignedly retain from rearward motion both the blade 18 and the clip-cap 21 with the top of which the tops of said back-lugs are preferably made flush. The key-lug 27, made integrally outward from the plane
95 face 15 of a height equal to the thickness of the blade, has preferably on its front side a V-point 28, see Figs. 4, 6 and 9, adapted to engage the V-aperture 29 cut in the back edge of the blade, as best shown in Fig. 6.
100 The manner in which the clip-cap 21 impingedly holds down the blade by its spring clips 22 in locked engagement with the blade head 7 is shown in Fig. 7, and the elastic locking tendency of the spring clips 22 of
105 the clip-cap 21 is evident from their unexpanded positions shown in the detail of the detached clip-cap 22 given by Fig. 8.

The operation of my invention is as follows: The razor is assembled for use by
110 laying the blade 18 on the outer face of the blade head 7 in aligned engagement with the back-lugs 26 and key-lugs 27. The clip-cap is then engaged with one side of the blade head 7, snapped down over the other side
115 and the razor is ready for use. To take the razor apart for cleansing, either of the spring clips 22 is manually expanded, the clip-cap 21 and blade 18 removed and the parts are ready for rinsing and drying.
120 The adjustment in closeness of shaving cut is effected as follows:—When my razor is used with the handle held approximately vertical as is natural in shaving, the angle at which the head is cast on the handle
125 causes the blade to give a shave of medium closeness. When a closer shave is desired, the handle is held with its lower end away from the face; and when the closest shave obtainable is desired the blade is slightly
130

pushed forward beneath the clip-cap on the blade head, and the handle held in its normal vertical position for shaving.

I claim—

5 1. In a safety razor, a blade supporting structure including a guard provided with comb teeth each having a convexly curved surface on the upper side thereof, a blade
10 having a shaving edge projecting over and along the said teeth, and a clip cap member having the rearward portion adapted to engage the said supporting structure to hold
15 said blade in place and including a forward resilient portion engaging the forward portion of the blade and co-extensive therewith in length whereby the blade is allowed to flex.

20 2. In a safety razor, a blade supporting structure including a guard provided with comb teeth each having a convexly curved

surface on the upper side thereof, a blade having a shaving edge projecting over and along said teeth, and a clip cap member having a rearward portion substantially equal to one-half the width of said blade 25 and engaging said blade and supporting structure to retain the former in position, said clip cap member including a forward resilient portion engaging the blade adjacent the edge thereof and extending the 30 entire length of said edge whereby the blade is allowed to flex.

Witness my hand and seal, given at Indianapolis, Indiana, this 8th day of March, 1911.

JOHN RUSSELL SHEARMAN. [L. S.]

Witnesses:

KARL R. CLENDENING,
GRACE O. RIGGS.