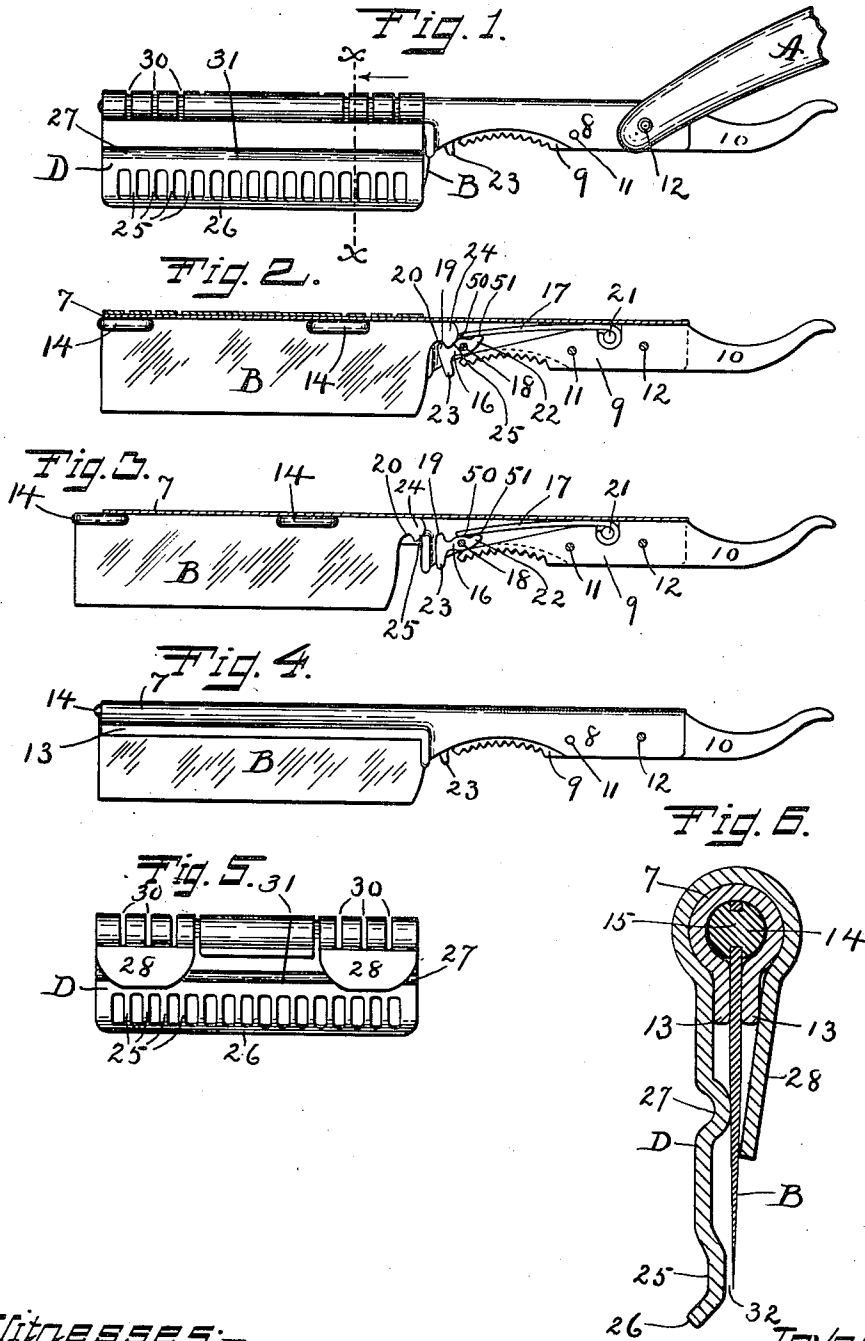


C. F. SMITH.  
SAFETY RAZOR.  
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Witnesses:-  
S. H. Clarke  
N. L. Lockwood

Inventor.  
Charles F. Smith.  
By Louis M. Schmidt.  
Atty.

# UNITED STATES PATENT OFFICE.

CHARLES F. SMITH, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO LANDERS, FRARY AND CLARK, OF NEW BRITAIN, CONNECTICUT, A CORPORATION.

## SAFETY-RAZOR.

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To all whom it may concern:

Be it known that I, CHARLES F. SMITH, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

My invention relates to improvements in safety razors and the objects of my improvements are simplicity and economy in construction and convenience and efficiency in use.

In the accompanying drawing: Figure 1 is a side elevation of my razor, a portion of the handle being broken away. Fig. 2 is a part longitudinal section and part side elevation of the same, less the handle. Fig. 3 is a similar view with the blade disengaged from the latch and part way slid out from the holder. Fig. 4 is a side elevation with the handle and guard removed. Fig. 5 is a rear elevation of my guard. Fig. 6 is a sectional view on the line *xx* of Fig. 1, on an enlarged scale.

My razor has a generally thin blade detachably secured in a tubular holder provided with a shank or tang pivoted between two scales, between which the cutting edge of the blade may be shut in when the razor is closed and adapted to removably receive a guard when open.

The handle A is of any ordinary construction. The blade B is made of a piece of sheet metal separate from the holder C and is detachably secured within the back 7 of the holder C as hereinafter disclosed. The back 7 and main portion of the tang 8 are formed from one piece of sheet metal doubled upon itself along the middle of its length with a rounded or tubular bend.

In the tang portion the two side members of the bent or folded metal are left with a space between that is thick enough for the filling piece 9 that is set in between them and which projects beyond the end of the main portion of the tang 8 to form the tip 10 of the tang as shown. The folded portion of the tang 8 is substantially U shaped in cross section and its filling piece may be secured therein by rivets 11 and 12. As shown the rivet 12 also serves as the pivot or hinge for the handle A. The sheet metal forming the back 7 is swaged into the form of a hollow rod or tube with pendent flanges

13 that are left slightly separated in order to leave sufficient space between them to insert the upper or back portion of the blade B. The said blade B is provided at the back at two points appreciably remote from one another with short cylindrical guides or lugs 14, adapted to fit the tubular portion of the back 7, formed and mounted thereon in any desired manner and of any suitable material, preferably cast on in a mold and in this case fixedly located on the blade B by means of holes in the blade that are filled with the material of the cast, forming thereby rigid and integral ties 15 for the said cylindrical guides.

The filling piece 9 of the tang 8 is cut away at its inner end and for part of its length from the said end at the top, in order to leave space for the introduction of the swinging latch 16 and its spring 17. The latch is pivoted on the pin 18 near the junction of the back and tang and is provided with a hook shaped holding knob or tooth 19 for engaging a correspondingly recessed notch 20 on the confronting end of the detachable blade B. The spring 17 is secured in any proper manner, as for example by a pin 21 and the metal of the tang 8, so that it may bear with some tension on the tail 22 of the latch with a constant tendency to force the latch into engagement with the end of the blade, as shown in Fig. 2. The latch may be forced against the spring to disengage the latch from the blade by pressing back on the projection or trigger 23. When the blade is removed the latch assumes the position shown in Fig. 3 which position is determined by the bearing points 50 and 51, on the latch, a flatness in the bearing portion of the spring and having the spring of such length as to project beyond the pivot of the latch, the latch being carried a little beyond the locking position shown in Fig. 2, so as to assure a spring tension bearing on the blade when the same is in position. The end of the blade B beyond the said recess is provided with a nose 24 having an inclined edge 25 adapted when the blade is inserted by sliding along inwardly longitudinally to engage the back side of the said hooked holding tooth 19 of the latch 16, trip the same out of the way against the tension of the spring 17 so that the blade may be slipped along ultimately to its normal position when

the said latch will automatically drop and engage the blade by means of the said hooked tooth 16 and recessed notch 20 in the manner already described. The blade 5 B is generally supported in the holder by the said cylindrical guides 14 and is held in a definite plane with reference to the holder by the said pendent flanges 13 and is held longitudinally in a definite position by 10 the said hooked latch 16 engaging the said notch 20 in the end of the blade B. The razor may be provided with any number of these detachable blades so that when one blade is dull it may be removed 15 and a sharp blade substituted therefor. In order to change blades, the trigger of the latch may be forced away from the end of the blade to disengage the hooked holding tooth 19 and the notch 20 of the latch 16 20 and blade B respectively, and sliding the blade away and out longitudinally. To put in a new blade or re-insert the old blade, the same is slid along longitudinally, the cylindrical guides within the tubular portion 25 of the back and the flat sides of the blade between the opposed pendent flanges 13, until the nose 24 of the blade B trips the latch 16 out of the way so that the blade may be brought home when the latch 16 30 finally engages with the notch in the blade in the manner already described.

I form the guard D of my razor of a flat sheet metal plate doubled over on itself longitudinally with a closed comb along the 35 edge of the front side, the teeth 25 of the comb running into the closing bar 26, which forms a straight unbroken outer edge, and also on the front side an inwardly projecting longitudinal bearing rib 27 essentially 40 along the middle of the width and two back pressure wings 28 on the back side, one at each end, of length such that the edges may press against the back of the blade at a point below the bearing point of the said bearing 45 rib, 27. The plate is cut away at the back side between the said back pressure wings 28, so that the only pressure points at the back are the said edges of the back pressure wings 28. As these back pressure wings 50 have rounded corners, the back pressure against the blade B is essentially at two points appreciably separated one on each side of the center. The doubled over portion of the plate which unites the back pressure wings of the back side with the front 55 side of the guard D is given a tubular formation, being essentially a slotted tube, to fit over the outside of the said tubular and pendent flange portion of the back 7. I 60 provide lateral flexibility to my guard D by providing slots 30 across the tubular portion adjoining the back pressure wings 28, shown in Figs. 1 and 5, as three for each wing and further by providing a saw cut 31 near the 65 center extending through the said tubular

portion of the doubled over plate and an appreciable distance across the front side, extending through the said longitudinal rib 27. The guard may be slipped on the razor longitudinally and will be held in place by 70 the resiliency of the material of the plate, the tubular portion of the guard in place over the corresponding tubular portion of the back, the edges of the back pressure wings 28 bearing against the back face of the 75 blade and the rib 27 on the front side of the guard bearing on the front face of the blade, each back pressure wing and the corresponding portion of the rib coacting essentially as independent clamping members 80 on account of the division of the guard D by the said saw cut 31. Furthermore, by providing the said bearing rib 27 appreciably remote from the said closed comb edge on the front side I am enabled to have the 85 said closed comb edge of the front side of my guard stand away clear of the blade B, as shown in Fig. 6, leaving an appreciable space 32 between the teeth 25 of the guard D and the opposed face of the blade B. 90

By closing the comb by the bar 26 I avoid exposed and projecting teeth at the outer edge of my guard. The guard may be conveniently applied to either side of the blade for right or left handed use. 95

By providing the two guides 14, and having them appreciably separated I am enabled to effectively hold the blade laterally with practically no stiffening of the back or other detrimental effect on the general 100 flexibility of the blade, and thereby produce an efficient razor of the ordinary type, with interchangeable blades, without using the guard. By casting the said guides on 105 the blade I am enabled by the use of suitable molds to obtain in a simple manner guides essentially integral with the blade and to fit without other special labor in fitting the tubular back into which they are to be 110 received. Furthermore, by having the two short guides as described I avoid the more or less difficult fitting involved in producing one long guide.

Having the guard divided into two independent clamping members as described by 115 means of the saw cut 31, the feature of flexibility of my blade mentioned is not vitiated by the application of my guard to my razor when it is desired to use the same as a safety 120 razor.

I claim as my invention:

1. In a razor having a detachable blade, a latch 16 pivoted at 18 and having bearing points 50 and 51, a trigger 23 and a tooth 19 in combination with a spring 17 over- 125 hanging the pivot 18 and adapted to bear against the said points 50 and 51 so as to hold the tooth 19 in position for engagement with the nose 24 on the blade B and to be brought into engagement with the notch 20. 130

2. In a safety razor, a guard comprising a front side having a longitudinal bearing rib remote from the edge, and a back side comprising two back pressure wings, one at 5 each end, united by a tubular back, the bearing points of the said back pressure wings being below that for the said bearing rib.

3. In a safety razor, a guard comprising a slotted tube having projecting from the 10 back edge of the slot two back pressure wings, one at each end, and from the front edge a front plate provided along the middle with a bearing rib and at the edge with a comb, said guard divided into essentially 15 two independent clamping members by a saw cut extending near the middle across

the said tubular back and across the said front plate through said bearing rib.

4. In a razor having a detachable blade in combination a blade provided with two 20 guides on the back edge appreciably separate from one another and guard divided into two essentially independent clamping members by a saw cut, each clamping member comprising a longitudinal rib on the 25 front side and a back pressure wing on the back side.

CHARLES F. SMITH.

Witnesses:

W. A. SEARLE,  
W. E. FIELDING.