

L. H. BEAN.
SAFETY RAZOR.
APPLICATION FILED SEPT. 4, 1909.

1,044,476.

Patented Nov. 19, 1912
2 SHEETS—SHEET 1.

Fig. 1.

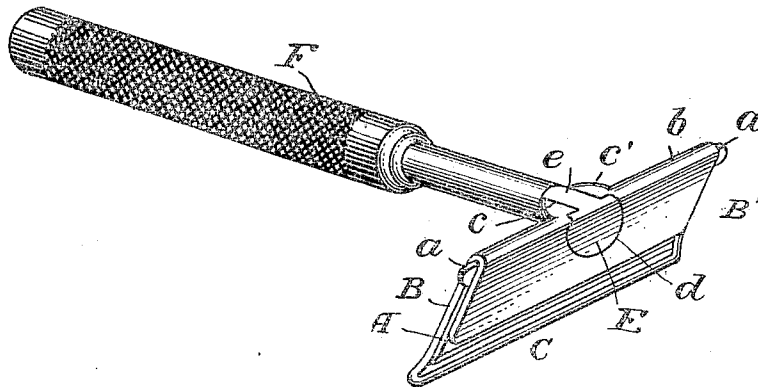
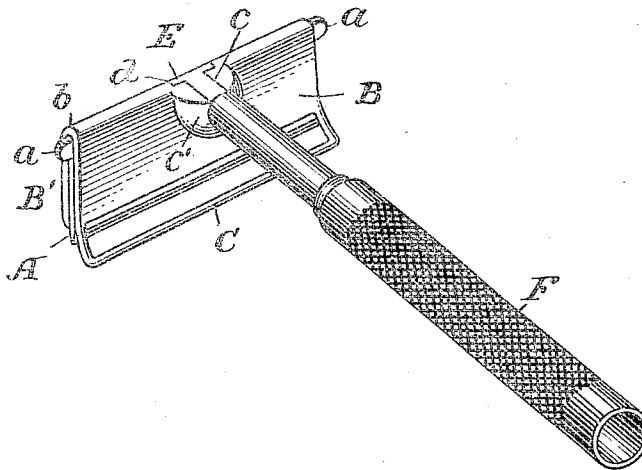


Fig. 2.



Witnesses
J. P. Hinkel
E. B. Thompson

Inventor
Leon H. Bean
by his Attorneys
Baldwin Wright

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2 SHEETS-SHEET 2

Fig. 5.

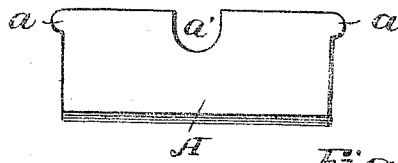


Fig. 3.

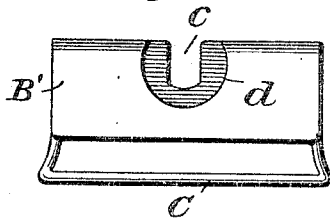


Fig. 4.

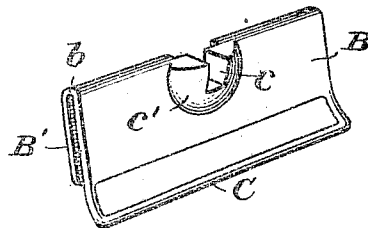


Fig. 8.

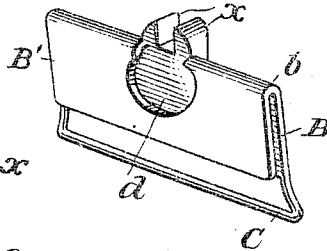


Fig. 7.

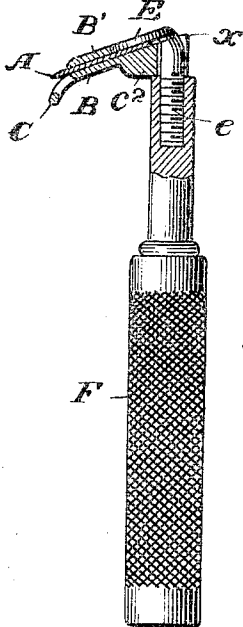


Fig. 6.

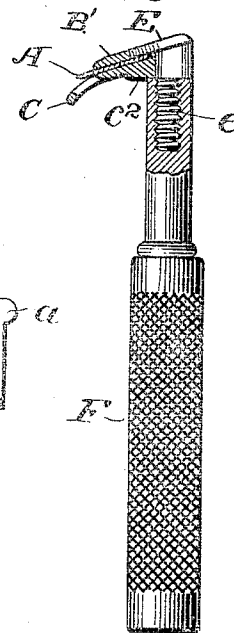
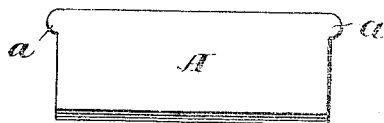


Fig. 9.



Witnesses
J. J. Lintell
C. B. Thompson

Inventor
Leon H. Bean
by his Attorneys
Baerlein & Wright

UNITED STATES PATENT OFFICE.

LEON H. BEAN, OF ATLANTIC, MASSACHUSETTS, ASSIGNOR TO LEONIDAS H. CRESS, OF BOSTON, MASSACHUSETTS.

SAFETY-RAZOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LEON H. BEAN, a citizen of the United States, residing in Atlantic, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

My invention relates to that class of safety razors in which the blade is detachably connected with its holder in order that it may be readily resharpened or replaced by a new one. In this class of razors the blades are now commonly made thin to economize metal and facilitate manufacture and thus render the cost of production so low that a blade after having been used a few times may be thrown away.

The primary object of my invention is to provide a blade holder which is simple in construction, easily manipulated and so inexpensive to manufacture that the razor may be sold at a small retail price and thus come within the reach of those who have not heretofore been able to procure a safety razor of good quality at a reasonable cost.

According to the preferred form of my invention I employ a thin steel blade of the kind now commonly used in safety razors and I provide a holder comprising two plates rigidly connected together at their rear edges and having a space or socket between them for the blade. One of the plates carries a guard of the usual kind and in the preferred construction both plates are recessed at the rear to receive a clamping jaw which engages the blade when seated in the holder and which is operated by a handle with which it has an adjustable, threaded connection. The blade in this form of the invention has a recess at the rear coinciding with the recesses in the holder and the shank of the jaw passes through this recess in the blade.

In a modified construction a recess is formed in the upper member of the holder to receive the jaw. The body of the lower member is not recessed, but rearwardly projecting lugs are formed on the back of the holder which receive the shank of the jaw. In this way a blade without a recessed edge can be employed.

The details of construction of my improved safety razor will be hereinafter fully explained and the subject matter

deemed novel will be pointed out in the 55 claims.

In the drawings:—Figures 1 and 2 are perspective views of a safety razor embodying my improvements. Fig. 3 is a top plan view of the holder detached from the handle 60 and with the blade removed. Fig. 4 is a perspective view of the under side of the holder. Fig. 5 is a plan view of the blade. Fig. 6 shows a central section through the holder and blade and illustrates the manner 65 of connecting the holder with the handle. Fig. 7 is a view similar to Fig. 6 showing a modification. Fig. 8 is a perspective view of the holder in this modified form of the invention. Fig. 9 is a plan view of the blade 70 employed in connection with the holder shown in Figs. 7 and 8.

Referring first to the preferred form of my invention shown in Figs. 1 to 6 inclusive. The blade A is made of thin steel of proper 75 thickness to hold an edge but not so thin as to be flexible, or necessarily so, as no flexible quality in the blade is required. It is formed with laterally projecting ears *a* on opposite sides near its rear edge which serve as 80 handles or finger rests when positioning the blade in its holder. It is also formed at the rear midway between its opposite sides with a recess *a'* for a purpose hereinafter explained. 85

The blade holder comprises two plates B, B' connected at their rear longitudinal edges by a flange *b* which holds the two plates a short distance apart to afford a space or socket for the blade. The under plate B. 90 carries a guard C of usual form and this plate is formed at the rear midway between its ends with a recess *c* partially surrounded on the underside of the plate by a boss *c'* having an inclined under or outer face *c''* 95 disposed at an angle of about 45° to the plane of the plate B.

The upper or outer plate B' is formed in its rear part midway between its opposite ends with a recess *d* of much greater extent 100 than the recess *c* so as to expose parts of the under plate B on the three sides of the recess *c*. The recess *d* is somewhat narrower at its rear edge than at its widest portion in front of this edge so as to prevent forward movement of the holder rela- 105 tively to the clamp when the parts are assembled.

When the blade A is placed in its holder the recess *a'* therein registers with the recess *c* and the rear edge of the blade lies against the flange *b* while portions of the blade surrounding the recess *c* are exposed in the recess *d*.

In order to firmly hold the blade in place I employ a clamping jaw E which extends into the recesses of the holder and blade and overlies that part of the blade exposed in the recess *d*. This jaw has a threaded shank *e* connected with a handle F in such manner that by merely turning the handle about its longitudinal axis the jaw may be made to firmly grip the blade and press it tightly against the under plate B without bending the upper or outer plate B' or otherwise disturbing the relation between the plates which is always fixed.

The cutting edge of the blade is brought into proper alinement with the front edges of the plates B, B' when the rear edge of the blade is pressed against the flange *b* and sidewise movement of the blade in the holder is prevented by the shank of the jaw E which enters the slot *a'*. The jaw when forced home completely fills the recess *d* and the upper or outer portion of the shank *e* is flattened on opposite sides and fills the recess *c*. In this way a close connection is made between the blade, the holder and the jaw and the blade is firmly held in place by the pressure exerted by the jaw on that part of the blade exposed within the recess *d*. Forward movement of the holder relatively to the jaw is prevented by reason of the fact that the recess *d* and the jaw which closely fits the recess are narrower at the rear than in front of this rear portion.

The blade is held at an angle to the axis of the handle by the boss *c'*, the inclined under surface of which is engaged by the upper or outer end of the handle.

The plate B constitutes the main support for the blade and the blade is clamped on this support by the jaw E. The plate B' serves as a shield or cover for the blade and to present a suitable smooth surface next the face of the user of the razor. It also provides the means before described for preventing the forward movement of the holder on the handle, but the blade may be held quite securely in place without the use of the plate B'.

When using the razor above described it is not necessary to entirely separate the holder from the handle when removing a blade as by giving a partial turn to the handle the clamping action of the jaw on the blade may be relieved and the blade withdrawn—or, if desired, by giving the handle another turn or two the jaw may be raised from the recess *d* and then the holder may be separated from the handle. The blade may be inserted in the holder before

the latter is applied to the handle or it may be inserted in the holder after the handle and the holder are assembled but, of course, before the handle has been turned to apply the clamping action. When the handle and holder are separated they may be arranged in a small space for storage or transportation. As so few parts are involved in the construction of my razor and as each part is plain and simple, it may be manufactured at small cost and the manner of using it is so obvious that no one will have the slightest trouble in using it properly.

In the modified form of the invention shown in Figs. 7, 8 and 9, the blade A, which is otherwise similar to that shown in Fig. 5, has no recess at *a'*, and the lower member B of the holder is not provided with a recess such as that indicated at *c* in Fig. 3, but in place thereof it is provided with laterally projecting lugs *x* between which the shank of the jaw E extends in the manner clearly shown in Fig. 7. Otherwise the construction of the razor is the same as that before described. In this modification it will be observed that I do away with the recess in the blade, depending mainly upon the clamping action of the jaw to prevent sidewise movement of the blade, and this clamping action is usually sufficient inasmuch as the rear edge of the blade is in frictional contact with the flange *b* which also assists in preventing sidewise movement of the blade.

I claim:—

1. A safety razor, comprising a handle, a blade-clamping jaw adjustably connected therewith and arranged at an angle thereto, and a blade holder comprising two parallel rigidly connected members of substantially the same area having a shallow blade space between them of substantially the same dimensions as the blade, one of which members is formed with a recess through which the jaw extends and presses the blade against the lower member of the holder when the handle is moved relatively to the jaw.

2. A safety razor, comprising a handle, a blade-clamping jaw adjustably connected therewith, and a blade holder consisting of two rigidly connected members, the lower one of which is recessed at the rear to receive the shank of the jaw while the upper one is formed with a relatively large recess disposed above the recess first mentioned and through which the jaw extends and presses the blade against the lower member of the holder when the handle is moved relatively to the jaw.

3. A safety razor, comprising a blade-clamping jaw, a handle having a threaded connection with the shank of the jaw, and a blade holder consisting of two rigidly con-

nected members, the lower one of which is formed at the rear with a recess to receive the shank of the jaw while the upper one is provided with a recess through which the jaw extends and presses the blade against the lower member of the holder when the handle is moved relatively to the jaw.

4. A safety razor, comprising a handle, a blade-clamping device carried thereby, and a blade holder comprising two plates rigidly connected at their rear edges and having a blade receiving space between them of substantially the same area as the blade, one of which plates has a guard rigidly connected with it and both of said plates being recessed at the rear to receive blade-clamping devices.

5. A safety razor, comprising a blade-supporting member having a recess at the rear midway between its opposite ends partially surrounded by a boss having an under surface arranged at an angle to the plane of the plate, a clamping jaw having a part overlying the member, and a shank within said recess and a handle having a

threaded connection with the shank and the upper part of which bears against the under side of the boss.

6. A safety razor, comprising a handle, a blade-clamping jaw connected therewith and a blade holder consisting of two rigidly connected plates, the upper one of which is formed with a recess extending from its rear edge forwardly and which is narrower at the rear edge of the plate than in front of said edge and through which recess the jaw extends and presses the blade against the lower member of the holder when the handle is moved relatively to the jaw, said lower member being provided with a recess to receive the shank of the jaw, and a blade fitting the holder and having a recess at its rear edge through which the shank of the jaw extends.

In testimony whereof, I have hereunto subscribed my name.

LEON H. BEAN.

Witnesses:

SUMNER ROBINSON,

BERTHA M. WHITMAN.