March 31, 1931. F. E. BRAZEAL 1,798,831

SAFETY RAZOR

Filed June 25, 1929

Fig. 1

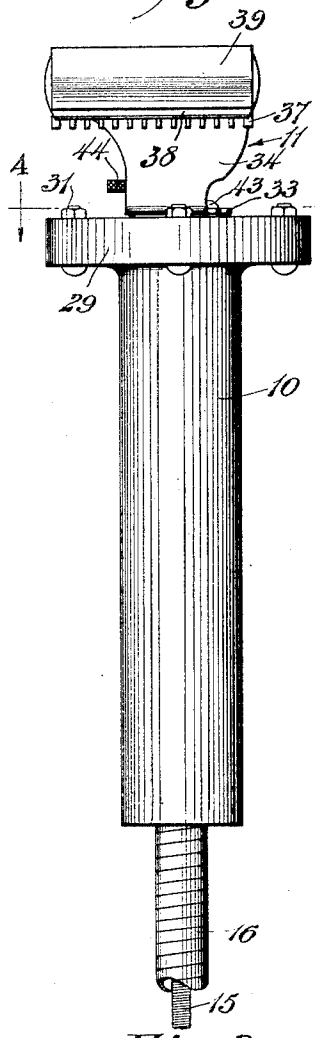


Fig. 3

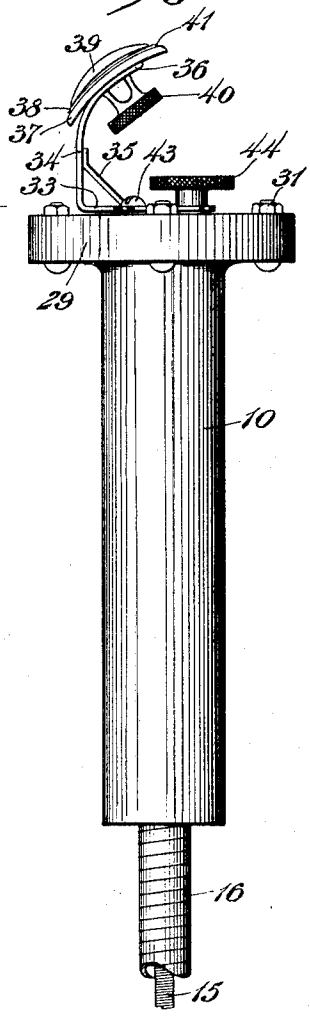


Fig. 5

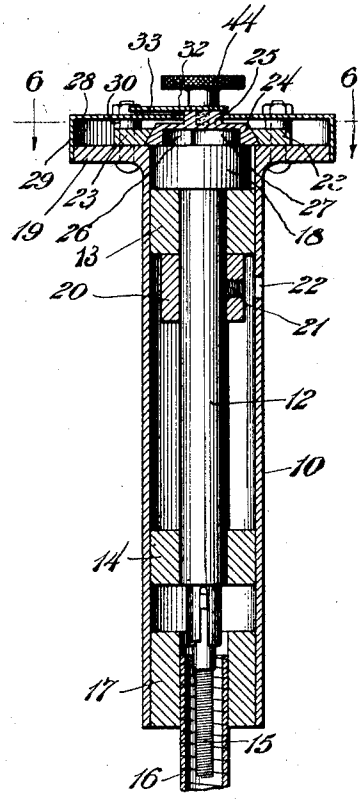


Fig. 2

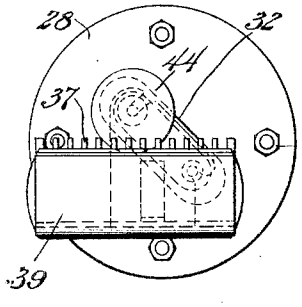


Fig. 4

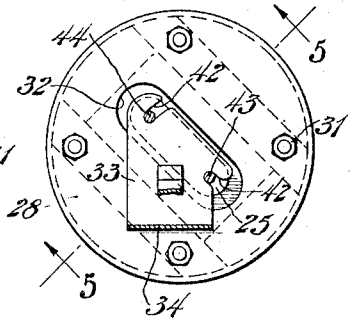
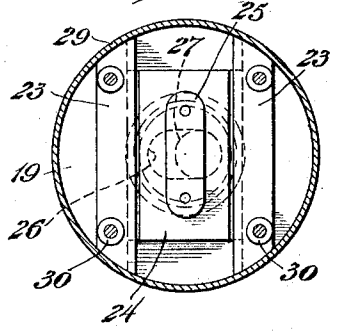


Fig. 6



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UNITED STATES PATENT OFFICE

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SAFETY RAZOR

Application filed June 25, 1929 Serial No. 373,531.

This invention relates to safety razors of the power operated type and, among other objects, aims to provide an improved razor in which the blade and its holder have a diagonal path of travel to produce a shear cut as the razor is moved over the surface to be shaved.

In the drawings:—

Fig. 1 is an elevation showing one embodiment of the invention;

Fig. 2 is a plan view thereof;

Fig. 3 is an elevation taken at right angles to Fig. 1;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4; and

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 5.

Referring particularly to the drawings, the preferred embodiment of the invention is there shown as comprising a handle 10 having reciprocating mechanism mounted at one end to which is connected an adapter 11 carrying the head of a safety razor. The device is adapted for use with the head or holder of any conventional safety razor, the particular head shown being of a well known type.

Herein, the handle 10 is shown as being tubular to receive the driving means for the head. For this purpose, a rotatable spindle 12 is journaled in suitable bearings 13 and 14 and is adapted to be rotated by means of a flexible shaft 15 connected to its lower end and extending to any source of power such as a small electric motor (not shown). The flexible shaft may be of any conventional construction, preferably having a surrounding housing or armor 16 which may be secured to a sleeve 17 in the lower end of the handle 10. The upper end of the shaft has an enlarged head 18 whose lower face abuts the upper face of the bearing 13 and whose upper face is substantially flush with the upper surface of an enlarged annular flange 19 formed at the upper end of the handle 10. A collar 20 is adjustably secured to the spindle 12 and abuts the lower face of the bearing 13 to prevent longitudinal movement of the spindle. The collar may be secured to the spindle by means of a set screw 21 which may be adjusted by inserting a suitable tool through an aperture 22 in the wall of the handle.

Slidably mounted on the flange 19 above the head 18 and between the dovetailed guides 23 is a rectangular plate or block 24 having a longitudinally disposed attaching lug 25 extending upwardly therefrom.

To impart movement to the block, a transversely extending elongated recess 26 is provided in the underside thereof and a crank pin 27 extends upwardly from the head 18 into the recess so that as the spindle 12 is rotated the block is caused to reciprocate between the guides 23. The guides 23 are removably secured to the flange 19 by bolts threaded through and extending above them. A housing is provided for the reciprocating mechanism, and is preferably in the form of an annular plate 28 having a depending peripheral flange 29 snugly fitting over the flange 19. The plate 28 is spaced above the guides and slightly beneath the upper surface of the lug 25 and is held in place by means of spacing members 30 on the bolts between the plate and the guides and nuts 31 on the bolts above the plate. The plate has an elongated opening 32 therein to permit movement of the lug 25.

The adapter 11 carrying the razor head is herein shown as being in the form of a bracket having arms 33 and 34 arranged substantially at right angles to each other and strengthened by a brace 35. As shown in Fig. 3, the free end of the arm 34 is curved inwardly as indicated at 36 and to the outer surface of the curved portion is secured a guard plate 37 and a blade 38 by means of a clamp 39 and thumb nut 40. The curvature of the bracket arm is preferably such that when the outer cutting edge of the blade, which is indicated at 41, is applied to the surface to be shaved, the handle 10 will extend substantially at right angles to said surface. The other arm 33 of the bracket is removably secured to the lug 25 by means of slots 42 in the arm coacting with a headed member 43 at one end of the lug and a clamping thumb bolt 44 at the other end.

As shown in Figs. 2 and 4, the arm 34 is

arranged at an acute angle to the lug 25 so that the cutting edge of the blade is at an angle to the path of travel of the lug. This causes the blade to produce a shearing cut as it is moved over the surface to be shaved.

In using the device, the cutting edge 41 is applied to the surface to be shaved and with the handle extending substantially at right angles to the surface, the whole device is moved ahead and the reciprocating head causes the blade to shave a path wider than the length of the blade.

Whenever the path of travel of the device over the surface to be shaved, the head will always be reciprocated at an angle to that path and produce the desired shearing cut. Furthermore, the blade is not reciprocated in its holder, which would produce friction and heat the blade to destroy its temper. Thus, it is anticipated that the device may be employed without injury to the user when travelling on trains, aeroplanes, etc.

The improved devices can be stored in relatively small cases and are very easily assembled. They can be connected to a small electric motor and will give a clean shave in considerably less time than is required by the old hand method. Moreover, the parts can be manufactured at a low cost.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described. Moreover, it is not indispensable that all the features of the invention be used conjointly, since they may be employed advantageously in various combinations and sub-combinations.

What is claimed is:—

1. In a safety razor, a handle; a rotatable spindle in the handle; a reciprocable block mounted at one end of the handle and operatively connected to be reciprocated by the spindle; a bracket removably secured to the block; and a safety razor head assembly carried by the bracket, the cutting edge of the razor blade in said head being arranged at an acute angle to the path of travel of the block.

2. A safety razor comprising, in combination, a handle; an enlarged flange at one end of the handle; a reciprocable block mounted on the flange and having an attaching lug thereon; a housing secured to the flange and covering the block, said housing having an elongated slot therein to permit the lug to extend therethrough; means for imparting movement to the block; a safety razor head secured to the lug; and a razor blade associated with the head, the cutting edge of the blade being arranged at an angle to the path of travel of the block.

3. A safety razor comprising, in combination, a tubular handle; an enlarged annular flange at one end thereof; a pair of guides secured to the flange; a rectangular block slidably mounted on the flange between the guides; said block having a transverse elongated recess in the bottom thereof; a rotatable spindle journaled within the handle and having a crank pin extending into the recess to impart reciprocating movement to the block when the spindle is rotated; an attaching lug on the block; an angle bracket having one arm secured to the lug and the outer free end curved inwardly; a guard plate, razor blade and clamping plate secured to the curved end of the bracket arm, the cutting edge of said blade being at an angle to the path of travel of the block.

4. A safety razor comprising, in combination, a tubular handle; an enlarged annular flange at one end thereof; a pair of guides secured to the flange; a rectangular block slidably mounted on the flange between the guides; said block having a transverse elongated recess in the bottom thereof; a rotatable spindle journaled within the handle and having a crank pin extending into the recess to impart reciprocating movement to the block when the spindle is rotated; an attaching lug on the block; an angle bracket having one arm secured to the lug and the outer free end curved inwardly; a guard plate, razor blade and clamping plate secured to the curved end of the bracket arm; a cover plate between the block and the bracket and having an opening therein for the lug; and a marginal depending flange on the plate fitting over the flange on the handle.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

FRANK E. BRAZEAL.