Aug. 24, 1937. J. E. DREW 2,090,786

RAZOR

Filed Oct. 10, 1936

Fig: 1.

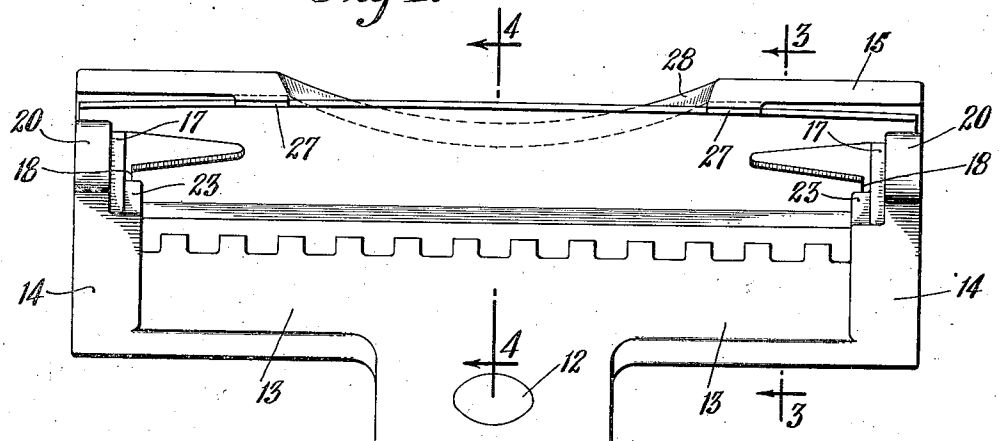


Fig: 2.

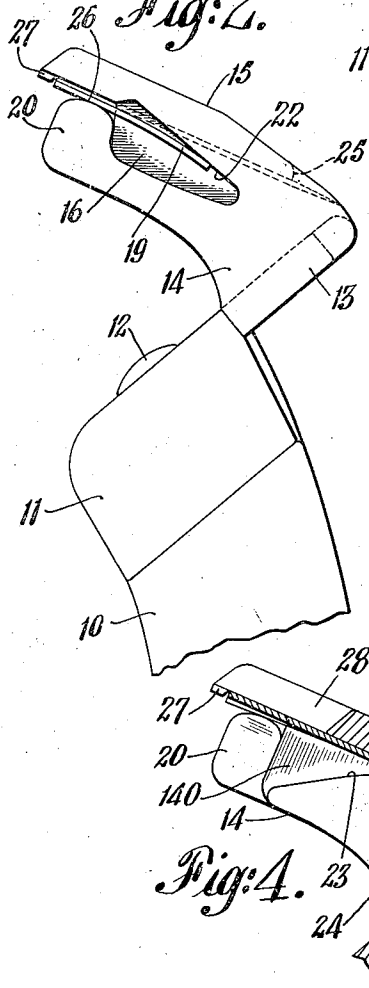


Fig: 3.

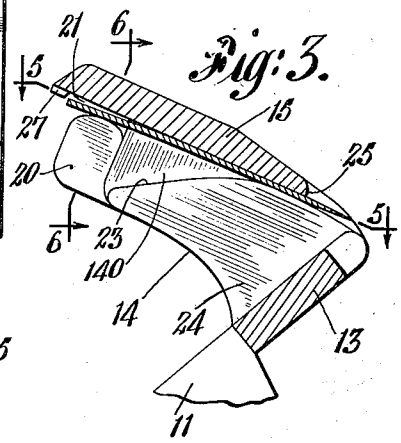


Fig: 6.

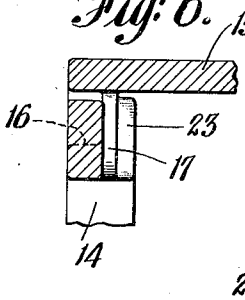


Fig: 5.

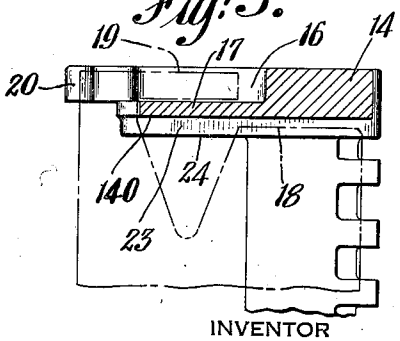


Fig: 4.

INVENTOR
JOHN E. DREW
BY
ATTORNEY

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2,090,786

RAZOR

John E. Drew, Jersey City, N. J., assignor to Durham Duplex Razor Company, Jersey City, N. J., a corporation of New York

Application October 10, 1936, Serial No. 104,925

15 Claims. (Cl. 30—64)

This invention relates to an improved construction in razors of the type in which a blade may be readily inserted and removed from a holder without disconnecting or otherwise changing the relation between parts of the holder or its handle. The improved razor is, in general, similar to that disclosed in Bigoney Patent No. 1,791,553, granted on February 10, 1931, and is particularly adapted to make use of blades of the type disclosed in Bigoney Patent No. 1,791,552, granted on February 10, 1931, or in an application Ser. No. 89,875 filed by John E. Drew on July 10, 1936. However, it is to be understood that the new razor is capable of use with other types of blades also.

A feature of the new construction is a novel arrangement of camming and retaining surfaces on the holder, by which it is better adapted to retain the blades and hold their forward or cutting edges firmly against the guard plate. This and other features of the invention will be made more clear by the detailed description of an illustrative embodiment of the same which will now be given in conjunction with the accompanying drawing in which:

Fig. 1 is an enlarged view looking toward the head of the holder from the back, showing the blade foreshortened.

Fig. 2 is a similarly enlarged view showing the head of the holder and a portion of the handle in side elevation.

Fig. 3 is a sectional view taken along line 3—3 of Figure 1.

Fig. 4 is a section along line 4—4 of Figure 1.

Fig. 5 is a view, partly in section, of a portion of one end of the head taken along the line 5—5 of Figure 3, and,

Fig. 6 is a section through one corner of the head along the line 6—6 of Figure 3.

Referring now to the drawing, the improved razor comprises a handle 10, only a portion of which is shown but which may be of any suitable form, such as that illustrated in the Bigoney Patent No. 1,791,553. At the upper end of the handle there is mounted the head of the holder, preferably having a cap 11 snugly fitting the end of the handle and secured thereto in any suitable way, as by means of a rivet 12. In the plane of the top of the cap there is an extension 13, preferably having a comb-tooth formation along its forward edge and serving as a lower guard for the cutting edge of the blade. At each end of the extension 13 there is an end wall 14 bent upwardly at right angles to the plane of the extension. An upper guard plate or cross member 15 extends across the face of the holder and is preferably connected integrally with the end walls.

In the outer surface of each of the end walls 14 there is formed a relatively deep recess 16, preferably having the configuration best shown in Fig. 2. This recess leaves only a relatively thin wall portion 17 at its base, this wall portion being capable of passing freely between the end edge 18 of the main body of the blade and the inner edge of the tongue 19 of the blade. In rear of the recess 16 each end wall 14 has an extension 20 whose upper edge is rounded and spaced slightly from the top plate 15 so as to provide a narrow passage 21 through which the tongue of the blade may be readily passed.

The portion of the end wall 14, which defines the upper boundary of the recess 16, provides a camming surface 22 arranged to cooperate with the end of the tongue 19 and cam the latter downwardly or away from the guard plate 15. As the blade is inserted in the holder, with the tongue 19 passing along the outer faces of the thin end wall portions 17, this camming action takes place. At the same time the main body of the blade, as defined by the end edges 18, slides freely along the inner surfaces 140 of the end walls 14 and rides upwardly along camming or guide surfaces formed by shelves or shoulders 23 defining the upper edges of inward projections 24 of the inner faces of the end walls. Each shoulder 23 approaches the guard plate 15 toward the forward edge of the latter so that a space only substantially equal to that of the thickness of the razor blade is provided between them at the high point of the shoulder. The point of closest approach of the shoulder 23 to the bottom of the guard plate 15 is preferably slightly in rear of the forward edge 25 of the plate, as indicated at X in Fig. 4, although, if desired, the shoulder 23 may continue to approach the plane of the under surface of the guard plate right up to the edge 25 thereof, or even slightly in advance of this.

When the blade is inserted, in the manner explained, the cam surfaces 22 bend the tongues 19 downwardly, as indicated in Fig. 2, and thus urge a portion 26 of the blade in line with the tongue 19 against the upper edge of the extension 20. A fulcrum is provided in this way at a point, such as indicated at 26, intermediate the forward end of the tongue and the rear edge of the blade so that the camming effect tends to urge the rear edge of the blade upwardly in front of a pair of projections 27 formed on the under side of the guard plate 15 at its rear edge. As illustrated in

Figs. 1, 2 and 3, the ends of the blade are pressed downwardly to a slight extent away from the member **15** but the central portion of the blade is flexed upwardly in front of the projections **27** (see Fig. 4). These projections are preferably formed at either side of a cut-away portion of the guard defined by the curved surface **28**, which enables the blade to be grasped between the thumb and forefinger.

As illustrated in the drawing, the preferred relation between the extensions **20** and projections **27** is such that the distance between the under face of the plate **15** and the nearest point on one of the extensions **20** is less than the height of a projection **27** plus the thickness of a blade. This will insure snapping of the blade in front of the projections **27** as it is pushed forwardly into place, irrespective of the fulcruming action explained above. It will be understood that this particular relation between the extensions and projections is not essential whenever the fulcruming action is provided and vice versa, although a more positive locking of the blade is brought about by the inclusion of both features.

The forward portion of the blade is forced upwardly against the guard plate **15** by means of the shoulders **23** which converge toward the under side of the plate, as explained. However, this action is assisted by fulcruming of the blade about the points X, if these high points of the shoulders are provided in rear of the edge **25**. It will be clear that in that case the downward pressure upon the tongues **19** will tend to cause the body of the blade to rock about the fulcrum X and urge the forward end of the blade firmly against the forward edge of the guard **15**. It has been found that in this way the entire length of the blade is urged more firmly against the guard edge than in prior constructions and the usual gap adjacent the center of the blade is avoided. If the high points X of the shoulders **23** are directly beneath the edge **25** or in advance thereof, the fulcruming action just explained will not take place and the shoulders themselves will be depended upon to hold the blade against the plate. In any event, however, it will be found that the downward pressure upon the tongues at the ends of the blade tends to bow the blade upwardly at its center and thus insures better engagement of the blade with the guard plate.

It will be seen that the tension applied to the blade tongues by the cam surfaces **22** may have a double fulcruming effect or one or both of these fulcrum actions may be eliminated. In any case the tension applied to the blade by the surfaces **22** will be found to assist in retaining the blade in proper relation to the guard plate.

While the preferred construction has been described in considerable detail, it will be understood that various modifications may be made without departing from the principles and scope of the invention. The terms and expressions employed herein have been used as terms of description and not of limitation.

What I claim is:

1. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said end walls having cam surfaces acting upon portions of said blade in a direction away from said guard plate.

2. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said blade and holder having portions cooperating to urge the forward part of said blade against said plate, said cooperating portions including cam surfaces on the holder acting to urge said blade away from the plate.

3. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said end walls having cam surfaces acting upon portions of said blade in a direction away from said guard plate, and having other surfaces urging said blade toward the guard plate.

4. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said end walls having surfaces cooperating with said blade and urging it toward the guard plate and having surfaces intermediate the first mentioned surfaces urging portions of the blade away from the guard plate.

5. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said end walls having cam surfaces acting upon portions of said blade in a direction away from said guard plate, and having other surfaces providing fulcrums about which said blade may be flexed.

6. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said blade having tongues extending into recesses in the outer faces of said end walls and cooperating with portions of the bounding surfaces of said recesses to urge the tongues in a direction away from said plate.

7. In a device of the class described a holder comprising a guard plate and an end wall at each end of said plate, and a blade insertable beneath said plate between said end walls, said blade having tongues extending into recesses in the outer faces of said end walls and cooperating with portions of the bounding surfaces of said recesses to urge the tongues in a direction away from said plate, said end walls having other surfaces urging said blade toward said plate.

8. In a device of the class described a holder comprising a cross-member and a pair of end walls at substantially right angles thereto, projections extending downwardly at the rear edge of said cross-member inwardly of the ends thereof, and projections on said end walls spaced from said cross-member sufficiently to allow the free insertion of portions of a blade, the ends of said projections on said end walls being spaced from said cross-member less than the height of said projections on the cross-member plus the thickness of a blade.

9. In a device of the class described a holder comprising a cross-member and a pair of end walls at substantially right angles thereto, projections extending downwardly at the rear edge of said cross-member inwardly of the ends thereof, projections on said end walls spaced from said cross-member sufficiently to allow the free insertion of portions of a blade, the ends of said projections on said end walls being spaced from said cross-member less than the height of said projections on the cross-member plus the thick-

ness of a blade, and surfaces on said end walls adapted to cam portions of the blade against said projections on the end walls.

10. In a device of the class described a holder comprising a cross-member and a pair of end walls at substantially right angles thereto, projections extending downwardly at the rear edge of said cross-member inwardly of the ends thereof, projections on said end walls spaced from said cross-member sufficiently to allow the free insertion of portions of a blade, the ends of said projections on said end walls being spaced from said cross-member less than the height of said projections on the cross-member plus the thickness of a blade, and surfaces on said end walls arranged to engage the ends of a blade and urge the forward portion thereof against said cross-member.

11. In a device of the class described a holder comprising a guard plate and a pair of end walls at substantially right angles thereto, shoulders formed on the inner surfaces of said end walls arranged to urge the forward portion of a blade against the forward edge of said guard plate, blade locking projections at the rear edge of said plate, and projections on said end walls arranged to urge the rear edge of a blade into engagement with said locking projections.

12. In a device of the class described a holder comprising a guard plate and a pair of end walls at substantially right angles thereto, shoulders formed on the inner surfaces of said end walls arranged to urge the forward portion of a blade against the forward edge of said guard plate, cam surfaces on said end walls arranged to urge other portions of said blade away from said plate, blade locking projections at the rear of said plate, and projections on said end walls arranged to urge the rear edge of a blade into engagement with said locking projections.

13. In a device of the class described a holder comprising a guard plate and a pair of end walls at substantially right angles thereto, shoulders formed on the inner surfaces of said end walls arranged to urge the forward portion of a blade against the forward edge of said guard plate, blade locking projections at the rear edge of said plate, projections on said end walls arranged to urge the rear edge of a blade into engagement with said locking projections, and cam surfaces intermediate said shoulders and said projections on the end walls arranged to urge portions of said blade away from said plate.

14. In a device of the class described a holder comprising a guard plate and a pair of end walls at substantially right angles thereto, a blade having a main body insertable between said end walls and tongues spaced from said body arranged to cooperate with the outer faces of said end walls, cam surfaces on said end walls arranged to cam said tongues in a direction away from said plate, and means on said holder for urging the forward and rear portions of said blade toward the plate.

15. In a device of the class described a holder comprising a guard plate and a pair of end walls at substantially right angles thereto, a blade having a main body insertable between said end walls and tongues spaced from said body arranged to cooperate with the outer faces of said end walls, cam surfaces on said end walls arranged to cam said tongues in a direction away from said plate, and surfaces on said end walls in rear of and in advance of said cam surfaces for urging said blade toward said plate.

JOHN E. DREW.