April 25, 1933. H. J. GAISMAN 1,905,699

SAFETY RAZOR

Filed March 7, 1930 2 Sheets-Sheet 1

Fig. 1

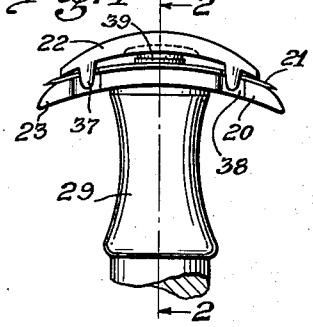



Fig. 2

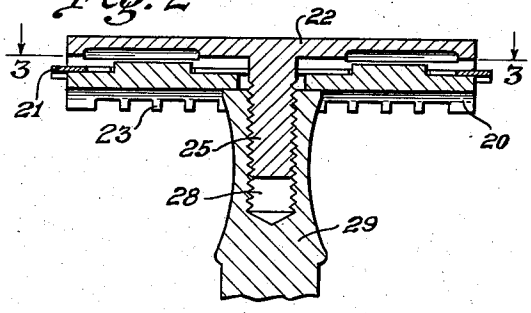



Fig. 6

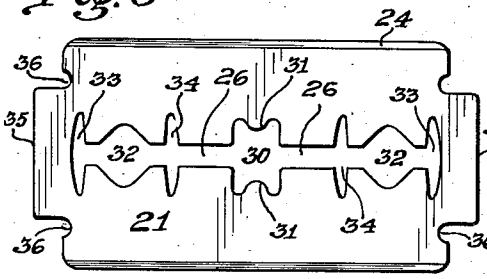



Fig. 3

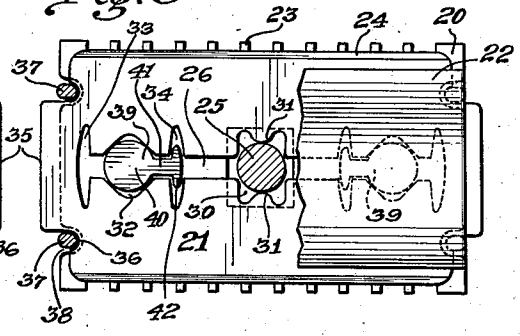



Fig. 5

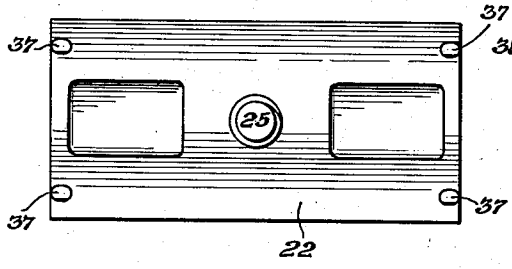



Fig. 4

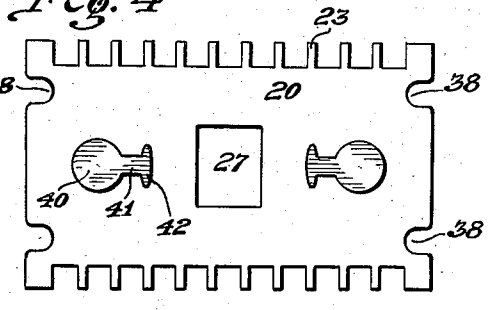



Fig 7

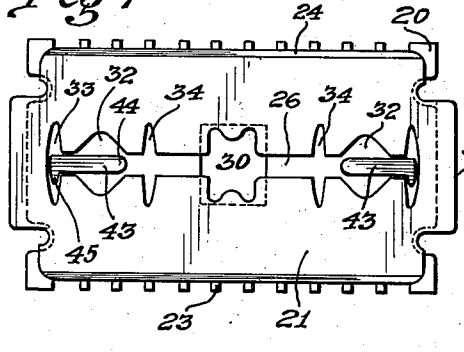
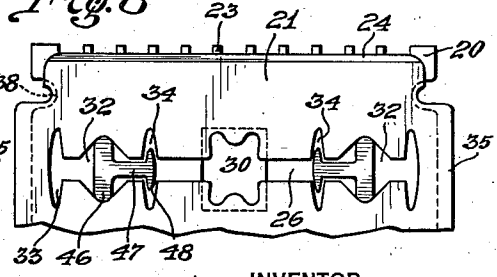



Fig. 8




INVENTOR
H. J. Gaisman
BY
Sigmund Herzog
ATTORNEY

April 25, 1933. H. J. GAISMAN 1,905,699

SAFETY RAZOR

Filed March 7, 1930 2 Sheets-Sheet 2

Fig. 10

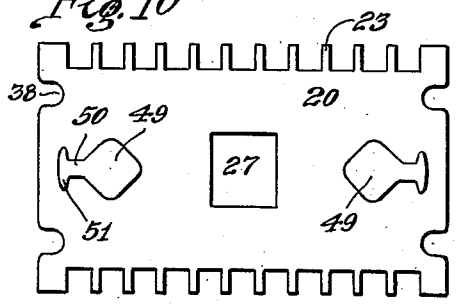



Fig. 9

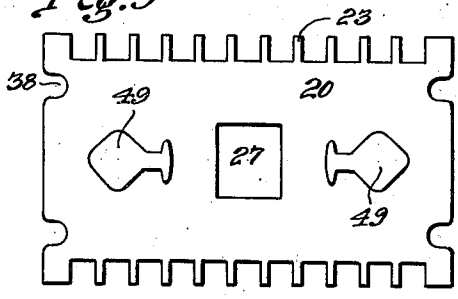



Fig. 11

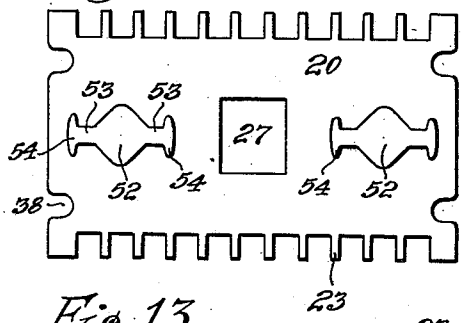



Fig. 12

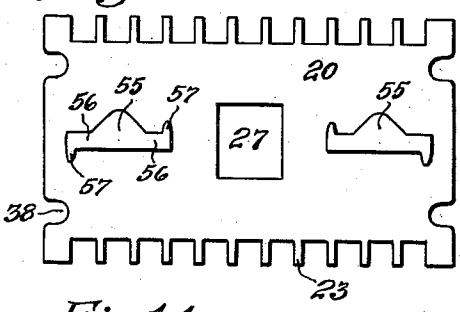



Fig. 13

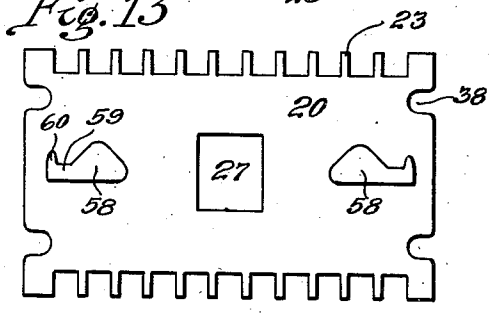



Fig. 14

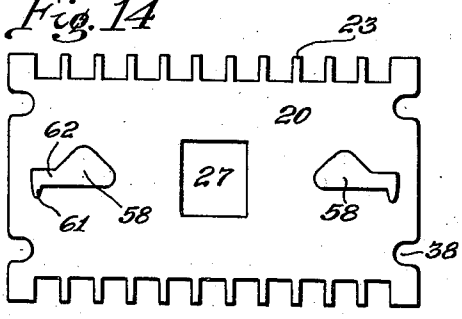



Fig. 15

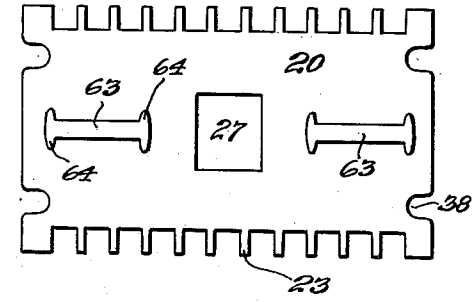
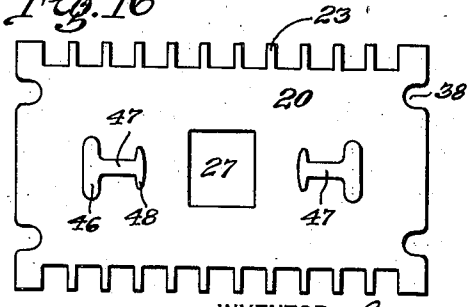



Fig. 16




INVENTOR
H. J. Gaisman
BY
Sigmund Herzog
ATTORNEY

Patented Apr. 25, 1933 1,905,699

# UNITED STATES PATENT OFFICE

HENRY J. GAISMAN, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO GILLETTE SAFETY RAZOR COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF DELAWARE

## SAFETY RAZOR

Application filed March 7, 1930. Serial No. 434,047.

The present invention relates to that class of safety razors in which two clamping members, a guard member and a blade backing member, are provided, and a thin flexible blade is clamped between the guard and backing members to retain the cutting edges of the blade in shaving relation to the guard teeth. The invention pertains more particularly to that type of the above-mentioned class of safety razors wherein the blade cooperates with one of the clamping members to retain the blade in shaving relation thereto, and the blade also cooperates with the other clamping member to retain the latter in proper relation to the blade for shaving purposes. A safety razor of this type is described in U. S. Letters Patent #1,633,739, granted to me on June 28, 1927.

The main object of the present invention is to so design the blade positioning means on one of the clamping members of the razor that its location may be varied, at will, by the blade holder manufacturer so that, in case an unauthorized blade manufacturer should produce blades having apertures at corresponding location to said positioning means that have been made by the original manufacturer at one period, the latter manufacturer, by shifting or varying the contour of the positioning means at another period, would preclude the use in the holder of such unauthorized blades, because the apertures would not register with or fit the last-mentioned positioning means.

A further object of the invention is to provide a simple and efficient blade holder of the type mentioned which is capable of manufacture on a commercial scale, or in other words one which is not so difficult to make as to be beyond the reasonable cost of such a contrivance.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is an end view of a razor constructed in accordance with the present invention; Fig. 2 is a section taken on line 2—2 of Fig. 1; Fig. 3 is a section taken on line 3—3 of Fig. 2, part of the backing member being shown in plan view; Fig. 4 is a top plan view of the guard member of the improved razor; Fig. 5 is a bottom plan view of the blade backing member of the construction; Fig. 6 is a plan view of the improved blade; Figs. 7 and 8 are plan views of the blade and guard members, showing blade positioning means of contours differing from those illustrated in Figs. 1 to 5, inclusive, of the drawings; and Figs. 9 to 16, inclusive, are top plan views of guard members having embodied therein blade positioning means of still other contours and locations.

Referring now first to Figs. 1 to 6, inclusive, of the drawings, the numeral 20 indicates the guard member, the numeral 21 the blade, and the numeral 22 the blade backing member of a razor, so organized that the said blade may be clamped between said members. The guard member is shown of the variety having guard teeth 23 in its opposite longitudinal edges, along which the cutting edges 24 of the blade may extend in an ordinary way for shaving. Any suitable means may be provided for causing the blade to be clamped between the guard member and the backing member. In the example illustrated in the drawings, the backing member is provided with a screw-threaded pin 25, which is adapted to pass through an aperture 26 in the blade and through an opening 27 in the guard member, and to engage a screw-threaded socket 28 in a handle 29, to clamp the parts together for shaving. The opening 27 is of a size and configuration that the pin 25 is adapted to pass therethrough without positioning the blade backing member in relation to the guard member.

The aperture 26 in the blade is, generally speaking, in the form of a central longitudinal slot, provided with a central transverse enlargement 30, through which the clamping pin 25 is adapted to pass, the said enlargement being preferably so shaped that some of its edge portions, for instance those designated by the numerals 31, contact with the said clamping pin to prevent shifting of the blade transversely on the backing member. On either side of the said central enlargement the slot is provided with a further transverse enlargement 32, the last-mentioned enlargements being disposed intermediate the ends of the slot and being adapted to receive each a cylindrical positioning stud of the blade holders of the ordinary Gillette type of safety razors. The enlargements 32 are also adapted to receive portions of aligning means or positioning studs of the razor construction herein described, as will hereinafter appear. At each end of the slot in the blade is provided a transverse enlargement 33, a similar enlargement 34 being provided between each enlargement 32 and the central enlargement 30. It is observed that the enlargements 33 and 34 are slit-like in contour and are located on opposite sides of the enlargements or openings 32. The slit-like enlargements form tongues having recesses which comprise the enlargements or openings 32 in their free ends. At the transverse edges of the blade are formed projections 35, to facilitate handling of the blade in assembling the elements of the razor, and in each transverse edge are formed, adjacent the respective projection 35, two notches, recesses or openings 36, in which are adapted to be seated lugs 37 on the backing member 22, said lugs fitting snugly the said notches, recesses or openings, whereby the blade is adapted to be positioned on the backing member. When the elements are assembled, the said lugs extend into notches, recesses or openings 38 in the transverse edges of the guard member 20. The last-mentioned notches, recesses or openings, however, are of a size that the said lugs do not contact with the edges thereof, so that the lugs do not connect the backing member with the guard member.

From the upper face of the guard member project positioning studs or aligning means 39, comprising, in the construction illustrated in Figs. 1 to 5, inclusive, of the drawings, a cylindrical body portion 40, a neck portion 41 and a head portion 42. The body portions are adapted to be extended through the enlargements 32 of the slot in the blade, as shown in Fig. 3 of the drawings. The neck portions 41 extend along the longitudinal central portion of the guard member 20 and are adapted to be received by the slot proper in the blade, while the head portions 42 extend transversely of the guard member 20 and are adapted to be extended into the transverse enlargements 34 of the blade aperture.

When the parts are to be assembled for use, the blade is first placed upon the guard member so that the aligning means or positioning studs 39 extend through the blade aperture. Inasmuch as the cylindrical body portions of the studs contact with the edges of the enlargements 32 in the blade aperture, the blade is positioned in proper relation to the guard. The neck portions 41 and head portions 42 of the studs aid in positioning the blade. The backing member 22 is then applied to the blade so that its clamping pin 25 passes through the central enlargement 30 in the blade aperture and the lugs 37 enter the notches 36 in the transverse edges of the blade, whereby the backing member, by means of the blade, is properly positioned with respect to the guard member. When then the handle is screwed upon the clamping pin, the elements of the razor are firmly clamped together for shaving. As stated above, the lugs 37 and the pin 25 do not cooperate with the guard member to retain the backing member in operative relation with respect to the guard member, but the blade forms the connecting link between the backing and guard members for properly positioning the elements of the blade holder.

The main feature of the invention is that the positioning studs on the guard member may be formed at one period to engage certain portions of the aperture 26 in the blade, whereas at another period said positioning studs may be either shaped or located in positions to be engaged by any other portions of the said aperture to retain the blade on the blade holder when the guard and backing members are clamped together against the blade. By means of the arrangement described, in case an unauthorized manufacturer of the blades should produce blades having apertures that correspond in location to the positioning studs on the guard that have been made by the original manufacturer at one period, the latter manufacturer, by either shifting the position or differently shaping the positioning studs on the guard at another period, would preclude the use in the holder of such unauthorized blades, because the apertures would not register with the last-named positioning studs and the blade would not be retained on the holder because the positioning studs would not fit into the apertures.

In Figs. 7 to 16, inclusive, a variety of shapes and locations of the positioning studs have been illustrated, all of which fit the blade shown in Fig. 6 of the drawings.

As appears from Fig. 7 of the drawings, each positioning stud 43 comprises a body portion 44 extending longitudinally and centrally on the guard member, and a head 45

projecting laterally from one of the ends of the said body portion. The body portion fits into the slot and one of the enlargements 32 thereof and the head 45 is adapted to be seated in the adjacent transverse enlargement 33 of the blade slot.

Figs. 8 and 16 illustrate positioning studs comprising each a transversely extending base portion 46 fitting into one of the slot enlargements 32, a neck portion 47 adapted to be seated in the slot proper, and a transversely extending head 48 which is adapted to be received by the adjacent transverse enlargement 34 in the blade slot.

The modification illustrated in Fig. 9 differs from the one shown in Fig. 3 only in that the body portion 49 of the positioning stud has a transverse cross-section corresponding to the contour of a slot enlargement 32 in the blade.

The modification shown in Fig. 10 differs from the one shown in Fig. 9 only in that the neck portions 50 of the studs with the heads 51 thereon extend in a direction opposite to that shown in Fig. 9 of the drawings, so that the heads 51 are adapted to pass through the enlargements 33 of the blade slots.

The positioning studs shown in Fig. 11 of the drawings comprise each a body portion 52 adapted to be seated in an enlargement 32 of the blade slot, and from this body portion extend in opposite directions in the longitudinal center line of the guard necks 53, each of which is provided with a transversely extending head 54. The necks are adapted to pass through the slot proper and the heads 54 through the transverse enlargements 33 and 34 of the blade slot.

The positioning studs illustrated in Fig. 12 of the drawings comprise each a body portion 55, from which extend in opposite directions, in the longitudinal center line of the guard, necks 56, each of which is provided with a laterally extending head 57. The body portion 55 is adapted to be seated in an enlargement 32 of the blade slot without completely filling the same, while the necks 56 are adapted to be seated in the slot proper. The heads 57 extend in opposite directions and are adapted to be received by the lateral slot enlargements 33 and 34.

The positioning studs shown in Fig. 13 of the drawings comprise each a body portion 58, a neck portion 59 which extends in the longitudinal center line of the guard member, and a laterally projecting head 60 on said neck. The modification illustrated in Fig. 14 of the drawings differs from the one illustrated in Fig. 13 in that the lateral heads 61 on the neck portions 62 thereof extend in directions opposite to those shown in Fig. 13. The body portions of the positioning studs shown in Figs. 13 and 14 are adapted to be seated in the slot enlargements 32, the neck portions thereof in the slot proper, and the lateral heads in the transverse slot enlargements 33.

The positioning studs illustrated in Fig. 15 comprise each a body portion 63 extending in the longitudinal center line of the guard member, said body portion being provided on either end with a transversely extending head 64. The body portions of these positioning studs are adapted to be extended through the slot proper in the blade and through the enlargements 32, while the heads 64 are adapted to be seated in the transverse slot enlargements 33 and 34.

From the foregoing it appears that some of the positioning studs comprise body portions which include aligning means and also excluding means, the latter means being adapted to exclude or prevent the unauthorized use of a blade which cannot be fitted over or receive all portions of the stud or studs. The studs may fill or partly fill the slot enlargements 32 and thereby position the blade on the guard member. Again, others, such as for instance those illustrated in Figs. 7 and 15, do not have body portions of this type. In the latter constructions those sections of the studs which are located in the longitudinal center line of the guard fit the slot proper, that is to say, bear against the edges of the slot, while the heads thereof, extending transversely of the guard, fit some of the transverse enlargements of the slot. The blade is thus prevented from shifting on the guard both transversely and longitudinally.

It is obvious that many other forms of positioning studs may be designed to fit the blade aperture without departing from the invention, which lies mainly in the provision, shaping and locating of the positioning studs to fit a blade aperture which indicates the origin of the blade.

Attention is called to the fact that the blade aperture is arranged in the blade symmetrically with respect to both the longitudinal and transverse axes thereof. This feature is not essential but it is desirable in view of the fact that it allows the blade to be used in any one of its four possible positions on the blade holder, no matter which one of the several positioning studs herein described be employed on the guard member. The blade construction is not herein claimed since it formed the subject matter of my U. S. Letters Patent No. 1,876,906, granted September 13, 1932, on an application copending herewith.

What I claim is:

1. A safety razor including cap and guard members and an interposed blade of substantially oblong contour, said blade provided with cutting edges along its longer sides, said blade having an elongated slot intermediate the cutting edges thereof terminating in

transverse enlargements adjacent the ends of the blade, the end margins of the slot forming with the ends of the blade elongated flexing portions or hinges having at least the major portions thereof beyond the ends of the cutting edges of said blade, longitudinally elongated aligning means on one of said members extending longitudinally of said blade and member, and engaging the longitudinal edges of the elongated slot, said means having excluding portions beyond and arranged transversely of said aligning means and extending into the transverse enlargements of said blade, the other member having means to engage the ends of the blade and hinges thereof, whereby the blade and last-named member are maintained in alignment.

2. A safety razor including cap and guard members and an interposed blade of substantially oblong contour, said blade being provided with cutting edges along its longer sides, said blade having an elongated slot intermediate the cutting edges thereof and terminating in transverse enlargements adjacent the ends of the blade, said blade having projecting end portions narrower than the cap member and the blade between its cutting edges, the end margins of the slot forming with the blade end portions elongated flexing portions or hinges having at least the major portions thereof beyond the ends of the cutting edges of the blade, said guard having longitudinally elongated aligning means extending longitudinally of said guard and blade and engaging the edges of said blade slot, said guard having excluding means beyond and arranged transversely of the aligning means and extending into the transverse enlargements of the blade, said cap member having means engaging the ends of the blade and the longitudinal margins of the narrow blade end portions.

3. A safety razor head, including cap and guard members having co-operating blade flexing and blade clamping surfaces, and a flexible blade having cutting edges, said blade being interposed between said members and comprising blade sections held in spaced relation by flexing hinges, the adjacent portions of said blade sections being provided intermediate their end and central portions with a plurality of resilient tongues having their free ends recessed to form blade-locating openings, said guard member having studs engaging the openings at the ends of the tongues to align the blade and guard, said studs having excluding portions extending longitudinally beyond the recesses and transversely about portions of the free ends of said tongues, and co-acting means on said cap and blade to align the same.

4. In combination cap and guard members having an interposed flexible blade, co-acting means on said cap and guard to flex said blade transversely, said blade having a long slot located intermediate the edges thereof, the edges of said slot having shallow recesses and deep recesses spaced from said shallow recesses and at least some of said deep recesses being located at the end of the blade slot, studs on the guard engaging the shallow recesses to align the blade and guard, said studs also having portions comprising excluding means extending longitudinally beyond the shallow recesses and transversely of the blade slot and into at least some of the deep recesses at the end of the blade slot, co-acting means on the cap and blade to align the same, and means to draw said cap and guard together into flexing and clamping relation on said blade.

5. A razor blade clamping and positioning member having spaced studs on its blade engaging face, each of said studs having blade aligning portions and other portions comprising a plurality of blade excluding means less extensive transversely than the aligning portions, said excluding means being located in spaced relation from said aligning portions, said aligning means and excluding means being connected by a long narrow neck portion, said aligning means and said excluding means both extending transversely of said narrow neck portion and said excluding means being located at the ends of the neck portions.

6. A safety razor comprising two clamping members having a blade interposed between them, said blade having a central longitudinal slot provided intermediate of its ends and the central portion with enlargements, positioning means on one of said members engaging said enlargements, said blade slot being furthermore provided with slit-like enlargements on both sides of said first-named enlargements, said positioning means being formed with extensions longitudinally of the clamping member and extending longitudinally of the blade slot, said extensions having transverse portions extending into some of the slit-like enlargements, and means to align the blade and other clamping member.

HENRY J. GAISMAN.