H. J. GAISMAN.

RAZOR.

APPLICATION FILED OCT. 21, 1911.

1,088,220. Patented Feb. 24, 1914.

Fig. 1.

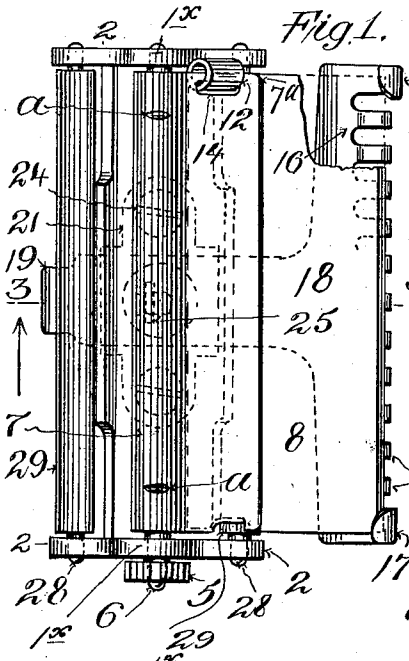


Fig. 4.

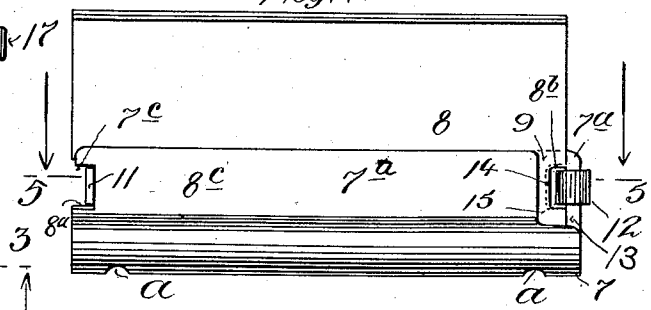


Fig. 5.



Fig. 6.

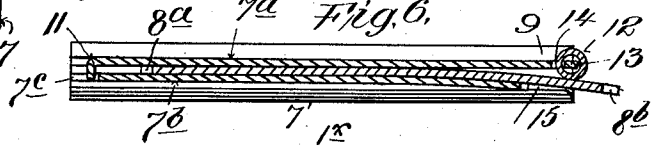


Fig. 2.

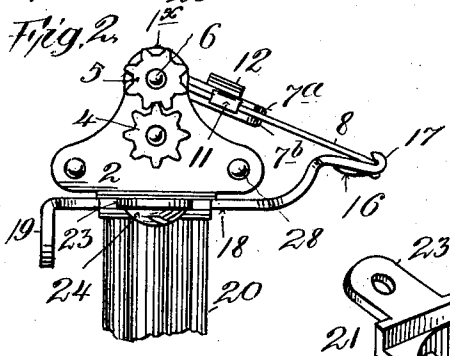


Fig. 3.

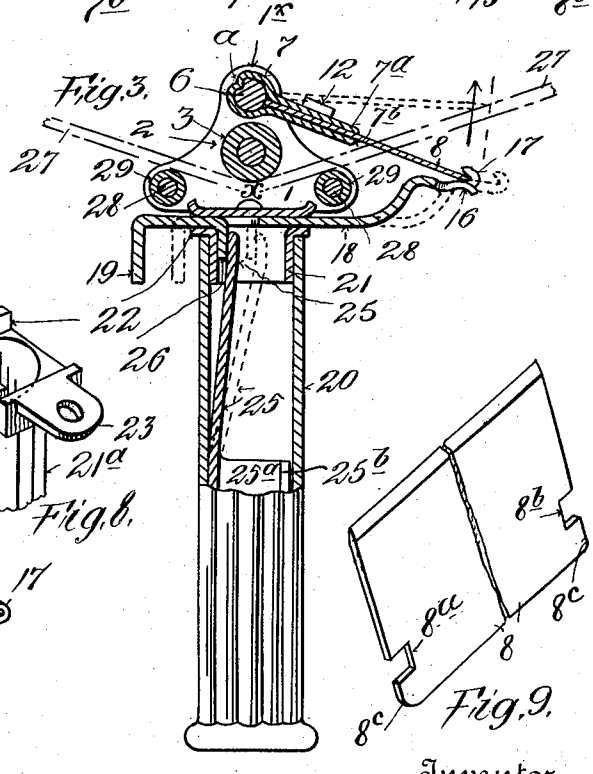


Fig. 7.

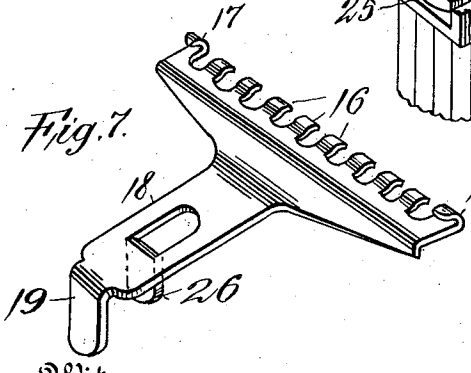


Fig. 8.

Fig. 9.

Witnesses:

W. M. Benjamin

Marie F. Wainright.

Inventor

Henry J. Gaisman.

By his Attorney

T. F. Bourne

UNITED STATES PATENT OFFICE.

HENRY J. GAISMAN, OF NEW YORK, N. Y., ASSIGNOR TO AUTO STROP COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RAZOR.

1,088,220. Specification of Letters Patent. Patented Feb. 24, 1914.

Original application filed July 13, 1906, Serial No. 326,026. Divided and this application filed October 21, 1911. Serial No. 655,864.

To all whom it may concern:

Be it known that I, HENRY J. GAISMAN, a citizen of the United States, and resident of New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Razors, of which the following is a specification.

This application is a division of my application for patent on safety razor filed July 13, 1906, Serial No. 326,026, and has reference to the blade and the blade support and holder shown therein, whereby the blade is particularly adapted for ready insertion and removal into and from its holder, and will be properly retained in the holder.

Details of my invention will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a plan view, partly broken, of a safety razor embodying my improvements; Fig. 2 is a side view thereof; Fig. 3 is a vertical section, substantially on the line 3, 3, in Fig. 1; Fig. 4 is a detached face view of the blade holder and blade; Fig. 5 is a section on the line 5, 5, in Fig. 4; Fig. 6 is a similar view showing the blade partly detached from the holder; Fig. 7 is a perspective view of the guard; Fig. 8 is a detail perspective view of the guideway for the guard; and Fig. 9 is a detail perspective view of the blade.

Similar numerals of reference indicate corresponding parts in the several views.

In the drawings the frame of the razor is indicated as having a base portion 1 and upturned end portions 2, between which end portions a roller 3 is journaled and it carries at one end a gear 4 that meshes with a gear 5 secured to the blade holder. In the example illustrated the gear 5 is secured to a shaft 6 that carries the blade holder 7. The blade holder is shown in the form of sheet metal folded around shaft 6 and having parallel outwardly-extending jaws 7^a, 7^b which receive the blade 8 between them. The blade holder 7 may be secured to shaft 6 by denting the metal of the blade holder into depressions in the shaft at *a*, or by a screw, or in any other suitable manner. The jaws 7^a, 7^b of the blade holder are arranged to firmly grip the blade 8 between them, as by spring action, and said jaws are shown open or unobstructed at one end, as at 9, to permit the blade 8 to be there inserted and pushed lengthwise between the jaws, and at the opposite end 10 the space between the jaws is shown closed by a lug or abutment 11 to limit the passage of the blade lengthwise between the jaws. Said lug may be formed by stamping it out of one jaw, as 7^a, at one edge and folding it across the space between the jaws and entering the lug in a recess 7^c in the edge of the jaw 7^b, as clearly shown in Figs. 4, 5 and 6. At the opposite or open end of the jaws I provide an abutment or stop 12 to engage the blade to prevent detachment of the blade from its holder during use. The stop 12 is shown carried by the jaw 7^a and is illustrated in the form of a sleeve mounted upon a bar 13 that is shown formed on the jaw 7^a by cutting a slot 14 therein, whereby the stop 12 will lie in the path of the blade when the latter is between the jaws to prevent the blade from sliding from between the jaws, as shown in Fig. 5, unless pushed. To permit the ready insertion of the blade between the jaws and its removal therefrom without undue resistance by the stop 12, I have shown the jaw 7^b as cut away at one end, at 15, so as to be shorter than the jaw 7^a, providing thereby a space between the stop 12 and the adjacent edge of jaw 7^b. This space permits the insertion of the blade lengthwise between the jaws past the stop 12, as illustrated in Fig. 6, and when the blade is pushed fully across the jaws it will snap behind the stop 12 as shown in Fig. 4, and when the blade is pushed lengthwise from the left in Fig. 5 it will slide past the stop 12, as shown in Fig. 6. The stop 12 is shown loosely journaled upon bar 13 so that it may normally lie in front of the blade end, as in Fig. 5, or may be pressed to one side by the blade when the latter is inserted or removed, as in Fig. 6. The said construction of the stop 12 causes it to act as an anti-friction roll relatively to the bend of the blade while latter is being inserted and pushed home between the jaws or withdrawn therefrom.

To retain the blade and prevent it from being pulled outwardly or sidewise from its holder I provide the blade with notches or recesses 8^a, 8^b, in its opposite ends or edges which are adapted to engage the stops 11

and 12. In the arrangement shown the rear or heel portion of the blade lies close to or abuts the shaft 6, and the portion 1^x of the adjacent upturned end portion 2 of the frame is above or projects beyond said shaft and in line with the inner edge or heel portion of the blade (see Fig. 3), so that when the blade is pushed longitudinally through its holder the adjacent inner corner of the blade would tend to abut against the portion 1^x of the frame, and interfere with the ready sliding of the blade from its holder. To obviate this, and permit the blade to readily slide from its holder when the blade is pushed from the end opposite the stop 12, I reduce the inner corners of the blade at 8^c by cutting the same away, as by rounding or beveling the same, forming cams or camming surfaces, as illustrated in Fig. 9, at the part below the notches or recesses 8^a, 8^b, which enables the blade, when slid outwardly through its holder and its corner strikes the part 1^x of the frame, to readily ride upon and past such part 1^x. A similar beneficial effect occurs when the blade is being inserted in its holder by sliding the same lengthwise therein, since the forward lower corner of the blade will readily slide along shaft 6 when being pushed into the holder in contact with said shaft. Thus, with the blade having notches in its ends and its adjacent corners opposite the cutting edge reduced or cut-away as set forth, the blade may be handled with facility while the part 1^x of the frame is maintained intact and of sufficient dimensions to properly support shaft 6.

My improvements permit a relatively thin and somewhat flexible blade to be used, if desired, which can bend at the space 15 while being pushed into or from its holder, and the back of the blade may rest against the shaft 6, as shown in Fig. 3, to resist the pressure of the guard against the blade when adjusted for shaving, while the holder shown, by firmly gripping the thus rearwardly abutted blade at its back part stiffens it.

The guard device and other parts of the razor illustrated in the accompanying drawings are similar to those set forth in my said application, and are described herein for the purpose of showing the complete operation of a razor adapted for my present improvements, although such features are not claimed in this application, being embodied in my aforesaid application.

The guard I have shown is indicated, generally, at 16 and at its outer corners is shown provided with lugs or lips 17 that are turned back in hook-like form to receive and bear against the blade edge near its two ends, whereby to hold the blade in shaving position with respect to the guard. The guard is mounted to have movement relatively to the blade edge, and is shown provided with an extension 18 that extends across, preferably beneath, the frame to the side opposite the guard where it is provided with a finger piece or enlargement 19 to be pushed. The extension 18 is shown stamped out of the same piece of metal as the guard and thereby is rigid therewith. The extension 18 supports the guard and permits adjustment thereof, and for this purpose I have shown the extension 18 as carried in a guideway located between the base 1 of the frame and the handle 20. As a convenient means for the purpose I have shown a head 21 having a depressed portion or guideway 22 in which the extension 18 of the guard is received, and said head is shown provided with lugs 23 having apertures through which screws 24 may pass for firmly holding the head 21 to the base 1 of the frame. The head 21 is shown provided with a tubular extension 21^a that is secured to handle 20 by suitable means, and is shown within said handle (see Fig. 3), and thereby the handle is secured to the frame with the extension 18 adapted to slide in its guideway between the frame and handle.

At 25 is shown a spring located within the handle 20 and adapted to coact with extension 18 of the guard to firmly hold the guard pressed toward the blade and said spring is shown bearing against a lug 26 extending downwardly from extension 18 through the bore in the head 21, which lug may be pressed out of the metal of extension 18 if desired. The spring 25 may be held within handle 20 in any suitable manner. For convenience of applying and removing the spring I have shown the same provided with a tubular portion 25^a that is separated or split as at 25^b and having an outward spring tendency, whereby when the part 25^a is pushed into the handle 20 it will be firmly held in position therein by spring action and may be readily withdrawn from the handle.

By means of the roller 3 and gears 4, 5 the blade holder with its attached blade may be rocked back and forth for stropping the edge of the blade, and for this purpose I have shown a space, indicated at x in Fig. 3, between the lower edge of roller 3 and the base 1 of the frame through which a strop, indicated by dotted lines 27 in Fig. 3, may be passed, and in order to create proper tension of the strop upon roller 3 I provide rods or rollers to bear on the strop on opposite sides of roller 3. For this purpose I have shown rods 28 extending between and secured to the uprights 2 of the frame upon which rods the rollers 29 are mounted.

It will be noted that the rollers 29 are so located relatively to roller 3 and the edge of the blade that not only is the strop powerfully pressed against roller 3 to turn it when

the strop is held taut, but also that the angle of the surface of the strop relatively to the edge of the blade may be varied at will during stropping by drawing the strop more or less taut and thus greater or less friction and at greater or less angle may be secured with advantage in sharpening.

In using my improvements the blade is inserted in the holder by pushing the blade past the stop 12 between the jaws 7^a, 7^b, as indicated in Fig. 6, until the notches 8^a, 8^b engage the stops 11, 12, and the lower forward inner edge of the blade may slide readily along shaft 6, if necessary, and then the blade is swung down upon the guard, the latter pushed outwardly, as in dotted lines in Fig. 6, thus enabling the lugs 17 to engage the edge of the blade near each end, and then the finger piece 19 is released, whereupon spring 25 acting upon extension 18 through lug 26 will draw the guard back to cause the lugs 17 to engage the blade, as aforesaid, while the blade will be held firmly in shaving position with respect to the guard. When it is desired to remove the blade the guard is pushed forwardly to release the blade, the blade may then be swung upwardly and pushed at its end adjacent the stop 11 and its cut-away lower corner adjacent the part 1^x of the frame will then abut thereon and slide up along the same, to release the blade from its holder, whereupon the blade may be readily pulled out of its holder. Stropping of the blade, which forms no part of my present invention, may be effected by releasing the blade from the guard, swinging the blade out of the way of the strop, and then pushing the strop through the space x under roller 3 and above rollers 29, after which by holding the strop taut and reciprocating the razor back and forth along it the blade will be caused to swing or rock correspondingly and dragged behind the frame with its edge against the strop. The strop may then be withdrawn and the blade edge adjusted to the guard in manner before described.

Changes may be made in the details and arrangements shown and described without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. In a safety razor, a blade of substantially rectangular shape having a cutting edge at one of its edges only, and a cam on the corner remote from such cutting edge and passing under the heel of the blade to enable the blade to be slid lengthwise from the holder.

2. In a safety razor, a blade holder, a blade adapted to interlock when the blade is moved longitudinally into the holder, said blade having a cutting edge and a cam on the corner remote from the cutting edge and a member on the razor which the cam of the blade abuts when the blade is dislodged from the holder whereby the blade is moved laterally of said holder.

3. A safety razor comprising a frame, a shaft supported by the frame, a blade holder carried by the shaft, a blade adapted to interlock with a portion of said holder when moved longitudinally with the inner edge thereof back of the edges of the frame, said blade having a portion cut away to form a cam for engaging the frame in its travel from the blade holder.

4. A safety razor comprising a blade holder, and means for supporting the same, a stop in such position with relation to the blade holder as to be engaged by the blade in its movement with relation to the blade holder, and a blade having a portion thereof adapted to engage the stop whereby the direction of movement of the blade with relation to the holder is diverted when the said blade and stop contact.

5. A safety razor comprising a frame provided with upright portions at its ends, a shaft carried by said upright portions, one of which portions projects outwardly from the shaft, a blade holder carried by the said shaft and having its blade seat terminating on a plane inside of the edges of the upright portions of the frame, a blade adapted to be retained in the seat of the blade holder, said blade having a corner cut away to form a surface adapted to engage an upright portion of the frame and operative to divert the direction of travel of the blade with respect to the frame.

6. A safety razor comprising a frame provided with upright portions at its ends, a shaft carried by said upright portions, the upright portions projecting laterally of the shaft, a blade holder carried by said shaft and having its blade seat extending inside of the edges of the upright portions, a blade adapted to fit said holder, and means carried by the blade holder adapted to interlock with the blade when said blade is moved longitudinally in the holder, said blade having a reduced corner to pass over the end portion of the frame and operative to divert the direction of movement of the blade in its removal from the blade holder.

7. A safety razor comprising a frame provided with upright portions, a shaft carried by the upright portions, said upright portions projecting laterally of the shaft, a blade holder carried by the shaft, a blade in the holder having its inner edge extending inwardly beyond the front edges of the uprights, means for retaining the blade in the blade holder, said blade having a recess in its end to receive the blade retaining member when moved longitudinally of the blade holder, and said blade having a reduced portion forming a cam for engag-

ing the upright portion of the frame in the passage of the said blade from the blade holder, for diverting the direction of travel of the said blade in its removal from the blade holder.

8. A safety razor comprising a frame, a holder for a blade, means for swingingly mounting the holder for the blade on the frame, a blade, means on the blade holder adapted to interlock with the blade when moved longitudinally of the blade holder, and a cam on the blade adapted to engage a portion of the razor frame for directing the course of travel of the blade in the blade holder.

Signed at New York city, in the county of New York, and State of New York, this 19 day of October A. D. 1911.

HENRY J. GAISMAN.

Witnesses:

MAX M. KOTZEN,

T. F. BOURNE.