Feb. 5, 1929.

1,701,036

G. F. GREENE

SAFETY RAZOR

Filed Aug. 3, 1927

Fig. 1.

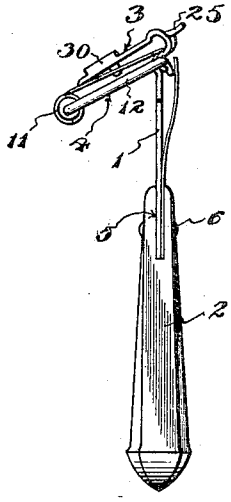


Fig. 2.

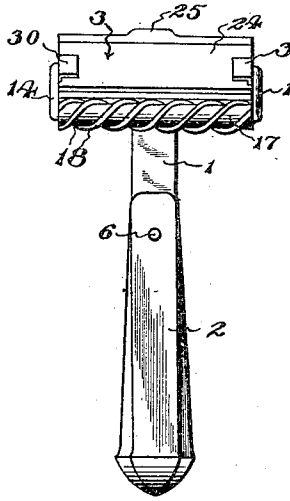


Fig. 3.

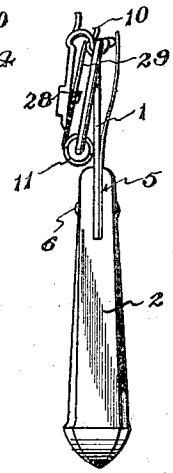


Fig. 4.

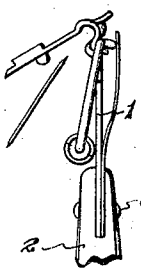
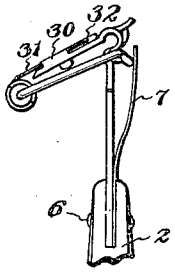


Fig. 5.



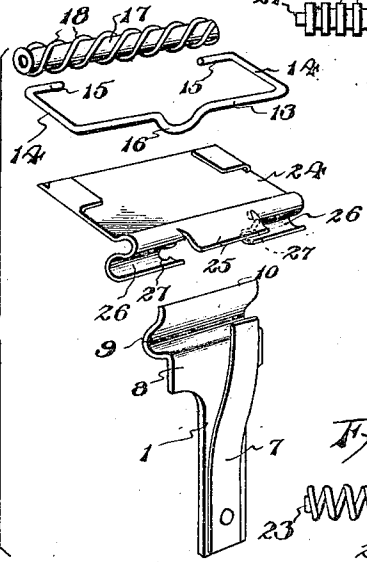


Fig. 6.

Fig. 7.

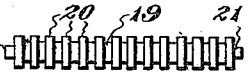


Fig. 8.

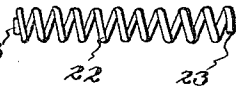


Fig. 11.

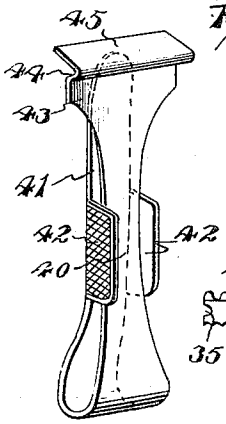
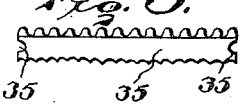


Fig. 9.



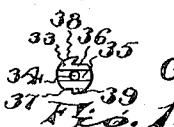


Fig. 10.

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UNITED STATES PATENT OFFICE.

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SAFETY RAZOR.

Application filed August 3, 1927. Serial No. 210,368.

This invention relates to cutlery and more particularly to a razor of the type known as safety razors and including a handle, a blade carrier and a guard.

One object of the invention is to provide a safety razor in which the guard is disposed between the handle and blade carrier and includes a roller disposed in advance of the blade carrier and adapted to bear against the cutting edge of a blade so that the guard serves not only as means to shield the cutting edge of the blade but also binds the blade to the carrier.

Another object of the invention is to pivotally mount the blade carrier and guard so that they may be swung from a folded position substantially parallel to the handle to an extended position for use and also allow the guard and blade carrier to be moved toward and away from each other and thereby allow a blade to be very easily placed between the guard and carrier or removed.

Another object of the invention is to so form the carrier that a blade may be disposed either against its inner or its outer face and in either position allow a roller forming part of the guard to bear against the cutting edge of the blade and exert pressure to bind the blade to the carrier.

Another object of the invention is to pivotally mount the guard and carrier to swing about a common axis and provide the guard with an extension constituting a crank arm and engaged by a spring carried by the handle so that the guard and blade carrier will be yieldably held in either a folded or extended position with respect to the handle but prevented from accidentally moving out of a set position.

Another object of the invention is to permit the guard and blade carrier to be detached from the handle in order to thoroughly clean them when necessary but prevent danger of them accidentally becoming detached.

The invention is illustrated in the accompanying drawing, wherein

Figure 1 is a view showing the improved razor in side elevation with the guard and blade holder extended in an operative position and a blade disposed between the carrier and guard;

Fig. 2 is a view showing the razor in front elevation;

Fig. 3 is a view similar to Fig. 1 showing the guard and blade carrier in a folded position;

Fig. 4 is a side elevation somewhat similar to Fig. 3 but showing the blade carrier swung away from the guard to permit the blade to drop out of place;

Fig. 5 is a view similar to Fig. 1 showing a razor blade of a different type from that shown in Figs. 1, 3 and 4 and engaged with the outer face of the blade carrier;

Fig. 6 is a group view showing in perspective the elements which form the razor;

Fig. 7 is a view illustrating a modified form of roller;

Fig. 8 is a view showing a roller formed of wire;

Fig. 9 is a view of a roller to be employed when trimming hair about the neck and sides of the head;

Fig. 10 is an end elevation of the roller shown in Fig. 9, and

Fig. 11 is a perspective view of a modified form of handle.

The improved razor includes a handle consisting of a shank 1 and hand grip 2, a blade carrier indicated in general by the numeral 3 and a guard indicated in general by the numeral 4. The shank 1 is formed of metal and has its rear end portion fitted into a slot or pocket 5 formed in the forward end of the hand-hold 2 where it is firmly secured by a rivet or other suitable fastener 6 which also serves to secure the leaf spring 7. The forward end portion of the shank is enlarged to provide a head 8, and this enlarged forward end portion of the shank is bent transversely to form a seat or bearing 9 which is open at its rear, as clearly shown in Fig. 6. It should be noted that the forward wall of the bearing extends upwardly to provide a lip 10 which extends rearwardly at an upward incline. The purpose of this lip will be hereinafter clearly set forth.

The guard 4 consists of a roller 11 and a yoke 12 which is substantially U-shaped and formed from a strand of wire bent to define a bridge 13 having arms 14 extending forwardly therefrom and, as shown in Fig. 6, having their forward ends bent inwardly to provide pins 15 to fit into the end portions of the roller and thereby rotatably mount the roller. It will be obvious that since the yoke is formed of spring wire its arms 14 may be sprung apart in order to permit the

roller to be engaged with the pins 15 or disconnected therefrom. Intermediate its length the bridge 13 is crimped to provide a rearwardly extending crank arm 16 against which the free forward end portion of the spring 7 bears when the bridge is disposed in the seat or bearing 9. Therefore, the yoke will be pivotally mounted in the bearing with the end portions of the bridge projecting from opposite ends of the bearing and the spring will serve to retain the bridge in the bearing but permit the yoke to be swung either to a folded position as shown in Fig. 3 or to an extended position for use as shown in Fig. 1. Engagement of the roller with the shank prevents the bridge from being swung inwardly beyond the position shown in Fig. 3 and engagement of the lip 10 with the under face of the carrier or a blade between the carrier and yoke prevents the yoke from being swung outwardly beyond the operative position shown in Fig. 1. The roller, which is shown in Fig. 6 and is the preferred form, consists of a cylindrical body 17 having spiral threads 18 which extend about the body throughout the length thereof. The roller 19 shown in Fig. 7 which may be substituted for the roller 17 is formed with annular ribs 20 spaced from each other longitudinally of the roller. The roller may be provided with openings in its ends to receive the pins 15 or may be provided with trunnions 21 and the free end portions of the arms 14 of the yoke bent to provide eyes to receive the trunnions. In Fig. 8, the roller 22 merely consists of a strand of wire coiled about a former, such as a metal rod of the proper diameter, to provide convolutions spaced from each other and having its ends bent to form eyes 23 adapted to receive the pins 15.

The blade carrier 3 is formed as shown in Fig. 6 and consists of a metal plate 24 which has one end portion bent upwardly and split to define an intermediate lip 25 which projects rearwardly and tongues at opposite sides of the lip which are bent downwardly in an ogee curve to form bearings 26 to engage the portions of the bridge 13 which project from opposite ends of the bearing 9. It should be noted that at their inner ends the tongues which form the bearings 26 are provided with recesses 27 into which the end portions of the bearing 9 are received so that the blade carrier may be swung towards and away from the shank 1 and yoke without binding against the walls of the bearing. This interlocking of the blade carrier and walls of the bearing 9 also serve to prevent the blade carrier from sliding forwardly out of proper engagement with the yoke. A pin 28 projects downwardly from the plate 24 to pass through an opening formed in a blade 29 of the type used in a Gillette razor and arms or tongues 30 overhang the upper face of the plate at opposite sides thereof to engage a blade 31 of the type used in a Gem razor. It will be obvious that blades of a conventional construction other than those specifically mentioned may also be engaged with the blade carrier.

When the razor is in use and a blade 29 of the Gillette type is to be employed, the blade carrier is swung away from the guard and the blade disposed against the inner face of the carrier with the pin 28 passing through the usual central opening formed in the blade and a sharpened edge portion of the blade projecting forwardly from the free forward end of the carrier. The guard may now be swung toward the blade carrier or the blade carrier swung toward the guard so that the roller will bear against the cutting edge of the blade in advance of the carrier. By referring to Figs. 1 and 3, it will be seen that since the guard is acted upon by the spring the roller will apply pressure to the cutting edge of the blade when the guard and carrier are swung outwardly to an extended position and this pressure will cause the blade to be tilted slightly so that its inner portion bears against the lip 10 and its outer portion will be pressed tightly against the outer forward edge of the carrier plate. Therefore, the blade will be tightly bound against the carrier and will be prevented from slipping when the razor is in use. In view of the fact that the ribs of the roller engage the cutting edge of the blade transversely thereof and are preferably spiral, the ribs will create a honing action when the roller rotates and serve to sharpen the blade as well as constituting a guard to prevent the blade from cutting when the razor is in use. After the razor has been used and it is desired to clean the same, the guard and blade carrier are swung to the folded position shown in Fig. 3 and the carrier can then be moved to the position shown in Fig. 4 by pressure applied to the tongue 25. When the carrier is moved to this position, the blade will be released and will drop out of engagement with the carrier. After a thorough cleaning operation has been performed, the blade can be again placed against the inner face of the carrier and the carrier swung to the folded position. When in this position the blade will be retained in place and since the guard and carrier are disposed substantially parallel to the shank 1 the razor will be reduced to a compact mass and may be placed in a small package or safely carried in a pocket without danger.

If a blade of the type used in a Gem razor is to be employed, this blade, which is indicated by the numeral 31, is slid between the plate 24 and tongues 30 until the thickened back 32 of the blade is disposed between the tongues and upwardly bent or rolled portion of the plate and the sharpened edge of the blade projects forwardly from the carrier, as shown in Fig. 5. By referring to this figure,

it will be seen that the roller will bear against the sharpened edge of the blade 31 similar to the manner in which it bears against the sharpened edge of the blade 29 and will apply pressure which will cause the blade to be pressed tightly against the retaining tongues and in front of the rolled portion of the plate 24 and firmly bound to the carrier. Therefore, a blade may be applied either against the outer or the inner face of the carrier. It will also be seen that when the razor is not in use and is folded as shown in Fig. 3 with a blade clamped between the carrier and guard a blade 31 to be used as an extra blade may be inserted beneath the tongues 30 and easily carried without danger of its becoming detached from the razor.

In Figs. 9 and 10, I have shown a guard 33 to be employed when it is desired to trim the hair at the sides and back of the head. This guard is provided with pockets 34 at its ends to receive the pins 15 and also has its end faces formed with diametrically extending grooves 35 intended to receive the forward end portions of the arms 14 and releasably lock the guard after a half turn has been made by the guard. Longitudinally extending recesses 36 and 37 are formed in the guard at opposite sides thereof with respect to the grooves or seats 35 and the guard is also cut to form teeth 38 and 39 disposed in operative relation to the seats 36 and 37. When this type of guard is in use, the cutting edge of the blade is received in either the seat 36 or the seat 37 and the teeth 38 and 39 will constitute gages to control the extent to which the hair will be trimmed. It should be noted that the teeth 38 are deeper than the teeth 39. Therefore, when the blade is seated in the recess 37, the hair may be trimmed closer than when the blade is in the seat 36. Therefore, a person may trim the hair at the sides and back of his head without having this done by a barber.

In Fig. 11, there has been shown a modified form of handle. This handle consists of a metal strip doubled intermediate its length to provide a shank or arm 40 and a companion arm 41 which takes the place of the spring 7 and carries side wings 42 to be grasped between the thumb and first finger when the razor is in use. The forward end portion of the arm 40 is enlarged to provide a head 43 corresponding to the head 8 and this head is bent to define a bearing 44 similar to the bearing 9 and lip 45 corresponding to the lip 10. When this form of handle is employed, the guard and blade carrier are constructed similar to those shown in Fig. 6 and applied to the handle in the same manner.

Having thus described the invention, I claim:

1. In a safety razor, a shank, a blade carrier and a guard both pivoted to said shank and movable towards and away from each other, said guard including a roller to bear against a blade and releasably hold the blade in engagement with the carrier.

2. In a safety razor, a shank, a blade carrier and a guard both pivoted to said shank and movable towards and away from each other, said guard including a roller to bear against a blade adjacent its cutting edge in guarding relation thereto, and resilient means to yieldably retain the guard in an operative position with its roller bearing against the blade to bind the blade to said carrier.

3. In a safety razor, a shank, a blade carrier and a guard both pivoted to said shank and movable towards and away from the carrier and including a roller, and a spring engaging said guard to yieldably retain the guard in operative relation to said carrier with its roller disposed to bear against a blade at the cutting edge thereof and bind the blade to said carrier.

4. In a safety razor, a blade carrier, means to loosely locate a blade upon the carrier, a guard movable towards and away from the carrier into and out of an operative position and including a roller, and resilient means yieldably retaining said guard in an operative position with its roller disposed to bear against a blade at its cutting edge transversely thereof and in guarding relation thereto and apply pressure to the blade to bind the blade to the carrier.

5. In a safety razor, a blade carrier, means to loosely located a blade upon the carrier, a guard movable towards and away from the carrier into and out of an operative position, and resilient means yieldably holding the guard in an operative position with a portion disposed to press against the cutting edge of the blade transversely thereof and bind the blade against the carrier.

6. In a safety razor, a shank, a blade carrier, a blade fitting against the carrier with a sharpened edge portion projecting forwardly from the carrier, means carried by said carrier to loosely locate the blade upon the carrier, and a guard yieldably held in position to bear against the cutting edge of the blade in guarding relation thereto and bind the blade to the carrier.

7. In a safety razor, a shank, a blade carrier, a blade fitting against the carrier with a sharpened edge portion projecting forwardly from the carrier, means carried by the carrier to loosely locate the blade upon the carrier, and a guard including a blade-engaging roller, the guard being yieldably held in position to retain its roller in contact with the cutting edge of the blade transversely thereof to shield the cutting edge and bind the blade to the blade carrier.

8. In a safety razor, a shank, a blade carrier, a blade fitting against the carrier with a sharpened edge portion projecting forwardly from the carrier, means carried by

the carrier to loosely locate the blade upon the carrier, and a guard including a roller having ribs thereon to bear against the cutting edge of the blade transversely thereof in shielding relation thereto, said guard being yieldably held in an operative position and binding the blade to the carrier.

9. In a safety razor, a shank, a blade carrier and a guard both pivoted to the shank and movable from a folded position substantially parallel to the shank to an extended position, means carried by said blade carrier to loosely position a blade thereon, the guard and carrier being movable simultaneously and independently of each other, and means to yieldably hold the guard and carrier in adjusted positions relative to the shank and normally retain the guard and carrier close to each other whereby the guard will be yieldably held in position to engage a blade in guarding relation to its cutting edge and bind the blade to the carrier.

10. In a safety razor, a shank, a guard pivoted to said shank, a blade carrier pivoted to the guard with the guard disposed between the shank and carrier, the guard and carrier being movable from a folded position in front of the shank substantially parallel thereto to an extended position for use and being independently movable towards and away from each other, a roller carried by said guard in front of the free end of said blade carrier, and resilient means to yieldably retain the guard adjacent the blade holder with its roller disposed to bear against a blade carried by the carrier adjacent its cutting edge and bind the blade to the carrier.

11. In a safety razor, a shank, a guard pivoted to said shank, a blade carrier pivoted to the guard with the guard disposed between the shank and carrier, the guard and carrier being movable from a folded position in front of the shank substantially parallel thereto to an extended position for use and being independently movable towards and away from each other, a roller carried by said guard in front of the free end of said blade carrier, a crank extending rearwardly from the pivoted end of said guard, and a spring strip carried by said shank and bearing against said crank to yieldably resist movement of the guard to folded and extended positions and yieldably retain the guard adjacent the blade carrier with its roller disposed to bear against the sharpened edge of a blade and bind the blade to the carrier.

12. In a safety razor, a shank, a guard pivoted to said shank, a blade carrier pivoted to the guard with the guard disposed between the shank and carrier, the guard and carrier being movable from a folded position in front of the shank substantially parallel thereto to an extended position for use and being independently movable towards and away from each other, a roller carried by said guard in front of the free end of said blade carrier, a crank extending rearwardly from the pivoted end of said guard, and a spring strip carried by said shank and bearing against said crank to yieldably resist movement of the guard to folded and extended positions and yieldably retain the guard adjacent the blade carrier with its roller disposed to bear against the sharpened edge of a blade and bind the blade to the carrier, the blade carrier being provided with an extension to facilitate movement of the carrier away from the guard when folded to relieve the blade from pressure by the guard and permit removal of the blade.

13. In a safety razor, a shank having a transverse bearing at its outer end, a U-shaped guard yoke pivoted in said bearing and projecting from opposite ends thereof, a blade carrier pivoted to the projecting portions of said guard in straddling and overhanging relation to the bearing, a blade fitting against said carrier with a sharpened edge projecting forwardly from the carrier, a roller rotatably carried by the arms of said yoke and disposed in front of the carrier, and a spring carried by said shank and engaging said yoke to yieldably retain the guard and carrier in set positions relative to the shank and normally press the guard towards the carrier whereby the roller bears against the cutting edge of the blade in shielding relation thereto and binds the blade to the carrier.

14. In a safety razor, a shank having a transverse bearing at its outer end, a U-shaped guard yoke pivoted in said bearing and projecting from opposite ends thereof, a blade carrier pivoted to the projecting portions of said guard in straddling and overhanging relation to the bearing, a blade fitting against said carrier with a sharpened edge projecting forwardly from the carrier, a roller rotatably carried by the arms of said yoke and disposed in front of the carrier, and spring means retaining the guard and carrier in pivotal connection with each other and with the shank and yieldably resisting movement of the guard and carrier relative to the shank and normally retaining the guard adjacent the carrier with the roller pressing against the cutting edge of the blade.

15. In a safety razor, a shank having a transverse bearing at its upper end, the bearing being open at its back, a U-shaped guard yoke having its bridge portion seated in said bearing and projecting from opposite ends thereof and its arms projecting forwardly, the bridge being crimped intermediate its length to provide a crank arm projecting rearwardly out of the bearing, a blade holding plate having its rear portion straddling said bearing and provided with arms bent to form bearings engaged with the projecting end portions of said bridge and formed with

recesses receiving the end portions of the open bearing of said shank, a roller rotatably carried by the arms of said yoke in front of said blade carrier, and a spring strip carried by said shank and engaging the crank arm of said yoke and applying pressure thereto to yieldably resist swinging movement of the yoke and blade carrier and yieldably retain the roller in position to bear against a sharpened forward edge of a blade fitted against the plate and bind the blade to the carrier.

16. In a safety razor, a shank, a blade carrier and a guard pivotally connected with the shank with the guard disposed between the shank and blade carrier, a pin projecting from the inner face of said carrier, a blade between the guard and carrier formed with an opening receiving said pin and having a sharpened edge projecting forwardly from the carrier, a roller constituting an element of the guard, and resilient means yieldably resisting movement of the guard away from the carrier and causing the roller to bear against the sharpened edge of the blade and tilt the blade to bind the blade in place with its forward end portion pressed against the carrier and its rear end pressed against the upper end of said shank.

17. In a safety razor, a shank, a blade carrier, a guard movably mounted between the shank and carrier and movable towards and away from the carrier, said guard including a roller in front of said carrier, blade-engaging means projecting from the inner face of said carrier, other blade-engaging means projecting from the outer face of said carrier, and resilient means yieldably retaining the guard in an operative position with its roller disposed to bear against the cutting edge of a blade engaged with either blade-engaging means and bind the blade to the blade carrier.

18. In a safety razor, a shank, a blade carrier and a guard pivotally connected with the shank with the guard disposed between the shank and blade carrier, tongues overlying the outer face of the carrier at opposite sides thereof, a blade fitted beneath the tongues with its sharpened edge projecting forwardly from the carrier, a roller constituting an element of the guard, and resilient means to yieldably resist movement of the guard away from the carrier and retain the roller in pressing engagement with the cutting edge of the blade transversely thereof to permit free rotation of the roller when in operation, pressure by the roller serving to bind the blade to the carrier.

In testimony whereof I affix my signature.

GILBERT F. GREENE.