

Nov. 16, 1954

W. E. CARDINAL  
RAZOR

2,694,252

Filed June 13, 1952

2 Sheets-Sheet 1

Fig. 1

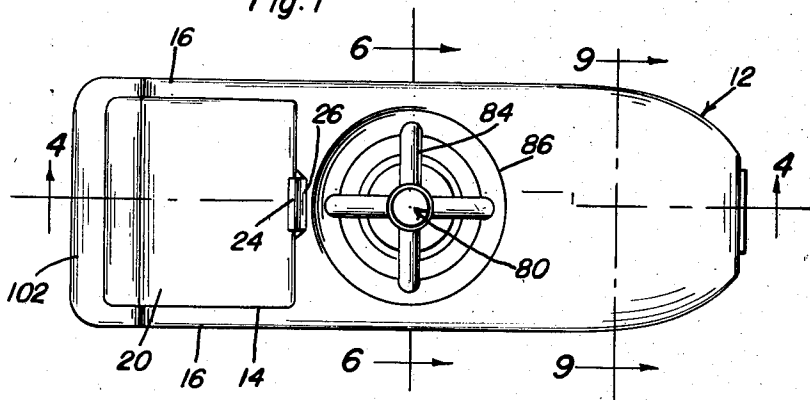


Fig. 2

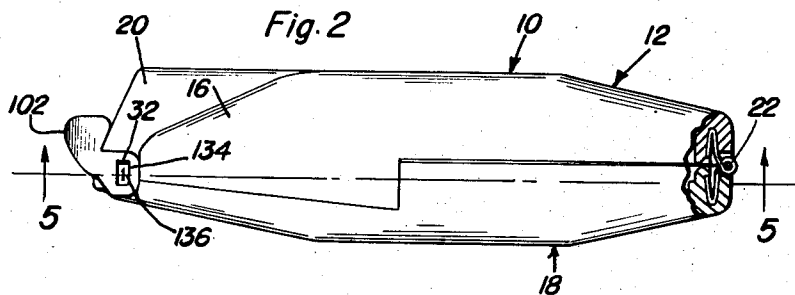
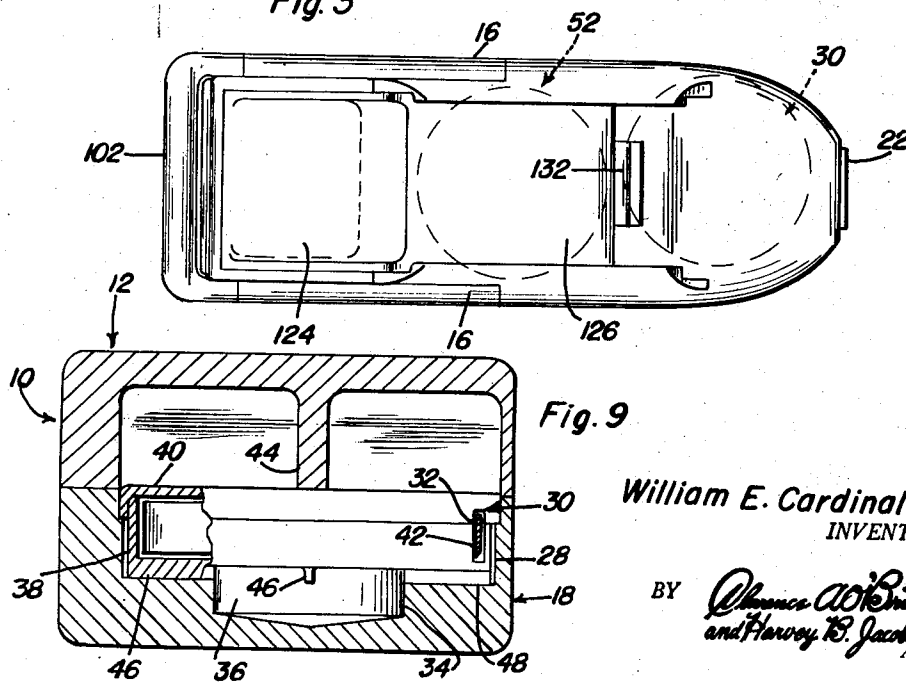


Fig. 3



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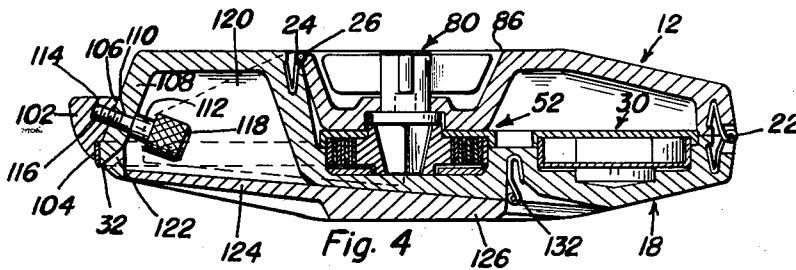
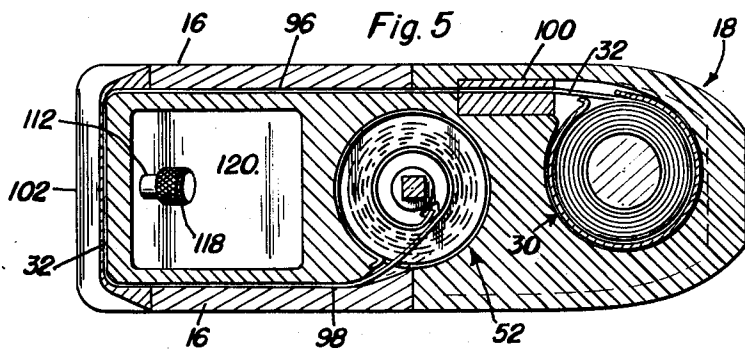
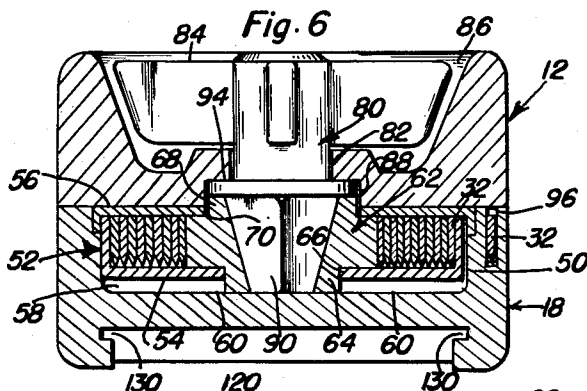
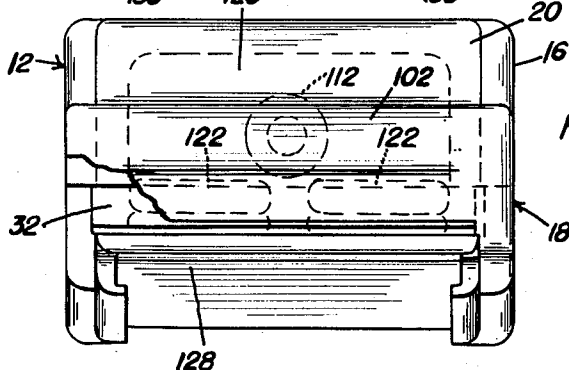
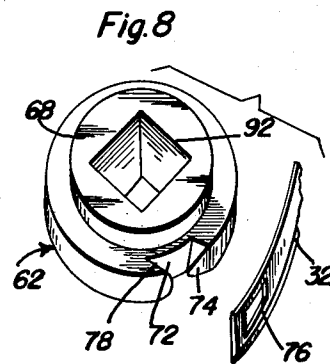
W. E. CARDINAL

2,694,252

RAZOR

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2 Sheets-Sheet 2



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2,694,252

RAZOR

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Application June 13, 1952, Serial No. 293,334

3 Claims. (Cl. 30-40)

This invention relates in general to razors, and more particularly to a magazine type safety razor.

The primary object of this invention is to provide an improved safety razor in which the blade is in the form of an elongated tape and which may be advanced as portions thereof become dull after being utilized in shaving operations.

Another object of this invention is to provide an improved magazine type safety razor in which the shaving portion of an elongated blade strip is rigidly clamped to a housing in which the blade strip is mounted whereby the shaving portion of the blade is properly supported.

Another object of this invention is to provide an improved magazine type safety razor which includes a relatively compact housing which may be opened in order to make the interior thereof readily accessible for the insertion of a new blade strip.

Another object of this invention is to provide an improved housing for a magazine type safety razor, said housing being provided with a wiping strip for wiping oil off of the blade strip as it is advanced into a shaving position.

A further object of this invention is to provide an improved magazine type safety razor in which the blade strip is mounted in a disposable capsule whereby the chances of a person being cut by the blade strip are greatly reduced.

A still further object of this invention is to provide an improved drive means of a magazine type safety razor, said drive means being in the form of a drive shaft and handle carried by a removable top portion of the razor, said drive shaft having a splined end which is adapted to be wedged in a similarly splined winding reel, said winding reel being provided with a recessed hook for engagement in a slot in one end of the blade strip.

With these objects definitely in view, this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claims, and illustrated in the accompanying drawings which form a material part of this application and in which:

Figure 1 is a top plan view of the improved magazine type safety razor, which is the subject of this invention, and shows the general outline thereof;

Figure 2 is a side elevational view of the safety razor of Figure 1, a rear portion of the housing of the razor being broken away and shown in section in order to clearly illustrate the manner in which the top and bottom portions thereof are hingedly connected together;

Figure 3 is a bottom plan view of the safety razor of Figure 1, positions of blade strip receiving capsules being shown by dotted lines;

Figure 4 is a longitudinal vertical sectional view taken substantially upon the plane indicated by the section line 4-4 of Figure 1 and shows the internal construction of the safety razor of Figure 1;

Figure 5 is a transverse horizontal sectional view taken substantially upon the plane indicated by the section line 5-5 of Figure 2 and shows the manner in which the blade strip is supported within the housing of the safety razor;

Figure 6 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 6-6 of Figure 1 and shows the construction of the means for winding the blade strip from its magazine;

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Figure 7 is an enlarged front elevational view of the razor of Figure 1, the bottom plate of the housing being removed and a portion of a blade strip clamping head being broken away in order to clearly illustrate the relative position of the blade strip at the forward end of the razor;

Figure 8 is an enlarged perspective view of the winding reel and an end portion of the blade strip and shows the manner in which the two are connected together; and

Figure 9 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 9-9 of Figure 1 and shows the general construction of the magazine capsule from which the blade strip is dispensed.

Similar characters of reference designate similar or identical elements and portions throughout the specification and throughout the different views of the drawings.

Referring now to the drawings in detail, it will be seen that the safety razor, which is the subject of this invention, includes a housing 10 which is preferably formed of plastic, but may be formed of any suitable material. The housing 10 includes a top portion 12 which is provided with a recess 14 at the forward end thereof formed by forwardly extending side flanges 16. The housing 10 also includes a lower portion 18 which has an upwardly extending forward portion 20 which projects through the U-shaped opening 14 at the front end of the top portion 12 between the flanges 16 and terminates substantially flush with the upper surface of the top portion. As is best illustrated in Figure 4, the top portion 12 is hingedly secured at its rear end to the bottom portion 18 by a hinge construction 22, the hinge construction 22 being disposed within the two portions and completely concealed. The two portions are retained in a closed position by a spring clip 24 carried by the rear part of the upwardly projecting front portion 20 of the lower portion 18, the spring clip 24 having a rolled edge 26 which overlies that part of the top portion 12 which extends between the flanges 16 to form the base of the U-shaped recess 14.

The bottom portion 18 is provided adjacent the rear end thereof with a generally circular recess 28 whose center is off-set to one side of the center line of the housing 10 and is adapted to receive a capsule in the form of a magazine 30 from which is dispensed a blade strip 32. It will be noted that the recess 28 has a concentric portion of a smaller diameter which projects further into the bottom portion 18 and is referred to by the reference numeral 34. The magazine 30 is provided with a central spindle 36 which projects downwardly therethrough and is located in the concentric recess 34 for aligning the magazine within the recess 28. It will be understood that the blade strip 32 is coiled about the spindle 36 which is adapted to rotate within the magazine 30 upon the dispensing of the blade strip 32.

The magazine 30 is formed in two pieces besides the spindle 36 and includes a generally cup-shaped bottom portion 38 whose upper end is open and provided with a closure cap 40. It will be understood that the closure cap 40 is tightly placed upon the bottom portion 38 so as to normally prevent the removal of same whereby the blade strip 32 may not accidentally spring out of the magazine 30 to cut a person handling the same. In order that the blade strip 32 may be dispensed from the magazine 30, the same is provided with a vertically extending slot 42 which extends through both the bottom portion 38 and the cap 40 and through which the blade strip 32 passes. It will be noted that the top portion 12 of the housing 10 is recessed above the magazine 30 and stiffened by a longitudinally extending stiffening flange 44, the stiffening flange 44 engaging the upper surface of the top 40 to retain the capsule forming the magazine 30 in place.

In order that the magazine 30 may be further retained in position, the outer portions of the bottom wall of the bottom portion 38 is provided with a plurality of radially extending downwardly projecting ribs 46. The ribs 46 are received in complementary recesses 48 in the bottom portion 18 and prevent the magazine 30 from rotating when the spindle 36 rotates.

Located centrally thereof, the bottom portion 18 is provided with a second cylindrical recess 50 whose axis

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is on the center line of the housing 10 and in which is received a take-up capsule 52. The take-up capsule 52 includes a bottom portion 54 whose open upper end is closed by a cap 56. The take-up capsule 52 is positioned within the recess 50 by a plurality of radially extending downwardly projecting ribs 58 along the outer portion of the bottom wall of the bottom portion 54, the ribs 58 being positioned within complementary recesses 60 extending downwardly from the bottom of the recess 50.

In order that the blade strip 32 may be wound into the take-up capsule 52, the same is provided with a winding reel 62 which has a lower hub portion 64 extending through a concentric opening 66 in the bottom wall of the bottom portion 58. The winding reel 62 is further positioned by an upwardly projecting hub 68 which passes through a concentric opening 70 in the cap 56. As is best illustrated in Figure 8, the winding reel 62 is provided with a notch 72 in its peripheral edge and has a hook portion 74 which extends into the notch as a continuation of the peripheral edge. The blade strip 32 is provided at one end with an elongated opening 76 of a size to receive the hook portion 74 and is adapted to have its extreme end positioned within the notch 72 behind a shoulder 78 formed by a tapered side wall of the notch 72.

In order that the winding reel 62 may be conveniently rotated for advancing the blade strip 32, the top portion 12 is provided with a drive shaft which is referred to in general by the reference numeral 80. The drive shaft passes through a vertical bore 82 in the top portion 12 and is journaled in the same. The upper end of the drive shaft is provided with a handle portion 84 which is positioned within a circular cross sectional recess 86 in the upper surface of the top portion 12. Concentric with the recess 86 and the bore 82 is a second recess 88 which is in the lower surface of the top portion 12 and is adapted to receive a portion of the hub 68. It will be noted that the lower end of the drive shaft is in the form of a tapered spline 90 which is received within a complementary splined bore 92 in the winding reel 62. The drive shaft 80 is retained within its associated bore 82 by an enlarged annular flange 94 disposed between the main portion of the drive shaft 80 and its splined end portion 90 and seated within the recess 88.

Referring now to Figure 5 in particular, it will be seen that the lower portion 18 of the housing 10 is provided adjacent one side with a forwardly extending vertical groove 96 which receives the blade strip 32 after it passes out of the magazine 30. The blade strip 32 passes out of the forward end of the groove 96 and passes around the forward end of the lower portion 18 and back into a longitudinally extending vertical groove 98 in the lower portion 18 adjacent the other side thereof. The blade strip 32 passes from the groove 98 into the take-up capsule 52 where it is positioned after having been used. It will be noted that the portion of the groove 96 is enlarged adjacent the magazine 30 and provided with a strip of felt 100 which is utilized to wipe excessive oil off of the blade strip 32 prior to its movement to the front end of the bottom portion 18 where it is exposed.

In order that the portion of the blade strip 32 disposed at the front end of the portion 18 may be rigidly supported for use in a shaving operation, the front portion 20 of the bottom portion 18 is provided with a head 102 which has a recess 104 on the lower portion thereof receiving the front portion of the blade strip 32. The head 102 is generally U-shaped in plan view and enclosed the forward end of the bottom portion 18 with the rear ends thereof in abutting relation with the forward ends of the flanges 16 of the top portion 12. The head 102 is also provided with a sloping rear face 106 which engages a sloping front surface of the bottom portion 18 whereby the same is accurately positioned. In order that the head 102 may be clamped in position, the front wall 108 of the portion 18 is provided with a bore 110 through which passes a fastener 112 which has a threaded end 114 threadedly engaged in a threaded bore 116 in the head 102. In order to facilitate the rotation of the fastener 112, the same is provided with a knurled head 118. It will be noted that the lowermost portion of the front wall 108 of the bottom portion 18 is beveled downwardly and rearwardly whereby the

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cutting edge of the blade strip 32 projects slightly outwardly therefrom. This permits the engagement of the cutting edge of the blade strip with whiskers or other hair elements to be cut and the movement of the blade strip over the skin is guided by engagement of a rounded forward portion of the head 102 with the skin in the area being shaved.

It will be noted that the head 118 of the fastener 112 is disposed within a downwardly projecting recess in the front portion of the bottom portion 18 of the housing 10. The front wall 108, which forms a wall of the recess 120 at the forward end of the bottom portion 18 is provided with a pair of transversely elongated slots 122 which extend upwardly and rearwardly, from a portion adjacent the cutting edge of the blade strip 32. The slots 122 are adapted to receive shaving cream scraped from the skin being shaved by the blade strip 32 and conducts the same into the recess 120 which is a shaving cream receptacle.

In order that the shaving cream receptacle may retain the shaving cream during a shaving operation and at the same time be readily cleaned after the shaving operation, the same is provided with a removable bottom wall which is a forward portion of a bottom plate 126. The bottom plate is mounted in a longitudinally extending recess 128 in the bottom of the bottom portion 18 and has edge portions located in guideways 130 along the edges of the recess 128. The bottom plate 126 may be moved by sliding the same rearwardly out of the recess 128, and the forward movement thereof is limited by engagement of the forward end of the same with the front wall 108. The bottom plate 126 is retained in position by a spring clip 132 carried by the bottom portion 18 and projecting downwardly into the recess 128.

Referring now to Figure 2 in particular, it will be seen that the head 102 is provided with a window 134 adjacent one rear end thereof. In order that only the used portion of the blade strip 32 may be advanced when the used portion has become dull, the blade strip 32 is provided at spaced intervals with indicating marks 136. When it is desired to advance the blade strip 32, the handle portion 84 of the drive shaft 80 is rotated until the next indicating mark 136 appears in the window 134. When this occurs the portion of the blade strip 32 clamped by the head 102 is in the form of a completely new blade. It will be understood that the fastener 112 must be loosened prior to the advancing of the blade strip 32 and tightened again after the advancing and before a shaving operation.

The operation of this device will be understood from the foregoing description of the details thereof, taken in connection with the above recited objects and drawings. Further description would appear to be unnecessary.

Minor modifications of the device, varying in minor details from the embodiment of the device illustrated and described here, may be resorted to without departure from the spirit and scope of this invention, as defined in the appended claims.

Having described the invention, what is claimed as new is:

1. A magazine type safety razor comprising a housing having first and second reels mounted therein, an elongated tape-like blade strip positioned within guideways in said body and partially coiled on each of said reels, a head clamping an intermediate portion of said blade strip to one end of said housing for rigidly supporting the same, said one end of the housing being provided with inwardly extending slots adjacent a cutting edge of the strip blade, a shaving cream receptacle adjacent said one end, said slots communicating with said receptacle for receiving shaving cream forced into said slots during a shaving operation, a cover removably closing said receptacle to facilitate cleaning thereof.

2. A magazine type safety razor comprising a housing having first and second reels mounted therein, an elongated tape-like blade strip positioned within guideways in said body and partially coiled on each of said reels, a head clamping an intermediate portion of said blade strip to one end of said housing for rigidly supporting the same, a shaving cream receptacle in said housing immediately rearward of said head, a slot in said housing adjacent said blade strip communicating said receptacle with the exterior of said housing, a

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fastener adjustably clamping said head to said housing, said fastener having a turning head disposed in said receptacle.

3. A magazine type safety razor comprising a housing having first and second reels mounted therein, an elongated tape-like blade strip positioned within guide-ways in said body and partially coiled on each of said reels, a head clamping an intermediate portion of said blade strip to one end of said housing for rigidly supporting the same, a shaving cream receptacle in said housing immediately rearward of said head, a slot in said housing adjacent said blade strip communicating said receptacle with the exterior of said housing, a fastener adjustably clamping said head to said housing, said fastener having a turning head disposed in said

receptacle, a removable cover for said receptacle to provide ready access to said turning head.

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