

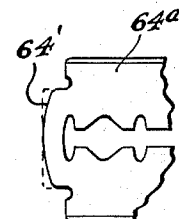
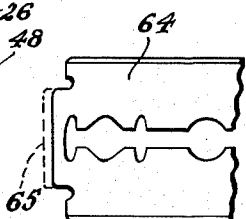
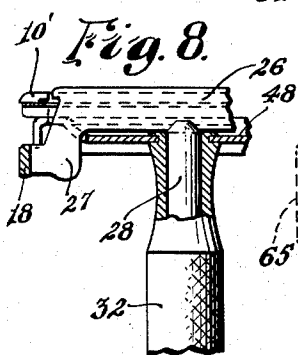
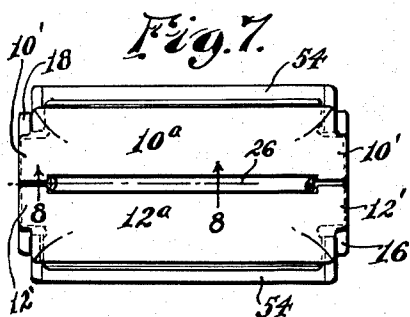
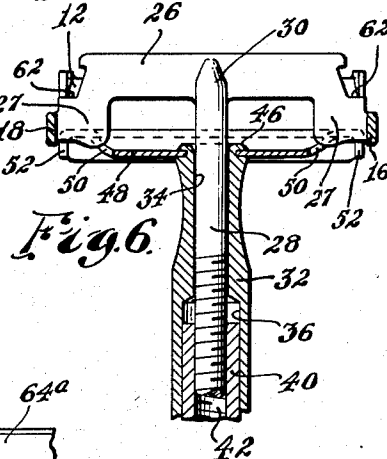
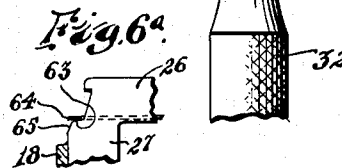
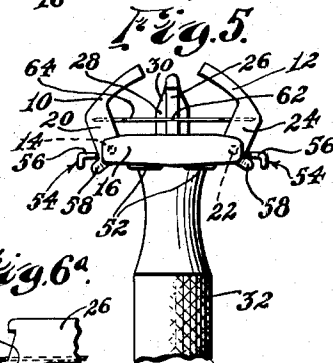
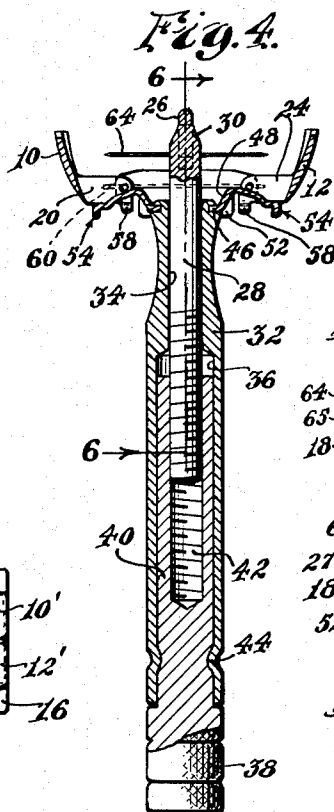
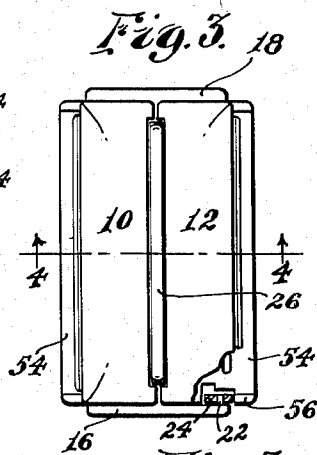
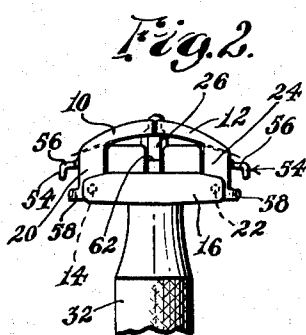
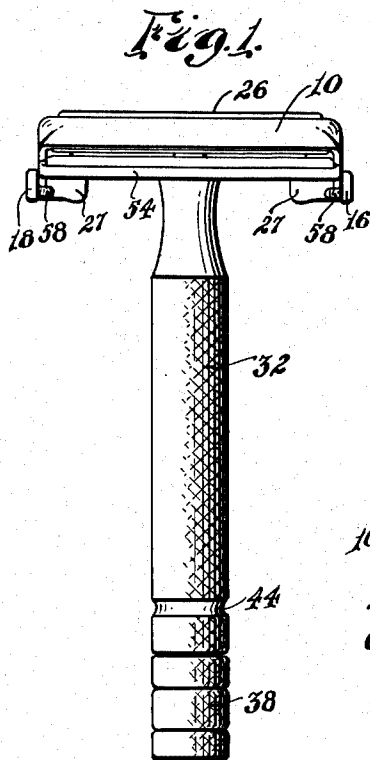
Jan. 10, 1956

J. B. O'SHEA

2,729,888

SAFETY RAZORS

Filed June 30, 1953



INVENTOR.
John B. O'Shea
 BY *his atty.*
John H. McNamee

1

2,729,888

SAFETY RAZORS

John B. O'Shea, Northampton, Mass.

Application June 30, 1953, Serial No. 365,176

5 Claims. (Cl. 30—60.5)

This invention relates to improvements in safety razors. More particularly it provides improvements in safety razors of the general type that accommodate the conventional double-edge variety of blade, and which have oppositely disposed hinged cover members which open to permit insertion of a blade between them and which close toward each other to cover the body of the inserted blade and to provide surfaces against which the blade is seated when the blade is clamped within the head of the razor, ready for use.

Safety razors of the general type of which the invention relates conventionally have hinged cover members which close upon an inserted conventional double-edge blade with substantial opposite ends of the blades projecting beyond the ends of the cover members and beyond adjacent portions of the head of the razor. These projecting ends of the blade constitute exposed hazards inasmuch as they include relatively sharp edge portions and corners of the thin steel blade which not infrequently cut or scrape the flesh in the process of shaving, particularly when the razor is being manipulated close to the nose or ear, or under an arm of the user. Also, the permitted unprotected protrusion or projection of blade ends in such razors may be augmented in its possible injurious effects by the fact the blade is not adequately held against endwise slip during the process of covering and clamping an inserted blade, and it frequently happens that a blade will be clamped with substantially more of one end than the other projecting thus increasing the hazard at the end of greater projection of the blade.

The substantial unprotected protrusion of blade ends in conventional safety razors of the general type to which the invention relates facilitates removal of a blade by pressing the fingers of a hand against the opposite projecting ends of the blade and lifting it from its support between the hinged cover members. It would be more difficult to lift a conventional blade out of the conventional razor head if the blade ends did not project appreciably beyond the support for the blade.

It is among the objects of my present invention to provide a safety razor and blade combination, of the mentioned general type, wherein the blade ends become effectively shielded against any possibility of their cutting or scraping the flesh in the process of shaving. In one embodiment of the invention, the hinged covers of the razor extend into covering relation to the end portions of a conventional blade when closed upon the blade. In another embodiment of the invention, the conventional double-edge blade is modified to an extent which avoids any hazardous protrusion of end portions thereof beyond the hinged cover members of the conventional razors.

Another object of the invention is to provide a safety razor of the mentioned general type wherein means is provided for maintaining an inserted blade against any appreciable endwise slip between the time of initial insertion of the blade and the time when the blade becomes effectively clamped in the razor head, ready for use. The conventional central post which initially engages within

2

a central hole in an inserted conventional blade is, according to the invention, extended to an extent whereby it continues in said central hole of the blade maintaining the blade against any appreciable endwise slip until friction maintains it when the blade is initially engaged against the closed cover members of the razor head, after which time the blade moves away from the post and ultimately is bowed and maintained by being tightly clamped against the said cover members.

Yet another object of the invention is to provide a safety razor of the mentioned general type wherein blade-supporting means responds to elevate the blade between the hinged cover members as the latter said members swing outwardly in the operation of opening the razor head, thereby to facilitate finger-gripping of the ends of the elevated blade for lifting the blade from the open head, and also to facilitate effective rinsing and drying of the razor and blade at an intermediate stage of the head-opening operation.

It is, moreover, my purpose and object generally to improve the structure and efficiency of safety razors and particularly safety razors of the general type having hinged cover members actuatable into and out of covering relation to a double-edge razor blade.

In the accompanying drawing:

Fig. 1 is a side elevation of a safety razor embodying features of my invention;

Fig. 2 is an end view thereof with a portion of the handle broken away;

Fig. 3 is a top plan view of the head of the safety razor of Figs. 1 and 2;

Fig. 4 is a cross-sectional view approximately on line 4—4 of Fig. 3 but with the hinged cover members of the head in their wide open positions and with the blade elevated from the supports which effect clamping of the blade when said cover members are closed;

Fig. 5 is a view similar to Fig. 2 but with the hinged cover members of the head partially open and showing the blade elevated from the supports which effect clamping of the blade when said cover members are closed;

Fig. 6 is a cross-sectional view approximately on line 6—6 of Fig. 4;

Fig. 6a is a fragmentary detail view of a modified form of blade-supporting shoulder;

Fig. 7 is a view similar to Fig. 3 but showing a modification in which the hinged cover members are modified to shield the end portions of a conventional razor blade;

Fig. 8 is a cross-sectional view approximately on line 8—8 of Fig. 7, with portions of the head of the razor broken away;

Fig. 9 is a plan view of a double-edge razor blade which is shorter than the conventional length of such blades as shown by dotted lines; and

Fig. 10 is a plan view of one end portion of a blade whose projecting end portion is modified to eliminate the corners of the projecting end of the conventional blade, which corners are shown by dotted lines.

Referring to the drawing, the illustrated razor is of the general type whose head includes two hinged cover members 10, 12 which are operable between fully open positions, as shown in Fig. 4, and fully closed positions, as shown in Fig. 2. Member 10 swings about hinge pins 14 which project inward from bar elements 16, 18 at opposite ends of the head, each hinge pin engaging in a hole in an adjacent leg 20 on member 10. Member 12 swings about hinge pins 22 which project inward from the same bar elements 16, 18 into holes in the adjacent legs 24 on member 12.

The bar elements 16, 18 are fixed to opposite ends of the central guide plate 26 to which the upper end of threaded rod 28 is rigidly secured at 30, centrally

3

between the ends of plate 26. Rod 28 extends slidably into a handle 32 which has an axial hole at 34 for guiding the sliding movements of the rod, and which has the larger diameter axial bore 36 beyond hole 34 in direction away from the head. An operating end portion 38 of the handle is rotatable relative to the main portion 32 of the handle and has a relatively long extension part 40 rotatable within the bore 36 of the main handle 32. A threaded axial bore 42 in extension part 40 is adapted to threadedly receive the threaded lower end of rod 28, and the extension part 40 is rotatably anchored to the main handle 32, as at 44, whereby rotations of the operating end portion 38 of the handle moves the rod 28 axially within the handle, assuming that rod 28 is held against rotation.

The upper end of main handle 32 is fixed at 46 to a sheet metal head body 48 which is slotted at opposite end portions thereof, as at 50, 50. Guide plate 26 has the depending portions 27 engaging in the said slots 50, 50 whereby the plate 26 and rod 28 are maintained against rotation relative to the head body 48 and main handle 32, but the plate can move toward and from the head body 48 in response to rotations of operating handle part 38. Depending ears 52 on the head body 48, at opposite ends thereof, coact with the bar elements 16, 18 and the depending portions 27 of plate 26, to stabilize the relatively movable parts as the plate 26 is actuated toward and from the head body 48.

Inasmuch as the hinge pins 14, 22 are on the bar elements 16, 18, they move toward and from head body 48 when plate 26 is actuated, and the cover members 10, 12 are swung toward closed positions when the hinge pins move toward the head body 48, and are swung toward open positions when the hinge pins move away from the head body 48. This swinging of the cover members is accomplished by end parts of guard portions 54 which are integral on the head body 48 and which extend longitudinally of the head at opposite sides thereof. Each guard portion 54 is notched at each end to provide the end projections 56 for engaging back of the adjacent legs 20, 24 of the cover members 10, 12. Also each leg 20, 24 has a projecting ear 58 thereon adjacent to its hinged end for coaction with the end projections 56. Hence, with the cover members 10, 12 in their closed positions of Fig. 2, a rotation of handle part 38 to the left will cause the plate 26 and head body 48 to move relatively away from each other and the end projections 56 and ears 58 ultimately engage each other to cause swinging of cover members 10, 12 about their respective hinge pins 14 and 22. When the cover members 10, 12 are in their wide open positions of Fig. 4, rotation of handle part 38 to the right will cause the plate 26 and head body 48 to move relatively toward each other and the end projections 56 to engage the adjacent edges of legs 20, 24 to swing the cover members toward each other.

All of the structure thus far described is well known and conventional in safety razors.

Hereofore, however, the conventional double-edge razor blade has been inserted in the razor head while the cover members 10, 12 are in their wide open positions of Fig. 4, and the ends of the blade have rested on the upper edges of bar elements 16, 18 as indicated by dotted lines at 60 in Fig. 4. As a result, it has been rather difficult to lift the blade from the head with the fingers because the blade ends do not project beyond the bar elements 16, 18 which underlie the entire end margins of the blade. Also, heretofore, the rod 28 has been connected to the guide plate 26 at the lower edge of the plate, as shown in the Fig. 8 embodiment. When a blade is being clamped in the prior razor heads, relative movements of guide plate 26 and head body 48 cause the blade to be clamped more or less firmly between portions of the upper surface of head body 48 and portions of the under sides of the closed cover members 10, 12. But,

4

in moving to its clamped position, the blade in a conventional razor is moved off the upper end of rod 28 while the blade is free to slip end-wise within the partially closed head with the result that one end of a conventional blade may project substantially more than the other end when the blade is clamped and ready for use. Even though no appreciable end-wise slip of the blade may occur, each end of a conventional blade projects a substantial amount beyond the cover members 10, 12 in the conventional razor of the general type herein disclosed, and the projecting ends constitute relatively sharp and thin steel projections which frequently cut and scrape the flesh when a user of the razor is shaving close to the nose, or ears, or under the arms. When there has been end-wise slip of the blade, the extra protrusion of one end of the blade considerably increases the likelihood of injury to the user due to unprotected protrusion of a blade end.

A feature of my invention is to provide the guide plate 26 with blade-supporting shoulders 62 at opposite ends of the plate and elevated substantially above the upper edges of the bar elements 16, 18, but not high enough to have the shaving edges of the supported blade ever touch the covers, and these shoulders 62 engage and support a blade when it is initially inserted within the wide open head as in Fig. 4 wherein a blade 64 is shown supported in elevated relation to the bar elements 16, 18. Inasmuch as plate 26 is relatively thin as compared with the width of the blade ends which rest on the shoulders 62 of the plate, it will be obvious that the fingers conveniently may engage opposite ends of the supported blade to lift the blade from the head. If desired, this lifting of a blade from the supporting shoulders 62 may be further facilitated by slanting the shoulders 62 slightly, as at 63 in Fig. 6a, and by bevelling the outer edge of the guide plate 26 at each shoulder as indicated at 65 in Fig. 6a, this bevelling at 65 effecting a reduction in the outward extent of each shoulder whereby the ends of the shortened blade 64 project a little beyond the shoulders and more readily may be engaged by the fingers to lift a blade out of the razor head. The slanted shoulders enables a slight downward pressure on either end of the supported blade to tilt the other end upward, with the elongated post 28 limiting this upward tilting. However, when the blade is being clamped in the head, the head body 48 moves relative to the blade and ultimately lifts the blade relatively from the shoulders 62 and the blade becomes clamped between portions of the upper surface of the head body and portions of the under sides of the cover members 10, 12 in the conventional manner.

Another feature of my invention resides in the extended rod 28 which continues to maintain the blade against endwise slip within the head until the blade is frictionally held between the relatively moving head body 48 and cover members 10, 12. The rod extends through a central hole in the inserted blade in the conventional manner, but it continues to so extend until the blade becomes initially gripped between the jaws of the clamp, as distinguished from the prior conventional constructions wherein the blade becomes stripped from the rod 28 while the blade continues loose and able to slip endwise within the head.

I prefer to employ razor blades 64 which are modified as compared with conventional blades in that they are appreciably shorter as best seen in Fig. 9 wherein the conventional blade length is indicated by dotted lines at 65. It will be recognized that considerable metal is saved by making the blades shorter yet these shorter blades are more conveniently handled for insertion and removal as compared with the longer blades which have been required to have length sufficient for their end margins to rest on the bar elements 16, 18. More important, however, is the fact that the shorter blades 64 when clamped in the head do not project beyond the ends of the conventional hinged cover members 10, 12, which eliminates a distinct hazard due to substantial projection

5

of blade ends in conventional razors of the general type under consideration.

Fig. 10 illustrates a blade 64a which has its end portions curved at 64' to eliminate the corners at the projecting ends of blades which may be of conventional length and which may be employed in conventional razors to eliminate much of the hazard due to the projection of blade ends, or the hazard can be completely eliminated by employing this blade in a razor having the cover extensions 10', 12' of Figs. 7 and 8, or rounded cover extensions.

The embodiment of my invention shown in Figs. 7 and 8 employs modified cover members 10a, 12a whose ends have the extensions 10', 12' thereon for covering and shielding the end portions of conventional blades. The razor of the Figs. 7 and 8 showing may be otherwise conventional in construction although the rod 23 preferably should be extended as in Fig. 6 to maintain the blade against endwise slip during the process of closing the cover members into clamping relation to the blade. Also, if desired the guide plate 26 may have the blade-supporting shoulders 62 as shown in the earlier views to facilitate removal, rinsing and drying of the blades. It is intended that the patent shall cover, by suitable expression in the appended claims, whatever features of patentable novelty exist in the invention disclosed.

I claim as my invention:

1. In a safety razor having a head body fixed to a handle and having a pair of cover members swingable between open positions in which they are spread apart for reception of a razor blade between them and closed positions in which they close upon the blade and clamp the blade against said head body, a plate element disposed edgewise between said cover members and having a bar element rigid on each of its ends, means pivotally supporting said cover members on and between said bar elements, a shoulder at each end of said plate element in substantially spaced relation to said bar elements, means for moving said plate element toward and from said head body thereby to correspondingly move said shoulders and the pivots of said cover members, said shoulders being positioned on said plate element to engage and support a blade when moved away from said head body, and coacting means on said cover members and said head body for effecting rotational swinging movements of said cover members in response to said movements of their pivots.

2. In a safety razor having a head body fixed to a handle and having a pair of cover members swingable between open positions in which they are spread apart for reception of a razor blade between them and closed positions in which they close upon the blade and clamp the blade against said head body, a plate element disposed edgewise between said cover members and having a bar element rigid on each of its ends, means pivotally supporting said cover members on and between said bar elements, a shoulder at each end of said plate element in substantially spaced relation to said bar elements, a post axially slidable in said handle and having one end portion extending out of the handle and rigidly connected to said plate element centrally between the ends of said plate element, means for moving said post axially of said handle thereby to move said plate element toward and from said head body with corresponding movement of said cover member pivots and said shoulders, said shoulders being positioned on said plate element to engage and support a blade when moved away from said head body and said post having extent for extending through a blade supported on said shoulders of said plate element thereby to maintain the blade against endwise slip throughout the relative movements of said plate element and head body, and coacting means on said cover members and said head body for effecting rotational swinging movements of said cover members in response to said movements of their pivots.

3. In a safety razor having a head body fixed to a

6

handle and having a pair of cover members swingable between open positions in which they are spread apart for reception of a razor blade between them and closed positions in which they close upon the blade and clamp the blade against said head body, a plate element disposed edgewise between said cover members and having a bar element rigid on each of its ends, means pivotally supporting said cover members on and between said bar elements, a post rigidly connected at one of its ends to the adjacent longitudinal edge margin of said plate element centrally between the ends of said plate element and extending thence axially within said handle, means for moving said post axially relative to said handle thereby to move said plate element toward and from said head body, said end of the post which is connected to said plate having substantial extent beyond said adjacent edge of the plate and over surface portions of the plate at opposite sides thereof, the parts of the post which extend over said surface portions of the plate providing a uniform diameter post portion for extending through the supported razor blade, and preventing endwise slip of the blade, during all stages of the process of closing said cover members into clamping relation to the blade and until said cover members clamp the blade against any endwise slip, and coacting means on said cover members and said head body for effecting rotational swinging movements of said cover members in response to relative movements of said plate element and head body.

4. In a safety razor having a head body fixed to a handle and having a pair of cover members swingable between open positions in which they are spread apart for reception of a razor blade between them and closed positions in which they close upon the blade and clamp the blade against said head body, a plate element disposed edgewise between said cover members and having a bar element rigid on each of its ends, means pivotally supporting said cover members on and between said bar elements, a post rigidly connected at one end to the adjacent longitudinal edge margin of said plate element centrally between the ends of the plate element and extending thence axially within said handle, means for moving said post axially relative to said handle thereby to move said plate element toward and from said head body, a blade inserted between said cover members when the members are in their said spread apart positions and movable with said plate element, said cover members having extent for completely covering the end portions of said blade, and said end of the post which is connected to said plate having appreciable maximum diameter extent beyond said adjacent longitudinal edge of the plate and over said edge margin of the plate at opposite sides thereof for extending through said blade and maintaining it against endwise slip between said cover members until the blade becomes clamped between said cover members and head body, and coacting means on said cover members and said head body for effecting rotational swinging movements of said cover members in response to relative movements of said plate element and head body.

5. In a safety razor having a head body fixed to a handle and having a pair of cover members swingable between open positions in which they are spread apart for reception of a razor blade between them and closed positions in which they close upon the blade and clamp the blade against said head body, a plate element disposed edgewise between said cover members and having a bar element rigid on each of its ends, means pivotally supporting said cover members on and between said bar elements, a post rigidly connected at one end to said plate element centrally between the ends of the plate element and extending thence axially within said handle, means for moving said post axially relative to said handle thereby to move said plate element toward and from said head body, a blade inserted between said cover members when the members are in their said spread apart positions, means on said plate element for supporting said inserted

blade in substantially spaced relation to said bar elements on the ends of said plate element, said cover members having end portions for completely covering the end portions of said blade when the blade is clamped, and coacting means on said cover members and said head 5 body for effecting rotational swinging movements of said cover members in response to relative movements of said plate element and head body.

References Cited in the file of this patent

UNITED STATES PATENTS

1,911,996	Gaisman	May 30, 1933
2,109,554	Smith et al.	Mar. 1, 1938
2,644,229	Muros	July 7, 1953