Sept. 12, 1967 M. H. SACHAROW 3,340,609

COLLAPSIBLE SAFETY RAZOR

Filed Oct. 20, 1965

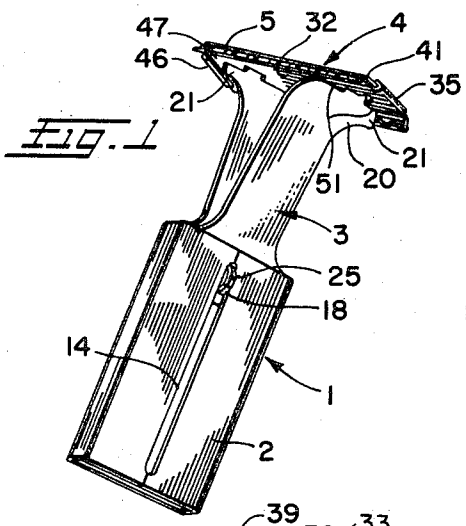


Fig. 1

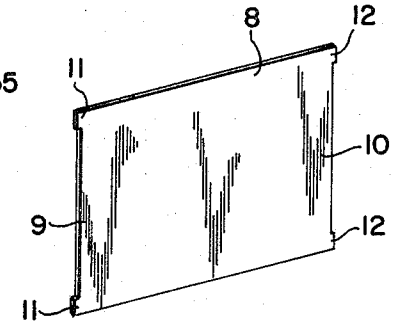


Fig. 3

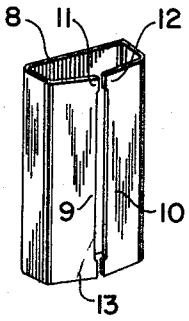


Fig. 4

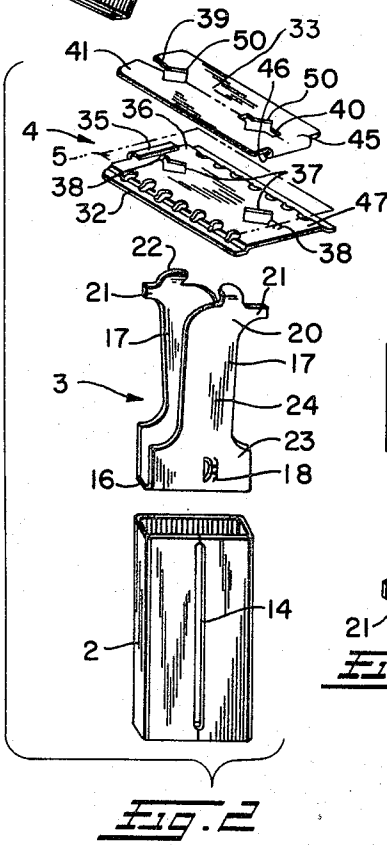


Fig. 2

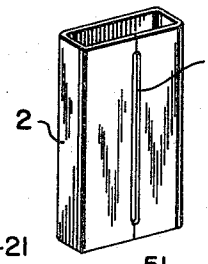


Fig. 5

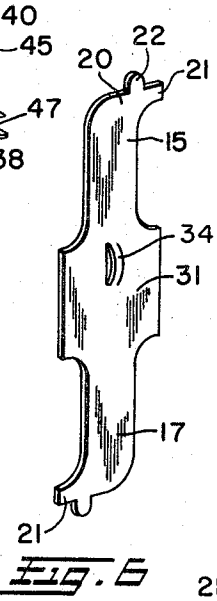


Fig. 6

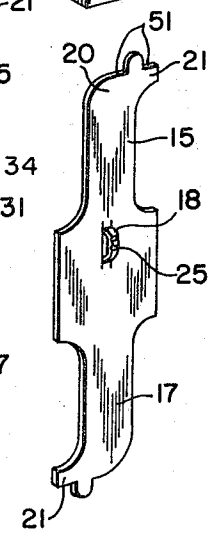


Fig. 7

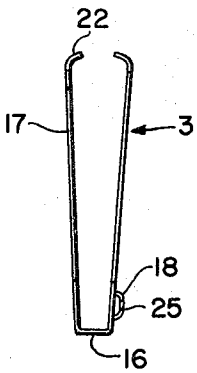


Fig. 8

INVENTOR
MAURICE H. SACHAROW

BY Oberlin, Maky & Donnelly
ATTORNEYS

United States Patent Office 3,340,609 Patented Sept. 12, 1967

3,340,609

COLLAPSIBLE SAFETY RAZOR

Maurice H. Sacharow, 3131 Washington Ave., Cleveland, Ohio 44113

Filed Oct. 20, 1965, Ser. No. 498,316
3 Claims. (Cl. 30—47)

ABSTRACT OF THE DISCLOSURE

A collapsible safety razor having a one-piece case with a longitudinal slot formed in one side defined by the adjacent ends thereof, and a retractable handle slidably received in the case and provided with an integral button which projects through the slot in the case for limiting the extent to which the handle may be extended and retracted.

The present invention relates generally, as indicated, to a collapsible safety razor and, more particularly, to certain improvements in safety razors especially of the type shown in U.S. Letters Patent No. 2,542,096, granted to Maurice Sacharow on Feb. 20, 1951.

In such prior patent, there is disclosed a very simple and compact safety razor comprising a case and a handle slidably received therein, such handle being adapted to be moved between an extended position whereat it supports a conventional blade in a razor head, and a retracted position whereat the handle conveniently fits within the case together with the razor head and a supply of blades. In one of the forms illustrated, the handle has a tongue projecting therefrom with a lug at its outer end for engagement in a hole in the case when the handle is in the extended position to lock the handle in place. Although this type of handle locking mechanism operates very satisfactorily, it is necessary to form the lug with great care and precision, making sure that the lug is in exact alignment with the aperture in the case when the handle is extended as aforesaid, and that the tongue exerts enough spring pressure to snap the lug into the aperture, but not so much that it interferes with the sliding of the handle in the case. Even then, however, the tip of the lug drags against the case and on occasion may grab so tightly that it is difficult to slide the handle, or the lug may be deformed out of alignment with the aperture.

In the other embodiment shown, a longitudinal slot is formed in the case, and the handle has a headed stud that projects through the slot for limiting the extent to which the handle may be extended and retracted in the case. While this type of connection eliminates the alignment and sliding problems encountered with the first embodiment, one drawback to such other embodiment is the high cost and difficulty of both forming the slot in the case and attaching the headed stud to the handle through the slot.

It is therefore a principal object of this invention to provide a collapsible safety razor with a new and improved means for limiting the extent to which the handle may be extended and retracted in the case which eliminates the difficulties discussed above.

Another object is to provide such a safety razor with a novel one-piece case with a longitudinal slot formed between the adjacent edges thereof, and a novel method of making the same.

A further object is to provide such a safety razor with a one-piece handle including an integral button which extends into the slot in the case for limiting the movement of the handle, and a novel method of making such handle.

Other objects and advantages of the present invention

will become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail a certain illustrative embodiment of the invention, this being indicative, however, of but one of the various ways in which the principles of the invention may be employed.

In said annexed drawing:

FIG. 1 is an isometric view of a preferred form of collapsible safety razor in accordance with the present invention;

FIG. 2 is an exploded isometric view of the razor of FIG. 1 with the parts thereof in disassembled form;

FIGS. 3–5 are isometric views showing the various shapes into which a one-piece blank is progressively or sequentially cut and bent to form the razor case; and

FIGS. 6 and 7 are isometric views and FIG. 8 is an end elevation view showing the various shapes into which a one-piece blank is sequentially cut and formed to make the razor handle.

Referring now more particularly to the drawing, and first of all to FIG. 1, a preferred form of collapsible safety razor in accordance with the present invention is indicated at **1** and comprises a generally rectangular case **2** in which there is slidably received a handle **3** for supporting a razor head **4** and blade **5** when the handle **3** is in the extended position shown. In use, the case **2** provides an extension of the handle **3** which is grasped by the user. As seen in FIG. 3, the case **2** is formed from a one-piece blank **8** of thin gauge sheet metal, preferably stainless steel, having similar U-shape ends **9** and **10**.

The blank **8** is bent in two steps into the generally rectangular configuration of FIG. 1 with the legs **11** and **12** of the respective ends **9** and **10** in perfect mating alignment to define a longitudinally extending slot **14** therebetween. In the first forming step, the blank **8** is deformed with the use of suitable dies, not shown, to the generally rectangular configuration illustrated in FIG. 4, but with the legs **11** and **12** of the ends **9** and **10** not quite contacting each other and disposed at a slight angle toward each other. Next the blank **8** is inserted over a precisely shaped arbor and the bending of the ends **9** and **10** is completed, making sure that the legs **11** and **12** meet in perfect mating alignment at the middle of the side **13** of the case **2** and stay in such alignment without welding.

The handle **3** for supporting the razor head **4** is likewise made from a one-piece blank **15** of stainless steel, but in this case it is spring steel bent into a generally V-shaped configuration (see FIG. 8) having a flat base portion **16** and a pair of diverging arms **17** extending therefrom. Projecting from the approximate center of one of the arms **17** adjacent the base portion **16** there is a button **18** which is adapted to be received in the slot **14** in the case **2** for limiting the extent to which the handle **3** may be extended or retracted upon contact with the ends of the slot.

As clearly shown in FIGS. 2, 6, and 7, the arms **17** are of identical configuration and in exact alignment with each other, except for their outer ends **20**, which have extensions **21** projecting in opposite directions and laterally spaced inturned tongues or hooks **22**. The inner ends **23** of the arms **17** and base portion **16** are of a width just slightly less than the length of the opening in the case **2** and the distance between the outer faces of the arms **17** adjacent such base portion is slightly less than the width of such opening, whereby the walls of the case **2** provide guiding surfaces for guiding the movement of the handle **3** therealong. Between the ends **20** and **23**

the arms 17 have an intermediate narrow portion 24 which facilitates easy gripping by a person using the razor 1 for shaving.

Referring again to FIG. 1, the button 18 extends completely through the slot 14 in the case 2 so that it may readily be pushed as by the thumb of the user for extending and retracting the handle as aforesaid, and may also have serrations 25 formed thereon to facilitate gripping thereof. Because there is a rather close sliding fit between the handle 3 and the inner walls of the case 2 as aforesaid, it is difficult to assemble or disassemble these two parts without the use of a special deforming tool for resiliently deforming the inner ends 23 of the arms 17 toward each other a distance sufficient such that the button 18 clears the mating legs 11, 12 of the case 2 for positioning the button in the slot 14. Thus, the location of the button 18 adjacent the base portion 16 is an important feature for preventing the handle 3 and case 2 from coming apart.

In making the handle 3, first the blank 15 having the configuration shown in FIG. 6 is punched out of a flat sheet of metal, it having an enlarged central portion 31 with a raised or arched central bridge 34 adjacent one end of the central portion 31 which may be drawn during the punching step, and a pair of arms 17 extending from opposite ends of such central portion. The outer ends 20 of the arms 17 in the original blank 15 are in their final shape, except for the bending of the tongues or hooks 22, which is done later. Next the central bridge 34 is further drawn into the final configuration shown in FIG. 7, during which the serrations 25 may be formed therein. Finally, the enlarged central portion 31 and the tongues 22 of the blank 15 are bent into the desired shape shown in FIG. 8. Thus, the button 18 is formed in two draws prior to bending the blank 15 into shape.

As clearly shown in FIGS. 1 and 2, the razor head 4 comprises a guard plate 32 and a clamping plate 33 between which there may be sandwiched any standard safety razor blade 5 having suitable openings which permit its attachment along with the guard plate 32 and clamping plate 33 to the handle 3, as will be described hereafter. The guard plate 32 has an inwardly directed lip extension 35 at one end 36 and a pair of axially spaced rectangular apertures 37 in the axial middle of the guard plate 32, with the axis of the guard plate passing through two of the corners of each aperture 37. Adjacent the axial outer corners there are provided upwardly extending lugs 38 for receipt in slots 39 and 40 in the clamping plate 33 when such clamping plate is properly disposed on the guard plate 32 with one end 41 inserted under the lip extension 35 (see FIG. 1). The slot 39 extends through the end 41 of the clamping plate 33 to permit sliding of the clamping plate under the lip extension 35 with one of the lugs 38 located in the slot 39.

The other end 45 of the clamping plate 33 is provided with a lip extension 46 similar to the lip extension 35 of the guard plate 32 for receipt of the other end 47 of the guard plate 32. The clamping plate 33 also has a pair of rectangular apertures 50 which are in exact alignment with the apertures 37 in the guard plate 32 when the clamping plate 33 and guard plate 32 are properly assembled, and the blade 5 disposed therebetween likewise has similarly aligned apertures. With the razor head 4 so assembled, it is a simple matter to mount the head on the handle 3, it only being necessary to spread the arms 17 of the handle apart when the handle is in the extended position shown in FIG. 1 until the tongues or hooks 22 are in alignment with the aligned apertures in the head 4, and insert the tongues into such aligned apertures, whereupon the arms 17 may be released to permit the spring of the arms to urge the tongues 22 into tight gripping engagement with the razor head 4. Spreading apart of the arms 17 is perhaps best accomplished by inserting a finger therebetween and urging it toward the base portion 16. Because the tongues 22 are laterally offset as

aforesaid, the razor head 4 will be held in angular relation to the axis of the safety razor 1, as illustrated in FIG. 1. Accordingly, when the user grasps the case 2 and handle 3, the blade 5 carried in the head 4 will be held naturally at the desired angle for most efficient shaving.

The edges 51 of the outer ends 20 of the arms 17 on both sides of the hooks 22 are preferably flat for firm engagement with the bottom of the guard plate 32. Moreover, the spring action of the arms 17 tending to return them to their relaxed condition shown in FIG. 8 is generally sufficient to maintain the blade 5 properly clamped between the clamping plate 33 and guard plate 32 at the preferred shaving angle when the handle 3 is full extended. However, should it be desired to change the blade angle, this can conveniently be done simply by pushing inwardly on the razor head 4 to cause partial retraction of the handle 3 within the case 2, whereby the clamping plate 33 is drawn more tightly against the guard plate 32 with the blade 5 more firmly clamped therebetween and thus additionally flattened.

When it is desired to disassemble the safety razor 1, either to change the blade 5 or to collapse the razor, the arms 17 are again spread apart to permit disengagement of the tongues 22 from the rectangular apertures in the razor head 4. Then the head 4 may be disassembled as by a simple sliding and lifting movement for cleaning or changing blades, and reassembled for insertion between the arms 17, after which the entire assembly, including the handle 3, head 4, and up to five extra blades, may be slid into the case 2. The proper location of the various parts within the case 2 is assured by engagement of the button 18 with the bottom of the slot 14. When the razor 1 is in this collapsed condition, the tongues 22 of the handle 3 overlie the outer end of the head 4 and blades 5 to prevent them from dropping out.

From the above discussion, it can now be seen that the collapsible safety razor of the present invention is provided with a novel button and slot arrangement for interconnecting the razor case and handle to limit the extent to which the handle may be extended and retracted. Moreover, once the handle and case are properly assembled, they cannot be taken apart except with the use of a special type tool, thereby insuring against loss of the handle or case. The case and handle are both made from single piece blanks with a minimum number of bending and drawing steps in such a manner that there is no scrap and there are no burrs to be removed.

Other modes of applying the principles of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims or the equivalent of such be employed.

I, therefore, particularly point out and distinctly claim as my invention:

1. A collapsible razor comprising a case and a handle having means at one end for attaching a razor head thereto, said case having a generally rectangular configuration with a longitudinally extending slot in one of the sides, said handle having a pair of flexible arms interconnected by a base portion, said arms in their relaxed condition diverging away from each other, said base portion being closely slidably received in said case with said arms resiliently engaging opposite sides of said case, and an integral button projecting from one of said arms and extending through said slot for limiting the extent to which said handle may be extended from and retracted into said case with said razor head detached from said handle, said button being located adjacent said base portion, whereby substantial flexing of the outer ends of said arms toward each other will be ineffective in disengaging said button from said slot.

2. The razor of claim 1 wherein said button is in the form of an arch which has been punched out of and drawn from said one arm, said button being slightly nar-

rower than the width of said slot to facilitate assembly and disassembly of said handle and case.

3. A collapsible razor comprising a case, a handle, said case having a generally rectangular configuration with a longitudinally extending slot in one of the sides, said case being made from a one-piece blank of metal which has been bent into such generally rectangular configuration with the ends of said blank being in perfect mating alignment, said ends being of generally U-shape and cooperating with each other to define said slot, said handle having a pair of flexible arms interconnected at one end by a base portion, means at the other end of said arms for attaching a razor head to said handle, said

arms in their relaxed condition diverging away from each other, said handle being slidably received in said case with said arms resiliently engaging opposite sides of said case, and a button projecting from one of said arms and extending through said slot for limiting the extent to which said handle may be extended from and retracted into said case.

No references cited.

WILLIAM FELDMAN, *Primary Examiner.*

MYRON C. KRUSE, *Examiner.*