April 5, 1938. E. M. ELLIOTT 2,113,233

RAZOR SHARPENER

Filed Feb. 19, 1936

Fig. 1.

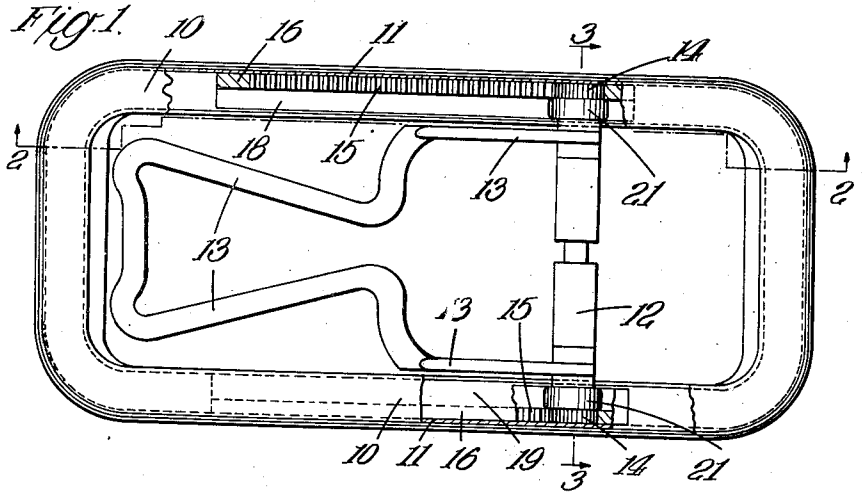


Fig. 2.

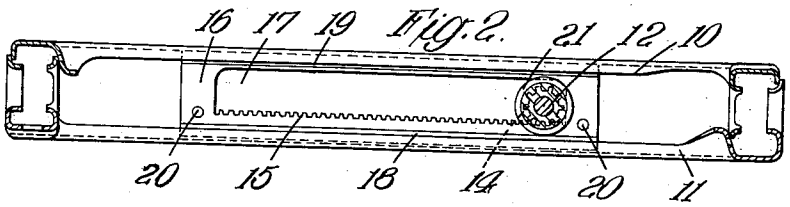


Fig. 3.

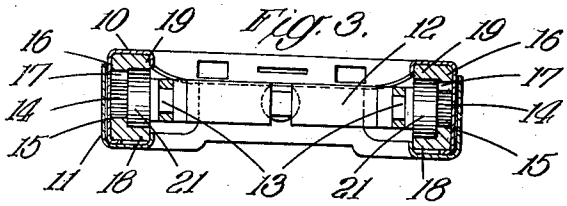


Fig. 4.

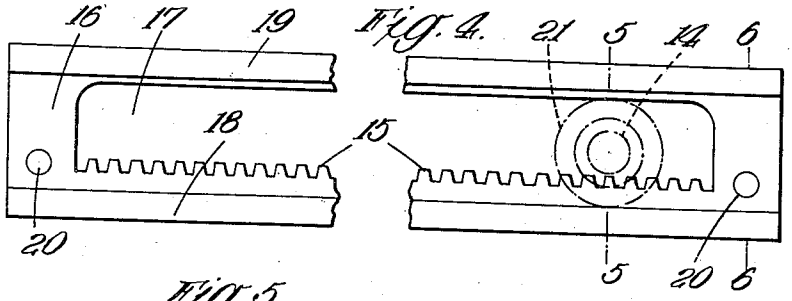
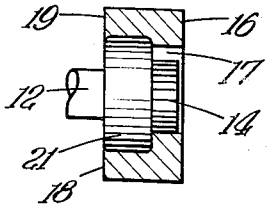


Fig. 5.



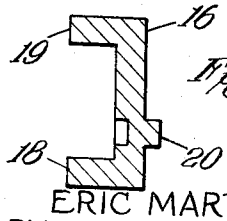


Fig. 6.

INVENTOR:
ERIC MARTIN ELLIOTT
BY Haseltine, Lake & Co. ATTORNEYS

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UNITED STATES PATENT OFFICE

2,113,233

RAZOR SHARPENER

Eric Martin Elliott, Watford, England, assignor to Rolls Razor Limited, London, England, a British company

Application February 19, 1936, Serial No. 64,719
In Great Britain February 26, 1935

2 Claims. (Cl. 51—153)

The present invention relates to devices for sharpening safety razor blades of the kind in which the blade is automatically rocked or reversed at the end of each stroke and provision is made for honing or stropping the blade (or both), see for example the specifications of Patents Nos. 1,266,183 and 1,512,058. The chief object of the present invention is to provide a means of construction of the razor box or casing whereby the said razor box or casing is suitably reinforced to enable better and more accurate engagement of the gearing racks and the spindle pinions to be obtained.

According to this invention the form of the razor box or casing is thickened or stiffened in cross section, or suitable parts are secured to such box or casing to provide a thickening or stiffening along those portions (herein called tracks) traversed by the spindle or its guiding wheels, rollers or the like in order rigidly to receive and resist the resultant gearing stresses from the spindle pinions meshing with their respective racks and other applied forces. The spindle in such forms of razor sharpening devices referred to is disposed centrally by the guiding wheels or rollers between the inner faces of the tracks, and the gearing racks are suitably disposed to allow the spindle pinions to mesh therewith.

The said thickening or stiffening of the razor box may be provided by riveting or otherwise securing a member or members of suitable cross-section to and within each longitudinal side of the razor box or casing, such member or members being so disposed as to provide suitable tracks for each spindle guiding wheel or roller. Such thickening or stiffening members may be of channel form in cross-section and secured within the longitudinal sides of the razor box or casing so that the base of each channel section is adjacent and parallel to each such longitudinal side of the razor box or casing, the inner faces of the open arms or legs of the channels providing uninterrupted tracks for the spindle rollers. Such channel sectioned members may have suitable portions cut away to allow of the gearing racks being also mounted and secured within the longitudinal sides of the razor box or casing and also to allow of the meshing of the spindle pinions with the said gearing racks.

The stiffening members may have the gearing racks secured to them, or advantageously formed directly on the material of said thickening or stiffening members. In one embodiment, the thickening or stiffening member is formed of channel sectioned material having a slot centrally disposed along part of the base of the channel preferably nearer to one channel leg to allow suitable rack teeth to be cut or formed in one longitudinal side of the slot. The pitch line of such rack teeth is so disposed from the inner faces of the channel arms as to admit of the meshing of the spindle pinion with said rack teeth.

Each spindle guiding wheel or roller may be of one piece or of composite form, and of cylindrical shape. In one embodiment of the invention the spindle guiding wheel or roller may have one or more flats on its periphery so that instead of rolling within the track it slides therein, while the sliding member has its spindle bearing hole formed so that in situ the spindle is nearer to one of the inner track faces than to the other. The spindle may also be so increased in size as to bear directly on the tracks, so that the spindle guiding wheel or roller is dispensed with.

In order that the invention may be clearly understood and readily carried out, the same will now be more fully described with reference to the accompanying drawing, in which:—

Figure 1 is a plan view partly in section of one embodiment of the present invention, showing in particular the operating handle and the blade carrying spindle, which latter has mounted thereon the pinions that engage with the racks at the sides of the razor box or casing.

Figure 2 is a longitudinal sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 1.

Figure 4 is an enlarged side view of one of the racks in accordance with this invention.

Figures 5 and 6 are cross-sectional views taken on the lines 5—5 and 6—6 respectively of Figure 5.

As shown in Figures 1 to 3, the casing or box is constituted by two parts or frame members 10 and 11, the former fitting in the latter and being secured in position in any suitable or usual manner. The two frame members 10, 11 are closed by oppositely disposed removable honing and stropping surfaces (not shown) along either of which the razor blade when mounted on the spindle 12 can be rocked as a result of moving the handle 13 backwards and forwards to cause the pinions 14 mounted on the ends of the spindle 12 to travel along the racks 15 and effect the necessary angular movement of the spindle and the blade which is removably mounted in a carrier (not shown). In the example shown, each

rack 15 is formed or provided in a channel sectioned strip 16 having a longitudinal slot 17 in the base or main part of the strip which lies against the walls of the frame member 10 and also carries the arms or extensions 18 and 19 to provide the channel section. In the example shown, each rack 15 is integral with the strip (although it may be separately attached in some cases) and the rack teeth extend along the length of the slot 17 which is of such dimensions as to receive one of the pinions 14 on the spindle 12. The said channel sectioned strip 16 may be secured in position in any appropriate manner by turning over the edges of the interfitting frame members 10 and 11 as shown in Figure 3, and in one example locating projections or pins 20 (see Figure 6) formed on the channel sectioned strips 16 may project into holes in the sides of the frame member 10. The two rack members are identical in construction and they may be extruded or stamped so that the teeth of the racks 15 and the aforesaid pins or projections 20 are all integral with the main part of the channel sectioned strip. As previously stated, the slots 17 in the channel sectioned strips are of such dimensions as to receive the pinions 14, and adjacent to the said pinions and mounted on the said spindle are rollers 21 which are adapted to bear either on the arms 18 or the arms 19 of the channel sectioned strips 16. These lower arms 18 form tracks along which the rollers 21 travel and revolve as the spindle is moved backwards and forwards by the handle, during which time the pinions engage with the racks in order to effect the necessary angular movement of the spindle as required, for honing purposes. When the box or casing is reversed or inverted and used for stropping purposes, the rollers 21 bear on the tracks constituted by the arms 19. The provision of the channel sectioned strips along the sides of the razor box or casing affords a thickening or stiffening which reinforces these parts of the box or casing and relieves them of strains, and the arms 18 and 19 of the channel sectioned strip which provide the tracks along which the guiding wheels or rollers 21 travel, resist the gearing stresses resulting from the spindle pinions 14 meshing with their respective racks 15, together with other applied forces.

Although it is preferred to provide reinforcing or stiffening members in the form of channel sectioned strips, it will be understood that other forms of strips may be used. Although the rack is integrally formed with the channel sectioned strip, it will be understood that separate racks may be provided, and in such case they may be inserted in or fixed on the reinforcing strip in any appropriate manner, for example by rivets or otherwise. Although in the example shown the guiding wheels or rollers are of cylindrical formation and roll on the track surfaces, there may be provided members that travel along the said tracks without rolling. For instance, guiding members similar to those represented by the reference 21 may be provided with a flat or flats at the periphery to engage with the track or tracks, so that instead of a rolling action along the track, a sliding action takes place. In a further modification, the spindle itself may be increased in size or diameter so as to roll or slide directly on the tracks, in which case separate guiding wheels or members can be dispensed with.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A razor sharpening device of the character described, comprising a casing, a portion having a sharpening surface, sliding means in the casing for carrying a razor blade and causing it to move in contact with said sharpening surface, rotatable pinions on said sliding blade-carrying means and reinforcing means consisting of channel-sectioned strips affixed to the longitudinal sides of the casing, the main part of the channel-sectioned strips lying adjacent to and parallel with said longitudinal sides, and racks carried upon said main part of said strips and adapted to be engaged by said pinions, while the inner surfaces of the arms of the said strips constitute bearing tracks, and means associated with the slidable blade carrying means for bearing on said tracks which resist the resultant stresses arising from the pinions meshing with their respective racks and from other applied forces.

2. A razor sharpening device according to claim 1, in which each channel-sectioned strip has a longitudinal slot in the main part lying parallel with the longitudinal sides of the casing and disposed between the lateral arms forming the bearing tracks, one edge of said longitudinal slot having rack teeth adapted to be engaged by the respective pinions both for honing and stropping purposes, said bearing tracks being respectively used in turn, the one track when stropping and the other track when honing.

ERIC MARTIN ELLIOTT.