SAFETY RAZOR AND STROPPING DEVICE

This invention of improvements in razor stropping devices is concerned with apparatus of the kind in which the razor blade is supported by a holder with its edge entered into a bight in the strop, the said bight being formed by training the strop over a series of rollers mounted in the holder in an appropriate disposition. In apparatus of this kind, the holder is moved to and fro along the strop and owing to a relative rocking motion automatically produced at the end of each stroke, the sides of the blade edge are stropped in alternation.

An important object of this invention is to adapt apparatus of the kind referred to so that it is capable of receiving a safety razor device bodily and of supporting the said razor device in such accurate disposition that the edge of the blade thereon is correctly entered into the bight in the strop.

Another object is to support the series of rollers in a swingable cradle device suspended within the holder.

Another object is to provide means for locking the cradle in a non-swingable condition so that the cradle cannot move when the apparatus is not in use.

A further object is to provide simple locking means for securing the razor in the correct disposition to which it is adjusted for stropping. Preferably, the cradle locking means and razor locking means are embodied in a single pivotal catch device which can be moved to one position for locking the cradle and to a reverse position for locking the razor.

These and other objects will be fully described with reference to drawings accompanying this specification and illustrating one suitable example of construction, in which drawings:

Figure 1 is a longitudinal sectional elevation of an improved stropping device with a safety razor locked therein for stropping, the device being assumed to be in movement along the strop in the direction of the arrow.

Figure 2 is a plan of Figure 1 but with the strop indicated by chain lines only.

Figure 3 is an elevation as seen from the left hand end of Figure 1 and with the strop omitted.

Figure 4 is a fragmentary view similar to Figure 1 but showing the cradle rocked to a reverse position for stropping the other side of the edge of the blade when the device is in movement along the strop in the direction of the arrow which is the reverse of that in Figure 1.

Figure 5 is similar to Figure 4 but it shows the cradle in a locked condition and the razor only partially inserted.

Figure 6 is a transverse section on the line VI—VI of Figure 4.

Figure 7 is a perspective view of the blade end of the safety razor with the handle broken off.

Figure 8 is a cross section on the line VIII—VIII of Figure 7.

Figure 9 is an end elevation of the razor device in Figure 7.

Figure 10 is a plan view of the razor device in Figure 7.

The carriage or holder is a channel member comprising a base 1 and side walls 2 and 3. Within the channel is a swingable cradle comprising side plates 4 and 5, three rollers 6, 7 and 8 in triangular or staggered disposition being rotatably mounted on spindles 9, 10 and 11 fixed by their ends in the plates 4 and 5. The cradle is suspended from pivots 12 and 13 on the walls 2 and 3. The rollers 7 and 8 are provided with flanges 70 and 80 respectively. A strop 14 is passed along the channel and trained about the rollers to form a bight into which the edge of the razor blade is to project. A hollow bead or bridge member 15 extends across the channel near the rear end, and is formed in the middle with a slot to receive a neck 17 formed on the razor handle 19 just within a terminal knob or enlargement 18 which can be seated in the hollow bead 15.

The forward end of the handle 19 is shown screw threaded at 20 for screwing into the thick portion of a blade 22 which may be of the hollow ground type, but the handle may be riveted to the blade. Between the screw thread 20 and the plain portion of the handle 19, there is formed a collar or enlargement...
23. Before screwing the handle into the blade 22, a clip device 21 is applied to the blade. The screw threaded end 20 is passed through a perforation in the clip and screwed into the blade 22, and when tightly screwed home the collar 23 clamps the clip 21 between itself and the blade 22. As will be seen particularly from Figures 7 to 10, the clip device 21 is of sheet metal, the top part being flanged to fit and seat on the top of the blade and the lower part being shaped to form spring arms 24 and 25 extending to respective sides of the blade 22. The arms 24, 25 are formed at their ends with tangs or pips 26 and 27 projecting at right angles from the arms and these are for supporting the blade guard 28.

As seen in the drawings, the guard 28 is a U-shaped loop or ball having internal dimensions sufficiently large to enable it to swing past the edge of the blade from the position Figure 1 to the position Figure 4. The upper portions of the limbs of this guard are widened at 29 and 30, Figure 7 to overlap the sides of the blade 22, and such widened portions are provided with perforations to enable the tangs or pips 26, 27 to pass through. The upper portions of the limbs are bent out of the plane of the blade 28, so that when such upper portions are more or less flat against the blade 22, the loop portion is inclined away from the blade as seen in Figures 1, 5, 8 and 9. In assembling the parts, the clip 21 is engaged with the guard 28 by inserting the tangs or pips 26, 27 into the perforations of the widened portions 29, 30 and then applied to the blade 22, the handle 19 being finally screwed into the blade to clamp the clip 21 as above described.

The clip 21 having been secured in position with accuracy owing to the disposition of its perforation on the screw 20 and to the seating of its flange on the top of the blade, it follows that the tangs or pips 26, 27 will suspend the guard 28 so that its bottom transverse member is correctly disposed beneath the lower portions of its side limbs are clear of the blade. Moreover, the pressure of the spring arms 24, 25 against the upper portions 29, 30 of the limbs keeps such portions flat against the blade 22 so that the loop portion of the guard is correctly disposed in relation to the edge of the blade for affording the safety razor characteristics. It is to be noted from Figures 8 and 9 that the tangs or pips 26, 27 normally extend a little over respective ends of the blade. The above described position of the parts, seen in Figures 8 and 9, is the normal position of the parts during a shaving operation.

The top flange of the clip 21 is formed with end extensions 31 and 32 which project beyond the ends of the blade 22, as seen clearly in Figure 10, and these extensions are designed to come to rest and seat upon the inner end portions of the blade pivots 12 and 13 as shown in Figure 6, when the razor is properly inserted into the channel carriage or holder. Such insertion is accomplished by holding the razor in a somewhat erect position, introducing the knob 18 into the seating 15 and the neck 17 into the slot 16, and then lowering the razor as about a pivot until the extensions 31 and 32 come to rest upon the inner ends of the pivots 12 and 13. When the end of the handle 19 has been engaged in the seating 15 and slot 16 as described, no appreciable movement of the razor endwise of the carriage or holder is possible. Consequently, with appropriate dimensions for the parts, the extensions 31 and 32 are bound to seat themselves accurately on the pins 12 and 13.

It is advisable to lock the razor in the seated position in the holder and for this purpose a pivoted loop or ball-form of catch 33 is adopted. The catch is mounted on pivot pins 34 and 35 on the side walls 2 and 3, and its transverse or arch member is provided with spring fingers 40, 41 which press on the top flange of the clip 21 on the blade when the catch is moved about its pivots to the blade-locking position seen in Figures 1 and 4. The side limbs of the catch 33 are notched at 36 and 37, so that when the catch 33 is moved about its pivots to a reverse position in which it unlocks the razor, the said notches engage with pins or projections 38, 39 on the cradle and lock the latter in a non-swingable position as seen in Figure 5. Naturally, the cradle must be brought to the appropriate intermediate position for this latter locking to be effected.

In operation, the cradle is locked by the catch 33 as just described. The knob 18 on the razor handle 19 is then engaged with the seating 15 and the razor is lowered to bring the extensions 31 and 32 on to the pins 12 and 13, as already explained. Figure 6 shows the razor just before it arrives at this position of rest. In view of the dimensions adopted as above explained and further in view of the cradle being locked immovably in the position shown, the edge of the blade 28 is bound to enter the strop 14 freely and without possibility of damage. The catch 33 is now moved about its pivots to the position seen in Figures 1, 4 and 6 so as to prevent the extensions 31, 32, from rising from their seating on the pins 12 and 13. As the top bent over portion of the bead 15 prevents the knob 18 from rising and as endwise movement of the razor is prevented by the engagement of the neck 17 in the slot 16, it will be seen that the razor is fixedly held on a three point support in very accurate disposition in relation to the stropping bight. The razor is conveniently stored in this condition in the holder when not in use.
When the razor is to be stropped, and assuming it to have been inserted and locked in the carriage or holder as above described, one end of the stop 14 is hooked on to a fixed object, the other end is held to pull the stop taut, and the carriage or holder is reciprocated along the stop. Assume the first stroke imparted to the carriage or holder to be in the direction of the arrow Figure 1, the pull of the stop will cause the cradle to rock rightwardly to the position shown, so that the left hand side of the edge of the blade is engaged and rubbed by that portion of the stop at the top left hand portion of the bight. The favourable angle at which the stop impinges against the edge is to be noted. During this stroke of the carriage, the guard 28 retains its normal position in relation to the blade 22, the reason being that the left hand side of the edge of the blade is normally exposed and is free to be wiped or rubbed by the stop. When this stroke of the carriage is finished, the movement is reversed so that the carriage then moves in the direction of the arrow in Figure 4. The reverse pull of the stop causes the cradle to rock leftwardly to the position in Figure 4, so that the top right hand portion of the bight will rub against the right hand side of the edge of the blade. Now, the guard 28 would normally prevent contact of the stop with this side of the edge but owing to the method of supporting the guard 28, the latter is free to be pushed by the flanges 80 of the roller 8 past the blade 22, as shown in Figure 4, so as not to obstruct contact of the stop with the blade. As will be apparent by comparing Figures 1, 4, 8 and 9, the guard 28 when so pushed by the flanges 80 executes a rocking movement about a fulcrum which may be said to be provided by the shoulders at the lower ends of the widened portions 28, 30. During this rocking movement of the guard 28, the tangs or pips, 26, 27 remain in engagement and preserve the appropriate disposition of the guard. As the lower or loop portion of the guard moves past the edge of the blade, the upper portions of the limbs move outwards from the thick portion of the blade, thereby stressing the spring arms 24, 25. Thus, when the movement of the carriage is again reversed so that the cradle is returned to the position seen in Figure 1, the spring arms 24, 25, will return the guard 28 to its normal position. The amplitude of rocking movement of the guard 28 against the resistance of the spring arms 24, 25 is relatively small so that in no circumstances is it possible, by reasonable effort, to shift the guard to such an extent as dangerously to expose the edge of the blade. Thus, during shaving, for example, it is quite impossible for the guard 28 to rock or tilt to an unsafe position.

The construction described is capable of various modifications and refinements without departing from the invention as hereinafter claimed:

I claim:—

1. Safety razor stropping device operative for stropping a blade fixed in a safety razor device, comprising a stop, an elongated carriage adapted for reciprocation over the stop, a cradle swingably mounted within said carriage and comprising a plurality of anti-friction rollers so disposed as to form a bight in the stop trained over said rollers, supporting within said carriage adapted for supporting and positioning the safety razor device with the edge of the blade entering the open mouth of the bight, and a movable catch adjustable from one operative position in which it engages the cradle to prevent swinging thereof to another operative position in which it locks the razor on its supports within the carriage substantially as set forth.

2. Safety razor stropping device, comprising a stop, an elongated carriage of channel section, a cradle swingably suspended from the walls of the channel section and comprising a plurality of anti-friction rollers so disposed as to form a bight in the stop trained over said rollers and passed longitudinally through said carriage, inwardly directed studs on the walls of said channel said studs being adapted for engaging and supporting lateral projections of the blade clip of said razor and being disposed so that the blade depends with its edge entering the open mouth of the bight, a bridge device spanning the channel section at a point distant from said cradle said bridge device being adapted for engaging with and supporting the end of the handle of the razor device and thereby determining the position of said lateral projections over the side studs, and securing means operative for retaining the lateral projections upon said studs substantially as set forth.

3. Safety razor stropping device, comprising a stop, an elongated carriage of channel section, a cradle swingably suspended from the walls of the channel section and comprising a plurality of anti-friction rollers so disposed as to form a bight in the stop trained over said rollers and passed longitudinally through said carriage, inwardly directed studs on the walls of said channel said studs being adapted for engaging and supporting lateral projections of the blade clip of said razor and being disposed so that the blade depends with its edge entering the open mouth of the bight, a bridge device spanning the channel section at a point distant from said cradle said bridge device being adapted for engaging with and supporting the end of the handle of the razor device, and thereby determining the position of said lateral projections over the side studs, and a clip swingably mounted within said carriage and adapted.
ed in its operative position to have resilient engagement with the razor clip in the direction for keeping the latter down upon the side studs substantially as set forth.

4. Safety razor stropping device, comprising a strop, an elongated carriage of channel section, a cradle swingingly suspended from the walls of the channel section and comprising a plurality of anti-friction rollers so disposed as to form a bight in the strop, trained over said rollers and passed longitudinally through said carriage, inwardly directed studs on the walls of said channel said studs being adapted for engaging and supporting lateral projections of the blade clip of said razor and being disposed so that the blade depends with its edge entering the open mouth of the bight, a bridge device spanning the channel section and formed midway in the span with a slotted seating adapted for engaging with a neck formation in the end of a razor handle and thereby ensuring fixity of position both laterally and longitudinally of said razor handle while also determining the position of the lateral projections of the blade clip over the side studs, and securing means operative for retaining the lateral projections upon the studs substantially as set forth.

5. A safety razor stropping device operative for stropping a blade fixed in a safety razor device, comprising a strop, an elongated carriage adapted for reciprocation along the strop, a swingably suspended cradle in the carriage comprising revolvable rollers in angular disposition adapted for forming a rockable bight in said strop, pivot devices in said carriage disposed opposite the mount of said bight and swingably suspending said cradle, and distributed supports in said carriage for said safety razor device said supports being adapted for fixedly determining the position of the razor longitudinally of the carriage and with the razor blade in the rockable bight of the strop.

6. A safety razor stropping device operative for stropping a blade fixed together with a blade clip in a safety razor device, comprising a strop, an elongated carriage adapted for reciprocation along the strop, side projections in said carriage adapted for being engaged by the blade clip of the safety razor, a support distant from said projections and adapted for engaging and supporting the handle of the safety razor to determine the fixed position of such razor longitudinally of the carriage, a cradle, pivots in said carriage to swingably suspend said cradle, and revolvable rollers in angular disposition in said cradle to form a rockable bight in said strop operative upon the razor blade positioned within said bight.

7. A safety razor stropping device operative for stropping a blade fixed in a safety razor device, comprising a strop, an elongated carriage adapted for reciprocation along