No. 827,264. PATENTED JULY 31, 1906.

J. RHEINBERG.

APPARATUS FOR STROPPING RAZORS.

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Fig. 1.

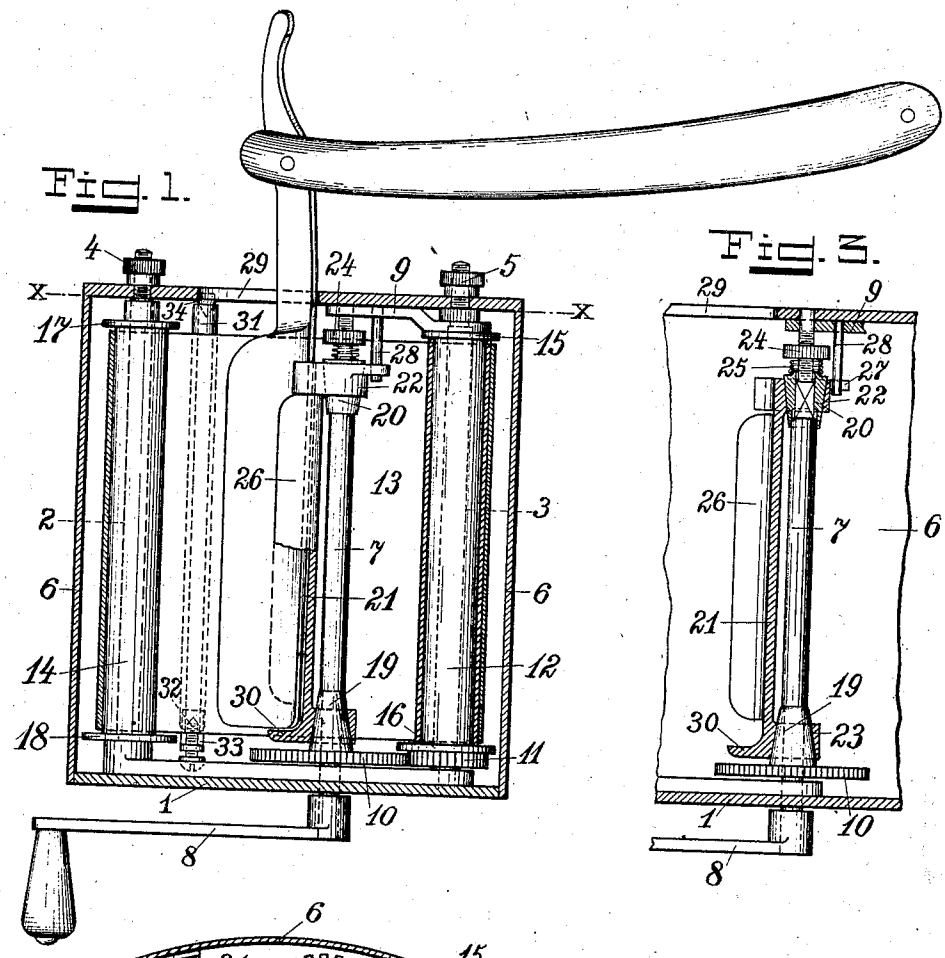



Fig. 3.



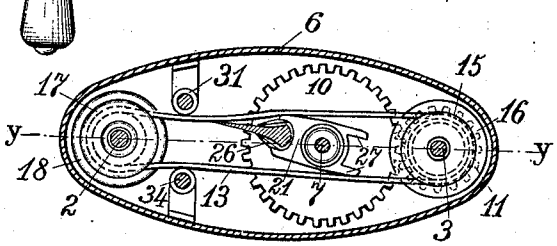




Fig. 2.

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## APPARATUS FOR STROPPING RAZORS.

No. 827,264. Specification of Letters Patent. Patented July 31, 1906.

Application filed December 19, 1904. Serial No. 237,429.

*To all whom it may concern:*

Be it known that I, JULIUS RHEINBERG, manufacturer, a subject of the King of Great Britain and Ireland, residing at No. 32 Snow Hill, London, England, have invented certain new and useful Improvements in Apparatus for Stropping Razors and Like Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to an apparatus for stropping or sharpening razors and like instruments and is chiefly designed to produce an efficient, simple, and self-contained apparatus comprising an endless stropping-band inclosed by a casing which can be held in one hand while operating the apparatus with the other, as the latter does not require to be attached to any support. The endless band runs in the frame on two principal rollers, while separate smaller rollers may be used for the purpose of guiding, stretching, or of affording lateral support to said band. A spring or other clip is arranged to receive and hold the razor or like blade to be stropped, and automatic means are provided for moving the said clip so as to press the two sides of the blade alternately on the stropping-band while the latter is being moved by the driving means first in one direction and then in the other. In the preferred form of the instrument the said clip is arranged within the loop formed by the endless band, and the stropping or sharpening is effected by the interior surface of said band.

The rotation of one or both of the rollers carrying the endless band and the movement of the clip are effected by the same mechanism, so that while the movement of the endless band and of the clip may be simultaneous the latter is not directly dependent on the former, and the clip would be moved even though no endless band were present.

By holding the frame in one hand and rotating the driving mechanism with the other hand, first in one direction and then in the other, the opposite sides of the razor or like instrument are thereby pressed alternately against the surface of the moving band, and thus the razor or the like is sharpened.

In the accompanying drawings, Figure 1 is a side view of my stropping apparatus, showing the casing and a part of the clip holding the razor-blade in section. Fig. 2 is a sectional view taken on line $x\,x$ of Fig. 1. Fig. 3 is a sectional view taken on line $y\,y$ of Fig. 2, but showing the clip holding the razor-blade turned to its central position.

To the base-plate 1 are secured the rods 2 and 3, threaded at their upper ends for the reception of the milled nuts 4 and 5, by means of which the base-plate and the mechanism carried thereby are secured to the casing 6. In the base-plate 1 is also journaled the lower end of the spindle 7, of which the part projecting through said base-plate downward is squared for the reception of a handle 8, whereas the upper end of the spindle 7 is held by an arm 9, removably secured to the rod 3.

Upon the lower part of the spindle 7 is seated a gear-wheel 10, meshing with a pinion 11, secured to the roller 12, rotatably mounted upon the rod 3 and preferably covered with india-rubber to prevent the slipping of the stropping-band 13, which, as plainly shown in Fig. 2, is passing over this roller 12 and a similar roller 14, mounted upon the rod 2. To prevent the stropping-band from moving up or down upon said rollers, the roller 12 is provided with the flanges 15 and 16, whereas the roller 14 is only provided with the upper flange 17, while its lower flange is replaced by the disk 18, secured to the rod 2. By means of this arrangement it is made possible to put the stropping-band 13 in position without stretching it, as said stropping-band may be simply slipped over the roller 12 and over the rod 2, after which the roller 14 is pushed on the latter.

An advantageous form of stropping or sharpening band consists of an endless band or bands of non-stretching tissue, such as linen or canvas, having strong warp-threads arranged circumferentially, and a layer of leather or other suitable material cemented or otherwise suitably fastened thereto.

As shown in Figs. 1 and 3, a cone 19 is arranged just above the gear-wheel 10, and as this cone is firmly connected with the spindle 7 it might for structural reasons form the hub of the gear-wheel 10 or form an integral part of the spindle 7. At the upper end of the spindle 7 another cone 20 is arranged capable of sliding on said spindle 7, but compelled to rotate in unison therewith by a squared part of said spindle fitting the square central aperture of the cone 20. The cones 19 and 20 are facing each other with their small ends and are holding a sleeve 21, through whose arms 22 and 23 said cones are passing. Be-

tween the upper end of the cone 20 and the nut 24, fitted to the upper end of the spindle 7, a spring 25 is arranged, so that by increasing or diminishing the tension of the spring 25 by adjusting the nut 24 one way or the other the friction between said sleeve 21 and said cones can be adjusted at will. To the sleeve 21 a spring-clip 26 for holding the razor or a like instrument is attached. It is obvious from this construction that the sleeve 21, with the clip 26, will have a tendency to rotate with the spindle 7; but this rotation is limited by the fork 27 extending from the upper arm 22 of the sleeve 21 and embracing a stop-pin 28, secured to the arm 9. To insert the blade of a razor or a like instrument into the clip 26 when the casing 6 has been pushed over the working parts and secured to the base-plate 1 by means of the nuts 4 and 5, as described above, an opening 29 is provided in the casing 6, through which the blade is pushed between the jaws of the clip 26 and prevented from going too far down by the spur 30 of the arm 23 of sleeve 21. To prevent the stropping-band 13 from bulging too much under the pressure of the blade exerted against it and to let the stropping-band pass the edge or side of the blade under the most advantageous angle during the stropping operation, rollers 31 are provided and mounted with their lower ends on adjustable screw-bearings 32, supported by brackets 33, attached to the inside of the casing 6, while their upper ends are running on conical steps 34, which may be secured to the casing 6, as shown here, or may form a part of the rollers and run in suitable recesses formed in the top part of the casing.

In operation the razor or like blade to be stropped is introduced through the opening 29 in the casing and inserted between the jaws of the clip 26. By means of the handle 8 the spindle 7 is then rotated, thus driving the band 13 and carrying with it the sleeve 21, thereby causing the edge of the blade to press against the stropping-band with a substantially constant pressure during the whole time the spindle 7 continues to rotate in one direction, the pressure of the blade against the band being independent of the speed at which the handle is turned and being solely governed by the friction between the cones 19 and 20 and the sleeve 21, which friction can be regulated by adjusting the spring 25, as described above. After one side of the blade has been sufficiently stropped and the other side of the blade has to be brought into contact with the stropping-band it becomes only necessary to rotate the handle 8 in the opposite direction, and immediately the blade is carried out of contact with that side of the loop formed by the band and put into contact with the opposite side of said loop. By reason of the friction existing between the cones 19 and 20 and the sleeve 21 the pressure of the blade against the stropping-band is independent of the handling of the apparatus and is uniform throughout, and consequently the best results are obtained. If there is no blade in the clip or if the breadth of the blade is not sufficient to reach to the stropping-band, rotation of the sleeve 21 is arrested by the fork 27 engaging the stop-pin 28.

In use the best results are obtained by rotating the handle through four or five revolutions first in one direction and then in the other direction, opposite sides of the blade being thus alternately pressed against the stropping-band, which by reason of the arrangement of the gearing always moves on the operating side from the back of the blade toward the edge thereof. Immediately on the reversal of the direction of motion of the band the edge of the blade is carried out of contact with the band and is moved to the opposite side of the loop formed by the band.

While I have shown the preferred construction of the apparatus embodying my invention, it will be understood that I may vary the details of construction of the same, if desired—as, for instance, giving the casing a rectangular form or add any well-known mechanism to admit of reversing the motion of the band 13 and of the clip 26 without reversing the motion of the handle or let the blade to be stropped come into contact with the outside of the looped stropping-band; but all such changes would in no way influence the working of my apparatus, and therefore fall within the scope of my present invention.

I claim—

1. An apparatus for stropping razors and like instruments, comprising an endless stropping-band revolving when the apparatus is being used and capable of being moved in opposite directions, means for holding the blade to be stropped, and means for pressing the blade against the stropping-band with a uniform pressure independent of the pull on and of the speed of said stropping-band.

2. An apparatus for stropping razors and like instruments comprising an endless revolving stropping-band, rollers for holding said stropping-band in a workable position, a spindle rotatably arranged within the loop of said stropping-band, means for simultaneously operating said stropping-band and said spindle, a clip for holding the blade to be stropped and frictionally mounted on said spindle, and means for regulating the friction between said clip and said spindle.

3. In a stropping apparatus of the character herein described, the combination of an endless stropping-band revolving when the apparatus is being used and capable of being moved in opposite directions, means for driving said stropping-band, a spindle rotatably arranged within the loop of said stropping-band, a clip for holding the blade to be

stropped and mounted on said rotatable spindle between a fixed cone and an adjustable cone, and means for adjusting the last-named cone to regulate the friction between said clip and said cones.

4. In a stropping apparatus of the character herein described, the combination of an endless stropping-band revolving when the apparatus is being used and capable of being moved in opposite directions, means for driving the latter in opposite directions, means for holding the blade to be stropped, and means independent of the stropping-band for reversing the blade when the direction of movement of the stropping-band-driving means is reversed.

5. A stropping apparatus of the character herein described, comprising an endless stropping-band revolving when the apparatus is being used and capable of being moved in opposite directions, rollers for workably supporting said band, a spindle arranged within the loop of said stropping-band, means for rotating one of said rollers and said spindle simultaneously, and a device frictionally mounted on said spindle for holding the blade to be stropped and adapted to bring said blade alternately into operative contact with the interior sides of the loop of said stropping-band.

6. A stropping apparatus for razors and like instruments, comprising means for supporting the blade to be stropped in different working positions, means for stropping said blade when placed in either of these positions, and a casing inclosing said blade-supporting and said blade-stropping means and adapted to be held by the hand when the apparatus is in use, without requiring any other support.

7. In a stropping apparatus of the character herein described, the combination with an endless stropping-band revolving when the apparatus is being used and capable of being moved in opposite directions, of means for supporting the blade and bringing it alternately into operative contact with the interior sides of the loop of said stropping-band, and rollers arranged adjacent to the exterior sides of said stropping-band for resisting the pressure exerted by the blade to be stropped upon the interior sides of said stropping-band.

8. An apparatus for stropping razors and like instruments, comprising in combination an endless stropping-band revolving when the apparatus is being used and capable of being moved in opposite directions, rotatory means for holding said stropping-band, a rotatory spindle arranged within the loop of said stropping-band, driving means between said spindle and said rotatory means for simultaneously operating said spindle and said stropping-band, a clip for holding the blade to be stropped and frictionally mounted on said spindle, means for regulating the friction between said clip and said spindle at will, means for limiting the rotatory motion of said clip, a casing for inclosing the working parts of said apparatus and intended to be grasped by one hand when the apparatus is in use to make any other support superfluous, and rollers arranged adjacent to the exterior sides of said stropping-band for resisting the pressure of the blade to be stropped upon the interior sides of said stropping-band.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JULIUS RHEINBERG.

Witnesses:
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A. NUTTING.