No. 833,728. PATENTED OCT. 23, 1906.

F. L. BRUNSWICK.

RAZOR STROP.

APPLICATION FILED AUG. 26, 1905. RENEWED AUG. 27, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

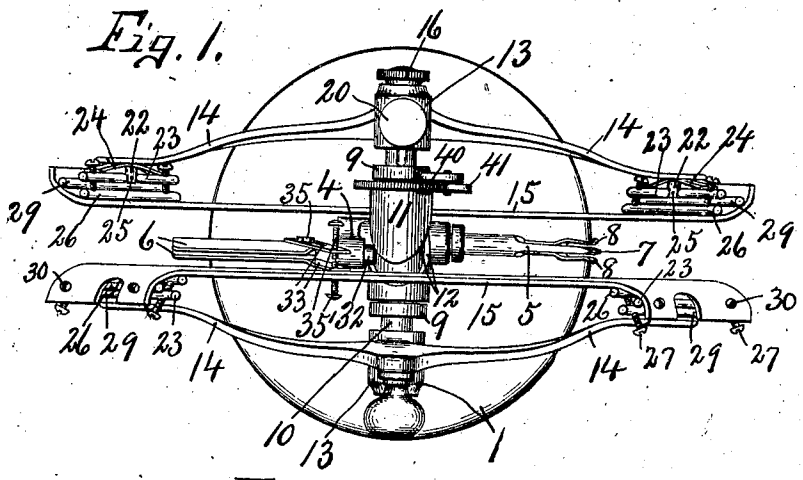
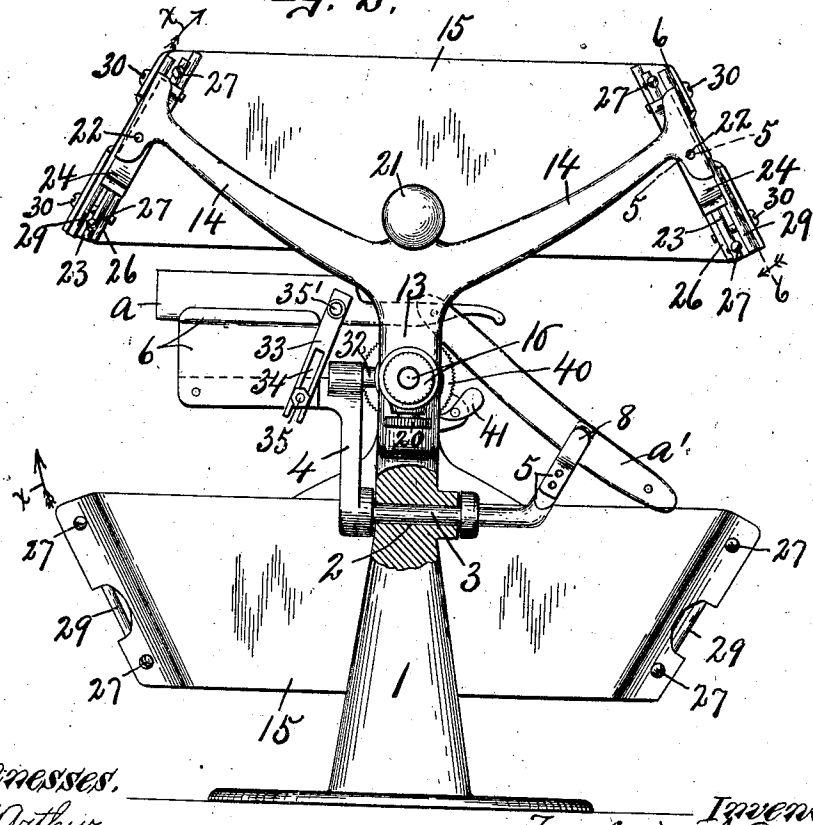


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

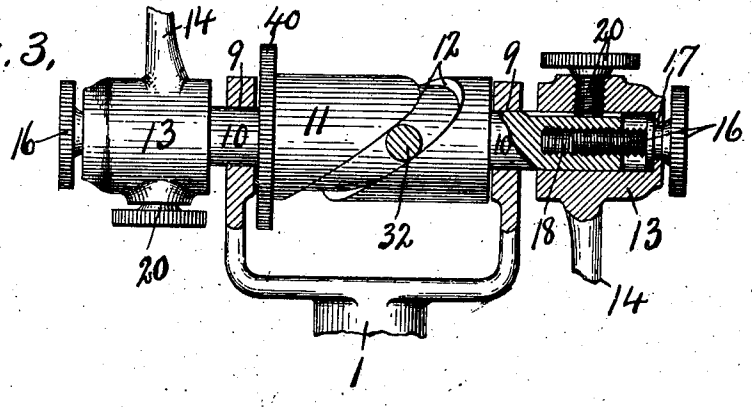


Fig. 4.

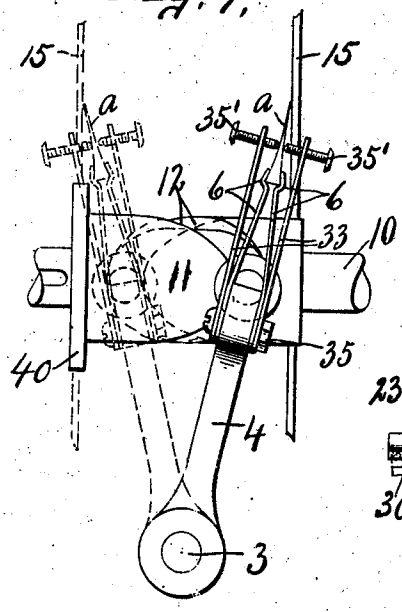


Fig. 5.

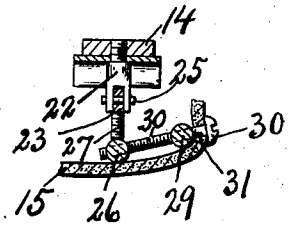
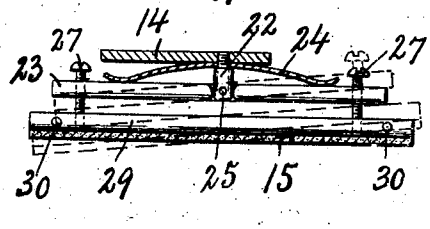


Fig. 6.



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UNITED STATES PATENT OFFICE.

FREDRICK L. BRUNSWICK, OF OSWEGO, NEW YORK.

RAZOR-STROP.

No. 833,728. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed August 26, 1905. Renewed August 27, 1906. Serial No. 332,206.

To all whom it may concern:

Be it known that I, FREDRICK L. BRUNSWICK, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Razor-Stropping Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in razor-stropping machines, and refers more particularly to certain improvements in my Patent No. 620,273, February 28, 1899, in which the essential object is to provide rotary strops revolving in a plane at substantially right angles to its axis of rotation across the opposite edges of a razor which is held in an oscillatory support brought into action by the revolving of the strops. In the manufacture and use of this device I have discovered that it is advisable to mount the strops upon yielding supports, which are capable of slight oscillatory movement transversely of the direction of extension of the strop, so as to avoid undue abrasion or creasing of the strop by the end edge of the razor. I have also found that in order to properly sharpen a razor without undue wear the strop should be brought against its opposite side with practically the same degree of pressure, and it therefore becomes necessary to provide means for adjusting the razor or strops laterally or axially, so as to bring the edge of the razor into the same relation with each strop.

The objects, therefore, of my present invention are to provide means for accomplishing these results, as well as to improve the general structure of the machine, so as to give it greater rigidity and ease of action without sacrificing its lightness or durability. These specific objects will be brought out in the following description.

In the drawings, Figure 1 is a top plan of a razor-sharpening machine embodying the features of my invention. Fig. 2 is a side elevation of the same, a portion thereof being shown in section to show the shaft for the oscillating razor-support. Fig. 3 is an enlarged elevation, partly in section, of the rotary strop-supporting heads and their supporting-shaft, together with the spiral cam for actuating the oscillatory razor-support. Fig. 4 is an end view of the oscillatory razor-supporting frame and its actuating-cam, said frame being shown in full lines in one extreme position and in dotted lines in its other extreme position. Fig. 5 is a sectional view taken on line 5 5, Fig. 2. Fig. 6 is an enlarged sectional view taken on line 6 6, Fig. 2.

In carrying out the objects stated I provide a suitable supporting base or standard 1 with a bearing 2, in which is mounted an oscillatory razor-support comprising a rock-shaft 3 and opposite arms 4 and 5, which are secured to the shaft 3 at opposite sides of the standard 1, the arm 4 being provided with opposed spring clamping-plates 6, receiving between them the back edge of a razor *a*, while the other arm 5 is provided with a central blade 7 and opposed spring-jaws 8, the blade or projection 7 entering between the opposite handle-sections of the razor-handle, as *a'*, and the jaws 8 are spring-pressed against the opposite or outer faces of said handle. The spring-jaws 6 are tensioned toward each other to firmly grip and hold the razor-blade in operative position during the stropping operation, and the spring-jaws 8 and blade 7 perform a similar function for the handle of the razor.

The upper end of the standard 1 is bifurcated, forming separated bearings 9, in which is journaled a rotary shaft 10, provided with a rigid collar or sleeve 11, having a spiral groove 12, said collar fitting between the bearings 9 and holding the shaft from endwise movement. The ends of the shaft project in opposite directions beyond the bearings 9, and upon the ends of the shaft are adjustably secured suitable heads 13, each having a pair of diverging arms 14 for supporting flexible razor-strops 15, as best seen in Figs. 1 and 2. These heads or collars 13 are adjustable axially by means of adjusting-screws 16, which are interlocked with annular ribs 17 on the collar 13 and engage threaded sockets 18 in the ends of the shaft 10, as best seen in Fig. 3, said heads being held in their adjusted position by suitable set-screws 20. The arms 14 of each head 13 project in diametrically opposite directions from the shaft 10 and of course revolve in substantially vertical planes at opposite sides of the standard 1, as is clearly evident upon reference to Figs. 2 and 3. One of the heads, or rather the arms 14, at one side is provided with a handpiece 21, by which the shaft 10 and parts mounted thereon are rotated. The

extreme outer ends of the arms 14 of each pair are broadened into flat blades extending in the direction of rotation or circumferentially and are each provided with an inwardly-projecting stud 22, having a bifurcated inner end, in which is pivoted centrally a rock-bar 23, and whereby the rock-bar is held a slight distance away from the inner face of the arm 14. A flat bow-spring is clamped centrally to the arm 14 by the screw-stud 22, and its free ends bear upon the adjacent face of the rock-bar 23 at opposite sides of its pivot, as 25. Each of the rock-bars 23 is provided with a companion bar 26, which is held in place by adjusted screws 27 near the ends of the bar 23 and whereby said bar 26 may be adjusted toward and from the bar 23 by simply rotating the screw 27, the object of which will be presently disclosed. In like manner each of the bars 26 is provided with a companion bar 29, which is held in place by screws 30, Fig. 5, and is capable of being adjusted toward and from the bar 26 by said screws, the latter being engaged in threaded apertures in the bars 26 and 29. It will be observed that each of the arms 14 is provided with one of the rock-bars 23 and companion bars 26 and 29, the latter being held parallel with the rock-bar 23 and with the plane of rotation of the arms 14 by means of the screws 27 and 30.

The ends of the strops or leather straps are stretched across the space between the extreme ends of the arms 14 and also across the inner faces of the bars 26 and 29, as best seen in Fig. 5, and are clamped between the bars 29 and heads of their screws 30, which preferably pass through apertures, as 31, in the ends of the leather strap. The screws 30 are preferably journaled in the bar 29, but are tapped into the bar 26 in such manner that by rotating these screws the bar 29 will be adjusted toward or from the bar 26 for the purpose of loosening or tightening the strap 15, such adjustment being effected without releasing the ends of the strap from between the bar 29 and screw-heads. In like manner the screws 27 may be adjusted to vary the plane of rotation of their respective straps—that is, to adjust said straps toward and from the standard 1. This adjustment, however, is better effected through the medium of the screws 16, by which the arms 14 are moved axially, the screws 30 being also utilized to stretch the edges of the straps uniformly, while the screws 27 may be utilized to bring both edges of the strap in the same plane.

The arm 4 of the razor-supporting frame extends some distance above its axis of movement and is provided with a pin or stud 32, which enters the cam-groove 12 in the collar 11, and as said collar is rotated the cam-faces of the groove 12 operate to oscillate the arms 4 and 5 from side to side between and against the adjacent faces of the strops 15 as they are moved in the direction indicated by arrow X, Fig. 2, the degree of oscillation being indicated in Fig. 4, and the axis of oscillation is located substantially midway between the vertical planes through which the strops 15 rotate. The cam-groove 12 is, therefore, arranged in such manner as to oscillate the razor-supporting jaws equidistant to opposite sides of a vertical line drawn through the axis of rotation of the arms 4 and 5.

In order that the blade of the razor may be properly adjusted and held from independent vibratory movement between the jaws 6, so that the stropping-faces of both strops will engage the edge of the blade at the same angle, I provide the arm 4 with vertically-adjustable clamping-arms 33, having slots 34, receiving adjusting-screws 35, by which the arms are held in their adjusted position, the upper ends of said arms being provided with opposite clamping-screws 35′ for engaging opposite sides of the blade, as best seen in Fig. 4. These clamping-arms 6 are preferably secured to opposite sides of the inner ends of the plates 6 out of the path of rotation of the razor-strops 15, which latter, therefore, travel across the face of the blade flatwise from the back toward the edge of the razor, and it will be seen that as the strops are rotated the advance edge of the strop first engages the edge of the razor, and inasmuch as it is necessary to stretch these strops rather tightly it is apparent that unless the strops are mounted upon yielding supports—such, for instance, as the oscillatory bar 23 and its spring 24—the strop would be unduly worn or creased at the end of the razor, and it is for this reason that the springs 24 and yielding clamps for the ends of the strops are provided.

It is advisable to provide means for preventing the opposite rotation of the strops 15, which would cause the cutting of the strops by the edge of the razor, and I therefore provide the shaft 10 or collar 11 with a finely serrated or toothed disk 40, the teeth of which are engaged by a gravity-pawl 41, Fig. 2, said pawl being journaled upon a portion of the standard 1.

In operation the shaft 10, collar 11, and the arms 14 are rotated in the direction indicated by arrow X, and the cam-groove 12 is so arranged as to bring the razor flatwise against the upwardly-moving strop—that is, as the right-hand strop is moved upwardly the razor-blade support is rocked to the right and when the left-hand strop is moved upwardly said support is rocked to the left. When inserting the razor in position for sharpening, the back edge of the blade is moved endwise between the spring-jaws 6, as best seen in Fig. 4, and is then adjusted and

held in place by the clamping-screws 35′, the handle *a′* being previously rocked downwardly between the jaws 8.

What I claim is—

1. In a razor-sharpening machine, the combination of rotary strops having their stropping-surfaces in planes at substantially right angles to their axes of rotation, a support for the razor, means controlled by the movement of the strops for moving the razor to present its side in position to be stropped, and adjusting-screws engaging opposite faces of the blades of the razor for adjusting the same and holding it in its adjusted position.

2. In a razor-stropping machine, the combination with rotary strops and transversely-rocking supports therefor one at each end of each strop, and means to rotate the strops.

3. In a razor-sharpening machine, the combination of rotary strops moving in different vertical planes at substantial right angles to their axes of rotation, yielding supports for the ends of the strops, whereby they may rock transversely and means to rotate said strops.

4. In a razor-sharpening machine, the combination of rotary strops moving in different vertical planes, a razor-support oscillating between said planes, means controlled by the rotation of the strops for oscillating the razor-support and clamping devices adjustable toward and from and transversely of the blade of the razor for engaging the same and holding it in its adjusted position.

5. In a razor-sharpening machine, an upright standard, a shaft journaled on the standard, a second shaft also journaled on the standard, strop-supports secured to the first-named shaft to rotate in different planes and a razor-holder secured to the rock-shaft.

6. In a razor-sharpening machine, a combination of a pair of strops moving about a common axis, but in different planes, a razor-holder movable laterally between said planes to bring the razor into engagement with said strops, yielding supports for the ends of said strops, and means actuated by the rotation of the strops for moving the razor-holder from side to side.

7. In a razor-sharpening machine, a pair of rotary strops moving in different planes, an oscillatory razor-holder movable from side to side between said planes, adjustable clamps for engaging the opposite faces of the razor-blade to adjust and hold the same against vibratory movement in its holder, and means brought into action by the rotation of the strops to actuate said holder from side to side.

8. In a razor-sharpening machine, the combination of a pair of rotary strops moving in different planes, means for tensioning the strops, a razor-holder movable from side to side between said planes, and means actuated by the rotation of the strops for moving said holder from side to side.

9. In a razor-sharpening machine, the combination of two rotary strop-holders, one of which is adjustable endwise, or axially, means for effecting such adjustment, strops yieldingly mounted on said holders, a razor-support movable from side to side between the strops, and means controlled by the rotation of the strops for actuating said holder.

10. In a razor-sharpening machine, a pair of rotary strop-holders moving in different planes, strops yieldingly mounted upon said holders, means for tensioning the strops, a razor-support movable from side to side between said planes, and means controlled by the rotation of the strop-holders for actuating the razor-support.

11. In a razor-sharpening machine, a rock-shaft having a crank-arm and spring-jaws secured to the crank-arm for receiving between them the back edge of the razor-blade, means to rock said shaft, a rotary strop traveling across the arc of movement of the razor-support, and means to rotate the strop.

12. In a razor-sharpening machine, the combination of a rotary shaft, opposite heads adjustable endwise on the shaft and each provided with a pair of diverging arms, a strop secured to each pair of arms, a cam on the shaft, and a razor-support actuated from side to side by said cam.

13. In a razor-sharpening machine, a rotary shaft and strop-holders mounted thereon, in combination with an oscillatory razor-holder and a spiral cam on the shaft for oscillating said razor-holder.

14. In a razor-sharpening machine, a rotary shaft, strop-supports adjustable endwise and rotating with said shaft, strops mounted on said supports to rotate in different planes, spring clamping-jaws receiving between them the razor-blade and movable from side to side between said planes, and a cam on the shaft for effecting such movement of the jaws.

15. In a razor-sharpening machine, a rotary shaft, strop-supports mounted upon the shaft and adjustable endwise thereon, rock-bars mounted upon each of said supports, strops having their ends carried by the rock-bars, an oscillatory razor-holder, and means on the shaft for oscillating said holder.

In witness whereof I have hereunto set my hand this 30th day of December, 1905.

FREDRICK L. BRUNSWICK.

Witnesses:
HUGH CAREY,
JOHN H. DANAHER.