

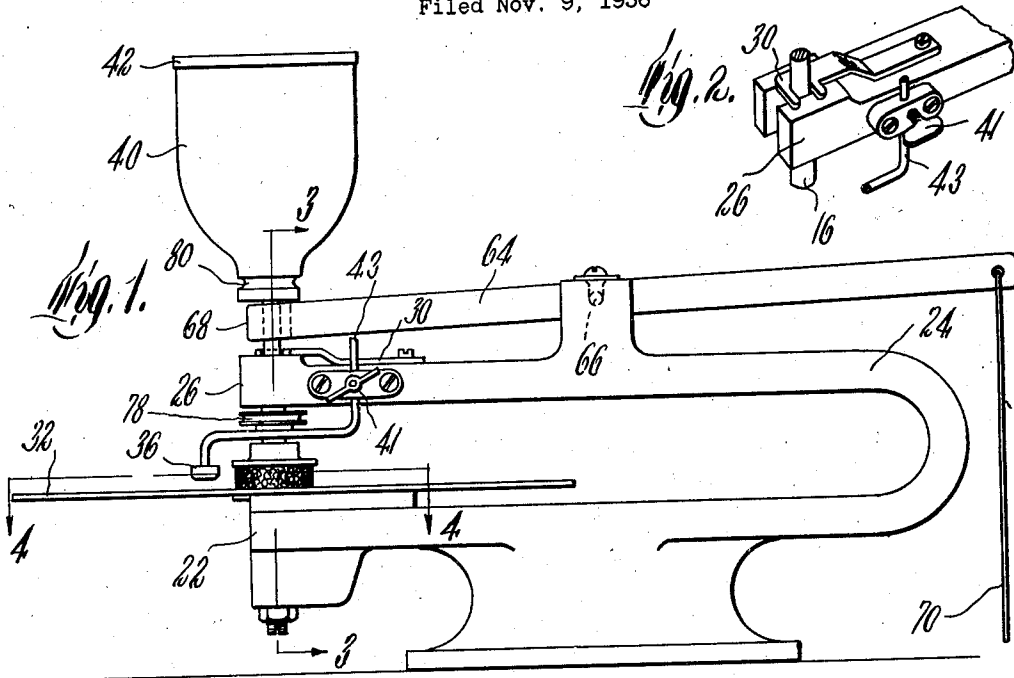
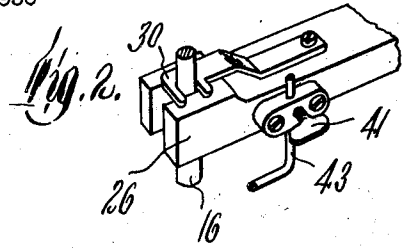
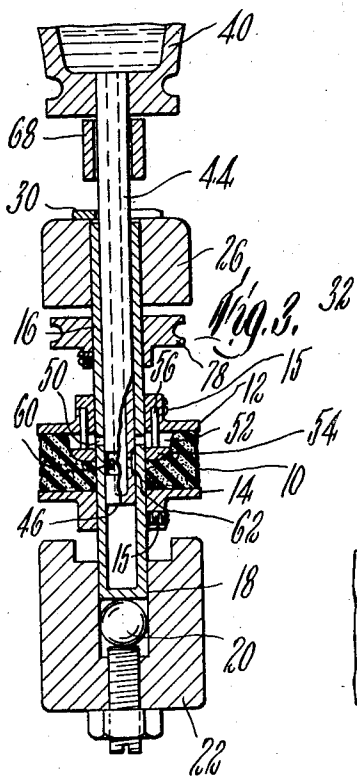
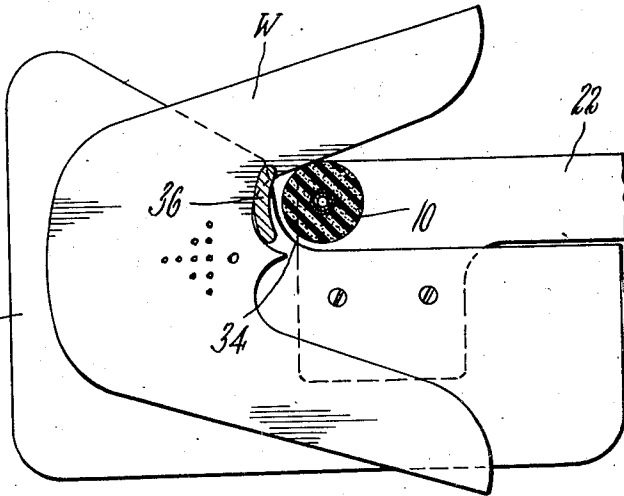
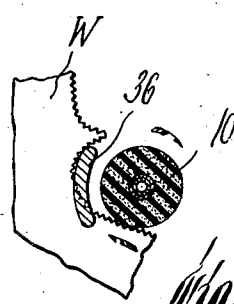
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MECHANISM FOR EDGE STAINING LEATHER AND THE LIKE

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MECHANISM FOR EDGE STAINING
LEATHER AND THE LIKE

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6 Claims. (Cl. 91—39)

This invention relates to a device for staining the edges of pieces of sheet material and is more particularly directed to the edge-staining of pieces of leather such as used for shoe upper parts.

In the manufacture of shoe uppers, the various parts, such as vamps, tips and foxing, are cut or died out from suitable skins which have been previously colored and finished as desired. The pieces thus cut out usually have edges which differ in color from the face of the leather since the dyes employed in coloring leather usually do not penetrate through the leather. In order to improve the appearance of the finished shoe having upper parts of dyed or colored leather, it is usually desirable to color or stain the edges of the upper parts after they have been cut from the skin. This is usually done by applying stain to the edges of the leather pieces manually with a brush.

It is an object of the present invention to provide means by which the stain can be applied more rapidly and evenly than has heretofore been possible. According to the invention, a movable surface, such as the periphery of a freely rotatable roller, is provided for engagement by the work. Stain is supplied to the roller by suitable means which are controllable during the operation of the mechanism. The roller may be driven solely by engagement with the edges of the work presented for contact therewith, the work being moved past the roller manually. For staining the edges of thin soft material which may be too limp to drive the roller satisfactorily, the roller may be driven either positively or by light frictional engagement with suitable drive means, the roller being readily rotatable by contact with the periphery independently of the movement of the drive means.

Various advantageous features of structure will be apparent to one skilled in the art from the following description of an embodiment of the invention, such embodiment being illustrated upon the drawing of which

Figure 1 is a side elevation of mechanism embodying the invention.

Figure 2 is a fragmentary perspective view of a portion of the mechanism shown in Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a section on the line 4—4 of Figure 1, a piece of work being shown in this figure.

Figure 5 is a fragmentary sectional view similar to a portion of Figure 4 but showing a wing tip with pinked edges.

As indicated on the drawing, the mechanism may comprise a roller 10 of suitable soft resilient material, sponge rubber being preferred. This roller of sponge rubber is held between a pair of disks 12 and 14, the roller and the disks being mounted on a hollow shaft 16 which is closed at its lower end as at 18 so as to bear upon an anti-friction bearing element such as a ball 20. The disks 12 and 14 are adjustable along the shaft and are secured in adjusted position by any suitable means such as set screws 15 through the hub portions. By adjusting either disk toward or from the other, the density or compactness of the roller 10 may be increased or diminished as may be desired for use on different kinds of work. Thus the roller 10 may be suitably conditioned for use on leather pieces having either plain edges or pinked edges. In the latter case, a softer roller is desirable so that the roller surface can more readily enter the recesses in the pinked edges. The shaft 16 and the ball 20 are supported by a suitable base 22 which may be provided with an overhanging arm 24 terminating in a forked end portion 26 which serves as an upper bearing for the shaft 16. The upper end of the shaft may be retained in position as by a locking piece 30 (Figure 2) which can readily be swung aside to permit the removal of the shaft from its support.

Mounted on the base 22 is a horizontal work table 32. This work table may be of any desired shape such as that indicated in Figure 4, the table having in any event an edge portion 34 which is adjacent to the periphery of the roller 10 so that a piece of work W may be laid upon the table 32 and may be manually pushed into edgewise engagement with the periphery of the roller 10. If desired, a guide element 36 may be adjustably mounted above the portion of the table adjacent to the edge 34. This guide element as indicated in Figures 4 and 5, is an elongated block or strip over the margin of the table adjacent to the roller 10, the spacing between the guide element and the table being adjustable by slacking off on a setscrew 41 which normally secures a vertical stem 43 by which the guide element 36 is supported. This guide element is not necessary in all cases but is useful in the case of shoe parts which have become bent or wrinkled.

According to the invention, means are provided for supplying stain or other suitable coloring matter, preferably liquid, to the peripheral surface of the roller 10. For convenience, such stain, dye, or other coloring matter as may be

used in treating the edges of the work is herein-after referred to in the specification and claims as "ink", it being understood that this term is used to mean any substance which may be desired for use in treating the edges of the work, whether for the purpose of coloring such edges or for any other reason. Above the roller 10 is located a suitable reservoir 40 adapted to contain a supply of ink. This reservoir, which may be in the form of a cup or other suitable vessel and which is preferably supplied with a suitable cover 42, communicates with a hollow stem 44 which projects downwardly therefrom and which is preferably closed at its lower end as at 46. This stem 44 telescopes within the hollow shaft 16 and has a close sliding fit therewith. The shaft 16 is provided with one or more lateral apertures 50 through its wall, such apertures being preferably disposed immediately below the upper disk 12 so as to communicate with a central cavity 52 within the upper end of the roller 10. This cavity may conveniently be formed and maintained by a washer 54 which loosely surrounds the shaft 16 and which is pressed downwardly away from the disk 12 by a series of pins 56, thus compressing the central portion of the soft roller 10 to a greater degree than the peripheral portion is compressed by the disk 12. If the disk 14 or the disk 12 is adjusted relatively to the other to alter the density of the roller 10, such compression occurs between the disk 14 and the washer 54, and the upper end portion of the roller 10 is affected little, if any. Thus the compression of the main portion of the roll does not constrict or close the pores in the upper portion of the roller through which ink is supplied to the surface of the roller as hereinafter described. The apertures 50 are normally closed by the stem 44, as indicated in Figure 3. The stem is provided with one or more lateral apertures 60 which open into a shallow annular channel 62 extending around the stem 44. This channel 62 is normally below the apertures 50 in the shaft 16. The reservoir 40 and the stem may, however, be lifted at will to bring the channel 62 into registry with the apertures 50, in which case ink may flow from the reservoir down through the hollow stem 44 and through the apertures 60 and 50 into the cavity 52. From the cavity 52 the ink works radially outward through the pores in the upper end of the roller 10. Thus the peripheral surface of the roller 10 may be supplied with ink as desired, the supply being controlled by vertical movement of the stem 44. To effect such movement of the reservoir and stem, a lever 64 may be mounted as at 66 on the arm 24, this lever having a forked end 68 which embraces the stem 44 loosely just below the reservoir 40. The remote end of the lever may be attached to a rod or strand 70 which in turn may be connected to a treadle or other convenient device by which the lever 64 may be rocked to elevate the reservoir 40 and its stem 44.

Owing to the use of an anti-friction step bearing for supporting the shaft 16, this shaft is freely rotatable by contact of the work on the periphery of the roller 10, the work being moved manually past the roller and tangent thereto as it is slid on the work table 32. Thus the contour edges of the work may be rapidly moved along in contact with the periphery of the roller so that the edges are completely and satisfactorily stained. As indicated in Figure 4, parts of the shoe uppers, such as wing tips, customarily

have curved contours, some of these curves being concave. The roller 10 is preferably made with such a radius as to fit loosely into the concave edge portions of the work which have the sharpest curvature. Thus the work may be moved past the roller and its contour edges may progressively engage the surface of the roller in unbroken continuity without the necessity of turning the work itself on the table. This adds to the convenience and rapidity of the operation of edge-staining shoe upper parts such as vamps and wing tips.

Ordinarily the engagement of the edges of the moving pieces of work with the periphery of the roller 10 is sufficient to rotate the roller together with the shaft 16, the stem 44 and the reservoir 40. In the case of thin limp pieces of soft leather, it may be desirable to drive the roller. To this end, a pulley wheel 78 may be secured on the shaft 16 for positively driving the roller 10, or the stem 44 may be provided with a pulley wheel 80, which, if desired, may comprise a portion of the reservoir 40, this wheel being adapted to receive a suitable driving belt (not shown). The rotation of the stem 44 results in a frictional drive of the shaft 16 and of the roller 10 owing to the light frictional engagement of the stem 44 within the shaft 16. The stem 44 is preferably driven at a speed corresponding to the average speed of movement of the edge of the work past the roller. The roller is thus driven at the proper speed for engagement with the work, thus eliminating dependence on the work for driving the roller. The frictional engagement between the stem 44 and the shaft 16 is, however, preferably light, so that, if the rate of movement of the edge of the work past the roller is faster or slower than the driven rate of rotation of the roller, the roller will readily slip to accommodate itself to the speed of the work.

Various modifications and changes may be made in the specific embodiment of the invention herein illustrated and described without departing from the spirit and scope of the invention as defined in the following claims.

I claim:

1. Mechanism of the class described, comprising a horizontal work table, a roller of soft yielding material mounted to revolve freely on a vertical axis adjacent to an edge of said table, a hollow vertical shaft extending through said roller, said shaft being closed at its lower end and opening above said roller into an ink reservoir, said shaft also having lateral apertures communicating with the interior of said roller, valve means for controlling the flow of ink through said apertures, and means for operating said valve when the roller is in use.

2. Mechanism of the class described, comprising a freely rotatable roller of soft resilient material, drive means having a light frictional connection with said roller whereby the roller may be rotated normally by said drive means and may be independently rotated by peripheral engagement with manually moved work.

3. Mechanism of the class described, comprising a hollow rotatable shaft closed at its lower end and provided with a lateral aperture, a soft resilient roller on said shaft registering with said aperture so as to receive ink therethrough, an anti-friction bearing for said shaft, an ink reservoir above said shaft having a downwardly extending hollow stem telescoping within the shaft and in light frictional engagement therewith, and drive means for rotating said stem.

4. Mechanism of the class described, comprising a frame, a horizontal work table on said frame, a sponge rubber roller rotatably mounted adjacent to said table, a hollow vertical shaft 5 through said roller, an anti-friction bearing on said shaft, and means for supplying ink to said roller through said shaft.

5. Mechanism of the class described, comprising a hollow vertical shaft having a lateral aperture and closed at its lower end, an anti-friction 10 step bearing at the lower end of said shaft, a pair of disks secured to said shaft with said aperture between them, a roller of soft resilient material on said shaft between said disks, and a 15 washer on said shaft below the upper of said disks pressing the inner portion of the roller

away from said upper disk so as to form a cavity within said roller, said disks and washer being arranged so that said lateral aperture in the shaft communicates with said cavity.

6. Mechanism of the class described, comprising a hollow vertical shaft closed at its lower 5 end and provided with a lateral aperture, a pair of disks secured to said shaft with a roller of soft resilient material between them, said roller having a central cavity therein about the portion 10 of the shaft immediately below the upper of said disks, the disks and roller being arranged so that the aperture communicates with said cavity, and means for supplying ink to the interior of said shaft.

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