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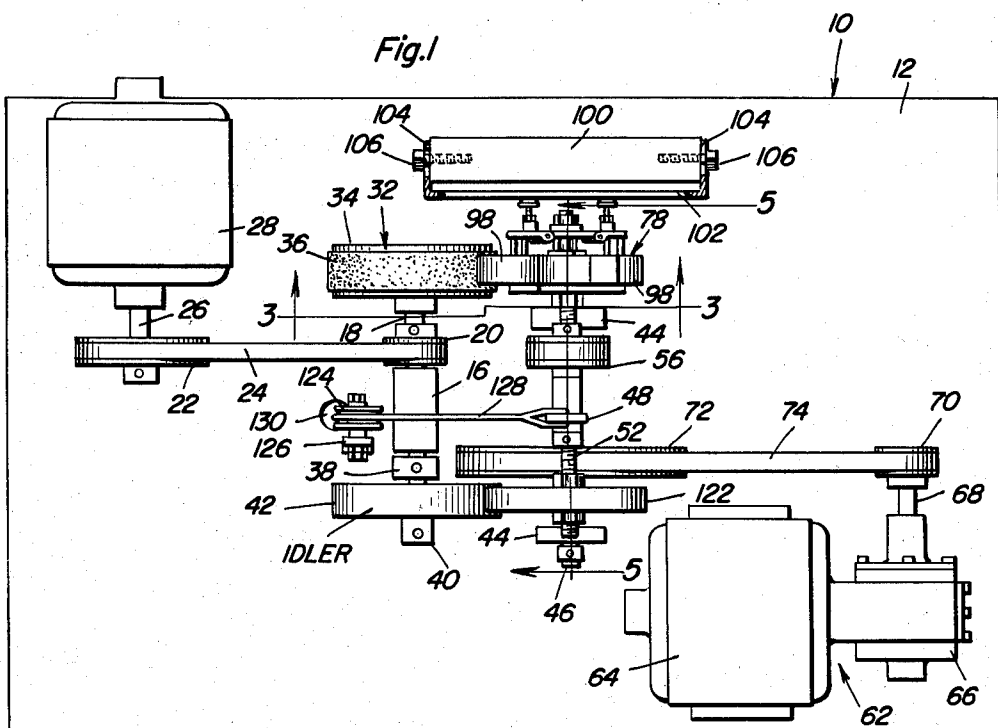
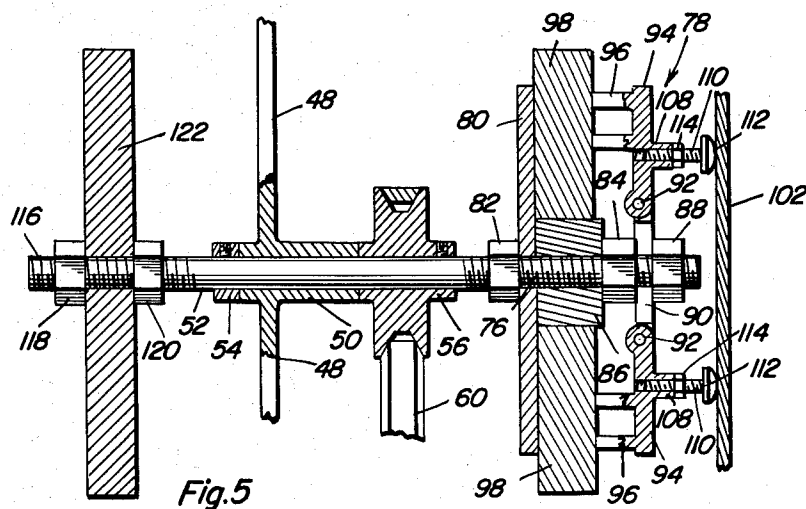
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2,964,885

AUTOMATIC SCOURING MACHINE FOR HEELS, ETC.

Filed Oct. 17, 1958

2 Sheets-Sheet 1



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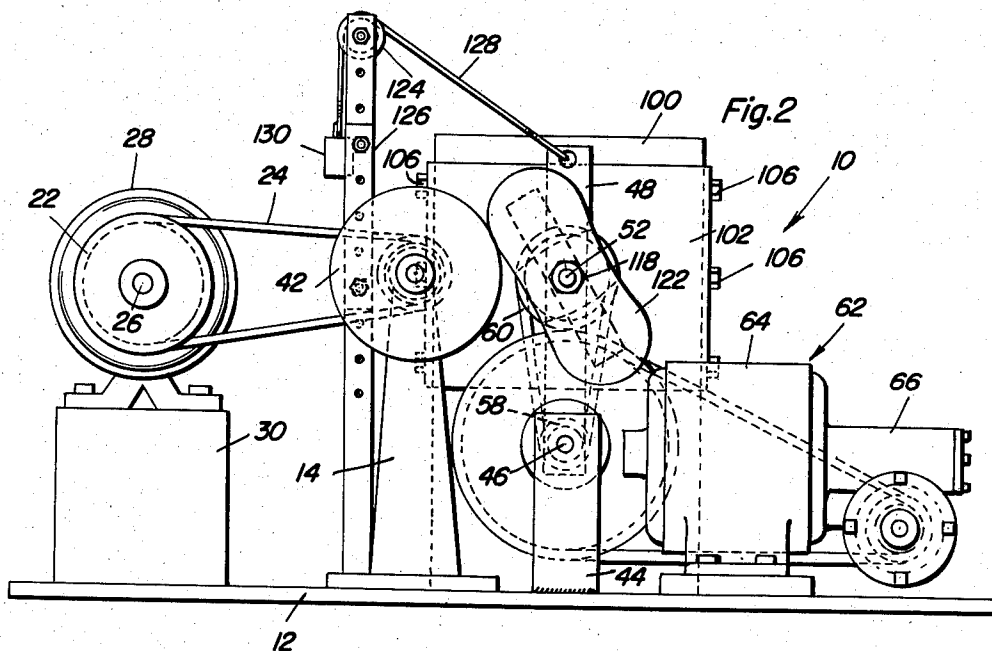
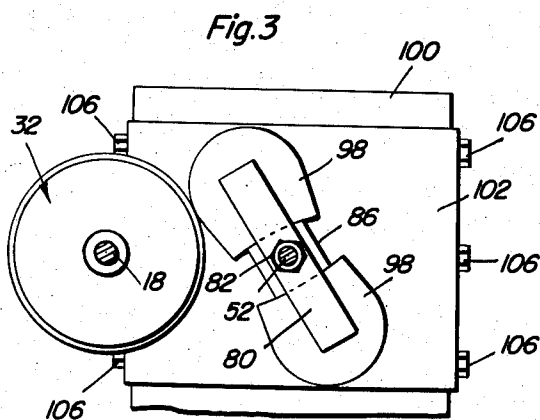
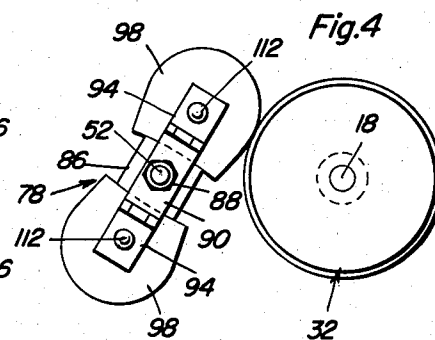
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AUTOMATIC SCOURING MACHINE FOR HEELS, ETC.

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2 Sheets-Sheet 2



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2,964,885

AUTOMATIC SCOURING MACHINE FOR HEELS, ETC.

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3 Claims. (Cl. 51-101)

This invention relates in general to new and useful improvements in abrading machines, and more specifically to an automatic scouring machine for heels, etc.

In order to both save time and effort and to prevent the possible damage of shoes, it is highly desirable that the heels of shoes be pre-shaped prior to the installation thereof. In view of this, it is the primary object of this invention to provide a machine for scouring shoe heels prior to the installation of the heels on a shoe, the scouring machine including a templet whereby the heels are accurately scoured to the desired shape and thus pre-finished.

Another object of this invention is to provide an improved scouring machine for heels, the scouring machine including a rotating shaft on which there is mounted a heel support, the shaft being provided with a cam to control the position of heels with respect to an abrasive member, the shaft swinging towards and away from the abrasive member as it rotates so as to properly engage the heels with the abrasive member to scour the heels in the desired pattern.

Another object of this invention is to provide an automatic scouring machine for heels, the automatic scouring machine including a continuously moving abrading member, a shaft mounted for swinging movement towards and away from the abrasive member, drive means for rotating the shaft, heel clamp means carried by the shaft for positioning heels in engagement with the abrasive member, and a cam carried by the shaft for moving the heels relative to the abrasive member as they are rotated whereby the desired heel configuration is obtained.

A further object of this invention is to provide an improved heel clamp, the heel clamp being of such a nature whereby heels may be quickly and accurately positioned therein for abrading during a heel scouring operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a top plan view of the heel scouring machine which is the subject of this invention and shows the general relationship of the various components thereof;

Figure 2 is a side elevational view of the heel scouring machine and shows further the details thereof;

Figure 3 is a fragmentary longitudinal sectional view taken substantially upon the plane indicated by the section line 3-3 of Figure 1 and shows the relationship of a pair of heels with respect to the abrasive member during the scouring operation;

Figure 4 is another fragmentary vertical sectional view showing the details of the means for clamping the heels in place on the heel support and the relationship of the heel support to the abrasive member; and

Figure 5 is an enlarged fragmentary sectional view taken substantially upon the plane indicated by the section line 5-5 of Figure 1 and shows further the specific

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details of the heel support, the shaft supporting the heel support and the means for positioning and driving the shaft.

Referring now to the drawings in detail, it will be seen that there are illustrated the details of the heel scouring machine which is the subject of this invention, the heel scouring machine being referred to in general by the reference numeral 10. The heel scouring machine 10 includes a generally rectangular base 12. Secured to the base 12 and extending upwardly therefrom is a support 14 which carries at the upper end thereof a bearing 16. Rotatably journaled in the bearing 16 is a shaft 18. The shaft 18 has fixed thereto a driven pulley 20 which is aligned with a drive pulley 22. The pulleys 20 and 22 are connected together in driving relation by means of a drive belt 24.

The pulley 22 is mounted on an armature shaft 26 of an electric motor 28. The electric motor 28 is suitably mounted on a spacer block 30 carried by the base 12 so as to be in general alignment with the shaft 18.

Mounted on the shaft 18 for rotation therewith adjacent a driven pulley 20 is an abrasive member which is referred to in general by the reference numeral 32. The abrasive member 32 includes a drum 34 suitably secured to the shaft 18 and a removable sandpaper ring 36.

Positioned on the opposite end of the shaft 18 by means of a pair of collars 38 and 40 is an idler wheel 42. The idler wheel 42 is rotatable independently of the shaft 18.

Extending upwardly from the base 12 to the right of the support 14 is a pair of support brackets 44 which are in transversely spaced relation. The support brackets 44 have extending therebetween a shaft 46 which serves both as a pivot shaft and an idler shaft. Pivotaly mounted on the pivot shaft 46 is an upstanding bar 48. The bar 48 has secured to the upper end thereof a bearing 50 in which there is rotatably journaled a shaft 52. The shaft 52 is positioned in the bearing 50 by means of a collar 54 and a pulley 56.

The pulley 56 is aligned with a pulley 58 secured to the shaft 46 for rotation therewith. Extending between the pulleys 56 and 58 and drivingly connecting the two together is a drive belt 60.

The shaft 46 is driven by means of a drive unit which is referred to in general by the reference numeral 62. The drive unit 62 includes an electric motor 64 which has secured thereto a reduction gear unit 66 which includes a drive shaft 68. The drive shaft 68 has mounted thereon a drive pulley 70 which is aligned with a pulley 72 secured to the shaft 46. Entrained over the pulleys 70 and 72 and connecting the two together in driving relation is a drive belt 74.

The right hand end of the shaft 52, as viewed in Figure 5, includes a threaded portion 76. The threaded portion 76 has positioned thereon a heel clamp which is referred to in general by the reference numeral 78. The heel clamp 78 includes a backing plate 80 which has bearing against the left surface thereof a nut 82 threadedly engaged on the threaded portion 76. Secured to the backing plate 80 on the right hand side thereof in clamping relation by means of a second nut 84 is a heel positioning member 86 which is generally rectangular in outline, as is viewed in Figure 3. Clamped between the nut 84 and another nut 88 is a hinge plate 90 which have hingedly connected thereto as at 92 a pair of clamp plates 94. The clamp plates 94 include heel engaging fingers 96 which oppose the backing plate and which serve to clamp heels 98 against the backing plate 80 in the manner best shown in Figure 5.

Mounted adjacent the clamp plate 94 is an upstanding support 100 carried by the base 12. The support 100 has secured thereto a removable guide plate 102. The guide plate 102 has vertical side flanges 104 which ex-

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tend about the support 100 and are removably secured thereto by means of fasteners 106.

Each of the clamp plates 94 includes an internally threaded boss 108. The boss 108 has threadedly engaged therein a threaded stem 110 of a follower 112. Threadedly engaged on the stem 110 is a lock nut 114. The followers 112 engage the guide plate 102 and urge the clamp plates 94 to the left in engagement with the heels 98. By adjusting the lengths of the threaded stems 110 relative to the clamp plates 94, the clamping action of the clamp plates 94 may be varied. In order to remove heels from the clamping plates, the bracket 48 may be pivoted clockwise (looking at Figure 2) about pivot axis 46 until the followers 112 are no longer engaged by the guide plate 102. Each of the clamp plates 94 may then be pivoted about hinge 92 to release the clamping action on the heels.

The left end of the shaft 52, as viewed in Figure 5, also includes an externally threaded portion 116. The externally threaded portion 116 has secured thereto by means of a pair of nuts 118 and 120 a cam 122. The cam 122 has the shape of a pair of heels 98 when spaced apart by the spacer 86. The cam 122 engages the idler wheel 42, as is best shown in Figure 2, to position the shaft 52. As was stated above, the shaft 52 is mounted for swinging movement about the shaft 46. Thus the shaft 52 is swung as it is rotated, the path of the shaft 52 corresponding to the configuration of the cam 122. This results in the movement of the heels 98 relative to the abrasive member 32 in a path to produce heels 98 of the desired configuration. Thus the heels 98 may be prefinished through the scouring operation.

In order that the heels 98 may always be retained in engagement with the abrasive member 32, there is provided an elevated pulley 124 which is carried by a support 126 in turn secured to the base 12. Entrained over the pulley 124 is a cable 128 which has one end thereof connected to the upper end of the bar 48. The opposite end of the flexible cable 128 is provided with a weight 130. The effect of the weight 130 is to retain the heels 98 in engagement with the abrasive member 32 at all times.

From the foregoing, it will be readily apparent that there has been devised an extremely simple machine for automatically scouring heels. The machine is so constructed whereby the scouring operation is accurate and thus the heels of shoes may be prefinished.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An automatic scouring machine for heels compris-

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ing a base, a first shaft rotatably supported above said base, an abrasive member secured to said first shaft, an idler wheel freely carried by said first shaft, and means on said base for rotatably driving said first shaft, a rigid support bracket, a second shaft supported above said base and having said support bracket pivotally mounted thereon, a third shaft carried by said support bracket spaced from said second shaft, a cam member secured to said third shaft in alignment with said idler wheel, a heel support secured to said third shaft in alignment with said abrasive member, a cable secured to said support bracket, a weight attached to said cable whereby said support bracket may be pivoted by said weight about said second shaft for carrying said cam into engagement with said idler wheel, said heel support including a backing plate secured to said third shaft, a plurality of clamp plates pivotally mounted adjacent said backing plate, a guide plate disposed adjacent to said clamp plate, and adjustable followers carried by said clamp plates and engaging said guide plate to retain said clamp plates in heel clamping positions.

2. The combination of claim 1, wherein apertured internally threaded bosses are formed on said clamp plates, and threaded stems fixed to said followers received in said bosses.

3. An automatic scouring machine for heels comprising a base, a first shaft rotatably supported above said base, an abrasive member secured to said first shaft, an idler wheel freely carried by said first shaft, and means on said base for rotatably driving said first shaft, a rigid support bracket, a second shaft supported above said base and having said support bracket pivotally mounted thereon, a third shaft carried by said support bracket spaced from said second shaft, a cam member secured to said third shaft in alignment with said idler wheel, a heel support secured to said third shaft in alignment with said abrasive member, means urging said cam into engagement with said idler wheel, said heel support including a backing plate secured to said third shaft, a plurality of clamp plates pivotally mounted adjacent said backing plate, a guide plate disposed adjacent to said clamp plates, and adjustable followers carried by said clamp plates and engaging said guide plate to retain said clamp plates in heel clamping position.

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