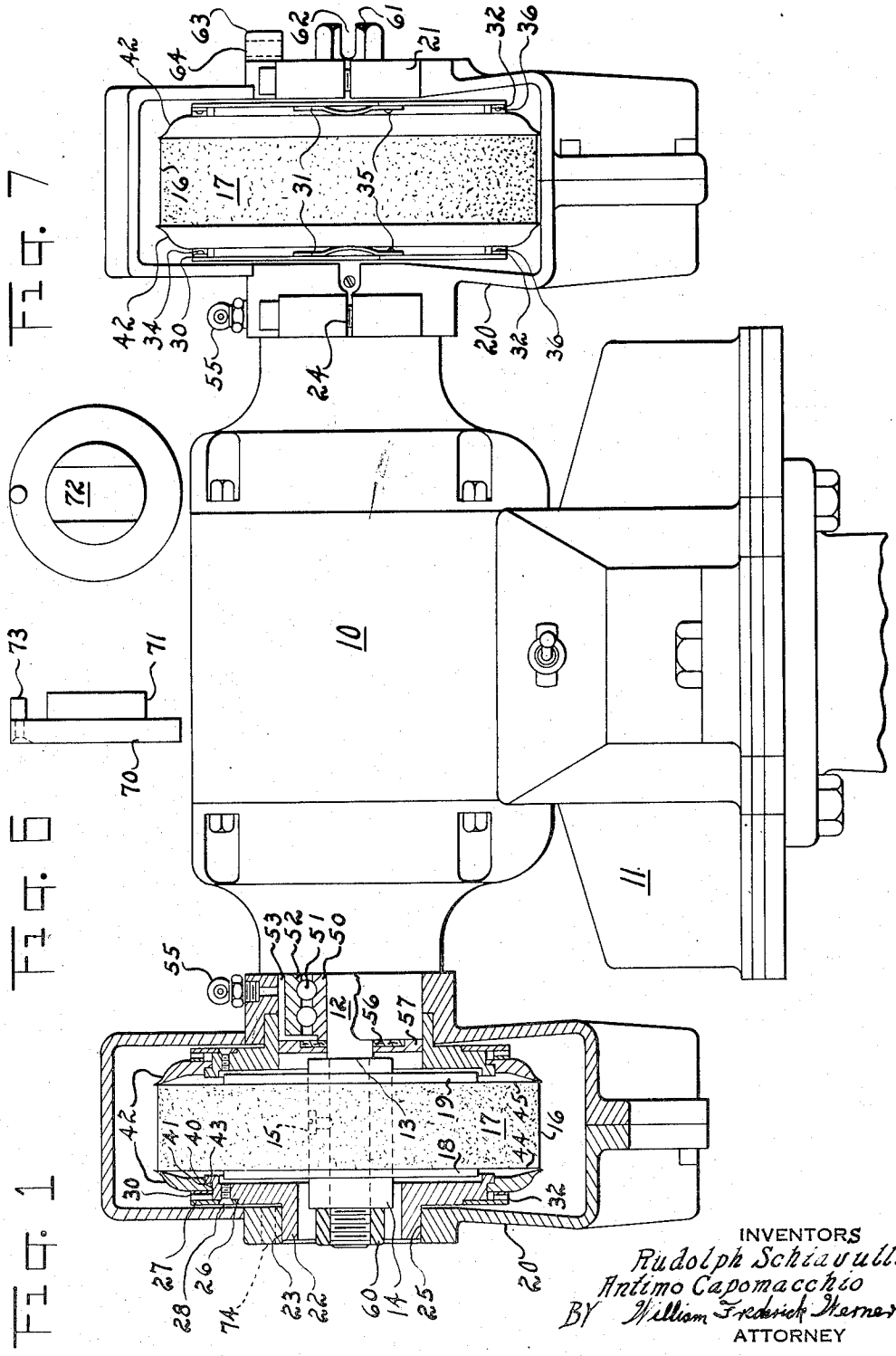
Jan. 5, 1954 R. SCHIAVULLI ET AL 2,664,680

HEEL FINISHING MACHINE

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HEEL FINISHING MACHINE

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Fig. 2

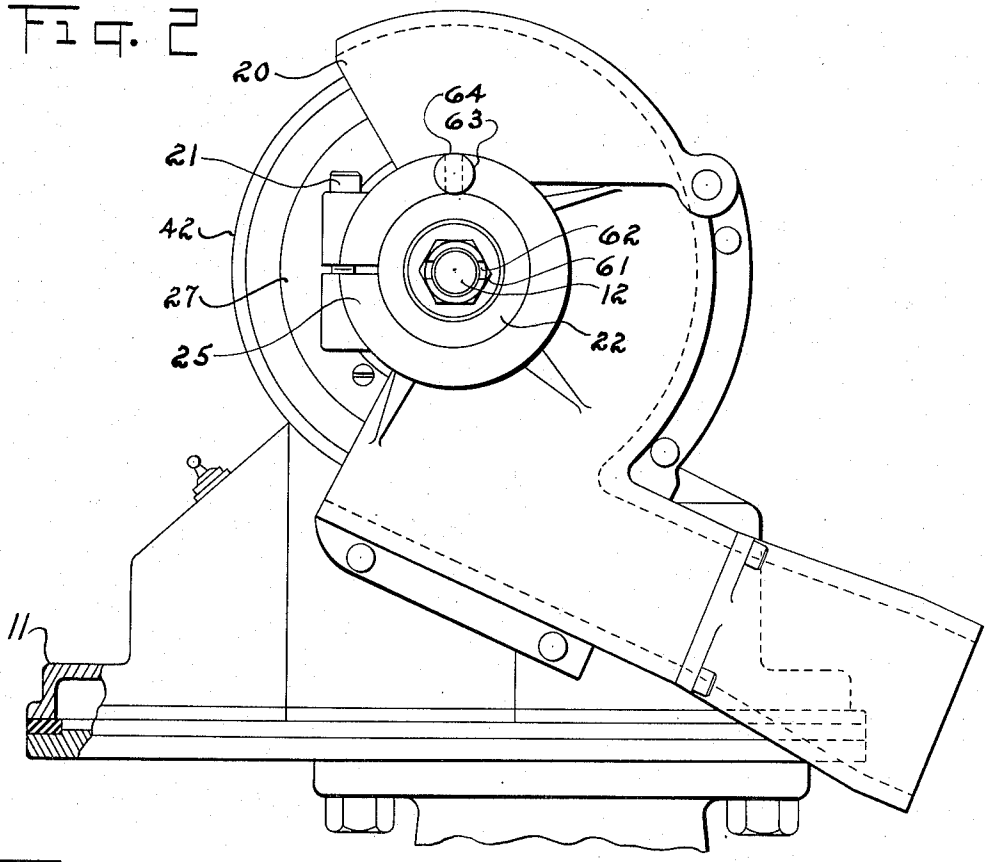


Fig. 4

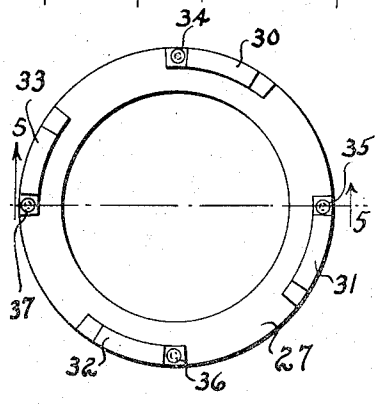


Fig. 3

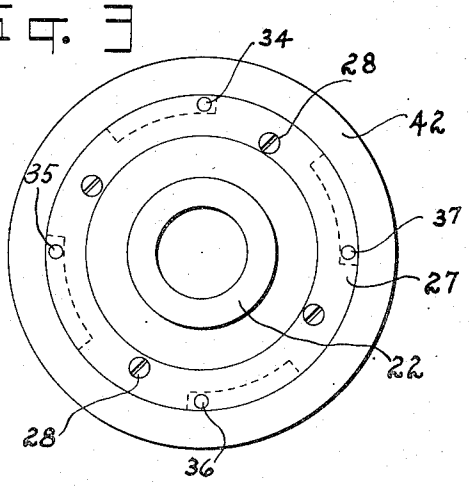
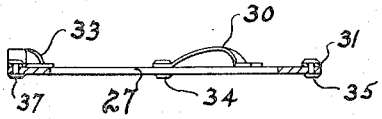


Fig. 5



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HEEL FINISHING MACHINE

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4 Claims. (Cl. 51—274)

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The present invention relates to shoe manufacturing or rebuilding and more particularly to an improvement in the apparatus for scouring and finishing heels as disclosed in Patent Number 2,021,442 issued to us on November 19, 1935.

One of the principal objects of the present invention is to provide improved apparatus for scouring the heel and buffing the heel of a shoe without damaging the upper.

Another object of the invention is to provide apparatus whereby unskilled labor can perform skilled work without damaging the shoe.

Another object of the invention is to provide a guide which will function perfectly even though associated parts, such as a wheel, do not run true.

Still another object of the present invention is to provide a guide ring which will lightly touch the finishing wheel at all times even as wear takes place on the guide ring, stationary guide or wheel and as the wheel runs out of line due to manufacturing errors or wear so that the heel of a shoe may be scoured and buffed completely without danger of damaging the upper.

Still another object of the present invention is to provide a lubricating system for a heel scouring and buffing machine.

And still another object of the present invention is to provide a fixture which will permit the rapid, accurate and easy replacement of emery cloth or sand paper on the commercial type of heel scouring and buffing machine.

Other objects of the present invention will be apparent in part and pointed out in part in the accompanying specification and claims.

In the prior art including our Patent Number 2,021,442 a guide rigidly fixed adjacent the scouring or buffing wheel has been customarily employed as a rest for the shoe being worked on. This arrangement has proved unsatisfactory because emery and buffing wheels in commercial manufacture are not accurately made within tolerances to prevent the wheel from running "out of line." In addition, if they were accurately made, wear would soon cause the wheels to run "out of line." The result is that guide plates or guide rings must be placed at a distance away from the side of the wheel. Consequently, shoe heels are not afforded the advantage of the guide at the juncture of the heel and the upper. This results in many damaged uppers.

In our Patent #2,021,442 an early improvement in guide rings, no provision was made for wear of the guide ring and the guide ring seat in the stationary guide, so that side thrust and walking took place. Also, the space between the guide

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ring and the wheel periphery was rigid (no give), so that the point where the heel and upper meet could not be brought in contact with the abrasive wheel and still have the protection of the guide ring.

The present invention embodies means allowing heels to be scoured or buffed without damage to uppers because the new construction allows for "give" and wear and permits the heel to be brought in close contact with the abrasive wheel with the upper protected by the guide ring.

The machine used in shoe repairing generally have a split wooden cam operated wheel provided with brads. Emery cloth or sand paper is wrapped around the periphery of the wooden wheel. The ends of the emery cloth or sand paper are pressed over the ends of the brads. In closed position the brads hold the emery cloth or sand paper wedged between the closed sides of the split wheel.

In practice the wooden wheel rotates under the slightest pressure due to the ball bearing construction employed in the high speed shaft. This makes replacement of the abrasive element a tedious and sometimes hazard job because knuckles are skinned in the process.

The present invention provides a fixture which holds the wheel stationary while the abrasive element is replaced.

Like reference characters refer to like parts in the accompanying drawing, in which:

Figure 1 is a front elevational view, partly in section, of a conventional heel finishing machine embodying the present invention.

Figure 2 is a side elevational end view of Figure 1.

Figure 3 is a side elevational view of an assembled unit of the machine embodying the resilient elements and the guide plate.

Figure 4 is a side elevational view of the disk holding the guide plate springs.

Figure 5 is a sectional view taken along line 5—5 of Figure 4.

Figure 6 is a side elevational view of a modified form of the fixture used to hold the shaft against rotation when the abrasive element is changed.

Figure 7 is a front elevational view of Figure 6.

Referring to Figure 1, a motor 10 mounted on a pedestal 11 is provided with a shaft 12 projecting from either end of the motor 10.

Shaft 12 is reduced at 13 to accommodate a bushing 14 which may be held to said shaft 12 in any conventional manner such as a key way or set screw 15. A wooden split cam operated wheel 16, is provided with an abrasive element

such as emery cloth or sand paper 17. Metal flanges 18 and 19 are secured on either side of wooden split wheel 16.

The suction hood 20 is of new design embodying the feature of housing the new guide ring 42 and its retaining elements consisting of stationary guide 22 and spring holder plate 27. The suction hood 20 is attached to the end bell of the motor by means of an Allen head cap screw 24.

Stationary guide 22 is provided with a hub 23 which is held in position in split bearing 25 located in suction hood 20 by means of cap screw 21.

A stationary guide 22 is also provided with a circular recessed area 26 adapted to accommodate circular spring holder plate 27. Screws 28 secure plate 27 to guide housing 22. Referring to Figures 1, 4, and 5 circular spring holder plate 27 has four leaf springs 30, 31, 32 and 33 secured to one of its sides by means of rivets 34, 35, 36 and 37.

Stationary guide 22 is designed with a circular ledge 40 and a circular shoulder 41 formed to accommodate guide ring 42 which is free to slide axially under the urging of leaf springs 30, 31, 32 and 33 but is limited in its forward movement by face 43 in stationary guide 22.

In operation, as wheel 16 revolves due to its connection to shaft 12, the edge 44 or 45 is free to urge guide ring 42 outwardly but due to leaf springs 30, 31, 32 and 33, guide ring 42 will always be lightly touching wheel 16. As circular shoulder 41 and circular ledge 40 wear due to the axial and radial movement of guide ring 42, leaf springs 30, 31, 32 and 33 will take up that wear and still hold guide ring 42 against shoulder 41.

There is practically no wear on guide ring 42 where it touches wheel 16 because the touching is done with very little pressure and because the commercial type of wheel is constructed of wood covered with a layer of felt forming the under surface for the abrasive element of emery cloth or sand paper.

Once adjustment for pressure of guide ring 42 against wheel 16 is made, through leaf springs 30, 31, 32 and 33, it lasts indefinitely.

The tip of guide ring 42 under light pressure where it contacts wheel 16 assists in keeping the abrasive element, emery cloth or sand paper on the wheel by preventing that abrasive element from walking. The close proximity of guide ring 42 to wheel 16 allows the sharp corner of the emery cloth or sand paper to function longer because the soft corner of the emery cloth or sand paper at the edge of wheel 16 is not under pressure. The area adjacent the edge is the working area used in the present embodiment of the guide ring 42.

Any operative may rest a shoe on the face of guide ring 42 assured of uniform contact with abrasive surface 17 and assured of protecting the upper behind guide ring 42. The close proximity of guide ring 42 to abrasive surface 17 assures a thorough scouring buffing and finishing of a shoe heel. There will be no "holidays" or untouched areas on the heel.

When a heel is pressed against guide ring 42 in a scouring, buffing or finishing operation, pressure will cause guide ring 42 to rotate with wheel 16 due to the contact of said guide against the side of said wheel. This action causes the most wear on circular ledge 40 and circular shoulder 41.

Shaft 12 is provided with a ball bearing consisting of a bushing 50, balls 51 and race 52. Race 52 is provided with a groove 53 which will permit a lubricant, such as is administered by a Zerk fitting 55 to reach balls 51. A felt wash 56 is held in place over the face of the ball bearing by means of a plate 57 secured to race 52 by means of screws not shown. The felt washer prevents the lubricant from running away from the area of ball 51.

Referring to Figure 1, shaft 12 on its extreme outer end is provided with a retaining nut 60 shown in the sectional area as taking up the width of the threaded area of shaft 12. Nut 60 when half as wide functions as well as when it is as wide as shown.

A conventional hexagon nut 61 with threads in a direction reverse to the threads in nut 60 is provided to be placed in position when abrasive paper 17 is to be replaced on split wooden wheel 16. Nut 61 is provided with a slot 62. A boss 63 is provided on the side of housing 20. A hole 64 is drilled in boss 63. A pin (not shown) or a ten penny nail may be dropped into hole 64 and lined in the path of slot 62. Shaft 12 will then be held against rotation.

Figures 6 and 7 show a modified form of mechanism or fixture to hold shaft 12 against rotation when abrasive paper 17 is to be replaced.

The fixture consists of a disk 70 provided with a reduced extension 71 slotted at 72. A dowel pin 73 is secured in disk 70. Slot 72 fits over opposite flat sides of hex nut 60.

Extension 71 fits inside of guide housing 22. A hole 74 located in housing 20 accommodates pin 73. It will be seen that shaft 12 cannot turn when nut 60 is collared by slot 72 and pin 73 is in hole 74.

What we claim is:

1. In a shoe heel finishing machine, a rotatable shaft having a wheel fixed thereto, a suction hood surrounding a portion of said shaft with respect to which the said portion of the shaft is free to rotate a stationary guide adjacent a radial side of the wheel, a shoulder on said stationary guide adjacent the wheel, a guide ring mounted on said stationary guide for axial movement thereon and means for resiliently retaining said guide ring in engagement with the said shoulder which comprises a spring holder plate fixed to said stationary guide and a plurality of spaced spring means carried thereby and in contact with said guide ring.

2. In a shoe heel finishing machine, a rotatable shaft having a wheel fixed thereto, a stationary guard member surrounding a portion of said shaft with respect to which the said portion of the shaft is free to rotate, a guide ring mounted on said stationary guard for limited axial movement thereon, a spring holding ring provided with springs secured to said stationary guard, said springs pressing said guide ring against a shoulder of said stationary guard.

3. In a shoe heel finishing machine, a rotatable shaft having wheels fixed thereto, suction hoods surrounding a portion of said shaft with respect to which, the said portion of the shaft is free to rotate, stationary guards supported solely in said suction hoods, spring holding rings provided with springs secured to said stationary guards, guide rings freely mounted on said stationary guards for limited axial movement between said wheels and said springs, said springs pressing said guide rings against shoulders on said stationary guards.

4. In a shoe heel finishing machine, a rotatable shaft having a wheel fixed thereto, a stationary

guard member surrounding a portion of said shaft with respect to which, the said portion of said shaft is free to rotate, a guide ring mounted on said stationary guard for limited axial movement thereon, a spring holding ring provided with springs secured to said stationary guard, said springs pressing said guide ring against a shoulder of said stationary guard, said rotatable shaft having a threaded end, a suction hood secured to said stationary guard member partly surrounding said wheel, a projection on the side of said hood opposite the threaded end, a castilated nut engaging said threaded end for rotation in a direction opposite to the direction of normal rotation of said shaft, said projection having a perforation in alignment with the castilations in said castilated nut and a pin removably positioned in said perforation and extending into

said castilations to prevent rotation of said rotatable shaft.

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