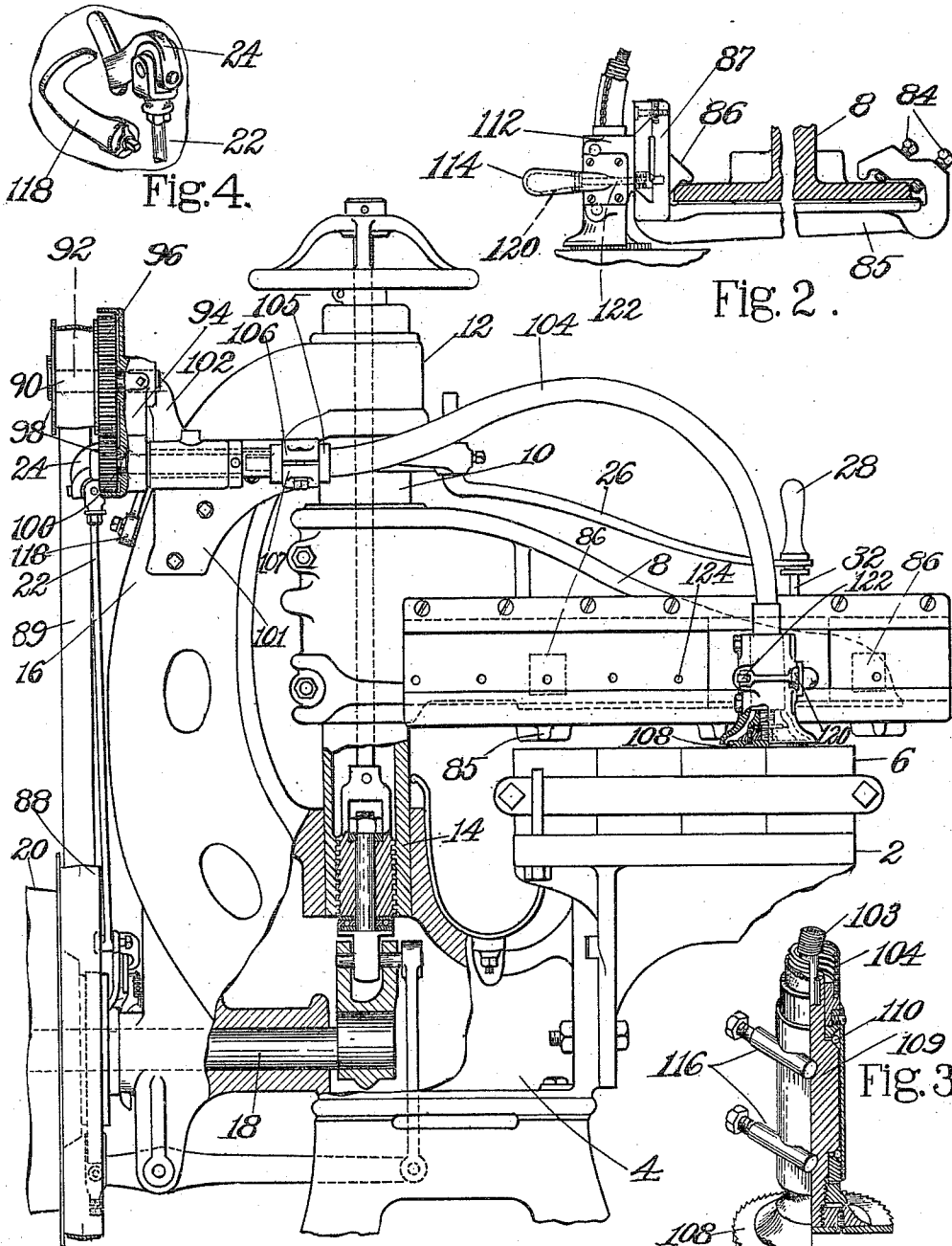


I. C. BUCKMINSTER.
RESURFACING MECHANISM.
APPLICATION FILED JUNE 12, 1909.

985,973.

Patented Mar. 7, 1911.



WITNESSES
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Fig. 1 .

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UNITED STATES PATENT OFFICE.

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RESURFACING MECHANISM.

985,973.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed June 12, 1909. Serial No. 501,869.

To all whom it may concern:

Be it known that I, IRA C. BUCKMINSTER, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Resurfacing Mechanisms, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for cutting sheet material and particularly to machines for dieing out thin sheet material, such as upper leather for boots and shoes.

A principal object of the invention is to provide improved means for resurfacing the stock supporting bed in machines of the aforementioned type. It is important in machines of this type and particularly in machines used in cutting out upper leather that the cutting surface of the stock supporting bed be kept comparatively smooth and that its surface be kept in a plane substantially parallel with the plane in which the pressure surface of the platen carrying member lies. It is also important that the resurfacing operation be performed quickly so as to consume as little as possible of the time of the operator.

A further object of the invention is to provide resurfacing means which will perform the resurfacing operation more quickly and will also perform it better than mechanism heretofore used.

Specifically the invention comprises the provision in a machine for dieing out thin sheet material, such as upper leather for boots and shoes, having a presser member which swings about a vertical axis at one side of the bed into operative relation to different parts of the bed, of means for resurfacing the bed, comprising a rotary cutter mounted to move longitudinally of the presser member and driven from the operating mechanism through which the pressing operation is effected.

In the accompanying drawings,—Figure 1 is a left-hand side elevation of a machine embodying the invention; Fig. 2 is a sectional detail showing the manner of attaching the resurfacing mechanism to the presser member; Fig. 3 is a detail view partly in section of the cutting tool and its anti-friction

bearing, and Fig. 4 is a detail perspective of the means for locking the clutch actuating lever during the resurfacing operation.

The machine in which the invention is shown as embodied is of the type disclosed in the United States Letters Patent to Arthur Bates, No. 921,503, May 11, 1909, and comprises a table 2 formed upon a bracket attached to the frame 4 of the machine, said table supporting a cutting block 6 of wood or other suitable material over which is arranged to be swung a presser member 8 clamped upon a post 10 mounted to reciprocate vertically and to oscillate about its vertical axis in bearings 12 and 14 in the machine frame, the upper bearing 12 being formed in an upward extension 16 of the frame which is arched over the lower bearing 14 above the presser member 8.

Vertical reciprocation is imparted to the presser member through suitable connections to a main driving shaft 18 to which is arranged to be clutched a loose pulley 20 by suitable clutch mechanism not herein specifically illustrated or described. The clutch is operated through connections to a starting handle 28 comprising a rod 22 and a lever 24, said lever having intermediate its ends a swivel joint surrounding the post 10, an arm 26 being adjustably connected to one member of said swivel joint. These parts may be substantially the same as those disclosed in the said Letters Patent.

When it is desired to resurface the cutting block or bed 6 the starting handle 28 is locked against clutch actuating movement by locking means comprising a hook 118 pivoted upon the back of the upward extension 16 of the frame and arranged to hook over the rear end of the lever 24. The resurfacing mechanism is then clamped upon the presser member 8. This mechanism comprises, as illustrated, a bracket or frame which may be placed upon the presser member by sliding it lengthwise over the platen portion of the same, said bracket being constructed and arranged to be clamped in position upon said presser member by set screws 84 mounted in yokes 85 which extend under the presser member 8, three yokes being shown, lugs 86 upon the vertical guide portion 87 of the supporting bracket aiding to keep the bracket in horizontal position upon the presser member.

The vertical guide portion 87 of the bracket has formed in it a dove-tailed guideway in which travels the dove-tailed extension of the cutter carrying carriage 112 hereinafter to be described.

The cutting tool is preferably of the rotary type and will be hereinafter more specifically described. The power for operating the cutting tool is taken from a pulley 88 formed upon, or attached to, the loose pulley 20, a belt 89 transmitting the rotary motion of this pulley to a smaller pulley 90 loosely mounted upon a stud shaft 92 carried in a bracket 94, said pulley having attached to it a gear 96 which meshes with a pinion 98 upon one end of a short shaft 100 mounted in bearings in a second bracket 101 attached to the upstanding part 116 of the machine frame.

The bracket 94 is pivoted upon the shaft 100 so that it may be turned about said shaft to permit the convenient removal of the bolt 89. When in the position shown in Fig. 1 the bracket 94 rests against a stop 102 formed upon the bracket 101. The forward end of the short shaft 100 is enlarged so that it provides a shoulder by which it may be confined in its bearing, and in this enlarged end is a socket having a key, said socket receiving the grooved rigid end of a flexible shaft 103 carried in a flexible casing 104, the groove in the end of said shaft receiving the key in the socket in the shaft 100 whereby the two shafts are compelled to rotate together.

The solid or rigid end of the flexible shaft 103 is mounted in the bearing casing 105 clamped between clamping jaws 106, 107. The cutter used in this form of the invention is preferably a disk saw 108 having its teeth set slightly out of the plane of its lower surface whereby they may cut into the surface of the cutting bed 6 as the saw is moved over said bed. The flexible shaft 103 has its lower end attached to a vertical shaft 109 mounted in ball bearings 110 in the carriage 112, the saw 108 being screwed upon the lower end of this shaft. A handle 114 is provided by which the carriage 112 may be moved longitudinally of the presser member 8.

The ball bearing cage is confined in the carriage 112 by clamping bolts 116 passing through the carriage and provided with laterally curved recesses concentric with the cage. In order that the carriage 112 may be locked in the different positions upon the presser member 8 into which it is moved during the resurfacing operation, the upstanding portion 87 of the bracket is provided with openings 124 spaced apart distances slightly less than the diameter of the saw 108, and a spring-pressed plunger 122 controlled by a thumb lever 120 is arranged to enter these openings successively. When

the operator desires to move the carriage into a new position of adjustment he presses the lever 120 and withdraws the plunger 122 out of the opening into which it projects and slides the carriage 112 along the beam until the plunger 122 enters a succeeding opening when the saw will be in proper position to be moved through its next resurfacing arc.

In practice a considerable part of the operating mechanism is left constantly upon the machine. In the form of the invention herein illustrated the supporting bracket is removed from the presser arm 8 and with it the cutter carriage and the flexible shaft. To permit the removal of the flexible shaft the clamping action of the clamp members 106, 107 on the bearing casing 105 is released and the casing may then be withdrawn longitudinally of said clamp.

The operation of the resurfacing mechanism will be understood from the foregoing description, but may be briefly recapitulated as follows: The resurfacing mechanism having been clamped upon the presser member 8, the operator grasps the handle 114 and adjusts the carriage 112 over the part of the bed from front to back at which the resurfacing operation is to be begun. He then grasps the starting handle 28 which has been locked against its clutch actuating movement and swings the presser member back and forth over the bed 6, adjusting the carriage longitudinally of the presser member as the resurfacing in the first arc of travel is completed so that successive arcs will be resurfaced until the entire bed is covered.

If desired, the presser member 8 may be swung by the same handle by which the carriage is moved longitudinally of said member and thus the operator may effect the resurfacing operation by the use of a single hand or it may be swung in any other suitable and convenient manner.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A machine of the class described, having in combination, presser members relatively movable into different operative relations to each other, means carried by one of said members for resurfacing the other, comprising a rotary cutter, and means for effecting a pressing operation of said members having associated therewith means to operate said cutter during the resurfacing operation.

2. A machine of the class described, having in combination, presser members relatively movable into different operative relations to each other, means carried by one of said members for resurfacing the other, comprising a rotary cutter, means for effecting a pressing operation of said members and connections between said last-named

means and said resurfacing means whereby said resurfacing means is operated automatically.

3. A machine of the class described, having in combination, a bed, a presser member movable thereover, a resurfacing device, comprising a rotary cutter carried by said presser member and movable over said bed in different paths, and means for automatically rotating said cutter.

4. A machine of the class described, having in combination, a bed, a presser member arranged to swing about a vertical axis at one side of said bed into different operative relations to said bed, means for effecting a vertical reciprocation of said member, and means operated from said last-named means for resurfacing said bed.

5. A machine of the class described, having in combination, a bed, a presser member arranged to swing about a vertical axis at one side of said bed into different operative relations to said bed, mechanism for effecting a vertical reciprocation of said member, and means carried by said presser member and operated from said mechanism for resurfacing said bed.

6. A machine of the class described, having in combination, a bed, a presser member arranged to swing about a vertical axis at one side of said bed into different operative relations thereto, a rotary cutter mounted upon said presser member to slide longitudinally thereof into different cutting relations to said bed, means for operating said presser member and means connected to said operating means for automatically rotating said cutter.

7. A machine of the class described, having in combination, a bed, a presser member movable thereover, a resurfacing device, comprising a rotary cutter carried by said presser member and movable over said bed in different paths, and means for automatically rotating said cutter, said resurfacing device being removable from said presser member when it is desired to effect a pressing operation.

8. A machine of the class described, having in combination, a bed, a presser member movable thereover, a resurfacing device, comprising a rotary cutter carried by said presser member and movable over said bed in different paths, means for effecting a pressing operation of said member having associated therewith means to operate said

cutter, and means for locking said presser member against operation during the operation of said cutter.

9. A machine of the class described, having in combination, a bed, a presser member movable thereover, a resurfacing device, comprising a rotary cutter carried by said presser member and movable over said bed in different paths, a driving shaft, operating connections between said shaft and said presser member, a normally rotated loose pulley arranged to be clutched to said shaft to effect a pressing operation and operating connections between said rotary cutter and said pulley whereby said cutter may be operated independently of said presser member.

10. A machine of the class described, having in combination, a bed, a presser member movable thereover, a resurfacing device comprising a rotary cutter carried by said presser member and movable over said bed in different paths, and means for automatically rotating said cutter, said mechanism being so constructed and arranged that the resurfacing device may be removed from said presser member when it is desired to effect the pressing operation and that the greater part of the means for operating the cutter may be left permanently upon the machine.

11. A machine of the class described, having in combination, a bed, a presser member movable thereover, resurfacing mechanism carried by said presser member, means for effecting a pressing operation of said member, means for actuating said operating means, comprising a lever, and means for preventing the actuation of said operating means, comprising a hook arranged to be hooked over one arm of said lever.

12. A machine of the class described, having in combination, a bed, a presser member movable thereover, means for effecting a pressing operation of said member, means for actuating said operating means, comprising a lever, and means for preventing the actuation of said operating means, comprising a hook arranged to hook over one of the arms of said lever.

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

IRA C. BUCKMINSTER.

Witnesses:

LEONARD M. JOHNSON,
H. DORSEY SPENCER.