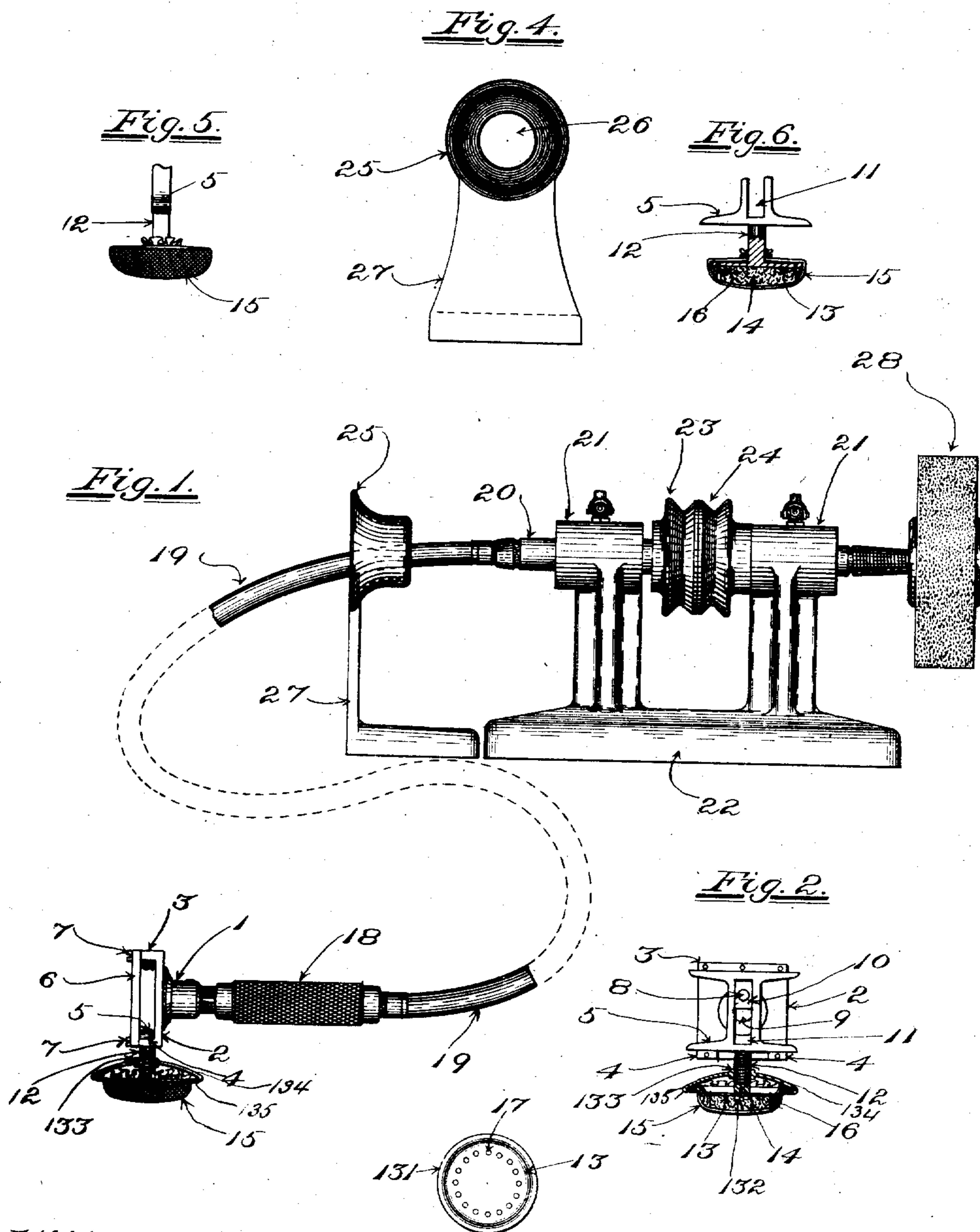


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POLISHING MACHINE FOR USE IN REPAIRING CRACKS IN PATENT LEATHER.
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973,912.

Patented Oct. 25, 1910.



Witnesses:
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Fig. 3.

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UNITED STATES PATENT OFFICE.

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POLISHING MACHINE FOR USE IN REPAIRING CRACKS IN PATENT-LEATHER.

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Specification of Letters Patent.

Patented Oct. 25, 1910.

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To all whom it may concern:

Be it known that I, VERTRUDE P. BUCK, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Polishing-Machines for Use in Repairing Cracks in Patent-Leather, of which the following is a specification, reference being had therein to the accompanying drawings.

As is well-known, many shoes are made in part of patent leather. This material has the drawback that the polished surface thereof cracks very readily. Much loss has been experienced by manufacturers in the past on account of goods being rendered unsalable by cracks resulting from careless handling of the patent leather, and from the strain to which the latter is subjected in lasting a shoe, more particularly in lasting the tip or toe-cap. Until recently, many shoes have been entirely discarded on account of such cracks. The percentage of injury in making a case of shoes is quite large. It has been proposed to minimize or avoid the loss aforesaid by cleaning off the surface of the patent leather at and around cracks therein, down to the leather itself, coating or covering the place thus cleaned with a special preparation or composition which is prepared for the purpose, and polishing to produce a uniform surface. The smoothing and polishing has been effected by hand, heretofore, and is work requiring great care and delicacy.

My object is to provide a machine for smoothing and polishing by means of which such work may be performed more rapidly and economically than possible with hand-work.

The invention is illustrated in the drawings, in which latter,—

Figure 1 illustrates a machine containing an embodiment of the invention. Fig. 2 is a view of the polisher, looking from the left-hand side of Fig. 1, with the face-plate removed and the pad, etc., in section. Fig. 3 is a bottom view of the carrier-disk of the pad. Fig. 4 is an elevation of the guard for the flexible shafting, looking from the left-hand side of Fig. 1. Fig. 5 shows in

elevation, partly broken away, a modified form of polishing pad. Fig. 6 is a sectional view of the polishing pad which is shown in Fig. 5.

Having reference to the drawings,—at 1 is the frame or body of the polisher proper. The said frame or body is formed with a head 2 having an inner guide-face provided with upper and lower transversely extending guides 3 and 4, 4. Against the said guide-face, and between the said upper and lower guides, a cross-head 5 is fitted, the said cross-head being confined in place by means of a face-plate 6, Fig. 1, which is secured against the free edges of the guides 3 and 4, 4, by means of screws 7, 7. The cross-head is reciprocated transversely within the frame or body aforesaid by means of a crank-pin 8, Fig. 2, which is carried by a rotating shaft 9 that is suitably journaled in the said frame or body, the said crank-pin being engaged with a block 10, Fig. 2, working in a vertical slot 11 which is formed in the cross-head. From the lower portion of the cross-head a stem 12, Figs. 1 and 2, projects downward between the guides or guide-lugs 4, 4. To this stem is applied the polishing pad. To afford support and backing to the pad, the stem 12 is provided with a disk, 13, Figs. 2 and 3, to which is applied the pad consisting of a body 14 composed of a convenient thickness of felt or other suitable material, and a covering 15 of cloth or the like. The said covering may consist of cheese-cloth. The layer of felt, or other suitable body-substance or material, may conveniently be secured to the carrier-disk 13 by means of stitches, 16, Fig. 2, passed through holes 17, made through the said carrier-disk. The covering of cheese-cloth or other material may conveniently be secured in place by gathering together the upper portions thereof around the stem 12, and binding such gathered portions to the said stem by a thread or cord, as indicated in Figs. 5 and 6, but preferably I employ a means of clamping the covering in place on the order of that which is represented in Figs. 1, 2 and 3. Having reference more particularly to Figs. 2 and 3, the disk 13 is shown therein furnished with a periph-

eral flange or rim 131 outside the pad-body 14, and the said disk is held to the stem 12 in a manner permitting the same to turn relative to the said stem. In Fig. 2, 132 is a holding screw having a flanged head and an enlarged plain body-portion next to the said head. The disk is formed with a central hole fitting the said enlarged plain body-portion. The threaded portion of the screw is screwed into a threaded hole which is tapped in the lower end of the stem 12, and the shoulder which is formed by the enlarged plain body-portion of the screw makes contact with the lower end of the stem 12. This mode of connection leaves the disk free to turn upon the enlarged plain body-portion of the screw. The stem 12 is externally screw-threaded, and to the said stem is applied the internally-threaded hub or nut 133, which latter is connected by the arms 134, 134, with the clamping ring 135. The latter occupies a position below the flange or rim 131 of the disk 13. The marginal portion of the cheese-cloth covering is introduced between the said flange or rim of the disk and the clamping ring, and then, after the said cloth has been properly strained around the body of the pad, the pad, disk, and clamping ring are rotated relative to the stem 12 so as to screw the hub of the clamping ring upward along the said stem and thereby cause the said ring to clamp the margin of the cloth against the flange or rim 131 of the disk 13.

The polisher is furnished with a handle, as 18, Fig. 1, by which it may be held by the work-person and moved into any position that may be necessary in working upon the upper or cap of a shoe. The polisher is small and light, and therefore easily portable manually, and in using the same its pad may be caused to bear with any required degree of pressure upon the place to be polished, and also as lightly and delicately as may be desired.

To enable the polisher to be moved about freely by the work-person around a shoe which is being operated upon, and caused to assume all positions which may be necessary in working upon such shoe, the actuating connections for the crank-shaft 9 include a length of flexible shafting, the exterior casing of which is shown at 19, Fig. 1. One end of the said flexible shafting is coupled with the crank-shaft 9. The other end of the same is coupled with the driving-shaft 20, Fig. 1. The said driving-shaft is journaled in fixed bearings which are provided at 21, 21, upon a stand 22. It is furnished with a fast band-pulley, 23, and a loose band-pulley, 24, to which band-pulleys is applied in practice a suitable actuating driv-

ing-band, not shown. To prevent breakage of the flexible shafting, or the coupling whereby it is connected with the driving-shaft 20, in consequence of the flexible shafting being bent too sharply closely adjacent the point of connection with the driving-shaft, I provide a guard-device or restrainer 25 which is shown in Figs. 1 and 4, and which is in the form of a ring or shell, through the opening 26, Fig. 4, of which the flexible shafting passes. The said guard-device or restrainer is located at a convenient distance from the said point of connection, and is furnished with a supporting-stand 27. The wall of the guard-device or restrainer enlarges or flares in bell-shape in the direction from the point of connection aforesaid toward the polisher, so as to provide for a gradual change in the direction of the flexible shafting when it is bent transversely around the said wall. To further reduce the tendency to breakage of the flexible shafting in consequence of bending thereof, I provide for a slight amount of end-play of the driving-shaft 20 in its bearings 21, 21, as indicated in Fig. 1 by the space existing at the left of the pulley 23, between such pulley and the adjoining bearing 21. This opportunity for end-play enables the driving-shaft to move in the direction of its length when the flexible shaft is bent or curved.

At 28 is a cylindrical brush which is carried by the driving-shaft 20 and rotates therewith, the said brush being intended to be used in clearing away dust, etc., after the scouring operation, preliminary to the application of the composition or preparation aforesaid, and for other purposes.

In practice, the driving-shaft is rotated at a considerable number of turns per minute, producing a rapid reciprocating movement of the polishing pad. At the place where a crack is located the surfacing material is completely scoured off down to the leather itself, after which the composition or preparation is applied. As the latter hardens, the surface is subjected to the action of the polisher, the latter being manipulated to act upon all required portions, and the force of contact being graduated or varied as may be found necessary in effecting the smoothing and polishing, and in giving the final touches in polishing.

I claim as my invention:—

1. A polishing machine for use in repairing patent leather, comprising in combination the hand-supported frame or body formed with a transverse guideway, a cross-head movable transversely in said guideway and provided with a vertical slot, a fixed polishing pad of yielding material carried directly by the said cross-head, a rotating

shaft mounted in the said frame or body and provided with a crank working in the said vertical slot, and actuating devices comprising flexible driving connections for
5 said shaft.

2. A polishing machine for use in repairing patent leather, comprising in combination the hand-supported frame or body formed with a transverse guideway, a cross-
10 head movable transversely in said guideway and provided with a slot, a stem projecting

from said cross-head, a disk carried by the said stem, a yielding pad applied to the said disk, a covering 15 for the said pad, and means engaging in said slot to reciprocate 15 the said cross-head in said guideway.

In testimony whereof I affix my signature in presence of two witnesses.

VERTRUDE P. BUCK.

Witnesses:

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