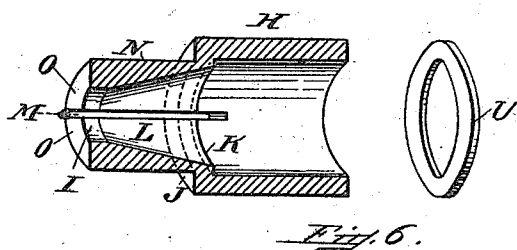
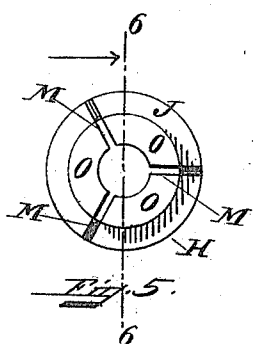
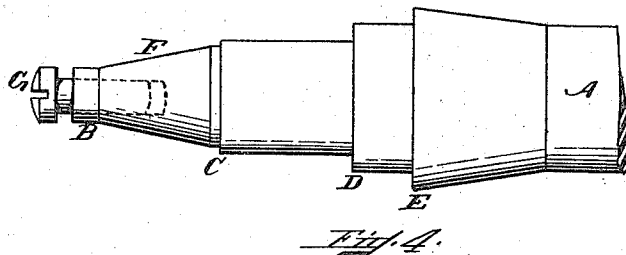
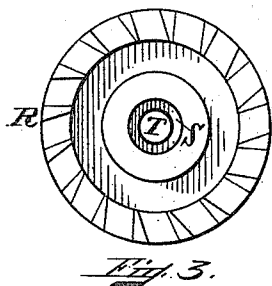
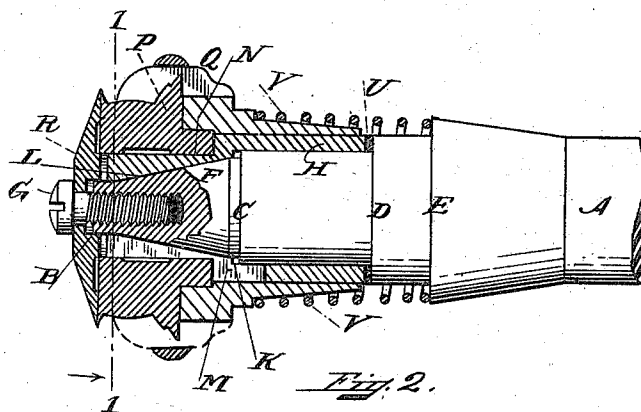
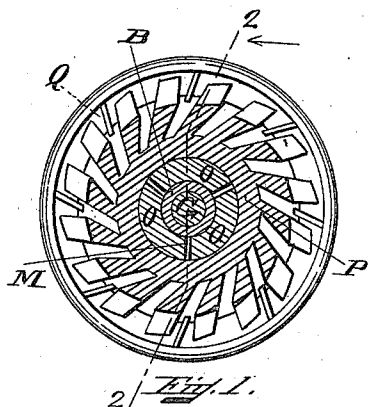


(No Model.)

J. B. EMERY.
SOLE TRIMMING MACHINE.

No. 572,878.

Patented Dec. 8, 1896.



Witnesses:
J. H. Eaton,
H. E. Rennie, Jr.

Inventor
John B. Emery.
per H. E. Rennie,
his atty.

UNITED STATES PATENT OFFICE.

JOHN BERRY EMERY, OF LYNN, MASSACHUSETTS.

SOLE-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,878, dated December 8, 1896.

Application filed January 18, 1896. Serial No. 575,980. (No model.)

To all whom it may concern:

Be it known that I, JOHN BERRY EMERY, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented a certain new and useful Improvement in Sole-Trimming Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to improvements in sole-trimming machines, and has particular reference to my previous invention, for which Letters Patent No. 528,467, dated October 30, 1894, were issued. In said invention I find by actual construction and demonstration the desirability of eliminating certain features—as, for instance, the conical-mouthed socket in the shaft, the screw having a conical head, the shaft having a cylindrical bearing, and making other radical changes of construction and of addition of parts hereinafter more fully described and claimed, which will enable me to accomplish the accurate centering of any trimming, grinding, polishing, or other allied devices which are interchangeably fitted upon a shaft more expeditiously, inexpensively, and with greater efficiency in operation by this my present invention.

In the class of machines forming the subject of my former patent the soles of boots and shoes are trimmed by a multiplicity of radial cutting-blades, constituting in their entirety a circular rotary sole-trimmer mounted and secured upon a rapidly-revolving shaft and operating in conjunction with a feather-edger having a yielding support to prepare the surface of the leather for the subsequent action of the cutters and an interlocking end-wise shield to protect the vamps from mutilation, the rotation of each being identical with the trimmer.

To insure accuracy in the assembled implement, it is imperative that the cutting periphery in its rotations shall not vary from ninety degrees with the plane of its shaft to trim the sole edge properly and effectively. The peripheral cutting edges of the blades should also revolve at a precise distance from the axis of the shaft's rotation; otherwise the trimming is done irregularly. To effect these objects with greater efficiency is the purpose of my present improvement, which embraces the combination, primarily, of a rotating shaft

provided at the end adjacent to the trimmer with a series of shoulders and an external cylindrical cone or taper spindle, a longitudinally-slotted radially-expansible sleeve or jacket having an external cylindrical bearing and an internal cone or taper bearing coacting with the identical bearing of the multi-shouldered shaft, a sole-edge trimmer adjustable over the cylindrical bearing of the sleeve, and means whereby said sleeve-bearing is expanded to closely fit the bore of and center the trimmer.

My invention further comprises, in addition to the aforesaid elements, the combination of a disk-guard interlocking with the trimmer and provided with a central circular inside apertured depression to embrace the cylindrical end of the revoluble shaft, a feather-edger having a yielding rearward support, a threaded clamping-bolt adapted to center and assemble the several described parts, and means to cushion the organized invention upon the shaft.

A more specific description of the remaining features of my improved invention will be obtained through reference to the drawings forming a part of this specification, wherein—

Figure 1 is a transverse section of the agrouped parts on dotted line 1 1 of Fig. 2, Fig. 2 being a longitudinal section of the organized devices on dotted line 2 2 of Fig. 1. Fig. 3 is a plan of the under side of the feather-edger to exhibit the apertured central depression receiving the circular end of the shaft and admitting the clamping-screw. Fig. 4 denotes a side elevation of the multi-shouldered shaft end stripped of the several devices exhibited in Fig. 2. Fig. 5 indicates an end elevation of the jacket or sleeve removed from said shaft, and Fig. 6 a longitudinal section on dotted line 6 6 of Fig. 5 of the same feature in perspective and also embracing a view of the gasket for cushioning the organized devices when assembled.

Corresponding characters indicate like features throughout the several views, wherein—

A denotes the rotating shaft of a shoe or boot sole edge-trimming machine, having at its end adjacent to the edge-trimming cutter a series of shoulders B C D E, the portion of the shaft between said shoulders B and C forming exteriorly a taper or cone-shaped

spindle-bearing F, within which is a central screw-threaded socket designed to receive the clamping-screw G, which subserves the twofold purpose of confining the assembled mechanism and radially expanding the cylindrical slotted bearing which supports the trimming-cutter when forced into the taper F.

H designates the sleeve or jacket, having a series of shoulders I J K, designed to coact with the aforesaid corresponding shoulders on the shaft A, and an interior cone-shaped bearing L to embrace the shaft cone-bearing F. A series of longitudinal slots M divide the interior cone and the cylindrical outer bearing N, supporting the cutter, into several independent radial expansible sections O, which are sufficiently flexible to outwardly expand or inwardly contract when the sleeve is forced downwardly over the taper F or retracted by the action of the clamping-screw G indirectly through its accessories, forcing said sleeve or jacket H nearer the shoulder C of the shaft, as in Fig. 2. Thus expanded, the sections O independently compensate for any inequalities of surface in the bore of the trimmer and circumferentially true up the cutting-blades in their relation to the axis of the shaft's rotation. Thus the trimmer firmly embraces the bearing of the shaft without any lost motion.

P indicates the sole-edge trimmer, of any desirable construction, (as the essence of my invention obviously is to overcome the inequalities of surface in any cylindrical bore, occasioned through wear or otherwise,) fitted upon the cylindrical bearing N of the sleeve and seated against its annular shoulder J. The feather-edger Q, with its helical spring V forming its yielding support, is also seated against the flanged shoulder E of the shaft, being previously assembled, as in Fig. 2.

R is the disk or vamp-guard interlocking with the trimmer and provided centrally with the circular depression S to receive the shoulder B of the shaft and the central aperture T for the admission of the clamping-screw G, whose action has been previously described.

U denotes the gasket, of any elastic material, which intervenes between the shoulder D and the larger end of the sleeve H to form a yielding support to the screw as it is turned into its socket.

While I have preferred to illustrate and describe my improved invention in connection with a shoe-sole-edge trimmer, I desire not to curtail its advantageous employment in other mechanisms to which it is obviously adapted; neither do I wish to be confined to a strict interpretation of the details of construction herein described, but may employ substantially such equivalents therefor as would come within the fair scope and spirit of my invention, which, having described, I desire to secure by Letters Patent of the United States, and

I claim—

1. The rotating shaft provided with a series

of shoulders of differential circumferences, and a taper, adapted to support a longitudinally-slotted sleeve, the said sleeve provided with differential circumferences and a taper adapted to embrace the said shaft, the trimmer covering the ends of the shaft and the sleeve and the clamping-screw arranged to enter the shaft in a manner to confine the said trimmer and its herein-described coacting accessories, with the flexible sleeve, rigidly upon the shaft, to obviate lateral motion occasioned by wear of the shaft end, or bore of the cutter, substantially in the manner and for the purpose specified.

2. The multishoulder shaft provided integrally near its end with an external taper-spindle terminating in a circular bearing and having an internal threaded socket; the sleeve or jacket having internally a cylindrical bore and a diminished taper terminating at its smaller end in a circular bearing in proportion to fit the identical bearing of said shaft, the bore and taper abutting against an annular internal shoulder, said taper subdivided by longitudinal intersections in a manner to form a series of expanding and contracting sectional coacting taper and segmental bearing-surfaces, the apertured disk or shield provided at its center with a circular rearward depression to receive the circular bearing of the taper-spindle and the clamping-screw adapted, when the described devices are assembled, to be turned into the threaded socket of said spindle in a manner to force the sleeve over the spindle-taper and expand the segments of said sleeve beyond their normal circumference substantially in the manner specified.

3. The combination in a sole-trimming machine of a rotating shaft provided with a series of shoulders and an internally-threaded taper-spindle, a sleeve or jacket provided with an internal annular shoulder adapted to coact with the outward shoulder of the taper-spindle, and an internal flexible taper-bearing conforming to the taper-spindle of the shaft, a sole-edge trimmer adapted to receive said flexible bearing provided with a hub to operate against the outward shoulder of the sleeve to press the latter farther upon the taper-spindle, a feather-edger having an independent yielding support, a vamp-guard provided with an apertured central depression and means substantially as described, for compressing the sleeve and its coacting devices upon the taper-spindle to expand said flexible taper and unify the rotation of the trimmer and shaft.

4. The feather-edger adapted to yield before endwise pressure, the trimmer arranged to receive the force of the guard and transmit it to the sleeve, and the said guard provided with means to embrace the reduced circular end of the shaft or spindle, in combination therewith the revoluble shaft having a taper-spindle internally threaded, the clamping-screw adapted to draw the guard

against the trimmer, the sleeve having rigid
and expansible ends, the former to embrace
the shaft, the latter to embrace the taper in
a manner to expand and securely fit the bore
5 of the trimmer, and means to cushion the
sleeve against the action of the screw and its
coacting devices, substantially in the manner
set forth.

In testimony whereof I have signed my
name to this specification, in the presence of 10
two subscribing witnesses, on this 2d day of
December, A. D. 1895.

JOHN BERRY EMERY.

Witnesses:

W. A. WESTON,
B. L. WHITE.