

No. 727,557.

PATENTED MAY 5, 1903.

T. ROBINSON.
BUFFER.

APPLICATION FILED JAN. 29, 1903.

NO MODEL.

Fig. 1.

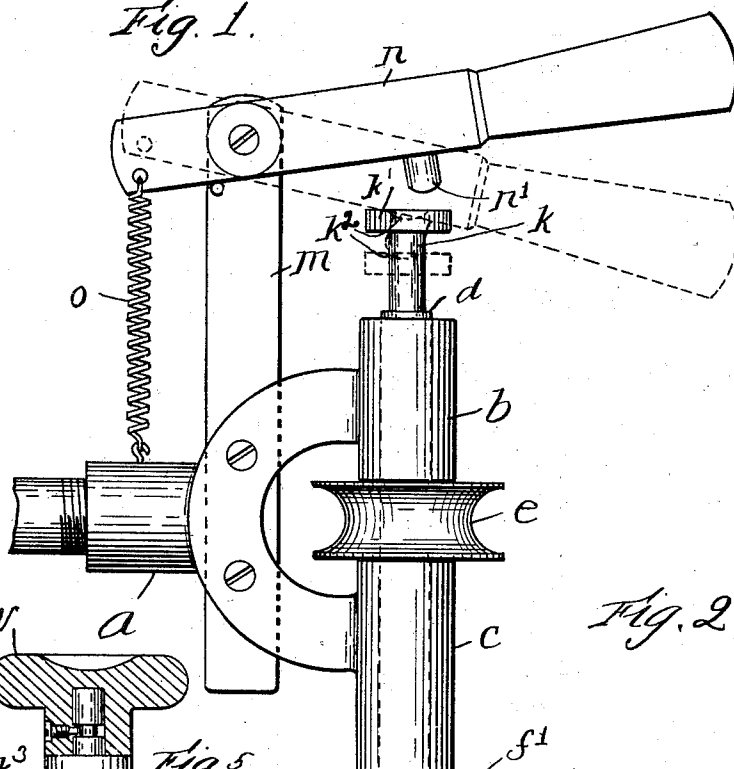


Fig. 2.

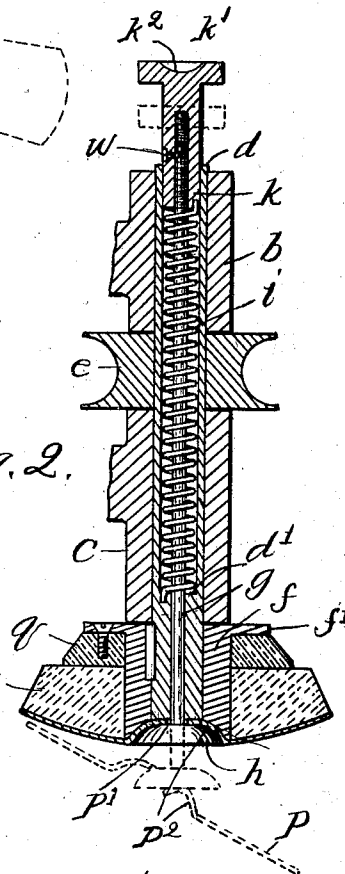


Fig. 3.

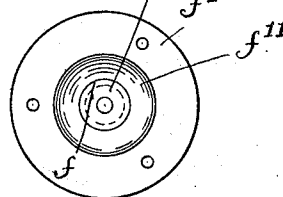
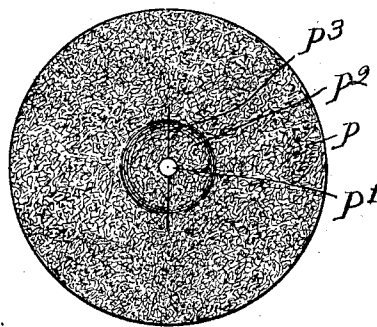


Fig. 5.

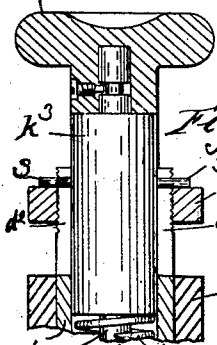
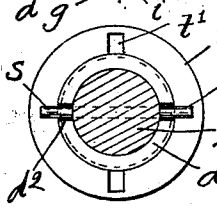


Fig. 6.



Witnesses:

H. B. Davis.

Maud M. Fisher.

Fig. 7.

Fig. 4. Inventor:
Thomas Robinson
by Noyes Hamman
Attys

UNITED STATES PATENT OFFICE.

THOMAS ROBINSON, OF BRADFORD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO MYRON L. WHITCOMB AND HOWARD L. CLARK, OF HAVERHILL, MASSACHUSETTS.

BUFFER.

SPECIFICATION forming part of Letters Patent No. 727,557, dated May 5, 1903.

Application filed January 29, 1903. Serial No. 140,975. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ROBINSON, of Bradford, county of Essex, State of Massachusetts, have invented an Improvement in Buffers, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to that class of buffing devices which are employed in buffing the shanks of shoes, and more particularly it relates to that class of buffing devices in which a circular abrasive or emery-paper disk is secured at its middle portion to a holder on which a circular pad is mounted and against which the disk is held as the work is pressed against the disk. These abrasive disks wear out quickly and must be changed frequently, particularly when used to buff certain kinds of leather, and the time lost by the operator in removing the worn disk and securing a fresh one in place becomes a material item in the course of a day's work.

The object of my invention is to provide a means for securing an abrasive disk to a pad-holder which will enable the operator to remove a worn disk and supply a fresh one while the machine is in operation, so that the work of the operator is not delayed by his having to stop the machine in order to change the disks.

A further object of my invention is to provide a disk which may be readily secured in place and which when secured in place will be perfectly centered and will lie smoothly upon the face of a convex-shaped pad.

In the drawings, Figure 1 is a side elevation of a buffing device provided with my invention. Fig. 2 is a central longitudinal section thereof. Fig. 3 is a face view of one of the abrasive disks. Fig. 4 is an end view of the holder. Figs. 5 and 6 are views showing a supplementary clamping means.

As shown in the drawings, a support *a* is provided with two vertically-arranged bearings *b* and *c*, in which a tubular shaft *d* is journaled, a pulley *e* being secured to said shaft midway between the bearings *b* and *c* and holding said shaft from longitudinal movement in either direction. The lower end of said shaft *d* extends a suitable distance below the lower end of the bearing *c*, and a circular

holder *f*, preferably of metal, is rigidly and concentrically mounted thereon. Said holder is provided with a flange *f'* on its upper side next the lower end of the bearing *c*, and its lower end is provided with a cup-shaped seat which encircles the passage through the shaft. A ring *g*, of stiff leather, is mounted on said holder and secured to said flange *f'* by screws, and an annular pad *r* is also mounted on said holder, the upper side thereof being flat and cemented to said ring *g* and its under side being convex. The thickness of the pad adjacent its central opening is such that the lower end of the holder does not extend below the surface of the pad. The internal diameter of the shaft *d* is reduced at its lower end to provide a shoulder *d'*, and a rod *g* passes through said shaft *d* from end to end, said rod being of somewhat greater length than said shaft. The lower end of said rod has a disk-shaped clamping-head *h* secured thereto, the upper side of said head being shaped to correspond with the shape of the seat on the lower end of the holder *f* and its lower side being flat or slightly convex, so that its surface may be substantially continuous with the surface of the pad when said head is drawn against its seat.

A stiff spring *i* encircles the rod *g* and is interposed between said shoulder *d'* on the shaft and the lower end of a stop-nut *k*, into which the upper end of the rod *g* is threaded. The nut has a head *k'* at its upper end, and its lower end is fitted to slide in said shaft. The tension of the spring *i* may be adjusted by rotating said rod *g* in the nut *k*, and a set-screw *w* is provided to prevent relative movement between the rod and nut when adjusted.

A bracket *m* is secured to the support *a*, and a lever *n* is pivoted thereon. The front portion of said lever is provided with a handle and a depending projection *n'*, having a rounded end, and the opposite end of the lever is connected to a spring *o*, said spring being also connected to the support *a* and acting to hold the lever in the full-line position shown in Fig. 1.

The head *k'* of the nut *k* is preferably provided with a recess *k''*, and the projection *n'* on the lever is arranged so that when said lever is pressed downwardly it will enter said recess and engage said nut.

A circular disk p , having an abrasive coating on one side thereof, is provided with a central aperture p' of substantially the same diameter as the rod g and is preferably molded to provide a circular concave recess p^2 , which surrounds said aperture. A diametrically-extending cut p^3 is provided through said disk, said cut extending from the aperture p' at diametrically opposite points to a short distance beyond the outer edge of the recess p^2 , its total length being somewhat greater than the diameter of the head h .

To secure the disk p in place, the lever n is pressed downwardly, so that its projection n' engages the head of nut k and forces the rod g downward until its clamping-head h is a suitable and convenient distance below the face of the pad, as indicated in dotted lines in Figs. 1 and 2. The disk p is then slipped over the head h onto the rod g , as indicated in dotted lines in Fig. 2. The disk will then be perfectly centered on the shaft, and when lever w is released the spring i will draw the head h upwardly, so that the disk will be firmly clamped between the holder h and said head, said holder and head thereby constituting the two members of a clamp. The disk may be readily removed in like manner, and the entire operation may thus be quickly accomplished without stopping the shaft, which ordinarily is rotated at a high rate of speed.

The spring i is preferably attached at its lower end to the shaft d and at its upper end to the nut k by having the ends of said spring pass into recesses formed in said shaft and nut, respectively, as shown in Fig. 2. If the tension under which the spring is placed is not sufficient to hold the disk from slipping on the face of the pad when the work is pressed against it, its rotation will be somewhat retarded, and this movement of the disk with relation to the pad will also cause the head h and rod g to be turned back with relation to the shaft. This backward rotation of the rod g will rotate the nut k in the same direction. As one end of the spring is secured to the nut and the other to the shaft, the spring will be wound or unwound, according to the direction in which the nut is turned. If the spring is unwound, it will draw the head h against its seat with more force, and therefore will hold the disk more firmly in place. With the construction shown if a right-hand spring is employed the shaft should be driven to the right, and vice versa, so that if the disk should slip it would tend to increase the tension of the spring.

In some instances I find it desirable to provide a locking means for the clamping members, as in case the spring should become broken and will not perform its function of holding the two clamping members together. For this purpose I provide the construction shown in Figs. 5 and 6, in which a nut t is threaded on the upper end of the shaft d , said shaft projecting for a short distance

above the upper end of the bearing b , as indicated. A nut k^3 , similar to the nut k , is threaded onto the upper end of the rod g , and a pin s projects from opposite sides of said nut and is arranged to slide in slots d^2 in the shaft d . The nut t is also provided with slots t' , through which the projecting ends of the pin s may pass when said nut is moved into register with the slots d^2 of the shaft. The nut t is so arranged that when it is given a quarter-turn from the position at which the pin s would be in register with its slots t' it will engage the pin and draw the head h upward, so that said head will firmly clamp the abrasive disk against the seat of the holder.

When it is desired to supply a fresh disk, the nut will be turned back so that the slots therein will come into register with the pin s , and then the rod g may be forced downwardly, so that the disk may be slipped on over the head h , as before described.

If it is desired to omit the lever n , the upper end of the nut k^3 may be provided with a handle v , having a swiveled connection therewith, so that the shaft may turn while the operator presses down on the handle.

The above-described construction not only enables the operator to change the disks without appreciable loss of time, but it is also very effective in holding the disk in position while in use.

By providing the disk with the single slit and the centering-aperture the head may be easily passed through the disk and the disk may be clamped in a central position on the holder. The disk will thus be held as firmly in position as if the slit were not made therein and the rod were removed and its opposite end from the head were passed through the central aperture.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A buffer comprising a rotatable tubular shaft, a holder mounted on one end thereof having a seat concentric with the shaft, a circular pad borne by said holder and surrounding said seat, a rod passing through said shaft having a clamping-head coacting with said seat, a spring between said rod and shaft acting to draw said head against said seat, and means for moving said rod to separate said head and seat, substantially as described.

2. A buffer comprising a rotatable tubular shaft, a holder mounted on one end thereof having a seat concentric with the shaft, a circular pad borne by said holder and surrounding said seat, a rod passing through said shaft having a clamping-head coacting with said seat, a spring between said rod and shaft acting to draw said head against said seat, means, connected to the opposite end of said rod from said head and projecting beyond the corresponding end of said shaft, for moving said rod to separate said head and seat, and

an abrasive disk having a slit in its middle portion permitting the passage of said head therethrough, substantially as described.

3. A buffer comprising a rotatable tubular shaft, a holder mounted on one end thereof having a seat concentric with the shaft, a circular pad borne by said holder and surrounding said seat, a rod passing through said shaft having a clamping-head coacting with said seat, a spring between said rod and shaft acting to draw said head against said seat, means, connected to the opposite end of said rod from said head and projecting beyond the corresponding end of said shaft, for moving said rod to separate said head and seat, and an abrasive disk having a central aperture of substantially the size and shape of the rod adjacent said head and a slit extending diametrically from said aperture to permit the passage of said head therethrough, substantially as described.

4. A buffer of the character described comprising a rotating holder having a centrally-arranged seat, a pad borne by said holder surrounding said seat, a centrally-arranged rod in said holder having a clamping-head at its end, means for moving said rod in opposite directions to move said head to and from said seat, an abrasive disk having a centering-aperture of substantially the diameter of said rod, and slits extending radially from said aperture at opposite points to permit the passage of said head through the disk, substantially as described.

5. A buffer of the character described comprising a rotating holder having a centrally-arranged seat, a pad borne by said holder surrounding said seat, a centrally-arranged, slidably-mounted rod in said holder having a clamping-head at its end, means for sliding said rod in opposite directions to move said head to and from said seat, an abrasive disk having a radial slit extending across its middle portion to permit the passage of said disk over said head, substantially as described.

6. A buffer comprising a rotatable tubular shaft, a holder mounted on one end thereof having a seat concentric with the shaft, a circular pad borne by said holder and surrounding said seat, a rod passing through said shaft having a clamping-head coacting with

said seat, an adjustable stop connected to the opposite end of said rod from said head, a shoulder within said shaft, a spring encircling said rod and arranged between and engaging said stop and shoulder, and acting to draw said head toward its seat, and means for moving said stop to move said head away from its seat, substantially as described.

7. A buffer comprising a rotatable tubular shaft, a holder mounted on one end thereof having a seat concentric with the shaft, a circular pad borne by said holder and surrounding said seat, a rod passing through said shaft having a clamping-head coacting with said seat, an internally and longitudinally slotted clamping-nut threaded on said shaft, a pin secured to said rod and adapted to be engaged by said nut, said shaft being slotted to permit said pin to slide in the slots of said nut when said slots are moved into register with the slots of said shaft, substantially as described.

8. A buffing-pad cover consisting of a circular disk of flexible material having an abrasive coating on one side, and its middle portion removed to form a circular, centering-aperture therein, and having a radial slit extending from opposite sides of said aperture and terminating short of the periphery of the disk, substantially as described.

9. A buffing-pad comprising a circular holder having a centrally-arranged seat, a cover therefor consisting of a circular disk having an abrasive coating, and having its middle portion removed to form a centering-aperture, a rod passing through said aperture, and substantially fitting the same, said rod having a clamping-head on its end, and said disk having a radial slit of greater length than the diameter of said head, extending from said aperture, and terminating short of its periphery, permitting the passage of said head through the disk, substantially as described.

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

THOMAS ROBINSON.

Witnesses:

LOUIS H. HARRIMAN,
M. M. PIPER.