March 15, 1949. G. H. EKSTROM 2,464,296

PAD ATTACHING MEANS FOR RUBBING MACHINES AND THE LIKE

Filed Nov. 26, 1947

Fig. 1.

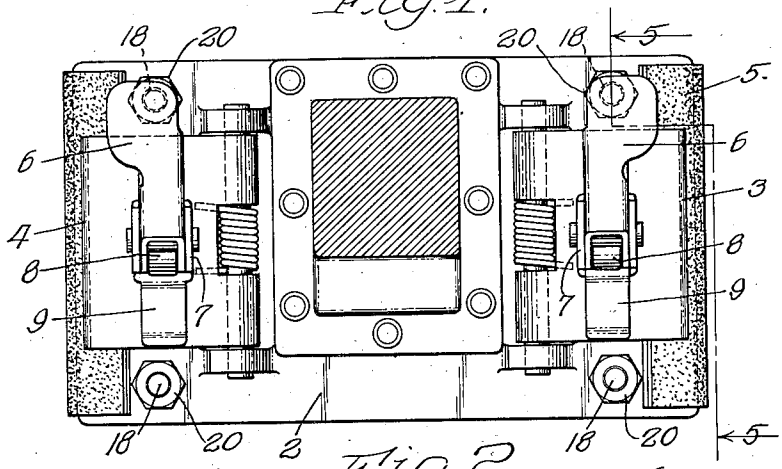


Fig. 2.

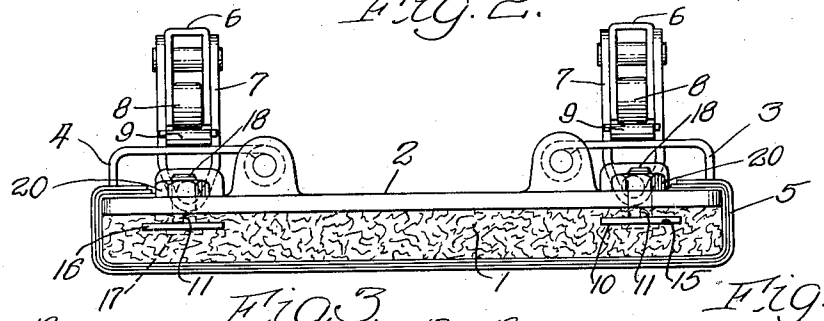


Fig. 3.

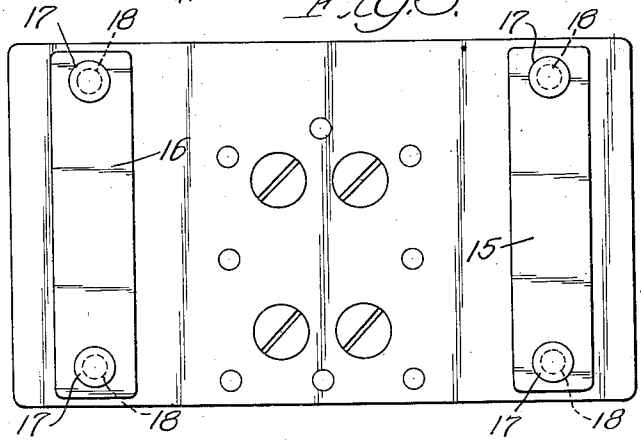


Fig. 4.

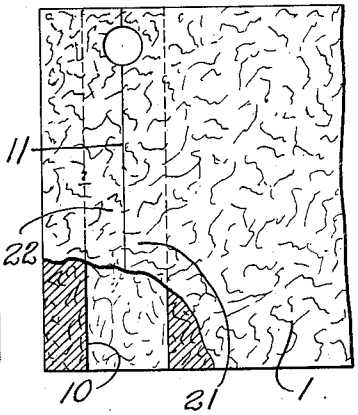
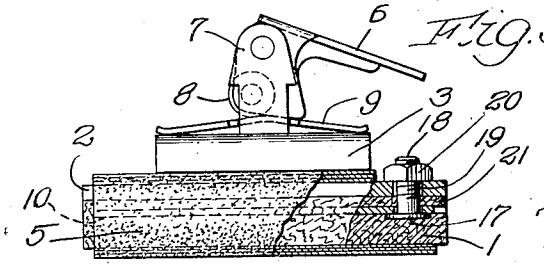


Fig. 5.



Inventor:
Gustaf H. Ekstrom
By Chester, Schroeder,
Merriam & Hoffman, Attys.

Patented Mar. 15, 1949 2,464,296

UNITED STATES PATENT OFFICE

2,464,296

PAD ATTACHING MEANS FOR RUBBING MACHINES AND THE LIKE

Gustaf H. Ekstrom, Rockford, Ill., assignor to Sundstrand Machine Tool Co., Rockford, Ill., a corporation of Illinois

Application November 26, 1947, Serial No. 788,172

11 Claims. (Cl. 51—189)

1

This invention relates to pad attaching means for rubbing machines and the like, and more particularly to means for so attaching a pad to the shoe of a rubbing machine that when worn out the pad may be discarded and a new pad applied without throwing away valuable material with the pad.

In rubbing shoe pads as used prior to my invention, metal strips, threaded pins, etc., were fixed in position in the pad in such manner that when the pad was worn out and in condition to be discarded it was necessary to throw such other valuable parts away with the pad. This involved considerable waste of valuable material as well as added expense in forming and applying such pads to the shoe. In the present invention I have eliminated this waste of material with its added expense, and have provided a pad in which the means for clamping the pad to the shoe is not thrown away with a discarded pad, but is retained for use with a new pad when the latter is applied to the shoe. The pad of the present invention may be used with or without additional strips or sheets of abrasive paper, so that heavy duty rubbing may be accomplished when such abrasive sheets or strips are applied over the pad, and for polishing and light rubbing purposes the pad may be used without said abrasive sheets or strips.

Among the objects of my invention are: to provide a novel and improved pad for rubbing machine shoes; to provide novel pad attaching means for rubbing machine shoes; to provide means for attaching a felt pad to a rubbing shoe in such manner that when worn out it may be removed and thrown away without the loss of more or less expensive parts within the pad; to provide a pad of the type referred to having a clamping strip slidable into a slot in the pad for clamping the pad to a rubbing shoe and which pad is removable from said clamping strip by being pulled edgewise away from the shoe when the clamping means is loosened so that the clamping means may be used continuously with as many new pads as may be desired to successively apply to the shoe; to provide a felt pad for rubbing shoes having laterally extending T-shaped slots, and anchoring means positioned in the slot to clamp the pad to the shoe; and such further objects, advantages and capabilities inherently possessed by my invention, as will later more fully appear.

Other objects will become readily apparent from the following detailed description taken

2

in connection with the accompanying drawing in which:

Fig. 1 is a top plan view in reduced size of a shoe of a rubbing machine, and having attached thereto a pad embodying my invention.

Fig. 2 is an edge view looking toward the bottom side of Fig. 1.

Fig. 3 is a bottom plan view of the rubbing shoe omitting the pad therefrom and showing the anchor strips which will clamp the pad to the shoe when the pad is applied thereto.

Fig. 4 is a fragmentary enlarged top plan view, partly broken away, looking at the upper face of the pad embodying my invention.

Fig. 5 is a vertical transverse section on the line 5—5 of Fig. 1.

While my invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawing, I have shown therein for illustrative purposes only, a preferred embodiment, and wish it understood that the same is susceptible of modification and change without departing from the spirit and scope of the appended claims.

In the form shown in the drawing, I have illustrated a pad 1 secured to a body plate 2 of the shoe of a rubbing machine. Clamped by clamping jaws 3 and 4 at the respective ends of the shoe are a plurality of sheets or strips 5 of abrasive material passing around the ends and the bottom face of the pad and held taut thereover. While any type of abrasive sheet clamping means may be used, I have shown for illustrative purposes only, abrasive sheet clamping means of the general type shown in the co-pending application of Charles D. McCarthy, filed May 17, 1946, Serial No. 670,469. Other forms of such abrasive sheet clamping means however may be used as desired. Without going into details, such clamping means comprises generally a pivoted clamping jaw (3 or 4) with a lever 6 pivoted in a pair of upstanding arms 7 and 8, the downwardly bent portion of lever 6 carrying a roller 8 rolling upon a bowed spring member 9 to clamp the jaw against the abrasive strips when the lever 6 is pushed downwardly. This downward movement of lever 6 moves the roller 8 to push downwardly on the bowed spring 9 to in turn force the clamping edge of jaw 3 downwardly to tightly grip the ends of the strips of sandpaper or other abrasive sheets against the end and bottom faces of the pad.

While only one end of the upper face of the pad 1 is shown in Fig. 4 it will be understood in Fig. 2 that the opposite end of the pad is simi-

larly formed. Only one end of this portion of the pad will be described, it being understood that the slots in the other end portion of the pad will be identical to the one now being described. Referring to Figs. 2 and 4 there is provided adjacent each end of the pad a laterally extending T-shaped slot comprising the bottom wide portion 10 formed within the body of the pad and extending laterally therethrough from one side edge of the pad to the other. The pad, above the bottom portion 10 of the slot is formed centrally of slot 10 and extending from edge to edge of the front face of the pad with a slit 11 which connects slot 10 with said upper face. The walls forming the edges of slit 11 near the ends of this slit are cut away at 12 and 13, to jointly form openings 14 only one of which is seen in Fig. 4, it being understood that the other one of these openings would fall in the broken away portion in the lower left hand portion of Fig. 4. The purpose of these openings will be later more fully explained. It is thus seen that opening 10 and slit 11 jointly form a T-shaped slot, the portion 10 constituting the cross bar of the T and the slit 11 constituting the stem of the T.

For securing the pad to the body plate of the shoe I have provided a pair of anchor strips 15 and 16 which are preferably of thin metal and of a width and length as shown in Fig. 3. Fixed adjacent each end of each of the anchor strips 15 and 16, by rivet heads or the like 17 pressed over against the bottom face of these strips, is an upstanding pin 18, each of which pins is screw threaded at its upper end portion 19 and for a desired portion of its length, to threadably receive the complemental nuts 20. By means of these nuts the anchor strips 15 and 16 may be tightened toward the body plate 2 of the shoe or loosened with respect thereto as desired. These strips 15 and 16 are of approximately the size and shape of the bottom portion 10 of the T-shaped slot, so that when these strips are loosened to stand a distance away from said body plate the pad may be slipped thereover by moving the edge of the pad laterally with relation to the body plate, so that the strips will be forced into openings 10. At the same time the upstanding threaded pins 18 will be forced along slits 11, and when the pad has reached the position to substantially register with the outline of the body plate the upstanding pins 18 will be respectively seated in the openings 14. By seating the pins in openings 14 when the pad is in registering position with the body plate, any tendency of the pins to distort and buckle the edges of slit 11 will be prevented, because of the diameter of said openings 14 being at least equal to the diameter of these pins. From the above it will be seen that when the pad is moved laterally with relation to the shoe, with the anchor strips 15 and 16 seated in opening 10 of the T-shaped slot, a tightening of each of the four nuts 20 will draw the anchor strips upwardly toward the body plate 2 so as to clamp the flanges of the pad on the two sides of the slit 11 tightly against the bottom face of said body plate. This will securely attach the pad to the shoe, after which, if desired, any number of sheets or strips of abrasive paper, cloth or the like 5, may be applied over the ends and bottom face of the pad and tightly clamped in position by the clamping jaws 3 and 4.

When a lighter type of rubbing is desired, such as light polishing and the like, the abrasive sheets 5 may be omitted and the polishing done directly with the bottom face of the felt pad 1. From this construction it will be seen that the anchor strips 15 and 16 are not thrown away with the pad when the pad is discarded, but these anchor strips will be available for use with as many successive new pads as desired. In other words when removing the pad from the shoe, all that is necessary is to loosen the nuts 20 so as to loosen the anchor strips in the T-shaped slots after which the pad may be pulled off edgewise and slid off of the anchor strips, permitting the latter to remain with the shoe. Or if desired the nuts 20 may be entirely removed from the threaded pins 18 and the pad and the anchor strips pulled away from the shoe, after which the anchor strips may be pulled out of the T-shaped slots. The width of the flanges 21 and 22 on the two sides of the slit 11 is great enough to give ample clamping space when clamping the same between the anchor strips 15 and 16 and the lower face of the body plate of the shoe when tightening the nuts 20. The felt of the pad 1 will have sufficient flexibility and resiliency to permit the pins 18 to be pulled through slit 11 when removing the pad from the anchor strips, or when removing the anchor strips from the pad.

Having described my invention, I claim:

1. Pad attaching means for rubbing machines and the like, comprising, a body plate adapted to be secured to a rubbing machine, a felt pad having a T-shaped slot extending transversely thereacross adjacent each end, the stem of the T of each of said slots opening into one face of the pad and the cross bars of the slots being formed in the body of the pad and having their ends opening at the side edges of the pad, a pair of anchor strips slidably positioned one in each of said slots, a projection extending from each of said anchor strips, said projections passing through complemental openings in the body plate, each of said projections passing through the stem of its T-shaped slot, and means on said projections for pulling the anchor strips toward the plate for clamping the pad to the plate, whereby a used pad may be removed by loosening the pad clamping means and sliding the pad laterally off of said anchor strips and a new pad may be applied by the reverse operation onto the same anchor strips.

2. Pad attaching means as claimed in claim 1, in which the edge walls forming the stem of each of said slots are cut away at opposite points to receive the respective projections when the pad is in position on the plate to prevent distortion of said edge walls when the pad is secured to the plate.

3. A felt pad for rubbing machines, having formed therein to extend transversely thereacross a thin opening of substantial width opening at its ends in the side edges of the pad, said pad also having a narrow slot extending transversely across the pad and connecting with said opening, whereby said opening and slot may receive removable fastening means for securing the pad to a rubbing machine.

4. A felt pad as claimed in claim 3, in which the edge walls of said slot are formed with oppositely positioned cut away portions to form an enlargement of the slot.

5. A pad for rubbing machines, having a body portion formed with a T-shaped slot, the cross part of the T being in the body of the body portion, and the stem of the T connecting the cross part with a flat face of the pad, said T-shaped slot opening at one end in an edge of the body

portion whereby to slidably receive a fastening member for attachment to a rubbing machine.

6. A pad as claimed in claim 5, including an anchor strip slidable into and removable from the cross part of the T-shaped slot, said anchor strip having a projection slidable into and out of the stem of said T-shaped slot.

7. A pad as claimed in claim 6, in which the stem of the T-shaped slot is formed with an enlargement to receive said projection when the anchor strip is in final position in the cross part of the slot.

8. In combination in a rubbing shoe of a rubbing machine, a body plate, a pad having adjacent one end a T-shaped slot formed therein, said slot having a cross portion in the body of the pad and a stem at right angles to the cross portion, said stem opening in one face of the pad, said T-shaped slot extending transversely across the pad and opening in the pad side edges, the walls of the stem of said slot having oppositely positioned cut-away portions, an anchor strip having a screw threaded pin fixed thereto and extending substantially at right angles thereto, said strip being removably seated and endwise slidable in said cross portion of the T-shaped slot with the pin extending through said stem of the slot and being seated in said cut-away portions when the pad is in final position, said pin extending through a hole in the plate, and a nut threaded onto the pin above the body plate to clamp the pad against the body plate, the pad being removable from the body plate by an edgewise pull when the nut is loosened, whereby a used pad may be removed from the anchor strip and discarded and a new pad slid over the same anchor strip and clamped thereby against the body plate.

9. In the combination claimed in claim 8, in which said pad is formed of felt, and two of said pins are fixed to said anchor strip in spaced apart relation and similarly attached to the body plate.

10. In the combination claimed in claim 9, in which said pad is formed adjacent its opposite end with a T-shaped slot, an anchor strip, and threaded pins and nuts similar to those first mentioned, whereby said pad may be firmly clamped to the body plate adjacent both ends.

11. In combination a metal body plate having a gripping jaw adjacent each end of its upper surface, a felt pad having adjacent each end a T-shaped slot in each of which slots that portion forming the cross of the T is within the body of the pad extending parallel with the plane of the upper face of the pad and that portion forming the stem of the T extends substantially at right angles to said cross portion and opens into the upper face of the pad, the walls of the stem portions of said slots having oppositely positioned cut-away portions at spaced apart positions in each of said stem portions, an elongated, thin, anchor strip slidably mounted in the cross portion of each of said T-shaped slots, a pair of threaded pins fixed in each of said strips and adapted to slide edgewise in said stem portions of the slots as the strips are slid in their respective said cross portions, said pins being inserted in holes in the body plate, nuts for tightening said pins and strips to clamp the pad against the body plate, and abrasive sheets placed over the bottom face and ends of the pad and gripped at the two ends of the body plate in said gripping jaws.

GUSTAF H. EKSTROM.

No references cited.