July 5, 1949. R. J. CHAMPAYNE 2,475,476

RUBBING SHOE

Filed Jan. 25, 1945

Fig. 1

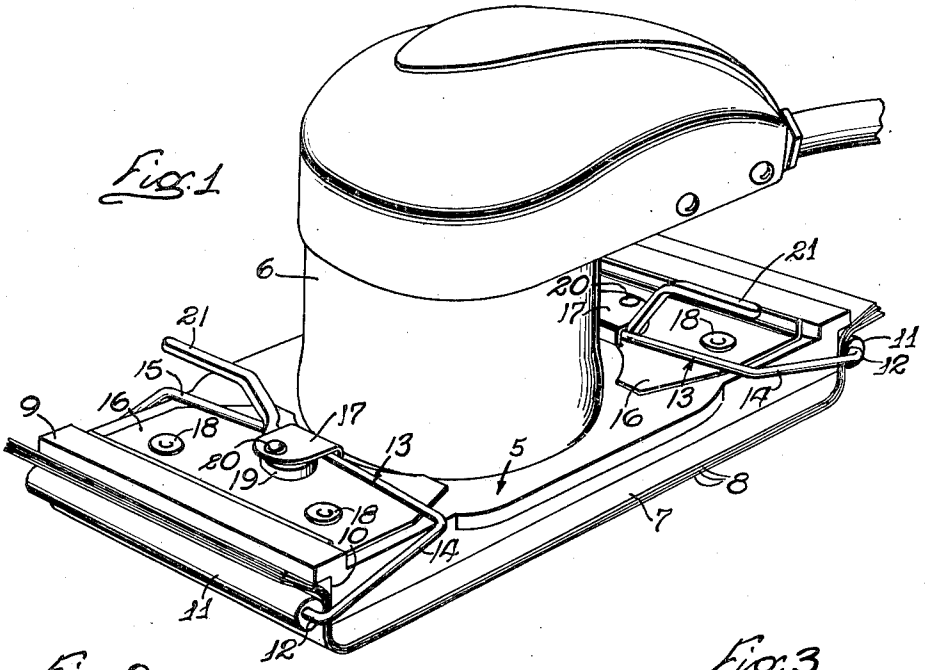


Fig. 2

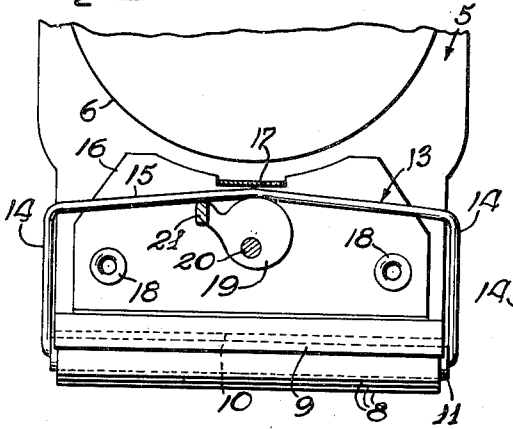


Fig. 3

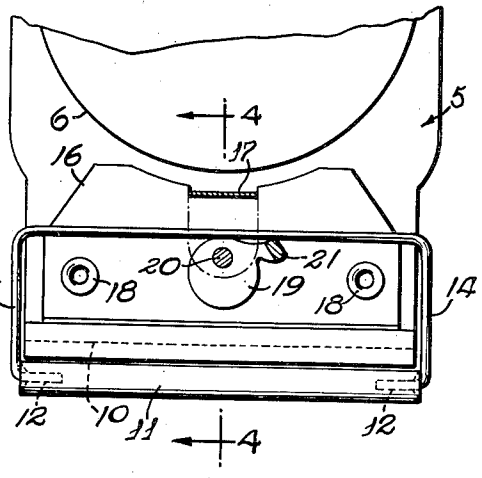
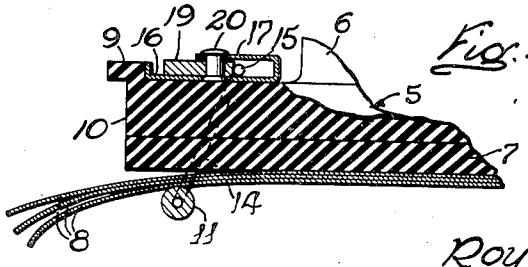


Fig. 4



INVENTOR

Roy J. Champayne

By Carlson, Pitzer, Hubbard & Wolfe.

ATTORNEYS

Patented July 5, 1949

2,475,476

UNITED STATES PATENT OFFICE

2,475,476

RUBBING SHOE

Roy J. Champayne, Rockford, Ill.

Application January 25, 1945, Serial No. 574,499

9 Claims. (Cl. 51—189)

1

The general object of this invention is to provide a rubbing shoe having a new and improved means for fastening a rubbing sheet thereto, which fastening means is simple and inexpensive in construction, which will accommodate different numbers of rubbing sheets, which facilitates stretching of the sheets over the shoe backing, and which is adapted to clamp the sheets firmly irrespective of the number of sheets that are used.

A more detailed object is to provide a sheet clamping member mounted on the rubbing shoe for bodily movement relative thereto to tighten a rubbing sheet against one end surface or release the sheet.

Another object is to provide a novel rubbing sheet fastening means having a clamping element which is mounted for bodily adjustment to clamp and release the sheet, and is also swingable around the end of the rubbing shoe on which the element is supported.

The invention also resides in the novel character of the means for actuating the clamping element.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which

Figure 1 is a perspective view of a rubbing shoe embodying the present invention.

Figs. 2 and 3 are fragmentary plan views showing different positions of the sheet clamping device.

Fig. 4 is a fragmentary section taken along the line 4—4 of Fig. 3.

The invention is shown in the drawings embodied in a rubbing shoe 5 secured to a suitable support 6 and adapted to be actuated either manually or by power. The body of the shoe comprises a generally rectangular block of material such as molded rubber having secured to the underside thereof a pad 7 of softer and yieldable material providing a backing for a sheet 8 of abrasive paper or other rubbing material. Narrow flanges 9 project from the substantially flat ends 10 of the block 5 adjacent the top surface thereof, these flanges being molded integral with the block.

The abrasive sheets 8 are somewhat longer than the backing pad 7, and their end portions are snubbed around the shoe ends 10 and forced by a clamping element 11 into the angular recess defined by the shoe end 10 and the underside of the flanges 9. Herein, the clamping element is in the form of a roller of small diameter and of a length substantially equal to the width of the shoe 5. This roller is carried by a member 13 which is supported on the top of the shoe 5 for bodily movement longitudinally of the latter to clamp and release the sheets. In this instance, this member is also swingable about an axis extending transversely of the shoe to permit the

2

clamping roller 11 to be swung around the shoe end 10 and thereby facilitate stretching of the sheet 8 over the backing 7.

Preferably, though not necessarily, the supporting member 13 is formed as a bail of generally rectangular shape and adapted for projection of one of the shoe ends through the bail. The bail 13, which is made of relatively stiff resilient wire, is slightly wider than the shoe, so that its opposite sides 14 are disposed adjacent the sides of the shoe when the end 15 of the bail rests on top of the block 5. The ends of the sides 14 are turned inwardly and received in holes in opposite ends of the roller 11 which is thus adapted to turn relative to the bail.

The closed end 15 of the bail rests on a metal plate 16 secured to the top of the shoe 5 by a fastening device 18. A lug 17 integral with the plate 16 overlies the bail end 15 to form an eye which holds the bail on the shoe and is elongated in a direction longitudinally of the shoe so as to permit the bail to slide bodily back and forth, and thereby tighten the roller 11 against the shoe end 10 or release the clamping pressure.

The center portion of the closed bail end 15 constitutes the follower of a cam 19 which is mounted on the top of the shoe 5 for movement relative thereto in opposite directions to effect the bodily shifting of the clamping roller 11 and its supporting member 13. Herein, the cam is in the form of a disk journaled on a pin connecting the plate 16 and the forward end of the lug 17. The cam disk is disposed eccentrically relative to the pin 20 so that by swinging a lever 21 rigid with the cam, the bail may shift bodily toward the end of the shoe to release the clamping roller as shown in Fig. 3, or the bail may be shifted reversely to bend the end 15 thereof and draw the roller 11 tightly against the shoe end 10.

To fasten one or more abrasive sheets to the shoe 5, both of the bails 13 are released as shown in Fig. 3, permitting the rollers 11 to be swung downwardly around the shoe end beneath the pad 7 as shown in Fig. 4. The ends of the sheet 8 are first threaded through the bails, as shown in Fig. 4, after which the rollers 11 are rolled around the ends of the shoe and upwardly to a position limited by the flanges 9, thereby stretching the sheets lengthwise as their end portions become snubbed around the shoe ends. Finally, the handles 21 are turned clockwise from the position shown in Fig. 3 to the positions shown in Fig. 1 and Fig. 4 during which turning the rollers 11 are drawn toward the shoe ends 10 to force the bent sheet ends into the recess defined by the shoe ends 10 and the undersides of the flanges 9. In this operation, the bail end 15 is bent by the cam so that the clamping force is yieldably applied, and full motion of the cam handle is permitted irrespective of the number of abrasive sheets that are used. The friction ex-

erted on the cam 19 by the bail thus stressed prevents accidental reverse turning of the cam so that the sheets remain firmly attached to the shoe during the rubbing operations.

I claim as my invention:

1. A rubbing shoe comprising a support providing a backing for a rubbing sheet projecting beyond the end of the support, a bail of generally rectangular shape receiving the end portion of the support, means secured to the side of said support opposite said sheet and providing an eye through which one end of the bail extends, said eye being elongated in a direction transversely of said support end whereby to permit swinging of the second bail end around said support end and also bodily movement of the bail, and a cam rotatably mounted on said support between said support end and said first mentioned bail end and defining one wall of said eye, the periphery of said cam engaging said first bail end.

2. A rubbing shoe comprising a support providing a backing for a rubbing sheet projecting beyond the end of the support, a bail of generally rectangular shape receiving the end portion of the support, means secured to the side of said support opposite said sheet and providing an eye through which one end of the bail extends, said eye being elongated in a direction transversely of said support end whereby to permit swinging of the second bail end around said support end and also bodily movement of the bail, and means mounted on said support for movement relative thereto and engageable with said first bail end to effect bodily shifting of the bail transversely of said support end.

3. A rubbing shoe comprising a block having a flange projecting from one end and spaced above the bottom of the shoe, a bail having one end disposed above and extending across the end portion of the block and sides lying along opposite sides thereof, a roller connecting said sides and adapted to roll around the end of the block to clamp an end of a rubbing sheet against said block end and said flange, and a cam pivoted on said block and engageable with said first bail end to tighten said roller against the shoe end or release the roller.

4. A rubbing shoe comprising a support providing a backing for a rubbing sheet and having a squared end, a roller engageable with the end of said support, a member carried by said support and supporting said roller for pivotal movement around said end about an axis spaced inwardly from the support end, said member also being mounted on said support for bodily movement relative to the support toward and away from said end, and cam means mounted on said support and movable relative thereto to shift said roller supporting member bodily toward and away from said support end.

5. A rubbing shoe comprising a support providing a backing for a rubbing sheet projecting beyond the end of the support, a resiliently expansible and contractible bail of generally rectangular shape receiving the end portion of the support, means on the side of said support opposite said sheet supporting one bail end for swinging of the second bail end around said support end and also for bodily movement of the bail along the support, and a member mounted on said support for movement relative thereto and manually operable to shift the bail and draw said second bail end against said support end, said member engaging the bail intermediate the sides thereof whereby to expand the bail whereby to hold the other bail end yieldably against the support end.

6. A rubbing shoe comprising a support providing a backing for a rubbing sheet projecting beyond the end of the support, a bail of generally rectangular shape receiving the end portion of the support, means on the side of said support opposite said sheet supporting one bail end for swinging of the second bail end around said support end and also for bodily movement of the bail along the support, means on said support limiting said swinging movement to position said second bail end opposite said support end, and means engageable with said first bail end and operable to shift the bail bodily relative to said support and draw the second bail end against the support end.

7. A rubbing shoe comprising a block having a squared end and providing a backing surface on one side thereof, a clamping element extending along said block end for receiving between the element and block the end portion of a rubbing sheet lying against said backing, a member supporting said clamping element for movement toward and away from said block end and mounted on the side of said block opposite said backing for bodily movement along such side, and a cam mounted on said block for movement relative thereto and acting on said member to shift the latter relative to the block in opposite directions.

8. A rubbing shoe comprising a block having a squared end and providing a backing surface on one side thereof, a clamping element extending along said block end for receiving between the element and block the end of a rubbing sheet lying against said backing, a member supporting said clamping element for movement toward and away from said block end and mounted on the side of said block opposite said backing for bodily movement along such side, and rotary cam means mounted on said block for movement relative thereto to shift said member bodily relative to the block in opposite directions to release said clamping element or tighten the same against said block end.

9. A rubbing shoe comprising a support providing a backing for a rubbing sheet projecting beyond the end of the support, a roller of a length corresponding to the width of said support at said end, means on said support rotatably supporting said roller to swing bodily around said support end from a position beneath said support, said roller supporting means engaging said support at a point spaced inwardly from said support end and being slidable along the support to move said roller toward and away from the support end to respectively clamp and release the rubbing sheet, and means on said support for shifting said roller supporting means bodily to clamp said sheet against the support end.

ROY J. CHAMPAYNE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
672,408	McAfee	Apr. 16, 1901
2,204,486	George	June 11, 1940
2,282,043	Ekstrom	May 5, 1942
2,334,173	Champayne	Nov. 16, 1943