Aug. 19, 1952 E. D. FERGUSON 2,607,058

SHOE SOLE CLAMP

Filed May 19, 1950

Fig. 1.

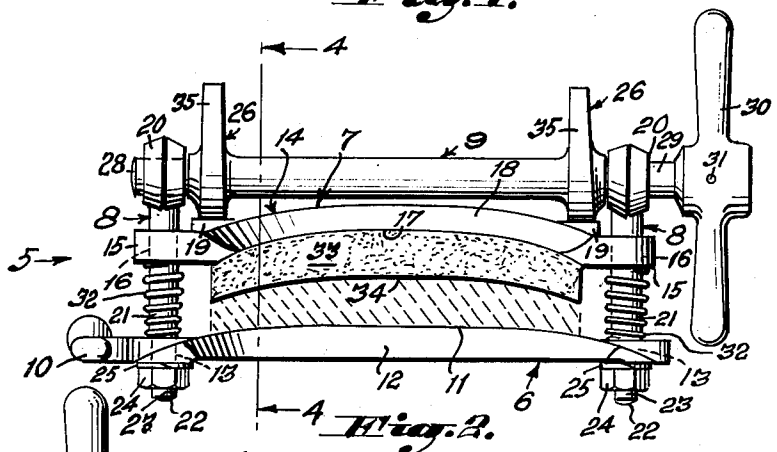


Fig. 2.

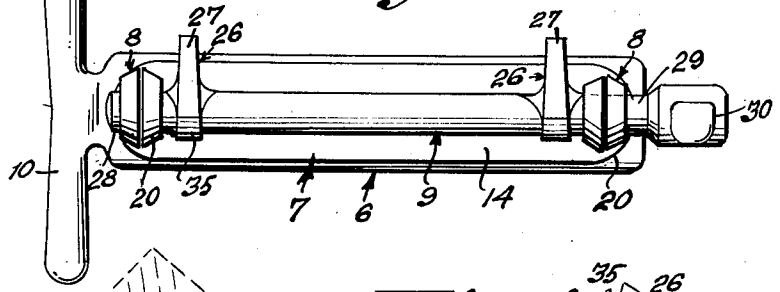


Fig. 4.

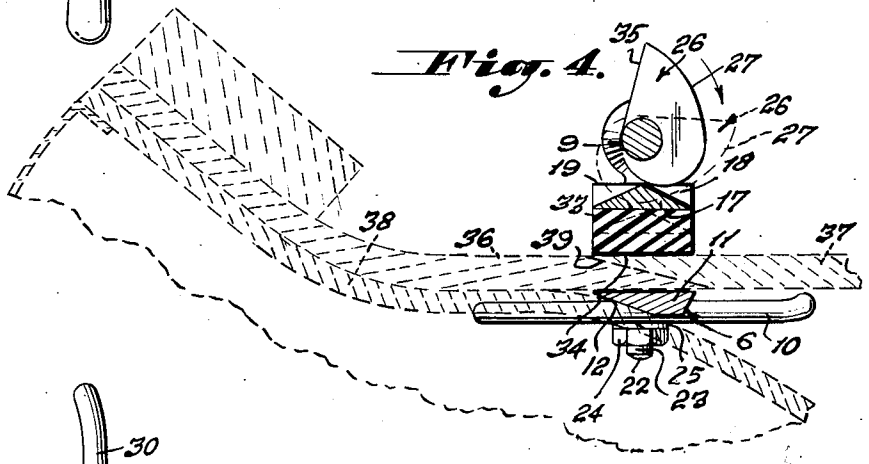
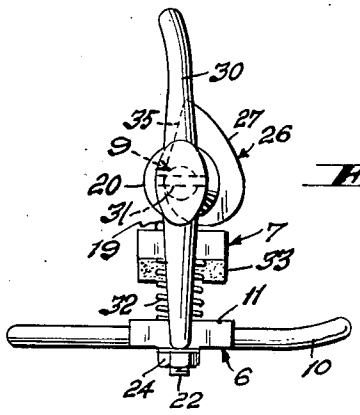


Fig. 3.



Inventor

Euzziel D. Ferguson

By John N. Randolph

Attorney

Patented Aug. 19, 1952

2,607,058

UNITED STATES PATENT OFFICE

2,607,058

SHOE SOLE CLAMP

Euzziel D. Ferguson, Muskogee, Okla.

Application May 19, 1950, Serial No. 162,948

1 Claim. (Cl. 12—103)

1

This invention relates to a novel construction of clamp for use in clamping together the oppositely beveled edges of a shoe shank and half sole while a cement or bonding medium with which one or both of said surfaces is coated dries, for securing an end of the half sole to the shoe shank so that when the half soling of a shoe is completed it will have the appearance of an original sole.

More particularly, it is an object of the present invention to provide a clamp structure which is ordinarily held in an open position to allow the clamp to be readily applied to the over-lapping portions of a shoe shank and shoe sole by holding the clamp with one hand thereby leaving the other hand free for properly adjusting the overlapping, beveled portions of the shank and half sole, after which the second hand may be utilized for applying a uniform pressure to the clamp to displace the clamping elements thereof toward one another so that the beveled edges of the sole and shank will be effectively clamped together and held while a cement or other bonding medium is drying.

Still a further object of the invention is to provide a clamp which is adjustable for accommodating shoe shanks and soles of different thicknesses and wherein the clamping parts are held in open or extended positions relatively to one another until operation of a manually actuated part for displacing the clamping elements toward one another and into clamping engagement with the sole and shank.

Still a further object of the invention is to provide a shoe sole clamp including a yieldable member carried by one of the clamping elements for engaging the outer side of the shoe sole and which functions in combination with manually actuated cams to permit the clamping elements to be displaced toward one another and into effective clamping engagement with the sole and shank.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a side elevational view showing the shoe sole clamp in an applied position but before the clamping elements have been displaced toward one another and into clamping relationship;

Figure 2 is a top plan view of the clamp;

Figure 3 is an end elevational view thereof looking from right to left of Figure 1, and

2

Figure 4 is a cross sectional view of the clamp taken substantially along a plane as indicated by the line 4—4 of Figure 1.

Referring more specifically to the drawing, the shoe sole clamp in its entirety is designated generally 5 and includes a bottom clamping bar, designated generally 6, a top clamping bar, designated generally 7, a pair of corresponding connecting bolts, each designated generally 8, and a cam shaft, designated generally 9.

The bottom clamping bar or clamping element 6 includes an elongated bar having a transversely extending handle 10 which is formed integral with and disposed beyond one end thereof. The bar 6, as best seen in Figures 3 and 4, has a substantially flat upper surface or face 11 and its bottom surface is beveled, as seen at 12, from adjacent one of its longitudinal edges to its opposite longitudinal edge, said beveled surface 12 extending to adjacent the ends of the bar 6 but terminating in slightly spaced relationship to said ends and tapering toward each of its ends, as best seen in Figure 1. The surface 11 is substantially flat or straight in cross section, as seen in Figure 4, but is upwardly bowed or convex in a direction longitudinally thereof, as seen in Figure 1. The bar 6 is provided adjacent its ends and intermediate of its side edges with openings 13.

The upper clamping bar 7 includes an upwardly offset upwardly bowed intermediate portion 14 and corresponding end portions 15 which are downwardly offset with respect to the intermediate portion 14 and each of which is provided with an opening 16, said openings 16 being spaced the same distance apart as the openings 13. The underside or bottom surface of the intermediate bar portion 14 is substantially flat in cross section and longitudinally bowed upwardly as seen at 17 and the upper surface of said intermediate portion 14 is preferably ridge-shaped in cross section, as seen at 18. The ridge-shaped construction of the upper surface 18 diminishes toward the ends of the intermediate portion 14 and where said upper surface merges with the substantially flat upper surfaces of the end portions 15, the upper clamping bar 7 is provided at said ends of the upper surface 18 with inserts 19 of hardened metal which are suitably secured to the upper clamping bar 7 and which have substantially flat upper surfaces, for a purpose which will hereinafter become apparent.

Each clamping bolt 8 includes a head 20 having a bore extending therethrough transversely of the bolt 8 so that each bolt head 20 forms a bearing. Each bolt 8 also includes a shank portion

21 which extends from the bolt head 20 and which is sized to reciprocally engage one of the openings 16 and which terminates in a restricted terminal portion 22 which is sized to fit into one of the openings 13. Each shank portion or terminal 22 has a threaded outer end portion 23 to receive a nut 24, and a washer 25 is preferably supported on each shank portion 22 by its nut 24, as seen in Figure 1.

The cam shaft 9 is provided with a pair of corresponding cams 26 which are preferably formed integral therewith and disposed with their eccentric cam surfaces 27 in alignment. The cams 26 are spaced from the ends of the cam shaft 9 and before the bolts 8 are applied to the openings 16 and 13, one end 28 of the cam shaft 9 is positioned in one of the bolt heads 20 and the other end 29 is disposed to rotatably engage in the other bolt head 20. When the bolts 8 are thereafter applied to the aligned openings 16 and 13, the bolt heads 20 will be disposed outwardly of and adjacent the cams 26 so that substantially no reciprocating movement may occur between the cam shaft 9 and the bolts 8. The shaft end 29 is elongated to receive a turning handle 30 which is detachably secured thereto by a suitable fastening 31.

An expansion coil spring 32 is mounted on each bolt shank portion 21 between the clamping bars 6 and 7; said springs 32 normally urge the clamping bars away from each other. An elongated block 33 of a resilient material such as rubber is suitably bonded to the bottom surface 17 of the intermediate portion of the upper clamping bar 7 and conforms to the shape of said surface 17 so that its bottom surface 34 is concave or upwardly bowed.

Assuming that the shoe sole clamp 5 is assembled as illustrated in the drawing, Figure 4 illustrates the shoe sole clamp in an applied position engaging portions of a shoe shank 36 and a half sole 37 which is being applied thereto. In half soling a shoe, it is ordinarily the custom to cut off and bevel the shoe shank 36 on its outer side while the inner end of the half sole 37 is similarly beveled or skived on its inner side so that the beveled surfaces may be disposed in abutting engagement and so that the outer surfaces of the shank 36 and half sole 37 will then be disposed in substantially the same plane. These beveled surfaces are normally coated with a cement or other bonding medium and the clamp 5 functions for securing the beveled surfaces together while said bonding medium dries. Accordingly, it will be readily apparent that by turning the shaft 9 by its handle 30 in a counterclockwise direction as seen in Figure 4, the surfaces 35 of the cams 26 which are disposed substantially tangentially of a portion of the periphery of the shaft 9 will be brought into position to engage the upper surfaces of the inserts 19 so that the springs 32 may displace the upper clamping bar 7 and the yieldable block 33 upwardly and away from the bottom clamping bar 6. With the clamp 5 held by the handle 10 with the left hand, for example, the other hand may be employed to hold and position the shoe so that the bottom bar 6 may be inserted between the beveled free end of the shoe shank 36 and the adjacent portion of the shoe upper, the beveled under surface 12 of the bottom clamping bar 6 extending inwardly of the shoe shank and by its beveled shape being readily accommodated between the shoe shank and the adjacent portion of the shoe upper 38. After the shoe shank 36 has been thus applied to the clamp 5, the hand employed to hold the shoe may then be utilized to insert the beveled end of the half sole 37 into the clamp 5 so that it will be disposed with its beveled edge abutting the beveled edge of the shank 36 and the surface opposite said beveled edge disposed beneath the yieldable block 33. Assuming that the beveled edges of the shank 36 and half sole 37, as indicated by the lines 39, have been previously coated with a cement or other bonding medium, after the half sole 37 has thus been applied, the hand employed for applying the half sole is then employed to turn the handle 30 to rotate the cam shaft 9 in a clockwise direction as seen in Figure 4. The initial movement of the cam shaft 9 will move the cams 26 to their positions of Figure 4 causing the clamping bars 6 and 7 to be displaced toward one another, due to the fact that the bolt shanks 21 are thus displaced upwardly through the upper clamping bar 7 and are prevented from sliding upwardly through the lower clamping bar 6 by the nuts 24 and washers 25 which engage the bolt ends 22 and are disposed beneath the lower clamping bar 6. Further clockwise movement of the cam shaft 9 will move the cams 26 to their dotted line positions of Figure 4 to thereby further displace the clamping bars 6 and 7 toward one another and so as to clamp the beveled ends of the shoe shank 36 and half sole 37 between the bottom clamping bar 6 and the yieldable block 33 which will then have been compressed due to the fact that the upper clamping bar 7 will then have been displaced toward the lower clamping bar 6. During this movement of the shaft 9, the cam surfaces 35 and 27 will engage the upper flat surfaces of the inserts 19. The beveled edges of the shank 36 and sole 37 are thus held clamped between the bar 6 and block 33 until the adhesive, not shown, coating the beveled surfaces 39 has had an opportunity to dry, after which the handle 30 is turned in the opposite direction to allow the springs 32 to displace the bars 6 and 7 away from one another and so that the clamp 5 may then be readily removed from the shank and sole.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claim.

I claim as my invention:

A shoe sole clamp for holding a half sole while it is cemented onto the cut off end of an old sole comprising two elongated clamping bars including a lower clamping bar and an upper clamping bar, said clamping bars having adjacent surfaces between which said portions of the soles are clamped, said bars each having an opening adjacent each end thereof, a pair of bolts having shank portions extending slidably through complementary openings of the upper and lower clamping bars, said bolt shanks having threaded terminals, nuts engaging said terminals and disposed beneath the lower clamping bar, said bolts having heads disposed above the upper clamping bar forming aligned bearings, said clamping bars being supported solely by the nuts and bolts each for movement toward and away from the other, a cam shaft journaled in said bearings, a plurality of corresponding cams fixed to the cam shaft and disposed between said bearings, a handle secured to one end of said cam shaft for revolving the cam shaft and cams, said cams having corresponding eccentrically disposed cam surfaces engaging portions of the upper clamping bar for displacing the clamping bars toward one another when the cam shaft and cams are revolved in one

direction to displace the upper clamping bar and cam shaft away from one another, and said lower clamping bar at the end thereof remote from the cam shaft handle having extensions at either side thereof to form a supporting handle for holding the device in position while the soles are being clamped.

EUZZIEL D. FERGUSON.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
874,007	Hobby	Dec. 17, 1907
1,184,904	Westenhiser	May 30, 1916
2,185,358	Simpson	Jan. 2, 1940
2,204,965	Lookofsky	June 18, 1940
2,223,064	Garzilli et al.	Nov. 26, 1940

FOREIGN PATENTS

Number	Country	Date
40,613	Austria	Jan. 25, 1910
319,957	Germany	Apr. 10, 1920