June 5, 1934. G. LAGANAS 1,961,885

CLAMPING MECHANISM FOR SHOE PRESSES

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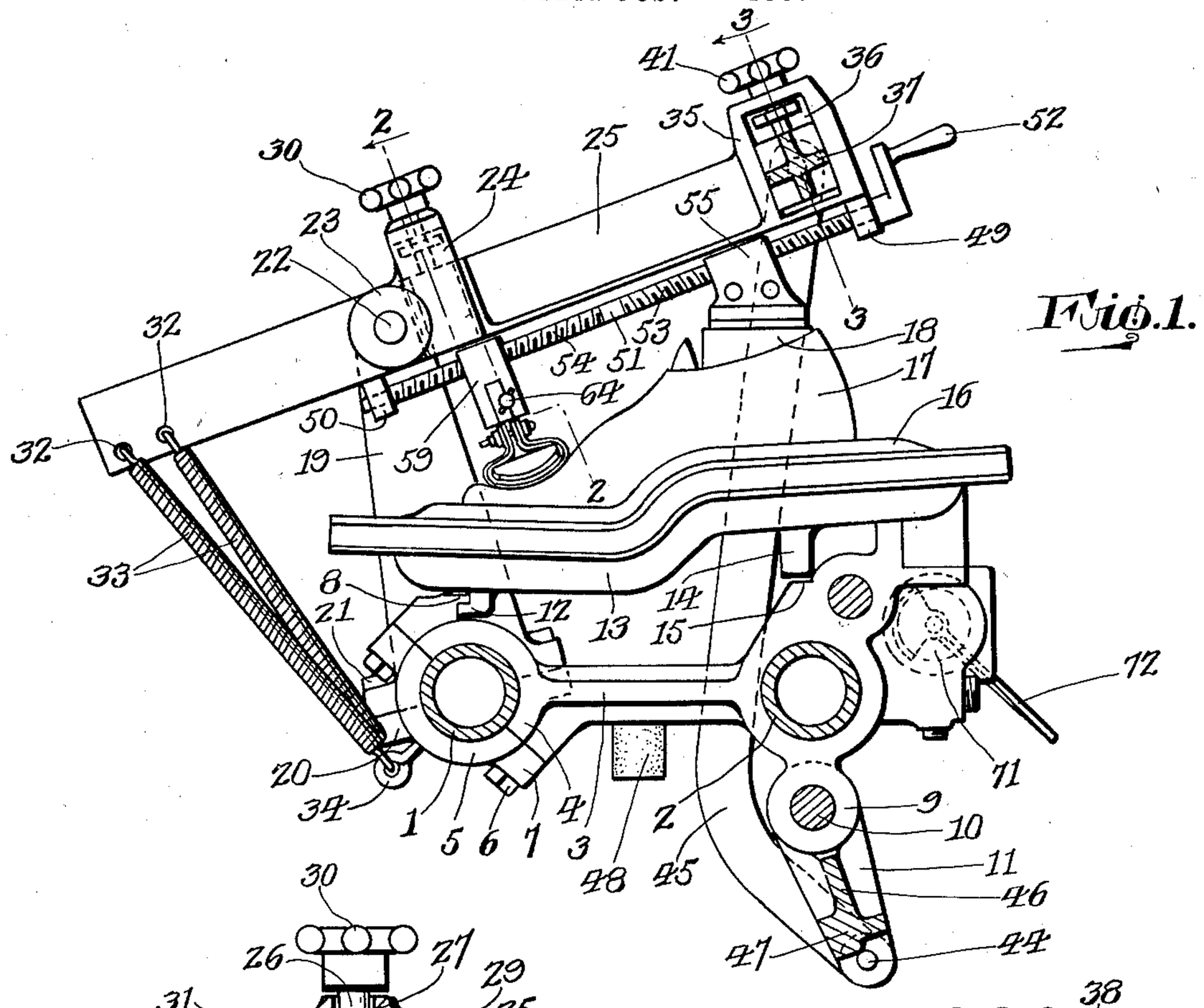

Fig. 1.

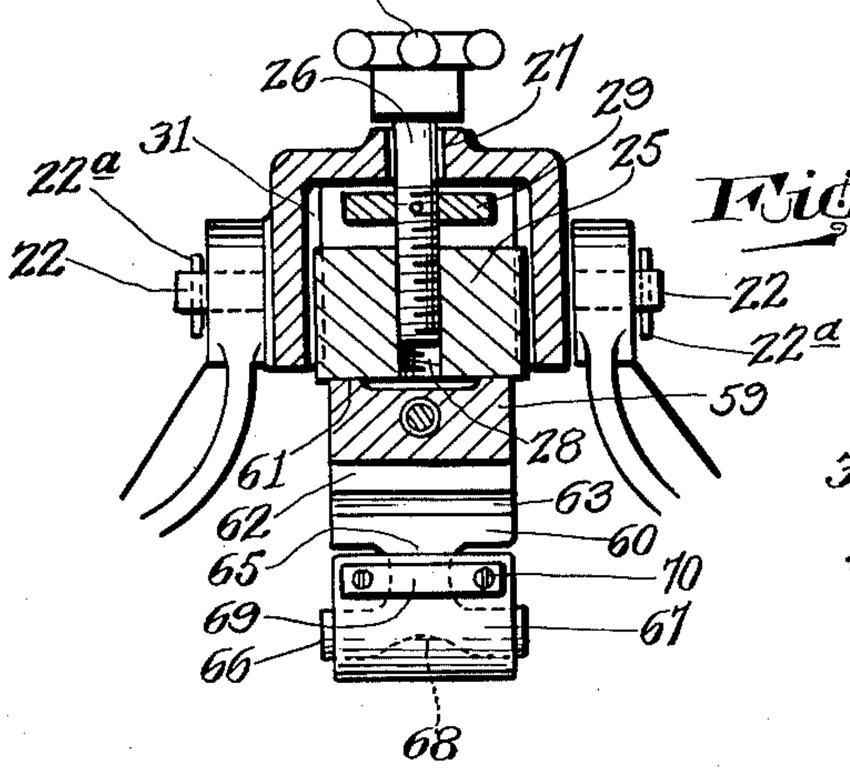

Fig. 2.

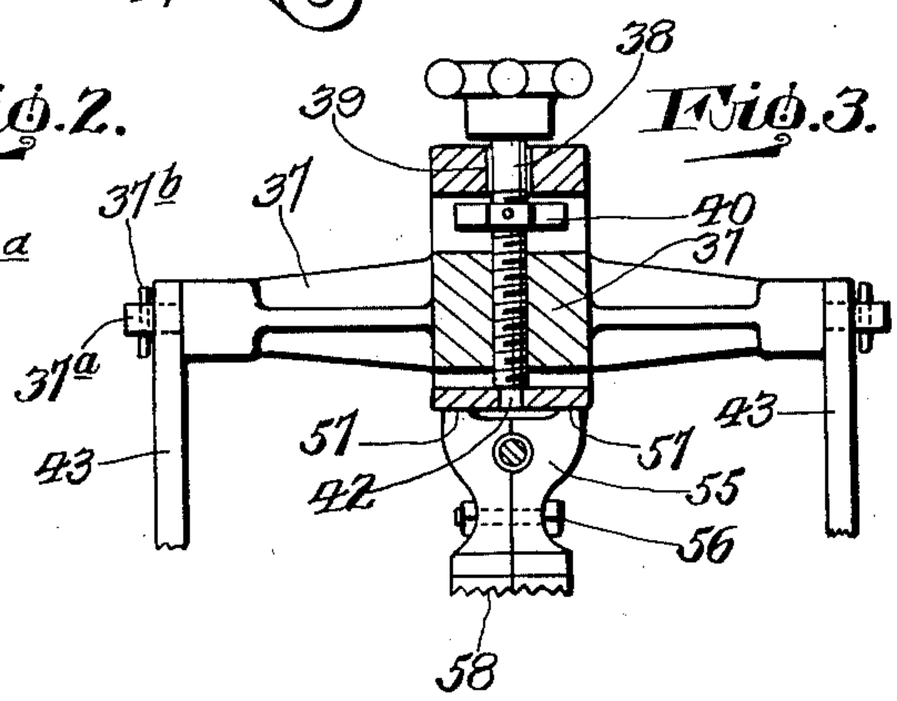

Fig. 3.

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CLAMPING MECHANISM FOR SHOE PRESSES

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14 Claims. (Cl. 12—33)

The invention herein described and claimed is disclosed in my prior applications Serial Number 635,708, filed September 30, 1932, and Serial Number 652,390, filed January 18, 1933.

This invention relates to a shoe levelling, shaping and sole securing machine, and more particularly has reference to an improved construction for clamping the shoe and last on such a device during the performance of the desired operation upon the same.

Previously, shoes have been leveled and shaped and soles secured thereto by various means, including the use of a pneumatic pressing element having a flexible wall to fit against the bottom part of the shoe while the shoe is on a last. The shoe and last are held against this flexible wall and air pressure is admitted to the element thus forcing the flexible wall tightly against the bottom of the shoe and levelling and shaping the shoe against the last. Similarly pressure has been applied against the soles of shoes to hold them in place after the soles have been applied to the shoes by means of cement or other like material.

It has been customary to make one wall of the pressing element of rigid material such as cast iron so that it can be attached to the machine or other support upon which it is to be placed. This attachment must be rigid in order that the pressing element may have a proper and positive backing or foundation. The other wall of the pressing element must however be flexible in order that air pressure within the element might force this other wall against the bottom of the shoe to perform the function for which the element is intended. When these two walls have been secured together all around their edges there is formed between the walls an air chamber which is adapted to receive the air under pressure for the purpose of inflating the unit and enabling it to do its work.

Various types of clamping means have been previously provided for the purpose of clamping the shoe and the last within the shoe in their proper position on the flexible wall during the time that the pneumatic element is inflated and the various operations are being carried out.

One object of this invention is to provide a clamping means for the purpose set forth which will positively and adequately clamp the shoe and last against the flexible wall, and which may be adjusted so as to secure the proper tension on the shoe and last, as well as for the purpose of accommodating shoes of various sizes and shapes.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, it being distinctly understood that the same are by way of illustration and example only and are not to be taken as in any way limiting the scope or spirit of this invention. The scope and spirit of this invention are to be limited by the prior art and by the terms of the appended claims.

Referring now more particularly to the drawing in which like numerals indicate corresponding parts throughout:

Figure 1 is a side elevation of a unit embodying this invention mounted on a supporting means, the latter being shown in section.

Figure 2 is a section taken along the line 2—2 of Figure 1.

Figure 3 is a section taken along the line 3—3 of Figure 1.

Referring first to Figure 1, there is shown a unit of the type referred to embodying this invention, the same being mounted on a pair of hollow support members 1 and 2. Forming a base for the pressing unit proper is a member 3 which is preferably formed of cast iron or some similar material, and is provided adjacent one end with a transverse opening for the purpose of receiving the hollow support member 2. Adjacent the other end of the member 3 it is provided with a semi-circular bearing portion 4 adapted to receive the hollow support member 1. The support member 1 is then held in position within the semi-circular portion 4 by means of a cap member 5 secured to the portion 4 by means of cap screws 6 extending through the openings in the ears 7 of the cap member 5 and being threaded into tapped holes in the member 3.

On the upper side of the portion 4 there is formed a hooked shaped projection 8 extending toward the opposite end of the member 3 and substantially parallel thereto.

At the opposite end of the member 3, there is provided a depending portion 9 located directly below the hollow support member 2, and having an opening therethrough for receiving the shaft 10 on which are mounted the arms 11 constituting a locking lever.

This opposite end of the member 3 is also provided with a portion adapted to form one part of the valve mechanism for controlling the air supply to the unit, and to receive and support the other parts of this valve mechanism.

Mounted on top of the member 3 and having a hook 12 engaging the hook 8 on the member 3 is the rigid cup-shaped wall 13 which goes to form the lower part of the pneumatically operated

pressing unit. As previously mentioned, such parts of the member 13 are usually made of cast iron or some similar material. The rigid wall member 13 is supported at one end on the hook 8 as shown in Figure 1, and is supported on its opposite end on an abutment member 14 which rests against a cut away portion 15 near the opposite end of the member 3.

Secured to the upper side of the member 13 by any suitable means is the flexible wall 16 of the pressing unit, the same being adapted to expand and press against the bottom of the shoe 17 when the shoe is in place on the last 18 and is securely clamped down in a manner to be presently described.

The clamping means just referred to consists in general of an arm 19 securely mounted on the hollow support member 1 and adjustably clamped thereto by means of a cap member 20 and cap screws 21. This arm 19 is mounted on the hollow support member adjacent the member 3 on one side thereof, and another arm 19 which is in effect exactly the same as the one just described is mounted on the opposite side of the member 3. At their upper ends, the arms 19 are each provided with bearings for receiving the pins 22 which project in opposite directions from each of a pair of spaced ears 23 on the housing member 24 to pivotally mount the same. The housing member 24 is arranged on its inner surfaces to provide a vertical slide way for the purpose of receiving a corresponding slide on the beam 25 and allowing the beam 25 to slide up or down therein. As has been stated, the ears 23 on the housing member 24 are spaced from each other so that the beam 25 may pass between them. For the purpose of securing the beam 25 within the housing 24, and for the purpose of adjusting its vertical position within that housing, there is provided a threaded member 26 extending through the openings 27 in the top of the housing 24, and threadedly engaging a tapped opening 28 in the beam 25. A lock nut 29 is provided just below the top wall of the housing 24 for the purpose of preventing upward movement of the threaded member or screw 26. For the purpose of turning this screw 26 to adjust the vertical position of the beam 25, a handle or knob 30 is provided. The slide way within the housing which has been referred to above is designated in Figure 2 by the numeral 31, and it will be seen that the sides of the beam 25 are so shaped as to fit this slide way. A pivotally supported hanger for the clamping means is thus provided.

The beam 25 is extended from the housing past the ears 23 in the manner just described, and is provided at its extremity with a plurality of openings 32 adapted to receive the ends of springs 33 for the purpose of resiliently holding in its lowermost position this end of the beam 25. The lower ends of the springs 33 are secured through eyelets 34 provided on the cap member 5 for that purpose.

In order to facilitate the description, the end of the beam 25 to which the springs 33 are attached will be hereinafter referred to as the rear end of the beam, and the opposite end will be referred to as the forward end of the beam.

The beam 25 is enlarged at its forward end thereof as indicated at 35 for the purpose of providing for the rectangular opening 36 extending transversely of the beam. Extending transversely through the opening 36, and vertically slidable therein is a cross head 37, its vertical position within the opening 36 being determined by a threaded member or screw 38 extending through the hole 39 in the top of the enlarged portion 35 into the opening 36 and engaging the head 37 in much the same manner that the adjustable screw 26 engages the beam 25.

With reference to Figure 3, it will be seen that the screw 38 is provided with a nut 40 and a handle or knob 41 similar to the nut 29 and the handle 30 and for a corresponding purpose. It is further to be noted that the screw 38, instead of extending only part way through the cross beam 37, extends all the way through the cross beam 37 and has an unthreaded portion 42 at its lower end journaled in an opening for the purpose in the lower part of the beam 25.

At the opposite end of the cross beam 37 there are pivotally connected a pair of links or latching members 43 which extend downwardly to the opposite ends of the arms 11, and are pivotally connected thereto as at 44. These links 43 are curved at a portion opposite the shaft 10 so that when the arms 11 are swung about the shaft 10 to their lowermost position they may swing past their center position to a small degree and the links 43 will have their bent portions 45 in engagement with the shaft 10.

It will be apparent that when the parts are in the position just described, the beam 25 will be locked with its forward end down, and cannot be raised until the arms 11 are first pushed toward the rear. It will be noted at this point that the arms 11 are connected to each other by means of a web or some other suitable arrangement 46, and that this arrangement carries an abutment 47 which is adapted when the arms 11 are pushed rearwardly to release the beam 25 to come into engagement with the rubber bumper 48 provided for that purpose on the under surface of the member 3.

Going back now to the description of the beam 25, it is noted that this beam is provided at a point substantially at its forward end with a downwardly extending lug 49, and is provided with another similar downwardly extending lug 50 at a point adjacent the housing member 24. These two downwardly extending lugs have openings therethrough adapted to journal the ends of a threaded shaft 51 having a crank 52 at its forward end by which it may be turned. As will be noted, the forward end of the shaft 51 is provided with one set of threads 53, and the rearward portion of this shaft is provided with another set of threads 54, the two sets of threads 53 and 54 being right hand and left hand threads respectively.

Surrounding the shaft 51, and in threaded engagement with the threaded portion 53, is a clamping member 55 which is adapted to engage a projecting portion of the last 18 within the shoe 17, and press the said last against the flexible wall 15 of the pressing unit. As will be seen in Figure 3, this block 55 is preferably formed of two parts joined together by means of bolts or the like 56, and is provided at its top with projections 57 adapted to bear against the under surface of the beam 25 adjacent each side thereof and prevent the block 55 from turning about the axis of the shaft 51. This block 55 is also provided with a roughened or serrated surface 58 which is adapted to engage the top of the last 18, this surface being roughened for the purpose of preventing the last from slipping out from under the block 55.

Surrounding the threaded portion 54 of the shaft 51 is a second block 59 adapted to support a second clamping member 60. The block 59, like the block 55 has a pair of upward projections 61 adapted to contact with the lower surface of the

beam 25 and prevent the block 59 from rotation about the axis of the shaft 51. The block 59 is slotted to receive the shank 62 of the clamping member 60, the shank of the clamping member being formed with a key way 63 and the slotted portion of the block 59 being formed with a complementary key way for the purpose of receiving a key 64, thus firmly securing the clamping member 60 in place. Thus the beam 25, housing 24, cross head 37, and screw 51 together constitute a suspension structure for the work clamping members 55 and 60.

Integral with the shank 62 of the clamping member 60 is a web 65 and a lower cross member 66. The cross member 66 is covered with one or more flexible layers 67 for the purpose of furnishing a smooth surface to bear against the toe portion of the shoe and thus prevent injuring the shoe, and also to provide a somewhat resilient surface so that the surface of the shoe will not be marred in any way. The cross member 66 is also provided with a cut away portion 68 adjacent the center and adapted to form a coat or saddle over the toe portion of the shoe whereby the pressure against the toe portion of the shoe will be distributed over its entire width instead of being concentrated on the top of the toe. The flexible members 67 are securely clamped around the cross member 66 by means of the bars 69 and the bolts 70. It will be noted in connection with this clamping member 60 that it is interchangeable, and that various sizes may be substituted for different sizes and styles of shoes, and that it may also be easily removed for the purpose of replacing the flexible members 67.

From the foregoing, it is believed that the operation and the structure that has been described will be clearly apparent. The last 18 is placed within the shoe 17 in the ordinary manner, and the shoe 17 is properly positioned on the flexible wall 16. The block or clamping member 55 and the clamping member 60 are then adjusted by means of the crank 52 and by means of the knobs 30 and 41 so that they will be positioned in exactly the proper position to contact with the proper parts of the shoe and last respectively. The adjustable members 30 and 41 are manipulated to adjust the height of the block 65 and the clamping member 60 that when the beam is pulled downwardly the shoe will be clamped in its proper position. The beam 25 is then pulled down until the links 43 swing the arms 11 about the shaft 10 to a point where the bent portion 45 of the links come in contact with the shaft 10. It will then be seen that the arms 11 will be swung past the center of the shaft 10, and the beam 25 will be locked downwardly in clamping position. The pressing element composed of the members 13 and 16 is then inflated by means of the valve 71 provided for that purpose. This valve as will be seen is operated by means of a handle 72. After the pressing operation is completed, the arms 11 are pushed rearwardly so as to allow the links 43 to move upwardly and to release the clamping means 55 and 60 from the shoe and last after which the shoe and last may be removed.

When the clamping member carrying the toe pad or toe clamping portion is brought down, the smooth surface of the flexible member 67 engages the toe of the shoe within which is positioned the toe of the last. Upon further downward movement, this flexible member will be caused to sink into the cut away portion 68 and the cross member 66, and will form a slightly rounded surface for engaging the toe of the shoe.

Thus, it will be seen that there has been provided a clamping means for a device of the type described in which the elements bearing directly against the shoe and the last may be adjusted both forwardly and rearwardly to accommodate the length of the shoe, and may be adjusted both upwardly and downwardly to accommodate the various shapes and sizes of the shoes. A novel and positive means for adjusting these parts has been provided, and a wholly practicable and workable structure has been set forth. A means has thereby been provided for carrying out all the objects of this invention.

What I claim is:—

1. In a sole levelling, shaping and securing unit, a clamping element for releasably maintaining the work to be operated upon stationary, said element comprising a pivotally supported hanger, a cross head carried by the latter, adjustable work clamping members suspended from the hanger, a pair of latching members pivotally suspended from the cross head, and a pivotally supported shiftable locking lever pivotally connected to said latching members and providing when shifted in one direction to move said members off center to lock the element in clamping position with respect to the work.

2. In a sole levelling, shaping and securing unit, a clamping element for releasably maintaining the work to be operated upon stationary, said element comprising a pivotally supported hanger, a cross head carried by the latter, adjustable work clamping members suspended from the hanger, a pair of latching members pivotally suspended from the cross head, and a pivotally supported shiftable locking lever pivotally connected to said latching members and providing when shifted in one direction to move said members off center to lock the element in clamping position with respect to the work, each of said members being of angle form, suspended at their upper ends from the cross head and attached at their lower ends to the outer end of said locking lever.

3. In a sole levelling, shaping and securing unit, a clamping element for releasably maintaining the work to be operated upon stationary, said element comprising a pivotally supported hanger, a cross head carried by the latter, adjustable work clamping members suspended from the hanger, a pair of latching members pivotally suspended from the cross head, a pivotally supported shiftable locking lever pivotally connected to said latching members and providing when shifted in one direction to move said members off center to lock the element in clamping position with respect to the work, each of said members formed of an upper and a lower portion extending downwardly at opposite inclinations with respect to each other, the upper portions suspended at their upper ends from the cross head, and said lower portions attached at their lower ends to the outer end of said locking lever.

4. In a sole levelling, shaping and securing unit, a clamping element for releasably maintaining the work to be operated upon stationary, said element comprising a pivotally supported hanger, a cross head carried by the latter, adjustable work clamping members suspended from the hanger, a pair of latching members pivotally suspended from the cross head, a pivotally supported shiftable locking lever pivotally connected to said latching members and providing when shifted in one direction to move said members off center to lock the element in clamping position

with respect to the work, each of said members formed of an upper and a lower portion extending downwardly at opposite inclinations with respect to each other, the upper portions suspended at their upper ends from the cross head, and said lower portions attached at their lower ends to the outer end of said locking lever, said lower portions being of less length than said upper portions.

5. In a sole levelling, shaping and securing unit, a clamping element for releasably maintaining the work to be operated upon stationary, said element comprising a pivotally supported hanger, a cross head carried by the latter, adjustable work clamping members suspended from the hanger, a pair of latching members pivotally suspended from the cross head, a pivotally supported shiftable locking lever pivotally connected to said latching members and providing when shifted in one direction to move said members off center to lock the element in clamping position with respect to the work, means for vertically adjusting said hanger, and means for vertically adjusting said cross head.

6. In a sole levelling, shaping and securing unit, a pivotally supported holder, a spring controlled hanger extending through the holder, means suspended from the hanger for clamping the work to be acted upon stationary, means for adjustably connecting the hanger to said holder, a cross head at the outer end of the hanger, means for adjustably connecting the cross head to the hanger, a pair of angle-shaped latching members pivotally suspended at their upper ends from the cross head, and a shiftable pivotally supported locking lever pivotally connected to the lower ends of said members and providing when shifted in one direction for moving said members to an off center position for maintaining said clamping means in clamping position with respect to the work.

7. In a sole levelling, shaping and securing unit, work clamping means, a spring controlled pivotally supported suspension structure for said means, latching means pivotally suspended and depending from said structure, and a shiftable pivotally supported locking lever arranged below and pivotally connected to the lower end of said latching means and providing when shifted in one direction for lowering said structure and moving said latching means off center to lock the said clamping means in work clamping position.

8. In a sole levelling, shaping and securing unit, a clamping beam, a pair of spaced abutment members carried by said clamping beam for clamping the work to be acted upon stationary, a pair of positioning means for said clamping beam adjacent said abutment members respectively, and separate adjustable means connecting said clamping beam with each of said positioning means to adjust the position of said abutment members upward or downward individually.

9. In a sole levelling, shaping and securing unit, a clamping lever, a pivotal support therefor, latching means spaced from said pivotal support for latching said lever in clamping position, an abutment member mounted on said lever for clamping the work to be acted upon stationary when said lever is in clamping position, and means for adjustably connecting said lever to its pivotal support whereby said abutment member may be positioned closer to or farther from the work.

10. In a sole levelling, shaping and securing unit, a clamping lever, a pivotal support therefor, latching means spaced from said pivotal support for latching said lever in clamping position, a pair of abutment members mounted on said lever adjacent said pivotal support and said latching means respectively for clamping the work to be acted upon stationary when said lever is in clamping position, means for adjustably connecting said lever to its pivotal support, and other means for adjustably connecting it to its latching means, whereby said abutment members may be selectively positioned closer to or farther from the work.

11. In a sole levelling, shaping and securing unit, work clamping means, a suspension structure therefor, latching means pivotally secured to said structure, and a shiftable, pivotally supported locking lever pivotally connected to the opposite ends of said latching means and providing when shifted in one direction for lowering said structure and moving said latching means off center to lock the said clamping means in work clamping position.

12. In a sole levelling, shaping and securing unit, a compressed air operated presser element, a pivotally supported hanger arranged over said element, adjustable clamping members suspended from the hanger and acting to clamp the work to be operated upon said element, a shiftable pivotally supported locking lever arranged below said element, and a pair of latching members pivotally suspended from said hanger, opposing the sides of said element and pivotally connected to the outer end of said lever whereby on the shifting of the latter in one direction said latching members will be moved off center to clamp the work on said element.

13. In a sole levelling, shaping and securing unit, a compressed air operated presser element, a pivotally supported hanger arranged over said element, adjustable clamping members suspended from the hanger and acting to clamp the work to be operated upon said element, a shiftable pivotally supported locking lever arranged below said element, and a pair of angle-shaped latching members pivotally suspended from said hanger, opposing the sides of said element and pivotally connected to the outer end of said lever whereby on the shifting of the latter in one direction said latching members will be moved off center to clamp the work on said element.

14. In a sole levelling, shaping and securing unit, a compressed air operated presser element for supporting the work and applying a levelling, shaping and securing action thereto, a spring controlled, pivotally supported vertically adjustable hanger arranged over said element, abutment means carried by the hanger for clamping the work on said element, latching members suspended from the hanger and opposing the sides of said element, and a shiftable pivotally supported locking lever arranged below said element, said lever being pivotally connected to said members and providing when shifted in one direction to move said members off center for maintaining said means in position for clamping the work on said element.

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