R. F. McFEELY.

JACK FOR SHOE MACHINES.

APPLICATION FILED JUNE 8, 1905.

**1,030,827.**

Patented June 25, 1912.

3 SHEETS—SHEET 1.

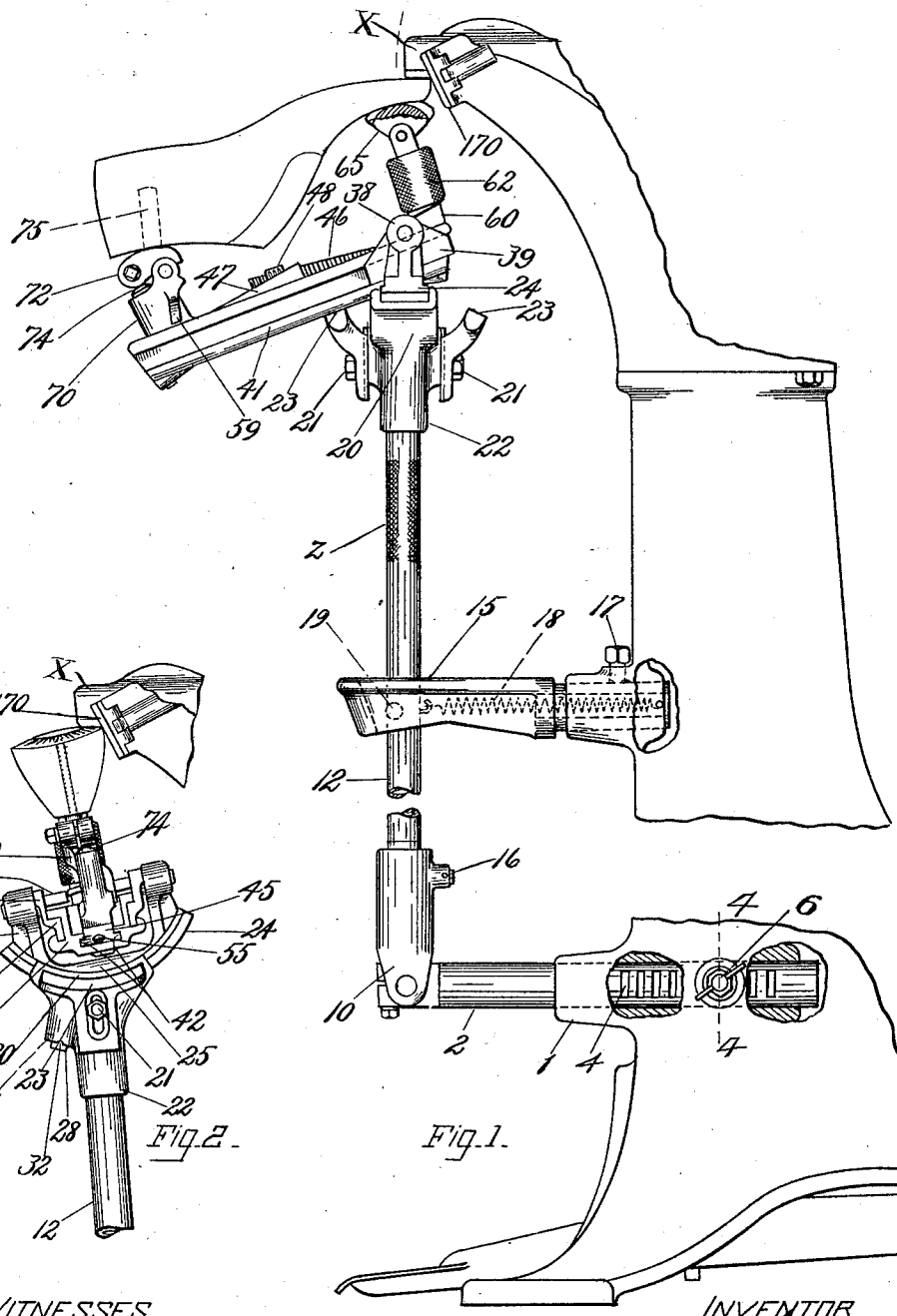


Fig. 1.




Fig. 2.

WITNESSES.

Bertha L. Hannah.

Arthur R. Russell

INVENTOR.

Ronald F. McFeely

By his Attorneys

Nelson B. Conrad

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

R. F. McFEELY.

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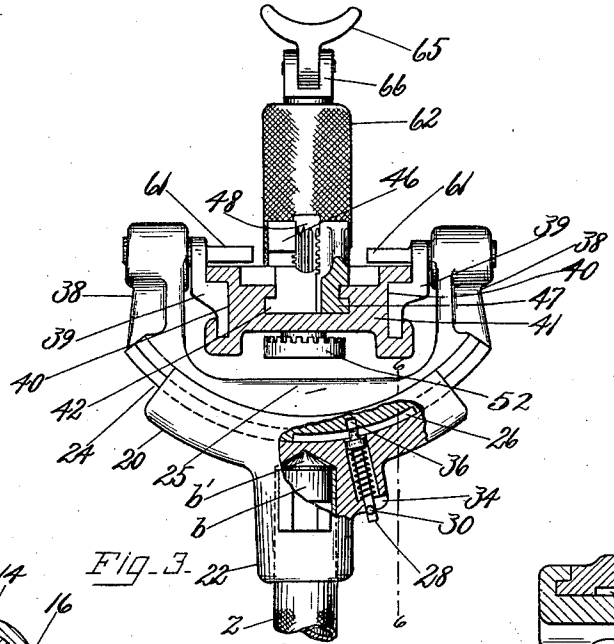


Fig. 3.

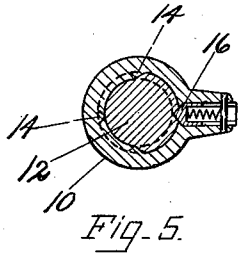


Fig. 5.

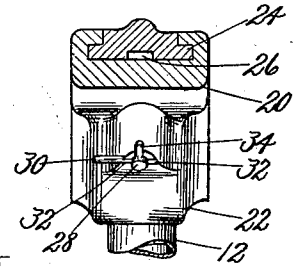


Fig. 6.




Fig. 3a.

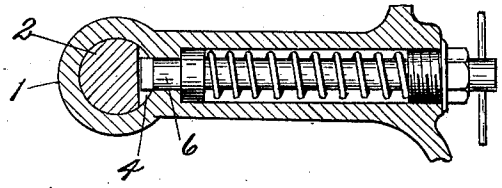


Fig. 4.

WITNESSES.

Bertha L. Hannah.

Arthur L. Russell.

INVENTOR.

Ronald F. McFeely

By his Attorney,

Nelson W. Howard

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 3.

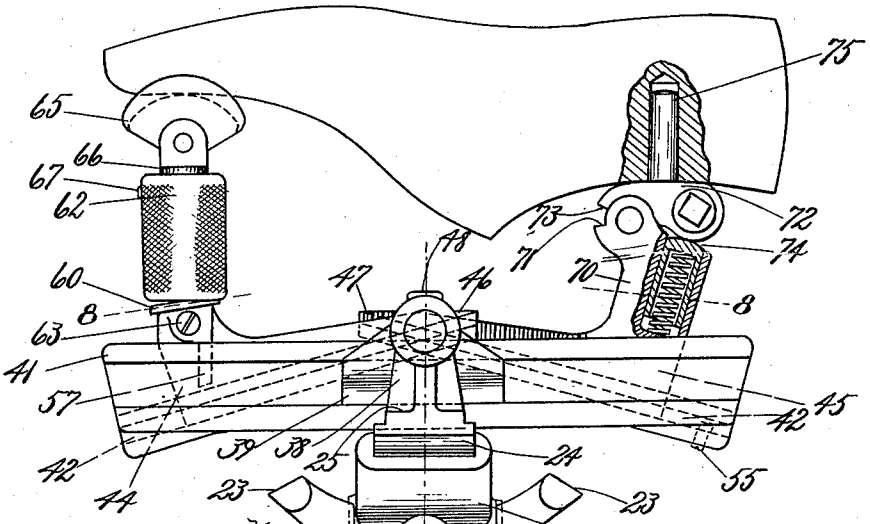


Fig. 7.

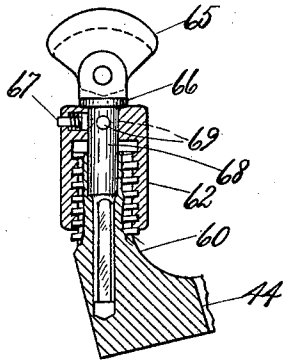


Fig. 9.

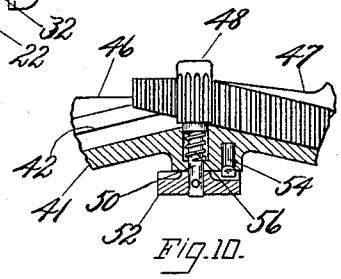


Fig. 10.

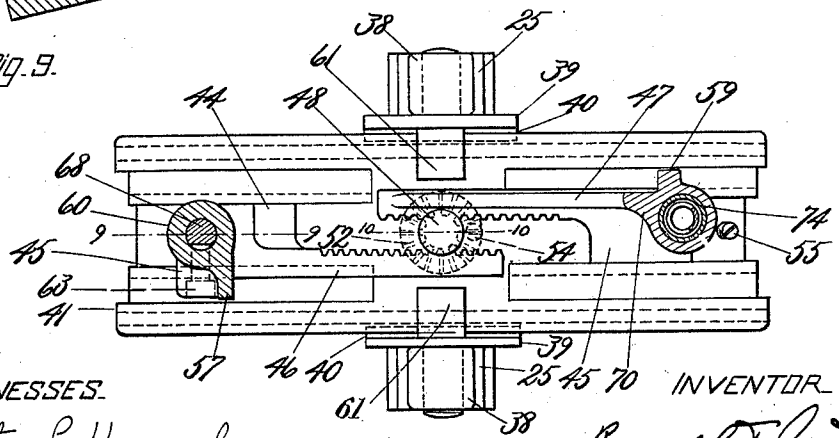


Fig. 8.

WITNESSES.

Bertha L. Hannah.

Arthur L. Russell.

INVENTOR.

Ronald F. McFeely

By his Attorney,

Nelson W. Howard

# UNITED STATES PATENT OFFICE.

RONALD F. McFEELY, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## JACK FOR SHOE-MACHINES.

1,030,827. Specification of Letters Patent. Patented June 25, 1912.

Original application filed August 15, 1904, Serial No. 220,828. Divided and this application filed June 8, 1905. Serial No. 264,260.

*To all whom it may concern:*

Be it known that I, RONALD F. McFEELY, a citizen of the United States, residing at Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Jacks for Shoe-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

The present invention relates to work supports, and particularly to a support for holding a last with a shoe thereon during operations performed in the manufacture of the shoe, and this application is a division from an application Serial No. 220,828 filed by me August 15, 1904.

A very important feature of the invention consists in a shoe support comprising a heel post and a forepart rest arranged for simultaneous relative movement toward or from each other and upwardly or downwardly. This provision for simultaneous adjustment in two directions permits the shoe support to be shortened to adapt it to the length of a small shoe and raised at the same time to adapt it to the height of such small shoe, while it may be lowered and at the same time lengthened to receive a large shoe. In practice the heel post and forepart rest are necessarily adjusted for different lengths of lasts and this feature of my invention insures that the support shall also be properly adjusted to compensate for variations in height of the different sizes of lasts. Preferably also the ratio of adjustment in the direction of the length of the shoe, herein referred to as "longitudinal" adjustment, to the adjustment in the direction of the height of the shoe, herein called "vertical" adjustment, will be determined by the construction of the shoe support, and thus the operator does not need to exercise his judgment to determine the proper amount of vertical adjustment required by reason of differences in the sizes of shoes applied to the support. The use of a shoe support thus constructed insures that the shoes shall always be supported with their uppermost faces at an approximately uniform altitude, whatever the size of the shoe. This is of great importance in a support for presenting work to a machine for operating on the bottom of an inverted shoe.

A further advantage of the present invention is that the time required for adjusting the shoe support vertically according to the size of shoe to be supported is wholly saved for the combined longitudinal and vertical adjustment is effected as quickly as either adjustment alone may be made.

A further important feature of the invention consists in mounting the shoe-holding members of the support for sliding and rocking movements with relation to the spindle upon which the support rests. This construction enables the shoe to be presented at any desired angle to a tool—such, for example, as a hammer of a machine for operating upon the shoe bottom. Also preferably the shoe support will be arranged for movement to allow all parts of the shoe bottom to be presented in substantially the same plane to the tool.

One of the important advantages obtained by mounting the shoe-holding members of the support for sliding and rocking movements with relation to the spindle is that as the different portions of the shoe are presented to the machine tool the point of engagement of the tool with the shoe may be substantially over the upper end of the spindle and the spindle may be maintained always in substantial alinement with its point of support and tool. This construction has the great advantage that the shoe is more firmly supported and there is less tendency for the shoe to be forced laterally by the tool away from its proper position than would be the case if the spindle were not maintained in substantial alinement with its point of support and the tool.

Preferably also means is provided for vertically adjusting the heel post and forepart rest relatively, independently of their adjustment toward and from each other, and also as herein shown means is provided for adjusting the heel post and forepart rest together vertically without adjusting them longitudinally of the shoe support.

Another feature of the invention consists in improved locking means for automatically securing the heel post and forepart rest in their adjusted positions.

Other features of the invention, including

details of construction and combinations of parts, will be hereinafter described and pointed out in the claims.

Figure 1 is a side elevation of a shoe support embodying this invention, said view showing in side elevation a shoe held in operative relation to the hammer of a machine for working on the shoe. Fig. 2 is an end view of the shoe support with a shoe thereon. Fig. 3 is a view similar to Fig. 2, showing the shoe support in end elevation, certain portions of the mechanism being shown in section. Fig. 3ª is a plan view of the spindle guide 15. Fig. 4 is a sectional view on the dotted line 4—4 of Fig. 1. Fig. 5 is a sectional view on the line 5—5 of Fig. 3. Fig. 6 is a view, partly in section, on the dotted line 6—6 of Fig. 3. Fig. 7 is a side elevation of the upper portion of the shoe support. Fig. 8 is a plan view of a shoe support, certain parts being shown in section on the line 8—8 of Fig. 7. Fig. 9 is a vertical longitudinal section through the forepart rest. Fig. 10 is a detail view, partly in section, on the line 10—10 of Fig. 8.

The shoe support is shown in Fig. 1 in connection with a machine having a tool *x* for working on the bottom of an inverted shoe on the support. The tool may be considered, for the purpose of explaining this invention, as a hammer having a path of movement indicated by the dotted line in this figure. The frame of the machine has an extended bearing 1 in which is arranged a forwardly projecting supporting bar 2, to the outer end of which is connected the spindle of the shoe support. The supporting bar is adjustable longitudinally in its bearing to move the attached end of the spindle toward or from the machine, and said bar is provided with notches 4, adapted to be engaged by a spring-pressed plunger 6, see Figs. 1 and 4, for securing the bar in adjusted position. The spindle is shown as made in two sections 10 and 12, the section 10 being formed as a sleeve hinged at its lower end to the supporting bar 2 and internally screw-threaded to receive the threaded lower portion of the section 12. The threads on the section 12 are provided with shallow transverse notches 14 adapted to be engaged by the beveled end of a spring-pressed plunger 16 which prevents accidental rotation of the section 12, but permits said section to be turned for adjusting the spindle longitudinally when sufficient force is applied. The section 12 is shown as roughened at *z* to enable the operator better to grasp it for turning the section. The spindle is guided loosely through a bracket 15 which is adjustably secured in the frame by a binding screw 17. A spring 18 connected to the spindle and to the frame holds the shoe support yieldingly toward the machine with the shoe against a rest 170 in position to be operated upon. Holding means, shown as a spring-pressed pin 19, is arranged in the outer part of the bracket in position to engage the spindle frictionally and hold the shoe support away from the machine when desired—as, for example, while a shoe is being removed from the support and another one is being applied. The section 12 of the spindle is shown as comprising a tubular body portion and solid end pieces *a* and *b*, the former of which is rigidly secured to the lower end of the body portion, see Fig. 3, and is provided with screw threads, as above explained, while the end piece *b*, see Fig. 3, is firmly attached to the upper end of the spindle and is formed with a conical head *b'*. It is obvious, however, that the spindle section might be formed as a single tubular or solid bar.

The means sustained by the spindle for supporting the shoe comprises among its parts a base 20 having a depending tubular portion 22 adapted to fit over the upper end of the spindle and free to turn thereon. On its upper side the base 20 is provided with a transversely extending curved guideway having undercut side walls, see Figs. 3 and 6, to receive the correspondingly shaped foot 24 of the trunnion block 25, which is adapted to slide in the guideway. The foot is provided on its lower face with a groove 26 to receive the projecting end of a spring-pressed pin 28 which, by engaging the ends of the groove, limits the sliding movement of the trunnion block in the guideway. The pin is provided with a finger piece 30 by which it may be withdrawn from the groove 26 to permit the removal of the trunnion block. The finger piece normally rests in the notch 32, as shown in Figs. 3 and 6, but is permitted when properly positioned for the purpose to fit into the deeper notch 34 and thus allow the spring actuating the pin 28 to force the pin into a socket 36 which is located in the groove 26, see Fig. 3. The finger piece may be thus positioned when it is desired to lock the trunnion block 25 against movement in its guideway. The trunnion block has at either end posts 38 in which are formed bearings for the trunnions of hangers 39, see Fig. 3. Each hanger is formed on its inner side with a guide rib 40 and on the guide ribs of the two hangers is slidingly mounted the carriage 41 which supports the heel post and the forepart rest of the shoe support. Stops 23 are adjustably attached to the base piece by clamping bolts 21 in position to be engaged by the carriage for limiting the rocking movement of the carriage and hangers with relation to the trunnion block, the upper faces of these stops being curved similarly to the foot 24 of the trunnion block, whereby to stop the carriage uniformly in any laterally inclined

position which it may assume. The carriage is provided on its upper face with guideways 42 for sliding plates 44 and 45, see Figs. 3 and 8, which support respectively the forepart rest and the heel post. The guideways for the plates 44 and 45 are shown, see Figs. 7 and 10, as inclined upwardly from the opposite ends of the carriage toward the middle thereof, whereby as the plates are moved toward the middle of the carriage to adapt the forepart rest and heel post to support a short shoe, said rest and post will also be raised to adapt them for the less height of the smaller shoe, while a movement of the plates in a direction to accommodate a larger shoe will lower them to adapt the rest and post to the greater height of the larger shoe. The plates 44 and 45 are provided with arms 46, 47, respectively, extending toward and beyond the middle of the carriage and located as shown in Fig. 8 upon opposite sides of a pinion 48. The arms are provided on their adjacent sides with rack teeth engaging with the pinion, whereby the plates 44, 45 are compelled to move together when adjusted toward or from the center of the carriage for positioning the forepart rest and heel post for small or large shoes. The pinion 48 is shown as provided with a depending stem 50, see Fig. 10, mounted to move endwise in the carriage 41 and provided on its lower end, under the carriage, with a disk 52 having serrations or notches in its upper face adapted to fit over the beveled end of a pin 54 depending from the carriage. The stem 50 is encircled by a spring 56 which normally forces the pinion and its connected parts upwardly to put the disk 52 against the pin, which holds the disk and the pinion from rotation and therefore locks the plates 44 and 45 in their adjusted positions with relation to each other. The pinion may be depressed by the finger of the operator for forcing the disk below the plane of the pin 54 and then the plates carrying the forepart rest and heel post may be moved toward or from each other as desired to adapt them to the length and height of the size of the shoe next to be operated upon. When the pinion is released and the spring 56 is permitted to do so it raises the pinion and the attached disk 52 to bring the latter into engagement with the pin 54 for locking the forepart rest and heel post in their new positions. The outward movement of the plates is limited by a stop 55 secured in the end of the carriage in position to be engaged by the plate 45, see Figs. 2, 7, and 8. Stops 57 and 59 are also provided on the plates 44 and 45 to coöperate with lugs 61 on the hangers 39, see particularly Fig. 8, for limiting the sliding movement of the carriage and parts supported thereby with relation to the hangers. The forepart rest is supported in a vertical arm 60, which rises from the outer end of the plate 44, see Figs. 7 and 9, and has screw-threaded engagement with a cap piece 62 which may be adjusted by rotation to change the effective length of the arm.

The forepart rest comprises a pad 65 which may be of any suitable construction and is secured to the head 66 of the stem 68. The head rests upon the upper face of the cap piece 62 and the stem has a non-circular lower portion which fits into a socket in the arm 60, see Fig. 9, and is engaged by a screw 63, Fig. 8, whereby the forepart rest is held from axial movement without interfering with its longitudinal adjustment. The forepart rest may be vertically adjusted, independently of the heel post, by turning the cap piece 62, and a spring-pressed locking pin 67 having a blunt beveled end, as shown in Fig. 9, is mounted in the cap piece in position to engage in shallow recesses 69 in the non-rotatable stem for securing the cap piece in its adjusted position. The heel post is mounted on a vertical arm 70 which rises from the outer end of the plate 45, and the pin 75 which enters the usual pin hole of the last is secured to a base piece 72 which is pivotally connected, at the inner or front side of the pin, with the arm 70. The base piece is engaged on the other or rear side of the pin 75 by a spring-pressed plunger 74 for holding the pin yieldingly tipped toward the forepart rest and the forepart of the shoe therefore pressed downwardly against the forepart rest with force sufficient to hold the shoe firmly in position on the shoe support.

It will be understood that with the above construction of the shoe-supporting means the bar 2 can be adjusted for moving the lower end of the spindle toward or from the machine frame to position the point of support of the spindle properly with relation to the direction of the blows of the machine tool. The spindle may be adjusted longitudinally to raise or lower the support for causing the work to be engaged by the tool earlier or later in its descent, and the shoe support itself may be turned freely about the spindle to present the different sides of the shoe to the tool. The shoe support also may be rocked or tipped in a direction lengthwise of the shoe by a movement of the hangers 39 on their trunnions, and may be tipped or rocked transversely of the shoe by the movement of the trunnion block 25 in the base 20. By these universal rocking or tipping movements the different portions of the bottom of the shoe may be presented at the desired angles to the action of the machine tool. The stop 23 coöperating with the rear end of the carriage may be positioned for stopping the carriage, as shown in Fig. 1, with the toe of the shoe at the desired inclination to the tool, and the work-

man will thus be relieved of the labor of holding the shoe in this position. The carriage will in practice be given a sliding movement in the hangers 39 during the operation of the machine to move the shoe relatively to the spindle so that the points of engagement of the tool with the work shall be always substantially over the end of the spindle, as illustrated in Figs. 1 and 2. The spindle may, therefore, be maintained at all times substantially in alinement with the tool and the supporting bar 2, so that the work is firmly supported and there is no tendency for the tool to force the work away from position to be operated upon, as would be the case if the spindle were not at all times directly under the portion of the shoe being operated upon. The simultaneous movement of the heel post and forepart rest relatively to each other and at the same time vertically enables the operator to adjust the shoe support very quickly to the length and height of the shoe to be operated upon and the locking device 52 automatically secures both the forepart rest and heel post in adjusted position as soon as the operator releases said device.

In the use of the shoe support, the several parts having been properly adjusted, a shoe on its last will be applied to the shoe support by placing the heel of the last upon the heel pin and then raising the forepart of the shoe and swinging it into position upon the forepart rest, as shown in Figs. 2 and 7, the spring-pressed plunger 74 connected with the heel post thereafter holding the shoe with its forepart pressed firmly down upon the rest 65. The shoe support, which preferably is held away from the machine by the engagement of the spring holder 19 with the spindle when no shoe is being operated upon, will now be moved toward the machine to free it from the holder and to place the shoe against the edge rests in position to be acted upon by the machine tool. The workman may hold the shoe against the edge rests during the operation of the machine, being assisted in doing this by the spring 18, and may turn the shoe and support on the spindle to present the different portions of the shoe in position to be operated upon. The workman also tips the shoe in the support to present the different portions at the proper angle to the tool and by sliding the shoe and carriage 41 in the hangers 39 he may always maintain the spindle in substantially upright position in approximate alinement with its support and the tool while every part of the shoe is being acted upon, as shown in Figs. 1 and 2, whereby the tool has little or no tendency to force the shoe away from position to be operated upon.

The combination of a tool for operating upon the shoe with a shoe support capable of movement to present the several portions of the shoe in position to be operated upon while maintaining the shoe supporting spindle in alinement with its point of support and the tool is not herein claimed as this invention is claimed in my said application for United States Letters Patent Serial No. 220,828.

Having indicated the nature of my invention and fully described one construction embodying the invention in a preferred form, I claim as new and desire to secure by Letters Patent of the United States:—

1. In an apparatus of the class described constructed for use with mechanism for operating upon a shoe, a support for the shoe independent of said mechanism, comprising a carriage provided with guideways extending lengthwise of the shoe and inclined upwardly and inwardly from opposite ends of the carriage, combined with shoe-holding means mounted in said two inclined guideways for simultaneous adjustment in the direction of the length and also the height of the shoe.

2. In an apparatus of the class described, a shoe support, comprising a carriage provided with oppositely inclined guideways, and a heel post and a forepart rest mounted in said guideways, combined with means connecting said heel post and forepart rest whereby said parts may be moved together toward or from the center of the carriage and simultaneously adjusted vertically.

3. In an apparatus of the class described constructed for use with mechanism for operating upon a shoe, a support for the shoe independent of said mechanism, comprising a carriage provided with oppositely inclined guideways, a heel post and a forepart rest mounted in said guideways, a pinion and rack bars connected with the heel post and forepart rest and engaging opposite sides of the pinion whereby the post and rest are caused to move together in their guideways.

4. In a mechanism of the class described, a shoe support comprising a carriage having a heel post and a forepost rest movable longitudinally of the carriage to adapt them for supporting shoes of different lengths, a pinion arranged for endwise movement in the carriage, rack bars connecting the post and rest and engaging opposite sides of the pinion, a serrated button connected to the pinion, a stud on the carriage, and a spring for holding the button against the stud whereby the pinion is held from accidental movement but is allowed to turn when force is applied to the post and rest for adjusting said parts.

5. In mechanism of the class described a shoe support comprising a base and a shoe carriage connected for sliding movement relatively to the base both lengthwise and transversely of the shoe, and means constructed and arranged when in one position

to limit movement of the shoe carriage in one of said directions and when in another position to lock the carriage against such movement while permitting movement in the other of said directions.

6. In a mechanism of the class described, the combination with a base piece, a block slidingly mounted on the base piece and provided with a slot, and shoe-holding means supported by said block, of a stop carried by the base piece and adapted to project into said slot in the block for permitting limited relative movement of the block and base piece, and means whereby said stop may be withdrawn.

7. In a mechanism of the class described, the combination with a base piece provided with a slot and with a socket, a block slidingly mounted on the base piece, and shoe-holding means supported by the block, of a movable stop carried by the base piece, and controlling means for causing the stop to engage the socket for locking the block to the base piece, or to stand in the slot for limiting relative movement of the block and base piece.

8. In a mechanism of the class described, a shoe support comprising a rotatable base piece provided with an arc-shaped guideway extending through the axis of rotation of the base piece, a block slidingly mounted therein, a carriage supported to move with said block and also arranged for rectilinear movement transversely of the movement of the block, and shoe-holding means supported by the carriage.

9. In mechanism for supporting a shoe in position for the bottom of a shoe to receive the action of a beating tool, the combination of a base, a shoe holder mounted on the base to rock freely longitudinally about an axis extending transversely of the shoe and also to rock transversely about an axis extending longitudinally of the shoe, an adjustable stop on said base to be engaged by the holder for limiting said free rocking movement longitudinally and parts having coöperating faces shaped to cause the holder to be sustained at a predetermined inclination to the direction of the blows of the beating tool while the holder is rocked transversely into different positions.

10. In a mechanism of the class described, a shoe support comprising a base piece, a block mounted to slide therein, hangers pivotally sustained by the block, a carriage arranged to slide in said hangers transversely of the movement of the block, and shoe-holding means supported by the carriage.

11. A jack, comprising a base piece, a carriage, shoe-holding means supported by the carriage, and connections arranged between the carriage and the base piece and constructed to permit the carriage to tip in the direction of the width of the shoe about a center located substantially in the shoe bottom and to tip and to slide in the direction of the length of the shoe.

12. In a mechanism of the class described, a support for a shoe comprising a block supported for rotary movement and arranged to tip transversely of the shoe, hangers suspended from the block, and a carriage provided with shoe-holding devices and mounted to slide in the hangers longitudinally of the shoe.

13. A shoe support, comprising a spindle movably connected to sustaining means to permit lateral movement of the support, a guide for said spindle, yielding means tending normally to actuate the support toward one limit of its movement and a stop carried by the guide for engaging the spindle to hold it against movement by said yielding means.

14. In apparatus of the class described, a support for a shoe comprising a jack and a spindle and adjustable sustaining means connected with the lower end of the spindle comprising threads upon the lower end of said spindle having transverse notches therein, a threaded socket for said spindle and a spring-pressed detent in said socket adapted to engage the notches in said threads.

15. In an apparatus of the class described constructed for use with mechanism for operating upon a shoe, a support for the shoe independent of said mechanism and comprising a spindle, a guide for the spindle, means acting through the spindle for yieldingly actuating the shoe laterally into operative relation to the said mechanism, and means for locking the spindle laterally away from the machine.

16. In an apparatus of the class described constructed for use with mechanism for operating upon a shoe, a support for the shoe independent of said mechanism and comprising the spindle supported for lateral tipping movement from and toward the machine, the spring 18 arranged to press the spindle inwardly and the holder comprising the spring pressed latch bolt 19 to lock the spindle away from the machine.

17. In an apparatus of the class described constructed for use with mechanism for operating upon a shoe, a support for the shoe independent of said mechanism and comprising a spindle normally in substantial alinement with its point of support and said mechanism and shoe holding means mounted to slide in a right line relatively to the spindle lengthwise and also in an arc transversely of the shoe to present the different portions of the shoe in alinement with said spindle.

18. In an apparatus of the class described constructed for use with mechanism for op-

erating upon a shoe, a support for the shoe independent of said mechanism and comprising a spindle normally in substantial alinement with its point of support and said mechanism and mounted to tip toward and from the machine, and shoe holding means movable in a right line over the spindle lengthwise and in a curve transversely of the shoe, and also angularly, to present all portions of the shoe bottom in similar relation between said spindle and mechanism.

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

RONALD F. McFEELY.

Witnesses:
ARTHUR L. RUSSELL,
WELLS L. CHURCH.

Correction in Letters Patent No. 1,030,827.

It is hereby certified that in Letters Patent No. 1,030,827, granted June 25, 1912, upon the application of Ronald F. McFeely, of Beverly, Massachusetts, for an improvement in "Jacks for Shoe-Machines," an error appears in the printed specification requiring correction as follows: Page 4, line 112, for the word "forepost" read *forepart;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 8th day of October, A. D., 1912.

[SEAL.]

C. C. BILLINGS,

*Acting Commissioner of Patents.*