April 13, 1926. 1,580,184

J. H. VINTON

HEEL TURNING MACHINE

Original Filed March 27, 1920 3 Sheets-Sheet 1

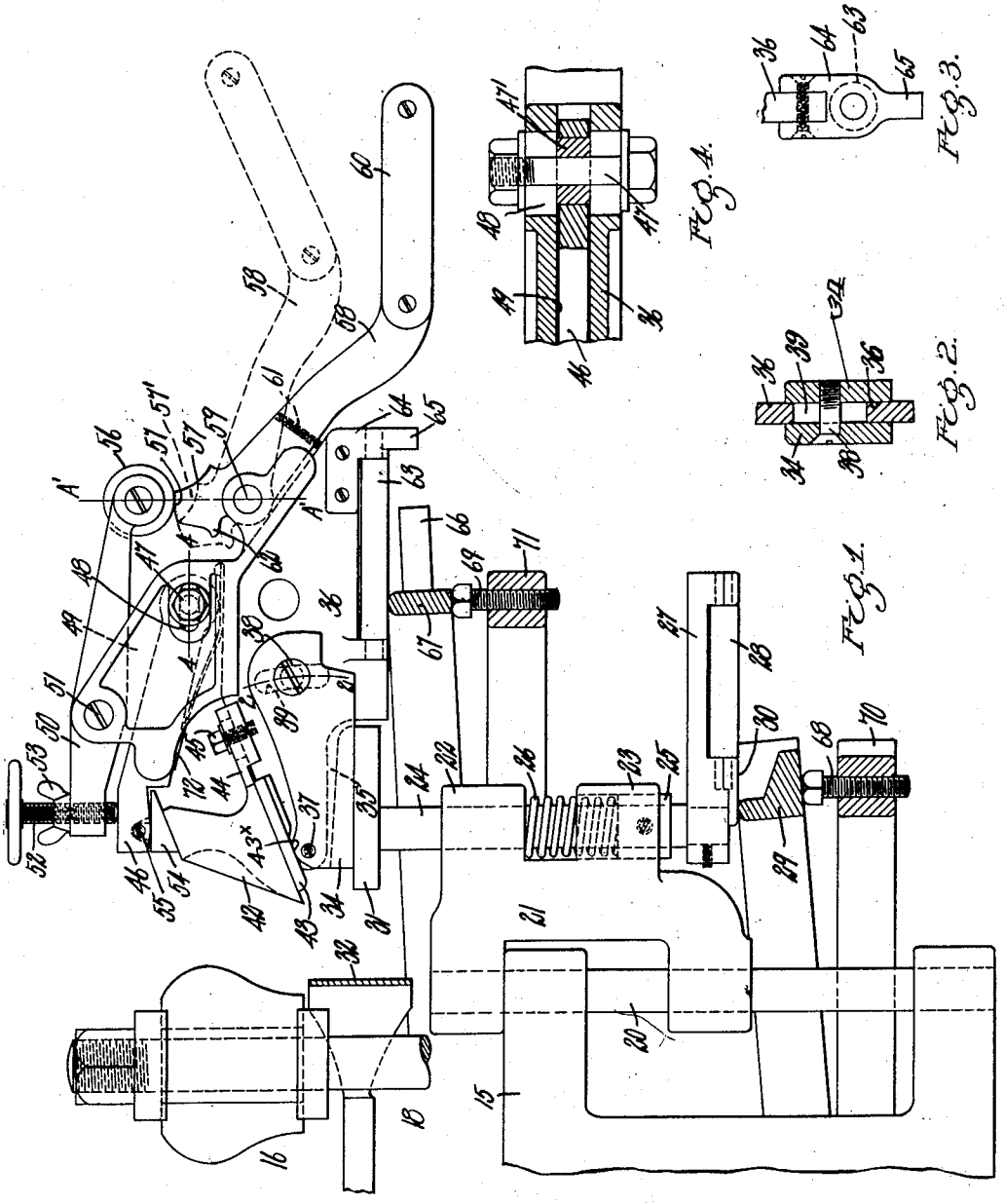


Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

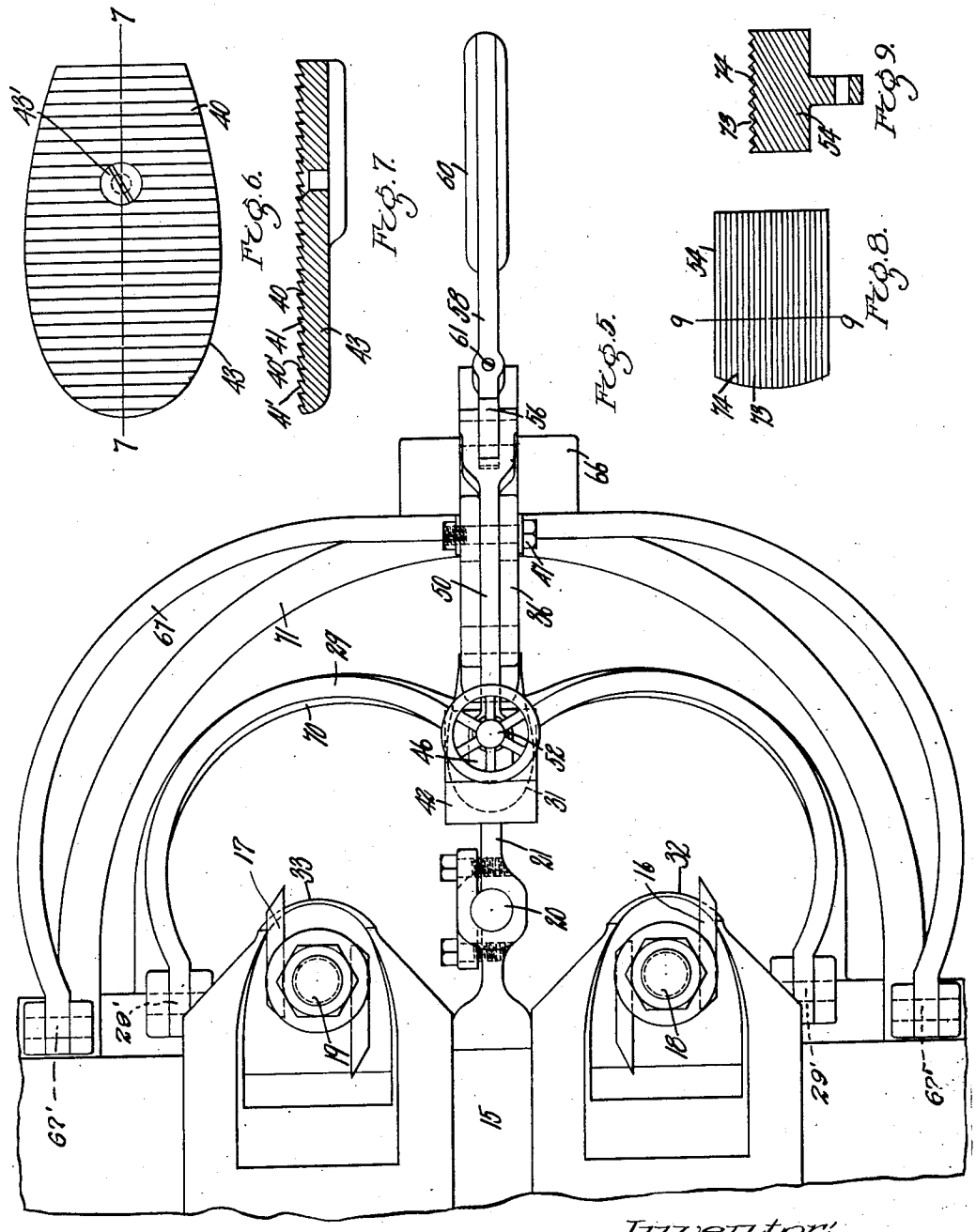
Inventor:
John H. Vinton,
by his attorney.
Charles D. Goodwin.

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Original Filed March 27, 1920 3 Sheets-Sheet 2



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HEEL TURNING MACHINE

Original Filed March 27, 1920 3 Sheets-Sheet 3

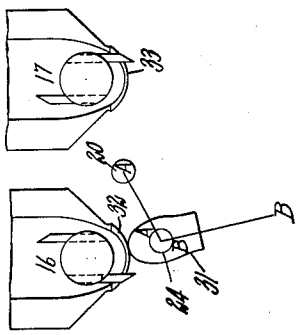


Fig. 12.

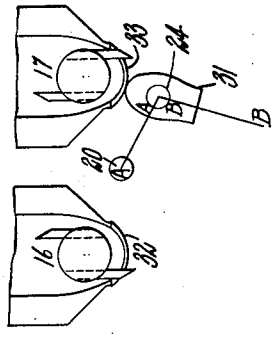


Fig. 15.

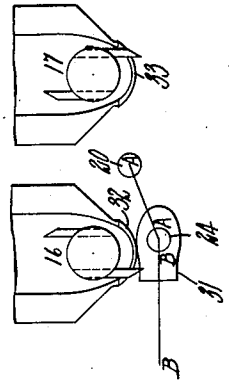


Fig. 11.

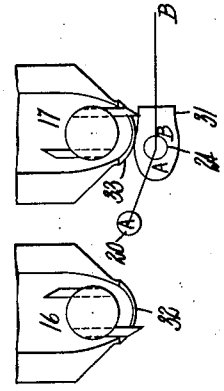


Fig. 14.

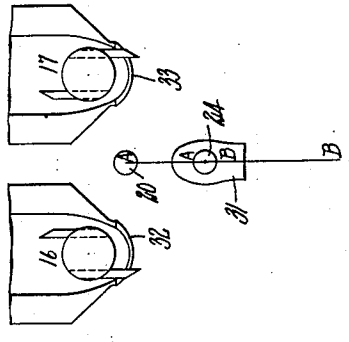


Fig. 10.

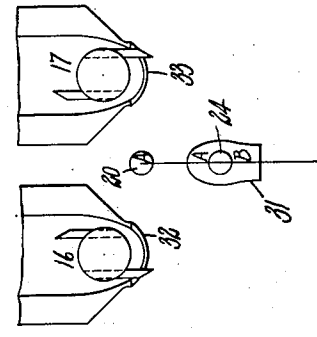


Fig. 13.

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Charles V. Gooding.

Patented Apr. 13, 1926. 1,580,184

UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF KEENE, NEW HAMPSHIRE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

HEEL-TURNING MACHINE.

Application filed March 27, 1920, Serial No. 369,437. Renewed February 7, 1924.

To all whom it may concern:

Be it known that I, JOHN H. VINTON, a citizen of the United States, residing at Keene, in the county of Cheshire and State of New Hampshire, have invented new and useful Improvements in Heel-Turning Machines, of which the following is a specification.

This invention relates to wood heel turning machines.

An important object of the invention is to provide a simple, economical, strong, effective and convenient jack especially adapted for wood heel turning machines, although in various aspects the invention is not limited to such use. With this object in view the invention provides an improved jack of the type disclosed in United States Letters Patent No. 1,397,844, granted Nov. 22, 1921, on my application. Accordingly, a principal feature of the invention consists in a machine having a support for a wood heel blank, a primary clamping member arranged to cooperate with the support to hold the blank, a secondary clamping member engaging the primary member to force it against the blank, and a cam lever for engaging the secondary member to force it against the primary member. I thus secure a strong and efficient clamping mechanism which is positive in operation and has a minimum number of parts.

This and other features of the invention, comprising certain combinations and arrangements of parts, will be understood from the following description of a preferred embodiment thereof selected for purposes of illustration and shown in the accompanying drawings in which,—

Figure 1 is a side elevation partly in section of my improved blank holder showing the same positioned upon a portion of a heel turning machine.

Fig. 2 is a detail sectional elevation taken on the line 2—2, Figure 1.

Fig. 3 is a detail end elevation of the bearing for one of the cam rolls of the blank holder.

Fig. 4 is a detail plan section taken on the line 4—4, Figure 1.

Fig. 5 is a plan view of my improved blank holder showing the same in connection with a portion of a heel turning machine.

Fig. 6 is a plan view of the blank support.

Fig. 7 is a detail section taken on line 7—7, Fig. 6.

Fig. 8 is an underneath plan of the clamping jaw.

Fig. 9 is a detail section taken on line 9—9, Fig. 8.

Figs. 10 and 15 inclusive are diagrammatic plan views illustrating the different positions which are assumed by the blank holder and its former relatively to the rotary cutters.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 15 is the frame of the heel turning machine, 16 and 17 are the cutters which are fast to vertical rotary shafts 18 and 19 respectively, said shafts being rotatably mounted in bearings on the frame of the machine. 20 is a vertical shaft upon which is mounted an arm 21 to rotate with respect to the frame 15. The arm 21 is provided with bearings 22 and 23 in which is slidably and rotatably mounted a shaft 24. The shaft 24 has a collar 25 fastened thereto and between this collar and the lower end of the bearing 22 said shaft 24 is encircled by a spring 26, a tendency of said spring being to hold the shaft 24 downwardly. To the lower end of the shaft 24 is fastened an arm 27 and journaled to said arm is a long roll 28 which is adapted, when the jack is being swung to cut a heel as will be described, to engage a cam track 29 which is pivotally mounted at 29′ on the frame of the machine. When the machine is not actually cutting a heel, the arm 21 is pulled out to its central position as shown in Fig. 5 when the said cam track will engage a flat surface 30 upon the underside of said arm 27.

The upper end of the shaft 24 has a former 31 fastened thereto which in the operation of the machine is adapted to engage guides 32 and 33, as hereinafter described.

A frame-holder 34 is also fastened to the upper end of the shaft 24 and is slotted at 35 to receive a portion of a frame 36 which projects into said slot and is pivoted to the frame-holder 34 at 37. A screw 38 projects through the frame-holder 34 and through the slot 35 and also projects through a slot 39 provided in the frame 36 and has screw-threaded engagement with the frame-holder 34 on one side of said slot 35 so that by tightening up the screw 38 any wear which may take place between the frame 36 and the opposite sides of the slot 35 in the holder 34 will be taken up so that the frame 36 may always have a suitably snug fit in the slot 35.

A wooden heel blank 42 rests upon a support 43 which is fastened to and forms in effect a portion of the frame 36. The support 43 is provided with grooves 40 which extend transversely thereof forming teeth 41 and these teeth have their rear faces 40′ substantially at right angles to the blank contacting surface of said support and the front faces 41′ of said teeth are inclined to said blank contacting surface. The underside of the support 43 rests upon a circular portion 43× on the frame-holder 34 centered upon the pivot 37 and is fastened to the frame 36 by a screw 43′. A gauge 44 is adjustably fastened by means of a screw 45 to the frame 36. The blank 42 is clamped against the support 43 by a primary clamping member 46, said primary clamping member being pivotally mounted upon a stud 47 which is surrounded by a sleeve 47′ and, in order to accommodate different sorts of heel blanks, is adjustable transversely of the axial line of the shaft 24 in slots 48 provided in the frame 36, said primary clamping member extending into a vertical slot 49 provided in the frame 36. A lever 50 constituting a secondary clamping member is pivoted at 51 to the frame 36 and also projects into the slot 49 in said frame 36. A screw 52 has screw-threaded engagement with the forward end of the lever 50 and is locked in position in said lever by means of a lock nut 53. The lower end of said screw abuts against the upper edge of the primary clamping lever 46 and said primary clamping lever has a jaw 54 pivoted thereto at 55, the lower face of said jaw being adapted to rest against the upper face of the blank 42 and to automatically adjust itself to different inclinations of the upper ends of different blanks, as hereinafter more fully described. The jaw 54 has V-shaped grooves 73 extending longitudinally thereof, thus forming V-shaped teeth 74 in the surface of said jaw which are adapted to engage the blank 42. A roll 56 is journalled to rotate upon the rear end of the lever 50 and its periphery is adapted to be engaged by the cam shaped end 57 of a lever 58 which is pivoted at 59 to the frame 36 and extends rearwardly from said frame terminating in a handle 60 by means of which it may be rocked. The distance to which said lever 58 may be rocked is limited in one direction by a screw 61 and in the opposite direction by a stop 62, said screw 61 being adapted to engage the frame 36 when the lever 58 is depressed and the primary and secondary clamping members are operated to clamp the blank 42 against the support 43. At this time the line of contact between the periphery of the roll 56 and the cam 57 will lie substantially in a plane A′ A′ containing the axial line of said roll 56 and of the pivot 59.

The frame 36 is provided with a roll 63 which is journalled at its rear end upon a bearing 64 detachably fastened to the frame 36 and extended downwardly below the roll 63 to form a stop 65 which is adapted, when the arm 21 is in the Fig. 5 position, to engage a stop or projection 66 fastened to a cam track 67 and thus prevent the jack from accidentally falling on to one of the cutters when the machine is idle. The cam track 67 is pivotally mounted at 67′ upon the frame of the machine and is engaged by the roll 63 when the machine is actually cutting on a blank. Both the track 29 and the track 67 may be pivotally adjusted upwardly and downwardly about the hinge bearings 29′ and 67′ respectively, by means of adjusting screws 68 and 69 respectively, which adjusting screws have screw-threaded engagement with brackets 70 and 71 fast to the frame of the machine.

It is very essential, as hereinbefore set forth, that the wooden blank which is shaped by the cutters to make a heel, should be at all times held firmly in position in every direction. If it shifts its position while the cutters are operating thereon $\frac{1}{32}''$ longitudinally or transversely thereof, the heel will be condemned and become waste material and the same is true if the blank tips while being formed into a heel. By making the teeth in the upper contacting surface of the support 43 extend transversely of said support and the teeth in the underneath contacting surface of the jaw 54 extend longitudinally thereof and by making the teeth of the support of the shape described and shown in Figure 7, the two oppositely disposed and oppositely arranged contacting surfaces of the support and the clamping jaw absolutely prevent any shifting of the wooden blank longitudinally or laterally thereof while the jaw 54 being pivoted conforms to the surface of the blank with which it contacts in such a manner as to clamp the blank against its support 43 so that it can not tip during the operation of the cutters thereon.

It is also very essential that different heights of heels may be clamped in the same holder and to do this different jaws 54 may

be provided, while the tipping of the jaw 54 upon its pivot 55 facilitates its fitting the upper surface of the heel blank.

It will be seen that the support 43 being fastened to the frame 36 by a screw 43′ different supports may be attached to said frame of different contours, lengths and widths and also of different thicknesses as may be desired to accommodate different shapes, sizes or heights of blanks and heels which are formed from said blanks.

It will also be seen that as the underside of the support 43 rests on the upper edge of the frame-holder 34, any downward thrust brought to bear upon said support 43 will be taken directly by the frame-holder 34.

The general operation of the mechanism hereinbefore specifically described is as follows: A wooden blank is placed upon the support 43 with the front edge of the blank corresponding to the breast of the finished heel abutting against the gauge 44. At this time the handle 60 of the lever 58 will be in its raised or dotted position, Figure 1, and the cam portion 57′ of the lever will then be in engagement with the roll 56, the clamping members 46 and 50 being held upwardly at their forward ends by a spring 72 which bears against the under edge of the primary clamping member 46 and tends to lift said primary clamping member at its forward end and also the forward end of the lever 50, the action of the spring 72 thus tending to hold the roll 56 in engagement with the cam end of the lever 58. The handle 60 is now pushed downwardly from the dotted position to the full position illustrated in Figure 1, thus causing the cam shaped end 57 of the lever 58 to push the roll 56 upwardly and tip the lever 50 upon its pivot 51 thus through the screw 52 causing the primary clamping member 46 to force the jaw 54 downwardly on the blank 42 and clamp it against the support 43. At this time the longitudinal median plane B—B, Figure 10, of the holder coincides with the longitudinal median plane A—A of the arm 21.

The operator then, by means of the handle 60, moves the holder and the parts supported thereon until the center lines A—A and B—B of the arm and holder respectively assume the relative positions illustrated in Figure 11 with the former 31 in engagement with the guide 32 and with one side of the blank in engagement with the cutter 16, the operator then turns the holder and its supporting arm counter-clockwise the blank being held in engagement with the cutter 16 until the parts arrive in the position illustrated in Figure 12. During these motions the former 31 is held against the guide 32 and the frame 36 is raised and lowered by means of the shaft 24, arm 27 and track 29 and is tipped upon its pivot 37 by means of the roll 63 and cam shaped track 67 in order to produce the proper shaped contour on one side of the heel from the breast to the middle of the back, all in a manner well-known to those skilled in this art. The operator having finished one side of the heel, now moves the parts to the position illustrated in Figure 13, which is the same as the position illustrated in Figure 10 and then moves the parts until their center lines A—A and B—B assume the position illustrated in Figure 14 and finally to the position illustrated in Figure 15 thus completing the forming of the heel. The parts are then moved back to the position illustrated in Figure 10 and the lever 58 is thrown into the position illustrated in dotted lines Figure 1 thus releasing the formed heel block and allowing it to be removed by the operator or to drop from the holder.

I claim:

1. A blank holder for heel turning machines having, in combination, a support for a blank comprising a frame, a frame-holder upon which said frame is pivoted, a vertical shaft constituting a pivot for said frame-holder, a stud adjustably mounted in said frame, a primary clamping member pivoted on said stud, a lever constituting a secondary clamping member pivoted on said frame and adapted to cooperate with said primary clamping member to cause it to engage said blank and clamp it to said support and means to lock said secondary clamping member in position with said primary clamping member forcing said blank against said support.

2. A blank holder for heel turning machines having, in combination, a support for a blank comprising a frame, a frame holder upon which said frame is pivoted, a primary clamping member pivoted to said frame, a lever constituting a secondary clamping member pivoted to said frame, the forward end of said lever being adapted to engage said primary clamping member to force it against said blank, and a cam lever pivoted to said frame and adapted to come into engagement with the rear end of said lever whereby said primary and secondary clamping members may be locked in position with said blank clamped against said support.

3. A blank holder for heel turning machines having, in combination, a support for a blank comprising a frame, a frame holder upon which said frame is pivoted, a primary clamping member pivoted to said frame, a lever constituting a secondary clamping member pivoted to said frame, the forward end of said lever being adapted to engage said primary clamping member to force it against said blank, a roll rotatably mounted upon the rear end of said lever and a cam lever pivoted to said frame and adapted to engage said roll, the line of contact to said cam lever and roll lying substantially in a

plane extending through the axial lines of said roll and of the pivot of said cam lever, when said primary clamping member is positioned to force said blank against said support.

4. A blank holder for heel turning machines having, in combination, a support for a blank comprising a frame provided with a slot, a frame-holder upon which said frame is pivoted, a primary clamping member located in said slot pivoted to said frame and adapted to engage said blank, a lever constituting a secondary clamping member also projecting into said slot and adapted to engage said primary clamping member to force it against said blank, and means to lock said clamping members in position with said blank clamped against said support.

5. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame holder upon which said frame is pivoted, a shaft to which said frame holder is fastened, a primary clamping member pivoted to said frame and adapted to engage said blank, a lever constituting a secondary clamping member pivoted to said frame and adapted to engage said primary clamping member, means to lock said primary and secondary clamping members in position with said blank clamped against said support, a roll journaled upon said frame and extending transversely of said shaft, and a cam shaped track upon which said roll is adapted to travel whereby a rocking motion may be imparted to said frame.

6. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame-holder upon which said frame is pivoted, a vertical rock-shaft to which said frame-holder is fastened, a primary clamping member pivoted to said frame and adapted to engage said blank, a lever constituting a secondary clamping member pivoted to said frame and adapted to engage said primary clamping member, means to lock said primary and secondary clamping members in position with said blank clamped against said support, a roll journaled upon said frame and extending transversely of said rock-shaft, a cam shaped track upon which said roll is adapted to travel whereby a rocking motion may be imparted to said frame, an arm fastened to said rock-shaft, a roll journaled upon said arm and extending transversely of said rock-shaft, and a second cam shaped track adapted to be engaged by said last mentioned roll whereby a vertical movement may be imparted to said blank holder.

7. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame-holder upon which said frame is pivoted, a primary clamping member pivoted to said frame and adapted to engage said blank, a lever constituting a secondary clamping member pivoted to said frame and adapted to engage said primary clamping member, means to lock said primary and secondary clamping members in position with said blank clamped against said support, a roll journaled upon said frame, a bearing for the outer end of said roll detachably fastened to said frame, and a cam shaped track upon which said roll is adapted to travel.

8. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame-holder upon which said frame is pivoted, a vertical rock-shaft to which said frame-holder is fastened, a primary clamping member pivoted to said frame and adapted to engage said blank, a lever constituting a secondary clamping member pivoted to said frame and adapted to engage said primary clamping member, means to lock said primary and secondary clamping members in position with said blank clamped against said support, a roll journaled upon said frame and extending transversely of said rock-shaft, a bearing for the outer end of said roll detachably fastened to said frame and projecting downwardly below said roll to form a stop, a track upon which said roll is adapted to travel and a stationary member adapted to be engaged by said stop to position said holder.

9. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame-holder upon which said frame rests vertically and to which it is pivoted, a vertical shaft fast to said frame-holder, a form fast to said frame-holder, a guide cooperating with the form, an arm upon which said shaft is journaled, a second vertical shaft upon which the other end of said arm is mounted, and around the axis of which the arm rotates, a primary clamping member pivoted to said frame, a lever constituting a secondary clamping member pivoted to said frame and adapted to engage said primary clamping member to cause the same to clamp said blank against said support, means to lock said clamping members in position with said blank clamped against said support, means to rock said frame upon said frame-holder, and means to raise and lower said shaft to which said frame-holder is fastened.

10. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame-holder having an arcuate surface upon which said frame rests and about the center of which it is pivoted, a vertical shaft fast to said frame-holder, a form fast to said frame-holder, a guide cooperating with the form, an arm upon which said shaft is journaled, a second vertical shaft upon which the other end of said arm is mounted for pivotal movement about the

axis of said second shaft, a primary clamping member pivoted to said frame, a lever constituting a secondary clamping member pivoted to said frame and adapted to engage said primary clamping member to cause the same to clamp said blank against said support, and means to lock said clamping members in position with said blank clamped against said support.

11. A heel turning machine having, in combination, a support for a blank comprising a frame, a frame-holder provided with a slot, said frame being pivoted to said frame-holder and projecting through said slot, means mounted upon said frame adapted to clamp a blank to said support, means to rock said frame on said frame-holder, and a stud extending transversely of said frame and of said frame-holder and adapted to take up the wear of said frame in said slot.

12. A blank holder for wood heel turning machines having, in combination, a support for the blank, a primary clamping member arranged to cooperate with the support to hold a blank, a secondary clamping member arranged to adjustably engage the primary clamping member to force it against the blank, and a cam lever arranged to engage the secondary clamping member to force it against the primary clamping member.

In testimony whereof I have hereunto set my hand.

JOHN H. VINTON.