July 31, 1928. 1,678,792

W. J. SHAW

MACHINE FOR TURNING WOOD HEELS

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Fig. 1

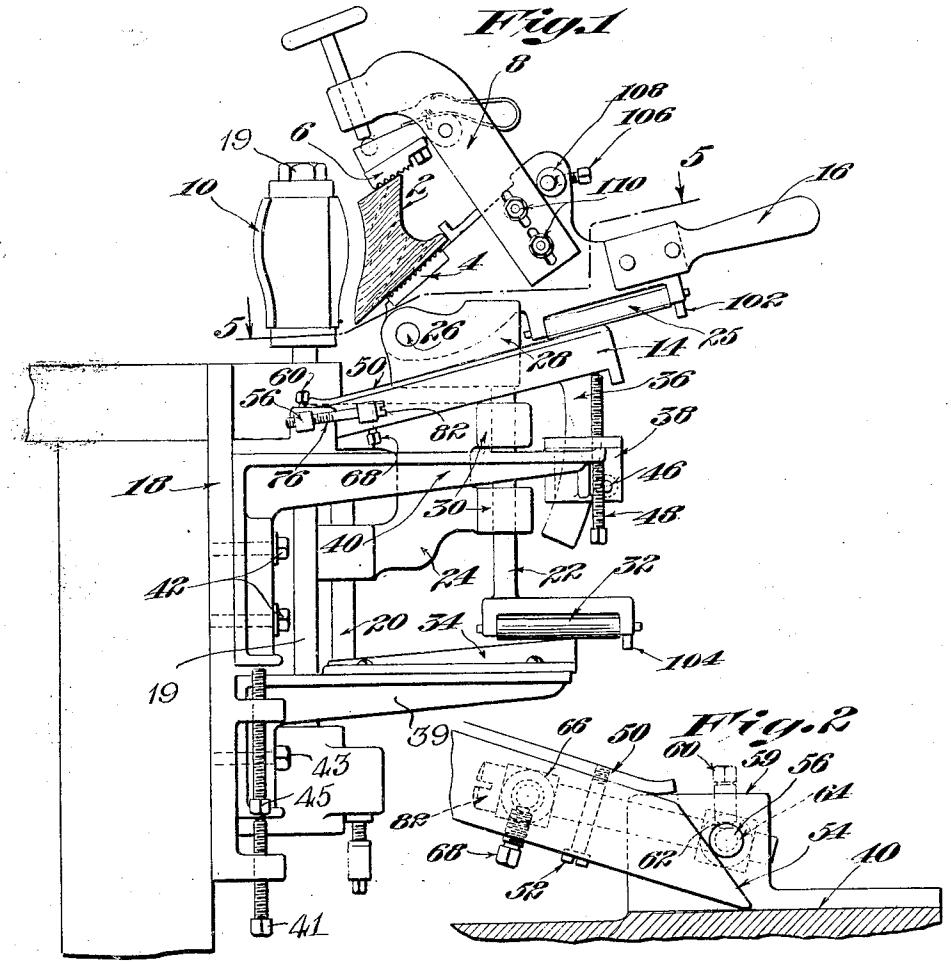


Fig. 2

Fig. 3

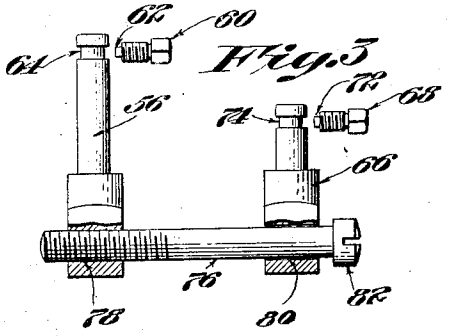
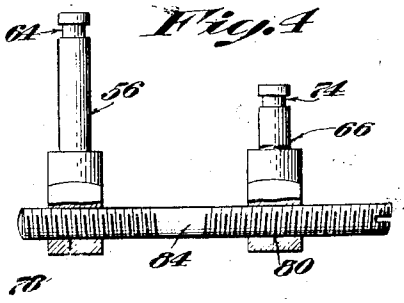


Fig. 4



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Fig. 5

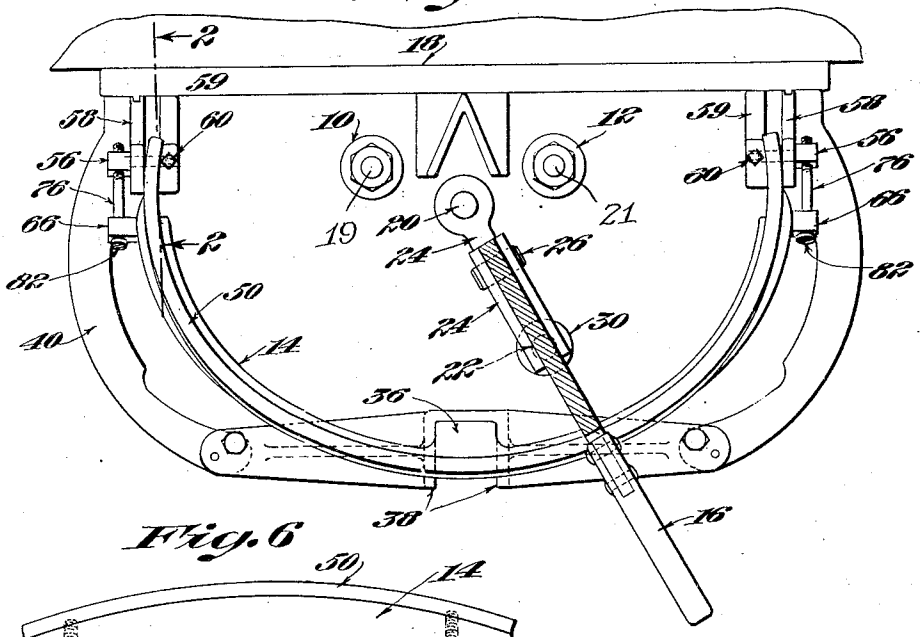


Fig. 6

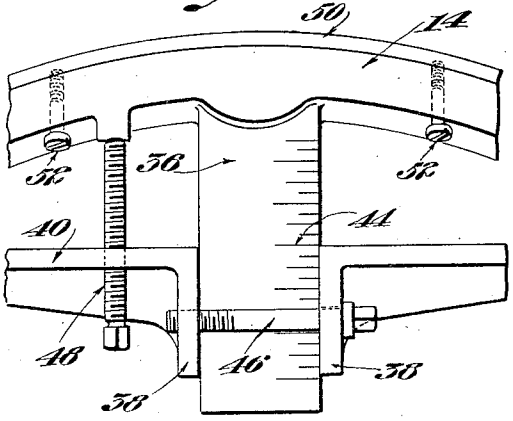


Fig. 8

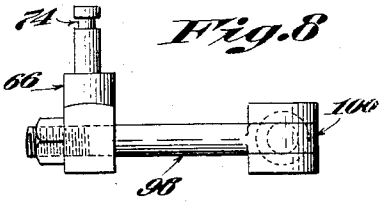


Fig. 9

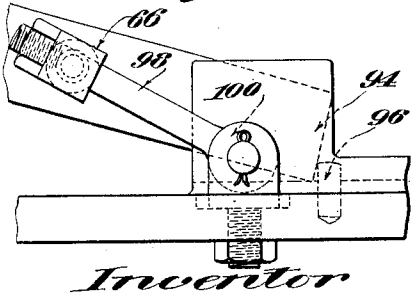
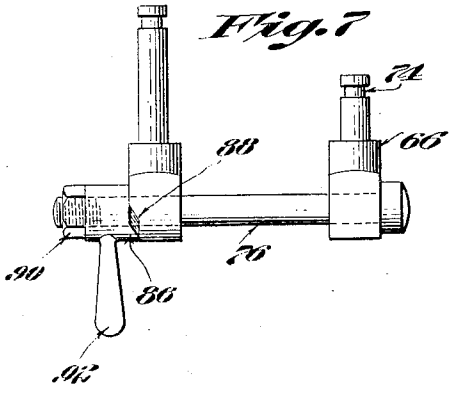


Fig. 7



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UNITED STATES PATENT OFFICE.

WESLEY J. SHAW, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR TURNING WOOD HEELS.

Application filed March 28, 1923. Serial No. 628,200.

The present invention, though having features of general application, is more particularly related to machines for turning wood heels.

Such machines comprise a wood-heel-block jack that is adapted to swing along a curved track about a formed rotary cutter to present different portions of the heel blank to the cutter. The shape of the cutter determines to a large extent the shape of the heel; but there are also other shape-determining factors, such as the inclination of the curved track, which is therefore made adjustable. To prevent unnecessary vibrations,—which would destroy the smoothness of the surface of the resulting heel,—the curved track should be mounted as rigidly as possible upon the framework of the machine. The necessity for adjusting the inclination of the track renders it difficult to attain this desired degree of rigidity.

A chief object of the present invention is to improve upon machines of the above-described character, to the end that a ready adjustment of the track may be provided, and the track clamped as rigidly as before the adjustment. Other objects will appear hereinafter.

In the drawings, Fig. 1 is a side elevation, upon a reduced scale, of a wood-heel-turning machine constructed according to a preferred embodiment of the present invention; Fig. 2 is an enlarged section taken upon the line 2—2 of Fig. 5, looking in the direction of the arrows; Fig. 3 is a view of a detail, shown upon a larger scale than Fig. 1; Fig. 4 is a view similar to Fig. 3 of a modification; Fig. 5 is a plan view corresponding to Fig. 1, shown partly in section upon the line 5—5 of Fig. 1, looking in the direction of the arrows; Fig. 6 is a fragmentary front elevation, upon a larger scale than Figs. 1 and 5; Figs. 7 and 8 are views similar to Fig. 3 of further modifications; and Fig. 9 is an elevation corresponding to Fig. 8.

The machine frame 18 carries in suitable bearings two vertical shafts 19, 21 at the upper ends of which are mounted cutters 10 and 12, respectively. The frame 18 also comprises two brackets 39 and 40 which are vertically adjustable by means of screws 41 and 43; 45 and 42 respectively. The lower bracket 39 carries a so-called lower cam track 34, and the upper bracket 40 carries an upper cam track 14, the uses of which will be described.

Supported on the frame 18 between the shafts 19, 21 is a third shaft 20, on which swings a bracket 24, having a vertical shaft 22 rotatably and slidably mounted in its outer end. The lower end of this shaft has a roller 32 which runs around the track 34 as the shaft 22 turns, thereby controlling the height of the shaft and the elements carried by it.

At the upper end of the shaft 22 is an arm 28, to which is horizontally pivoted at 26 a wood heel block holding jack 8, having jaws 4 and 6 for holding a wood heel blank 2, a handle 16 by means of which the jack may be swung in a vertical plane about the pivot 26 toward and from the cutter in operation at the time, as will appear, and a roller 25 which rolls around the track 14 regulating the tilt of the jack around the pivot 26 as it is swung horizontally by the handle 16 against the cutter. In order to enable the same upper cam track 14 to be used for different styles of heels, the track 14 is pivotally adjustable about points near its rear ends.

The mechanism so far described is well known, and the illustrated machine is operated in a well-known manner, the wood blank being mounted in the jack and the bracket 24 being swung over to one of the cutters with the handle 16 extending laterally to the side of the machine, and then swung toward the operator to shape the heel from the front to the center of the back. This operation is then repeated to shape the other side of the heel by presenting it to the other cutter.

In the illustrated machine, the upper track 14 is mounted on the bracket 40 so as to be readily removable, and at the same time it is so secured to the bracket 40 as to insure against liability of its loosening or vibrating. To this end, and as shown in Fig. 6 for example, the cam track 14 is provided with a centrally positioned, integral, depending curved leg 36 that is adapted to be vertically adjusted between stiff spring arms 38 of the bracket 40. If a fine adjustment of the track is desired, as it usually is when it is desired to reproduce a previously turned heel shape, this may be had by a careful setting of a scale 44 that is provided along one

edge of the leg 36. As the leg 36 is curved, it is possible to adjust vertically the central portion of the track, to which the leg is secured, while permitting the ends of the track to pivot on the bracket 40, as will be explained. The inclination of the track is thus varied, as desired. The leg 36 is clamped in vertically adjusted position by means of a screw or bolt 46 that is employed to spring the spring arms 38 against the leg. It is preferred to effect the adjustment and to support the weight of the track and of the parts carried thereby upon the upper end of a vertically adjustable set screw 48. In order to minimize wear of the track, the roller 25 contacts with a steel strip 50 which is removably secured to the track 14 by screws or the like 52.

To provide a positively acting pivotal mounting for the rear ends of the track 14, in the preferred construction, shown in Figs. 1, 2, 3 and 5, the ends 54 of the track 14 are beveled and fitted between upstanding ears 58, 59 mounted on the bracket 40. The beveled ends of the track rest on the bracket under lugs in the form of pins 56 mounted in the ears and are tightly wedged horizontally into the spaces between the pins and the top of the bracket. The preferred construction for effecting this result is shown in Figs. 1, 2, 3 and 5. Modifications are shown in Figs. 4 and 7. In each of these constructions, the pin 56 extends through the outer upstanding ear 58 and into the inner upstanding ear 59, as shown more particularly in Fig. 5, and is secured in place by a set screw 60 tapped into one of the ears, with its end 62 engaging in an annular recess 64 provided upon the pin 56. The pin 56 is thus held against translation, but is permitted to turn. A similar pin 66 is similarly mounted to turn in the adjacent end of the track 14, and is held against translation by a set screw 68 the end 72 of which enters a similar annular recess 74 in the pin 66. The end of the track is rigidly secured in place against the bracket 40 by drawing these pins 56 and 66 together. This drawing together may be effected by means of a bolt or similar member, as the bolt 76, mounted in openings 78 and 80, respectively, of the pins 56 and 66. As the pins 56 and 66 turn freely, they readily adjust themselves to forces exerted at any angle in any position of pivotal adjustment of the track 14 about its rear ends.

According to the preferred embodiment of the present invention, the opening 80 is smooth, and the opening 78 is tapped, as is shown more particularly in Fig. 3. The bolt 76 is threaded in the opening 78. All that is necessary, therefore, to clamp the end of the track 14 against the bracket 40, and to hold it in clamped position, is to apply a screw driver to the slotted head 82 of the bolt 76. The track 14 is in this manner held very rigidly against the bracket 40, yet is readily releasable for adjustment purposes, and may be as readily removed and replaced, should occasion require.

According to the modification shown in Fig. 4, the bolt 84 is provided with left- and right-hand threads engaging corresponding threads in the openings 78 and 80 of the pins 56 and 66. Quicker action is thus obtained.

A still quicker action may be had by means of a cam collar 86 adapted to engage a corresponding cam 88 upon the pin 56, as shown in Fig. 7. In this case, the openings 78 and 80 are both unthreaded, and the bolt 76 lies loosely therein. The cam collar 86 is held upon the bolt 76 by a nut 90, or in any other desired manner, and is provided with a handle 92. Rotating the handle 92 in one or the other direction through a fraction of a revolution will result in wedging the beveled end 54 of the track 14 under the pin 56, or in unwedging the same.

It is not essential to the carrying out of the present invention that the ends 54 of the track 14 be beveled, and wedged under the pins 56. A track with unbeveled ends is indicated in Fig. 9, and the pins 56 are omitted from this modification. The ends 94 of the track engage against lugs 96 instead. In order to prevent vibration in this modified machine, however, the force exerted to maintain the track against the bracket 40 must be at a more abrupt angle with the upper surface of the bracket than in the constructions of the other figures. The member 98 corresponding to the bolts 76 and 84 of the other views is therefore shown inclined to the horizontal at a sharper angle. The end 100 of the member 98 is pivoted on the bracket 40.

A depending pin 102 in rear of the roller 25, and a depending pin 104 in rear of the roller 32, are adapted to engage the track 14, and the track 34, as the case may be, limiting the movement of the jack 8, when drawn back for reloading and preventing its falling into the cutters.

To adjust the jaw 6 to fit different thicknesses of heel blanks, the upper bolt 110 is loosely mounted in one of the members 4, 8, to permit the member 8 to swing about the lower bolt 110. The member 8 is held in adjusted position by tightening the bolts 110 and by an eccentric 108 which in turn is held in adjusted position by a set screw 106. The position of the eccentric 108 determines a limiting position of the jaw 6, and the bolts 110 are tightened to secure the jaw in such limiting position.

The invention is obviously not restricted to the exact embodiments that are herein illustrated and described. Modifications will occur to persons skilled in the art, and such

are considered to be within the spirit and scope of the present invention. It is intended to cover in the present application all the patentable novelty that the invention possesses, and it is desired that such construction be placed upon the appended claims as will effect this purpose.

What is claimed is:

1. A machine of the class described having, in combination, a frame, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, removably mounted upon the frame, means whereby the inclination of the track relatively to the frame may be adjusted, and means for releasably securing the track to the frame in adjusted position.

2. A machine of the class described, having, in combination, a frame having two lugs spaced therefrom, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamp thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, removably mounted upon the frame, means whereby the inclination of the track relatively to the frame may be adjusted, the ends of the track being adapted to be wedged into position between the frame and the lugs, and means for releasably securing the ends of the track in wedged position.

3. A machine of the class described having, in combination, a frame having two pair of upstanding lugs, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, removably mounted upon the frame, means whereby the inclination of the track upon the frame may be adjusted, and means for releasably securing the track to the frame in adjusted position, comprising means for securing the ends of the track each between a pair of the lugs.

4. A machine of the class described comprising in combination, a frame having two pairs of upstanding lugs, pins one of which extends through each pair of lugs, a cutter, a jack adapted to swing vertically and horizontally with relation to the cutter to present different portions of an article carried by the jack to the cutter, a cam-track for controlling the vertical swinging movement of the jack along which cam-track the horizontal swinging movement of the jack takes place, said cam-track being removably mounted upon the frame and being adjustable to vary the inclination of the track relatively to the frame, and the ends of the track being adapted and arranged to be wedged between the frame, the pins and the lugs, an adjustable rod connecting each pin to the track, and means for adjusting the rods to secure the ends of the track releasably in wedged position.

5. A machine as defined in claim 4 in which the rods are screw-threaded into their corresponding pins, whereby they may be adjusted by screwing the rods into the pins.

6. A machine as defined in claim 4 in which the ends of the rods that are connected to the track are pivoted thereto.

7. A machine as defined in claim 4 in which the rods are provided with left- and right-hand threads, engaging the said pins and the said corresponding connections to the track respectively.

8. A machine of the class described having, in combination, a frame, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which the jack is adapted to swing, removably mounted upon the frame, means whereby the inclination of the track relatively to the frame may be adjusted, means for releasably securing the track to the frame in adjusted position comprising two adjustable rods each pivoted at its ends to the frame and to an end of the track, and means for adjusting the effective lengths of the rods.

9. A machine of the class described having, in combination, a frame, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, removable and pivotally mounted on the frame, and means for securing the track to the frame in pivotally adjusted position comprising a pivoted pin in the frame, a pivoted pin in the track, and a rod engaging the pins.

10. A machine of the class described having, in combination, a frame, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, removably and pivotally mounted on the frame, and means for securing the track to the frame in pivotally adjusted position comprising a pivoted pin in the frame, a pivoted pin in the track, both pins being provided with registering holes, and a tension rod passing through the holes.

11. A machine of the class described having, in combination, a frame, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing removably and pivotally mounted on the frame, and means for securing the track to the frame in pivotally adjusted position comprising a pivoted pin in the frame, a horizontal surface located on the frame adjacent to the pin, a second pin pivoted in the track, and means for drawing the pins together to force the end of the track between the first-named pin and the surface on the frame.

12. A machine of the class described having, in combination, a frame, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portions of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, removably and pivotally mounted on the frame, and means for securing the track to the frame in pivotally adjusted position comprising a pivoted pin in the frame, a horizontal surface located on the frame adjacent the pin, a second pin pivoted to the track, the pins being provided with registering holes, and a threaded rod for drawing the pins together to force the end of the track between the first-named pin and the surface on the frame.

13. A machine of the class described having, in combination, a rotating cutter, a jack arranged for rotary movement about vertical and horizontal axes simultaneously to carry a wood heel blank past the cutter, a cam track for tilting the jack about the horizontal axis, and a frame on which the said elements are all mounted, the connecting means between the frame and the track comprising two opposed surfaces on one of said last-named members and a surface on the other arranged to lie between the two first-named surfaces in varying angular relations, and means for wedging the third-named surface tightly between the two first-named surfaces.

14. A machine of the class described having, in combination, a frame having two lugs spaced thereon, a cutter, a jack adapted to swing vertically and horizontally about the cutter to present different portion of an article clamped thereby to the cutter, a cam track for controlling the vertical swinging movement of the jack, along which cam track the jack is adapted to swing, mounted upon the frame, means whereby the inclination of the track relatively to the frame may be adjusted, the ends of the track being adapted to be wedged into position between the frame and the lugs, and means for securing the ends of the track in wedged position.

In testimony whereof, I have hereunto subscribed my name this 19th day of March, 1923.

WESLEY J. SHAW.