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D. O. MARSHALL

WOOD HEEL TURNING MACHINE

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Fig. 1.

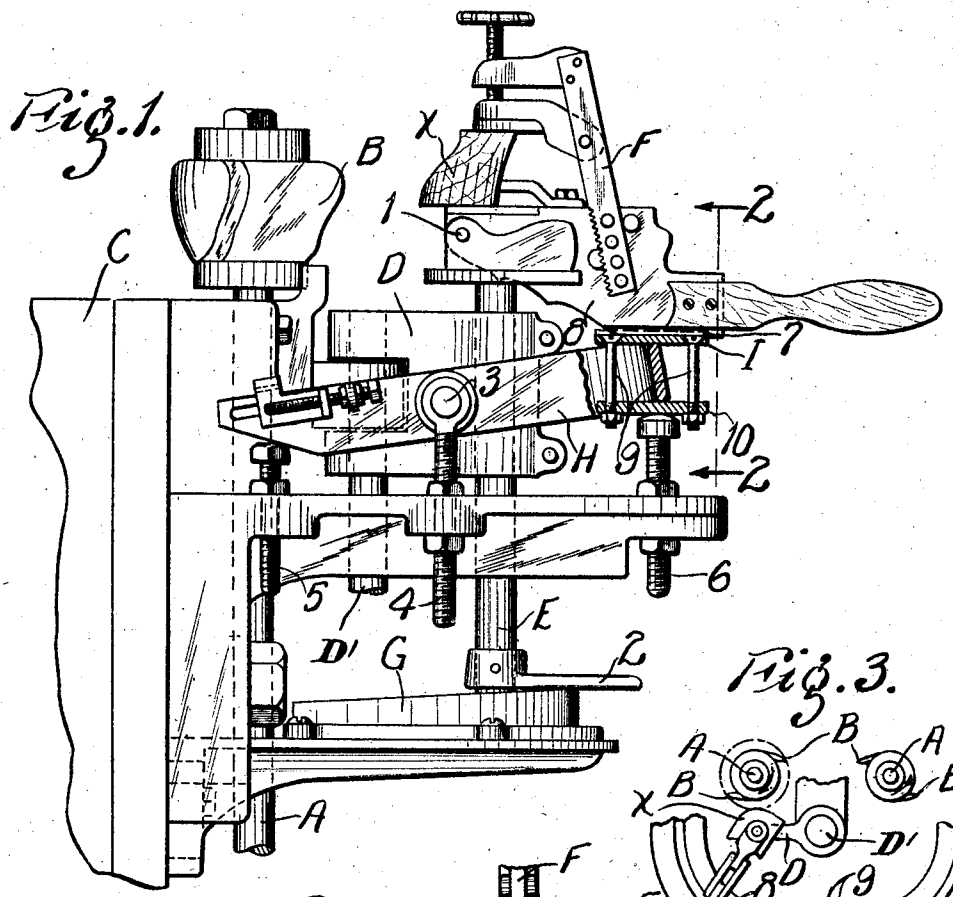
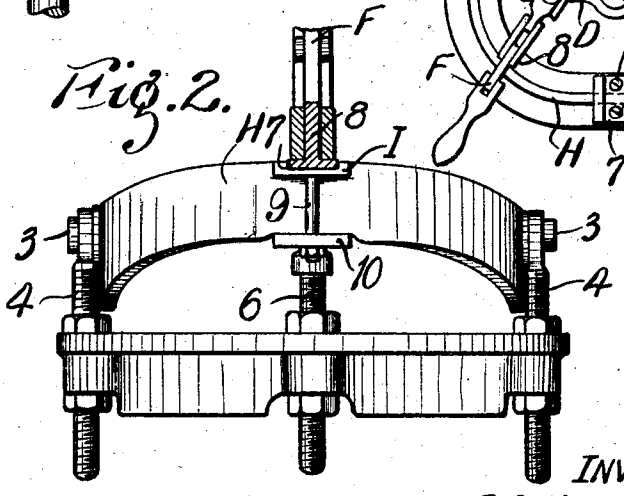


Fig. 3.

Fig. 2.



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WOOD-HEEL-TURNING MACHINE.

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This invention relates to wood heel turning machines of the type that comprise a rotatable cutter and a heel blank supporting means that is adapted to be moved towards and away from the cutter to bring the heel blank on said means into and out of operative relationship with the cutter.

The main object of the invention is to provide a heel blank turning machine of the general type referred to that is equipped with a device for holding the heel blank supporting means against accidental movement when said means is arranged in its loading and unloading position, constructed so as to not be rendered ineffective, simply by pressure exerted on said heel blank supporting means in a direction tending to move it towards the cutter of the machine, thereby eliminating the possibility of the operator's hand or fingers being injured by the cutter in the operation of applying or removing a heel blank, without, however, complicating the operation of the machine and requiring the operator to make an additional movement preparatory to moving the heel blank supporting means towards the cutter.

Another object is to provide a heel blank turning machine of the kind described in which the means that is used to hold the heel blank supporting means against accidental movement can be adjusted easily to compensate for variations in the position of another part of the machine that is capable of being adjusted to change the contour of the side faces and back of the heel produced in the machine. Other objects and desirable features of my invention will be hereinafter pointed out.

I have herein illustrated my invention embodied in a wood heel turning machine of the kind that comprises a pair of rotatable cutters arranged in parallel relation and spaced apart, and a heel blank jack mounted on a carrier that is adapted to be moved laterally in one direction to move the heel blank on the jack into operative relationship with one of the cutters so as to permit one-half of the blank to be trimmed off by oscillating the jack, and thereafter moved laterally in the opposite direction to bring the blank into operative relationship with the other cutter while the jack is being oscillated to cause the cutter to trim off the remaining half of the blank. During the trimming operation the heel blank jack, in addition to being oscillated horizontally relatively to the carrier, is moved bodily relatively to the carrier in a vertical direction, and it is also rocked vertically relatively to the carrier, the bodily vertical movement and vertical rocking movement of the jack being effected by two curved tracks that are commonly referred to as the top and bottom tracks of the machine. In most machines of this general type, that are now in commercial use, the carrier and heel blank jack are combined in such a way that they virtually form a toggle which is "broken" or arranged with its two main elements disposed at an angle to each other during the trimming operation and which is "straight" or arranged with its two main elements disposed in longitudinal alignment with each other when said jack is in its loading and unloading position. If the operator's body presses forwardly against the handle of the jack with considerable force, during the operation of applying or removing the blank, the toggle formed by the jack and the carrier will "break" and cause the carrier to swing horizontally towards one of the cutters, thereby endangering the hand of the operator, which at this time is grasping the heel blank. My invention eliminates the possibility of the operator's fingers coming in contact with one of the cutters of the machine during the operation of loading or unloading the jack, in the event the operator unconsciously presses forwardly on the jack at a time when his hand partially surrounds the heel blank carried by the jack.

Figure 1 of the drawings is a side elevational view of a wood heel turning machine constructed in accordance with my invention, showing the holding means for the jack, and the top track of the machine in section.

Figure 2 is a transverse sectional view, taken on the line 2—2 of Figure 1, looking in the direction indicated by the arrows; and

Figure 3 is a top plan view, showing the carrier arranged in operative relationship with one of the cutters.

Referring to the drawings which illustrate the preferred form of my invention, A designates two vertically-disposed cutter shafts arranged in parallel relation and spaced apart, B designates cutters on said shafts, C designates the frame of the ma-

chine, D designates a carrier that swings on a vertical shaft D' and which is adapted to be swung to the right to bring the heel blank x into proximity to one of the cutters and thereafter swung to the left to bring said blank into proximity to the other cutter, E designates a vertically-movable member on the carrier and F designates as an entirety a jack that carries the heel blank and which is pivotally connected at 1 to the vertically-movable member E. The machine is provided with a bottom track G for moving the member E upwardly during the trimming operation and an adjustable top track H for swinging the jack F relatively to the member E so as to tilt the heel blank during the trimming operation, the member E being provided at its lower end with a laterally-projecting arm 2 that co-operates with the bottom track G to move the heel blank upwardly relatively to the cutter during the trimming operation. The top track H is mounted in such a manner that it can be set in a horizontal position, in an upwardly-inclined position and in a downwardly-inclined position so as to vary the contour of the side faces and back of the heel produced in the machine. In the machine herein shown the top track H is provided with laterally-projecting trunnions 3 that project into vertically-adjustable bearings 4, and vertically-adjustable stops 5 and 6 are arranged at opposite sides of the axis of movement of the top track so as to hold said track in adjusted position. The elements of the machine above described are old and form no part of my present invention.

By referring to Figures 1 and 3 of the drawings it will be noted that the jack F and carrier D are combined in such a way that they virtually form a toggle. When a heel blank is being positioned in or removed from the jack said toggle is straight or disposed with its two main elements arranged in longitudinal alignment with each other at a point midway the cutters B. In order to securely hold said toggle straight at such times, namely, when the jack is in its loading and unloading position, and eliminate the possibility of the carrier swinging accidentally to the right or to the left towards one of the cutters, in the event the operator presses forwardly on the handle of the jack, I have equipped the machine with a holding means for the jack which is so constructed that after the jack has been engaged with same an accidental forward thrust on the jack will not cause the toggle to break, and thus bring the heel blank into close proximity to one or the other of the cutters. Said holding means can be constructed in various ways without departing from the spirit of my invention, but I prefer to construct said means in such a manner that the portions of same that engage the jack are of sufficient area to effectively hold the jack in its loading and unloading position, even after said means has been subjected to considerable wear, but said means will not require the operator to make a separate movement, as, for example, release a locking device, preparatory to moving the jack towards one of the cutters. I also prefer to construct said means in such a manner that it can be easily adjusted so as to compensate for variations in the position of the top track H of the machine. In the preferred form of my invention as herein illustrated the holding means above referred to is formed by a plate I arranged on the upper side of the track H at the center of same, as shown in Figures 1 and 2, and provided on its top side with a groove or channel 7 that is adapted to receive the portion 8 of the jack which travels over the upper edge of the top track H, said groove or channel being disposed radially with respect to the axis of movement of the carrier D and the jack engaging surfaces of same being of sufficient area to insure the jack being held securely in its loading and unloading positions, even after the portion 8 of the jack and the side walls of the groove 7 in the plate I have become worn. The plate I is adjustably mounted on the top track H in such a way that it can be set so as to cause the portion 8 of the jack to bear evenly or squarely on same in any position of the top track H, thereby insuring the side walls of the groove or channel 7 bearing throughout their entire length on the portion 8 of the jack when the top track H is arranged horizontally or in an upwardly-inclined or downwardly-inclined position. One convenient way of combining the jack holding device I with the track H is to arrange said device in a notch in the upper edge of said track, as shown in Figure 2, and connect said device by means of bolts or other suitable fastening devices 9 with a clamping plate 10 that bears against the bottom edge of the track H. When the top track H is arranged in its upwardly-inclined position, as shown in Figure 1, the plate I is set substantially horizontally, and when the top track H is adjusted into its horizontal position, the plate I is set at an angle to the top track H so as to compensate for the slight change in the position of the jack and insure the portion 8 of same bearing evenly on the plate I. Likewise, when the top track H is adjusted into its downwardly-inclined position the plate I is moved into such a position with relation to said top track that it will conform to the angle of the portion 8 of the jack. Normally, the plate I is clamped tightly against the top track H so that it forms a rigid support for the portion 8 of the jack when said jack is arranged in its loading and unloading position, but when it becomes necessary to

change the position of the top track H of the machine, the position of the plate I can be changed easily simply by loosening the nuts on the bolts 9, then setting the plate I at the desired angle and thereafter tightening said nuts so as to cause the plates I and 10 to be clamped tightly against the top and bottom edges of the track H.

From the foregoing it will be seen that my invention affords considerable protection to the operators employed on wood heel turning machines, in that it eliminates the possibility of an operator's hand or fingers being injured by the cutter of the machine, due to the operator pushing forwardly on the jack at a time when his fingers are grasping the heel blank carried by the jack; it does not interfere with the intentional movements of the jack towards and away from the cutters, but it does effectively hold the jack against accidental movement when the jack is arranged in its loading and unloading position; it adds little to the cost of a wood heel turning machine, and when constructed in the manner herein illustrated, the means that is used to hold the jack in its loading and unloading position can be adjusted quickly and easily to compensate for a variation in the position of the top track of the machine.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A heel turning machine, comprising a pair of rotatable cutters, a swinging carrier adapted to be moved towards and away from said cutters, a pivotally-mounted heel blank jack pivotally connected to said carrier, a track on which a portion of said jack travels, and a holding device for said jack when it is in its loading and unloading position provided with a groove or channel that is adapted to receive the portion of the jack which travels on said track.

2. A heel turning machine, comprising a rotatable cutter, a heel blank jack that is adapted to be moved towards and away from the cutter, a track over which said jack travels, and a holding means for said jack consisting of a groove arranged so as to receive a portion on said jack when the jack is in its loading and unloading position, and designed so that said portion moves out of same when the operator intentionally exerts pressure on the jack in a direction to move it towards the cutter.

3. A heel blank turning machine, comprising a rotatable cutter, a heel blank supporting means constructed in the form of a toggle that is adapted to be broken to move the heel blank into operative relationship with the cutter, and a holding mechanism for said heel blank supporting means consisting of a plate arranged in the path of travel of said means and provided with a relatively long channel that is adapted to receive a portion on the heel blank supporting means when said means is in its loading and unloading position, said channel and the portion of said means with which it co-operates being constructed so that said portion will move out of said channel when the operator intentionally exerts pressure on the toggle in a direction to move the heel blank towards the cutter.

4. A heel blank turning machine, comprising a rotatable cutter, a heel blank supporting means that is adapted to be actuated to move the heel blank thereon into and out of operative relationship with the cutter, a track over which a portion of said means travels, and a device adjustably mounted on said track and provided with a groove for receiving said portion when the heel blank supporting means is in its loading and unloading position, said portion being adapted to be disengaged from said groove by pressure exerted intentionally on said heel blank supporting means in a direction to move the heel blank towards the cutter.

5. A heel turning machine, comprising a pair of rotatable cutters, a swinging carrier, a heel blank jack pivotally connected with said carrier, a track over which said jack travels, and an adjustable plate arranged at the center of said track and provided with a groove that is adapted to receive a portion on said jack when the jack is in its loading and unloading position, said portion being adapted to be disengaged from said groove by pressure exerted intentionally on the jack in a direction to move the heel blank towards the cutter.

6. In a heel turning machine of the type that comprises a heel blank jack that is adapted to be moved towards and away from the cutter, a track over which said jack travels, a plate arranged at the center of said track on the top edge of same and provided with a channel that is adapted to receive a portion on the jack when the jack is in its loading and unloading position, and an adjustable means for holding said plate in operative relationship with said track, the said portion on said jack being adapted to be disengaged from said channel by pressure exerted intentionally on the jack in a direction to move the jack towards the cutter.

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