No. 645,601. Patented Mar. 20, 1900.

H. MAYERS.

WOOD TURNING MACHINE.

(Application filed Sept. 16, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

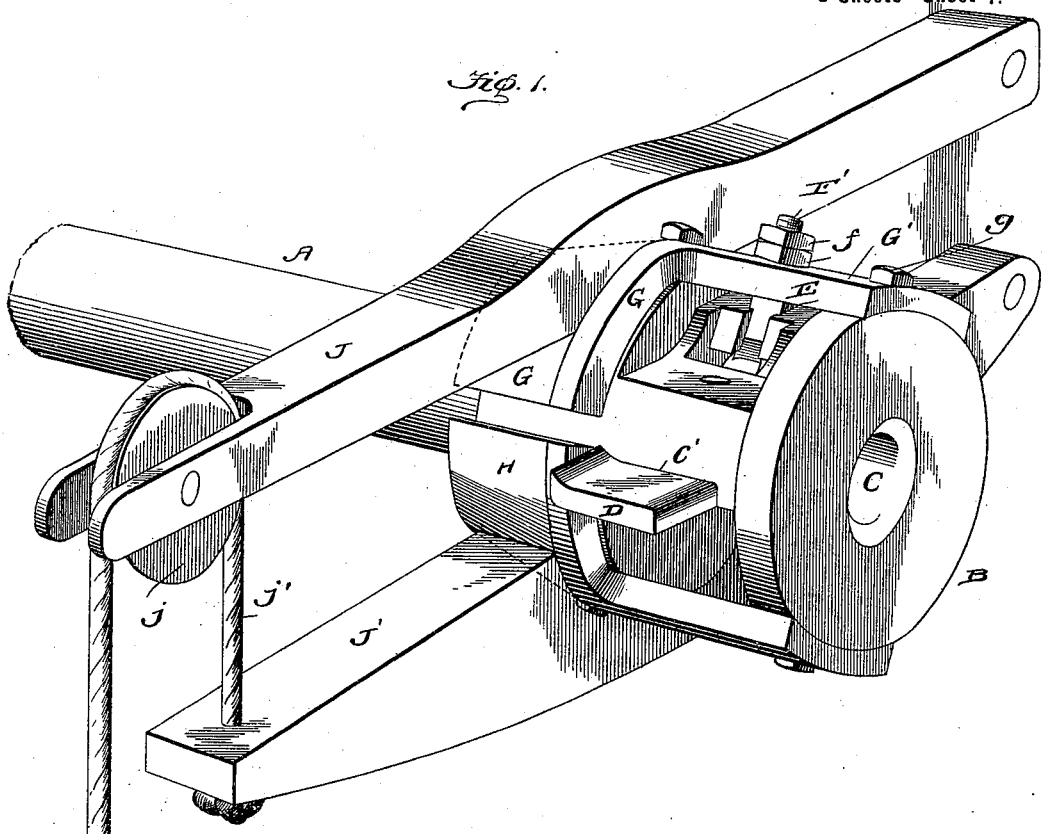
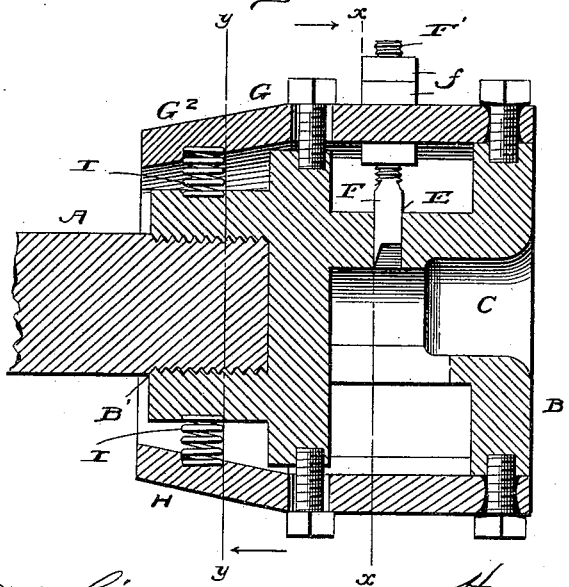


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

Fig. 3.

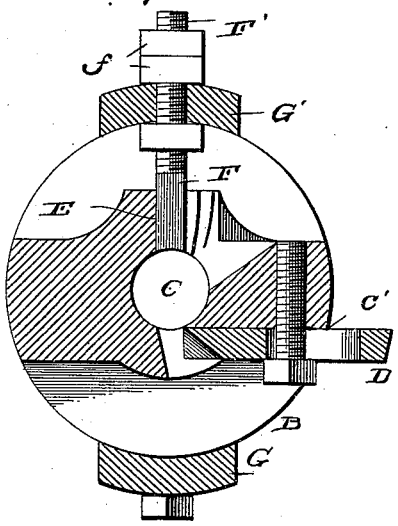


Fig. 5.

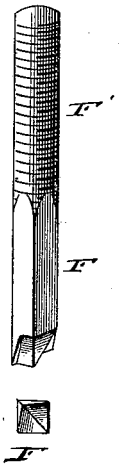


Fig. 6.

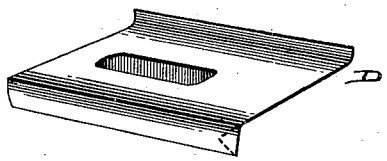
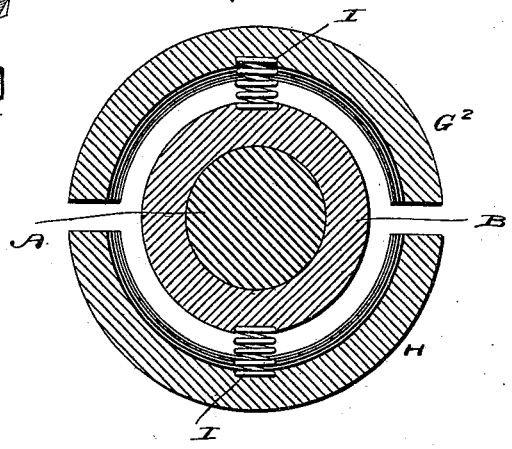


Fig. 4.



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WOOD TURNING MACHINE.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 7.

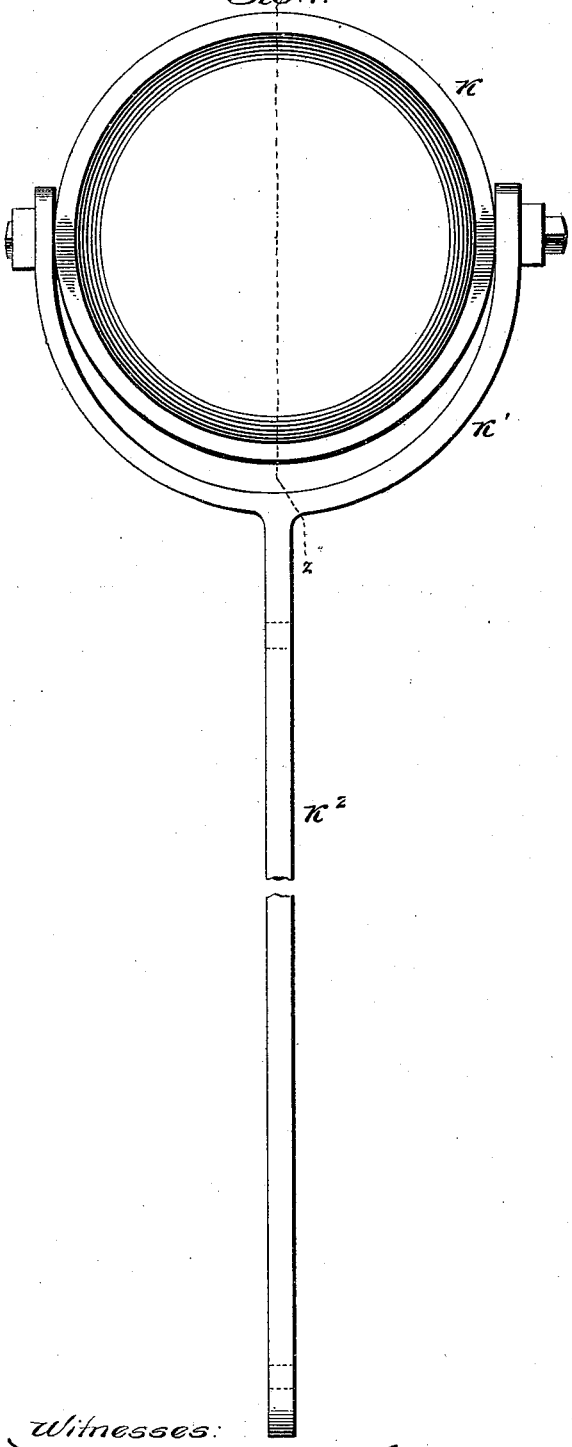


Fig. 8.

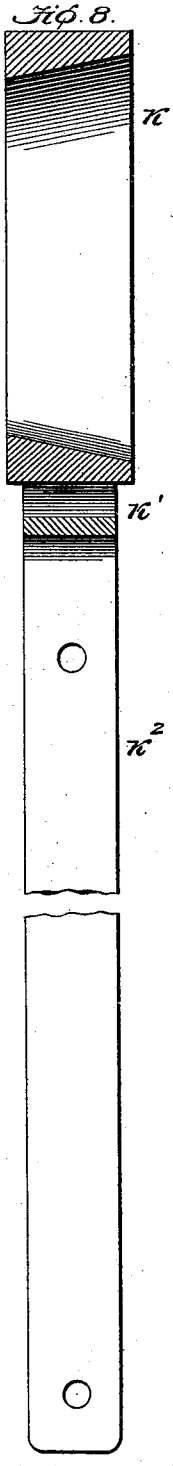
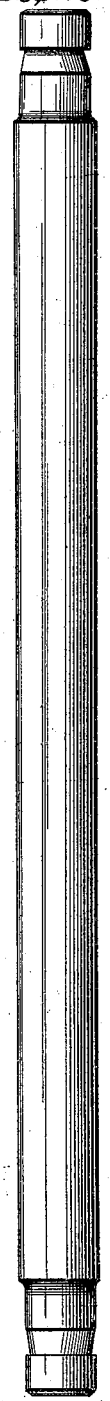


Fig. 9.

Fig. 10.



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UNITED STATES PATENT OFFICE.

HENRY MAYERS, OF UNION CITY, TENNESSEE.

WOOD-TURNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 645,601, dated March 20, 1900.

Application filed September 16, 1899. Serial No. 730,731. (No model.)

To all whom it may concern:

Be it known that I, HENRY MAYERS, a citizen of the United States, residing at Union City, in the county of Obion and State of Tennessee, have invented certain new and useful Improvements in Wood-Turning Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in wood-turning machinery, especially to the chuck-head; and its object, among other things, is to provide a head of simple and durable construction particularly adapted to the shaping of chair rounds or stretchers and the cutting of a radial groove or grooves therein when desired.

To these ends the invention consists in providing an ordinary chuck-head with a lateral passage adapted to receive a knife or bit secured at its outer end to one of two similar segments which are mounted upon springs on opposite sides of the head, with which they revolve, forming at the same time a bearing for a clamp which may when desired compress said segments while revolving, and thereby cause the insertion of the bit into the socket of the chuck-head.

The invention also consists in the further novel constructions and combinations of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, and in which—

Figure 1 is a perspective view of my improved chuck-head in position within a clamp. Fig. 2 is a central longitudinal section through the head. Fig. 3 is a section on line *x x*, Fig. 2. Fig. 4 is a section on line *y y*, Fig. 2. Fig. 5 is a detail view of a bit. Fig. 6 is a perspective view of a knife looking toward the inclined or cutting edge thereof. Fig. 7 is a front elevation of a second form of clamp. Fig. 8 is a longitudinal section on line *z z*, Fig. 7. Fig. 9 is a view of a chair-round after it has been cut longitudinally by the knife of the chuck, and Fig. 10 is a similar view of a finished round produced by my chuck-head.

Referring to said figures by letters of reference, A is a mandrel driven in any suitable manner, and B the chuck secured thereto, as desired, preferably by inserting the threaded end of said mandrel into a threaded socket B′, formed in the rear reduced portion of the chuck B. The enlarged front portion of the chuck B, within which is located the stock-receiving recess C, is provided with a lateral slot *c*′, adapted to receive a knife D, bolted to said chuck in the usual manner and adjustable thereon. This knife is preferably of such construction as to produce a round having a contour substantially such as shown in Fig. 9. Arranged, preferably, at right angles to said slot C′ is a second passage E, adapted to receive a bit F, threaded at its outer end, as at F′, and secured by means of nuts *f* to the forwardly-projecting arm G′ of a plate or casting G, and said arm is loosely bolted by means of bolts *g* to the chuck, as shown. The rear portion G² of the casting, which partially incloses the rear end of the chuck, is nearly semicircular in cross-section and diminishes in size from its front to its rear edge. A similar casting H is loosely mounted upon the opposite side of the chuck without, however, having a bit secured thereto, and between each casting and the rear portion of the chuck is located a spring I, the ends of which are seated in suitable recesses, whereby the castings G and H are normally pressed away from the chuck, and thereby keep the end of the bit F outside of the recess C.

In operating my device I employ a suitable clamp, as shown in Fig. 1, for forcing the castings G and H together while the chuck is revolving with the mandrel upon which it is mounted. In said figure the clamp is shown as formed of two cross-pieces J and J′, each pivoted at one end to an upright and provided with semicircular recesses within which the chuck and its plates G and H may revolve. At one end of the lower cross-piece is secured a cord *j*′, which passes thence over a pulley *j*, mounted in the opposite end of the upper cross-piece J. This cord can be operated by the hand or foot, and it is obvious that when pressure is exerted thereupon the cross-pieces will clamp the castings G and H, which will be forced together thereby and continue to revolve therein.

In Figs. 7 and 8 I have shown another form of clamp, which consists of a ring K, having a tapered bore pivoted upon a yoke

K', which is mounted upon the end of a bar K^2. This bar may be pivoted in the center and operated by means of a cord which will throw the ring K forward over the castings G and H and compress them as desired.

In operation the stock is fed to the chuck in any suitable manner, preferably by hand, and the knife D immediately gives the round the form shown in Fig. 9. Without stopping the motion of the chuck the clamp is applied thereto, forcing the castings G and H together and causing the bit F to bite into the wood and form the desired radial groove therein, as shown in Fig. 10. As soon as the pressure of the clamp is removed the springs I, assisted by the centrifugal force, will withdraw the bit and the finished round may be removed.

It is obvious that more than one radial groove may be cut upon the round, as two or more bits may be used; also, in lieu of bolting the plates or castings G and H to the front edge of chuck-head they could be hinged thereto in any suitable manner.

A chair-round produced by this machine possesses many advantages over the ordinary chair-round which is combined "bone-dried" with a leg or post in a similar condition and glued thereto. It is well known that frequently the glue releases its hold, causing the chairs to come apart and often breaking some of its parts. By my construction it is merely necessary to force the grooved round into the post. That portion of the walls of the recess which is adjacent to the groove will soon contract, filling the groove and securely locking the two parts together, forming practically one piece. This construction, therefore, entirely overcomes the necessity of using glue in joining the rounds and parts of chairs.

I make no claim to the round herein shown and described, as the same forms subject-matter for a second application filed by me on December 2, 1899, Serial No. 738,989.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a device of the character described, the combination, with a chuck-head, of a bearing-plate arc-shaped in cross-section loosely secured to and partially embracing said head, a bit secured to the plate and projecting into a lateral passage in the chuck-head, and means normally mounted on and bearing upon said plate for imparting lateral movement thereto and to the bit while revolving, substantially as described.

2. In a device of the character described, the combination, with a chuck-head, of a plate arc-shaped in cross-section pivoted to, and partially embracing, said head, a tapered end to said plate, a bit secured to the plate and projecting into a lateral passage within the head, a spring intermediate said plate and the head, and means mounted on and bearing upon the tapered portion of the plate for compressing the same and forcing the bit inward during the operation of the chuck, substantially as described.

3. In a device of the character described, the combination, with a chuck-head, of a plate arc-shaped in cross-section pivoted to, and partially embracing, said head, a tapered end to said plate, a bit secured to the plate and projecting into a lateral passage within the head, a similar plate loosely secured to the opposite side of the chuck-head, springs intermediate the tapered ends of said plates and the head, and means mounted upon said tapered ends for compressing the plates and forcing the bit inward during the operation of the chuck, substantially as described.

4. In a device of the character described, the combination, with the chuck-head, of plates loosely mounted thereon at opposite sides thereof and adapted to inclose the head, rear end portions of said plates arc-shaped in cross-section and embracing the rear end of the chuck-head, a bit secured to one end of said plates and projecting into a lateral passage within the head, and a clamp as described bearing upon the arc-shaped portion of the plates and adapted to press the same, with the bit, inward, when desired, during the operation of the chuck, substantially as described.

5. In a device of the character described, the combination, with the chuck-head, of plates loosely mounted thereon at opposite sides thereof, rear end portions of said plates arc-shaped in cross-section and embracing the solid rear end of the chuck-head, springs intermediate said arc-shaped portions of the plates and the head, said arc-shaped portions tapered rearwardly, a bit secured to one of the plates and projecting into a lateral passage within the chuck-head, a clamp inclosing and bearing upon the tapered portion of the plates, and means for operating said clamp, whereby the plates and the bit are forced inward as desired during the operation of the chuck, substantially as described.

6. In a device of the character described, the combination, with a chuck-head having a socket or work-receiving recess and a solid rear portion, of plates arc-shaped in cross-section and loosely secured, at one end, to said chuck-head, enlarged tapered ends to said plates adapted to inclose the solid portion of the chuck and forming a bearing for a clamp, as described, mounted thereon, and a bit secured to one of the plates and projecting into a lateral passage within the chuck-head, substantially as described.

7. In a device of the character described, the combination, with a chuck-head having arc-shaped plates loosely secured thereto at one end, springs between said plates and head, and a bit secured to one of the plates, of a clamp bearing upon said plates and comprising an upper and a lower cross-piece, pivoted as described, and means for operating said cross-pieces toward each other, substantially as and for the purpose described.

8. In a device of the character described, the combination, with a chuck-head, of arc-shaped plates loosely secured thereto at one end, springs intermediate the head and plates, an enlarged tapered end to each plate, a pivoted cross-piece mounted on said tapered end, and having a pulley therein, a second pivoted cross-piece bearing upon the lower tapered plate and a rope or cord secured to said cross-piece and mounted on the pulley, for the purpose and substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY MAYERS.

Witnesses:
W. HAMILTON,
JAS. H. FAIRCLOTH.