J. HERZOG.

WOOD TURNING MACHINE.

APPLICATION FILED JULY 8, 1918.

1,343,319.

Patented June 15, 1920.

2 SHEETS—SHEET 1.

Fig. 5

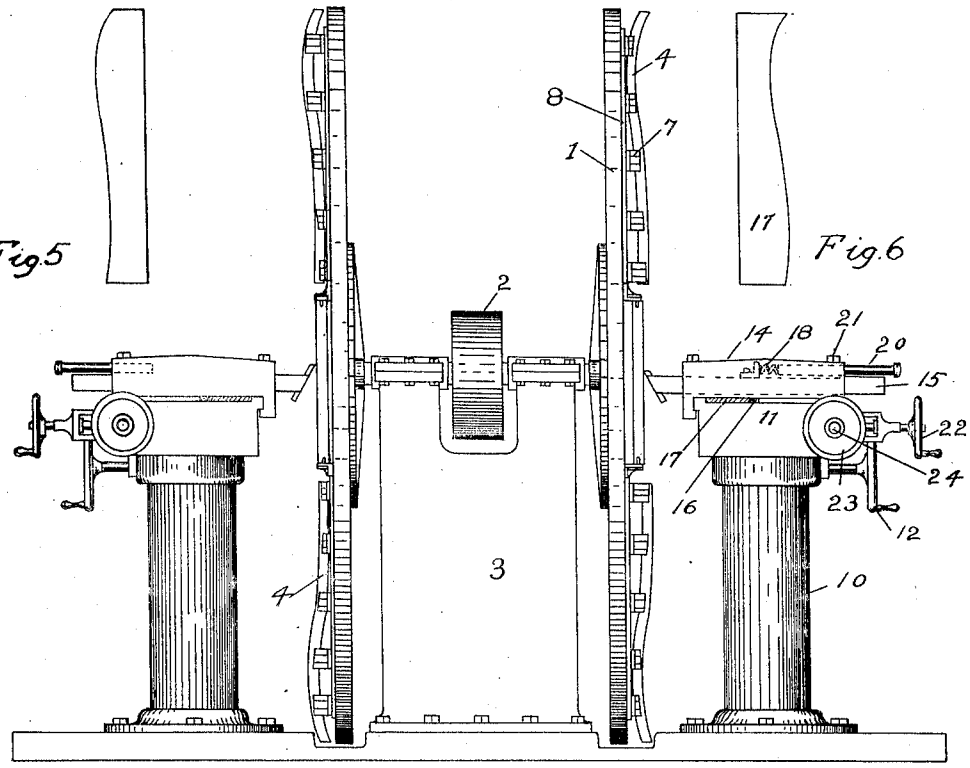


Fig. 6

Fig. 1

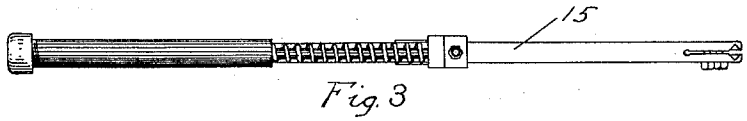


Fig. 3

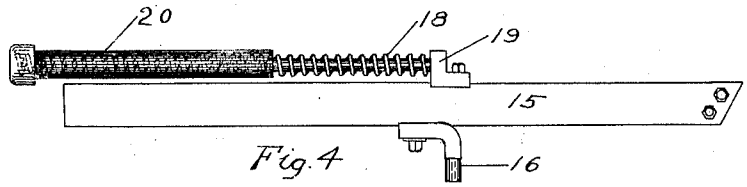


Fig. 4

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2 SHEETS—SHEET 2.

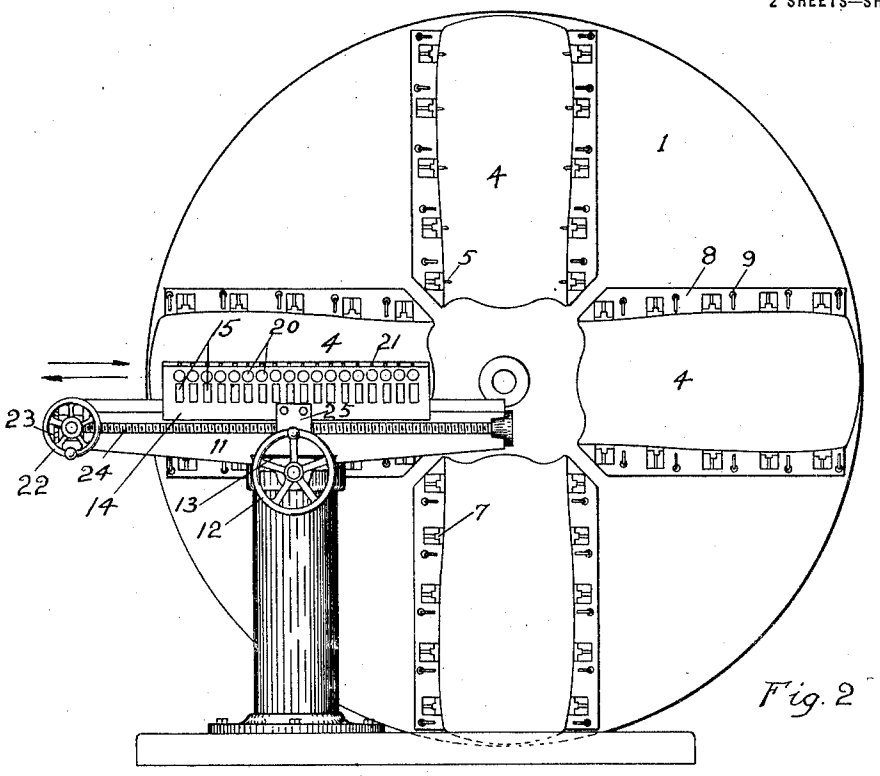


Fig. 2

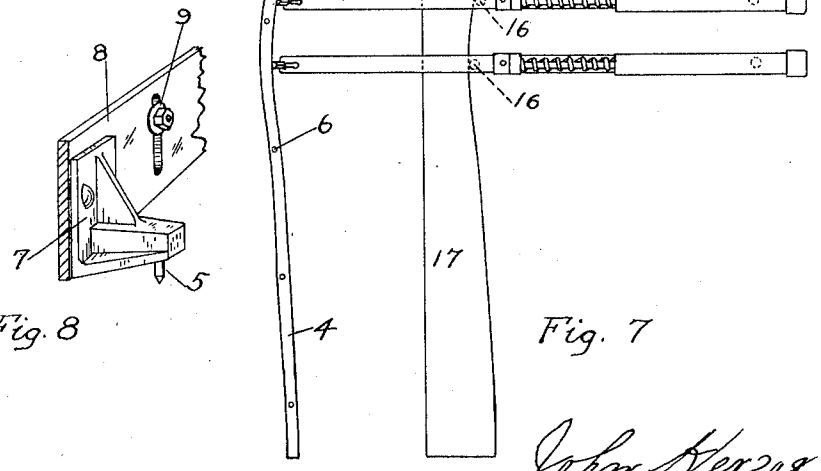


Fig. 7

Fig. 8

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JOHN HERZOG, OF SAGINAW, MICHIGAN.

WOOD-TURNING MACHINE.

1,343,319. Specification of Letters Patent. Patented June 15, 1920.

Application filed July 8, 1918. Serial No. 243,949.

To all whom it may concern:

Be it known that I, JOHN HERZOG, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, 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 wood turning machines and pertains more particularly to a machine adapted for use in the manufacture of panels having warped, bowed or curved surfaces.

Such panels are commonly employed in the construction of talking machines and certain styles of furniture.

In certain approved designs of talking machine cabinets the panels are of the form illustrated in this specification and my improved turning machine will be described as it is used in the manufacture of such panels, although it will be understood that many other shapes may be produced.

The objects of my improvement are, first, to provide a relatively inexpensive machine for shaping the front and back surfaces of a built-up wooden form, producing a panel with warped surfaces.

Further objects are to provide a simple means of clamping the panel to the rotating face-plate and means for quickly and accurately setting the cutting tools and moving them along the work, whereby the entire area of the panel may be cut with only a relatively small movement of the cutting tools. For example, if a panel is thirty inches long its entire area can be covered by a total lateral travel of the cutting tools of approximately four inches, thereby saving time and increasing the accuracy of the work.

With the foregoing and certain other objects in view which will appear later in the specification, my invention comprises the devices described and claimed and the equivalents thereof.

In the drawings, Figure 1 is a side elevation of a duplex machine, the left-hand turning mechanism adapted for turning the exterior of the panel and the right-hand mechanism adapted to simultaneously shape the interior.

Fig. 2 is a front view of the machine.

Fig. 3 is a top plan view of one of the spring-pressed tool bars.

Fig. 4 is a side elevation of the parts shown in Fig. 3.

Figs. 5 and 6 are respectively diagrammatic views of the master patterns employed in turning the exterior and interior faces of the panels.

Fig. 7 is a diagrammatic plan view showing the relative arrangement of the panel, the master pattern and the cutting tools.

Fig. 8 is a perspective view of one of the work-holding lugs.

As is clearly shown in the drawings, the machine consists in a revoluble work-carrying face-plate 1 operated by a driving pulley 2 carried by a suitable base 3. Each panel 4 is secured to the face-plate preferably by means of pins 5—Figs. 2 and 8—received in holes 6 bored in the edges of the panels 4. The pins 5 are carried by brackets 7 mounted on adjustable plates 8. The plates 8 are secured to the face-plate 1 by clamping bolts 9 engaged in slotted holes in the plates.

The panel to be turned is secured to face-plate 1 by engaging the holes of one edge of the panel with the pins of one of the adjustable plates and then lowering the opposite plate until its pins engage the holes in the opposite edge of the panel, and clamping the adjustable plate in position by means of the bolts 9.

A plurality, preferably four, of panels may be arranged on one face-plate as shown in Figs. 1 and 2.

The exposed faces of the panels are then shaped by means of the cutting tools, the arrangement of which will now be described.

Upon a pedestal 10 is mounted a movable slide 11 capable of being moved toward or away from the face of revoluble plate 1 by means of the hand-wheel 12. The slide 11 moves on ways 13, as in a lathe or planer.

Upon the slide 11 a tool carriage 14 is mounted. This carriage is slidable lengthwise and travels in a direction parallel with the plane of plate 1, as indicated by the arrows in Fig. 2.

A number of tool bars 15 are mounted on carriage 14, each tool bar being capable of adjustment on the carriage 14 toward and from the work. A guide roller 16—Fig. 4—is secured to the under side of each tool bar and engages the curved working face of a master pattern 17 fixed to the movable

slide 11. The tool bar 15 is normally pressed forward or toward the work by a spring 18, one end of which takes against a lug 19 secured to the tool bar, the other end being inclosed in a tube 20. The spring is compressed by engagement between the cap on the end of the tube and the lug 19, so as to press the bar 15 forward and keep the guide roller 16 normally in yielding contact with the working edge of the master pattern 17. The tube 20 is adjustably clamped to the tool carriage 14 by a set screw 21. By forcing the tube further in, that is, toward the work, the degree of compression of the spring 10 and consequently the pressure of the roller 16 against the master pattern may be increased. Thus by properly setting the tube 20 before tightening the screw 21, any desired degree of forward pressure of the tool toward the work may be secured and the tool is always yieldingly held against the work with the desired amount of force.

In operation, the guide rollers 16 limit the forward movement of the tools so that when the face of the work has been reduced to the proper contour the tools will cease cutting.

A large number of tools, spaced quite close together, is preferably provided on the tool carriage 14, as shown in Fig. 2. As many tools may be employed as desired. In some cases it is desirable to use all of the tools simultaneously and in other cases the work can be better done by using only alternate tools. The tools that are not used are retracted by loosening the set screws 21.

In practice I have found it convenient to locate the cutting tools about four inches apart, measured radially on the face-plate. The tools being set, the face-plate carrying the work is revolved at a proper cutting speed by means of the drive pulley 2 and the tools are all fed forward simultaneously by advancing the carriage 14, the carriage being moved by hand-wheel 12. When several of the tools have commenced to cut transverse grooves in the panels, the tool carriage 14 is slowly traversed in the direction of the arrows—Fig. 2—by means of the hand-wheel 22, beveled gears 23, lead screw 24 and the threaded nut 25, which is fixed to the carriage 14.

The total sidewise travel of the tools is slightly greater than the distance between successive tools, so that the part of the surface cut by one tool will overlap the cut of the adjacent tool, the series of tools thereby covering the entire length of the panel.

If any tool meets an obstruction or hard spot in the work, its spring 18 will allow the tool to retract, preventing splintering the work or breaking the tool.

In practice I have found that with this machine the turning of warped panels both on their inside and outside faces can be accurately and readily accomplished in a very rapid manner and with a minimum of labor.

While I have shown and described a duplex machine in which one system of cutters is used for shaping the exterior and the other system of cutters for shaping the interior faces of panels, it is apparent that if desired the two operations may be performed by indepedent machines.

The claims of this case are confined to my machine, broader aspects of the invention being presented in my copending application, Serial No. 243,950.

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

1. In a wood panel turning machine, the combination of a revoluble face-plate, panel-holding devices thereon, a movable slide adjustable toward and from said face-plate, a master pattern fixed to said slide and located in proximity to the face of said disk and parallel therewith, a tool carriage laterally movable on said slide, a plurality of independent longitudinally movable spring-pressed tool-carrying bars slidingly mounted on said carriage, said bars spaced apart and yieldingly engaging the working edge of said pattern, and means adapted to simultaneously traverse said carriage and tool bars along said pattern, the sidewise travel of each bar being slightly greater than the distance apart of successive bars.

2. In a wood panel turning machine, the combination of a revoluble face-plate, panel-holding devices carried thereby, a master pattern located in proximity to the face of said disk and parallel therewith, said pattern adjustable toward and from said disk; a plurality of independent longitudinally movable spring-pressed tool-carrying bars, said bars spaced apart and yieldingly engaging the working edge of said pattern, and means adapted to simultaneously traverse said tool bars sidewise along said pattern, the lateral travel of each bar being slightly greater than the distance apart of successive bars.

3. In a wood panel turning machine, the combination of a revoluble face-plate, panel-holding devices carried thereby, a tool-carrying carriage capable of movement toward and from the plane of said face-plate and also parallel with said plate, a plurality of longitudinally movable spring-pressed tool-carrying bars spaced apart on said carriage, a master pattern located beneath said carriage and projections on said tool bars normally engaging the working edge of said pattern.

4. In a wood panel turning machine, the combination of a revoluble face plate, panel-holding devices carried thereby, a tool-carrying carriage capable of movement toward and from the face of said face plate and

also parallel therewith, a plurality of independently movable tool-carrying bars spaced apart on said carriage, and a master pattern adapted to operatively control the movement of said bars.

5. In a wood panel turning machine, the combination of a revoluble face plate, panel-holding devices carried thereby, a tool-carrying carriage capable of movement toward and from the plane of said face plate and also parallel therewith, a plurality of independently movable tool-carrying bars spaced apart on said carriage and extending approximately the length of the panel, a master pattern adapted to operatively control the movement of said bars, and means for moving said carriage in a direction parallel to said face plate, the length of said movement being approximately equal to the distance between the successive tools, for the purposes set forth.

In testimony whereof I affix my signature.

JOHN HERZOG.