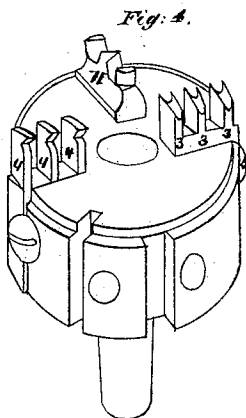
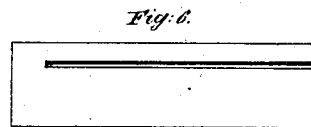
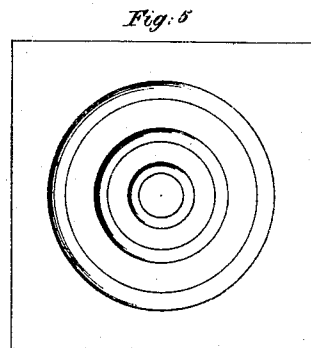
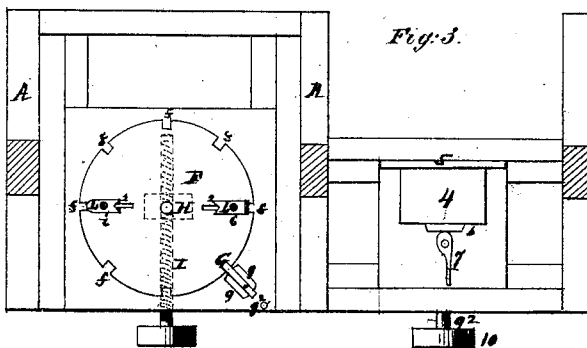
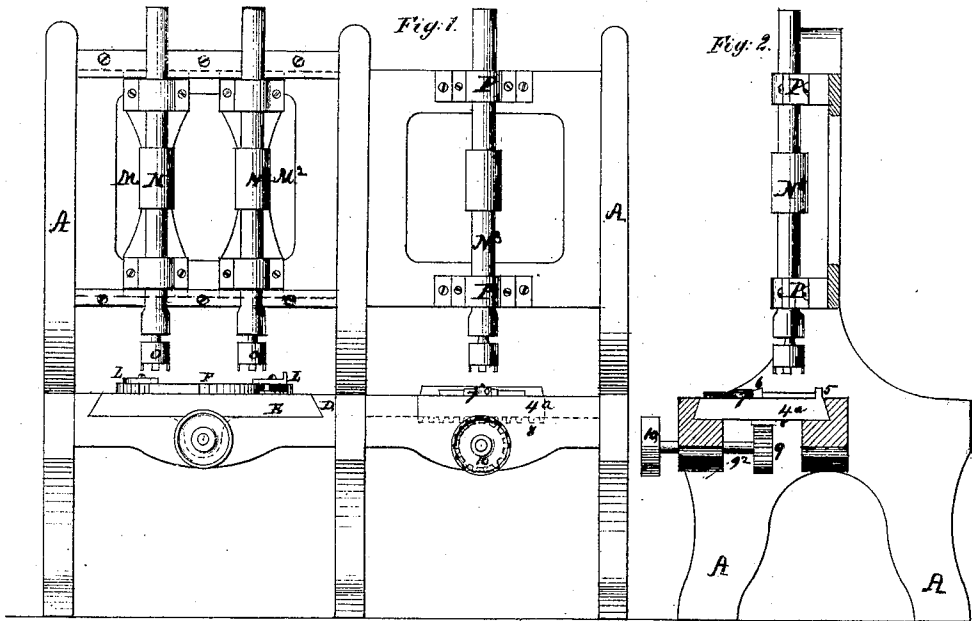


*C. F. Mitchel,*  
*Carving Wood.*

*No. 100,927.*

*Patented Mar. 15. 1870.*



*Witness, Done*  
*Witnesses,*  
*J. W. Anby*

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# UNITED STATES PATENT OFFICE.

CHARLES F. RITCHEL, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN MACHINES FOR PREPARING WOOD FOR INLAYING.

*Specification forming part of Letters Patent No. 100,927, dated March 15, 1870.*

*To all whom it may concern :*

Be it known that I, CHARLES F. RITCHEL, of Newark, Essex county, New Jersey, have invented a new and useful Machine for Preparing Wood for Purposes of Inlaying; and that the following is a full, clear, and correct description of the same, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a front elevation of my improved machine; Fig. 2, an end view of the same; Fig. 3, a top view of the same; Fig. 4, a view of the cutter employed; Figs. 5 and 6 are views of the stuff as presented to a circular-saw.

In the drawings like parts of the invention are pointed out by the same letters of reference.

The nature of my invention consists in the construction of a machine for preparing wood for inlaying, in which rotary and sliding tables, having suitable clamps and adjustments for holding and presenting the wood to be cut out and inlaid, are arranged for conjoint operation with peculiar marking, trimming, and cutting-tools, attached to spindles working in fixed or adjustable stocks; the object of the invention being to simplify and cheapen the process of inlaying in wood, while providing for the attainment of an almost endless variety of ornamental patterns, having circles and circular arcs for their elements, all as hereinafter more particularly set forth.

To enable those skilled in the art to make and use my invention, the following description will be found sufficient.

A A is a frame-work for supporting the operative parts of my improved machine.

This frame-work consists of a series of upright and cross-pieces, secured together in any convenient way, and may be made of cast-iron or any suitable metal.

D shows a portion of the base, the inner sides of which are cut angularly to receive the inclined sides of the movable base E supporting the revolving table or disk F, which table may be secured to the base E by means of a bolt passed through it centrally and fastened upon its under side by a nut, or in any convenient way.

This revolving table is provided with a series of notches, *f*, cut into its outer edge at regular distances from each other, so that the table,

after having been revolved a certain distance, may be held in position by the bolt G moving freely to and fro between the lugs *g*, and stopped by the pin *g*<sup>2</sup> secured in the base E.

The base E has upon its under side the threaded lug H, through which the screw I passes.

The table F is provided with the ways *i i*, to receive the adjustable clamps L to hold the wood to be operated upon by the cutters.

The clamps L are provided with inclined sides to correspond with the ways, and are held in position in the ways by depressing the set-screws, which pass through the clamps and have a bearing in the ways *i*.

The clamps L are provided at one end with the jaws Q to receive the corners of the wood to be operated upon by the cutters.

M and M<sup>2</sup> are movable supports to receive the spindles N and N<sup>2</sup>, to hold the cutters for cutting or preparing the wood. These supports may be moved laterally in grooved ways in the frame-work of the machine.

N and N<sup>2</sup> are spindles to receive the cutting-tools to excavate the wood, to receive the rings, and also to form the rings.

O shows the cutters secured in the spindles N and N<sup>2</sup>, which cutters are intended to form the cavities in the wood properly secured between the clamps L upon the revolving table F. These cutters consist of the knives 3 and gouges 4, properly secured in a cutter-head slotted to receive them.

The knives are provided with two cutting-edges to form two circular lines, one within the other, which serve as the pattern, so to speak, for the gouges, and are generally cut into the wood to the depth of about the one thirty-second part of an inch.

The gouges, one, two, or three of which may be used, are also attached to the cutter-head, and serve to gouge out or excavate the wood between the circular lines depicted by the cutters.

N<sup>3</sup> is a spindle, secured in the usual manner in the boxes P.

Directly beneath this spindle the base of the frame-work is cut away, and provided with the V-ways to receive a movable table, 4<sup>3</sup>, to receive the wood, which may be clamped between the projecting edge 5 of the table and a movable clamp, 6, held in position by the eccentric lever 7, which bears against the same.

This table is provided on its under side with a rack, 8, into which gears a toothed wheel, 9, secured upon one end of a spindle, 9<sup>2</sup>, upon the opposite end of which is a wheel, 10.

Such being the construction, the operation may be thus set forth:

It will be observed that two operations are to be performed by the machine first described, namely, excavating the wood to receive a series of rings to be laid into the cavities formed by the machine, and making the rings to fill these cavities or excavations.

The operation of cutting or excavating the wood is as follows:

The wood is first centered upon the revolving table or disk, and securely held in position between the clamps, the jaws of which bear upon the corners of the piece of wood to be operated upon.

The cutters are then secured in the spindles, and placed an equal distance from the center of the revolving table or disk, and the positions of the spindles may then be fixed by tightening the set-screws, causing the forward portions of the ways in which the supports M and M<sup>2</sup> travel to bear tightly upon these supports.

Power may now be applied to the machine, and the spindles being depressed in the ordinary manner, viz., by treadle, the knives are first brought into contact with the wood secured upon the revolving table, and, as a result, four circular lines are marked upon the wood, two cutters being used, and each cutter making two circular lines, one within the other, the lines being made in the wood to the depth of about one thirty-second part of an inch, so that when the gouges excavate the wood between these lines the excavations will be perfectly smooth.

The gouges are now brought into play, and are depressed to bear upon the wood over which the cutters have just passed, and, as they are brought into contact with the wood, gouge out or excavate all the wood contained between the circular lines marked upon the wood by the knives. The cavities left in the wood are perfectly smooth upon their sides.

The spindles are now elevated and the revolving table is turned round until a second notch in the outer edge of the same is brought opposite the bolt, when the table is secured by sliding the bolt into the notch, and the operation already described is repeated until the table has made a full revolution.

The cavities thus formed may now be filled with rings, the mode of making which will be described more fully hereinafter, and the wood is again secured upon the table and the operation just described is repeated, so that a second series of cavities, intersecting the first series formed, will be formed, and thus an endless variety of designs can be obtained.

The base supporting the table is made movable by means of the screw to assist the operation when only one spindle can be employed,

as in the case of very fine work, and it would be impossible to bring the spindles sufficiently near each other to form the design, the object being to place the wood held upon the table in the desired position relatively to the cutter used, which is done by adjusting the table by means of the screw.

The second operation performed by the machine is to form the rings employed by me to close the cavities or excavations, and that operation may be thus set forth: The wood is secured upon the bed or table 4<sup>v</sup> by being clamped between the projecting edge 5 and the clamp 6, which is held in position against one side of the wood by the eccentric lever 7.

The bed or table is then adjusted so that one end of the wood shall be brought directly beneath the tool secured in the spindle N<sup>3</sup>. This adjustment of table is effected by the rack and geared wheel. The tool is now depressed and brought into contact with the wood, and six circular lines, one within the other, are marked upon the wood, and by further depressing the two, and bringing the gouges in contact with the wood, three cavities are formed.

The trimmers 11, which consist of an upright plate of metal provided with beveled cutting-edges upon its face, as clearly shown in Fig. 4, next come into contact with the wood, and trim the edges of what subsequently forms the rings.

A view of the wood after it has passed through the operation just described will be found in Fig. 5 of the drawings.

The stuff thus prepared is fed lengthwise to a circular saw in order that the rings formed to the depth of about three-eighths of an inch may be cut off from the stuff, and the stuff left after these rings have been cut off may be subjected to the operation first described, and more rings be formed.

The rings thus formed are then set into the cavities and secured in the same by glue or any proper adhesive substance, and the result is, inlaid wood, in which any number of designs may be formed for flooring and interior decorative purposes.

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

1. In a machine for preparing wood for inlaying, the combination and arrangement, substantially in the manner described, of the sliding table E, revolving table F, with one or more cutters, O, Fig. 4, constructed and operating in the manner and for the purpose specified.

2. The cutting-tool represented in Fig. 4, having the knives 3, trimmers 11, and gouges 4, and fitted for attachment to the adjustable spindles, as described.

CHARLES F. RITCHEL.

Witnesses:

ALPHEUS DOANE,  
W. W. MENLEY.