March 10, 1925. 1,529,273

W. POTTER

WOODWORKING MACHINE

Filed March 14, 1923 3 Sheets-Sheet 1

FIG. 1.

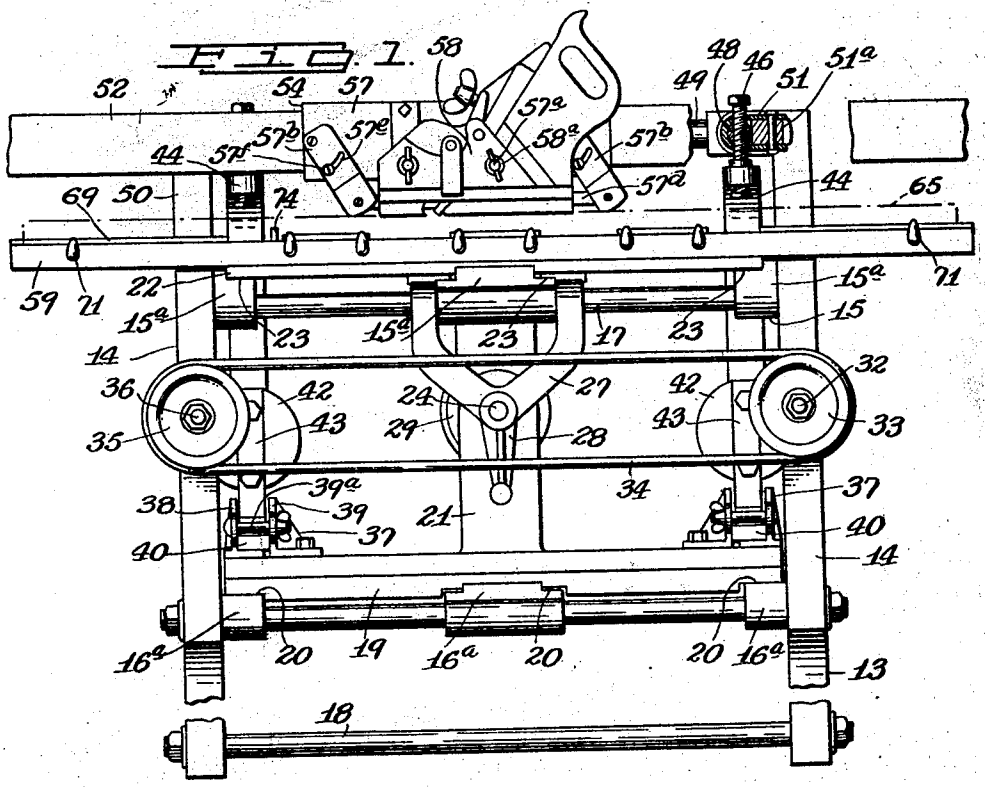


FIG. 6.

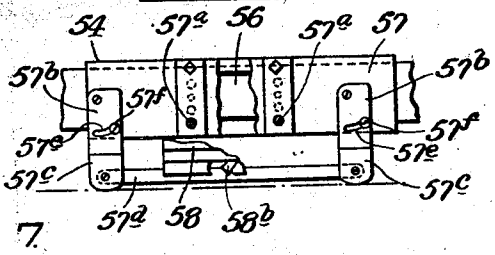


FIG. 7.

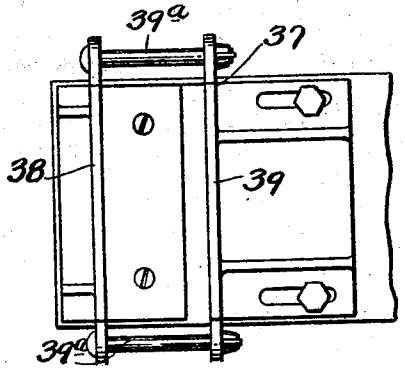
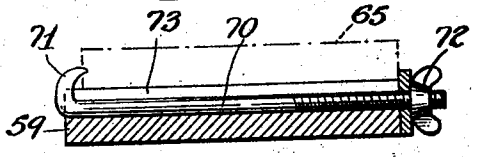


FIG. 8.



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By his Attorneys

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FIG. 2.

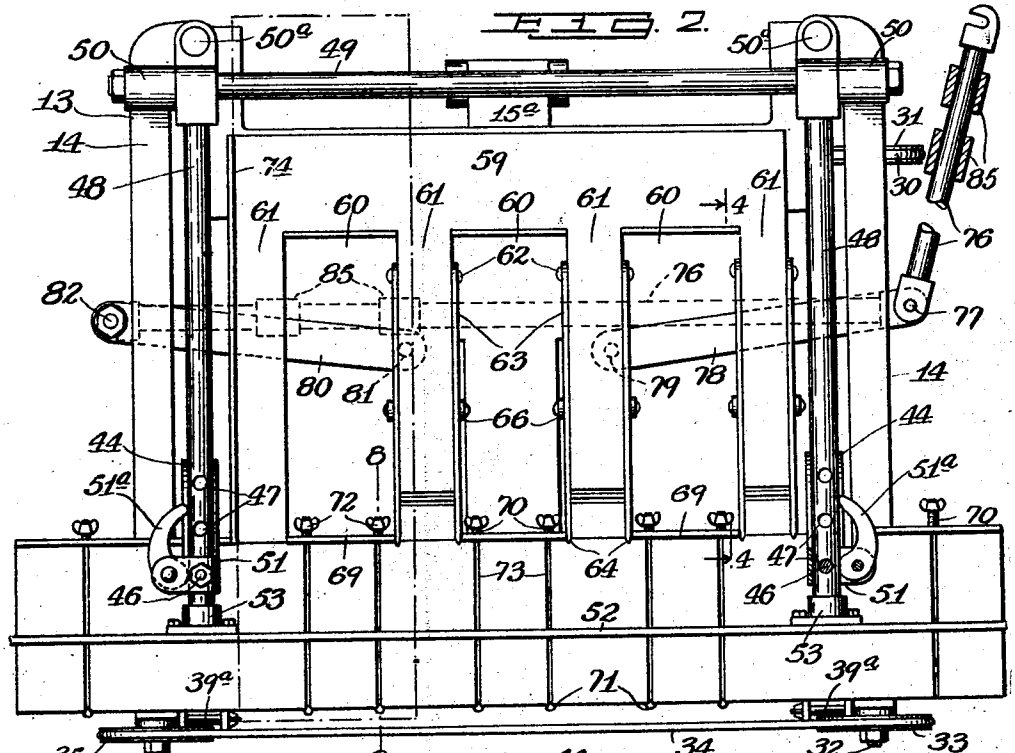


FIG. 3.

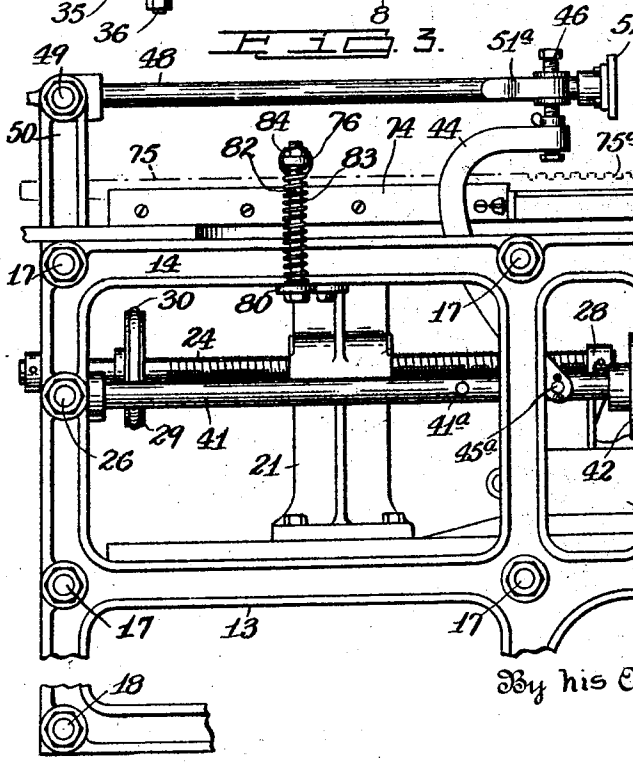


FIG. 4.

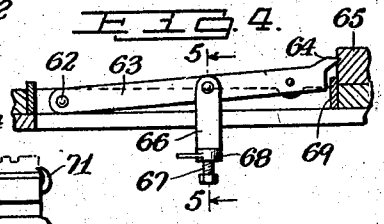
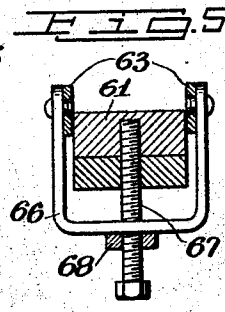


FIG. 5.



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Fig. 9.

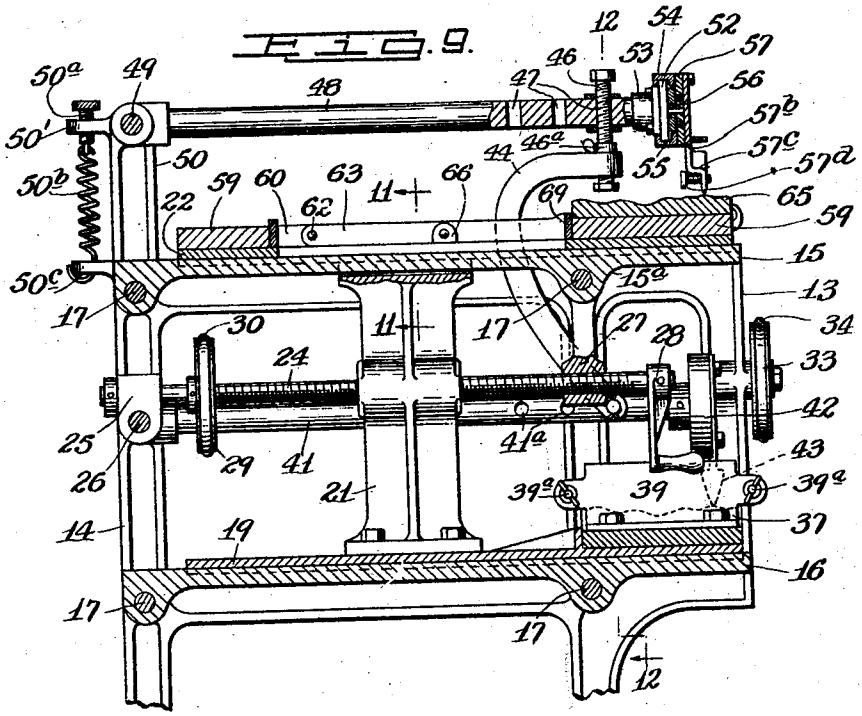


Fig. 10.

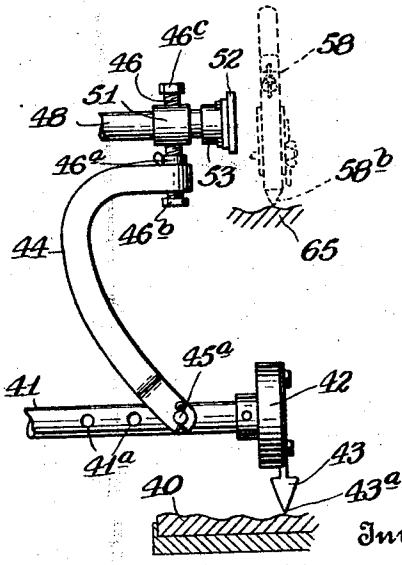


Fig. 11.

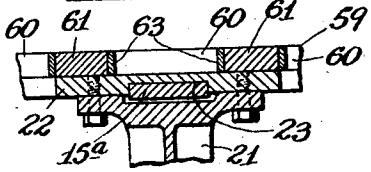
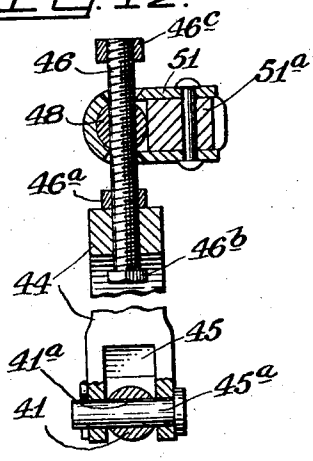


Fig. 12.



Inventor

William Potter

By his Attorneys

Edgar Tate & Co.

Patented Mar. 10, 1925. 1,529,273

UNITED STATES PATENT OFFICE.

WILLIAM POTTER, OF NEW YORK, N. Y.

WOODWORKING MACHINE.

Application filed March 14, 1923. Serial No. 624,881.

To all whom it may concern:

Be it known that I, WILLIAM POTTER, a citizen of the United States, and residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Woodworking Machines, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to woodworking machines and particularly to machines of this class designed for the purpose of reproducing in a workpiece a predetermined contour from a sample or model in the production of molding strips, finishing strips and various other kinds and classes of woodwork, and also to a machine of this class designed to produce dado work, and the object of the invention is to provide a machine of the class and for the purpose specified, which by reason of its construction will produce the desired results in the most effective, simple, accurate and efficient manner, and with this and other objects in view, the invention consists in a machine of the class specified which is simple in construction and operation, and efficient in use and which is constructed and operated as hereinafter described and claimed.

The invention described and claimed herein is an improvement on that shown and described in a prior application filed June 13, 1922, Ser. No. 567,942, and is fully disclosed in the following specification of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a front view of my improved machine.

Fig. 2 is a plan view of the machine as shown in Fig. 1 with parts of the construction omitted.

Fig. 3 is an end view of the machine as shown in Fig. 2.

Fig. 4 is a partial section on the line 4—4 of Fig. 2.

Fig. 5 is a partial section on the line 5—5 of Fig. 4 and on an enlarged scale.

Fig. 6 is a detail view of a part of the construction shown in Fig. 1 and with parts broken away.

Fig. 7 is a plan view of a part of the machine, showing the means for supporting the sample or model to be reproduced.

Fig. 8 is a partial section on the line 8—8 of Fig. 2.

Fig. 9 is a transverse sectional view through a part of the machine.

Fig. 10 is a diagrammatic view of a part of the construction shown in Fig. 9 of the drawing.

Fig. 11 is a partial section on the line 11—11 of Fig. 9; and,

Fig. 12 is a partial section on the line 12—12 of Fig. 9 on an enlarged scale.

My improved machine comprises in the construction shown a frame 13 composed of substantially similar side members 14, top and bottom table members 15 and 16 joined to the side members 14 by longitudinal rods 17 as clearly shown in Figs. 1, 3 and 9 of the drawing, and the lower ends of the side members 14 are preferably braced by other rods 18, one of which is shown in Fig. 1 of the drawing.

The top table member in the construction shown is composed of three forwardly and backwardly directed units 15^a, and one of these units is located centrally of the frame and the other two at the opposite sides of the frame. The table member 16 is similarly formed and is composed of separate units 16^a spaced in the manner of the units 15^a.

Mounted upon the bottom table member 16 or the separate units thereof is a forwardly and backwardly movable slide plate 19 which has a tongue and groove connection with the table member or the separate units thereof as shown at 20 in Fig. 1 of the drawing. Substantially centrally of said plate is a standard 21 which is connected with the bottom of another forwardly and backwardly movable slide plate 22 mounted upon the top table member 15 or the separate units thereof, and having a tongue and groove connection therewith as shown at 23, and it will be noted that the central units 15^a and 16^a of the table members pass through the standard 21 or the recesses formed therein.

A screw shaft 24 extends forwardly and backwardly through the standard 21 and is in threaded engagement therewith, said shaft having a bearing at 25 at the back of the frame of the machine, said bearing being

mounted on a rod 26 and the forward end of the screw shaft 24 passes through another bearing 27 which is suspended from the central unit 15ª of the top table member 15, and the front end portion of the shaft 24 is provided with a crank 28, by means of which said shaft may be rotated.

I also provide other means for rotating said shaft, comprising a pulley 29 secured to the inner end portion of said shaft and around which is passed a belt, chain or the like 30 which passes around another pulley 31 mounted on a forwardly and backwardly directed shaft 32 at one side of the frame and mounted on the front end portion of said shaft is a pulley 33 around which is passed a belt or the like 34 which passes over and around another pulley 35 mounted on a stub shaft 36 at the opposite side of the machine. The rotation of the crank 28 by hand and the movement of the belt 34 by hand will operate to rotate the shaft 24 to move the slide plates 19 and 22 forwardly or backwardly over the top and bottom table members 15 and 16 in the operation of my improved machine.

Mounted upon the top face of the opposite sides of the slide plate 19 are pattern retaining members 37 comprising stationary jaw members 38 and movable jaw members 39, said jaw members having upstanding plates between which patterns or models 40 are placed and the movable jaw members 39 serve to retain said patterns or models in predetermined positions of adjustment, and one of the retaining members 37 is shown in detail in Fig. 7 of the drawing. The jaw members 38 and 39 are preferably clamped together by bolts 39ª which pass through projecting ears on said jaw members.

Rotatably or pivotally mounted on the shaft 26 adjacent to the opposite sides of the frame are two similar forwardly directed arms 41 on the free ends of which are mounted heads 42 in connection with which fingers 43 are mounted, said fingers extending downwardly and being pointed as indicated at 43ª in Fig. 10 of the drawing and are adapted to operate upon the contour of the patterns or models 40 in the retaining members 37.

Adjustably secured to the arms 41, approximately centrally thereof are upwardly directed and forwardly curved hood-shaped members 44, the lower ends of which are substantially yoke-shaped in form as shown at 45 in Fig. 12, and pins 45ª are passed through said yokes and through one of a number of apertures 41ª in the arms 41. Mounted in the upper end portions of the members 44 are vertically extending screws 46 which are adapted to pass through one of a number of apertures 47 in arms 48 similar to arms 41 and which are pivotally mounted on a rod 49 mounted in upwardly directed extensions 50 on the sides 14 of the frame. The pivoted end portions of the arms 48 are provided with backwardly directed ears 50′ in which are mounted screws 50ª which engage one end of spiral springs 50ᵇ the other ends of which are secured to the frame of the machine as shown at 50ᶜ in Fig. 9 of the drawing, and the springs 50ᵇ serve to balance the arms 48 and the parts mounted in connection therewith.

Mounted on and partially encircling the arms 48 are yoke-shaped members 51 through which the screws 46 pass and pivoted in the members 51 at one side of the arms 48 are cam lock levers 51ª clearly shown in Figs. 2 and 12 of the drawing, and said levers serve to secure the arms 48 in predetermined position of adjustment on the screws 46. Nuts 46ª are mounted on said screws and serve to rest upon the top of the members 44 to limit the downward movement of said arms, while the heads 46ᵇ of the screws prevent the displacement of the arms from said members 44 and nuts 46ᶜ are preferably mounted upon the upper ends of the screws 46.

A bar 52 extends longitudinally of the frame and is coupled with the free ends of the arms 48 by couplings 53 mounted on said arms and to which said bar is detachably secured and the transverse width of the bar is greater than the corresponding dimensions of the couplings 53 to permit of the sliding of a plane adapter and mounting 54 on said bar.

The plane adapter and mounting 54 is channeled as shown at 55 to receive the bar 52 and a tension plate 56 is mounted in connection with said adapter to retain the same in fixed relation with the bar and yet permitting of the free movement of said adapter longitudinally of the bar. The adapter 54 also carries an elongated plate 57 having forwardly directed screws 57ª which are adapted to pass through apertures in a suitable plane 58 for detachably mounting said plane in connection with the adapter, said plane being held in place by winged nuts 58ª and the cutting edge of the plane is V-shaped in form as shown at 58ᵇ in Fig. 10 of the drawing. Pivotally mounted in connection with the plate 57 are downwardly directed shoes 57ᵇ positioned in front and in back of the plate 58 when mounted on the adapter 54, and the lower end portions of said shoes are offset as shown at 57ᶜ to bring said lower ends in central alinement with the cutter of the plane 58, and the shoes 57ᵇ are joined by a link 57ᵈ at the back thereof as clearly shown in Figs. 6 and 9 of the drawing. The shoes 57ᵇ are also provided with arc-shaped apertures 57ᵉ in connection with which pins or screws 57ᶠ operate to limit the movement of said shoes, and the shoes 57ᵇ are adapted

to raise the plane 58 and the parts in connection with which said plane is mounted in the backward movement of the plane over a work-piece as hereinafter set forth.

The slide plate 22 which is movable upon the top table member 15 is preferably provided with a wood facing 59 which is cut out at intervals to form three apertures 60 as clearly shown in Fig. 2 of the drawing, said apertures forming four forwardly and backwardly directed members 61. Pivoted to the opposite sides of three of the members 61 as shown at 62 are forwardly directed fingers 63, the free ends of which are pointed as shown at 64 to engage the inner edge of a suitable workpiece 65 placed on the top of the slide 22, said workpiece being shown in full lines in Fig. 4 of the drawing. Yoke-shaped members 66 are pivoted to the separate pairs of fingers 63 at the opposite sides of the members 61 and extend beneath said members as clearly shown in Fig. 5 of the drawing, and bolts or screws 67 are passed through the crossheads of said yokes, and suitable lock nuts 68 are mounted on the bolts or screws for retaining the yokes in predetermined positions of adjustment. Normally the fingers 63 or the separate pairs thereof are in a depressed and inoperative position and they may be raised into the position shown in Figs. 4 and 5 by properly adjusting the lock nuts 68, as will be apparent.

The slide 22 is provided with projecting plates 69 located at the front portion of the apertures 60 and these plates form a straight edge against which the workpiece 65 may be placed as shown in Fig. 4 of the drawing, that is to say, a workpiece which extends longitudinally of the front portion of the machine or a workpiece which is to be fashioned to reproduce a molding or other strip, as is illustrated in Fig. 9 of the drawing.

I also mount and countersink in the wood facing 59 of the slide 22 at the front of the machine a plurality of spaced clamp rods 70, the outer ends of which are hook-shaped in form and pointed as shown at 71 to engage the inner edge of a workpiece and the inner ends thereof are provided with winged nuts 72, which serve to move the hooked ends thereof into operative and inoperative positions and it will be apparent that the hooked ends of said rods are free to move through apertures 73 in the facing 59.

In the use of my improved machine in dado work, I preferably provide one end of the slide 22 with an upstanding square edge 74 shown in Figs. 1, 2 and 3 of the drawing, against which a suitable workpiece 75 indicated in dot and dash lines in Figs. 2 and 3 may be placed, and in holding said workpiece in position I employ a bar 76 indicated in full and dotted lines in Fig. 2 of the drawing, and shown in full lines in Fig. 3 of the drawing, said rod being pivoted as shown at 77 to an arm 78 pivoted to the slide 22 as indicated at 79. Another similar arm 80 is pivoted to the slide 22 as shown at 81 and mounted in connection with the free end thereof is a vertical shaft 82 on which is mounted a coil spring 83 and the upper end of the shaft 82 is threaded to receive an adjusting nut 84. The free end of the bar 76 is cut out to engage the shaft 82 beneath the nut 84 and the bar 76 serves to hold the workpiece 75 firmly in position upon the slide 22 in the operation of cutting grooves transversely of said workpiece as indicated at 75a in Fig. 3 of the drawing, in what is known as dado work. Sleeves or bushings 85 may be mounted on the bar 76 and adjustable thereon to bear upon or to operate upon the top face of the workpiece and two of these sleeves or bushings are indicated in full and dotted lines in Fig. 2 of the drawing.

The operation of my improved machine will be readily understood from the foregoing description when taken in connection with the accompanying drawings and following statement. When using the machine for reproducing moldings and other wood strips of a predetermined contour, the patterns or models of the strip to be reproduced are first placed in the holders 37 and adjusted to proper positions therein and secured in such positions by the movable jaw members 39 after which a workpiece such as 65 is mounted upon the front end portion of the slide 22 and extends longitudinally of the frame, said workpiece being held in position by the fingers 63 and rods 70 as will be apparent. The fingers 43 in the heads 42 are then placed upon the highest points of the patterns or molds, the plane adapter or mounting is placed on the bar 52 and a suitable plane mounted in connection therewith, and said plane by means of the screws 46 is adjusted so as to rest upon the top face of the workpiece. By rotating the shaft 24 by means of the lever 28 or by manipulating the belt 34, the plane is then brought to either the front or rear edge of the workpiece, it being understood that the arms 48 are locked in their position of adjustment on the screws 46 by the cam levers 51a, and the nuts 46a are adjusted on the screws 46 to rest upon the top of the members 44 as shown. The plane is now moved forwardly and backwardly over the workpiece by sliding the adapter 54 forwardly and backwardly over the bar 52 and in each forward and backward movement, the shaft 24 is rotated by hand one or more times, which operation will move the slides 19 and 22 forwardly or backwardly a slight extent. The above operation is repeated, and as the work proceeds the workpiece will be gradually cut and fashioned to correspond to the contour

of the patterns or models supported on the slide 19, it being apparent that as the arms 41 drop, the arms 48 with the plane 58 are correspondingly dropped. In the above backward and forward sliding movement of the plane the shoes 57b will operate to permit the plane or the cutting tool thereof to come in contact with the workpiece in the forward or cutting movement of the plane, and in the backward movement of said plane the shoes 57b drop by gravity and operate to raise the plane including the parts in connection with which the plane is mounted as illustrated in Fig. 6, so that the cutting tool of the plane is moved out of engagement with the workpiece in the backward movement of said plane, thus saving the edge of said cutting tool.

By reason of the type of thread employed on the shaft 24, which would be very fine, in the movement imparted to the slides, a perfect reproduction of patterns or models may be reproduced, and a smooth and finished surface will appear on the workpiece; in fact, so smooth that it would resemble a sand-papered or otherwise finely finished wood product of this class. It will be understood in the first few operations of the plane the workpiece will be roughed out, but in the last few strokes, the finished product will be produced. The nuts 46 may be adjusted to lower the plane 58 a slight extent in producing the finished cut.

One of the distinctive features of the present invention resides in the rigidity and positive movement of the separate parts of the machine, avoiding all possible spring actions, thus permitting of the perfect reproduction of a suitable pattern.

In doing dado work with my improved machine a workpiece such as that indicated at 75 is mounted forwardly and backwardly of the machine, and a dado plane is mounted upon the adapter and the machine will be set to cut a predetermined depth of groove, the fingers 43 in this case operating upon plain blocks of wood in the members 37 and the proper adjustments will be made to cut a predetermined depth of groove, the fingers 43 controlling this operation.

The shaft 24 will also be rotated in this instance to proportionately space the grooves longitudinally of the workpiece as indicated diagrammatically in Fig. 3 of the drawing.

It will be apparent that the members 44 may be pivotally mounted in connection with either one of the apertures 41a in the arms 41, and the screws 46 correspondingly adjusted in the apertures 47 of the arms 48 to vary the relative movement of the fingers 43, and the cutting tool of the plane, but in the construction shown the coupling of the arms 41 and 48 will operate to move the fingers and plane equally.

It will be understood that my invention is not necessarily limited to any specific use of the machine herein shown and described, nor am I necessarily limited to the specific construction herein set out for accomplishing the desired results and various changes in and modifications of the construction herein shown and described may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

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

1. A machine of the class described comprising a frame, means for supporting top and bottom slide plates in said frame, means for coupling said plates together, means mounted in the machine for moving said slide plates forwardly and backwardly of the machine, said means comprising a screw shaft, means for actuating said shaft, means on one of said side plates for supporting a suitable pattern or patterns, means for supporting a workpiece on the other of said slide plates; a member pivotally mounted in the frame and provided with means adapted to register with the pattern or patterns for controlling the movement of said member, said member being provided with upwardly directed extensions, a tool supporting and guiding bar and means for adjustably supporting said bar in connection with said extensions and longitudinally of and at a predetermined distance above the workpiece-supporting plate member, said bar being movable toward and from the top plate member.

2. A machine of the class described comprising a frame, means for supporting top and bottom slide plates in said frame, means for coupling said plates together, means mounted in the machine for moving said slide plates forwardly and backwardly of the machine, said means comprising a screw shaft, means for actuating said shaft, means on one of said slide plates for supporting a suitable pattern or patterns, means for supporting a workpiece on the other of said slide plates, a member pivotally mounted in the frame and provided with means adapted to register with the pattern or patterns for controlling the movement of said member, said member being provided with upwardly directed extensions, means for adjustably supporting a bar in connection with said extensions and longitudinally of and at a predetermined distance above the workpiece-supporting plate member, and a plane adapter or mounting mounted on and adapted to move longitudinally of said bar.

3. A machine of the class described comprising a frame, means for supporting top and bottom slide plates in said frame, means for coupling said plates together, means

mounted in the machine for moving said slide plates forwardly and backwardly of the machine, said means comprising a screw shaft, means for actuating said shaft, means on one of said slide plates for supporting a suitable pattern or patterns, means for supporting a workpiece on the other of said slide plates, a member pivotally mounted in the frame and provided with means adapted to register with the pattern or patterns for controlling the movement of said member, said member being provided with upwardly directed extensions, means for adjustably supporting a bar in connection with said extensions and longitudinally of and at a predetermined distance above the workpiece-supporting plate member, and a plane adapter or mounting mounted on and adapted to move longitudinally of said bar, and means for supporting a workpiece extending forwardly and backwardly of the machine.

4. A machine of the class described comprising a frame, means for supporting top and bottom slide plates in said frame, means for coupling said plates together, means mounted in the machine for moving said slide plates forwardly and backwardly of the machine, said means comprising a screw shaft, means for actuating said shaft, means on one of said slide plates for supporting a suitable pattern or patterns, means for supporting a workpiece on the other of said slide plates, a member pivotally mounted in the frame and provided with means adapted to register with the pattern or patterns for controlling the movement of said member, said member being provided with upwardly directed extensions, means for adjustably supporting a bar in connection with said extensions and longitudinally of and at a predetermined distance above the workpiece-supporting plate member, a plane adapter or mounting mounted on and adapted to move longitudinally of said bar, means for supporting a workpiece extending forwardly and backwardly of the machine, and said means comprising a bar pivotally mounted in connection with the workpiece-supporting plate member and adapted to extend longitudinally thereof.

5. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns, the other of said plate members being provided with means for supporting a suitable workpiece, members pivotally mounted on the frame and provided with means adapted to cooperate with a pattern or patterns supported on said first named plate member, a tool supporting and guiding bar and means adjustably supported on said members for supporting said bar at a predetermined distance from said last named plate member, said bar being movable toward and from the top plate member.

6. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns, the other of said plate members being provided with means for supporting a suitable workpiece, members pivotally mounted on the frame and provided with means adapted to cooperate with a pattern or patterns supported on said first named plate member, a tool supporting and guiding bar and means supported by and adjustable relatively to said members for supporting said bar at a predetermined distance from said last named plate member, said bar being movable toward and from the top plate member.

7. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns, the other of said plate members being provided with means for supporting a suitable workpiece, members pivotally mounted on the frame and provided with means adapted to cooperate with a pattern or patterns supported on said first named plate member, means supported by and adjustable relatively to said members for supporting a bar at a predetermined distance from said last named plate member, and means mounted on said bar and movable longitudinally thereof for supporting a woodworking tool in connection with said bar to permit the movement of the tool supported thereon longitudinally of a workpiece supported on said plate member.

8. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns, the other of said plate members being provided with means for supporting a suitable workpiece, members pivotally mounted on the frame and provided with means adapted to cooperate with a pattern or patterns supported on said first named plate member, means supported by and adjustable relatively to said members for supporting a bar at a predetermined distance from said last named plate member, means mounted on said bar and movable longitudinally thereof for supporting a woodworking tool in connection with said bar to permit the movement of the tool supported thereon longitudinally of a workpiece supported on

said plate member, and means for locking said bar in different positions of adjustment in said supporting means.

9. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns thereon, means for retaining a workpiece on the other of said plate members, pattern tracing members pivotally mounted in the frame and cooperating with the patterns supported therein, tool supporting members pivotally mounted in the frame and adapted to support a suitable woodworking tool over said top plate member, means for adjustably coupling both of said pivot members, and clamp devices for retaining said tool supporting members in predermined positions of adjustment on said last named means, said tool supporting members being movable toward and from the top plate member.

10. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns thereon, means for retaining a workpiece on the other of said plate members, pattern tracing members pivotally mounted in the frame and cooperating with the patterns supported therein, tool supporting members pivotally mounted in the frame and adapted to support a suitable woodworking tool over said top plate member, means for adjustably coupling both of said pivot members, means for retaining said tool supporting members in predetermined positions of adjustment on said last named means, tensional means for balancing said tool supporting members, said tool supporting members involving a bar extending longitudinally of the machine, and means movably mounted on said bar for supporting a plane and for permitting free movement of said plane longitudinally of the machine.

11. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns thereon, means for retaining a workpiece on the other of said plate members, pattern tracing members pivotally mounted in the frame and cooperating with the patterns supported therein, tool supporting members pivotally mounted in the frame and adapted to support a suitable woodworking tool over said top plate member, means for adjustably coupling both of said pivot members, means for retaining said tool supporting members in predetermined positions of adjustment on said last named means, tensional means for balancing said tool supporting members, said tool supporting members involving a bar extending longitudinally of the machine, means movably mounted on said bar for supporting a plane and for permitting free movement of said plane longitudinally of the machine, and means for raising said plane in one movement thereof over a workpiece.

12. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns thereon, means for retaining a workpiece on the other of said plate members, pattern tracing members pivotally mounted in the frame and cooperating with the patterns supported therein, tool supporting members pivotally mounted in the frame and adapted to support a suitable woodworking tool over said top plate member, means for adjustably coupling both of said pivot members, means for retaining said tool supporting members in predetermined positions of adjustment on said last named means, tensional means for balancing said tool supporting members, said tool supporting members involving a bar extending longitudinally of the machine, means movably mounted on said bar for supporting a plane and for permitting free movement of said plane longitudinally of the machine, means for raising said plane in one movement thereof over a workpiece, and means for rotating said screw shaft.

13. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern or patterns thereon, means for retaining a workpiece on the other of said plate members, pattern tracing members pivotally mounted in the frame and cooperating with patterns on one of said plate members, tool supporting members pivotally mounted in the frame and adapted to support a suitable woodworking tool over said top plate member, means for adjustably coupling both of said pivoted members together, and said tool supporting members involving an elongated element extending longitudinally of the machine and over said top plate member.

14. A machine of the class described comprising a frame, a unit comprising top and bottom plate members movably mounted in the frame, means involving a screw shaft for operating said unit, means on one of said plate members for supporting a pattern

or patterns thereon, means for retaining a workpiece on the other of said plate members, pattern tracing members pivotally mounted in the frame and cooperating with patterns on one of said plate members, tool supporting members pivotally mounted in the frame and adapted to support a suitable woodworking tool over said top plate member, means for adjustably coupling both of said pivoted members together, said tool supporting members involving an elongated element extending longitudinally of the machine and over said top plate member, and means movably mounted on said element for supporting a plane and for permitting of the free movement of said plane longitudinally of the machine.

15. A machine of the class described comprising a frame, top and bottom and connected plate members adjustably mounted in the frame, two pairs of arms pivotally mounted in the frame one pair above the other and independent of each other, one pair of arms being movable toward and from the bottom plate member and the free ends of which are disposed thereover and pattern tracing members mounted thereon and the other pair of arms being movable toward and from the top plate member and being disposed thereover, and means for movably supporting a woodworking tool in connection therewith.

16. A machine of the class described comprising a frame, top and bottom and connected plate members adjustably mounted in the frame, two pairs of arms pivotally mounted in the frame one pair above the other and independent of each other, one pair of arms being movable toward and from the bottom plate member and the free ends of which are disposed thereover and pattern bracing members mounted thereon and the other pair of arms being movable toward and from the top plate member and being disposed thereover, and means for movably supporting a woodworking tool in connection therewith, and means for adjustably connecting the separate pairs of arms.

17. In a machine of the class described a workpiece supporting member, means for detachably supporting a workpiece thereon, an elongated element extending longitudinally over said member and being pivotally mounted in the machine to permit of its movement toward and from said member, means for normally holding said element in a raised position, and means on said element and freely movable longitudinally thereof for movably supporting a woodworking tool on said element.

18. In a machine of the class described a workpiece supporting member, means for detachably supporting a workpiece thereon, an elongated element extending longitudinally over said member and being pivotally mounted in the machine to permit of its movement toward and from said member, means for normally holding said element in a raised position, means on said element and freely movable longitudinally thereof for movably supporting a woodworking tool on said element, said woodworking tool being normally supported upon said workpiece supporting member, and means for moving the woodworking tool out of engagement with a workpiece mounted on said supporting member in one movement thereof.

In testimony that I claim the foregoing as my invention I have signed my name this 10th day of March, 1923.

WILLIAM POTTER.