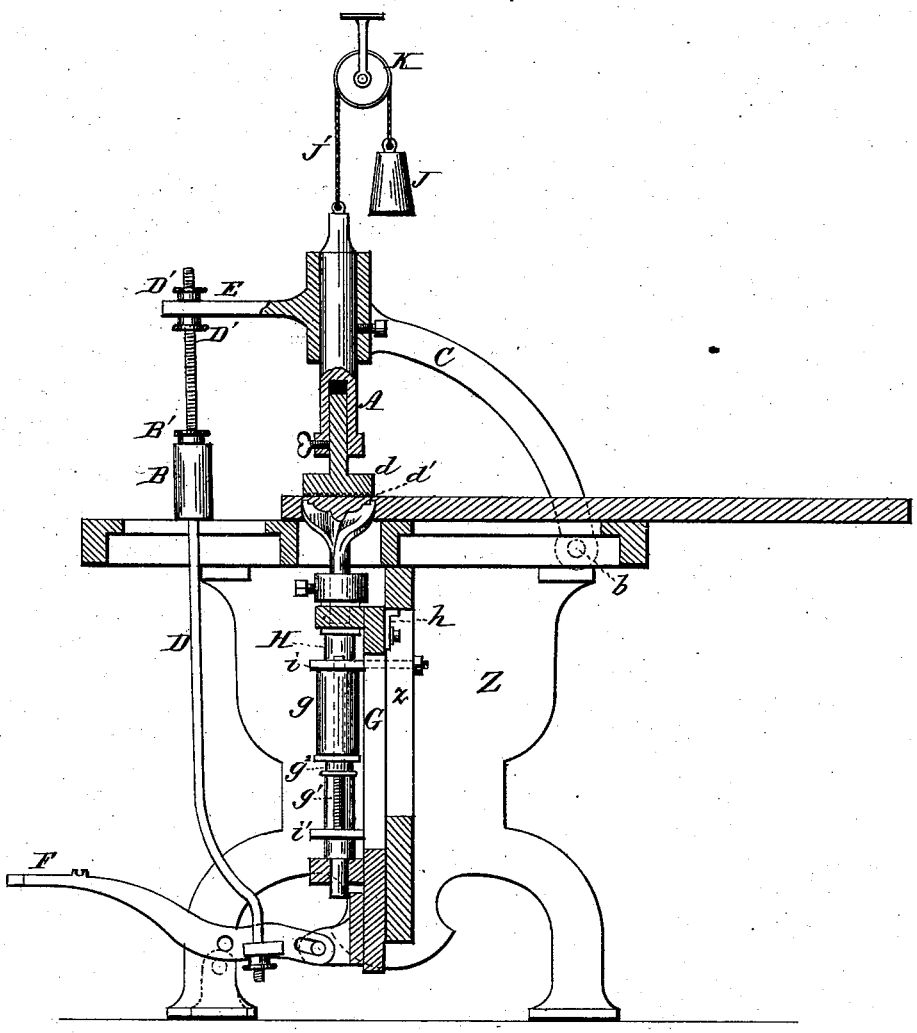
(No Model.) 2 Sheets—Sheet 1.

L. WENCHEL.

WOOD MOLDING MACHINE.

No. 260,265. Patented June 27, 1882.

Fig. 1.



Witnesses:
Edmond Brodhag
Howell Battle.

Inventor:
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Attys.

(No Model.) 2 Sheets—Sheet 2.

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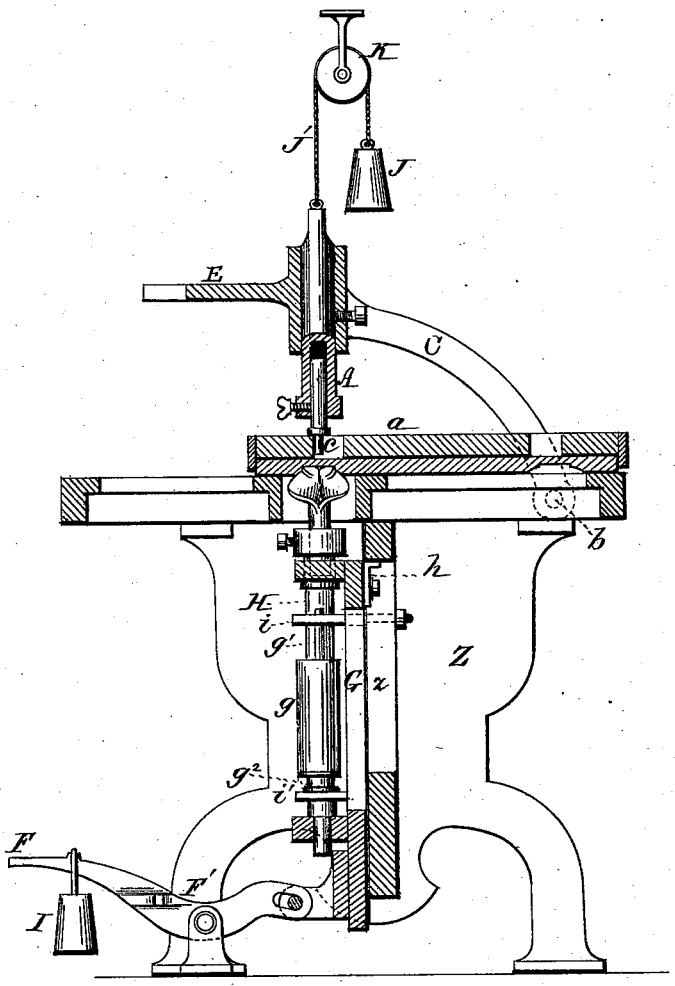
Fig. 2.



Witnesses:
Edmond Brodhag
Howell Bartle.

Inventor:
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Johnson and Johnson
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UNITED STATES PATENT OFFICE.

LAURENCE WENCHEL, OF BALTIMORE, MARYLAND.

WOOD-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 260,265, dated June 27, 1882.

Application filed June 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, LAURENCE WENCHEL, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented new and useful Improvements in Wood-Molding Machines, of which the following is a specification.

I have made certain improvements in machines for carving and molding wood, and more particularly on the machine for which I obtained Letters Patent, dated December 23, 1879, having among other things special adaptation for holding the work in cutting rosettes by a pressure exerted by the treadle through a cushioned rod connecting the treadle with a top work-holding device. In the operation of such machine the pressure to hold the work under the action of the cutter was found insufficient, especially in working hard wood, and unless the work is held firmly it is liable to be displaced by the cutter, the breaking of the latter is endangered, and the operator works under more or less danger. In my said patented machine the pressure cushioned rod failed to produce the required pressure upon the work-holding device by reason of the treadle acting from a fixed fulcrum and the treadle connecting rod having a direct spring connecting with the wood-holding device, so that the full pressure of the latter upon the work was neutralized by such cushioned rod connection.

The objects of my present improvement are to hold the work firmly under the action of the cutter in rosette-cutting and to control the relation of the guide-pin with the pattern, so as to insert and withdraw said pin easily and quickly in the operation of panel-molding.

In effecting the first-stated object of my improvement I use the treadle without a fixed fulcrum, and support it directly by a rod having a rigid connection with the work-holding device, so that the pressure applied to the treadle acts directly to hold the work against the resistance of a strong spring which connects the cutter-driving spindle-slide with the frame. As the treadle elevates the cutter-spindle against the resistance of its slide-spring the force required to elevate the cutter-spindle will also be directly exerted upon the work-holding device through the suspending-fulcrum of the treadle, so that the work is held firmly to the action of the cutter with a force regulated by the force of the spring. The spindle-slide spring, while thus serving as the power which holds the work, serves also to prevent the cutter from entering the wood too quickly, which would endanger the pulling out of the rosette-forming core, and this is its primary function as used with the fixed treadle-fulcrum in my said patent.

In effecting the second-stated object of my improvement I use a guide-pin so nearly balanced that it can be raised quickly free of the pattern in changing the work and maintain its relation to the pattern by its gravity, thus saving much time and labor as compared with the raising and lowering action of a screw.

Referring to the accompanying drawings, Figure 1 represents a vertical section of the machine as adapted for rosette-cutting, the treadle for raising the cutter to work being shown as suspended by the rod which connects it with the work-holding device, and by which the latter is held firmly upon the work; and Fig. 2, a similar section, showing the machine adapted for panel-work, a panel-piece being shown in its relation to the cutter, the pattern, and the balanced guide-pin.

The cutter-driving spindle H is suitably mounted in a vertical slide, G, operated by a treadle, F, and the cutter is adapted to operate through an opening in the table of a frame, Z, having suitable guides for the slide, as in molding-machines having an under operating cutter.

The machine is adapted for sinking panels, cutting rosettes, and for edge-molding by interchangeable cutters, as described in my said patent. In rosette-cutting the work is held under the action of the cutter by a clamping-head, *d*, which may be secured in a stem, A, adjustably mounted in a frame, C, hinged at the rear of the table in such relation to the cutter as to support the said clamping-head in vertical line therewith. I prefer to have this clamping-head of cylindrical form, and of a diameter equal to the circle described by the cutter. Its holding function is increased by providing it with an annular line of points, *d'*, which also serves, by a circular impression, to indicate the exact location of the cut rosette on the under side of the work, thus allowing blocks to be used, as the ring-marks will show the position of each cut rosette with the uncut surface. The work

must be firmly held to prevent its displacement by the force of the cutter, and for this purpose I connect the hinged frame C with the treadle. This connection is made by a vertical rod, D, which, being attached to an arm, E, of said hinged frame, passes through an opening in the table and forms a suspending-fulcrum for the treadle, which is pivoted to the lower end of the slide which carries the spindle-driving cutter, as shown in Fig. 1. This rod has a rigid connection with the hinged frame and the treadle, and is rendered adjustable by screw-nuts D′, and is also made removable in using the machine for other than rosette-work. It must be noticed, however, that the connections of the rod D are not cushioned, but that the force exerted through the rod upon the work-holding device is unyielding to obtain the full effect of such force in holding the work.

A strong spring, *g*, preferably of rubber, of cylindrical form, is connected by an arm, *i*, or in any suitable manner at its upper end to the frame part *z*, and at its lower end to the slide G by the arm *i′*, so that the slide can only be raised for operation against the resistance of the spring. The spring is secured in position by a screw-stem, *g′*, upon which it is made adjustable by means of a nut, g^2, to regulate its resisting force according to the draft of the cutter and be equal to the force required to hold the block. It is adjusted by the nut g^2 to compress it to give sufficient force to prevent the cutter from being too quickly drawn into the wood, and thus the spring forms its first acting resistance. Its second acting resistance becomes the power to hold the work and to govern the entrance of the cutter into the work, the height of the cutter above the table being limited by a stop, *h*, secured to the spindle-slide G, and acting against the table frame part *z*, or in any suitable way.

In suspending the treadle upon the rod D as its fulcrum, and providing a strong spring, *g*, for the spindle-carrying slide, the spring forms a direct point of resistance for the pressure applied to the work-holding device, and in proportion to such resistance will be the holding-pressure upon the work, thus clamping it firmly upon the table as long as the operator depresses and holds down the treadle.

For large rosettes and for operating upon hard wood, the resisting-power of the spring should be increased, and this is done by compressing it between its points *i i′* of attachment by means of the screw-nut g^2, or other suitable means. The primary object, then, of the spring is to form the resisting-point for the work-holding device with a treadle having a rigid connection with the yoke-frame C, so that the treadle can only be depressed by a direct and unyielding connection with said frame and against the resistance of the spring, and in this way give the required holding-power for the work. The spring serves also to prevent the cutter from being carried too quickly into the work, which would endanger the pulling out of the piece intended for the rosette; but as the operator can only raise the cutter gradually by raising the spindle-slide against the spring the sudden screw-like action of the cutter is counteracted.

A spring, B, having sufficient power to raise and hold up the hinged frame C, is placed upon the rod D, so as to press upon the table and against an adjustable nut, B′, on the rod, and thus hold the work-holding device up out of the way when the treadle is released. For this purpose the spring B may be arranged beneath the treadle or otherwise placed. In my said patented machine this function was performed by the spring *g*, because the treadle is fulcrumed in a fixed bearing.

In using the machine for panel-molding, as shown in Fig. 2, the work-holding device and the treadle pressure-rod are removed and a guide-pin, *c*, is inserted in the stem A of the yoke-frame C and secured by a screw. In this use of the machine the spring *g* is made non-active by lowering it from its resisting connection *i* with the frame by means of the screw-stem *g′* and nut g^2, the treadle being mounted in a fixed fulcrum, F′, and the cutter raised by the operator and held at its adjusted height for operation by the weight I.

The adjustable stop *h*, secured to the slide G, serves to limit the working position of the cutter. When the panel is finished the cutter is depressed by placing foot upon the treadle between its fulcrum and the slide, and thus free it from the work. Such use of the guide-pin embraces the method in which the pattern is attached to the back of the article to be ornamented with an under operating cutter. In the use of the guide-pin with a pivoted yoke I am thereby enabled to use a counter-balance, J, for the hinged frame C, by which the guide-pin *c* may be instantly raised and held up free of the pattern, and as quickly depressed in its guide relation to the pattern in the operation of the machine.

The counter-balance J for the yoke-frame C may be arranged in any suitable way, and its weight must be such as to cause the yoke-frame, when depressed, to maintain the guide-pin *c* in its inserted position in the pattern *a*, and requiring only a slight lift of the hand to elevate it out of the way in removing or replacing the pattern and the work carried by it. As shown, such counter-balance consists of a weight, J, and rope J′, attached to the yoke C, and passed over a pulley, K, supported above the yoke in any suitable way. The design is to have the yoke so nearly balanced that its weight will preponderate sufficient to hold the guide-pin in operating relation to the pattern, and allow it to be easily and quickly raised to remove and replace the pattern with the work; or the weight or weights may be attached to arms of the yoke in the rear of its pivots. Instead of the socket-stem A, the guide-pin may be attached directly to the yoke.

I prefer to make the yoke-arm of V form,

to give it steadiness and brace its connection with the table.

The yoke is adapted to be turned back upon its pivots *b* out of the way, to adapt the machine for edge-molding, in which a suitable cutter is used, and set to project the proper height above the table. The adaptation of the hinged or pivoted yoke for carrying the work-holding device for rosette-cutting and the guide-pin for panel-work, in connection with nearly balancing the guide-pin, gives important advantages in the operation of the machine of effecting the adjustment of the guide-pin into and out of work by merely lifting and depressing the yoke in the manner of a pivoted arm. I may, however, use a fixed yoke and use the guide-pin stem to slide in its socket in said yoke or arm C, using the counter-balance in the same manner as with a pivoted yoke. A spring may be used instead of the weight, the object being to provide for an easy and quick raising and lowering of the guide-pin.

I claim—

1. The combination, substantially hereinbefore set forth, in a machine for ornamentally working wood, of a cutter arranged to operate beneath the table, with a guide-pin holder, A, arranged to be raised and lowered independent of its carrying-frame, a counter-balance for said guide-pin, and a slotted pattern carrying the work over the cutter, as specified.

2. The combination, in a machine for ornamentally working wood, of a cutter arranged to operate beneath the table, with a guide-pin holder, A, arranged to be raised and lowered, to be freed from and inserted within a slotted pattern independent of its carrying-frame C, and a counter-balance for said pin-holder, substantially as described.

3. In combination, the cutter, the fixed table, the slotted pattern carrying the work over the cutter, the guide-pin, its holder or support, the cord J′, pulley K, and weight J, the said cord being connected to the upper end of the guide-pin stem, substantially as described, for the purpose specified.

4. In combination, the suspended treadle F, the treadle suspending rod D, the cutter-carrying slide G, connected with the suspended treadle, the spring *g*, and the work-holding device, the said suspending treadle-rod having a non-yielding connection with the said work-holding device, substantially as described, for the purpose specified.

5. The combination, in a rosette-cutting machine, of a treadle suspended by and having an unyielding connection with the work-holding device, and connected with the cutter-carrying slide G, substantially as herein set forth, with the spring *g*, and means whereby it is made adjustable to regulate its force according to the power required to hold the work under the action of the cutter, substantially as described.

6. In a machine adapted for rosette and for panel work, the stem A, adapted to carry a guide-pin or a work-holder, the pivoted frame C, the treadle F, adapted for use with a fixed fulcrum, F′, or with a suspending-rod, D, the cutter-carrying slide G, the spring *g* and its adjusting-screw *g′*, and nut g^2, the said rod D being connected to the pivoted frame by nuts D′ D′, and having the spring B arranged to elevate said rod, all constructed, arranged, and combined for use substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LAURENCE WENCHEL.

Witnesses:
A. E. H. JOHNSON,
J. W. HAMILTON JOHNSON.