

(No Model.)

4 Sheets—Sheet 1.

W. H. DOANE.
VARIETY WOOD WORKER.

No. 391,589.

Patented Oct. 23, 1888.

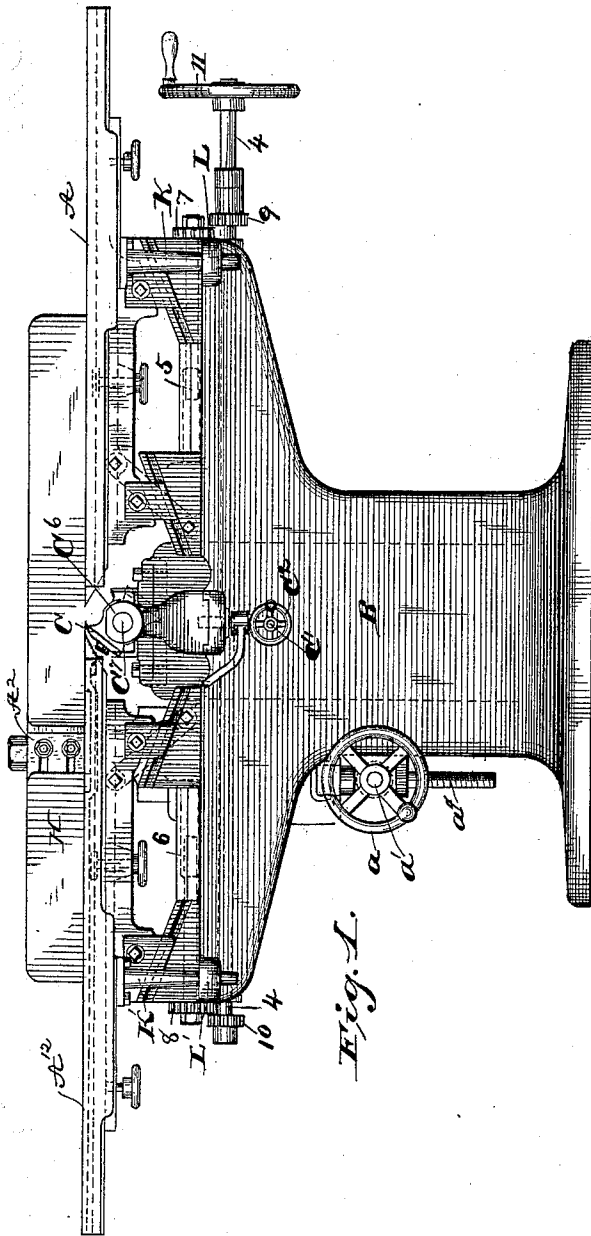


Fig. 1.

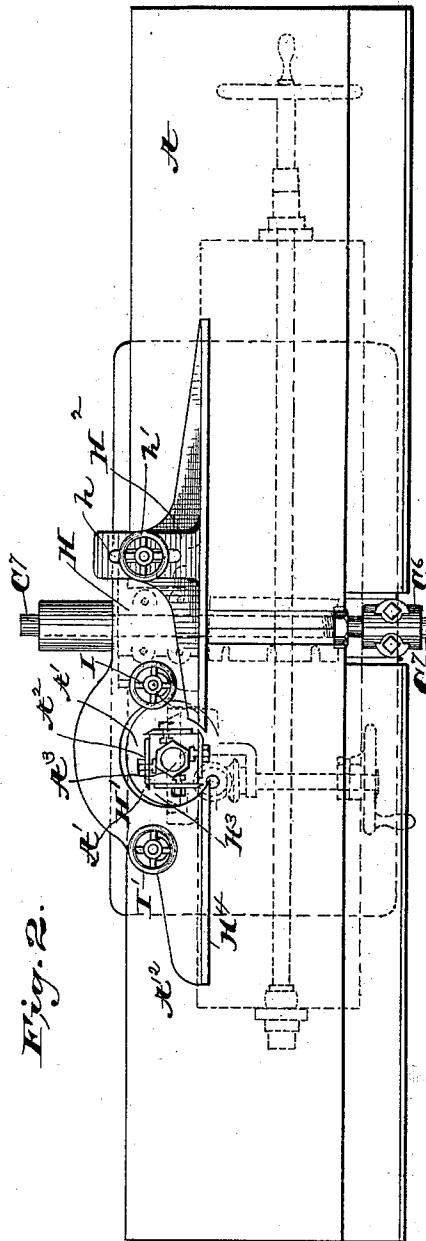


Fig. 2.

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Whitaker & Brewster.

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Fig. 5.

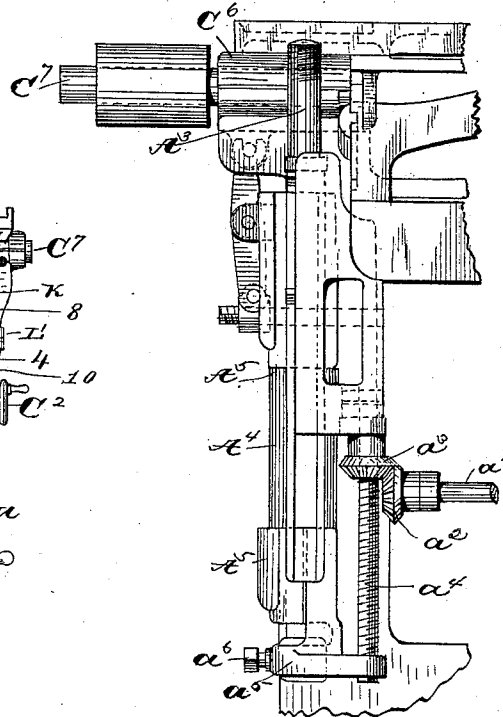
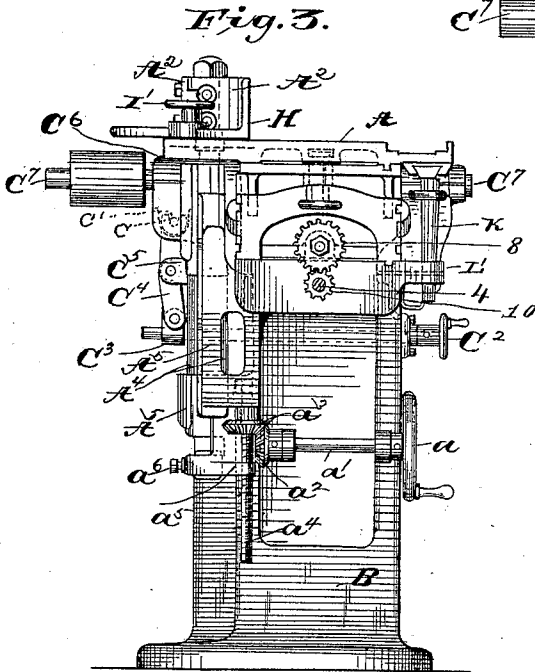
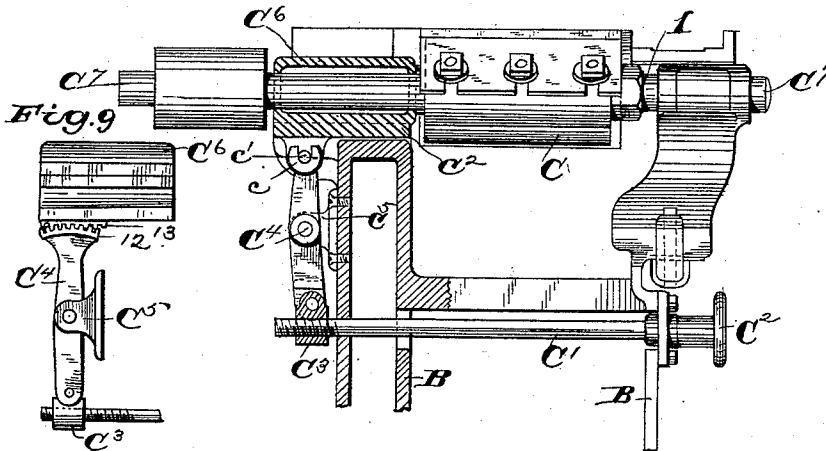


Fig. 4.



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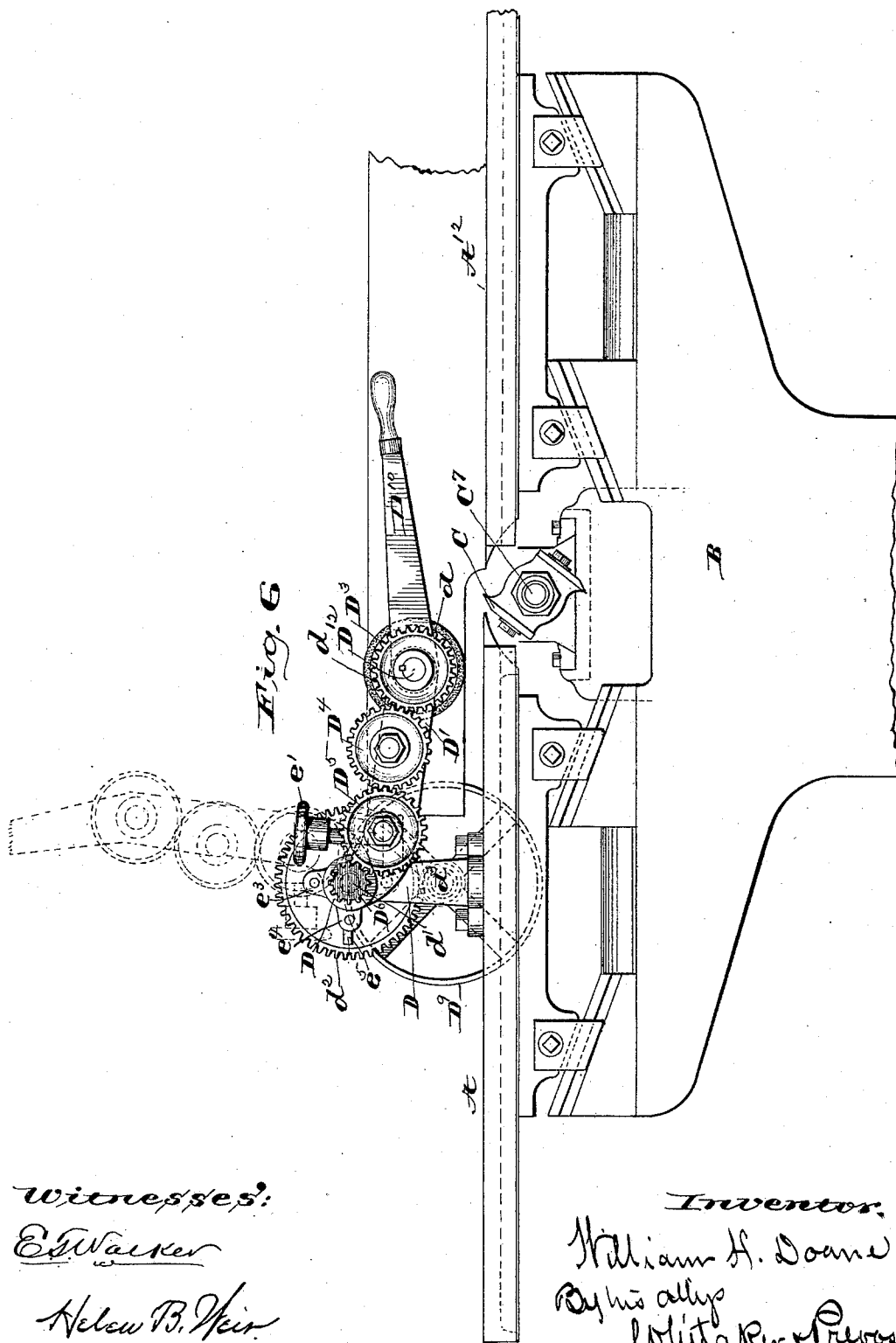
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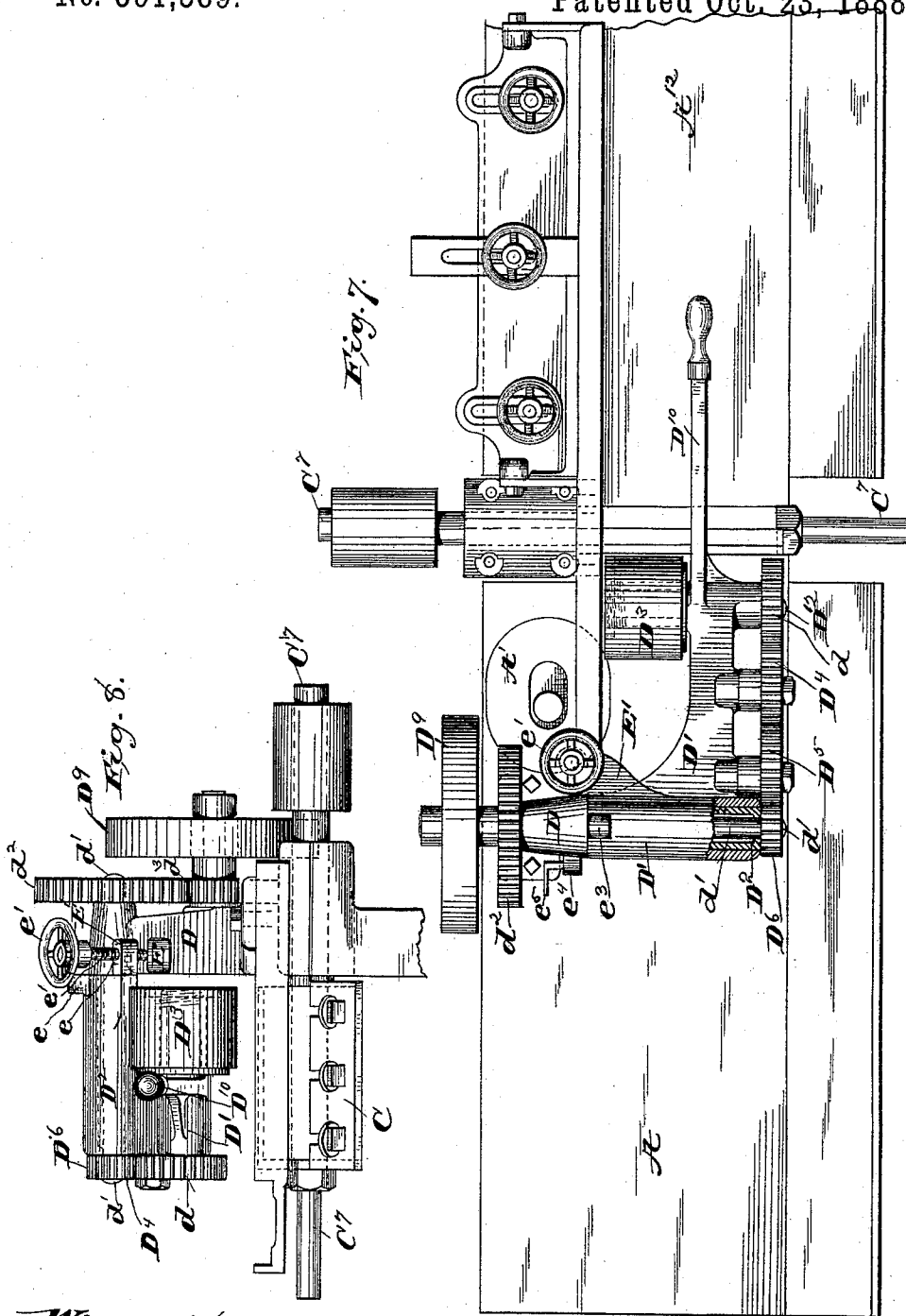
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UNITED STATES PATENT OFFICE.

WILLIAM H. DOANE, OF CINCINNATI, OHIO.

VARIETY WOOD-WORKER.

SPECIFICATION forming part of Letters Patent No. 391,589, dated October 23, 1888.

Application filed August 26, 1887. Serial No. 247,946. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DOANE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Variety Wood-Workers; 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-working machines, and contemplates certain improvements in the construction and arrangement of parts of machines of the character shown and described in the patent to Doane, Passel, and Bugbee, No. 227,223, May 4, 1880, which was patented under the name of "Variety Wood-Worker," by which term it is known in the trade and in the art. The term "variety wood-worker" is therefore used in this specification to designate machines of like character to that forming the subject-matter of the said patent, and in which an arbor with a cutter-head is employed with a bearing on each side of the cutter-head, one of said bearings being removable for the substitution of cutter-heads of different diameters and forms, the said head or heads working between and mainly below two tables, one of which is longitudinally and vertically adjustable to and from the said arbor and cutter-head.

One object of this invention is to provide a vertical cutter-head to be used in connection with the horizontal cutter-head, so as to make it possible for two sides of the material being worked to be operated upon at the same time.

Another object is to provide a feed-roll attachment which may at all times be raised or lowered with the table upon which it is mounted.

A third object of this invention is to furnish means by which the horizontal arbor and frame may be moved in a direction at right angles with the main body of the machine.

The arrangement of the tables and mechanism for adjusting them is substantially the same as set forth in United States Patent No. 227,223, and I have shown such constructions in connection with the portions of the machine which embody my invention in the accompanying drawings, and will proceed to describe

the improvements which I now claim in the following specification.

Figure 1 is a side elevation of my machine with the feed-roll attachment removed. Fig. 2 is a plan view. Fig. 3 is an end elevation. Fig. 4 is a transverse sectional view through the center of the machine, showing means for adjusting the main cutter-head. Fig. 5 is a partial end elevation showing the vertical cutter-head removed and its arbor depressed to its lowest position. Fig. 6 is a partial side elevation showing feed-roll attachment. Fig. 7 is a plan view of the same with vertical cutter-head lowered out of operative position. Fig. 8 is an end view looking toward the operator. Fig. 9 shows another means of laterally adjusting the journal box or bearing.

Similar letters of reference refer to similar parts in all the figures.

The rear and front tables, A A', are constructed and adjusted substantially as shown and described in United States Letters Patent No. 227,223, the said adjustments being effected (except horizontally) by the adjustments of the respective slides 2 and 3 through the action of the shaft 4 (shown in dotted lines) on the respective screw-spindles 5 and 6, which engage nuts on the slides and turn without longitudinal motion in bearings with which the main frame is provided. The spindles are provided with spur-wheels 7 and 8, respectively adapted to be engaged by pinions 9 and 10 on the shaft 4. These pinions are adjustable, so that one or both may engage the spur-wheels, as desired, thus making it possible to adjust the tables together or separately by operating the hand-wheel 11 of the shaft. In order to perfect the adjustments and keep the different parts true, the main frame is provided with bearing-lugs K K' and the tables with guides L L', engaging said lugs, as shown, thereby preventing any lateral displacement of the tables.

The rear table or platen, A, is provided with a recess, A', large enough to receive the vertical cutter-head A² and allow it to rotate therein. The cutter-head A² is mounted on shaft A³, provided with a pulley, A⁴, and mounted in a step-bearing in frame A⁵. The frame A⁵ is movably mounted in a slide-frame rigidly secured to the main column, and is capable of being adjusted vertically by means of the hand-

wheel operating the miter-gearing. (Plainly shown in Fig. 3.)

The shaft a' is mounted in suitable bearings on the main column B. To this shaft is rigidly secured the hand-wheel a and the vertical beveled gear-wheel a^2 in mesh with the horizontal gear-wheel a^3 . The wheel a^3 is keyed to a rod, a^4 , the upper end of which is mounted movably in the main column B. The lower extremity is screw-threaded, and passes through a screw-threaded aperture in a projection, a^5 , of the frame A^5 . When raised or lowered to a desired position, the cutter-frame may be secured by means of the thumb-screw a^6 .

The mode of adjusting the horizontal cutter-head C is clearly shown in Fig. 4.

A rod, C' , is movably mounted in proper bearings in the main column B. This rod is screw-threaded at one extremity, and at the other is provided with a hand-wheel, C^2 . The screw-threaded portion of the rod C' engages a yoke, C^3 , pivoted to the lower extremity of the lever C^4 , which is itself pivoted to the bracket C^5 , rigidly fixed to the back of the main column B. The upper extremity of the lever C^4 is provided with a slot, c , which engages a pin, c' , attached to the movable journal box or bearing C^6 of the arbor C^7 of the horizontal cutter-head, or with a toothed segment, 12, Fig. 9, the teeth of which operatively engage corresponding teeth of a rack, 13, on the under side of the movable bearing C^6 . The opposite end of the cutter-shaft is provided with a long bearing and is mounted in the opposite bearing-support in such a manner that a space is left between said support and the shoulder 1, so as to permit lateral movement. The movable journal box or bearing C^6 is supported by the lever and by the main frame of the machine. By turning the hand-wheel C^2 the rod C' either screws or unscrews in the yoke C^3 , turning the lever on its pivot, and the upper end of said lever, being connected with the movable journal box or bearing C^6 , causes it to slide on its support on the main frame, carrying with it the arbor and cutter-head.

The construction and operation of the feed-roll mechanism are seen to the best advantage in Fig. 6. A standard, D, is firmly secured to the rear table or platen. This standard is provided near its upper end with the sleeve D^2 , extending over the bed or platen and parallel therewith, and a roller-frame, D' , is pivotally mounted on this sleeve. The feed-roll D^3 is provided with a rubber surface and is keyed on shaft D^{12} , journaled in a suitable bearing in frame D' . The shaft D^{12} is provided at its outer end with a pinion, d . This pinion is connected operatively by idler-pinions D^4 and D^5 with the spur wheel or gear D^6 on shaft d' , journaled within sleeve D^2 . This shaft is provided at its opposite end with a gear-wheel, d^2 , which meshes with a spur wheel or pinion, d^3 , on a sleeve rigidly connected to and forming a part of pulley D^9 . This pulley is actuated by a proper belt from some moving part of the machine, and through the train of gear-

ing described motion is communicated to the feed-roll D^3 . The roller-frame D' is furnished with a handle, D^{10} , by means of which pressure may be exerted or the entire feed-roll mechanism lifted out of operative position, as shown in dotted lines, Fig. 6.

In order to keep the roller raised sufficiently to permit the passing of material under it when introduced to the machine, I provide the standard D with a projection, E, and frame D' with the projection E' , having a screw-threaded aperture, e . A hand-screw, e' , is passed through the aperture e , so that its lower end rests upon the projection E and maintains the entire frame and roller at any desired height within the limits of the length of the screw. On the roller-frame D' is a lug, e^3 , and a similar lug, e^4 , is provided on the standard D. Both of these lugs are provided with openings to receive a pin or bolt, e^5 , and are so located that when the frame is raised sufficiently they will be opposite each other, and the bolt or pin e^5 may be passed through them, holding the feed-roll mechanism in position. (Shown in dotted lines, Fig. 6.)

The duplex fence H consists of two parts, H' and H^2 . The part H' is constructed, preferably, as shown in Fig. 2, and that portion which is adjacent to the rear table or platen is provided with a recess, H^3 , surrounding the vertical cutter-head, and has the upright or vertical projection H^4 , forming the fence proper. The base portion extends forward onto the front table, and to this is adjustably connected, in any desired manner, the part H^2 , similar in form to the part H' .

In the drawings, the part H^2 is shown provided with a slat, h , and it is secured to the part H' by a screw, h' , provided where passing through said slot. This construction provides for the lateral adjustment of the forward portion of the fence upon and independent of the rear portion thereof. The entire fence H is fastened to the rear table or platen by means of the hand-wheels and screws I I', and the base portion has slotted openings through which the screws pass, permitting adjustment, as desired.

It will be noticed that the entire fence is raised or lowered with the rear table or platen. In case the vertical cutter-head is not used the duplex fence may be removed and any other of the known forms of fence substituted, as shown in Fig. 7, in which the form of fence illustrated in the patent to Doane and Bugbee, No. 210,763, is shown applied to the machine.

What I claim, and desire to secure by Letters Patent, is—

1. In a variety wood-worker, the combination, with a horizontal cutter-head adjustable transversely, of the table or platen, a vertical cutter-head vertically adjustable, and a guide-fence, substantially as described.

2. In a variety wood-worker, the combination, with a vertical cutter-head, of two vertically-adjustable tables and a duplex guide-fence, one part of which is adjustable on the

other, attached to and carried by one of said tables, substantially as described.

3. In a variety wood-worker, the combination, with a horizontal cutter-head, of a laterally-movable journal box or bearing for one end of same and a lever engaging said bearing, substantially as described.

4. In a variety wood-worker, the combination, with the laterally-movable journal box or bearing C⁶, of a lever engaging said bearing and a screw-threaded shaft engaging said lever, substantially as described.

5. In a wood-worker, the combination, with a horizontal cutter-head, of a vertically-adjustable rear table and a positively-operated gravity feed-roll mounted on the said rear table and adjustable therewith, substantially as described.

6. In a variety wood-worker, the combination, with a supporting sleeve, of a feed-roll frame journaled on said sleeve and gearing for operating said feed-roll, one shaft of which passes through the said sleeve, substantially as described.

7. In a variety wood-worker, the combination, with a vertical feed-roll support provided

with a projection extending laterally therefrom, of a swinging feed-roll frame pivoted to said support and having a projection extending above the projection on said support, and a screw passing through the projection on the feed-roll frame, substantially as described.

8. In a variety wood-worker, the combination, with an adjustable table or platen, of a feed-roll support mounted thereon having a projection with a longitudinally-movable bolt therein, with feed-roll frame pivoted to said support having a projection provided with a recess or opening and adapted to register with the longitudinally-moving bolt, substantially as described.

9. In a variety wood-working machine, the combination of a main frame having bearing-lugs K K', vertically-adjustable tables A, and guides L and L', engaging the bearing-lugs, substantially as described.

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

WILLIAM H. DOANE.

Witnesses:

JOHN H. HUGHES,
JAMES S. SEGAR.