4 Sheets—Sheet 1.

C. P S. WARDWELL.

Blind-Slat Planing-Machine.

No. 216,070. Patented June 3, 1879.

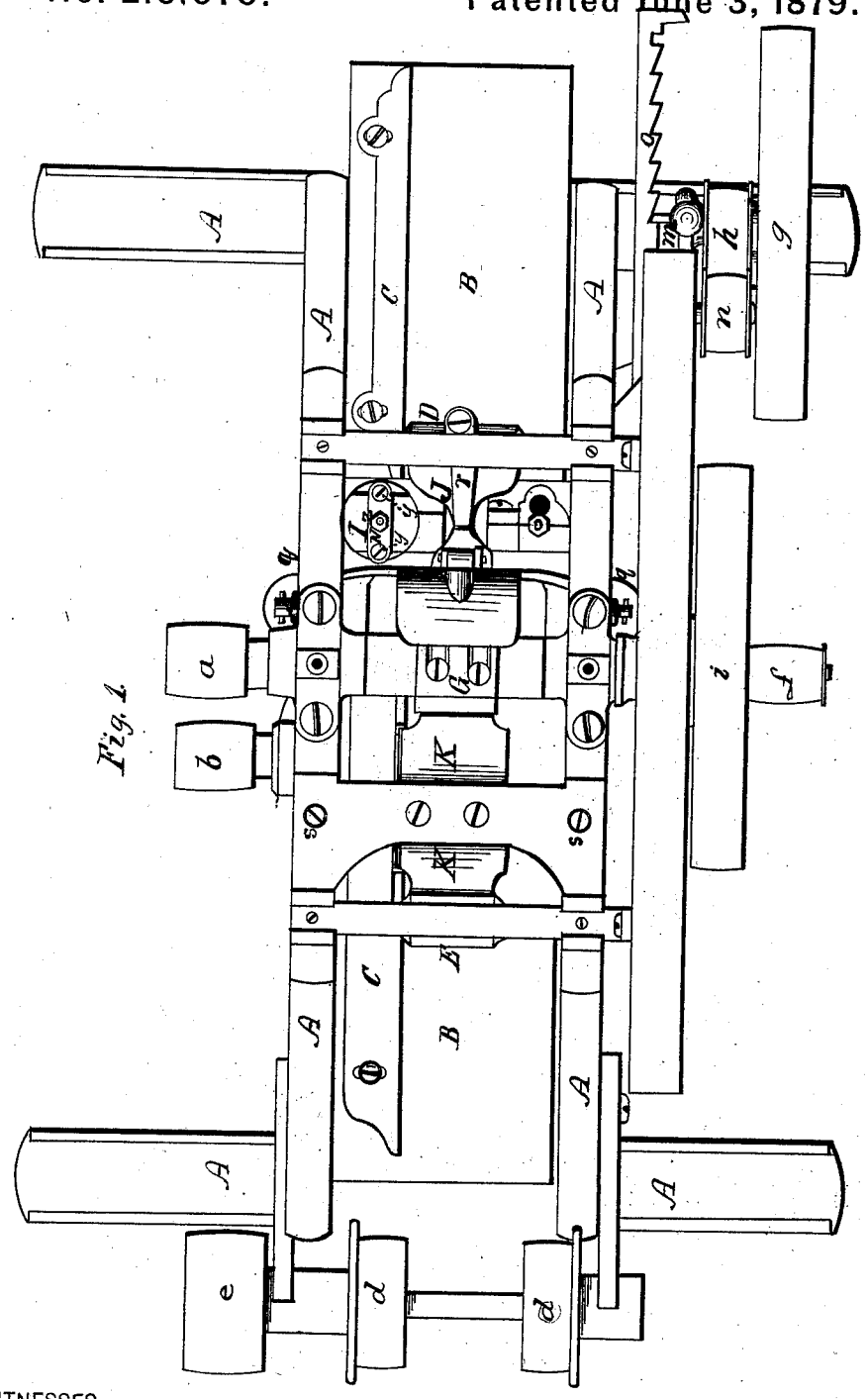


Fig. 1.

WITNESSES

E. McGallaher.

W. B. Chapple

INVENTOR,

Charles P. S. Wardwell,

By J. S. Brown,

his ATTORNEY.

4 Sheets—Sheet 2.

C. P S. WARDWELL.

Blind-Slat Planing-Machine.

No. 216,070. Patented June 3, 1879.

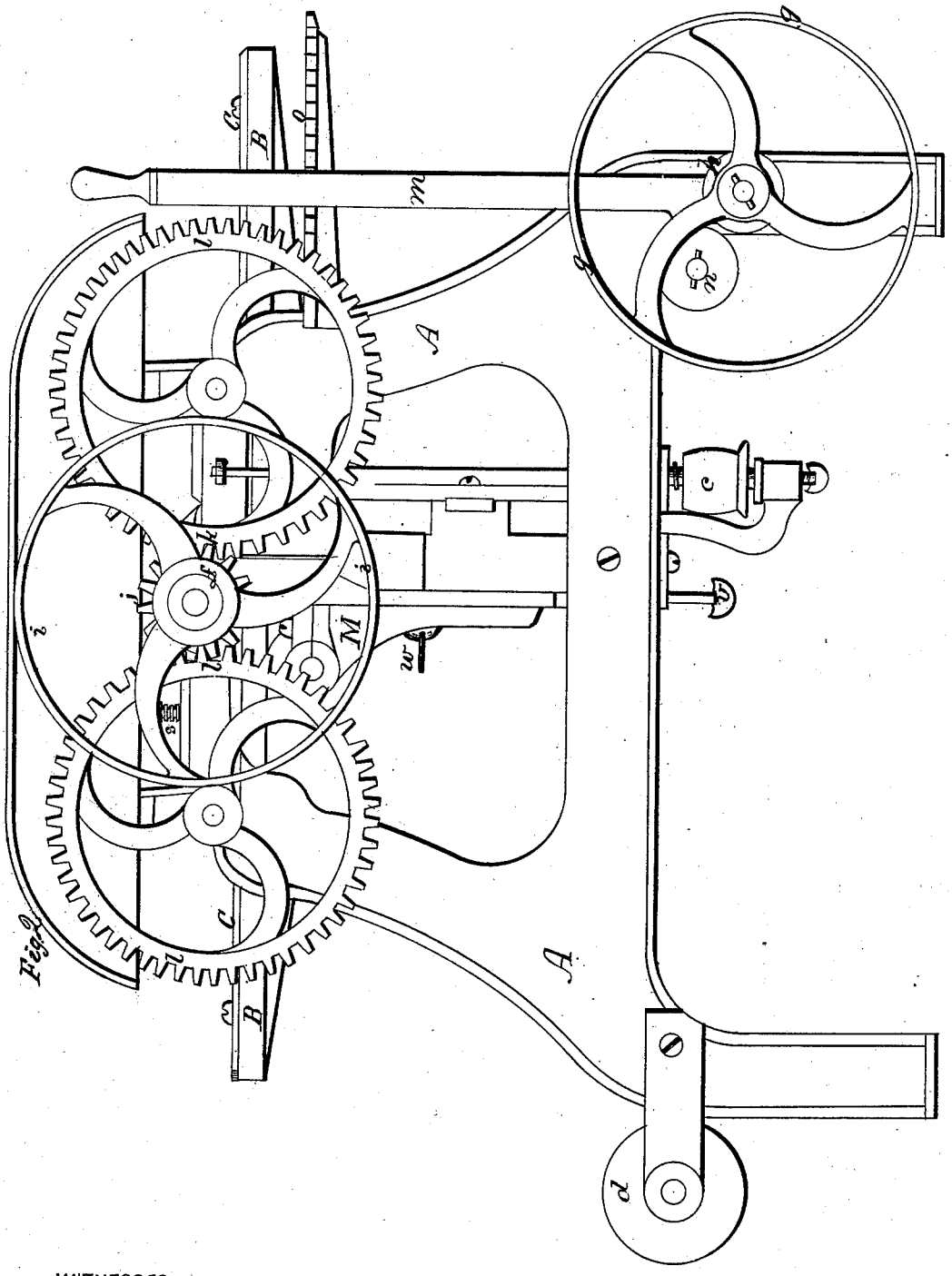


Fig. 2.

WITNESSES

E. McCallaher.
W. B. Chaffee

INVENTOR

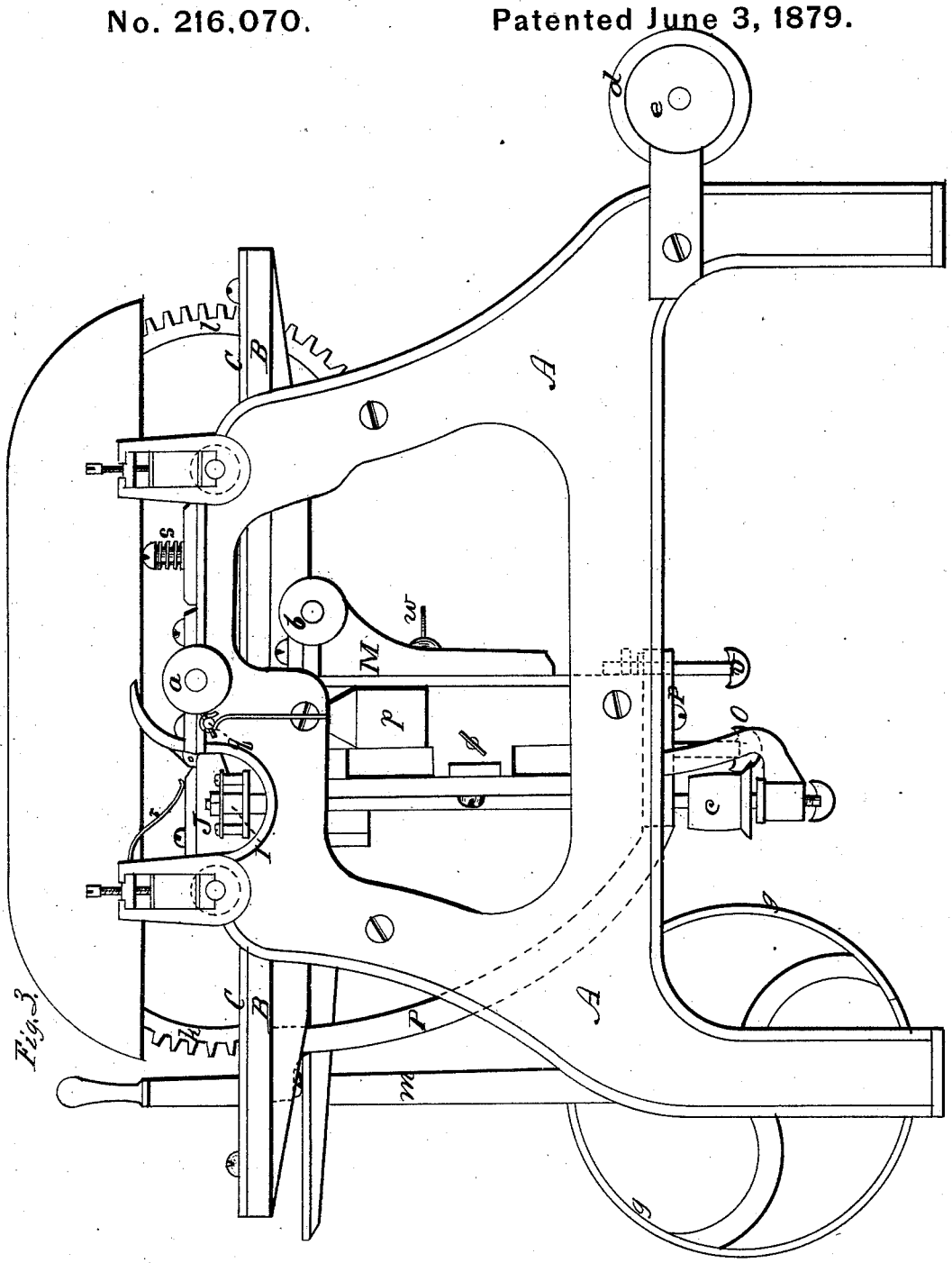
Charles P. S. Wardwell,
By J. S. Brown,
his ATTORNEY.

4 Sheets—Sheet 3.

C. P S. WARDWELL.

Blind-Slat Planing-Machine.

No. 216,070. Patented June 3, 1879.



WITNESSES

E. M. Gallaher.
W. C. Chapple

INVENTOR,

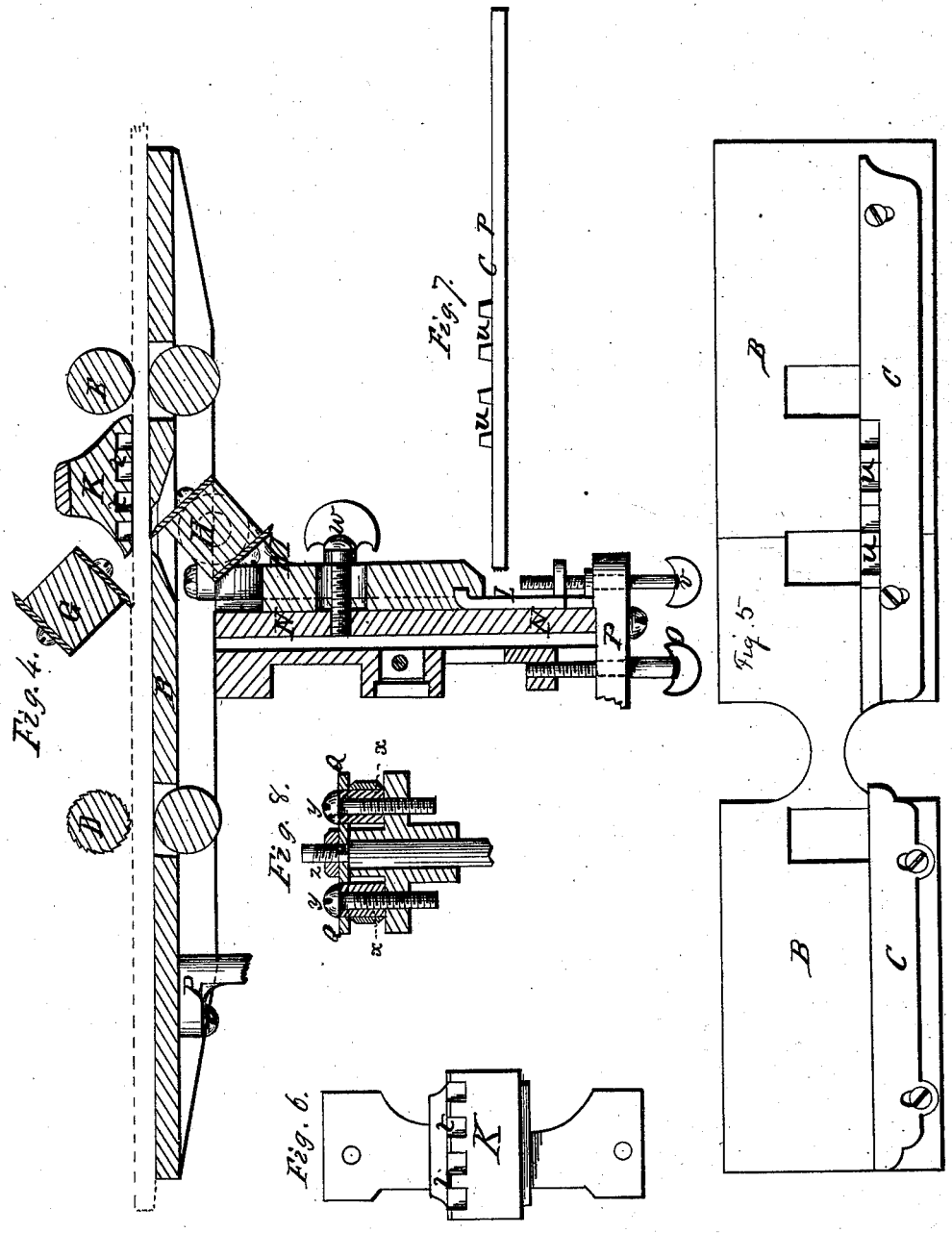
Charles P. S. Wardwell,
By J. S. Brown,
his ATTORNEY.

4 Sheets—Sheet 4.

C. P S. WARDWELL.

Blind-Slat Planing-Machine.

No. 216,070. Patented June 3, 1879.



WITNESSES

E. M. Gallaher.
W. E. Chapin

INVENTOR,

Charles P. S. Wardwell,
By J. S. Brown,
his ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES P. S. WARDWELL, (MARCIA B. WARDWELL, ADMINISTRATRIX,)
OF LAKE VILLAGE, NEW HAMPSHIRE.

IMPROVEMENT IN BLIND-SLAT-PLANING MACHINES.

Specification forming part of Letters Patent No. **216,070**, dated June 3, 1879; application filed April 24, 1877.

To all whom it may concern:

Be it known that I, CHARLES P. S. WARDWELL, of Lake Village, in the county of Belknap and State of New Hampshire, have invented an Improved Machine for Planing Blind-Slats; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of the machine; Fig. 2, an elevation of one side of the same; Fig. 3, an elevation of the opposite side thereof; Figs. 4, 5, 6, 7, and 8, views of parts detached.

Like letters designate corresponding parts in all of the figures.

The general construction of the machine has nothing of special novelty, and needs no further description than to refer to the principal parts and indicate their relation to the features of novelty in which my invention consists.

As represented, A is a suitable frame, in which the working parts are mounted; B, the bed or table on which the slats are fed along through the machine; C, the laterally-adjustable gage secured on the bed; D, the front feed-roll; E, the rear feed-roll; G, the top cutter-head; H, the under cutter-head; I I, the side cutter-heads; *a b*, the driving-pulleys on the arbors of the respective top and under cutter-heads; *c c*, the driving-pulleys on the respective arbors of the side cutter-heads, receiving their motions through belts from two transmitting-pulleys, *d d*, on a shaft driven by means of a pulley, *e*, at one end of the machine; *f*, a pulley on the arbor of the top cutter-head, from which pulley a belt passes to a large slowing-pulley, *g*, on the shaft of which is another pulley, *h*, from which another belt passes to another slowing-pulley, *i*, turning loose on the said arbor of the top cutter-head, and having secured to it a small cog-wheel, *j*, which gears into two larger cog-wheels, *k l*, on the respective shafts of the feed-rolls; *m*, a belt-tightening lever bearing its pressure-pulley *n*, and engaging in a ratchet-bar, *o*, for bringing the feed-rolls into action.

The driving and connecting belts are not represented in the drawings, the application and arrangement being obvious to those skilled in the art to which the invention relates.

The first feature of my invention consists in a pressure-fender, J, located in front of the top cutter-head, G, between it and the front feed-roller, D, to press upon each slat as it is fed through the machine. Its rear end is hinged or pivoted to the frame near the said cutter, and is held down upon the slat with a yielding pressure by weights *p p*, hung upon the projecting ends of its pivot-shaft *q*, which has a vertical play in its bearings sufficient for the purpose; or a suitable equivalent for the weights may be employed.

The front end of the fender is pressed down upon the slat by a spring, *r*, applied as shown, or in any convenient way. Its front end also has projections, which reach forward over the shaft of the front feed-roller, D, or equivalently arranged to limit the extent to which it may be pressed down. The functions of this pressure-fender are as a chip-breaker and to hold the slat firmly to the table while the side cutters are rounding the edges thereof, the fender being directly between the said side cutters.

Second, I employ a back presser block or plate, K, situated close back of the top cutter-head, G, and extending back over the under cutter-head, H. It has a yielding pressure down upon the slats, represented as applied by means of two coiled springs, *s s*, on adjusting-screws, which secure the holding-bar of the presser-block upon the frame of the machine. The functions of this presser-block are to hold the slats steady close under the top cutter head or cylinder, and to hold the same by counter-pressure firmly down upon the bed or table opposite to the position where the under cutter head or cylinder operates on the under side of the slats.

An additional feature of improvement consists in the peculiar construction of this presser-block, in combination with the laterally-adjustable gage C on the bed or table B. It has notches *t t* in its lower surface, at the edge next to the said gage, alternating with unremoved portions or bars, as shown in Fig. 6, which notches and projections alternate with corresponding projections and notches *u u* upon and in the upper surface of the gage, at

the edge next to the presser-block, as shown in Figs. 5 and 7.

The construction and arrangement thus produced serve to allow the lateral adjustment of the gage for wide or narrow slats, as well as to admit thick or thin slats, and still provide for the presser-blocks pressing upon the entire width of the slats of any width.

The projections on the gage project above its general surface, and the notches in the presser-block are deep enough to allow the said projections to extend upward therein, however much the thickness of the slats may vary. All the yielding movement that is required of this presser-block is to be sufficient to conform to the plane of cut of the top cutter head or cylinder.

Back of the cut of the under cutter head or cylinder, H, the upper surface of the table or bed B is raised higher than the surface forward of that line as much as the thickness of the kerf cut by the under cutter-head; and the under cutter-head is adjustable up and down, to conform in height to this raised surface of the bed, by means of a vertically-adjusting thumb-screw, *v*, below, as represented. The screw acts upon an adjusting-link, L, which slides in a suitable groove or way of the frame. Its upper end has an open hook, which hooks into an eye in the lower end of the bearing block or bracket, M, in which the under cutter-head is mounted, as shown in Fig. 4. This construction allows the ready removal of the said bearing-block, with the cutter-head, for any purpose, and replacing without moving the adjusting screw and link. A retaining thumb-screw, *w*, extends laterally through a vertical slot in this bearing-block, and holds it in position to the support. Thus the removal and replacement of the bearing-block leaves the adjusting-screw without disturbing its adjustment, and consequently without requiring a readjustment of the cutter-head. This adjustment is irrespective and independent of the adjustment of the cutter-head H with the bed B itself, which is mounted on a sliding support, N, that is adjusted in vertical ways of the frame by a set-screw, O, a brace, P, connecting the forward end of the bed with this support. The set-screw *v* of the link L is mounted in the brace P or support N, and the set-screw *w* enters the said support. Thus all these parts move together with the bed.

The construction of the side cutter-heads for rounding the edges of the slats is as shown in Fig. 8. Each cutter is held vertically edgewise between the cutter-head proper, or a disk or enlargement thereof, and a cross-piece, Q, above it, against the notched or plane-faced side of a thimble or tubular washer, *x*, and is retained in position by a set-screw, *y*, passing down through the cross-piece, thimble, and cutter-head disk, as shown. The cross-piece has a central hole fitting over the end of the cutter-head shaft or central projection, and is held down on a shoulder thereof by a screw-nut, *z*, a portion of the shoulder or enlargement extending up into the hole, or otherwise constructed to keep the cross-piece from having lateral movement or play. Thus the cross-piece holds the screws and thimbles from canting or moving out of true position. The thimbles enter holes in the cross-piece, and thus allow the insertion of cutters of different widths at will. The cutter-head bearings are adjusted laterally in suitable ways of the frame.

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

1. The presser and fender bar J, in combination with the upper cutter-head, edge cutter-heads, and front feed-roller, arranged to press upon the slats both immediately in front of the upper cutter-head, and directly between the edge cutter-heads, and limited in its downward play by the front feed-roller, substantially as and for the purpose herein specified.

2. The presser block or plate K, arranged as described, and provided with notches *t t* and intermediate projections, in combination with the adjustable gage C, provided with corresponding projections and notches *u u*, arranged and operating substantially as and for the purpose herein specified.

3. The vertically-adjustable plate N, bearing the adjustable end of the bed plate or table B and under cutter-head, H, and having the separately-adjustable bearing-block M of the said cutter-head secured thereto, substantially as and for the purpose herein specified.

4. The combination of the adjusting-link L and set-screw *v* with the detachable and removable bearing-block M of the under cutter-head, substantially as and for the purpose herein specified.

CHARLES P. S. WARDWELL.

Witnesses:

S. A. WHITTEN,

W. F. BUNDY.