

No. 699,008

Patented Apr. 29, 1902.

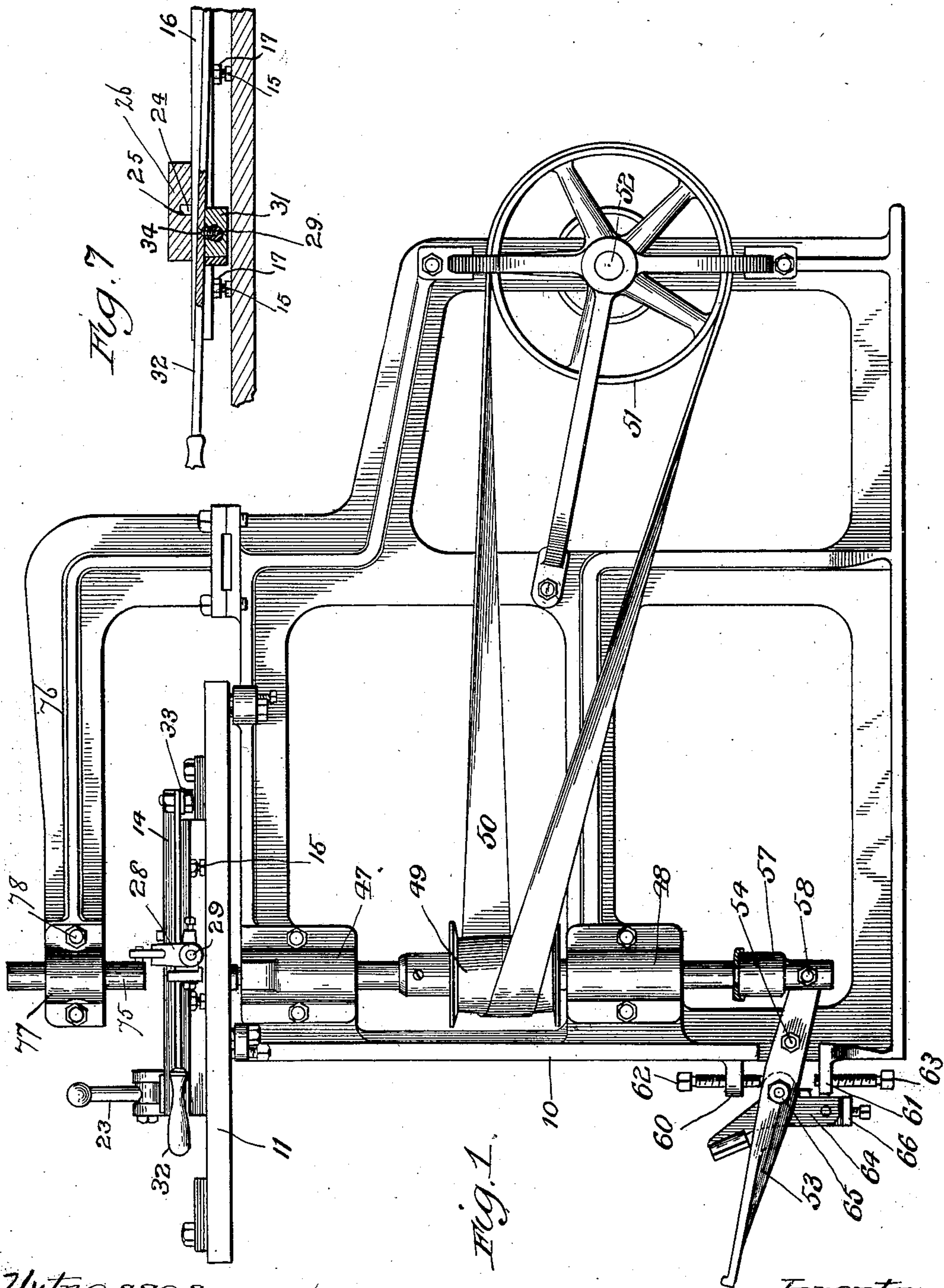
F. V. PHILLIPS.

MACHINE FOR MORTISING WINDOW FRAMES.

(Application filed Nov. 7, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

Carroll B. Smith
H. W. Munday

Fig. 1.

Inventor:

Francis V. Phillips

By Munday Evans &
Adcock Attys

No. 699,008.

Patented Apr. 29, 1902.

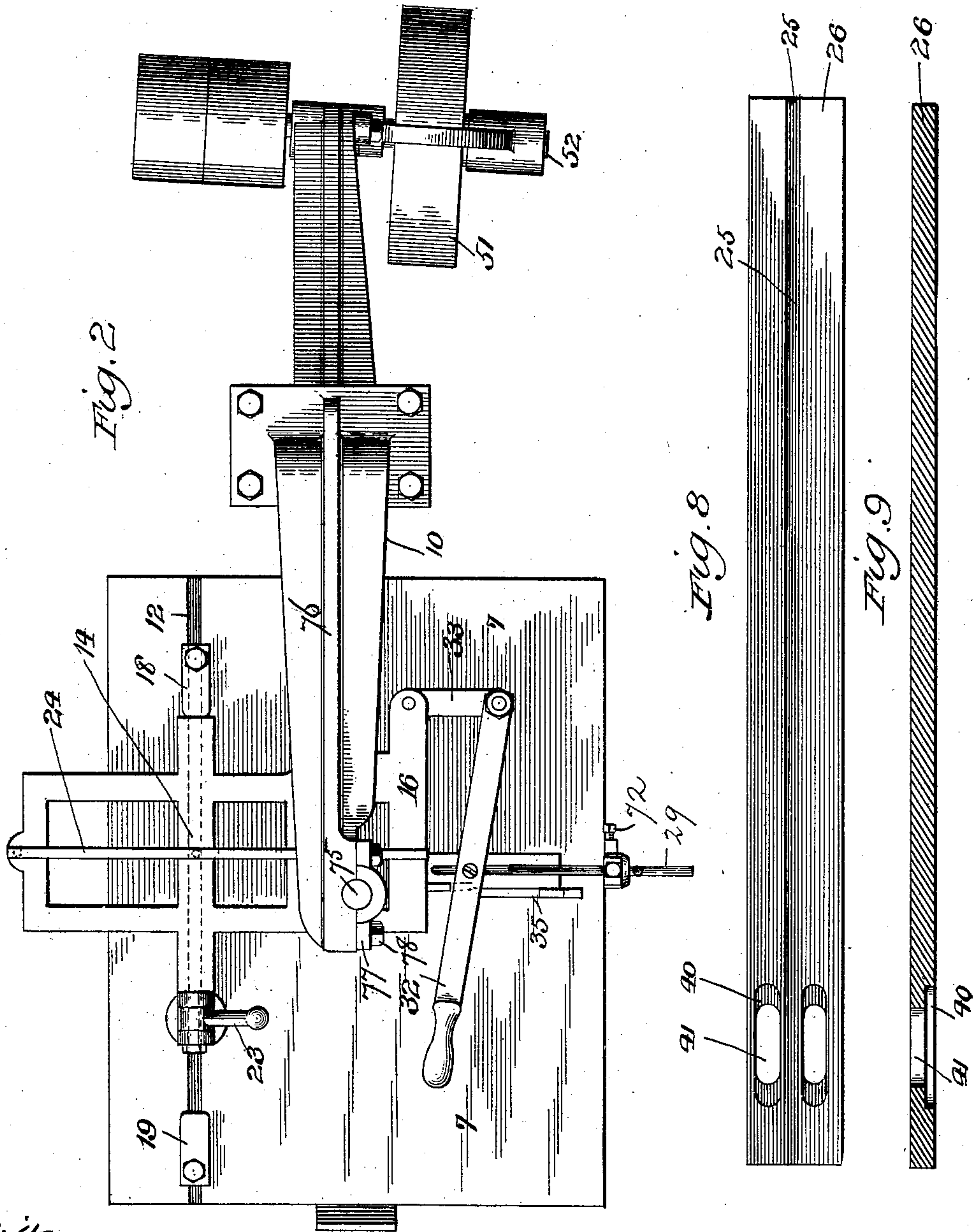
F. V. PHILLIPS.

MACHINE FOR MORTISING WINDOW FRAMES.

(Application filed Nov. 7, 1900.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:

Charles Barrett.
J. W. Munday

Inventor:

Francis V. Phillips
By Munday Evans & Adcock
his Attorneys

No. 699,008.

Patented Apr. 29, 1902.

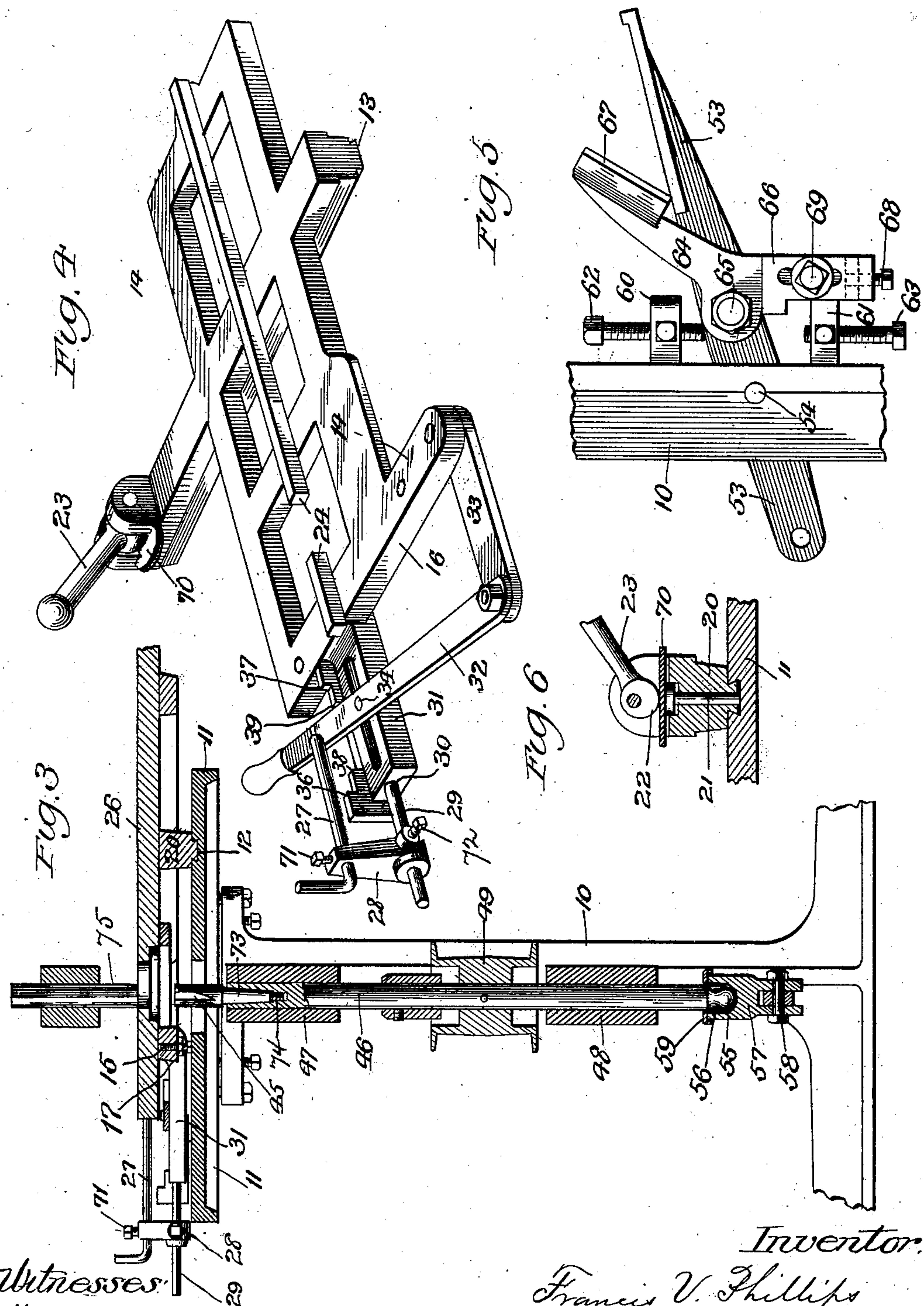
F. V. PHILLIPS.

MACHINE FOR MORTISING WINDOW FRAMES.

(Application filed Nov. 7, 1900.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:
Harold E. Barnett.
H. W. Munday.

Inventor:
Francis V. Phillips
By Munday Ernts & Adcock
his Atty

UNITED STATES PATENT OFFICE.

FRANCIS V. PHILLIPS, OF WINTERPARK, FLORIDA, ASSIGNOR TO THE SMITH AND PHILLIPS MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MACHINE FOR MORTISING WINDOW-FRAMES.

SPECIFICATION forming part of Letters Patent No. 699,008, dated April 29, 1902.

Application filed November 7, 1900. Serial No. 35,707. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS VORBURGH PHILLIPS, a citizen of the United States, residing in Winterpark, in the county of Orange and State of Florida, have invented a new and useful Improvement in Machines for Mortising Window-Frames, of which the following is a specification.

This invention relates to the construction of machines for cutting the pulley-mortises in window casings or frames. In my improved machine I employ a vertically-adjustable rotating bit or cutter, a support for the casing-stile, movable laterally so as to position the stile first for the cutting of one of the mortises and then for the cutting of the other mortise, means for gaging such movement accurately, a lever for imparting a longitudinal movement to the stile corresponding to the length of the mortise, and means for gaging such longitudinal movement. The stile-support is provided with a guiding-rib adapted to fit into the longitudinal groove with which the stile is provided prior to its being operated upon in this machine and in which the parting-strip is subsequently placed, and by means of such rib and the gaging device against which the stile is positioned the operator is enabled without taking any measurements whatever to position the work in the machine in exact position it should occupy in order to secure the proper locating of the mortises.

The invention consists in the novel construction of parts and devices and in the novel combinations of parts and devices hereinafter set forth, and pointed out in the claims, and it will be fully understood from the description thereof given below, when considered in connection with the accompanying drawings, in which latter—

Figure 1 is a side elevation, Fig. 2 is a plan, and Fig. 3 a transverse vertical section, of the invention. Fig. 4 is a perspective of the stile-support. Fig. 5 is a detail elevation of the foot-lever for raising the cutter, showing the side opposite to that shown in Fig. 1. Fig. 6 is a vertical section showing the device for locking the support to the table. Fig. 7 is a detail section on the line 7-7 of Fig. 2.

Figs. 8 and 9 are respectively a face and a longitudinal section of the window-stile after it has been operated upon in my machine.

In said drawings, 10 represents a suitable standard supporting the machine, and 11 is a stationary table mounted thereon. In this table is a longitudinal dovetail groove 12, receiving the depending tongue 13 of the supporting-frame 14, upon which the stile is positioned and by which it is supported. The tongue 13 is located at one side of the longitudinal center of the frame, and in order that the frame may be supported at the other side of the center I provide screws 15, entering the cross member 16 of the frame from its under side and having their heads bearing upon the surface of the table. In order to hold these screws when once adjusted, they are provided with jam-nuts 17. I am enabled by means of these screws to take up any looseness or wear occurring between groove 12 and tongue 13. By means of the tongue and groove the frame 14 is guided in its movements, in which it shifts laterally to carry the stile from its position for the cutting of one mortise to its position for the cutting of the other mortise. The extent of these movements is regulated by adjustable stops 18 and 19, secured in groove 12, and the frame is locked in both positions by a locking device consisting of a sliding block 20, engaging said groove 12, a movable vertical pin 21, passing downward through the block and bearing on the bottom of the groove, and an eccentric 22, supported in the block and positioned over the pin, so that it is adapted to force the pin against the bottom of the groove, and thus create sufficient friction to hold the frame securely. A handle 23 is attached to the eccentric, and thereby the pin is readily released and locked.

Upon its upper surface the support 14 is provided with an upstanding rib 24, adapted to fit the groove 25, with which the stile 26 is provided, prior to its being placed in this machine, and in which groove the parting-strip of the window-frame is afterward inserted. By means of the rib it will be seen that the stile will be positioned on the frame so that the mortises will come in correct po-

sitions relative to each other and the parting-strip which comes between them. The stile is positioned longitudinally by abutting its end, as in Fig. 3, against the gage 27, which is supported in an upright piece 28, mounted upon a rod 29, horizontally and movably supported in the opening 30 in the vertically-slotted projection 31 of the frame. By the positioning devices now described (the rib 24 and the gage 27) the operator is enabled to correctly position the stile in the machine without any measurements whatever, and by means of the stops 18 and 19 he is also enabled to move the frame sidewise to correctly position the stile for the cutting of the second mortise.

During the cutting of the mortise the stile is moved longitudinally by a hand-lever 32, pivoted to an arm 33, projecting from frame 14, the lever being connected to the rod 29 by a pivotal connection 34, so that the power of the lever is transmitted to the gage 27 and through such gage causes the sliding of the stile longitudinally along the rib 24. The extent of this movement depends, of course, upon the length of the mortise and is regulated by limiting the movements of the lever in any suitable way—as, for instance, by means of the plate 35, attached to projection 31, and having its upper edge cut out to form two pairs of shoulders 36 37 and 38 39. The shoulders 36 37 are separated more widely and are located in a higher plane than shoulders 38 and 39 and prescribe the movements of the lever while the cutter is forming the flange-receiving portions 40 of the mortises, which are shown at 41, and the shoulders 38 39, giving a less range of movement, prescribe the movements of the lever during the cutting of the main opening of the mortises. After the cutting of each mortise, and also after the cutting of each flange-space, the lever is moved back to its next starting position, either against shoulder 36 or shoulder 38, and the stile is slid up against the gage 27 by hand, in readiness for the next operation. The lever 32 is shown at Figs. 2 and 4 in the position occupied by it at the completion of the cutting of the main opening and as against shoulder 39. At the completion of the routing of the flange-space it should stand against shoulder 38. As shown at Fig. 2 the carriage or frame 14 is shown as positioned for the operations on the left-hand mortise, and to shift it for the cutting of the other mortise the locking device is released, and the frame is then shifted until the locking device encounters the stop 19. When this has been done, the frame is again locked to the table, and the right hand mortise is cut.

The bit or cutter is shown at 45. It is supported in the upper end of a vertical spindle 46, rotating in bearings 47 and 48 and driven by the pulley 49, belt 50, and pulley 51, the latter on the drive-shaft 52. The spindle is

vertically movable in its said bearings and is supported upon the end of a foot-lever 53, pivoted at 54 and provided with regulating devices, as hereinafter stated. The lower end of the spindle, instead of being joined directly to the lever, is made spherical, as at 55, and inserted in the socket 56 in the block or bearing-piece 57, and the latter is forked, so it may set over the lever and is pivoted to the lever by the pivot 58. A cap 59 is preferably placed around the spindle and over the socket 56.

The spindle is intended to be raised to the work by the foot-lever, and as it is raised to one level for routing out the flange-spaces and to another level for cutting the main openings I provide the lever with the following devices: Above and below it are placed stops consisting of lugs 60 and 61 and set-screws 62 and 63 in said lugs. These prescribe the limits or range of movement both up and down permitted the lever; but in addition to these stationary stops I provide upon the lever itself a pivoted or swinging latch carrying a projection or stop so located normally that it will encounter the lower lug 61 when the lever is forced down and arrest the descent. This latch consists of a main body 64, pivoted centrally to the foot-lever 53 at 65, carrying at its lower end an adjustable stop-piece 66, adapted normally to engage said lug 61 and having its upper end 67 inclined over the treadle or foot-space of lever 53, as seen at Figs. 1 and 5, so that the operator may with the same foot whereby he depresses the lever 53 also swing the end 67 of the latch back, and thus carry the stop 66 so far forward that it will clear the lug 61 and allow the lever 53 to descend until it encounters the lower stop-screw 63. To move the spindle up for the routing of the flange-spaces, the lever 53 is held depressed with the stop 66 resting upon lug 61; but when the main opening of the mortise is to be cut the operator pushes back the latch and depresses the lever until it meets the screw 63 and holds it there during the operation.

The stop 66 is made separate from the body of the latch, so it can be adjusted thereon. It is L-shaped, and an adjusting-screw 68 is passed through its horizontal member and up against the bottom of the latch and a clamping-screw 69 passes through the elongated slot in the vertical member of the stop and into the latch and acts to clamp the stop firmly in its adjusted positions. By changing the position of the stop the depth of the cut in routing out the flange-spaces is regulated, as will be understood.

The device for locking the stile-supporting frame to the table of the machine is provided with a piece of leather or equivalent material 70 between the eccentric and the locking-pin. This acts to prevent any tendency of the eccentric to turn back and release the lock after it has been forced into acting position. It

also prevents the wear which would occur if the eccentric came in direct contact with the pin.

The gage 27 is secured in its support 28 by means of a set-screw 71, and consequently can be set at any point desired, and the support 28 is adjustably attached to the sliding rod 29 by a set-screw 72, so that all needed range of adjustment of the gage is readily obtained.

That portion of the bit which is entered within the spindle is tapered, as at 73, and provided with a screw 74 at its lower point, and the socket in the spindle is also tapered and threaded at the bottom. With this construction the bit will always be drawn into the socket by the threads until its tapered sides bear snugly against the tapered walls of the socket.

While the cutter is operating there will be a tendency by the stile to jump upward, and to restrain this I employ a stop 75, bearing lightly on the top of the board over or in proximity to the cutter. This stop is made of wood, so it will not injure the cutter should the latter come in contact with it, and it is supported in the stationary overhanging and unyielding arm 76. As the stop may need adjustment, it is clamped in position by the plate 77 and bolts 78. It should not, of course, create undue friction on the board or prevent it from moving.

The mode of operation of the machine has been already so fully explained in connection with the description of the parts and their functions that no specific description of it is needed, and while I have set forth herein the best construction now known to me it will be understood that the construction may be widely varied without departing from the invention and that some of the features may be used without others.

I claim—

1. The combination in a machine for mortising the stiles of window-frames, of the adjustable cutter for cutting both the pulley-opening and the flange-space, a foot-lever effecting the adjustment of the cutter by a downward movement, a movable stop arresting the lever when it has descended far enough for the cutting of the flange-spaces and releasable by the operator's foot, and a second stop arresting the lever when it has descended far enough for the cutting of the pulley-opening, substantially as specified.

2. The combination in a machine for mortising the stile in window-frames, of a vertical-moving cutter acting to cut both the pulley-opening and the flange-spaces, a foot-lever for raising the cutter to its work and by which the operator retains it in action, a regulating-latch pivoted to the lever and acting to arrest it in an intermediate position, said latch being releasable by the foot, and means for arresting the lever when it reaches its lowest position, substantially as specified.

3. The combination in a machine for mor-

tising the stiles of window-frames of a vertically-movable cutter adapted to cut both the pulley-opening and the flange-spaces, a foot-lever, and a regulating-latch attached to the lever where it may be operated by the same foot which actuates the lever, said latch allowing the lever two operative positions, substantially as specified.

4. The combination with a vertically-movable cutter adapted to cut both the pulley-opening and the flange-spaces in the stile, of the table, a stile-supporting frame movable laterally on the table and having a guide entering the parting-strip groove of the stile, and means for moving the stile lengthwise while the cutting is being done, substantially as specified.

5. The combination with the vertically-movable cutter, of the table, the stile-supporting frame having a guide adapted to enter the parting-strip groove of the stile, a movable gage for positioning the end of the stile, and means for actuating said gage in imparting longitudinal movement to the stile, substantially as specified.

6. The combination with the vertically-movable cutter adapted to cut both the pulley-opening and the flange-spaces in the stile, a frame for supporting the stile and having a guide entering the longitudinal groove of the stile and also made movable on the table to shift the stile laterally, a gage for positioning the stile lengthwise, and means for moving the stile lengthwise on the frame, substantially as specified.

7. The combination in a machine for mortising the stiles of window-frames, of a vertically-movable cutter adapted to cut both the pulley-opening and the flange-spaces, a table, a guide supported from the table and fitting the parting-strip groove of the stile and permitting endwise movement of the stile, and means for moving the stile endwise a determined distance while the cutter is forming the flange-spaces and a less distance while the cutter is forming the pulley-opening, substantially as specified.

8. The combination in a machine for mortising the stiles of window-frames, of a vertically-movable cutter acting to cut both the pulley-opening and the flange-spaces, a table on which the stile may be positioned horizontally, a guide on the table fitting the parting-strip groove of the stile and permitting endwise movement thereof and a hand-lever for moving the stile longitudinally while cutting, said lever having means for determining the extent of movement when cutting the spaces and means for determining the extent of movement when cutting the openings, substantially as specified.

9. The combination with means for cutting the mortises, of a support for the stile having a guiding-rib adapted to enter the longitudinal groove of the stile and to permit longitudinal movement of the stile while the cutting is under way, and a device for so moving the

stile predetermined distances, substantially as specified.

10. The combination with means for cutting the mortises, of a support for the stile having
5 a guiding-rib adapted to enter the longitudinal groove of the stile and to permit longitudinal movement of the stile while the cutting is under way, and a device for so moving the stile predetermined distances acting to move
10 it a less distance while the pulley-opening is being cut than while the flange-spaces are being cut, substantially as specified.

11. In a machine for mortising window-frame stiles, a table and a laterally-adjust-
15 able frame supporting the stile, and having a sliding dovetail connection with the table, in combination with locking means consisting of the block 20 engaging the table-groove, the

pin bearing upon the bottom of the dovetail groove and the eccentric having its bearings 20 in said block, substantially as specified.

12. The combination with the movable frame and the stationary support therefor, the former having a dovetail tongue and the latter a dovetail groove receiving the tongue, of 25 means for locking it in position consisting of an eccentric and a support therefor mounted on the frame, a depressible pin operated by the eccentric, a stationary surface against which said pin is forced by the eccentric, and 30 the leather 70 interposed between the eccentric and pin, substantially as specified.

FRANCIS V. PHILLIPS.

Witnesses:

E. L. MAXSON,

DE BATCHELOR.