(No Model.) 2 Sheets—Sheet 1.

M. NICHOLLS.

MITER BOX.

No. 536,936. Patented Apr. 2, 1895.

Fig. I.

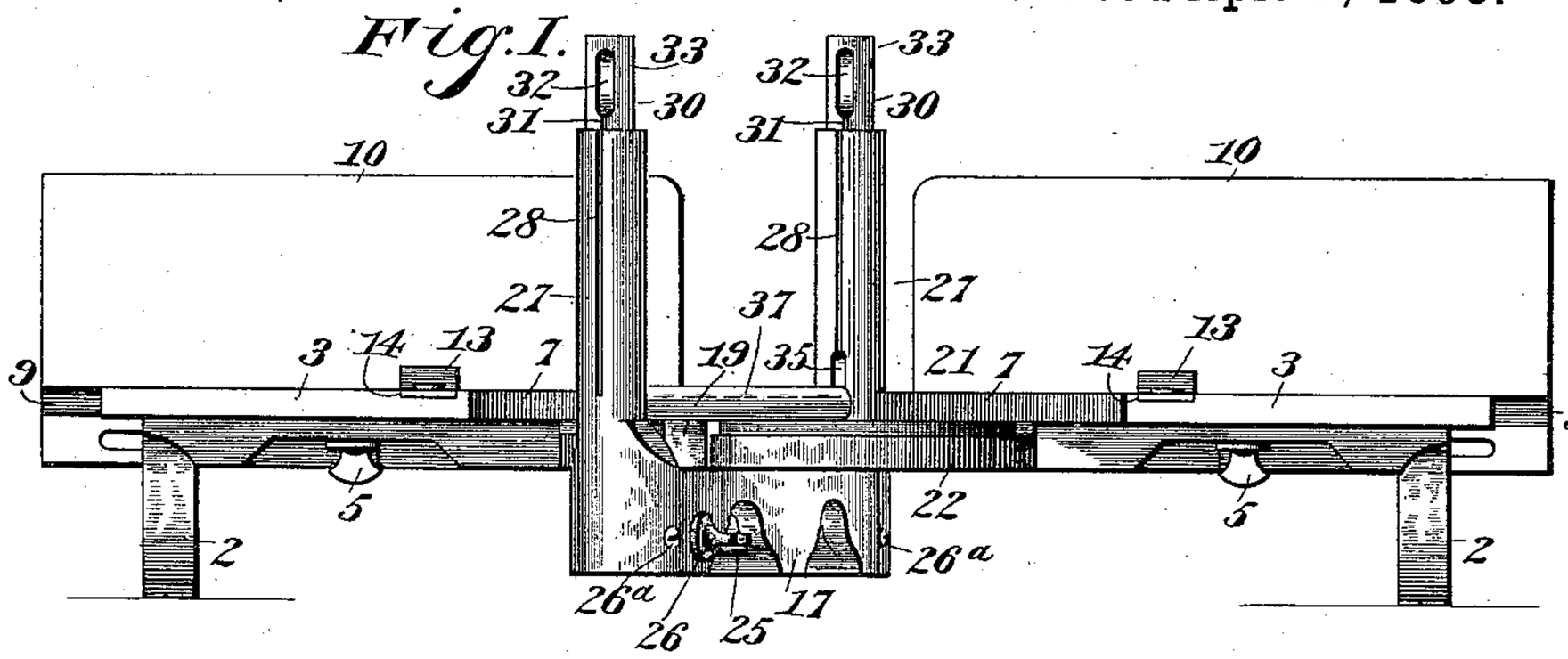


Fig. II.

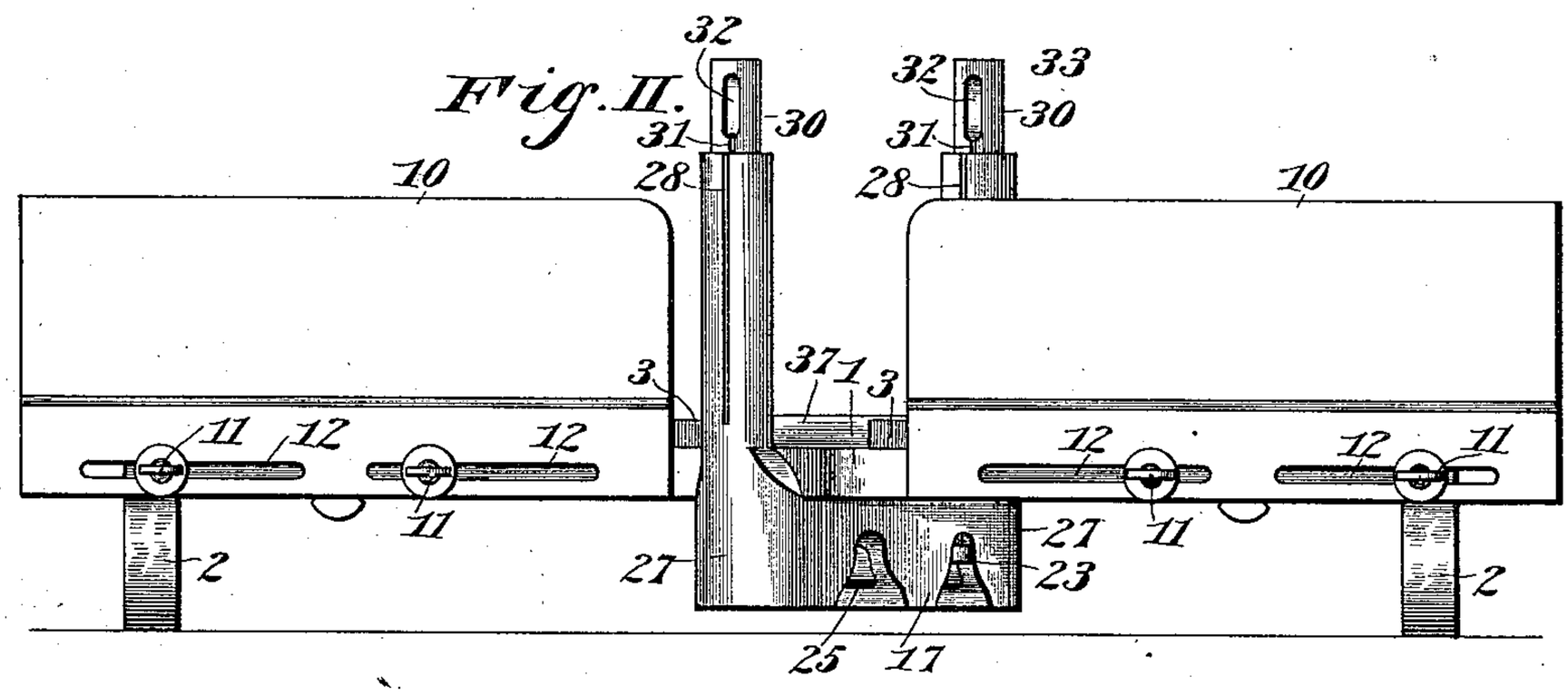
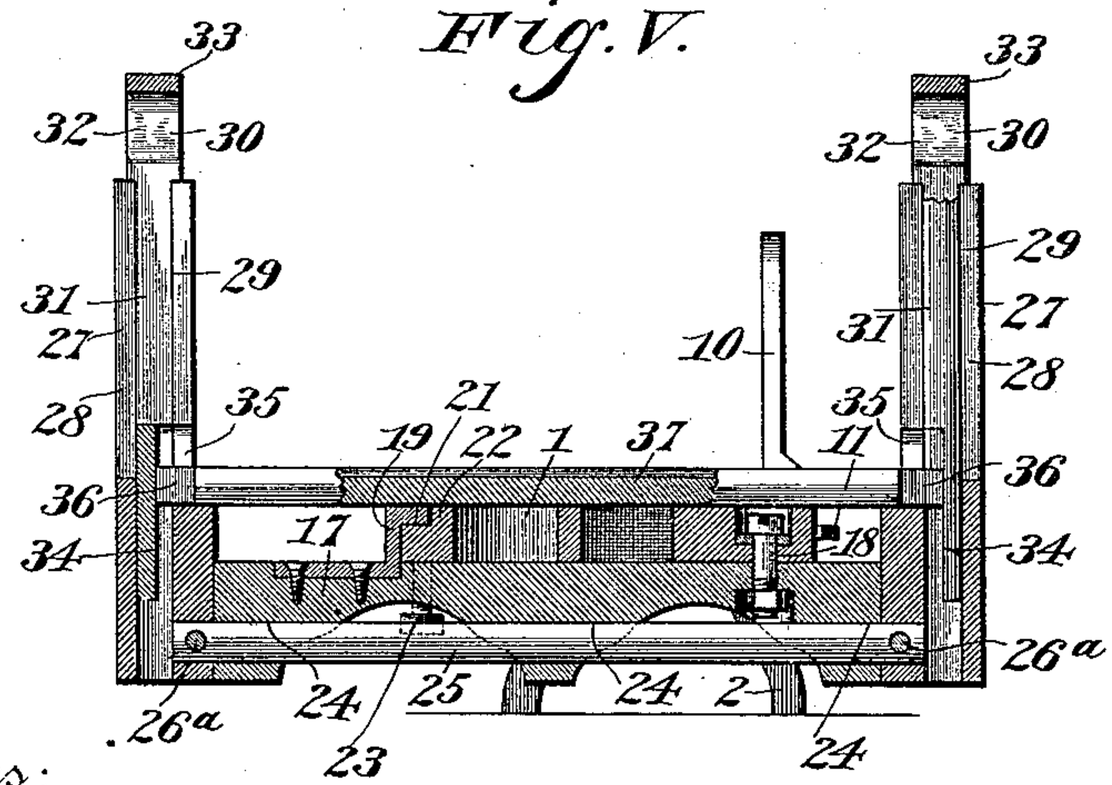


Fig. V.



Witnesses;
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. III.

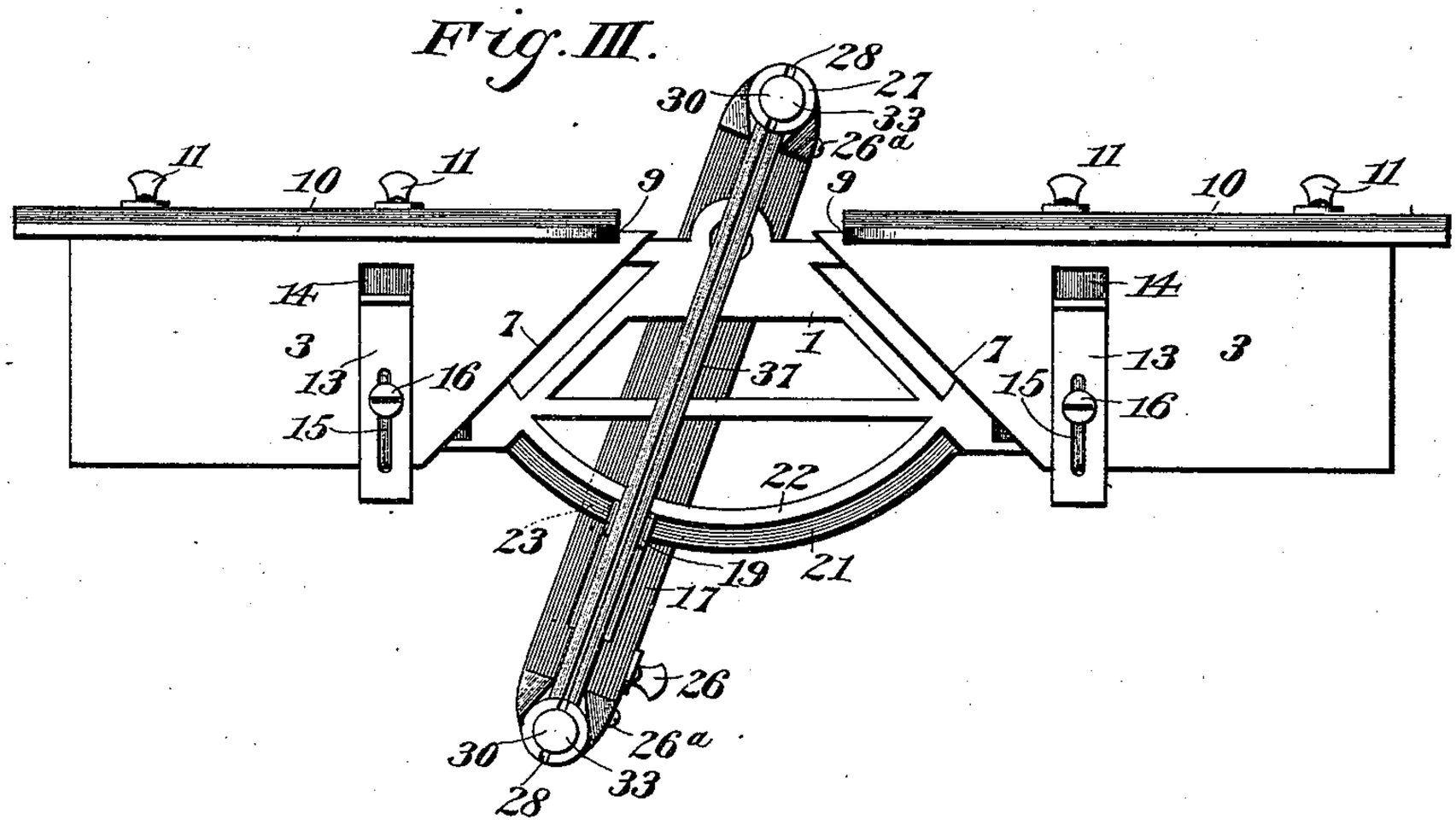
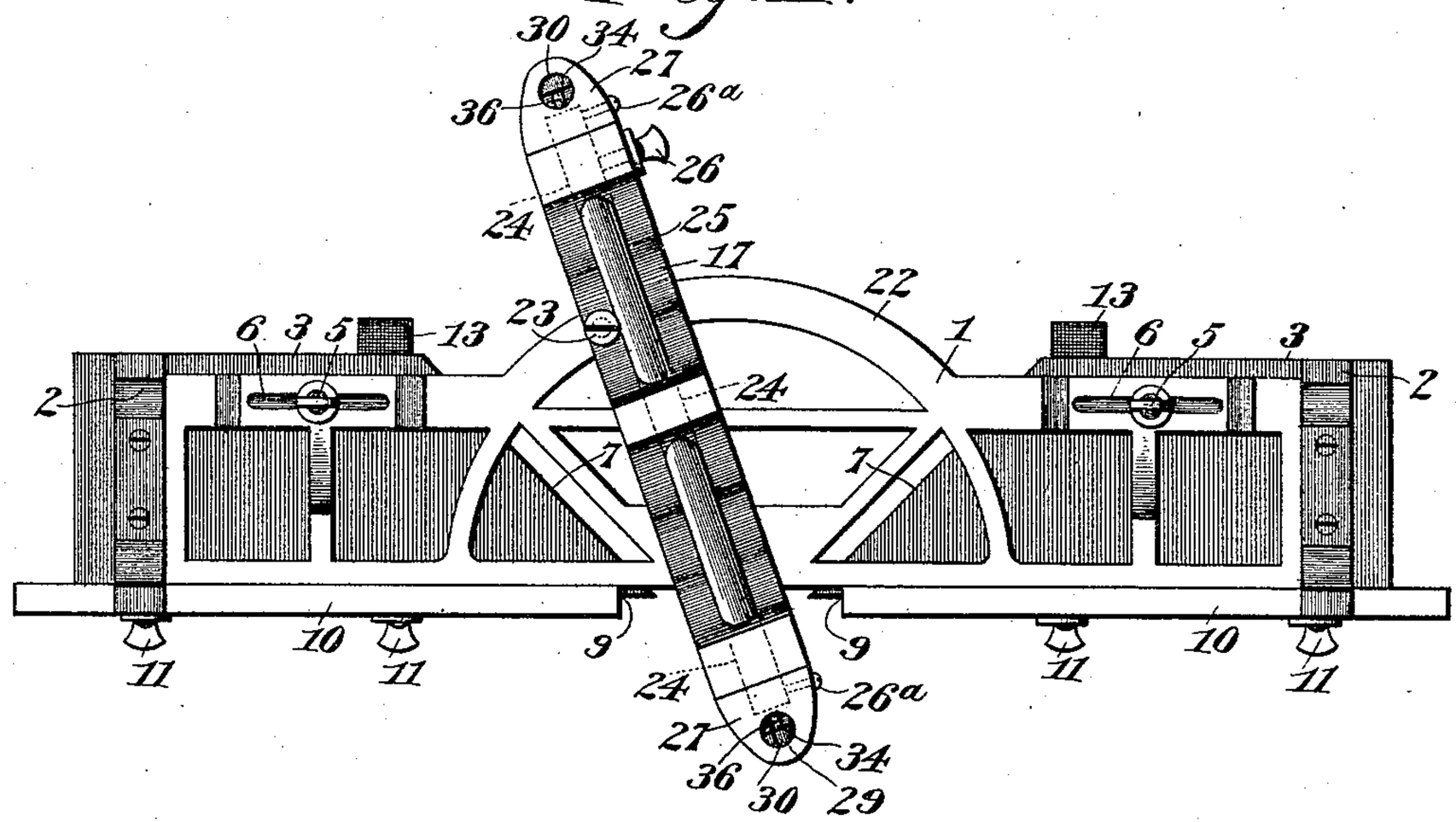


Fig. IV.



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UNITED STATES PATENT OFFICE.

MOSES NICHOLLS, OF GLENWOOD, IOWA.

MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 536,936, dated April 2, 1895.

Application filed April 20, 1894. Serial No. 508,305. (No model.)

To all whom it may concern:

Be it known that I, MOSES NICHOLLS, of Glenwood, county of Mills, State of Iowa, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved universal miter box that is simple and durable in construction; that can be conveniently set for sawing all varieties of miters, and which can be manufactured at a comparatively small expense.

In the accompanying drawings: Figure I is an elevation of one side of my box; Fig. II, an elevation of the other side; Fig. III, a top plan view. Fig. IV is a bottom plan view; Fig. V, a central vertical section through the saw frame.

Referring to the figures on the drawings: 1 indicates the bottom frame piece of my machine which is preferably made of metal and in skeleton shape for sake of lightness. It is supported preferably upon legs 2 at its opposite ends.

3 indicates bed plates secured, as by set screws 5, each passing through its respective slot 6 in the bottom frame piece. The bed plates have opposite oblique faces 7 that define a sector shaped recess above the bottom frame piece. The edges of the bed plates project a small distance beyond the edges of the bottom frame piece and, entering the longitudinal grooves 9 in the vertical guide plates 10, serve to hold them rigidly and accurately in position. The guide plates are longitudinally adjustable and are held in engagement with the bed plates by the action of set screws 11 that pass through longitudinal slots 12 in the vertical guide plates and are screwed into the edge of the bottom frame piece.

13 indicates lateral guide clips which may be adjustable within transverse grooves 14 in the bed plates, a slot 15 and a set screw 16 being provided for the purpose of adjustment.

17 indicates a swiveled frame eccentrically pivoted, as by a bolt 18 to the bottom of the bottom frame piece, beneath which it oscillates within the limits of an arc of ninety degrees. It is held in engagement with the side of the bottom frame piece opposite the bolt 18 by an angular retaining piece 19 that overlaps a rabbet 21 in the upper face of the quadrant 22 of the bottom frame piece. The swivel frame may be secured at any angle of adjustment to the quadrant by an abutment screw 23 passing through the swivel frame, bearing against the bottom of the bottom frame piece.

Within suitable bearings 24 in the swivel frame is movably secured a rocking bar 25 that may be adjusted to any angle by means of an abutment screw 26, screwing into one side of the swivel frame and bearing against the bar. At opposite ends of the bar are firmly secured, as by screws 26^a, standards 27 having longitudinal slits or guide kerfs 28 extending from the tops of the standards, respectively to above the level of the upper surface of the bed plates.

29 indicates the longitudinal bores of the standards within which respectively are vertically movable saw guides 30, each having through part of its extent a slit 31 for the blade of the saw and a wider aperture 32 for the back of a tenon saw, said aperture being located in the enlarged heads 33 of the saw guide. The lower ends of the saw guides extend a considerable distance beyond the slit 31 in the shape of a half cylinder, having a flat side 34.

35 indicates opposite apertures in the standards adapted to receive the diminished ends 36 of a saw blade support 37. The ends 36 of the saw blade support extend into the bore of the standards and, engaging with the flat sides 35 of the saw guides, prevent their rotation. The apertures 35 are of sufficient extent to permit an upward and downward movement of the saw blade support, so that when the standards are set at an angle of inclination to the perpendicular, the saw blade support may rise and lift the saw so that its edge may not come into contact with the hard metal of which the machine is mainly constructed. The saw blade support is for this reason preferably made of soft metal or wood and is of a diameter about equal to the thickness of the bed plates.

In operation, the swivel frame is set at the required angle, with respect to the bottom frame piece, and the standards are set at the proper angle to the swivel frame. It will be perceived that in the two movements of the standards the blade of the saw will necessi-

tate different adjustments of the bed plates and vertical guide plates, in order that the saw may have free swing and that the material to be cut may be at the same time suitably supported. For this reason the several independent means of adjustment of the bed plates and the two vertical guide plates are provided, as above specified.

What I claim is—

1. In a miter box, the combination with a bottom frame piece and adjustable saw guide mechanism carried thereon, of bed plates securable to the bottom frame piece and projecting beyond the edge thereof, vertical guide plates provided with longitudinal grooves for the reception of the projecting edges of the bed plates, means for adjustably securing the vertical guide plates in engagement with the bed plates to the bottom frame piece, and a saw blade support included in the guide mechanism between the bed plates, substantially as set forth.

2. In a miter box, the combination with a bottom frame piece and vertically and horizontally adjustable saw guiding mechanism carried thereon, of separate bed plates longitudinally adjustable upon the bottom frame piece, vertical guide plates independently adjustable thereon, saw blade support included in the guiding mechanism and located above the bottom frame piece and flush with the surface of the bed plates whereby the material to be cut will be supported by the saw blade support, and bed plates or lateral clamps upon said bed plates, substantially as specified.

3. In a miter box, the combination with a bottom frame piece, longitudinally adjustable bed plates thereupon, and a swivel frame eccentrically pivoted underneath the bottom frame piece, of a rock bar carried in suitable bearings in the swivel frame, mechanism for adjusting the swivel frame upon the bottom frame piece, mechanism for adjusting the rock bar, saw guide standards secured to the rock bar, saw guides carried thereby, and a saw blade support above the bottom frame piece between and having its upper surface flush with the bed plates, substantially as specified.

4. In a miter box, the combination with a bottom frame piece and swivel frame secured thereto underneath the same, of saw guide standards adjustably carried thereon, longitudinally adjustable bed plates on the bottom frame piece, opposite elongated apertures in the standards, saw blade support above the bottom frame piece having its extremities engaging elongated apertures in the standards whereby the saw blade support may be susceptible of longitudinal movement with respect to the standards, substantially as specified.

5. In a miter box, the combination with the bottom frame piece and swivel frame, of saw guide standards adjustable upon the swivel frame, cylindrical saw guides carried in the standards, half cylinder projections upon the ends of the saw guides, saw slits in the standards, and saw guides, respectively, opposite apertures in the standards, a saw blade support having diminished ends extending through the apertures and into engagement with the flat sides of the half cylindrical extension of the saw guides, substantially as and for the purpose specified.

In testimony of all which I have hereunto subscribed my name.

MOSES NICHOLLS.

Witnesses:
E. G. LUFKIN,
JEANNE SIMONS.