

No. 768,361.

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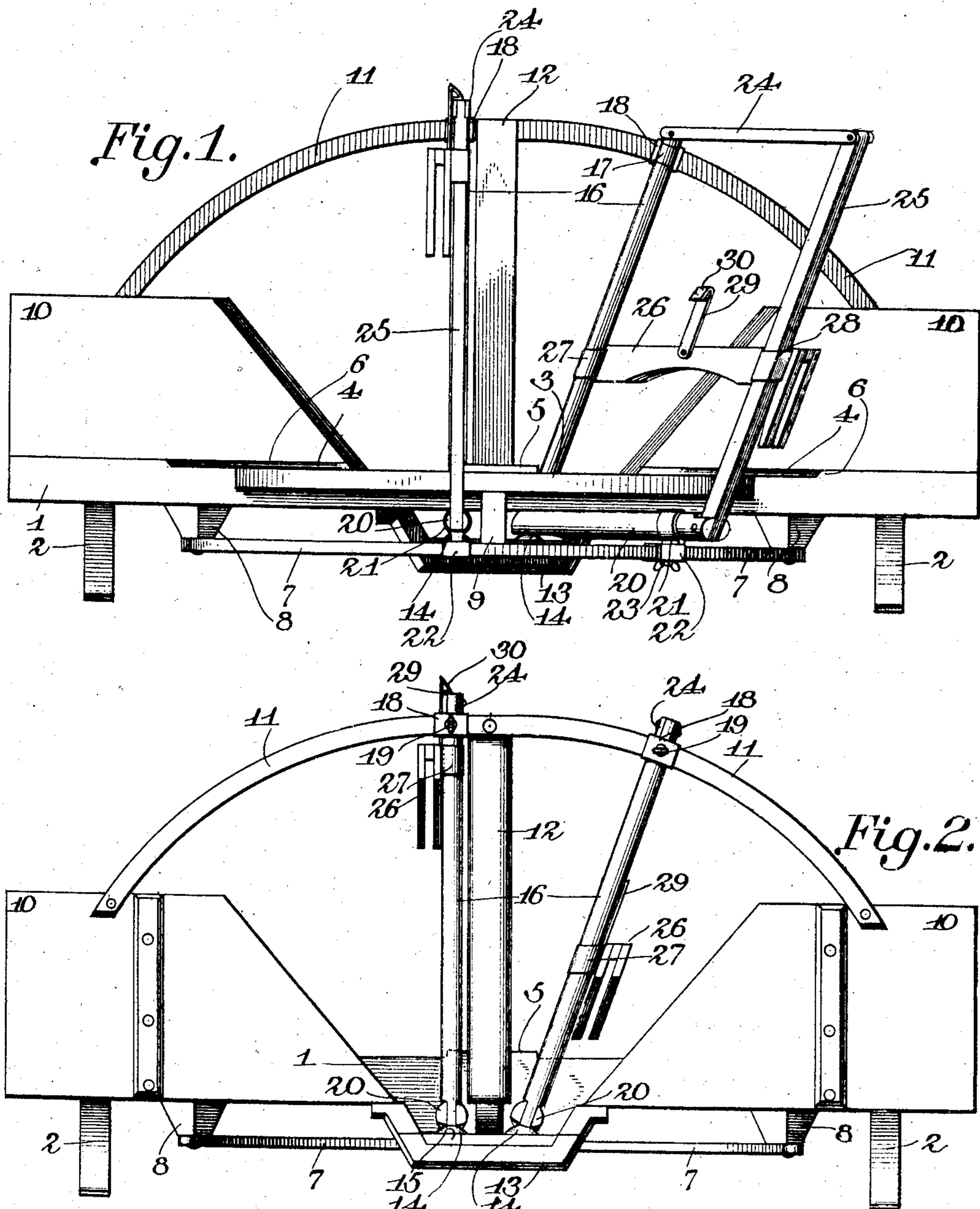
R. F. FOLK & D. O. TEATS.

MITER BOX.

APPLICATION FILED AUG. 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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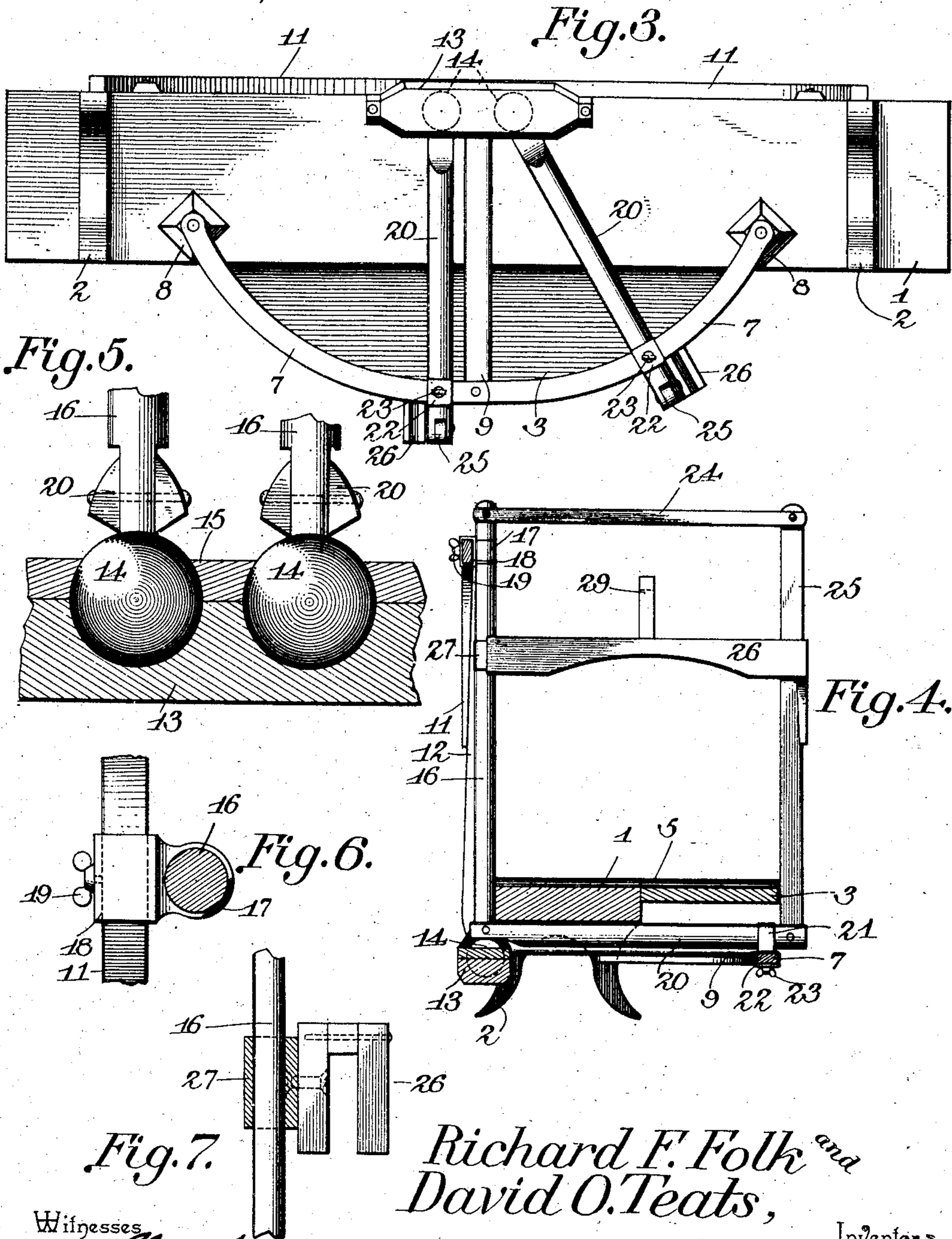
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# UNITED STATES PATENT OFFICE.

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## MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 768,361, dated August 23, 1904.

Application filed August 6, 1903. Serial No. 168,423. (No model.)

*To all whom it may concern:*

Be it known that we, RICHARD F. FOLK and DAVID O. TEATS, citizens of the United States, residing at Montpelier, in the county of Williams and State of Ohio, have invented a new and useful Miter-Box, of which the following is a specification.

This invention relates to miter-boxes of the type in which the saw-guides are arranged to be swung in both horizontal and vertical planes in order to cut miters at any angles which may be desired.

The principal object of the invention is to provide an improved miter-box of the type specified in which the construction is of simple and durable character and in which the adjustments necessary to provide for the cutting of any of the ordinary forms of miters may be made quickly and easily.

A further object of the invention is to provide a miter-box of the type specified in which the saw-guides are so supported as to permit the use of miter-boxes in cutting miters in material of any ordinary dimensions and in which the adjustments are such that the parts may be securely held in any position in which they are placed.

With the objects above mentioned and others in view, which will appear as the invention is more fully described, the same consists in the novel construction, combination, and arrangement of parts of a miter-box hereinafter fully described and claimed, and illustrated in a preferred form of embodiment in the accompanying drawings, it being understood that changes in the minor details of construction may be made without departing from the spirit of the invention or sacrificing the advantages thereof.

In the drawings, Figure 1 is a view in front elevation of the complete miter-box, one of the saw-guide frames being shown in the normal position and the other saw-guide frame being adjusted to cut a miter in a plane inclined to both the horizontal and vertical planes. Fig. 2 is a rear elevation of the complete miter-box, showing one of the saw-guide frames in normal position and the other adjusted in the vertical plane only. Fig. 3 is a bottom plan view of the miter-box, showing one of

the saw-guide frames in normal position and the other adjusted in the horizontal plane. Fig. 4 is a vertical section through the miter-box from front to back. Fig. 5 is a detail view showing the mode of securing the saw-guide frames to the supporting structure. Fig. 6 is a detail view showing the preferred form of slide connection between one of the vertical saw-guide frame members and the vertically-disposed arc. Fig. 7 is a detail view showing the preferred mode of mounting the slotted saw-guide members upon the saw-guide frame.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference throughout, 1 designates a base-board, which may be of any preferred structure and which is preferably mounted upon short supporting-legs 2. The base-board 1 is preferably provided intermediate of its ends with a forwardly-projecting portion 3, whose margin is formed on circular arcs whose radii extend from points slightly back of the rear margin of the base-board. The upper surface of the base-board is cut away somewhat at 4 4, leaving a transverse rib 5 midway between the ends of the base-board and elevated portions 6 6 at either side of the cut-away spaces 4. Beneath the base-board 1 graduated arcs 7 are secured in a horizontal plane by screws or other suitable fastening means, engaging blocks 8 and a transverse rib 9 on the under side of the base. At the rear of the base and adjacent to the ends thereof are secured upright pieces 10, which form a back against which the material to be mitered may be held during the operation of cutting the miter therein, and graduated arcs 11 are arranged in a vertical plane at the back of the base, with their lower ends firmly secured to the members 10 and the upper ends thereof attached to a standard 12, secured to the back of the base midway between its ends. A bracket 13 is secured in position below the base at the rear thereof, as shown in Fig. 2, and a pair of hemispherical sockets are formed in the bracket for the reception of balls 14, to which the saw-guide frames are secured in the manner presently to be explained. The balls 14 are held in the

socket, so as to be free to turn therein, by means of a retention-plate 15, having suitable openings therein, which is secured upon the upper surface of the bracket, as shown.

5 The frames supporting the saw-guides include round rods 16, each having its lower end rigidly secured to one of the balls 14 and having the upper portion thereof secured in a collar 17, rigidly attached to a slide 18, mounted upon the graduated arcs 11, each of the slides 18 being provided with a set-screw 19, by means of which it may be positively secured at any point of the arc. Each of the rods 16 has pivotally attached thereto for movement in the same plane with the rod a forwardly-projecting round rod 20, journaled in a collar 21, carried by a slide 22, mounted upon the horizontally-disposed arcs 7 beneath the base-board 1. The slides 22 are provided with set-screws 23, by means of which the slides may be secured in any desired positions upon the arcs along which they are arranged to move. The tops of the saw-guide frames are bars 24, preferably of rectangular cross-section, which are pivotally connected with the rods 16 and with bars 25, also preferably of rectangular cross-section, which form the front sides of the saw-guide frames and are pivotally connected at their lower ends with the horizontally-disposed rods 20. The saw-guide frames are so constructed that they are always in the form of parallelograms, and when the rods 16 and the rods 20 are disposed at right angles the frames are rectangular in form. When, however, the rods 16 are shifted from positions at right angles to the rods 20, the rectangular forms of the saw-guide frames will be lost, and the frames will be distorted into the rhomboidal forms shown in Fig. 1. The saw-guide frames may be said to be in normal position when the rods 16 are vertical and the rods 20 project straight forward on either side of the rib 9. As long as the rods 16 or the rods 20 remain in the normal position there will be no distortion of the saw-guide frames, as the movement of the rods 16 in the vertical plane of movement of the rods 20 in the horizontal plane is not alone sufficient to change the angles between the rods 16 and the rods 20; but when the rods 16 and the rods 20 are both swung out of normal position distortion of the frames is inevitable, and this is fully provided for by the pivotal connections between the frame members and the collars in which the rods are arranged to turn. Each of the frames is provided with a saw-guide 26, which may be of any suitable construction, and in the present instance the saw-guide consists of a grooved member pivotally mounted at its ends upon a sliding collar 27, arranged for movement upon one of the rods 16, and a slide 28, arranged for movement on one of the bars 25. Each saw-guide is also provided substantially midway between its

ends with a handle 29, having a projecting lug 30 formed thereon for engagement with the top of the saw-guide frame to hold the saw-guide at the top of the frame when it is desired to have it out of the way, as when a piece of lumber is being placed in position upon the base preparatory to cutting a miter therein. The handles 29 are therefore preferably made of resilient metal, and when the saw-guides are raised to the top of the frames the beveled upper surfaces of the lugs slip over the sides of the bars 25 until the lugs are automatically brought into position for engagement with said bars.

From the foregoing description the use of the miter-box in cutting miters of any character may be readily understood. If the miter involves adjustment of the saw-guide frame in the horizontal plane only, the rods 16 will be secured in vertical position by means of the set-screws in the slides 18, and one of said frames will be swung to the desired angle by moving its slide 22 along its arc 7 to the desired point. The slide will then be clamped in that position by means of the set-screws 23, carried thereby, and the saw will then be guided by means of the saw-guide, mounted on the frame, in the cutting of the miter. If the miter is one requiring adjustment in the vertical plane only, the adjustment of the saw-guide frame will be the converse of that above described. The rods 20 will be secured in the normal position, and one of the rods 16 will be swung in the vertical plane until it occupies the desired position and will then be secured by means of the screw 19, mounted in its slide. In case the miter to be cut requires adjustment of the saw-guide frame in both horizontal and vertical planes the rods 16 and the rods 20 of the frame will be swung to their proper respective positions, as indicated by the graduations upon the arcs 11 and 7, respectively, and will be clamped in such positions, as already explained. When the saw-guide frames are swung into positions for cutting miters in both vertical and horizontal planes, the rods 16 and 20 turn slightly in the collars 17 and 21, and the saw-guide 26 undergoes a slight displacement relative to the frame members 16 and 25, as best seen in Fig. 1, so enabling the saw-guide to remain parallel to the top and bottom members of the frame without interfering with its change of form.

Having thus described the construction and operation of our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a miter-box, a supporting structure, a saw-guide frame in the form of a parallelogram having the members thereof pivotally connected and universally jointed to said supporting structure, and a saw-guide mounted upon said saw-guide frame.

2. In a miter-box, a supporting structure,

a saw-guide frame in the form of a parallelogram universally jointed to said supporting structure and having its members pivotally connected, means connected with two of the members of the saw-guide frame for limiting their movement to the planes disposed at right angles to each other, and a saw-guide carried by said frame.

3. In a miter-box, a supporting structure, graduated arcs carried by said supporting structure and disposed in planes at right angles to each other, a saw-guide frame in the form of a parallelogram universally jointed at the intersection of the planes of said arcs, said frame being composed of pivotally-connected members, slides upon said graduated arcs, connections between said slides and two of said frame members, and a saw-guide mounted on said frame.

4. In a miter-box, a supporting structure, graduated arcs mounted on said supporting structure in planes at right angles to each other, said arcs having a common center, a

saw-guide frame composed of pivotally-connected members arranged in the form of a parallelogram connected with the supporting structure by a ball-and-socket joint at the common center of said graduated arcs, slides arranged for movement along said arcs, and connections between said slides and two of the members of the saw-guide frame.

5. In a miter-box, a supporting structure, a saw-guide frame universally jointed to said supporting structure and comprising normally horizontal and vertical members, said members being pivotally connected to form a parallelogram, slides arranged on the normally vertical members of said saw-guide frame, and a saw-guide suitably connected with said slides.

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In presence of—

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