

W. E. SHUTTS.

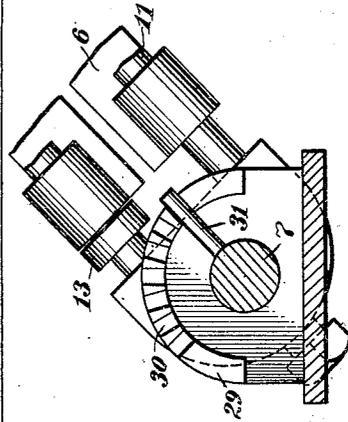
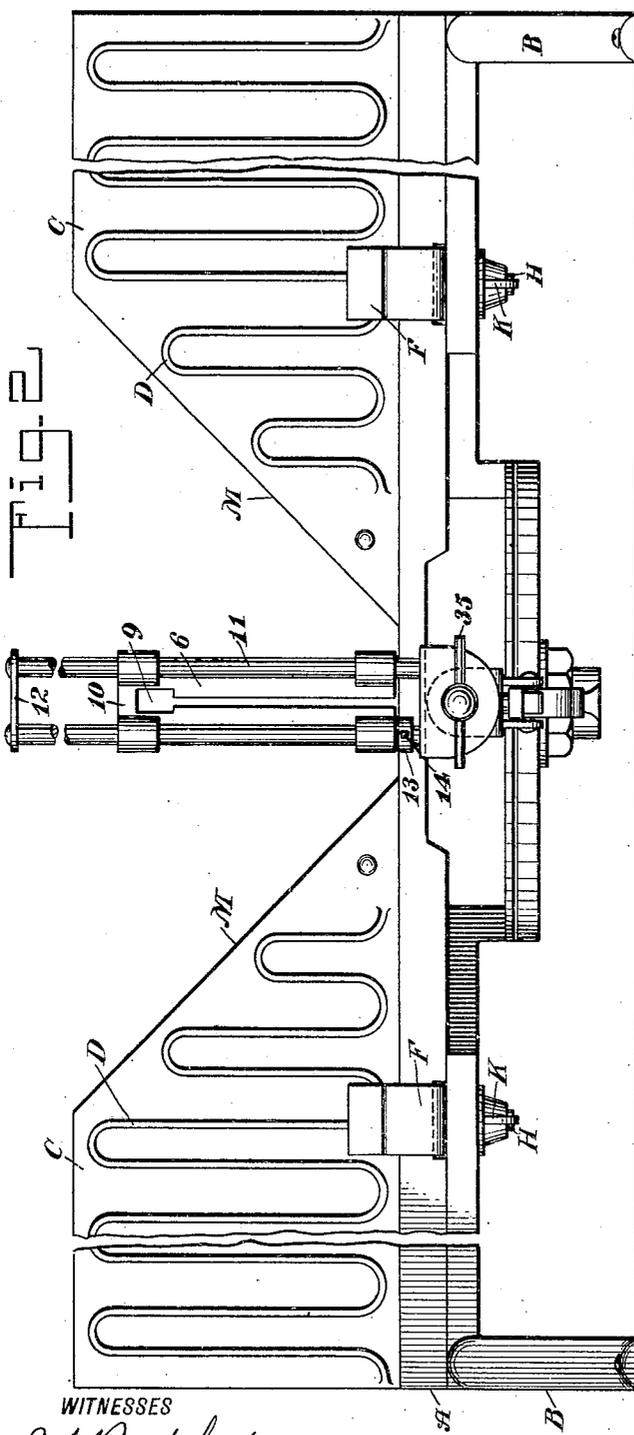
MITER BOX.

APPLICATION FILED MAY 5, 1909.

938,282.

Patented Oct. 26, 1909.

3 SHEETS—SHEET 2.



WITNESSES  
*J. A. Brophy*  
*J. P. Davis*

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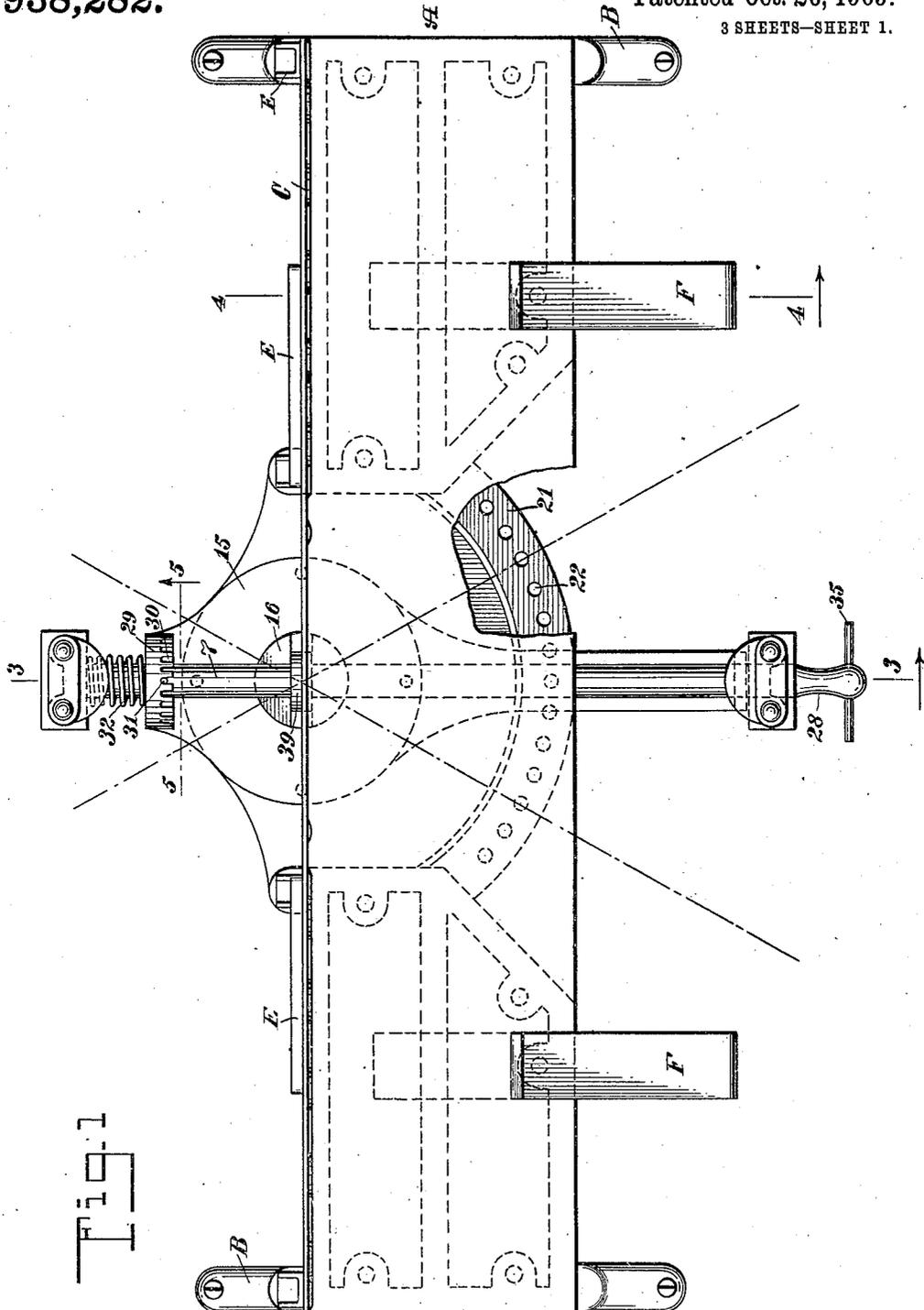


Fig. 1

WITNESSES

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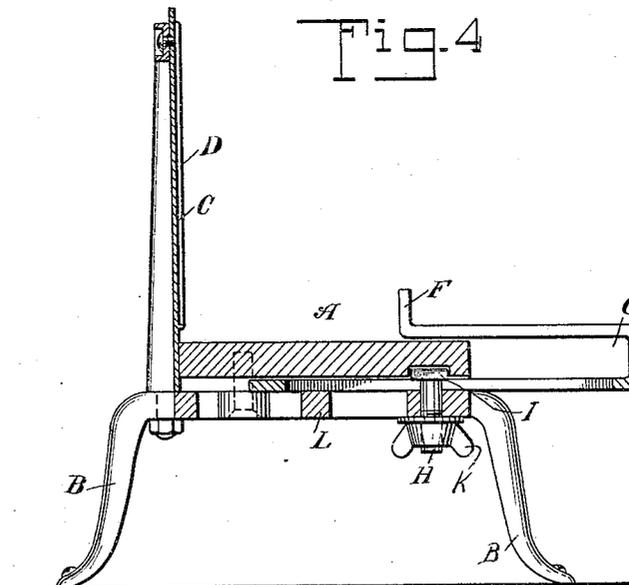
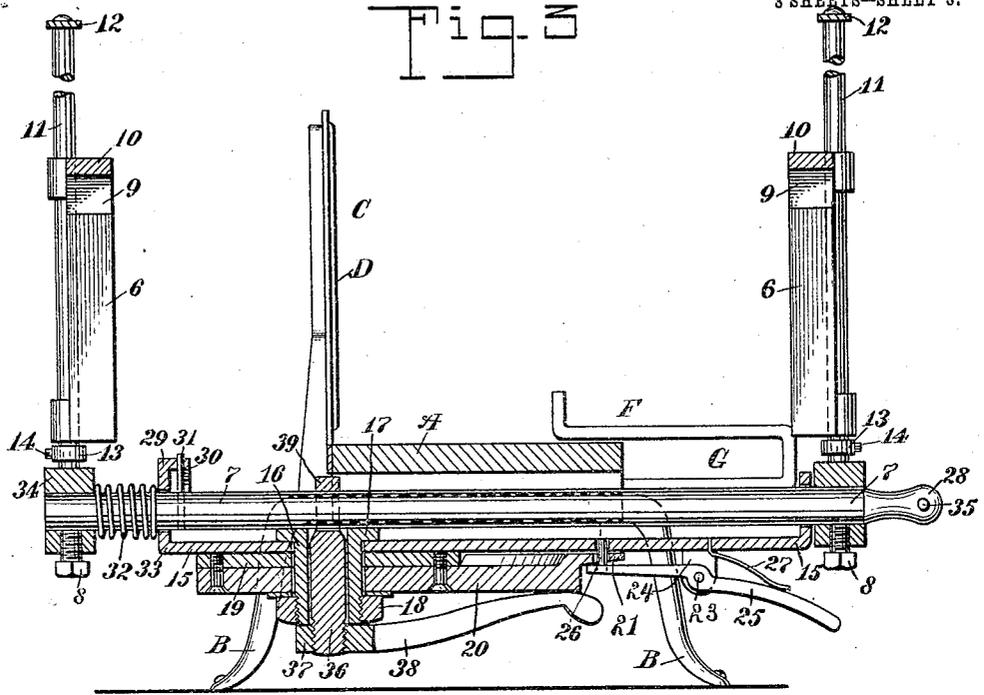
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WITNESSES

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# UNITED STATES PATENT OFFICE.

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## MITER-BOX.

938,282.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed May 5, 1909. Serial No. 493,995.

*To all whom it may concern:*

Be it known that I, WESTON E. SHUTTS, a citizen of the United States, and a resident of Ellenburg Center, in the county of Clinton and State of New York, have invented a certain new and useful Miter-Box, of which the following is a full, clear, and exact description.

Among the principal objects which my invention has in view are: to provide a miter box wherein the saw is guided to operate at a variety of angles from the perpendicular, while operating at various angles on horizontal planes; to provide a box of the character named, wherein the operative positions may be readily and quickly adjusted; to provide means whereby the depth, or extent of cutting of the blade may be regulated.

One embodiment of the invention is disclosed in the structure illustrated in the accompanying drawings wherein like characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of a miter box constructed in accordance with my invention, a portion of the bed plate being cut away to show the setting quadrant beneath, the two broken lines indicating the angular positions for the saw cut at either side of the center; Fig. 2 is a front elevation of a miter box constructed in accordance with my invention; Fig. 3 is a cross section of the miter box, taken on the line 3—3 in Fig. 1; Fig. 4 is a cross section of the bed plate and frame, taken on the line 4—4 in Fig. 1; and Fig. 5 is an enlarged detail sectional view of the saw guides and the mountings for the same, taken on the line 5—5 in Fig. 1.

The various instrumentalities constituting the miter box shown in the accompanying drawings arrange themselves into two distinct groups, the one including the stationary or holding members, while the other includes the operative or adjusting members. In order that two groups may be readily distinguished in the drawings, I have used the letters of the alphabet as indicating characters for the group of stationary members and numerals to indicate the operative members. Thus the bed plate A is suitably mounted on the frame L which is secured on feet B and adapted to raise the bed plate sufficiently from the bench upon which the miter box is usually placed, the feet at the

rear of the frame being set farther from the frame than the feet at the front. This is for the reason that the backs C receive the thrust, and the disposition of the feet braces the box against such thrust.

The backs C are provided with corrugations D to relieve the material being handled from the friction or suction of the contact of the same with the backs. These back sections are reinforced and secured to the frame L by webs E.

The wood pieces to be cut rest against the back pieces C, C, and are there held by upturned presser feet F, F, which are bent to the shape shown in Fig. 4 of the drawings, to provide a loop G which encompasses the bed plate A when the presser feet F are moved against the backs C. Each presser foot is secured fixedly in any adjusted position by means of a clamping bolt H having an extended head I above the arm of the presser foot, while a wing nut K is in threaded engagement with the said bolt, and below the frame L, and in such position that when set up on the bolt H the head I is drawn rigidly down upon the body portion of the presser foot F. As shown in Fig. 1 of the drawings, two of these adjustable presser feet are shown, and each is adjustable independently of the other, whereby if the wood pieces being cut are of different dimensions at either side of the location of the cut they can be held by these presser feet.

The members thus far described both in construction and arrangement constitute what I have above termed the stationary portion of the miter box.

In the group of movable parts of the present construction are those which relate more particularly to the holding and guiding of the cutting saw. The saw is guided between vertical sides 6, 6, which are arranged in pairs and are located at both ends of a rocking bar 7, to which they are fixedly secured by set nuts 8, 8. The guide members 6, 6 may be arranged to receive any character of cutting saw; that most adapted to the work of the character performed by this device has at the top a reinforcing, and to receive this reinforcing I have provided squared recesses 9, 9, in the said sides 6, the latter being held in parallel arrangement by bridges 10, 10, which are extended between them. The sides are slidably mounted upon vertical guide rods 11, 11, extended upward to any

convenient height, and at the top they are held in parallel relation by framing members 12, 12, being secured thereto by any suitable and convenient form of attachment.

5 By means of this construction the saw is held between the sides 6, 6, at both ends of the rocking bar 7 at all times, being supported by the recesses 9, 9. When the wood to be cut is placed upon the bed plate A the saw, with the sides 6, 6, is raised to permit the wood to be passed beneath. Should the wood pieces be of such character that this cannot be accomplished, then the saw is withdrawn while the wood is being placed in position, and is again threaded through the opening between the sides and through the recesses 9, 9. The lower extreme of the operation of the saw is regulated by adjustable collars 13, 13, one of which is placed on each pair of rods 11, 11, the collars being fixedly secured in the adjusted position by means of set screws 14, 14.

This device is exceedingly convenient where it is desired that the extent of the cutting of the saw should be limited.

The rocking bar 7 is mounted in perforations provided in the ends of a swing arm 15, the latter having a widened section to receive a hollow bolt 16 which constitutes the pivot on which the arm 15 swings. The bolt 16 is provided with an upper annular flange 17 which extends over and rests upon the swing arm 15. At the lower end the said bolt is screw threaded to receive a nut 18 by means of which the annular flange 17 is drawn tightly upon the carrying arm 15, serving to hold the same firmly in position.

The widened portion of the carrying arm 15 rests upon a bearing plate 19 which is secured upon a quadrant formed in a depressed circular portion of the frame plate 20. The frame L at this point is extended to form a quadrant 21 in which are formed perforations 22 in close arrangement.

45 The swing arm 15 as above indicated is pivoted to swing horizontally on the pivot bolt 16. The quadrant 21 is concentric with the bolt 16 as is also the arrangement of the perforations 22. On the under side of the carrying arm 15 there is pivotally mounted at 23 between ears 24 a detent lever 25. At the inner end of the detent lever 25 it carries a pin 26, adapted to extend upward through the perforations 22. A perforation 55 similar in size to the perforations 22 is formed in the arm 15 to also receive the pin 26, when and as the same is extended through any one of the perforations 22. A spring 27 is employed to depress the outer end of the lever 25 and incidentally raise the pin bearing end of the same. The carrying arm 15 when thus mounted is moved by a handle 28 on the rocking bar 7, and may be moved to any position permitted by the quadrant 60 21. While being moved, the free end of the

lever 25 is raised, it being conveniently located to the handle 28, so that the forefinger of the operator can be used to raise the free end of the said lever, while the hand is shifting the swinging bar to any horizontal angular arrangement with reference to the backs C. When the desired angle is reached, the lever 25 is released, permitting the pin 26 to enter a perforation 22 and thereby lock the swing arm rigidly in position.

The pivotal center of the bolt 16 is in line with the face of the backs C, C, which arrangement results in that the various lines of cutting for the saw will cross at this point.

The purpose of the rocking arm 7 is that the saws may be inclined at various angles from the vertical or from the perpendicular, to the bed A. These angles are set by a quadrant 29 which is raised from the swing arm, and is provided with recesses 30 suitably and closely arranged to receive a pin 31 which is driven into the bar 7. The pin 31 is held in contact with the quadrant 29 by a spiral spring 32 which is extended between the upset end 33 on the swing arm 15 and the mounting block 34, holding the bar 7 and supporting the rods 11, 11. The handle 28 of the rocking bar 7 is provided with a hand hold pin 35 by means of which the said bar 7 may be pulled outward against the compression of the spring 32 thereby withdrawing the pin 31 from engagement with the recesses 30 in the quadrant 29. In this position the bar 7 may be rotated to place the rods 11, 11, and the saw guides 6, 6, at any desired angle from the vertical. When the said rods 11, 11, and saw guides are in such position, the operator permits the rod 7 to be moved by the spring 32 to set the pin 31 in a recess 30 in line with the angle at which the said rods 11, 11, have been set.

To hold the bar 7 rigidly in position not dependent upon the spring 31, I have provided an eye-bolt 36, held in screw thread engagement with a nut 37, provided with an arm 38. The bolt 36 is provided with a loop 39 having an opening therein to pass the bar 7 snugly.

When by the action of the nut 37, which rests against the bolt 16, the bolt 36 is drawn downward through the opening in the bolt 16, the upper part of the loop 39 engages and presses the bar 7 against the top of the bolt 16, holding the rocking bar 7 rigidly in position. This movement of the nut 37 is performed through the arm 38 which is extended as shown more particularly in Fig. 3 of the drawings, to within reach of the hand of the operator. A slight movement of the nut 37 when the parts are adjusted to position, is sufficient to loosen the grasp of the loop 39 to permit of the rotation of the bar 7.

The backs C, C, are cut away to form in-

clined edges M, M, which permit the saw to throw from the vertical to the limits thus made.

5 With an implement thus constructed and arranged, the operating position of the saw may be changed to any horizontal angle within the natural compass of the swing arm 15, and to any vertical angle within the compass of the swing of the rods 11, 11, mounted on the rocking bar 7. This permits the  
10 implement to be used for forming in a piece of wood, routing cuts, as well as miter and beveled end cuts.

15 Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A miter box, comprising a rest having a continuous horizontal platform and a divided vertical back therefor adapted to hold  
20 and guide the article to be sawed; a second platform stationarily mounted below the first mentioned platform; an extended arm rotatively mounted on said second platform and having upturned perforated ends to  
25 form bearings for a horizontal rod; a horizontal rod mounted in said bearings and provided with an extension adapted to engage fixedly one of the said upturned ends, the said rod being retractable to disengage  
30 the said extension from the said upturned end and to rotate the said rod; saw guides mounted upon said rod and perpendicularly extended therefrom; and an expansion spring mounted upon said rod to bear  
35 against one of said saw guides and the adjacent end of said extended arm to move the extension on the said rod into engagement with the said upturned end of the extended arm.

40 2. A miter box, comprising a rest having a continuous horizontal platform and a divided vertical back therefor adapted to hold and guide the article to be sawed; a second platform stationarily mounted below the  
45 first mentioned platform; an extended arm rotatively mounted on said second platform and having upturned perforated ends one of which is provided with a series of tooth-like projections extended in line with the said  
50 arm, said upturned ends forming bearings for a horizontal rod; a horizontal rod mounted in said bearings and provided with an extension adapted to engage fixedly one of said tooth-like projections, the said rod being retractable to disengage the said extension  
55 from the said tooth-like projection and to rotate the said rod; saw guides mounted upon said rod and perpendicularly extended therefrom; and an expansion spring mounted upon said rod to bear against one of said  
60 saw guides and the adjacent end of said extended arm to move the said extension on the said rod into engagement with the said tooth-like projections.

65 3. A miter box, comprising a rest having

a continuous horizontal platform and a divided vertical back therefor adapted to hold and guide the article to be sawed; a second platform stationarily mounted below the  
70 first mentioned platform; an extended arm rotatively mounted on said second platform and having upturned perforated ends to form bearings for a horizontal rod; a horizontal rod mounted in said bearings and provided with an extension adapted to en-  
75 gage fixedly one of said upturned ends, the said rod being retractable to disengage the said extension from the said upturned end and to rotate the said rod; saw guides adjustably mounted on said rod and perpen-  
80 dicularly extended therefrom; and an expansion spring mounted upon said rod to bear against one of said saw guides and the adjacent end of said extended arm to move the said extension into engagement with the  
85 said upturned end.

4. A miter box, comprising a rest having a continuous horizontal platform and a divided vertical back therefor adapted to hold and guide the article to be sawed; a second  
90 platform stationarily mounted below the first mentioned platform; an extended arm rotatively mounted on said second platform and having upturned perforated ends to form bearings for a horizontal rod; a hori-  
95 zontal rod mounted in said bearings and provided with an extension adapted to engage fixedly one of said upturned ends, the said rod being retractable to disengage the said extension from the said upturned end  
100 and to rotate the said rod; saw guides mounted upon said rod and perpendicularly extended therefrom; an expansion spring mounted upon said rod to bear against one of said saw guides and the adjacent end of  
105 said extended arm to move the said extension into engagement with the said upturned end; a locking device for said rod embodying a screw threaded bolt having a perforated end to encompass said rod and ex-  
110 tended through the said second platform at the center thereof; and a screw threaded member engaged with said bolt and adapted to draw the same in holding contact with a stationary member of said second platform.

5. A miter box, comprising a rest having a continuous horizontal platform and a divided vertical back therefor adapted to hold and guide the article to be sawed; a second platform stationarily mounted below the  
120 first mentioned platform; an extended arm rotatively mounted on said second platform and having upturned perforated ends to form bearings for a horizontal rod; a horizontal rod mounted in said bearings and  
125 provided with an extension adapted to engage fixedly one of said upturned ends, the said rod being retractable to disengage the said extension from the said upturned end and to rotate the said rod; saw guides  
130 and to rotate the said rod; saw guides

mounted upon said rod and perpendicularly extended therefrom; an expansion spring mounted upon said rod to bear against one of said saw guides and the adjacent end of said extended arm to move the said extension into engagement with the said upturned end; a screw threaded bolt having a perforated end to encompass said rod and extended through the said second platform at the center thereof; and a screw nut engaging the threaded end of said bolt to draw the same in holding contact with a stationary member of said second platform, said nut having a lever extended laterally therefrom.

6. A miter box, comprising a rest having a continuous horizontal platform and a divided vertical back therefor adapted to hold and guide the article to be sawed; a second platform stationarily mounted below the first mentioned platform; an extended arm rotatively mounted on said second platform and having upturned perforated ends to form bearings for a horizontal rod; a hori-

zontal rod mounted in said bearings and provided with an extension adapted to engage fixedly one of said upturned ends; saw guides mounted upon said rod and perpendicularly extended therefrom; saw carriers adapted to support the saw slidably mounted upon said guides to rise and fall thereon; an adjustable stop adapted to be fixedly mounted in various positions on said guides; and an expansion spring mounted upon said horizontal rod to bear against one of said saw guides and the adjacent end of said extended arm to move the said extension into engagement with the said upturned end, the said rod being retractable to disengage the said extension from the said upturned end and to rotate the said rod.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WESTON ELLIS SHUTTS.

Witnesses:

WM. H. GORDON,  
DAYTON C. HUTCHINS.