No. 834,073. PATENTED OCT. 23, 1906.

W. J. PARSONS.

MITER BOX.

APPLICATION FILED JUNE 2, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

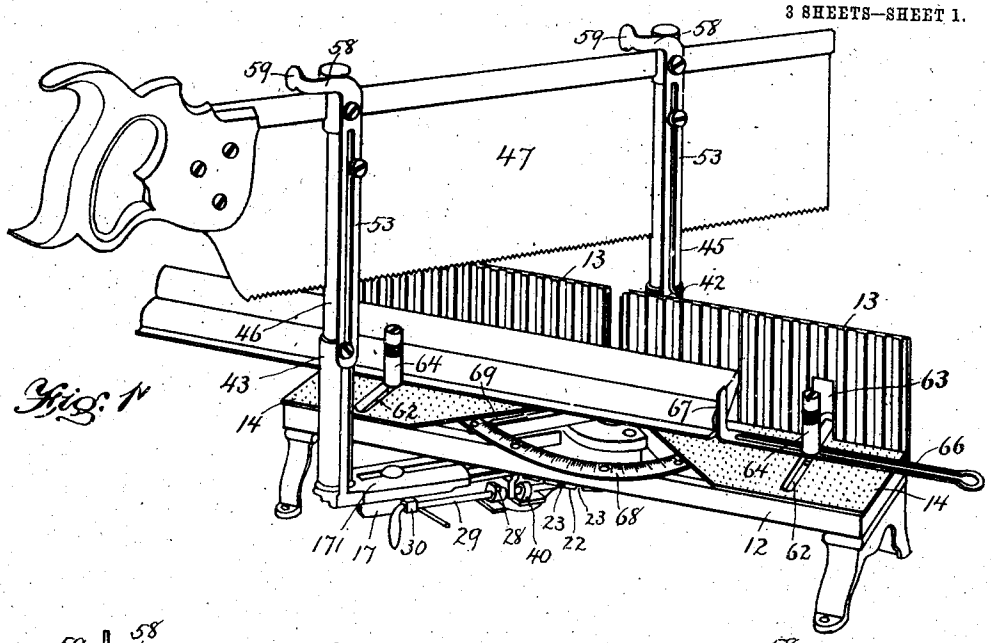
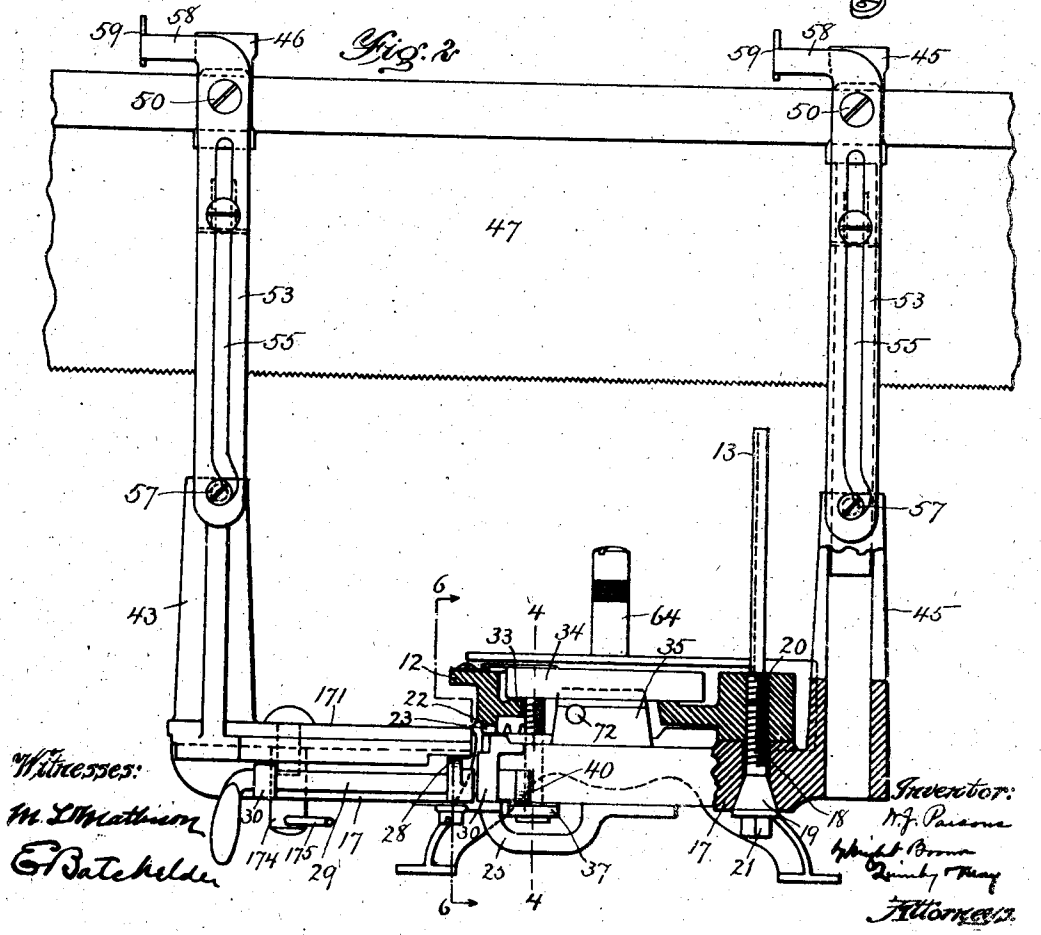


Fig. 2.



Witnesses:
M. L. Matthison
E. Batchelder

Inventor:
W. J. Parsons
by Wright Brown Quinby & May
Attorneys.

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3 SHEETS—SHEET 2.

Fig. 4

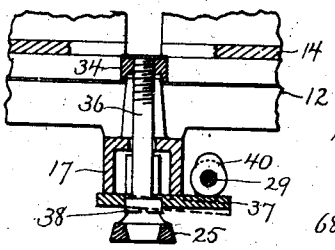


Fig. 3

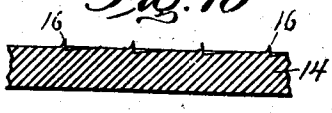
Fig. 11

Witnesses:

W. L. Mathison

E. Batchelder

Fig. 10



Inventor:

W. J. Parsons

by Wright Brown Quinby & May

Attorneys.

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3 SHEETS—SHEET 3.

Fig. 5

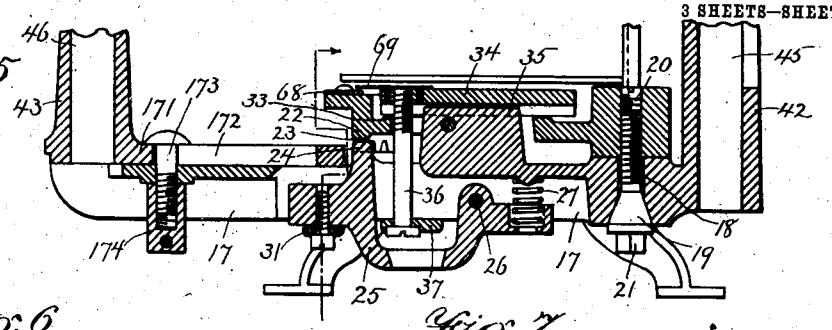


Fig. 6

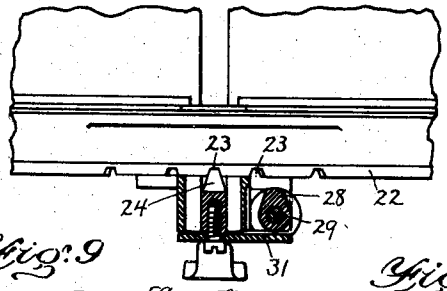


Fig. 7

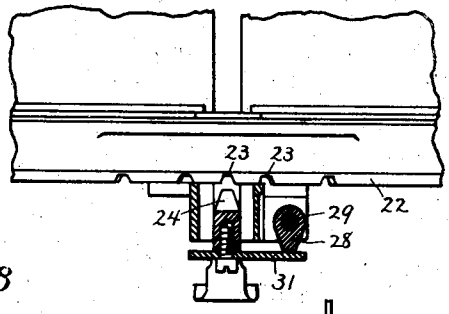
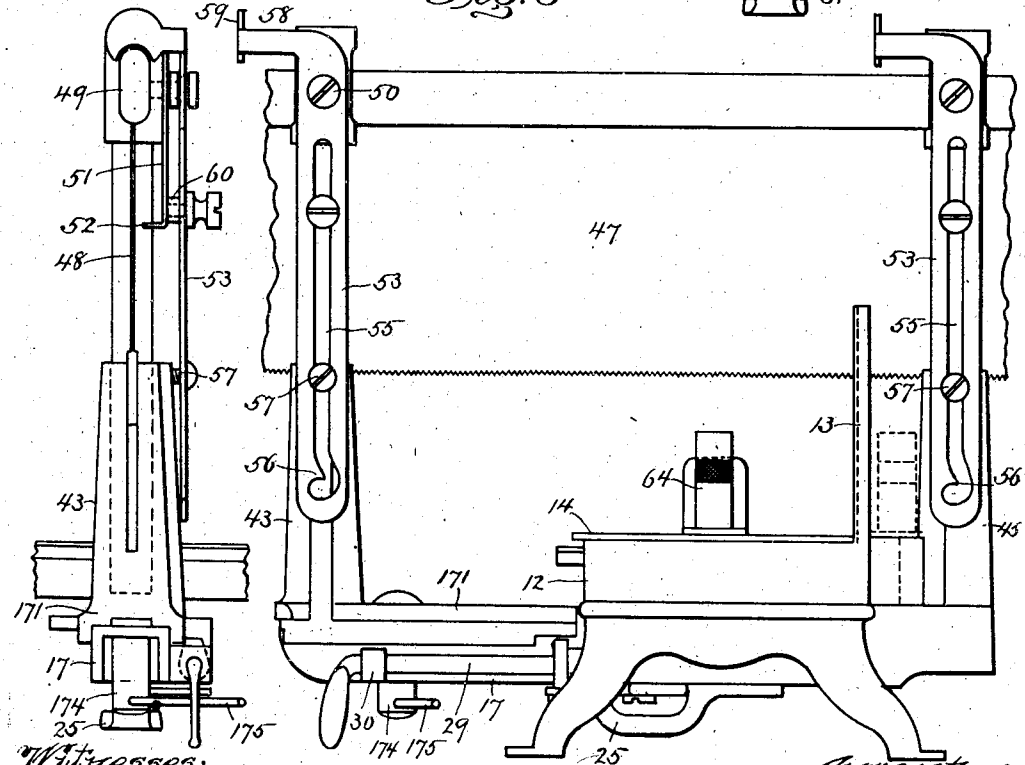


Fig. 9

Fig. 8



Witnesses:

E. Batchelder

Inventor:

W. J. Parsons

by Wright Brown Quinby & May

Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM J. PARSONS, OF MONTAGUE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MILLERS FALLS COMPANY, OF MILLERS FALLS, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MITER-BOX.

No. 834,073. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed June 2, 1905. Serial No. 263,436.

To all whom it may concern:

Be it known that I, WILLIAM J. PARSONS, of Montague, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification.

This invention relates to the type of miter-boxes in which the work is supported by a horizontal bed or table and vertical back-rests coöperating therewith, and the saw is supported by vertically-movable guides mounted on a swing-bar which is pivoted to the supporting-frame, the swing-bar and saw being adapted to stand at various angles relatively to the work supported by the table, so as to sever the work at any angle desired.

The invention has for its object to improve the construction of the machine in various particulars, said improvements including, first, a formation of the bed or table whereby horizontal slipping of the work on the table is prevented; secondly, improved means for locking the swing-bar in any position to which it may be adjusted and permitting extremely minute adjustments; thirdly, improved means for supporting the saw in its highest position when not in use, and, fourthly, means for varying the length of the swing-bar and improvements in supplemental work-rests for supporting the work in various positions.

The invention consists in the several improvements which I will now proceed to describe and claim.

In the drawings forming a part of this specification, Figure 1 represents a perspective view of the miter-box embodying my invention, the swing-bar and saw being shown at one extreme of their adjustment. Fig. 2 represents a transverse section through the frame of the machine midway between its ends and an elevation of the parts beyond the plane on which the section is taken. Fig. 3 represents a top plan view of the machine, the swing-bar being shown midway between the two extremes of its movement. Fig. 4 represents a section on line 4 4 of Fig. 2. Fig. 5 represents a section on line 5 5 of Fig. 3. Fig. 6 represents a section on line 6 6 of Fig. 2. Fig. 7 represents a view similar to Fig. 6, showing a different adjustment. Fig. 8 represents an end elevation of the machine. Fig. 9 represents an elevation showing the outer end of the swing-bar and one of the saw-guides. Fig. 10 represents a magnified sectional view of a portion of one of the table-sections. Fig. 11 represents a section on line 11 11 of Fig. 3.

In the drawings, 12 represents the supporting-frame, having the vertical back-rests 13 13, which support the work against backward horizontal displacement, the said frame and rests being preferably cast in a single piece. The frame is formed to support the horizontal bottom pieces or table-sections 14 14, which stand at right angles with the back-rests and support the work vertically. The table-sections are of steel and are provided on their upper surfaces with numerous small spurs 16, Fig. 10, to prevent the slipping of the work, said spurs being preferably formed by striking up portions of the metal of the sections to form upwardly-projecting points which are preferably so small as to be free from liability of marring the work.

17 represents the horizontally-movable swing-bar, which is connected with the frame by a vertical stud 18, having a tapered head 19, fitting a tapered socket in the swing-bar, the stud having a threaded portion engaging an internally-threaded socket in the supporting-frame. The stud is locked to the frame and prevented from rotating by a screw-threaded locking-stud 20, engaged with the socket which receives the stud 18 and bearing on the upper end of the latter to cause its thread to bind on the internal thread of the socket.

The tapered head of the stud 18 has a squared shank 21, adapted to be engaged by a wrench to adjust the stud upwardly to compensate for wear, this upward adjustment being permitted by slightly retracting the locking-screw 20.

The supporting-frame has on its under side a segmental rib 22, Figs. 1 and 5, which is concentric with the stud or center on which the swing-bar moves, and is provided with notches 23, adapted to engage a detent 24 on a latch 25, which is pivoted at 26 to the swing-bar 17. Said latch is normally pressed upwardly by a spring 27 to cause the detent to engage a notch with which it coincides, and thus positively lock the swing-bar

to the frame. The latch may be depressed to withdraw the detent from the notch by means of a cam 28, affixed to a rock-shaft 29, journaled in ears 30 on the swing-bar, said cam acting on an arm 31, affixed to the latch. When the cam 28 is raised, as shown in Fig. 6, it is out of contact with the arm 31, and the detent is free to enter a notch 23. A half-rotation of the rock-shaft depresses the cam 28 and causes it to depress the arm 31, and the latch thus withdrawing the detent from the notch, as shown in Fig. 7.

Means are provided for frictionally locking the swing-bar at any point not provided for by the notches 23 and detent 24, so that extremely minute adjustments of the swing-bar may be effected. Said means in this embodiment of my invention are as follows: 33 represents a fixed segmental rib formed on the supporting-frame. 34 represents a bar or shoe having a groove in its under side, said groove fitting on the upper edge of a rib 35, formed on the swing-bar 17. One end of the shoe 34 projects over the rib 33 and is adapted to be drawn into close frictional binding contact therewith by means of a headed stud 36, Fig. 5, affixed to the shoe 34 and projecting downwardly therefrom. A short lever 37 is engaged with the head 38 of the stud 36 and projects therefrom under the rock-shaft 29. Said rock-shaft is provided with a cam 40, which projects in the opposite direction from the latch-depressing cam 28, and is adapted to engage the lever 37 when the rock-shaft is turned to depress the said cam 40. The depression of the cam 40 also causes a depression of the lever 37, stud 36, and the end of the shoe 34, which is located over the rib 33. The shoe is thus brought into close frictional or binding contact with the rib, so that the swing-bar is frictionally locked to the supporting-frame by the coöperation of the shoe 34 and the segmental rib 33. The length of the segmental rib 33 is such that the swing-bar may be locked, as last described, at any point between the extremes of its movement, provision being thus made for extremely minute adjustments of the swing-bar. The swing-bar 17 has a sliding extension 171, provided with a longitudinal slot 172, Fig. 5, through which passes a bolt 173, extending through an orifice in the swing-bar 17. 174 represents a nut engaging a thread on the lower portion of the bolt 173, said nut having a handle or lever 175, by which it may be turned to engage its upper end with the under side of the swing-bar 17 to cause the head of said bolt to bind upon and secure the extension 171 at any desired adjustment.

The swing-bar is provided at its opposite ends with vertical sockets 42 43, in which are vertically movable the guides 45 46, which support the saw 47. The rear socket 42 is formed directly upon the swing-bar 17 and the front socket 43 is formed upon the swing-bar extension 171. The guides 45 and 46 are provided with slots 48 to receive the saw-blade, said slots having enlargements 49 in the upper portions of the guides to receive the thickened back of the saw. To the upper portion of each guide is secured, by means of a screw 50, a downwardly-projecting stop-arm 51, bent inwardly at the lower end to form a stop member 52, adapted to abut against the upper end of the socket in which the guide moves, and thus limit the downward movement of the guide and the saw and prevent contact of the saw-teeth with metallic parts below it. To each of the vertically-movable guides is pivoted, by the screw 50, a latch-bar 53, having a longitudinal slot 55, the lower portion of which is curved and offset to form a shoulder 56, the curvature and offset portion being so arranged that when the shoulder is in contact with its support (hereinafter described) the latch-bar will be held in vertical alinement with the guides. To each of the guiding-sockets 42 43 is affixed a headed screw or stud 57, adapted to engage the shoulder 56 of the latch-bar 53 when the saw is fully elevated, as shown in Fig. 2, the shoulders 56 bearing on the studs 57 and supporting the saw in its raised position.

As will be seen, the latch-bars 53 are substantial duplicates, being mounted in such manner that they will be engaged with or disengaged from the studs 57 by movements in a similar direction. Hence there is no liability of mistake in the assemblage of the parts nor is there a requirement of the manufacture of latch-bars differing from each other in construction, and as each latch-bar is provided with a push-piece 59, (hereinafter described,) which extends across the vertical plane of the back of a saw in the guides, there is no requirement of the services of an expert in assembling the parts, as they can necessarily be placed in but one position with respect to the latch-bars and their mounting on the guides.

Each latch-bar 53 is provided at its upper end with a forwardly-projecting extension 58, having a push-piece 59 arranged so that the pressure of the operator's thumb applied to the push-piece will swing the latch-bar on its pivot sufficiently to disengage the shoulder 56 from the stud 57, and thus permit the downward movement of the latch-bar and the guide with which it is connected.

The latch-bars 53 and the studs 57 coöperating therewith are similar to the corresponding parts shown in the Goodell patent, No. 544,092, excepting that in this case the latch-bars are independent of each other and are provided with the forwardly-projecting extensions 58 instead of being connected as shown in said patent.

The advantage of the independent latch-

bars is as follows: The forwardly-projecting extension 58 and the thumb-piece 59 thereon gives each latch-bar a tendency to swing in the direction required to engage the shoulder 56 with the stud 57 whenever the latch-bar is raised to the required height, so that the saw is automatically arrested in its raised position.

The independence of the latch-bars or the absence of connection between them enables the saw to be released and allowed to gravitate by pressing backwardly on the thumb-piece of the rear latch-bar with one hand, the other hand at the same time grasping the saw-handle. The rear latch-bar is thus disengaged from the accompanying stud 57, so that the outer end of the saw drops. The back of the saw is thus inclined, and the portion thereof near the handle end is caused to bear against and raise the thumb-piece of the front latch-bar, said thumb-piece extending across the saw-back. The front latch-bar is thus automatically disengaged from its stud and the release of the saw is completed. The absence of a connection between the latch-bars also enables the length of the swing-bar to be conveniently varied and enables a long piece of stock to be inserted by a downward vertical movement between the saw-guides when the saw is removed. The thumb-pieces of the latch-bar being located above the back of the saw can be more conveniently reached than the connecting-bar shown in the Goodell patent, the latter being located beside the back of the saw and below its upper edge, so that it is comparatively inaccessible. Furthermore, the fact that the thumb-piece 59 of each latch-bar is located on the same side of the guide in each case and the fact that the opposite side of the guide is free from any projecting portion which would form an obstruction enables the guides to be released independently, the release of the front guide permitting the front end of the saw to drop downward without releasing the rear guide, thereby permitting of the use of the saw-blade as an indicator to accurately position the swing-bar when it is to be adjusted to a mark drawn across the upper surface of the material to be cut, the opposite end of the mark being positioned relatively to the stationary end of the swing-bar. This is of especial advantage where the material is of such a width as to extend over the guide 68, in which case the swing-bar is released, the front thumb-latch operated, thereby releasing the front guide, whereupon the swing-bar is moved on its pivot until the saw-blade is over the mark which had been made, after which the swing-bar is locked by either the latch 25 of the frictional lock, as the case may be. A release of the rear guide then permits the saw to drop into proper position for use. As will be readily understood, the inclination of the saw when the front saw-guide only is released prevents any liability of the top surface of the material being marred, as only that point on the blade in juxtaposition to the outer or front edge of the material is in position to contact with such material.

Each of the latch-bars 53 is provided with an adjustable stop-stud 60, which may be moved to a position above the lower end of the stop-finger 52 when its use is not required or may be adjusted below such stop-finger when it is desirable to limit the downward movement of the saw at a higher point than that provided for by the stop-finger 52.

Transverse slots 62 are formed in the bed portion of the machine, and vertical openings 63 are formed in the back-rests 13, said openings coinciding with the slots 62. 64 64 represent vertical studs or work-rests, which are movable in the slots 62, said rests being of greater diameter than the width of the slots, so that their lower ends bear on the upper surfaces of the table-sections at opposite sides of the slots.

The rests 64 are provided in their lower portions with internally-threaded sockets which engage locking-screws 65, the heads of which bear upon the lower edges of the slots formed in the frame of the machine. When the screws 65 are tightened, they draw the lower ends of the rests 64 firmly against the upper surfaces of the table-sections, and thus lock the rests firmly in any desired position. When the rests are not required for use, they may be moved through the openings 63 to the back sides of the back-rests 13, where they are entirely out of the way.

In Fig. 1 I show one method of utilizing the rests 64, one of said rests being adjusted to bear against the outer edge of a piece of work whose inner edge bears against the back-rests 13, while the other rest is employed to secure to one of the table-sections 14 a slotted length-gage 66, whose inner end 67 is bent upwardly and bears against one end of the work.

68 represents a segmental index-plate affixed to the frame of the machine and coöperating with the index-finger 69, secured to the shoe 34.

It will be observed that the supporting-frame has an angular opening between the inner ends of the table-sections and that the rib 35 on the swing-bar projects upwardly into said opening, the body of the bar being located below the frame. The rib is provided with a screw-threaded stop-stud 72, which extends through a tapped orifice in the rib and projects from opposite sides of the latter in position to abut against the sides of the said opening and limit the movement of the swing-bar in each direction, the said stud being adjustable.

I claim—

1. A miter-box comprising a frame having

work-supports, a swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets and normally held locked against movement therein, and independent means for releasing either of said guides, said means being disposed relatively to each other in such manner as to permit downward movement of both guides when the rear guide is released and a downward movement of but one of the guides when the other guide is released.

2. A miter-box comprising a frame having work-supports, a swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets and normally held locked against movement therein, means for limiting the movement of said guides in the sockets, and independent means for releasing either of said guides, said means being disposed relatively to each other in such manner as to permit downward movement of both guides when the rear guide is released and a downward movement of but one of the guides when the other guide is released.

3. A miter-box comprising a frame having work-supports, a swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets, and independent latch-bars for normally locking said guides against movement in the sockets, said bars each having releasing means, said releasing means being disposed relatively to each other in such manner as to permit downward movement of both guides when the rear guide is released and a downward movement of but one of the guides when the other guide is released.

4. A miter-box comprising a frame having work-supports, a swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets, and independent latch-bars for normally locking said guides against movement in the sockets, said bars each having a thumb-piece, one of said thumb-pieces extending across the vertical plane of the back of a saw in said guides, and arranged to release its latch-bar automatically when the other latch-bar is released, a release of the first-mentioned latch-bar releasing but one of the guides.

5. A miter-box comprising a frame having work-supports, a swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets, and independent latch-bars for normally locking said guides against movement in the sockets, said bars each having a thumb-piece extending across the vertical plane of the back of a saw in said guides, and occupying the same relative position to the respective guides, the opposing side of the guides being free from obstructing means.

6. A miter-box comprising a frame having work-supports, a swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets and normally held locked against movement therein, locking means for said swing-bar, and independent means for releasing either of said guides, said means being disposed relatively to each other in such manner as to permit downward movement of both guides when the rear guide is released and a downward movement of but one of the guides when the other guide is released.

7. A miter-box comprising a frame having work-supports, an extensible swing-bar pivoted on said frame and carrying saw-guide sockets, saw-guides movable in said sockets and normally held locked against movement therein, locking means for said swing-bar, and independent means for releasing either of said guides, the release of the front guide permitting but one guide to move downwardly, whereby the saw may serve as an indicator, the release of the other guide, when both guides are locked, releasing both guides.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM J. PARSONS.

Witnesses:

GEO. W. NIMS,

LIZZIE STRACHAN.