No. 676,109. Patented June 11, 1901.

E. A. WESTPHAL.

MITER BOX.

(Application filed Oct. 19, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

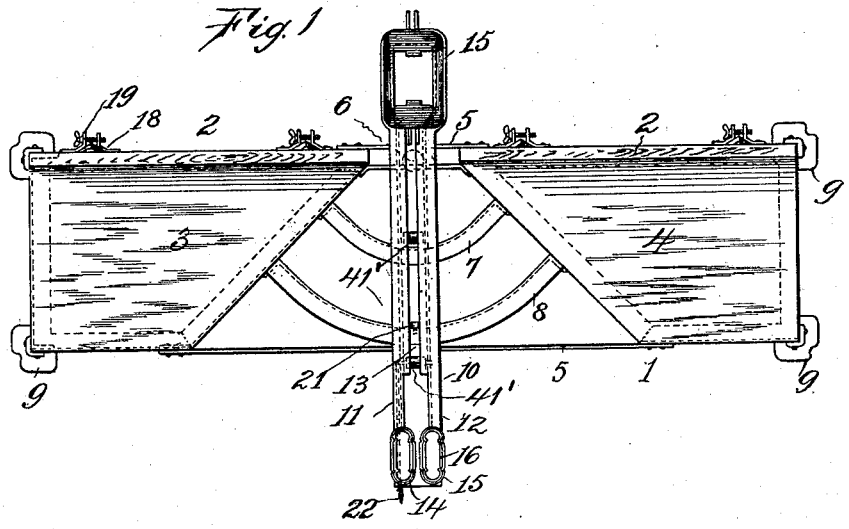


Fig. 2

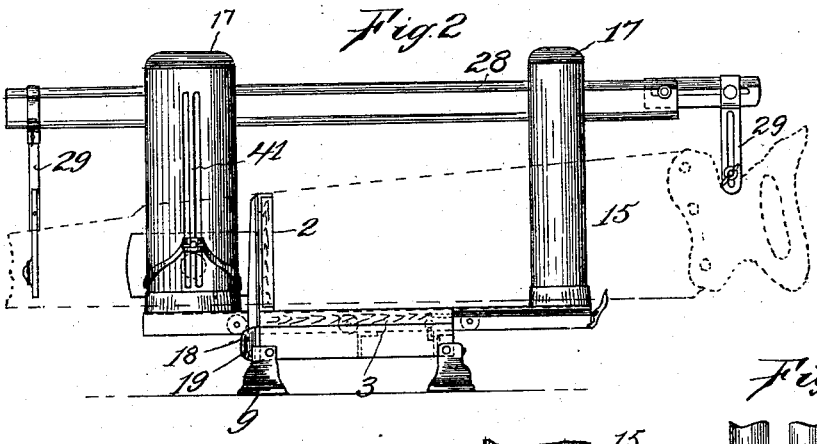


Fig. 3

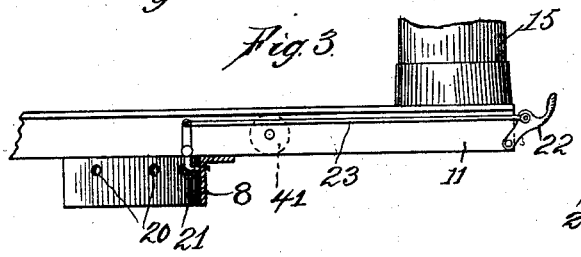
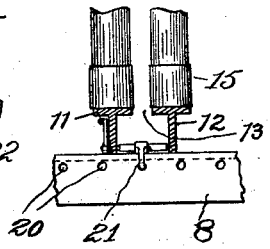


Fig. 4



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No. 676,109. Patented June 11, 1901.

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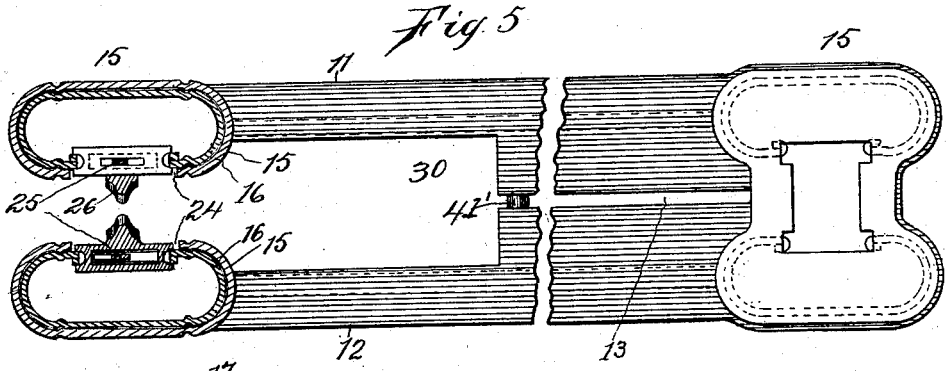
(No Model.) 2 Sheets—Sheet 2.

Fig. 5



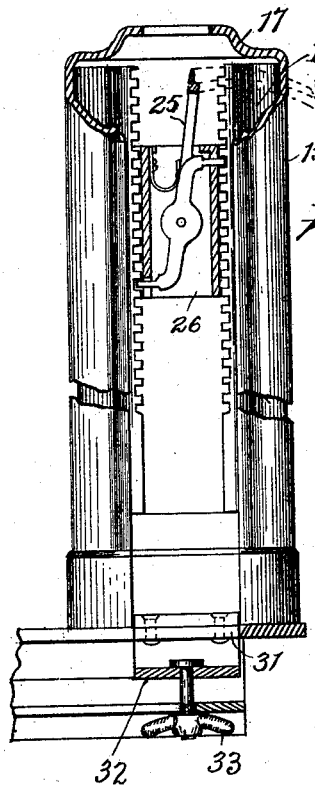


Fig. 7

Fig. 6

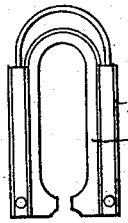


Fig. 8

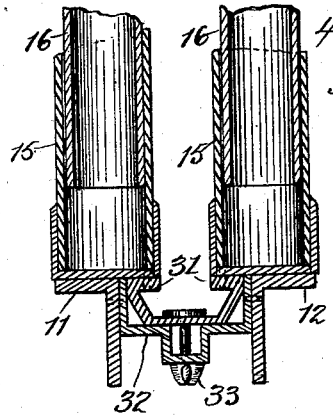
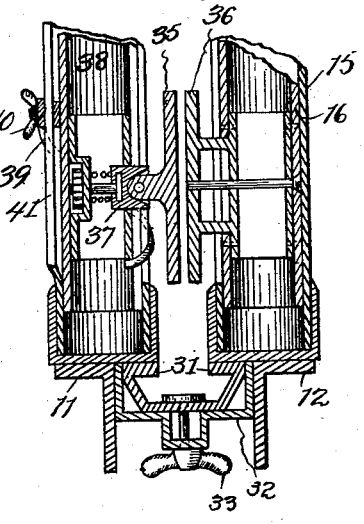


Fig. 9



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UNITED STATES PATENT OFFICE.

ERNEST A. WESTPHAL, OF HARTFORD, CONNECTICUT.

MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 676,109, dated June 11, 1901.

Application filed October 19, 1900. Serial No. 33,644. (No model.)

To all whom it may concern:

Be it known that I, ERNEST A. WESTPHAL, a citizen of the United States, and a resident of Hartford, county of Hartford, and State of Connecticut, (having post-office address at 76 Greene street, Hartford, Connecticut,) have invented certain new and useful Improvements in Miter-Boxes, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

My invention relates to that class of devices commonly used in carpentry for accurately cutting pieces of wood and other material to any desired angle.

One object of my invention is to provide a device which will be of light and cheap construction and may be easily taken apart and assembled, forming a convenient device which may be packed in a small compass.

A further object of the invention is to provide a device of this class which may be used with equal facility either with a back-band saw, such as is often used with miter-boxes, or the ordinary saw, which is commonly used in carpentry.

A still further object is to so arrange the several parts that when either of the saws above named is used a positive guide will be located adjacent to the blade to hold it always in proper position with relation to the work.

Referring to the drawings, Figure 1 is a plan view of the improved device with parts cut in section. Fig. 2 is an end view of the device shown in Fig. 1 looking from the left of said figure. Fig. 3 is a detail view, on an enlarged scale, showing the guide-support and the mechanism for locking and shifting it. Fig. 4 is an end view of the parts shown in Fig. 3 with the operating-lever removed. Fig. 5 is a plan view, on enlarged scale, of the guide-tubes and their support-tubes at one end, being cut in section. Fig. 6 is a detail view in elevation of the back-band guide. Fig. 7 is a side elevation of one of the tubes with parts broken away and the support and intermediate members cut in section. Fig. 8 is a detail cross-sectional view showing the lower portion of the tubes and their support. Fig. 9 is a sectional view through the tubes and support, showing the details of construction of the saw-blade guides.

In the accompanying drawings the numeral 1 denotes the base, and 2 a riser supported at substantially right angles to the base, the two forming a guide and rest for the work. The base 1 is made in two sections 3 4, which may be secured together in any suitable manner, as by metallic bands 5; but these two sections are preferably hinged, as at 6, so that the two parts may be folded back upon each other for obvious purposes. The saw support and guide 10 is pivoted, preferably, coincident with the pivot of the hinge joining the two sections of the base, and the adjacent portions of the base are cut away a sufficient distance and at the proper angle to permit the wide latitude of movement for this swiveled support 10.

To form a suitable rest for the support 10, segments of metal properly formed are arranged below it and between the adjacent ends of the sections of the base, as denoted by the numerals 7 8. These metallic segments are preferably of L form, and the outer one, 8, has its vertical wall perforated, these perforations coöperating with a detent located on the supporting-guide to lock the latter and its saw at any desired angle with relation to the base. If desired, the base may be mounted upon suitable standards, as 9. The support 10 is preferably formed from a pair of T-shaped members 11 12, suitably secured together and provided with an opening 13 between their adjacent sides. At either end of the structure thus formed are located guide-posts 14 15.

The guide-posts are tubular and comprise two sections, which are telescopic, the outer tube 15 being firmly secured to the base 10, while the inner tube 16 may be raised or lowered at will for the purposes hereinafter described. These supporting-tubes are arranged on opposite sides of the opening between the T-shaped members of the base, and the inner tubes are preferably tied together at their tops, as by cap 17, which causes both of the adjustable tubes to move in unison.

The riser 2, which is preferably made of wood, is provided with stays 18, the lower

ends of which fit within clips 19, secured to the base-sections 3 4. These clips are provided with binding-screws, through the medium of which the riser may be securely held in place upon the base.

The L-shaped rest 8, provided with a series of apertures 20, supports the main saw-guide, and a lever 21, controlled by a thumb-piece 22 and connecting-rod 23, serves to lock the saw-guide to the support 8 in any desired position.

The adjacent portions of the telescopic tubes are cut away, as indicated at 24 in Fig. 5. The inner tube 16 has its edges projecting slightly beyond the edges of the tube 15. The abutting edges of the inner tube are serrated, as indicated in Fig. 7, and these serrations coöperate with a detent-lever 25, which is arranged within orifices formed in the sides of the back-band guide 26. The lever has an operating-handle 27, which extends beyond the limits of the tubes and lies in convenient position to be operated by the finger. The spring normally holds the ends of the lever in engagement with the serrations of the inner tube, and when for any purpose it is desired to adjust the position of the back-band guide the lever 27 is raised and the guide moved to required position.

When an ordinary saw is used, a guide 28 is placed within the back-band guide. The dependent hangers 29 are secured to the saw in any desired manner. Both the guide and the dependent supports are made adjustable, as illustrated in Fig. 2.

To hold the guide-tubes firmly in place and yet permit adjustability lengthwise of the support 10, the latter is cut away, as indicated at 30, and the tubes instead of being mounted directly upon the support 10 are secured to a bracket 31, which partially rests upon a support 32 and has a clamp-screw 33, by which the supports are secured in their adjusted positions.

Between the forward pair of guide-tubes there is arranged a blade-guide 35, which has two sections, one of which, 36, is rigidly secured to the inner tube of one of the guide-posts. The other section of the guide is swiveled to a block 37, carried upon a slide 38, arranged within the inner guide-tube and provided with an adjusting-bar and thumb-screw 39 40. The thumb-screw, coöperating with its block, takes about the rib 41, formed by cutting away portions of the outer guide-tube. To prevent the saw-teeth coming into contact with the metallic parts of the frame in case the wood is cut entirely through, rollers 41′ are arranged between the T-shaped members of the support 10 to receive the teeth of the saw.

While the details of the device have been specifically described, it is obvious that many changes might be made without altering the intention or purpose of the invention, and it is not desired to limit the device to the precise construction shown and described herein, as any device having a sectional base and the telescopic guide-tubes and guides arranged for the purposes herein set out would come within the scope of my invention.

I claim as my improvement—

1. In combination in a device of the class specified, a sectional base and intermediate connections forming the floor of the box, removable risers detachably connected to said base, a swinging saw-frame pivoted to said base comprising pairs of telescoping tubular guide-posts arranged at each end of said frame, devices carried by said posts for supporting the saw, an adjustable guide for the blade of the saw arranged between the front posts and means for raising or lowering the cutting edge of the saw.

2. In combination in a device of the class specified, a sectional base and intermediate connections forming the floor of the box, a support for the saw-guides comprising two T-shaped members secured together and pivoted to the base and a saw-guide arranged thereon, comprising pairs of telescoping tubes arranged at each end thereof and an automatically-adjustable guide for the saw-blade arranged between the front pair of tubes.

3. In combination in a device of the class specified, a sectional base and intermediate connections forming the floor of the box and comprising a pair of T-shaped members secured together, pairs of telescoping guide-posts arranged at each end of said support, the inner members of each pair of posts being secured together at or near their tops, substantially as described.

4. In a miter-box, the combination with a swinging base pivoted to said box, of telescoping guide-posts arranged in pairs at each end of said swinging base, and adjustable guides for the saw-blade arranged between said guide-posts.

5. In combination in a device of the class specified, the sectional base and intermediate connections forming the bottom of the box, a support for the guide-posts comprising T-shaped members secured together and pivoted to the base, telescoping guide-posts arranged in pairs at each end of said support, adjustable guides for the blade of a back-band guide arranged between each pair of posts and an auxiliary supporting means for an ordinary saw-blade arranged to be carried by the telescoping members of said guide-tubes, substantially as described.

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