

C. H. SWENSON.
MITER BOX.
APPLICATION FILED FEB. 23, 1912.

1,047,459.

Patented Dec. 17, 1912.
2 SHEETS-SHEET 1.

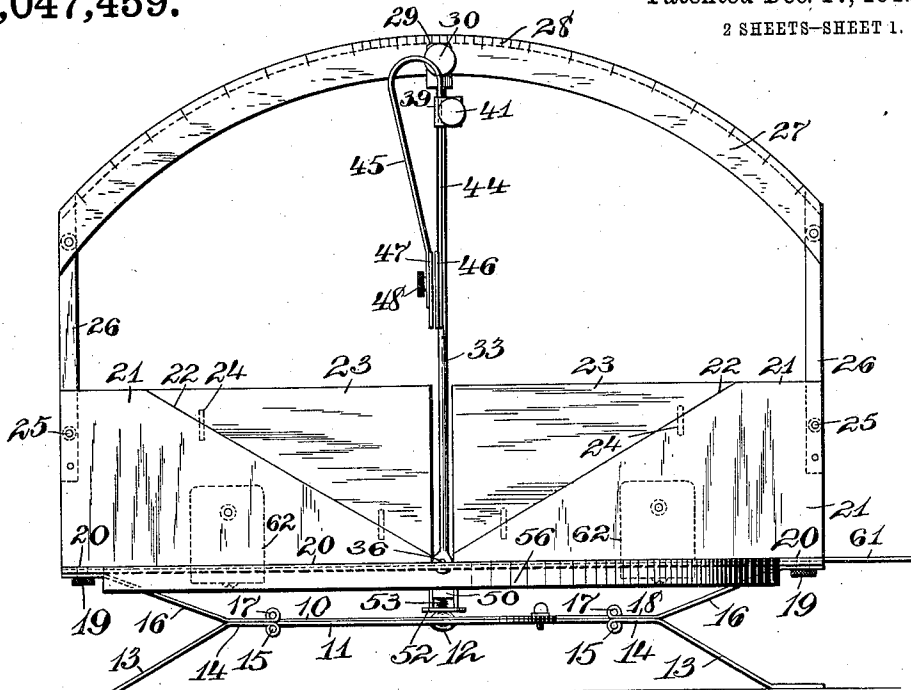


Fig. 1

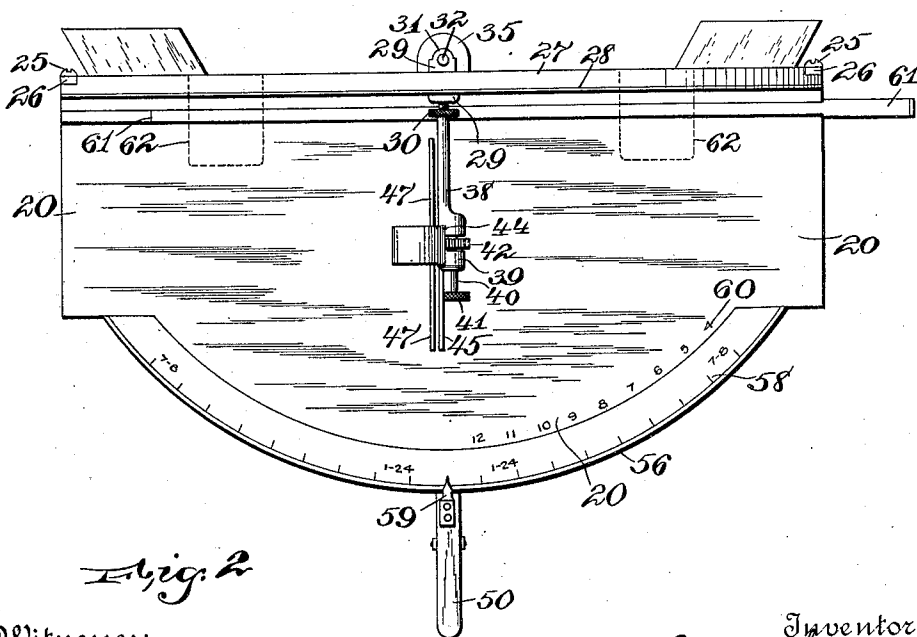


Fig. 2

Witnesses:
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W. C. Morton.

Inventor
Carl H. Swenson,
By his Attorney
Mr. H. Campfield.

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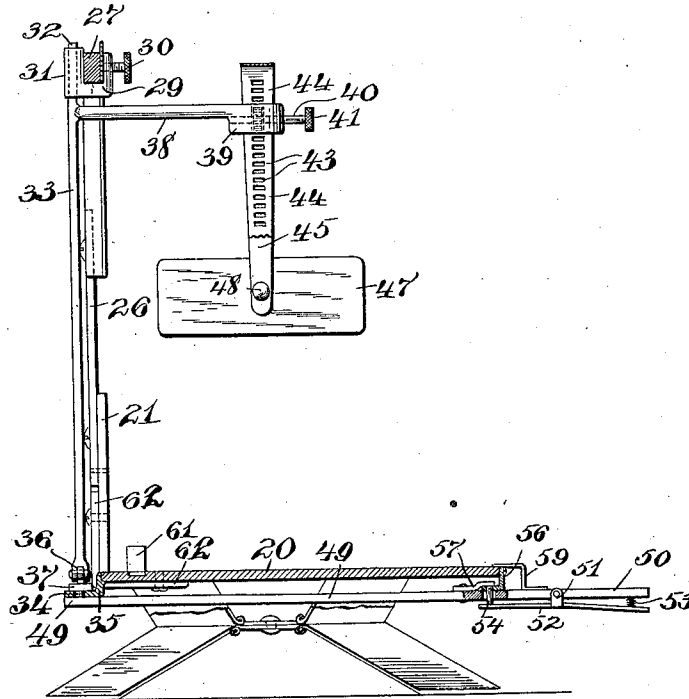


Fig. 3

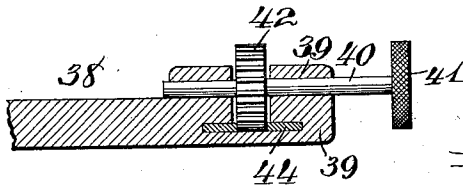


Fig. 4

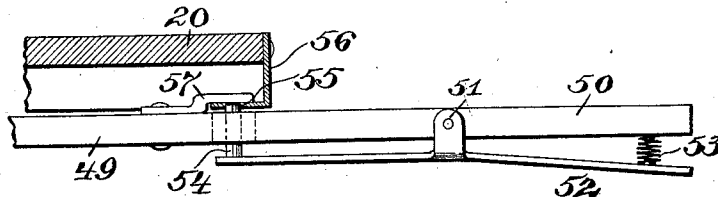


Fig. 5

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UNITED STATES PATENT OFFICE.

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MITER-BOX.

1,047,459.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed February 23, 1912. Serial No. 679,246.

To all whom it may concern:

Be it known that I, CARL H. SWENSON, a citizen of the United States, residing at Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Miter-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to a miter-box and is designed to provide a box which can be quickly and easily adjusted to hold a saw in position to cut at angles in different planes.

The miter-box is so constructed that miters can be cut at different angles in a vertical plane and also at inclinations to the perpendicular.

The miter-box has a frame on which the saw-guide rotates and also swings, the frame being arranged so that it can be knocked down, the frame resting on a stand consisting of legs which can be folded whereby the whole device is adapted to be packed in the tool box of a workman. The frame is rotatably mounted on the stand, whereby it can be made accessible by turning it instead of having to shift a long and unwieldy piece of molding or similar material to be cut.

The invention is also designed to provide a saw-guide that is adjustable in a perpendicular direction.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the device. Fig. 2 is a top view. Fig. 3 is a vertical section through the center of Fig. 1. Fig. 4 is a detail of the regulating mechanism for the saw-guide, and Fig. 5 is a detail showing the holding means for adjusting the rotation of the saw-guide support.

The invention comprises a stand consisting of two plates 10 and 11, the plates being connected by means of a suitable pivotal pin 12. The lower plate 11 is provided on its ends with four legs 13 having a straight portion 14 and pivoted as at 15 to the plate 11. On each end of the upper plate 10 are the arms 16 which are pivoted as at 17 to the plate 10 and have straight portions 18

which rest on the straight portions 14 of the legs 13 and limit the movement of the arms 16 downward. The ends of the arms 16 are fastened by the set-screws 19 so that they are detachably secured to the platform 20 of the frame of the machine. The platform 20 of the frame is designed to hold the material that is to be cut, the back end of the frame having a wall 21 which is provided with the inclined inner faces 22 which are left open when a pitch is to be cut, or a miter out of a perpendicular plane. The spaces between the inner faces 22, however, are filled for the most part by the insert-blocks 23 which are provided with pins 24 which rest in recesses in the wall 21 to hold the insert-blocks in place. The walls 21 are detachably secured by means of screws 25 to the standards 26 which are connected by an arch 27 having a scale 28 thereon, the arch being preferably made to embrace an arc of ninety degrees. A clamp 29 bears on the arch 27 and is held in any adjusted position, the clamp having a sleeve 31 into one end of which is rotatably arranged the end 32 of a saw-guide support 33 which extends downward and is pivoted as at 34 in an extension 35 of the platform 20.

The pivot 34 is connected with the support 33 by a suitable joint 36 which can be of the simple hinge type, as shown, or can be of any of the universal forms that are common. The joint 36 bears on a collar 37 which holds up the saw-guide support, the saw-guide support having an arm 38 extending to the front thereof, which arm is provided with a bearing 39, shown particularly in Fig. 4, into which rotates a shaft 40 having a finger-piece 41 thereon and being provided with a pinion 42 which meshes with perforations 43 in the plate 44, which plate is bent over to form a grasping plate 45, the plates 44 and 45 having a spring action and having the widened ends 46 and 47, respectively, these ends forming a guide for the saw. The tension between the widened ends 46 and 47 are adjusted by means of a set-screw 48 fastened in the end of the plate 45 and bearing on the back of the plate 47 and holding it in place. It will thus be seen that by screwing up the screw 48 a slight adjustment is possible between the ends 46 and 47 forming the saw-guide so that pressure sufficient to hold the saw can be adjusted to the desired strength. The end 34 is fastened to a lever

49 which extends beyond the front of the platform 20 to form a handle 50.

Pivoted to the lever is a bracket 51 with a clamp 52 which has its free end actuated
5 by a spring 53 to force its inner end, which is provided with a pin 54, into a recess 55. A number of these recesses 55 are arranged in the scale-plate 56 which is curved on the edge of the platform 20, these holes 55 fastening the pin 54 and consequently the lever 49 and with it the saw-guide support and the saw-guide at any angle, but maintaining the saw in a vertical plane. A fender 57 acts as a stop for the pin 54. The
10 scale-plate 56 is provided with any number of desired scale marks 58, and a pointer 59 indicates the angle that the saw-guide bears to the wall 21. The scale 28 can show simply degrees, or it can show pitch designations,
20 or it can show by means of the numerals 60 how many sides a device will have when cut at the angle at which it is placed, that is, if the pointer was swung around opposite the number 10 it would show that cuts
25 along that line would form a ten sided figure if the cut is continued around the center of rotation of the saw-guide support 33. In the case of a long, thin piece being held so as to be cut I provide an extensible slide
30 61 which can be withdrawn from the platform 20 by sliding it out the desired distance, and when it is not in use it can be slid inward to the position shown in Fig. 2.

The device is used as follows:—The material to be cut is laid on the platform 20 and bears against the wall 21. If a miter cut is to be made in a vertical plane the blocks 23 are removed and the handle 50 is swung till the pointer 59 indicates the
35 proper angle at which the cut is to be made. The saw is inserted in the saw-guide, the saw-guide being held vertical by its somewhat long bearing in the bearing 39, the saw-guide being raised by the finger-piece 41
40 if the piece of stock worked on is thick. The saw-guide thus holds the saw at the proper angle and when the saw is operated the cut is made along the indicated angle. If a cut is to be made out of the vertical
50 plane, the screw 30 is unscrewed and the clamp 29 carrying its end of the saw-guide support is adjusted to the proper angle along the scale 28, and the saw-guide being used the same as before, the cut is as desired.

55 It will be understood that both the lever 49 and the clamp 29 can be swung so that the cut made will be out of the vertical

plane and also at an angle to the face of the wall 21. This combined swinging movement of the saw-guide support and the rotation of the saw-guide support permit of a
60 quick and easy adjustment of the saw and facilitate the work by a carpenter or other operator using the device. The saw-guide formed with the plates 46 and 47, by holding the saw at some distance from the saw-guide support, the saw itself resting against the saw-guide support 33, gives a somewhat long bearing for the saw which serves to assist in holding it in the desired direction.
70 The wall 21 is held in place by means of the detachable brackets 62 fastened by screws to the platform and to the wall.

The whole structure can be taken apart by releasing the screws 25, removing the
75 brackets 62 if necessary, moving the set-screws 19 and folding the legs 13 and the arms 16 inward. When this is done the whole device can be folded up into a comparatively small space and can be handily carried
80 in the tool box of a carpenter.

Having thus described my invention, what I claim is:—

1. A miter-box comprising a platform having a wall at the back, an arch secured
85 to and above the wall, a saw-guide support mounted to rotate and also to swing on the platform and to bear on the arch, a bearing on the support projecting above the platform, a pinion in the bearing having a
90 finger-piece thereon, and plates joined at the tops, one plate sliding in the bearing, said last-mentioned plate having perforations to receive the teeth of the pinion, the ends of the plates being formed to guide
95 a saw between them.

2. A miter-box comprising a platform, an adjustable saw-guide mounted on the platform, a stand comprising a pair of plates
100 pivoted so as to rotate one on the other, legs pivoted to both ends of the lower plate, arms pivoted to the ends of the upper plate, the arms and legs having flat portions to engage to limit the movement of the arms and legs toward each other, and means for securing
105 the platform to the arms.

In testimony, that I claim the foregoing, I have hereunto set my hand this 19th day of February 1912.

CARL H. SWENSON.

Witnesses:

WM. H. CAMFIELD,
M. A. JOHNSON.