No. 713,213. Patented Nov. 11, 1902.

G. M. GREEN.

MITER BOX.

(Application filed Feb. 1, 1902.)

(No Model.) 2 Sheets—Sheet 1.

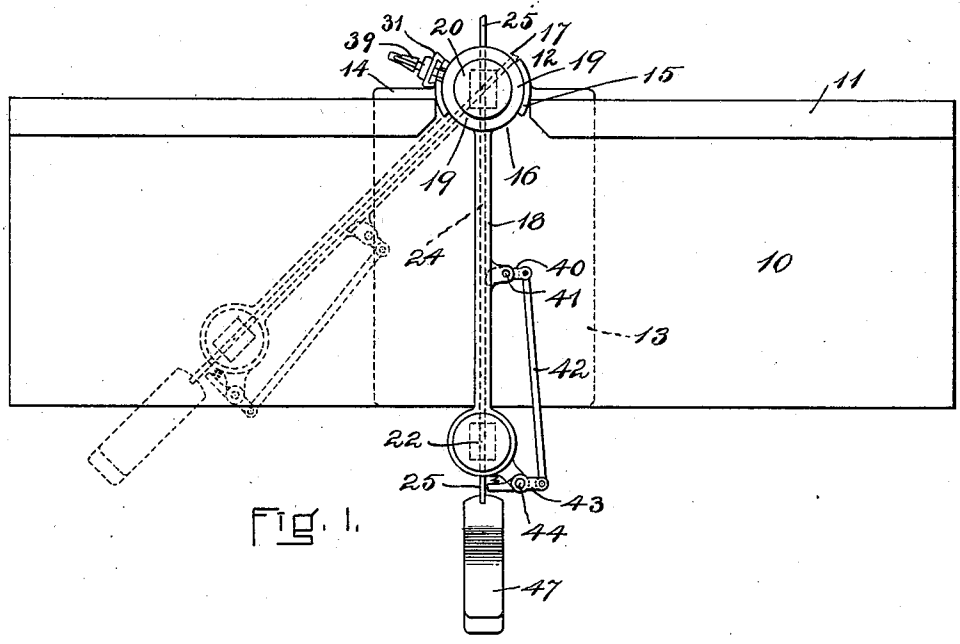


Fig. 1.

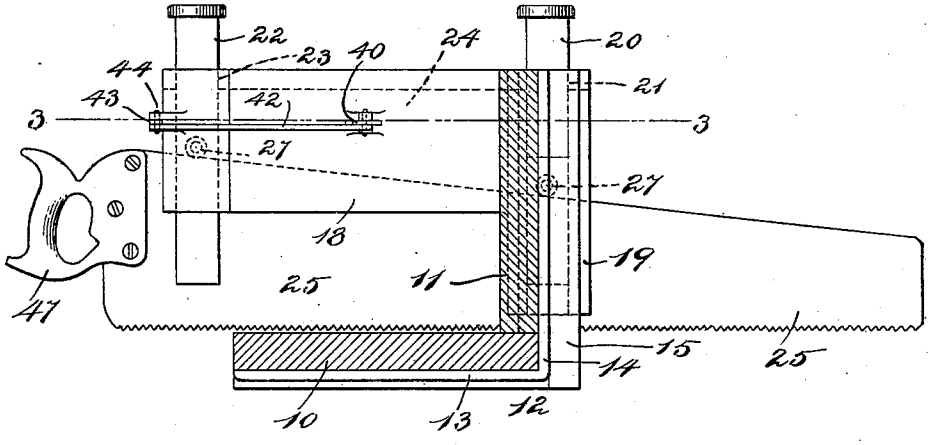


Fig. 2.

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Louis A. Jones.

Inventor:
George M. Green.
by his Attorneys: Charles S. Fooding.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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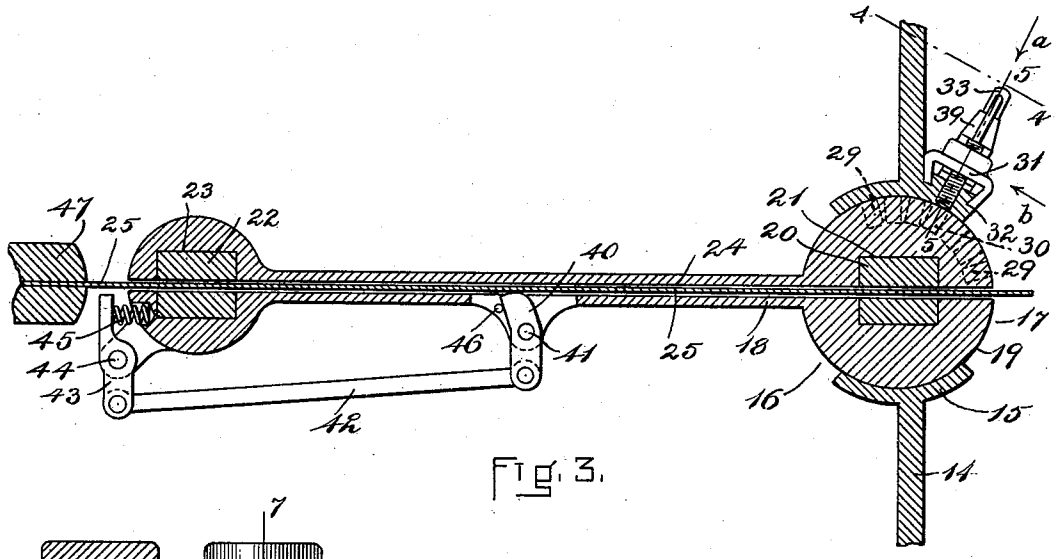


Fig. 3.

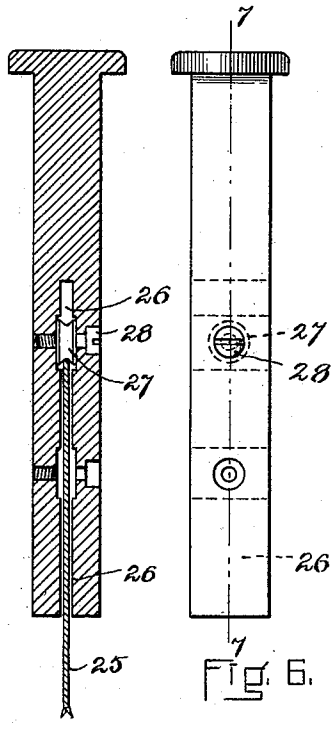


Fig. 6.

Fig. 7.

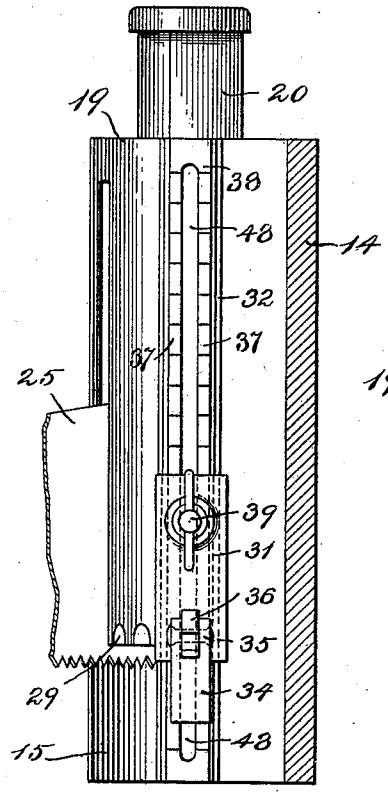


Fig. 4.

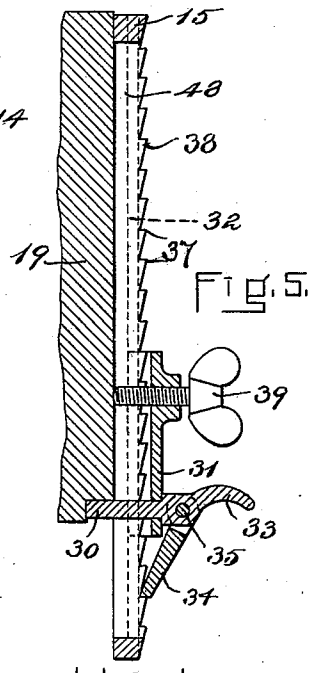


Fig. 5.

Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE M. GREEN, OF BOSTON, MASSACHUSETTS.

MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 713,213, dated November 11, 1902.

Application filed February 1, 1902. Serial No. 92,094. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. GREEN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Miter-Boxes, of which the following is a specification.

The object of this invention is to provide a miter-box for guiding a saw in cutting off pieces of wood of different dimensions and shapes at different angles and to provide a miter-box which shall be simple, easily operated, and durable and which shall be capable of being used with a large variety of different shapes and sizes of material.

The object is still further to provide a miter-box of such construction that any of the saws in ordinary use may be used, thus rendering it unnecessary to provide a special saw for the purpose.

The invention consists, in a miter-box, of a work-support comprising a base and a back rigidly fastened to each other at right angles, an arm pivoted to said work-support at the back thereof and extending transversely above the work-support base, means attached to said arm to guide a saw-blade, means to set and lock said arm at different angles horizontally with relation to said work-support back, and means to lock the said arm at different heights with relation to said base.

The invention still further consists in the specific means whereby said arm is locked at different angles and different heights.

The invention still further consists in the specific means for guiding the blade of a saw and for locking a saw-blade to said arm for the purpose specified.

The invention again consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a plan view of my improved miter-box. Fig. 2 is a side elevation taken from the right of Fig. 1, the back board and base-board being shown in section. Fig. 3 is a horizontal section taken on line 3 3 of Fig. 2. Fig. 4 is a detail section taken on line 4 4 of Fig. 3 looking in the direction of the arrow *a*. Fig. 5 is a detail section taken on line 5 5 looking in the direction of the arrow *b*. Fig. 6 is a side elevation of one of the saw-guide slides. Fig. 7 is a detail section taken on line 7 7 of Fig. 6, showing a saw-blade in connection therewith.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is the base-board, and 11 the back board, of my improved miter-box, the same being constructed of wood and fastened by screws to a metal casting 12. Said casting consists of a base-plate 13, to which the base-board 10 is fastened, and of a back plate 14, to which the back board 11 is fastened. Said back plate has formed integral therewith a hollow vertical standard 15 integral with and extending upwardly from said base-plate and provided with a slot 16 in the front and another slot 17 in the back thereof. An arm 18 extends horizontally and transversely above the base-board 10 and is provided with a cylindrical hub 19, which is fitted to turn in the hollow standard 15 and can also be raised and lowered and locked in position within said hollow standard at different angles and at different heights with relation thereto, as hereinafter described.

In the center of the hub 19 is provided a saw-guide 20, arranged to slide in ways 21, formed in said hub 19. At the front end of the arm 18 is provided a second saw-guide 22, also formed to slide in ways 23. The arm 18 is provided with a vertical slot 24, extending lengthwise thereof, through which a saw-blade 25 of any desired size or thickness is adapted to move freely. Each of the saw-guides 20 and 22 is provided with a slot 26 to receive the saw-blade 25, and each of said slots is provided with a guide-roll 27, journaled upon a screw 28, said screw 28 being screw-threaded into one side of the slotted portion of each saw-guide. (See Figs. 6 and 7.) The guide-roll 27 has a V-shaped periphery to receive and locate the back of the saw-blade centrally with the slot 26. If it is desired to reduce the width of the slot 26 to a slight extent, it may be done by tightening up the screw 28.

In order to lock the arm 18 at different angles horizontally with relation to the work-support back board 11, slots 29 are provided in the lower end of the hub 19, and these slots engage a pin 30, fast to a slide 31, arranged

to move vertically upon ways 32, provided upon the exterior of the hollow standard 15. The slide 31 has a handle 33 fast thereto, by means of which it may be raised and lowered, and a pawl 34, pivoted at 35 to an ear 36 integral with said slide. The pawl 34 engages teeth 37, formed upon a rack 38, fast to the exterior of the hollow standard 15. It will be seen that by raising the arm 18 and swinging the same to any desired angle said arm may be locked in position by the lock-screw 39, screw-threaded into the slide 31, passing through the slot 48 in the hollow standard 15 and engaging the periphery of the hub 19. The said arm may be locked in position by the pin 30 at certain predetermined angles with relation to the back board 11—such as ninety degrees, forty-five degrees, or sixty degrees, according to the particular slot 29 with which said pin 30 may be placed in engagement—by raising the arm 18 and turning the same until the desired slot comes in line with said pin and then dropping the arm and the hub 19 till said slot engages the pin 30.

It is often desirable to lock the saw-blade in a raised position while the operator uses both hands to place the piece which he is to cut and then to release said saw-blade while holding the piece in one of his hands, thus having only one hand at his disposal with which to manipulate the saw and unlock the same. For this purpose I have provided a locking-dog 40, pivoted at 41 to the arm 18 and one end arranged to bear against the saw-blade 25 and bind the same in a fixed position in the slot 24, the other end of said locking-dog being connected by a link 42 to a lever 43, pivoted at 44 to the front end of the arm 18 and normally kept in the position shown in Fig. 3 by a spring 45, which holds the locking-dog 40 against a fixed pin 46. This locking device is operated as follows: When the handle 47 is moved to the right, Fig. 3, it engages the tail of the lever 43 and draws the link 42 to the left in said figure, thus bringing the working face of the locking-dog 40 against the saw-blade and binding said saw-blade in the slot 24.

The operation of the device as a whole is as follows: The operator sets the arm 18 at the angle desired either by use of the locking-screw 39, if it is not one of the angles hereinbefore set forth, or, if it is to be set at an angle of ninety, forty-five, or sixty degrees with the back board 11, then said arm is set by bringing the hub 19 to bear upon the pin 30 opposite the proper notch 29. If it is then desired to raise the arm 18 or to lower the same, it is done by means of raising said arm and the hub 19 in the hollow standard 15 and raising the slide 31 by means of the handle 33, locking the same in any desired position as to height by means of the pawl 34 engaging with the rack 38. The saw-blade and its guides 20 and 22 being now in the proper position, the operator places the piece of wood to be sawed upon the base 10 and holds the same firmly against the back board 11. The saw is supposed during these operations to have been locked in the arm 18 by the locking-dog 40, with the handle 47 pressed against the tail of the lever 43. The operator holding the piece of wood in one hand draws the saw to the left, Fig. 3, disengaging the handle from the lever 43, and the spring 45 immediately throws the locking-dog into the position shown in said figure. This allows the saw to be moved downwardly, the guides 20 and 22 following, perfectly guiding the same as it is pushed to and fro through the wood.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a miter-box, a work-support, comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, a hollow standard integral with said base-plate, projecting upwardly therefrom and provided with a slot in the front and in the back thereof, an arm extending transversely above said base-plate, a cylindrical hub on said arm fitted to turn in said hollow standard, means attached to said arm to guide a saw-blade, means to set and lock said hub at different angles with relation to said hollow standard, and means to lock said hub at different heights with relation to said base-plate.

2. In a miter-box, a work-support comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, a hollow standard integral with said base-plate, projecting upwardly therefrom and provided with a slot in the front and in the back thereof, an arm extending transversely above said base-plate, a cylindrical hub on said arm fitted to turn in said hollow standard, means attached to said arm to guide a saw-blade, a pin projecting through said hollow standard and adapted to engage notches provided in the lower end of said cylindrical hub and support and lock said arm at different angles horizontally with relation to said work-support back board, and means to lock said pin at different heights upon said hollow standard.

3. In a miter-box, a work-support comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, a hollow standard integral with said base-plate, projecting upwardly therefrom and provided with a vertical slot in the front and in the back thereof, an arm extending transversely above said base-plate, a cylindrical hub on said arm fitted to turn in said hollow standard, means attached to said arm to guide a saw-blade, a slide arranged to be moved vertically in ways upon said hollow standard, a rack formed upon said hollow standard, a pawl pivoted to said slide and arranged to engage said rack, and a pin fast to said slide, projecting through said hollow standard and adapted to engage notches provided in the lower end of said cylindrical hub

and support and lock said arm at different angles horizontally with relation to said back board.

4. In a miter-box, a work-support comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, a hollow standard integral with said base-plate, projecting upwardly therefrom and provided with a vertical slot in the front and in the back thereof, an arm extending transversely above said base-plate, a cylindrical hub on said arm fitted to turn in said hollow standard, means attached to said arm to guide a saw-blade, a slide arranged to be moved vertically in ways upon said hollow standard, a rack formed upon said hollow standard, a pawl pivoted to said slide and arranged to engage said rack, and a lock-screw carried by said slide projecting through a slot provided in said hollow standard and engaging the periphery of said cylindrical hub for the purpose specified.

5. In a miter-box, a work-support comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, an arm pivoted to said base-plate at the back thereof and extending transversely thereover, means attached to said arm to guide a saw-blade, said arm provided with a slot extending lengthwise thereof and adapted to receive said saw-blade, and a locking-dog pivoted to said arm arranged to project into said slot, engage said saw-blade and lock the same in a fixed position with relation to said arm.

6. In a miter-box, a work-support, comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, an arm pivoted to said base-plate, at the back thereof, and extending transversely thereover, means attached to said arm to guide a saw-blade, said arm provided with a slot extending lengthwise thereof and adapted to receive said saw-blade, a locking-dog pivoted to said arm, and means operated by the handle of said saw to move said locking-dog into contact with said saw-blade, substantially as described for the purpose specified.

7. In a miter-box, a work-support, comprising a base-plate, a back board and a base-board at right angles to each other, fast to said base-plate, an arm pivoted to said base-plate, at the back thereof, and extending transversely thereover, means attached to said arm to guide a saw-blade, said arm provided with a slot extending lengthwise thereof and adapted to receive said saw-blade, a locking-dog pivoted to said arm, and a spring acting to move said locking-dog into contact with said saw-blade, substantially as described for the purpose specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE M. GREEN.

Witnesses:
CHARLES S. GOODING,
ANNIE J. DAILEY.