L. W. JACOBS.

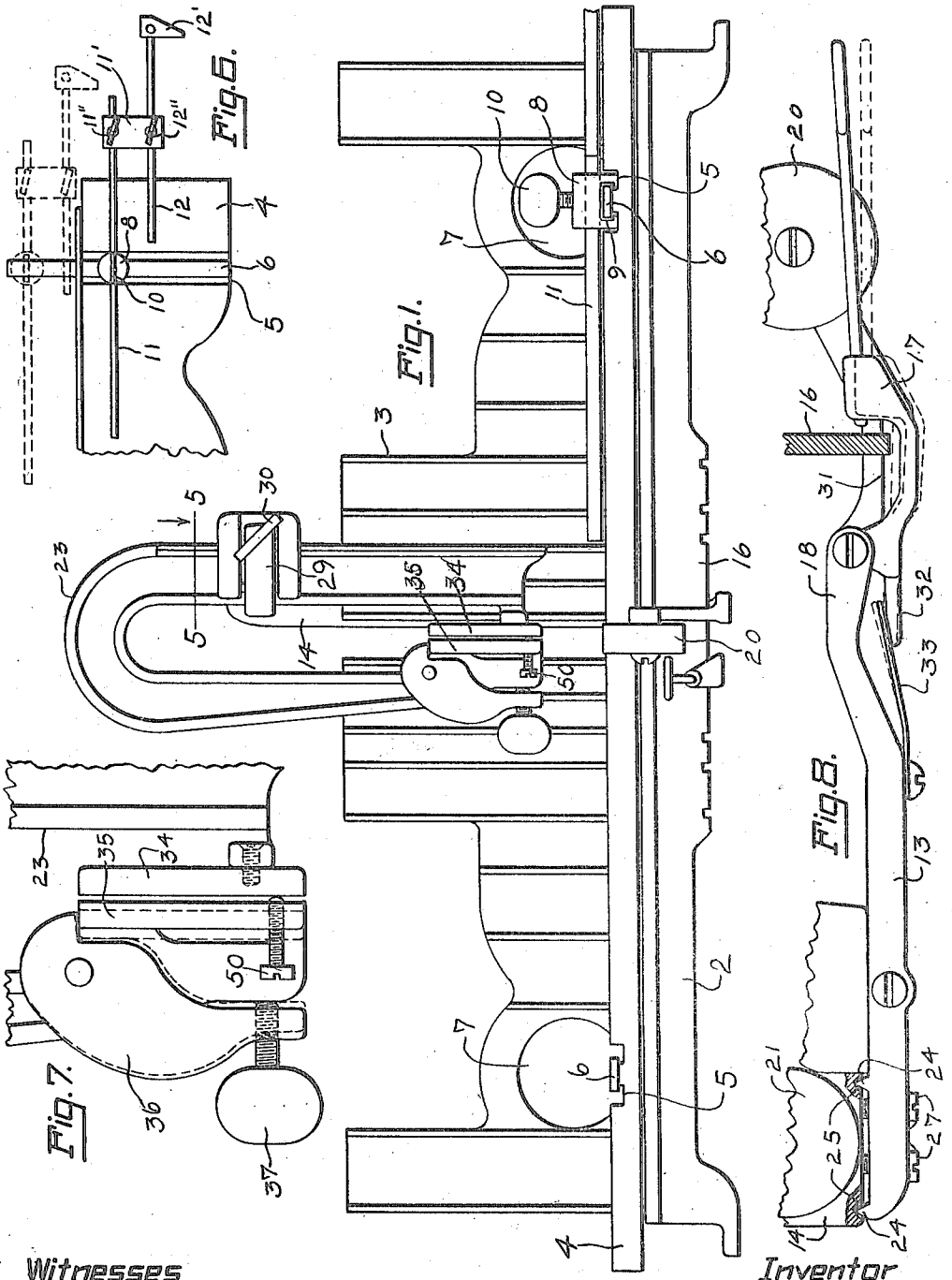
MITER BOX.

APPLICATION FILED JUNE 2, 1915.

1,248,866.

Patented Dec. 4, 1917.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

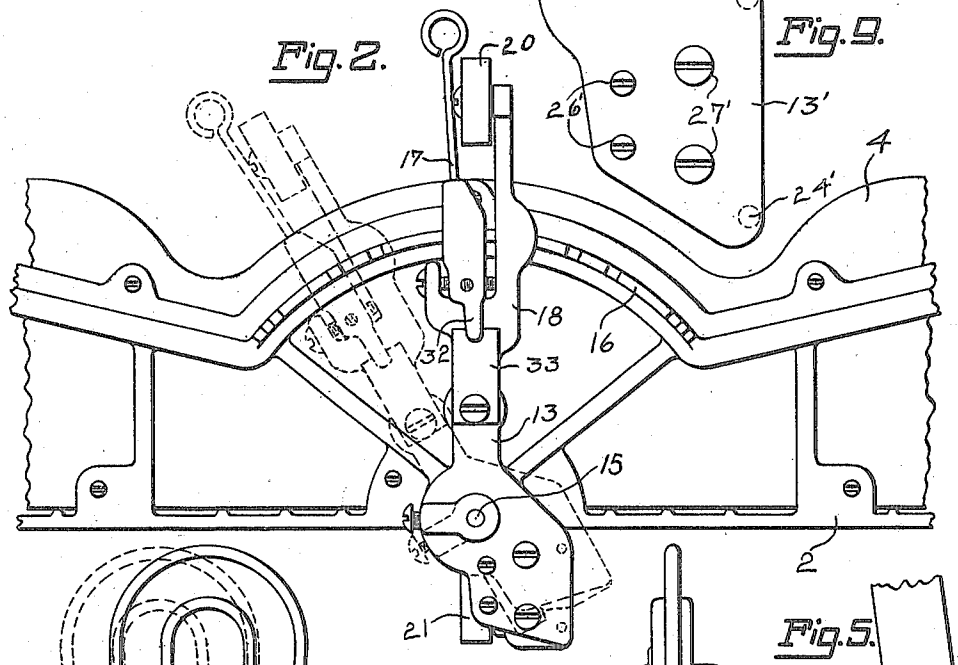


Fig. 9.

Fig. 5.

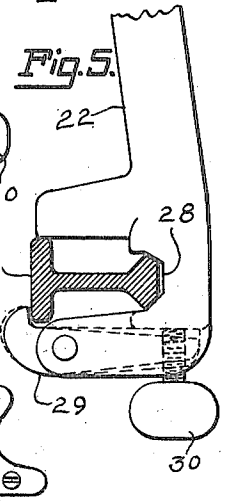


Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

LUMAN W. JACOBS, OF TOLLAND, CONNECTICUT.

MITER-BOX.

1,248,866. Specification of Letters Patent. Patented Dec. 4, 1917.

Application filed June 2, 1915. Serial No. 31,662.

To all whom it may concern:

Be it known that I, LUMAN W. JACOBS, a citizen of the United States, residing at Tolland, in the county of Tolland and State of Connecticut, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification.

This invention relates to miter boxes. In Letters Patent No. 414,544 granted to me November 5, 1889, I have disclosed a miter box, and among the principal objects of the invention are to cheapen the cost of production, and increase the effectiveness of miter boxes of the same general type as that illustrated in said Letters Patent. The invention possesses other features of novelty and advantage which with the foregoing will be stated at length in the following description wherein I will set forth in detail that one of the several convenient forms of embodiment of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. I do not restrict myself to this particular disclosure; I may depart therefrom in several respects within the scope of the invention defined by the claims following said description.

Referring to said drawings:

Figure 1 is a front elevation of a miter box involving my invention.

Fig. 2 is a bottom plan view of said miter box with the ends broken away and showing certain of the moving parts in two different positions.

Fig. 3 is an end elevation as seen from the left in Fig. 1, the bead showing in said Fig. 3 having its rear end broken away.

Fig. 4 is a rear elevation of a standard and supporting means with certain adjunctive devices hereinafter more particularly described, showing the standard and an element carried thereby in different adjusted positions by full and dotted lines respectively.

Fig. 5 is a section on the line 5—5 of Fig. 1, looking in the direction of the arrow.

Fig. 6 is a top plan view of one end of the table showing a gage in two adjusted positions by full and dotted lines respectively.

Fig. 7 is a front elevation of guide plates and a coöperating clamp, intended especially to illustrate the action of said clamp.

Fig. 8 is a view of an arm as seen from the left in Fig. 1, the latch piece carried thereby and certain coöperating elements hereinafter more particularly described, the segment coöperative with the latch piece being represented in cross section.

Fig. 9 is a detail view of a modified form of swinging arm or lever.

Like characters refer to like parts throughout the several views which are on different scales.

I provide a supporting frame as 2 which may as illustrated consist of an elongated casting. This frame as represented is provided with the upright back as 3 of flat construction and integral with the frame 2. The upper side of the frame 2 sustains the bed or work table 4, generally made from wood or other suitable material and fastened to the frame 2 in any desirable manner. As illustrated this bed or work table 4 has extending crosswise or transversely of it the channels 5 from the bottoms of which the T-shaped beads or tongues 6 rise, the upper surfaces of the heads of the beads or tongues 5 being in the plane of or flush with the upper surface of the bed or work table 4. These channels are shown near the outer ends of the bed or work table. The channels 5 open at their opposite ends in the front and rear edges of the work table but the beads project beyond the rear edge of said work table and through holes or openings as 7 in the back 3, for a reason that will hereinafter appear. The beads or tongues are adapted to interchangeably receive and guide the supporting member of a gage element of suitable character as will hereinafter appear. For simplicity I use only one of such supporting members, but if desired both beads may be equipped with such a part. The supporting member as shown is grooved as at 9 to slidingly receive in alternation the tongues 6, the groove 9 as will be inferred being of T-form in cross section. Tapped through the supporting member 8 is a thumb screw 10 which engages the rod 11 constituting the body or main section of the gage element and extending through the supporting member, the screw serving not only to hold the rod 11 and therefore the gage element in place, but by pressing the rod 11 against the bead, holding the supporting member 8 in an adjusted position.

The rod 11 extends longitudinally of the work table or bed 4 and slidingly receives the block 11′ adapted in turn to slidingly receive the rod 12 equipped with a projec-

tion as 12′ pinned or otherwise suitably fastened to said rod 12. This projection 12′ constitutes one gage or work abutting portion of the gage element, the other operative or abutting portion being presented by the inner end of the rod 11. The two rods, as will be noted are in parallelism and they with the connecting block 11′ constitute such a gage element as will meet my conditions. Owing to the connection of the two rods with the connecting block 11′ the gage element can be lengthened and the adjusted position will be maintained by the thumb screws 11″ and 12″ tapped through said connecting block 11′ and adapted for such purpose to bear against the two parallel rods 11 and 12. I have shown the gage means in the two adjusted positions thereof, the rod 11 being positioned for gaging and the various parts being clamped as represented in their full line positions in Fig. 6. In this event the outer end of the work, while being sawed, will bear against the inner end of the rod 11. To use the projection 12′ as a gage portion the set screw 10 will be loosened and the rod 11 pulled away from the supporting member 8, following which the latter will be passed through the opening which it is opposite onto the projecting end of the bead 6 as represented by the dotted lines in said Fig. 6. The rod 11 will then be passed through the supporting member 8 and clamped by the screw 10, following which the thumb screws 11″ and 12″ will be loosened so as to permit the adjustment of the block 11′ on the rod 11 and the rod 12 through the block so as to bring the projection 12′ in the position to be engaged by the outer end of the work. When the adjustment is accomplished the two screws 11″ and 12″ will be set. By this construction I provide a simple and effective stop means against which work of varying lengths can abut, the side of the work as will be clear, engaging the upright back 3.

Located below the frame 2 is an arm or lever 13 pivoted as at 15 between its ends to present long and short branches, to the frame at the rear approximately centrally of the length thereof. The rear or short branch of this lever supports a standard as 14 tippable laterally to vary the angularity of the saw guide, connected with said standard as will hereinafter be more particularly described. Rigid with the frame 2 and located near the front on the under side thereof is the segment 16 coöperative with the latch piece 17 pivoted between the sides of the fork 18 at the front of the arm or lever 13. One of the sides (the one on the right in Fig. 2) of the bifurcation or fork 18 is longer than the other, projecting in fact forwardly beyond the sector 16, the short side of the fork extending short of the sector. The longer branch or side of the fork 18 is equipped with an anti-friction roller 20, the standard or upright 14 being furnished with a complemental anti-friction roller 21 in transverse alinement with the roller 20, the upper portions of the peripheries of the said rollers extending slightly below the upper surface of the table or bed 4, so that said rollers prevent the saw cutting through the table. Said upper portions are above the frame 2 to prevent the saw coming in contact with said frame.

The upright or standard 14 has a forwardly extending portion 22 overhanging the table or bed 4 and to which the carrier 23 for the saw guide is rigidly connected, all as will hereinafter more particularly appear. It might be noted in passing, however, that the saw guide comprises two cheeks or side plates connected with the carrier, and it will, therefore, be clear that if the standard or upright 14 is tilted or tipped laterally the saw guide is correspondingly tipped. The means shown for effecting this action will now be set forth. The arm 18 is furnished on the upper side of the rear branch thereof with two conical or pointed bearing members 24 adapted to fit conical seats 25 in the bottom of the standard 14. Extending freely through a perforation in the rear branch of the swinging arm 13 are screws 26 tapped into the under side of the standard or upright 14. Tapped through said rear branch are screws 27 having a bearing against the underside or foot of said standard, the screws 26 being situated between the cone pointed projections 24 and the screws 27. In Fig. 4 the standard or upright 14 is shown as occupying a vertical position. By running out the screws 26 and running in the screws 27, the necessary extent, the standard can be tipped to the dotted line position, the standard swinging on the cone pointed projections 24. By running in the screws 26 and running out the screws 27, the standard can be tipped to the right of its full line position in said Fig. 4.

The overhanging portion 22 of the standard or upright 4 is vertically channeled on its inner side as at 28 to receive one leg of the saw guide carrier 23 (the right leg in Fig. 1), the saw guide carrier being of inverted loop or U-form. From this it will be clear that the carrier 23 is vertically adjustable so as to regulate the distance of the saw guide from the work table 4. Pivoted also to said overhanging portion 22 is the clamping device 29 adapted to be set by the screw 30 practically in the manner shown in my prior Letters Patent hereinbefore referred to.

As already described the latch piece 17 is pivoted between the sides of the fork, the outwardly extending manipulating por-

tion of the latch piece projecting beyond the long branch of the fork and also beyond the anti-friction wheel 20 so as to be readily accessible. The detent or operative portion 31 of the latch piece 17 is adapted to enter the notches of the segment 16 in the various mitering adjustments of the arm or lever 3. The latch piece has to the rear of its center of motion the projection 32 against which the spring 33 acts and tends constantly to maintain the latch piece in holding relation. The butt or shank of the spring is fastened as by a screw to the underside of the arm. By pushing downward upon the forward end of the latch piece 17, the operative portion 31 of said latch piece can be moved out of a notch of the segment 16 which it may occupy as shown by dotted lines in Fig. 8, this further tensioning the spring 33. When this is accomplished the arm or lever 13 can be turned around its axis of motion so as to effect a corresponding turning of the standard 14, carrier 23 and saw guide (hereinafter described) to vary the position of the guide with respect to the work. That is to say the guide can be brought to a right angle to the work or at an acute angle thereto practically in the manner set forth in my prior Letters Patent.

The saw guide as shown consists of the stationary plate 34 and the spring backed plate 35, the plate 34 being rigid with one side of the carrier 23 and the plate 35 being movably connected with the other side of said carrier practically in the manner shown in said Letters Patent.

Pivoted to that side of the carrier 23 to which the plate 35 is connected is the clamping device 36, the head or inwardly extending upper portion of said clamping device overlying the upper edge of the guide plate 35. Tapped through the lower portion of the clamping member 36 is the thumb screw 37, the inner end of the thumb screw having a bearing against the guide 23. By running in this thumb screw the head of the clamping member will be caused to apply force to the upper edge of the plate 35 to press the latter solidly against a projection like that denoted by *f'* in Letters Patent No. 414,544, granted to me November 5, 1889, and to which reference may be had. It will be understood that the saw is received between these two guide plates 34.

I have referred hereinbefore to a supporting device 8, and I have mentioned the fact that there may be cases where only one of these need be provided. There are other cases such for instance in cutting crown molding where it will be necessary to duplicate such a supporting device. The supporting device in addition to acting as such or for carrying a gage element in the manner already described also acts in turn as a gage element or member itself. The supporting devices in sawing crown molding will be adjustable toward and from the back 3, being spaced from the back the requisite distance to be abutted by the work which as will be obvious is disposed between the respective supporting devices or gage members 8 and the back 3 or equivalents. When said supporting devices or gage elements 8 are adjusted, the adjustment will be maintained by setting up the screws 10 which engage the respective beads 6, it being evident that when the supporting devices 8 are acting in their capacity as gage members, the rods 11 are not operatively positioned, the screws 10 directly engaging the respective beads 6.

In Fig. 9 I have shown a modified form of arm. This modified form of arm or lever is designated by 13' and in function is exactly like the arm 13 already described. The rear branch of the arm 13 is shown provided with two screws 26 extending freely through the same and adapted to be tapped into a standard such as 14. Beside the screws 26 are two other screws tapped through said lever or arm 13' and adapted to abut against said standard 14. The arm or lever in addition is equipped with cone pointed projections 24' adapted to enter conical openings in the bottom of the standard. The two screws 26' are situated between the screws 27' and the cone pointed projections 24'. To obtain an adjustment it will be necessary to simultaneously run in or out the two screws 26' and perform an exactly opposite function with respect to the two screws 27'. In some instances this construction is desirable especially in large size miter boxes. There may be cases where it is desirable to hold the saw between the elements 34 and 35, and in this event the screw 50 may be utilized. This screw is tapped through the part 35 and by being run in presses the saw against the companion and relatively fixed part 34. When the screw 50 is not in use for the purpose specified, it is backed out at which time its point will be approximately flush with the inner surface of said part 34.

What I claim is:

1. A miter box comprising a frame provided with a work table, a pivotally mounted arm supported by the work table, a saw guide and its carrier, a standard to which the saw guide carrier is connected, projecting means on the arm, for supporting said standard for tilting movement, and screws, one screw being located between the projecting means and the companion screw, extending freely through said arm and tapped into said standard and said companion screw being tapped through said arm and having a bearing against said standard.

2. A miter box comprising a supporting frame provided with a work table, a saw

guide and its carrier, a standard to which said guide is connected, an arm pivotally supported by the frame, said arm being provided with conical projections and the standard having conical seats to receive said projections whereby the standard will be supported for tilting movement, and two screws, one screw being located between said projections and the companion screw extending freely through said arm and being tapped into said standard and said companion screw being tapped through the arm and having a bearing engagement against the standard.

3. A miter box comprising a supporting frame provided with a work table on its upper side, an arm pivotally supported between its ends to the under side of the frame, a saw guide and its carrier, a standard provided with a portion overhanging said work table, said carrier being connected with the overhanging portion for vertical adjustment, means for connecting the standard with the rear branch of said arm, for tilting movement, and means for holding said pivotally supported arm in its various adjustments.

4. A miter box comprising a supporting frame equipped with a work table on the upper side thereof, an arm pivotally supported between its ends on the under side of the frame, the forward branch of the arm being bifurcated and one branch of the bifurcation extending forwardly beyond the frame, an anti-friction roller supported by said forwardly extending branch, a standard connected with the rear branch of the arm and having a portion overhanging the work table, an anti-friction roller supported by the standard and alined with the other anti-friction roller, the upper portions of the peripheries of both rollers extending below the upper surface of the work table, a saw guide and its carrier, the latter being connected with said overhanging portion, a latch piece pivoted between the branches of said bifurcation and having a forwardly extending manipulating portion, and a segment with which the operative portion of the latch piece coöperates, and a spring acting against the latch piece to move the operative portion thereof constantly toward the segment.

5. A miter box comprising a supporting frame provided on its under side with a segment, an arm pivotally supported by the under side of the frame to present two branches, the forward branch of the arm extending forwardly beyond the frame, an anti-friction roller connected with the extended end of said arm, a saw guide and its carrier, a standard mounted upon the rear branch of said arm and having an overhanging portion to which said carrier is connected, a spring actuated latch piece supported by the forward branch of said arm and having a manipulating portion projecting forwardly beyond said anti-friction roller, a second anti-friction roller alined with the first anti-friction roller and supported by said standard, the upper portions of the peripheries of the anti-friction roller being in the same plane and said plane being below the upper surface of said work table.

6. A miter box comprising a frame provided on its upper side with a work table and with a back rising therefrom, a saw guide above the work table, angularly adjustable with respect thereto, a bead extending entirely across and from the rear of the work table, the back having an opening through which said bead extends, a supporting device slidably supported by the bead and movable throughout the entire extent thereof by way of said opening, and a gage member removably connected with said supporting device.

7. A miter box comprising a frame provided with a work table, said work table having a transverse groove therein and having a T-shaped bead rising from the bottom of the groove, the upper surface of the bead being approximately flush with the upper surface of the table, a supporting device having a T-shaped groove to slidingly receive said body, a gage member extending through the supporting device, a rod extending through said supporting device and provided with gage means, and a set screw tapped through the supporting device and adapted to press the rod against the bead.

8. A miter box comprising a frame provided on its upper side with a work table and with a back rising therefrom, a saw-guide above the work table, angularly adjustable with respect thereto, the work table having a groove extending from the front to the rear thereof and open at its opposite ends, a bead rising from the bottom of the groove, the bead being coextensive with the groove, the back having an opening and the bead projecting through said opening, a supporting device slidably supported by the bead and movable throughout the entire extent thereof by way of said opening, and a gage member removably connected with said supporting device.

9. A miter box comprising a frame provided on its upper side with a work table and with a back rising therefrom, a saw-guide above the work table, angularly adjustable with respect thereto, the work table having a groove extending from the front to the rear thereof and open at its opposite ends, a bead rising from the bottom of the groove, the bead being coextensive with the groove, the back having an opening and the bead projecting through said opening, a supporting device slidably supported by the bead and movable throughout the entire

extent thereof by way of said opening, a rod removably connected with said supporting device, a block slidable on the rod and provided with means for holding it in an adjusted position thereon, a second rod slidably supported by the block in parallelism with the other rod, the block having means to hold the second rod in an adjusted position and being furnished at its outer end with a rigid gage member.

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

LUMAN W. JACOBS.

Witnesses:
L. L. MARKEL,
HEATH SUTHERLAND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."