

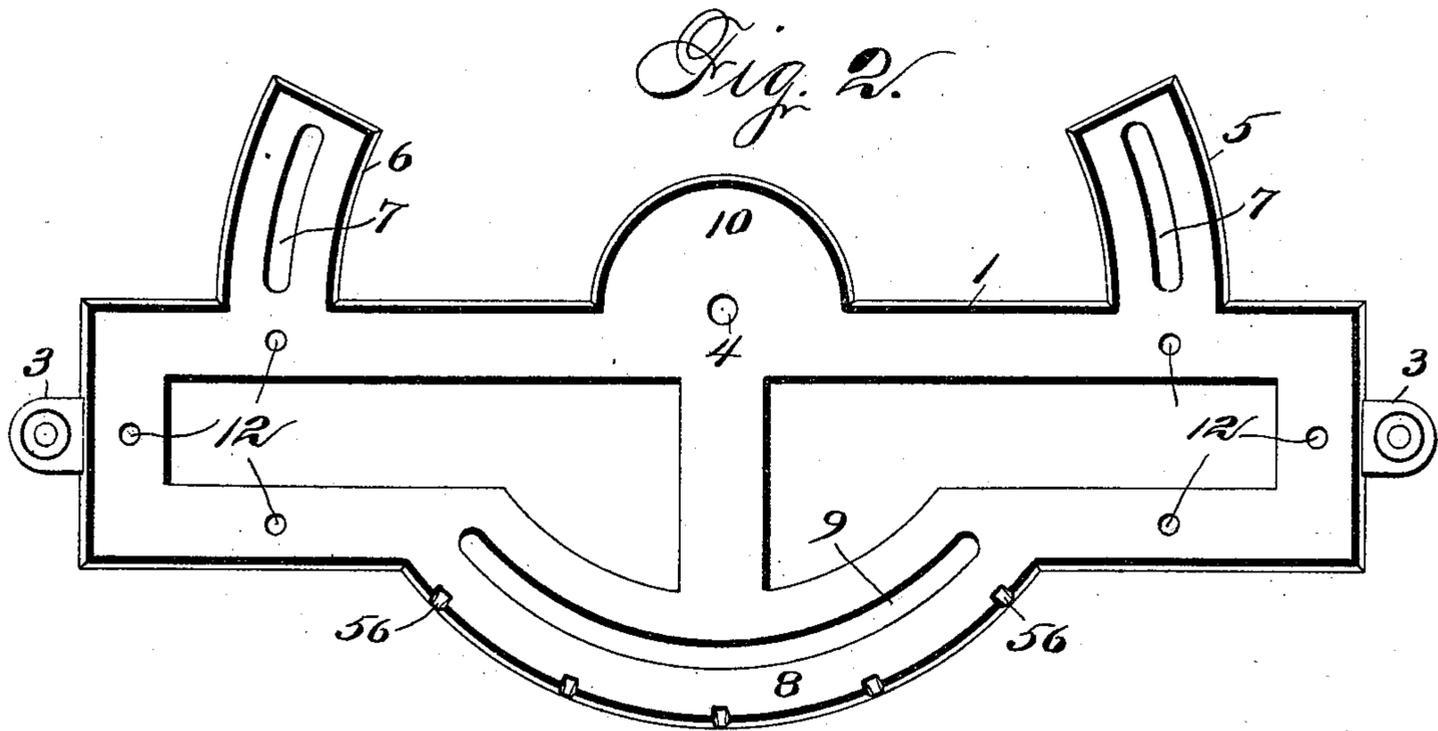
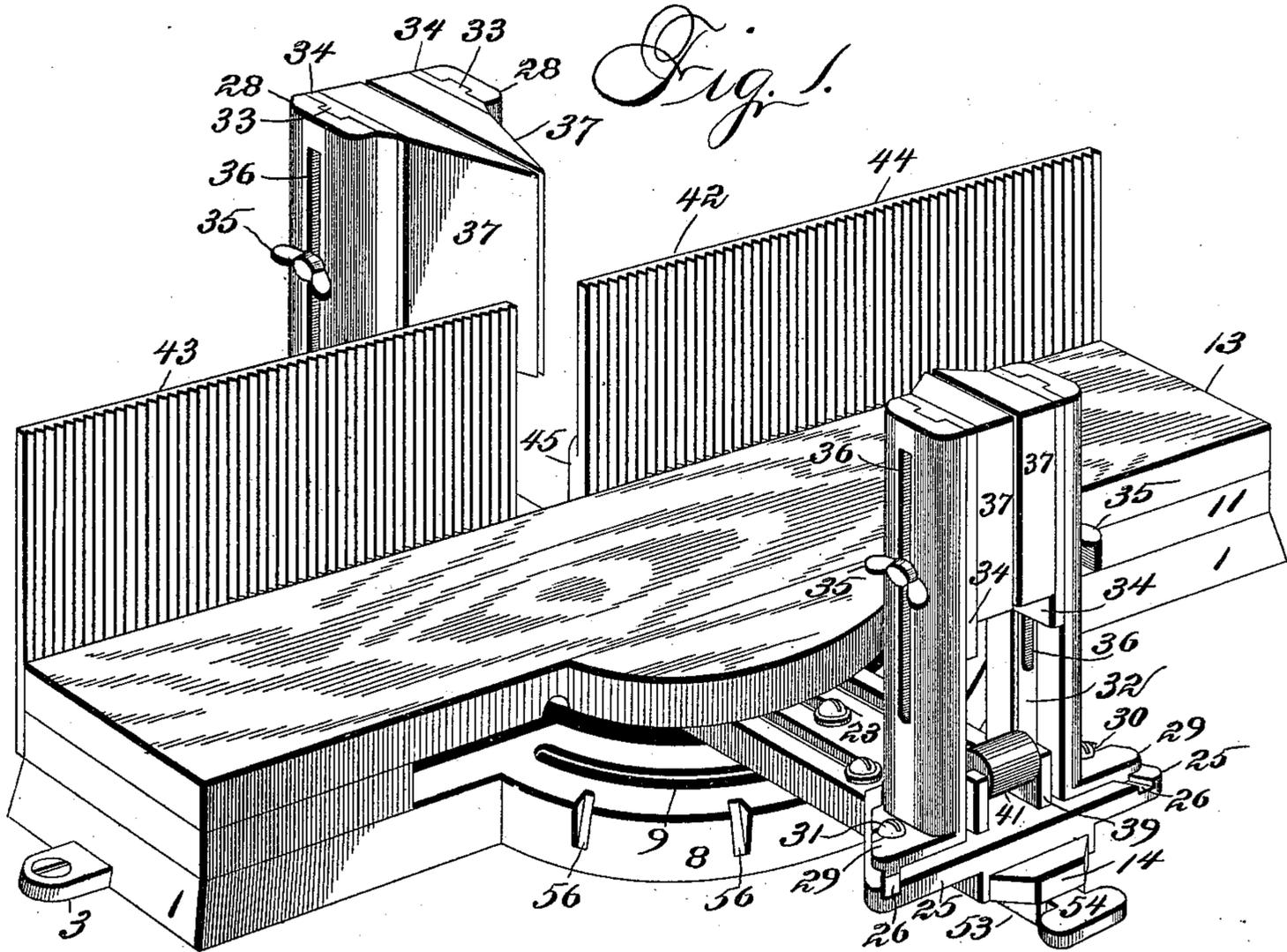
(No Model.)

3 Sheets—Sheet 1.

J. LUSCHER.  
ADJUSTABLE MITER BOX.

No. 522,068.

Patented June 26, 1894.



Witnesses:

Wm. Sankey  
M. Griffin

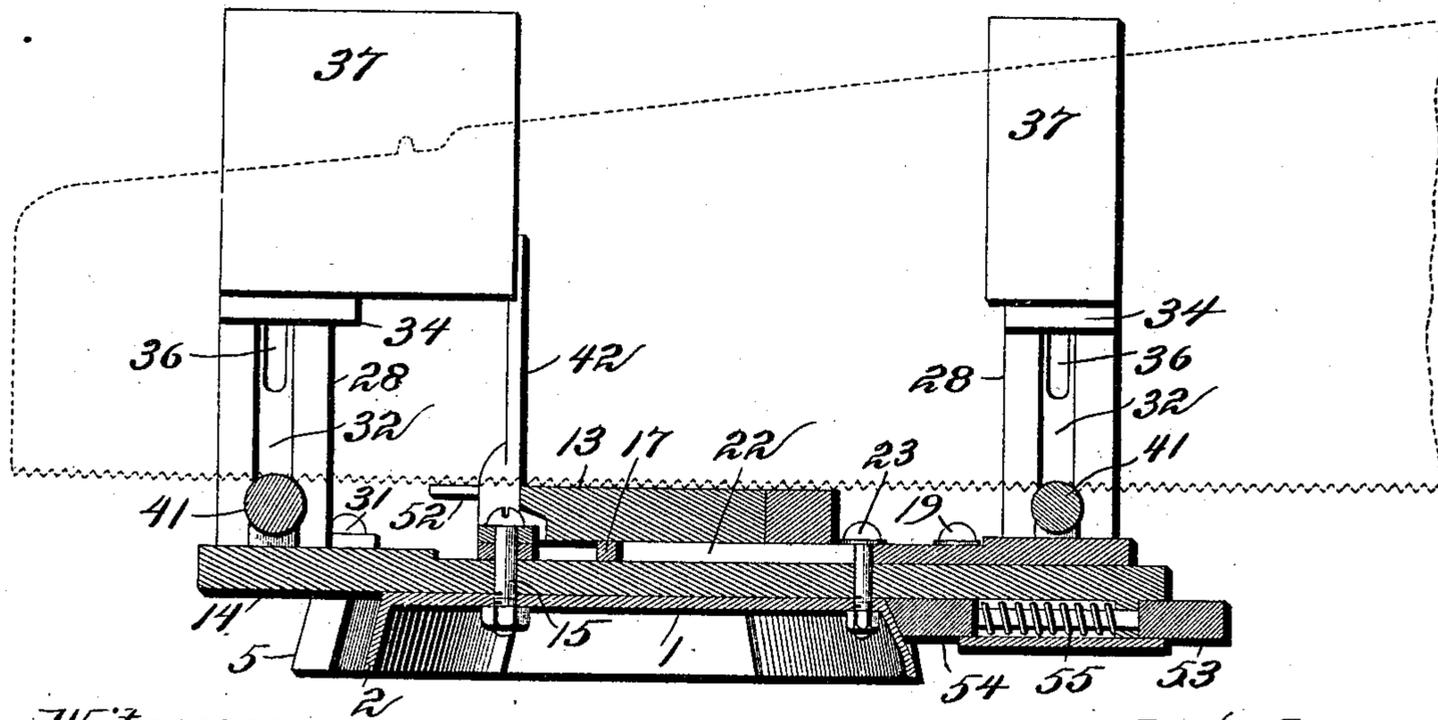
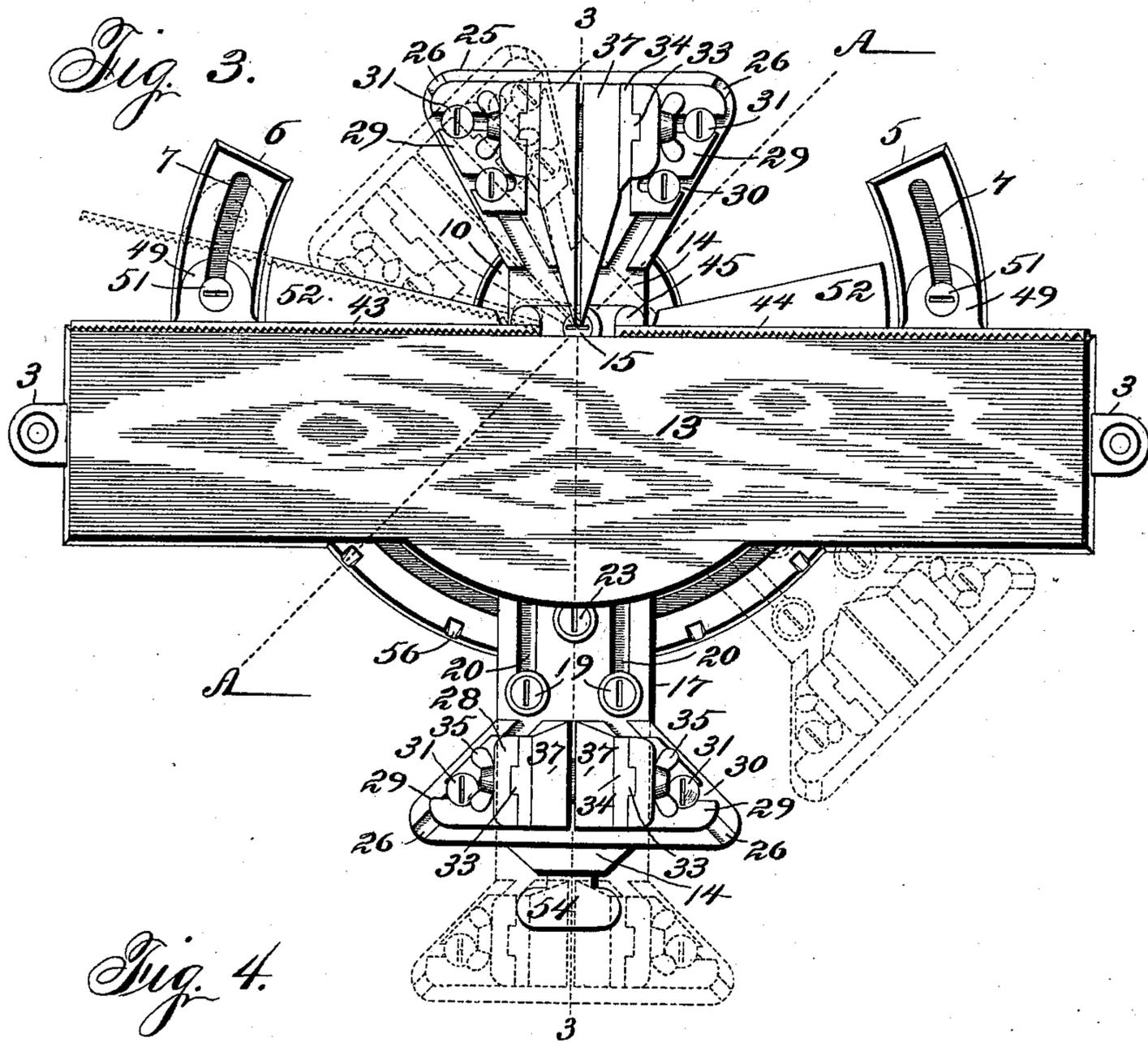
Inventor:

John Luscher  
by Higdon Higdon Longan  
Attys.

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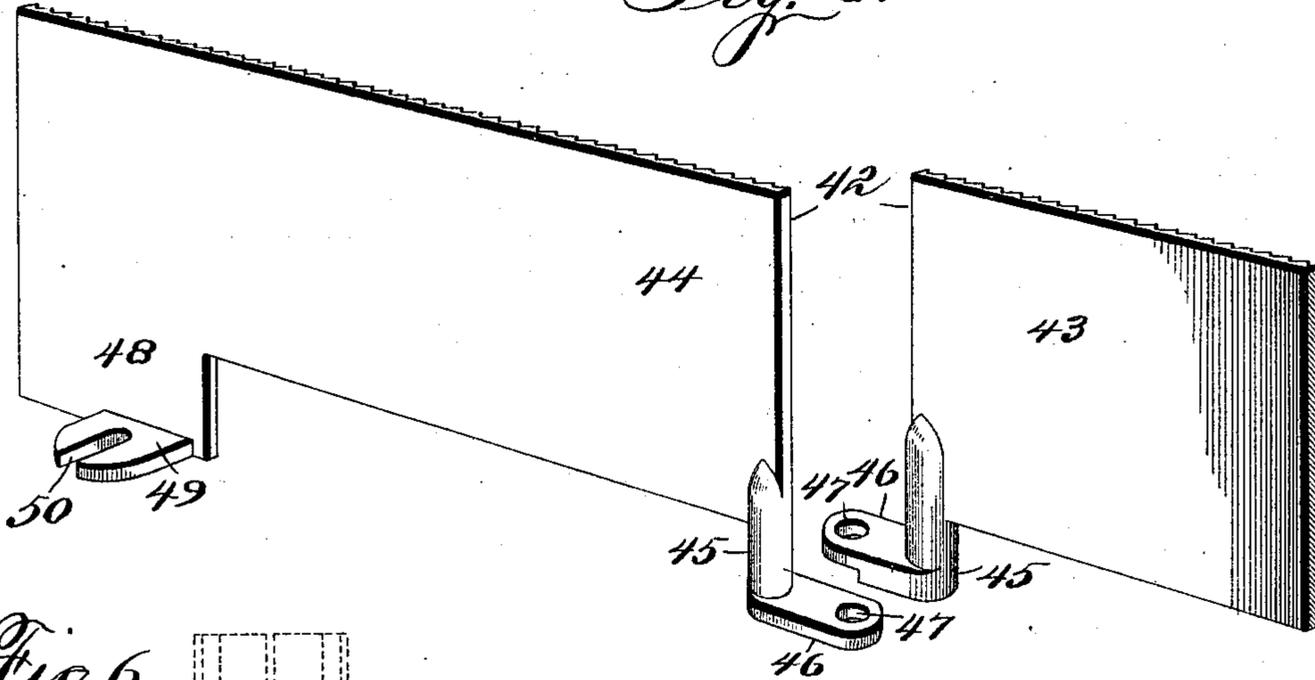
Inventor:  
*John Luscher*  
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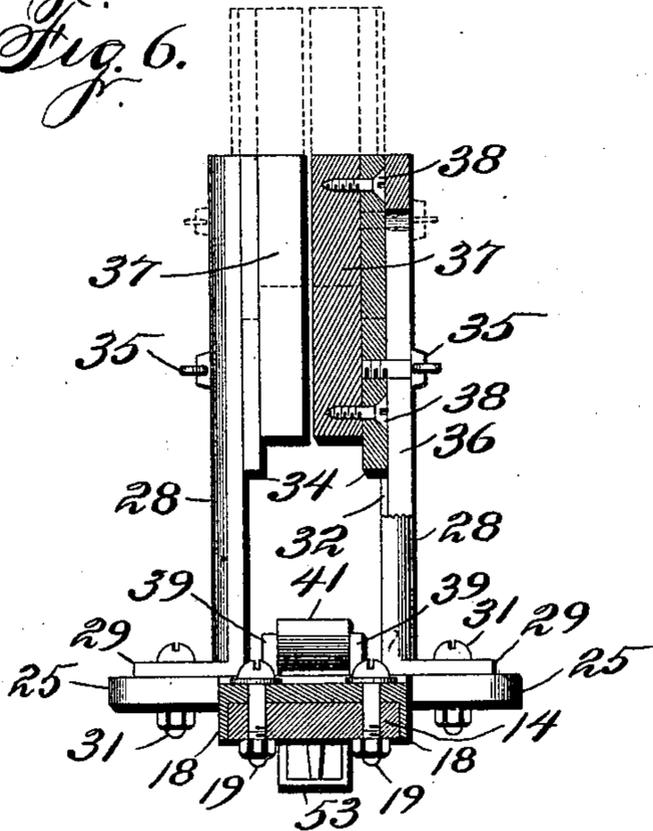
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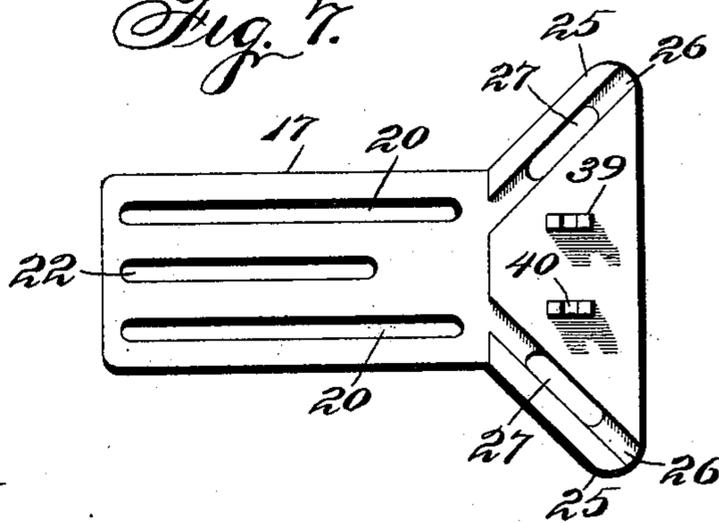
*Fig. 5.*



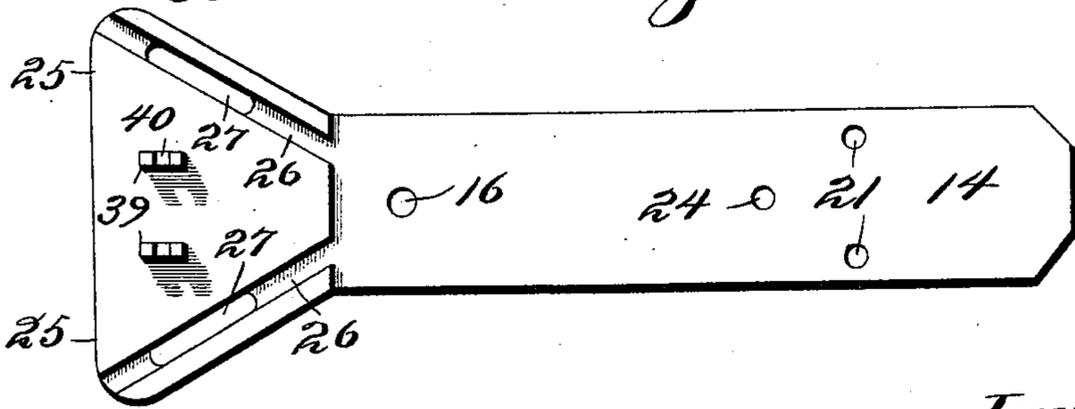
*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



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Inventor:

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# UNITED STATES PATENT OFFICE.

JOHN LUSCHER, OF ST. LOUIS, MISSOURI.

## ADJUSTABLE MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 522,068, dated June 26, 1894.

Application filed December 11, 1893. Serial No. 493,317. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN LUSCHER, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Adjustable Miter-Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved adjustable miter box, and consists in the novel construction, combination and arrangement of parts hereinafter described and designated in the claim.

In the drawings: Figure 1 is a perspective view of my improved miter box, showing the same in position for making a square cut. Fig. 2 is a top plan view of the base of my improved miter box, showing the same detached from the rest of the parts. Fig. 3 is a top plan view of my improved miter box, showing the same in position for making a square cut. Fig. 4 is a vertical transverse section of my improved miter box, said section being taken on the line 3—3 of Fig. 3. Fig. 5 is an enlarged detail perspective view of a portion of the adjustable back, it being detached from the miter box. Fig. 6 is a vertical transverse section of the adjustable bar, more clearly showing the construction of same and the construction of the guide-blocks, one of said guide-blocks being in vertical section to more clearly show the construction of same. Fig. 7 is a top plan view of the sliding portion of the adjustable bar, the same being detached from the miter box. Fig. 8 is a top plan view of the stationary portion of the adjustable bar, the same also being detached from the miter box.

The object of my invention is to construct an improved device for cutting miters that will be cheap in construction, durable, easily operated, and can be readily adjusted for holding the saw at different angles relative to the table.

Referring to the drawings: 1 indicates the base, which is constructed of a single piece of cast metal, and is provided with a downwardly projecting marginal flange 2, which is of suitable width that the upper side of said base will be held a suitable distance above the bench upon which said miter box is to be located. Connected to each end of the base, and adjacent the lower edge of the flange 2,

is a perforated ear 3, which is of suitable construction that the miter box can be connected to a bench or table by screws passing through the ears.

Longitudinally formed in the center of the base, and adjacent the rear edge thereof, is a vertical opening or bore 4, and formed integral with the rear edge of said base are two projections 5 and 6 which describe an arc from the bore 4, and each projection is provided with a longitudinal slot 7; formed integral with the front edge of the base 1 is a portion of a circle 8 which is described from the bore 4, and a slot 9 is formed in the circular portion 8.

Formed on the base 1 around the bore 4, is an enlarged portion 10, which is for the purpose of strengthening the base at this point, and also to make room for said bore, as the bore is in alignment with the rear edge of said base.

Located on and connected to the upper side of the base, adjacent each end, is a block 11, which is connected to the base by screws passing through apertures 12 in the base and screwed into said blocks. These blocks are of suitable height that when the plate or table 13 is located on and connected to them, there will be a space between the lower side of said plate and the upper side of the base intermediate said blocks.

14 indicates a bar which is pivoted to the base 1 by a bolt 15 passing through an aperture or bore 16 formed in the said bar, and through the bore 4 formed in said base.

17 indicates a bar, which is of suitable width that a downwardly projecting flange 18, which is formed integral with each edge thereof, will engage the edges of the bar 14 when said bar 17 is connected to the bar 14 in the manner now to be described. The bar 17 is located on the upper side of the bar 14 adjacent its free end, and held in position by bolts 19 passing through longitudinal slots 20 formed in the bar 17, and thence through apertures or bores 21 formed in the bar 14. A longitudinal slot 22 is also formed in the bar 17, and a bolt 23 is passed through said slot and through an aperture 24 formed in the bar 14, and thence through the segmental slot 9 formed in the projection 8 of the base 1. This bolt 23 is provided with a screw-head, so that

it can be readily loosened and tightened with an ordinary screw-driver from the upper side of the miter box, and the bolts 19 are also provided with a head of the same construction for the same purpose.

Formed on each edge of the free end of the bar 17 is an ear or an enlarged portion 25, and the bar 17 is a suitable amount thicker at this point so that when a groove 26 is formed in the upper side of said ears, the bottom of said grooves will be in alignment with the upper side of said bar. The ears 25 are so formed that the grooves 26 will be at opposite angles relative the edges of the bar 17, and an elongated opening 27 is formed in each of said ears in the grooves 26.

Connected to each of the ears 25 is a vertical standard 28, which is provided with a right angle projection 29 on its lower end, and formed on the lower side of said projection is a tongue which is of suitable size to engage the groove 26. This tongue is formed at an angle relative the sides of said standards 28, so that the sides of said standard will be in alignment with the sides of the bar 17.

Formed in the projections 29 is a slot 30, so that a bolt 31 can be passed through said projections and through the elongated opening 27 formed in the ear 25 for securing said standard to the bar 17. The ears 25 are of suitable size so that when the standards are connected to them in the manner hereinbefore stated, there will be a suitable space between them.

The standards 28 and their connections being the same in construction, I will limit my description to but one. Formed on the inner side of the standard 28 is a vertical groove 32 which is engaged by a tongue 33 carried by a block 34. This block 34 is about half way the length of the standard 28, and is connected to said standard by a set-screw 35 passing through a vertical slot 36 formed in said standard and screwed into a threaded bore formed in said block. Connected to the inner side of the block 34 is a guide-block 37 which is connected to the block 34 by screws 38. Formed integral with the upper side of the bar 17, adjacent its free end, are two upwardly projecting ears 39, each of which is provided with a bifurcation 40 and a roller 41 is mounted in said ears. These ears are of suitable height that the roller will be in horizontal alignment with the upper side of the plate 13. The free end of the bar 14 being the same in construction as the free end of the bar 17, which was hereinbefore described, the construction will be omitted, but the same reference numerals will appear on their respective parts, it also being provided with two vertical standards 28 and their connections the same as those of the standards hereinbefore described.

42 indicates the back of the miter box, said back being constructed of two pieces 43 and 44. Each of said pieces are constructed with a downward projection 45 upon each of which is formed an ear 46. Each of said ears 46 is

provided with a vertical opening 47, through which the bolt 15 is passed for hinging them to the base 1. These pieces 43 and 44 are each provided with a downward projection 48 adjacent their free ends, upon which is formed a horizontal ear 49 in which is formed a slot 50. These ears 49 are so constructed that they will engage the projections 5 formed on the base 1 in such a manner that a bolt 51 passed through the slot 50 formed in the ear will engage the slot 7 formed in said projection. This bolt 51 is provided with a screw-head so that it can be tightened or loosened with the aid of an ordinary screw-driver.

The front side of the back 42 is provided with vertical corrugations, or roughened in any well known manner, so that when the timber is brought to bear upon it, the timber will not slip so readily as if the back were smooth. Connected to the rear edge of the plate 13 are two projections 52. These projections are so located that they will come between the projections 45 and 48 of the back 42, so that said back can move above them, they being in alignment with the upper side of the plate 13.

53 indicates a locking device, which is connected to the under side of the bar 14, adjacent its free end. This locking device is constructed of a bolt 54, and said bolt 54 is provided with a coil spring 55, so that said bolt can be made to engage the notches 56 formed in the circumferential periphery of the segmental portion 8 of the base 1.

The operation is as follows: When the miter box is in the position illustrated in Figs. 1, 3 and 4, they showing the miter box in the position for making a square cut, and it is desired to adjust the same to cut a miter, the operator grasps the free end of the bolt 54 of the locking device and releases said bolt from the notches 56, which will allow the bars 14 and 17, which carry the vertical standards, to be moved at an angle relative to the plate 13, and the bolt will then engage the notches 56 and retain said bars in the position as shown by dotted lines in Fig. 3. The bars can also be turned to an angle, as illustrated by dotted lines A—A in Fig. 3. When the bars are turned to the position illustrated by dotted lines in Fig. 3, this being their limit in this direction, and it is desired to cut a miter at a greater angle, the operator releases the bolt 51 and adjusts that portion of the back 43, as illustrated by dotted lines in Fig. 3, and when the molding that is desired to be cut is placed against and parallel with this portion of the back, it will throw said piece of molding at a greater angle relative to the bars 14 and 17, which carry the guide-blocks 37 between which the saw is placed. For different thicknesses of saws the vertical standards, which carry the guide-blocks 37, are made adjustable upon the bars 14 and 17 which carry them. For adjusting the said blocks for different thicknesses of saws, the operator loosens the bolts 31 by means of an ordinary screw-driver and

slides the standards, which carry the guide-blocks, to the required position, and then tightens up the bolts again. By the grooves 26 being at an angle, and the tongues which engage said grooves being carried by the lower end of said standards, when said standards are moved horizontally they will be brought closer together or farther apart at the will of the operator. The block 34 which carries the guide-blocks 37 is also made vertically adjustable for different sizes of saws. To so adjust said block, the operator loosens the thumb-screw 35 and moves said block to the required position, when the thumb-screw is tightened again. The vertical slot formed in the standards allows this operation. For different lengths of saws, the bars 14 and 17 are adjustable relative to each other. For so adjusting them, the operator loosens the bolts 19 and 23 and draws outward on the bar 17, the longitudinal slots 20 and 22 allowing said bar 17 to move longitudinally upon the bar 14. After said bar 17 has been moved to the required position, the operator tightens the bolts again, which makes said bars rigid. The rollers 41 being located upon the bars 14 and 17 in the manner hereinbefore described, when the saw is passed through the molding or piece of timber which is placed on the plate 13, said saw will not fracture or disfigure the upper side of said plate, as the rollers are of suitable height as to be engaged by the teeth of the saw before said saw comes in contact with the plate. These rollers are preferably made of wood, or other suitable material so they will not injure the teeth of the saw when they come in contact with said rollers.

What I claim is—

The herein described improved adjustable mitering box comprising the following elements to-wit, a base 1, having a segmental projection 8 formed integral with its front edge, segmental projections 5 and 6 having slots therein formed integral with the rear edge of said base adjacent each end, an enlarged portion 10 having an opening 4 therein formed integral with the rear edge of said base adjacent its center, a block 11 connected to the upper surface adjacent each end of the base, a rectangular table or plate 13 located on and connected to said blocks, a bar 14 pivoted to

the base 1 by a bolt 15 passing through the aperture 4 in said base, a bar 17 adjustably connected to said first mentioned bar, a horizontal ear or projection 25 having a groove 26 in its upper surface formed on each corner of the free ends of said bars 14 and 17, a vertical standard 28 having a horizontal projection 29 formed on its lower end connected to each of the projections 25, a tongue formed on the lower surface of each of said projections 29 for engaging the groove 26 so that when said vertical standard is adjusted horizontally, the tongue will guide and hold it in the required plane, a block 34 vertically adjustably connected to the adjacent surface of each of said vertical standards, means for retaining said block in the required position, a guide-block 37 rigidly connected to the adjacent surface of each of said adjustable blocks 34, two vertical projections formed on the upper surface of each of said bars 14 and 17 between the vertical standards 28, a roller 41 located between said projections and having its bearings therein, a locking device connected to the under surface of the front end of the bar 14 which engages the notches 56 in the segmental projection 8 of the base 1, said locking device is to hold the saw-guiding mechanism at the required angle relative to the rectangular plate or table, a back 42 constructed of two pieces 43 and 44, each of said pieces constructed with a downwardly pending projection 45, upon each of which is formed a horizontal perforated ear 46 which is engaged by the bolt 15 for retaining said back in position, a projection 48 formed on each of said pieces 43 and 44 adjacent the free ends thereof, a horizontal slotted ear 49 formed integral with the lower edge of each of said projections and a bolt for engaging the slot in said ear and the slot 7 in the segmental projection 5 and 6 of the base 1 for holding said pieces of the back 43 in the required position, all arranged and combined, substantially as herein specified.

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

JOHN LUSCHER.

Witnesses:

W. J. SANKEY,  
E. E. LONGAN.