J. A. TRAUT.

MITER-BOX.

No. 192,139. Patented June 19, 1877.

Fig. 1.

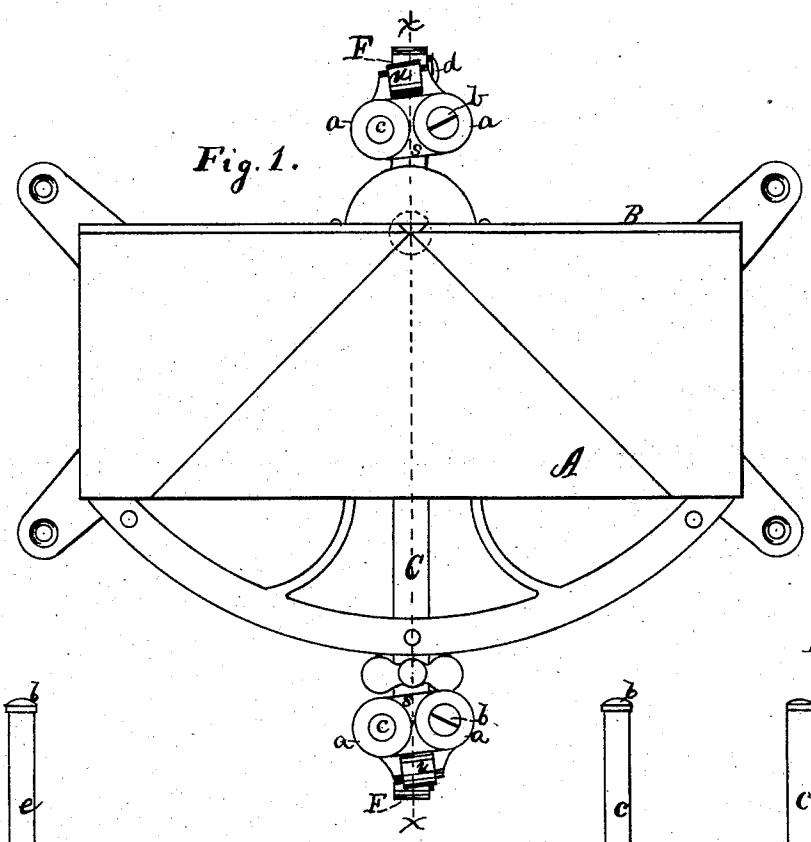

Fig. 2.

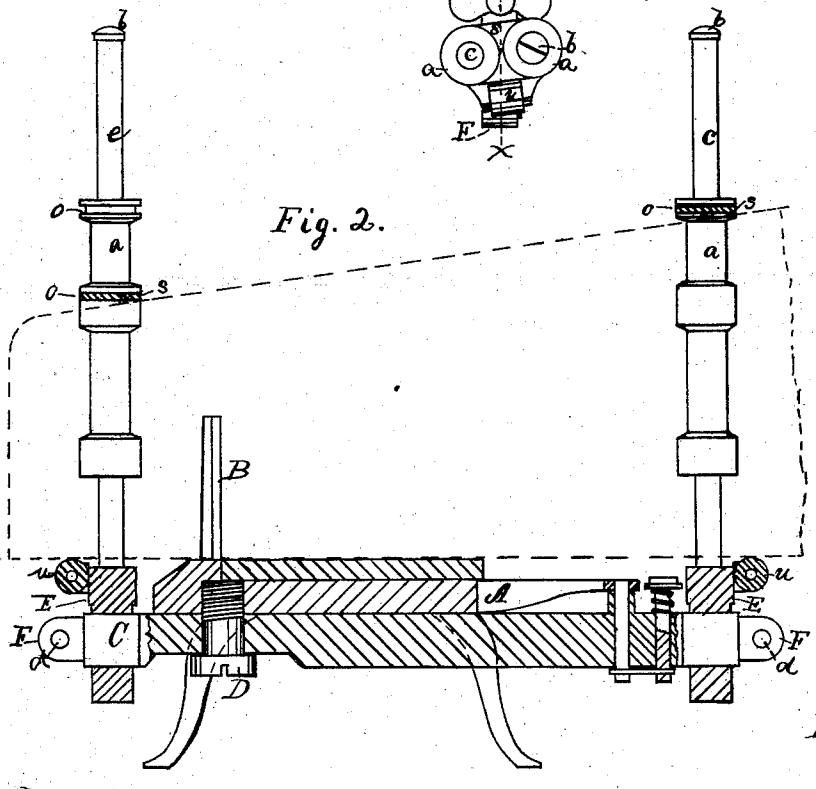

Fig. 3.

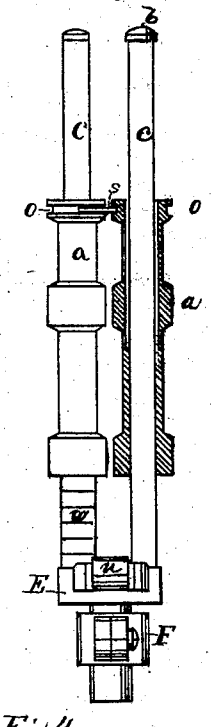

Fig. 4.

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UNITED STATES PATENT OFFICE.

JUSTUS A. TRAUT, OF NEW BRITAIN, CONNECTICUT.

IMPROVEMENT IN MITER-BOXES.

Specification forming part of Letters Patent No. **192,139**, dated June 19, 1877; application filed January 8, 1875.

To all whom it may concern:

Be it known that I, JUSTUS A. TRAUT, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification:

My invention consists, first, of the facing-board, having a narrow V-sided slot, the widest part of which is on the rear side of said board, in combination with the swing-beam, having its axis of motion located centrally with said slot from right to left, and in the same vertical plane with the face of the facing-board; second, in the frame-carrying shafts, in combination with the clamping-socket at the end of the swing-beam; third, in the shafts, provided with small caps, in combination with guiding-rollers, which are counterbored, so that said caps are allowed to enter the interior of said rollers; fourth, in the removable connecting-bar, detachable from both guiding-rollers, and, fifth, in the interchangeable positive stops for positively stopping the fall of the rollers at different points, as desired, all as hereinafter fully described.

In the accompanying drawings, Figure 1 is a plan view of a miter-box which embodies my invention. Fig. 2 is a transverse section of the same on line *x x* of Fig. 1. Fig. 3 is a detached view of the saw-guiding rollers which belong to said machine; and Fig. 4 is a plan view of the connecting-bar for said rollers.

The frame or bed A is made of one and the same piece of cast metal with the facing-board or back B, said bed being elevated a little by suitable legs and covered with a thin board.

To the under side of the bed A a cross-arm or swing-beam, C, is secured by means of a bolt, D, which forms the axle upon which the beam C swings. The axis of the swing-beam C is in the same vertical plane as the face of the facing-board B, as shown in Figs. 1 and 2. The ends of the swing-beam C project one to the rear of the facing-board and the other at the front of the frame A. Perpendicularly to this swing-beam, and at each end, are the saw-guiding rollers *a a*, loosely fitted, so as to and down the upright shafts *c c*. Small caps *b b* are secured upon the upper ends of one shaft, *c*, of each pair of rollers, and the upper ends of the guiding-rollers *a a* are counterbored to about one-half their depth, and of a size sufficient to admit the caps *b b*, so that the guiding-rollers may be raised above the ends of the shafts *c c* until stopped by the caps striking the internal shoulders at the junction of the small and large bore of the rollers.

Each of the rollers *a a* is provided with one or more grooves *o*, which receive the ends of the connecting-bar *s*, whereby the rollers are so connected that one must necessarily move up and down upon the shafts *c* with its fellow.

By reason of so connecting the rollers *a a* only one cap is necessary in order to hold each pair of rollers from slipping off the shafts *c c*. The rear pair of the guiding-rollers have two grooves, *o o*. By removing the cap *b* and slipping off the rollers the connecting-bar *s* may be placed in the lower grooves.

The shafts *c c* are secured to a T-shaped frame, E, the upright of which is a round shaft, and is secured in a spring clamping-socket, F, at the ends of the swing-beam C, and is held within said socket by means of a screw, *d*. The rollers *u u* and connecting-bars *s s* enable me to use a ribless or "panel-saw," as it is termed. In order to use such a saw the cap *b* and rollers *a a* are removed, so as to detach the rear connecting-bar, and they are replaced with said connecting-bar in the lower grooves *o* of the rollers *a a*, and the tapering panel-saw is passed under both connecting-bars, as designated by broken lines in Fig. 2. Thus placing the rear connecting-bar lower than the front one compensates for the taper of the saw, so that the rollers are about on the same horizontal plane, and as the saw cuts its way through the work the rollers fall with the saw.

The T-frames E E should be so placed that so soon as the saw has passed through the work the saw-teeth will strike the soft-metal rollers and prevent the saw from coming in contact with the bed.

I also provide a series of interchangeable washers, *w*, which constitute positive stops for each pair of shafts *c c*. When it is de-

sired to set the saw-guiding rollers for a very wide-ribbed saw, all of the stops in each series *w* are placed upon one shaft, as shown in Fig. 2. The rollers are then placed on the shafts, when one of them will strike the stops *w*, and positively prevent that roller from falling below said stops, and the connecting-bars *s s* will hold up the other roller, and the T-frames E, carrying the rollers, may be raised or lowered, so that the saw, when dropped as low as the rollers will permit, will just clear the bed A.

For a narrower saw, a part of the stops *u* may be removed, and, for convenience of not losing them, those not in use may be slipped upon the other shaft belonging to the same pair.

The front of the frame A has a curved or segmental member, which is provided with holes, that form an index, G, and which index-plate G is also cast in one and the same piece of metal with the frame and facing-board.

The swing-beam C is provided with a spring catch-pin, *h*, which engages with the index-plate G, and secures the swing-beam C and its saw-guides *a a*, at various angles, to the facing-board B. This facing-board may be marked off or graduated into inches and fractions thereof, for convenience of gaging the length of the work to be cut.

This facing-board B is also slotted near the middle of its length with a narrow vertical slot, the walls of which, on a horizontal plane, are V-sided, the opening being the widest at the rear, as shown in Fig. 1, and the axis of the swing-beam is located centrally from right to left with said slot.

So far as merely supporting the work upon a frame and cutting it off at various angles is concerned, the machine is substantially like prior miter-boxes, except that it is more convenient, substantial, and reliable.

By placing the axis of the swing-beam C in the same vertical plane as the face of the facing-board, and centrally, from right to left, with the V-sided slot in the facing-board, the portion of the saw-blade which is in the same vertical plane as the facing-board will not move laterally in the act of changing the swing-beam from angle to angle, as it does in other miter-boxes, and therefore it is necessary to remove only a small portion of the back or facing-board to receive the saw for cutting all the various angles, and therefore the facing-board will better support the work, especially short pieces, than will machines with swing-beam differently hung, and, necessarily, having a larger portion of the facing-board removed.

By hanging the roller-guides upon the T-shaped frame within the spring-socket they can be raised and lowered, to accommodate saws of different widths, and, also, the wear of the saw, while, by twisting the T-shaped frame so that the rollers stand slightly out of a transverse perpendicular line to the saw-blade, the rollers are caused to bear upon both sides of the saw and properly guide it. By this arrangement the rollers are adjusted to accommodate thick or thin saws, as occasion may require.

As a whole, the machine is cheap to manufacture, convenient to use, and not liable to easily get out of working order.

I claim as my invention—

1. The facing-board B, having a narrow V-sided slot, the widest part or top of which V is on the rear side of said board, in combination with the swing-beam C, having its axis of motion located centrally with the said slot from right to left, and in the same vertical plane with the face of the facing-board, substantially as described, and for the purpose specified.

2. In a miter-box, the T-shaped frame, carrying only one pair of guiding-rollers, *a a*, and secured within the clamping-socket at the ends of the swing-beam, substantially as described, and for the purpose set forth.

3. In a saw-guide for a miter-box, the shaft *c c*, provided with caps *b b*, in combination with the rollers *a a*, counterbored, as described, whereby the rollers are allowed to rise above the ends of the shaft, but are prevented from becoming accidentally detached or slipped off, as set forth.

4. The combination of the rollers *a a*, having grooves *o o*, with the removable connecting-bars *s*, all substantially as described, and for the purpose set forth.

5. The rollers *a a*, having grooves *o o*, in combination with the connecting-bar *s* and series of washers *w*, substantially as and for the purpose set forth.

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Witnesses:
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