

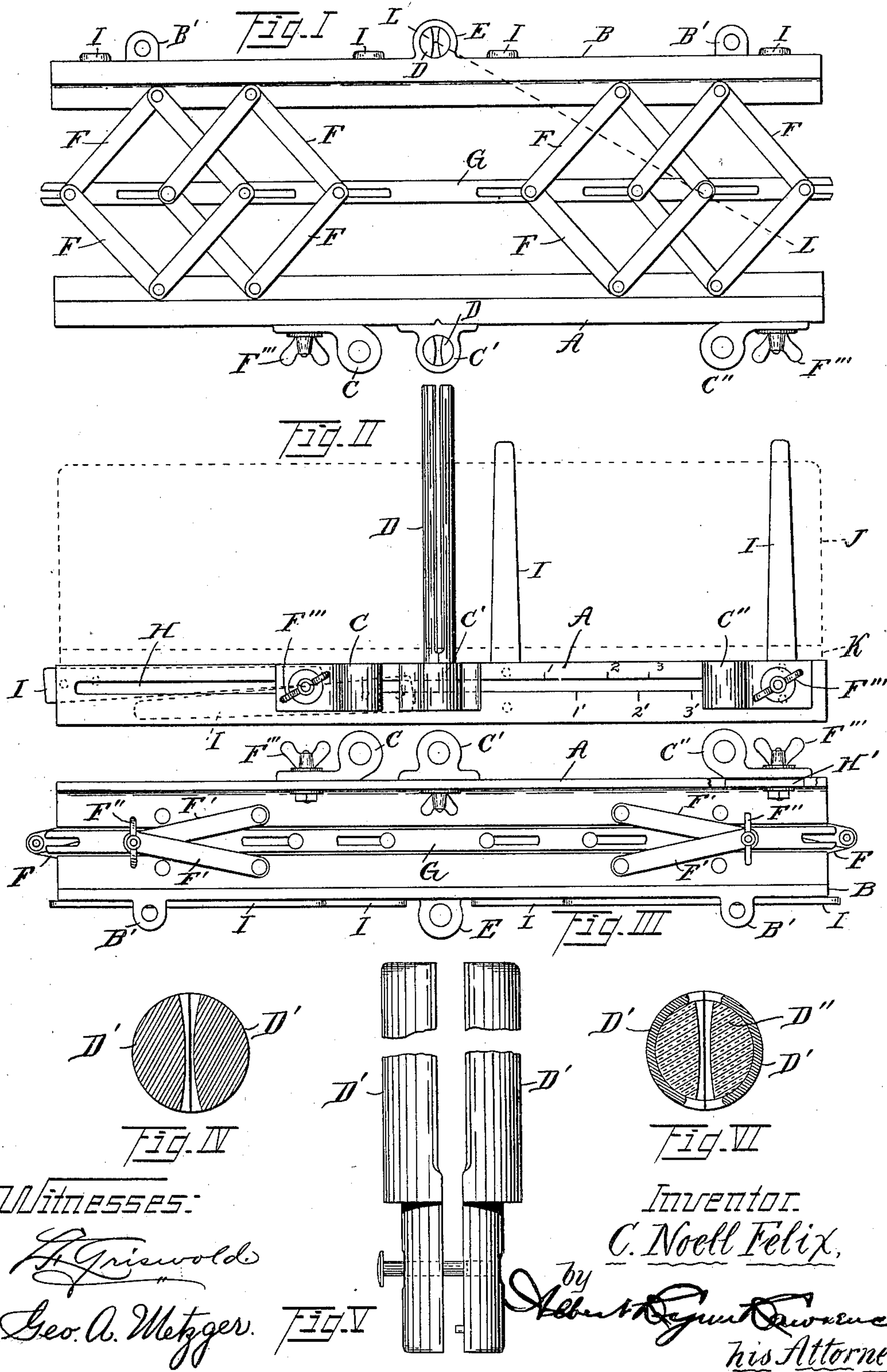
No. 672,405.

Patented Apr. 16, 1901.

C. N. FELIX.
MITER BOX.

(Application filed Jan. 7, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

CHARLES NOELL FELIX, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF
TO JOHN McNAMARA, OF SAME PLACE.

MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 672,405, dated April 16, 1901.

Application filed January 7, 1901. Serial No. 42,396. (No model.)

To all whom it may concern:

Be it known that I, CHARLES NOELL FELIX, a citizen of the United States of America, and a resident of the city of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Miter-Boxes, (Case No. 1,) of which the following is a specification.

My invention relates to folding and adjustable miter-boxes, and has for its object the provision of a device of this class of simple and compact construction and embodying advantages not hitherto fully attained.

The device of my invention, by reason of novel features subsequently to be pointed out, is capable of various uses, which were but imperfectly attained in miter-boxes of the prior art. Thus in my improved device the widest range of adjustment of the miter-cut is permitted, while any desired type of saw may be employed therein. My miter-box may be very compactly folded together in order to secure its adjustment or to transport it or pack it away, and with it accurate miter-cuts may be very rapidly determined and made. The structural details by which these and other advantages are secured will appear by reference to the accompanying drawings and description, of which drawings—

Figure I illustrates in plan view the preferred form of my improved miter-box fully expanded or extended and with the bottom board removed. Fig. II is a front elevation of my improved device. Fig. III shows a bottom plan view of the miter-box in its closed or folded position. Figs. IV and VI are cross-sectional views of two forms of the saw guide or support, and Fig. V is a detail view illustrating the sectional construction thereof.

In the drawings the same characters of reference are employed to indicate similar parts throughout the several figures.

The front and back frames A B respectively carry the adjustable and stationary supporting-brackets C, C', C'', and E, wherein the saw-guides or upright supports D are mounted to be freely rotatable therein. Pivotally-mounted sets of connecting-links F, united in quadrilateral form, serve to adjustably connect the front and back frames, so

that they may be moved toward or away from each other.

A slotted center rod G accommodates the diagonally-united and movable ends of the connecting-links F, whereby they are stayed and caused to move evenly. Two additional sets of connecting-links F', Fig. III, unite the frames from beneath, serving to stiffen the structure, while thumb-screws F'' serve to clamp the several lever-arms and the center rod, together with the connected frames A B, in any desired position of adjustment.

Arms or braces I are screwed to the back frame, in position to support the back board J. (Shown in dotted lines, Fig. II.) A suitable bottom board K of any desired width is placed upon the frames, which supports the articles being sawed and also prevents the saw-teeth from striking the metal of the frames or guides. By removing one of the screws from each of the said braces the latter may be folded down into the position shown upon the left of Fig. II for the purpose of packing or carrying the device.

Upon the back frame are provided the ears B', which may be utilized in securing it to the work-bench, if desired, in which position the front frame may of course be adjusted as desired.

Along the forward face of the front frame extends a longitudinal slot H, in which the entering tongues H' of the adjustable saw-guide brackets are seated and readily slide, said brackets, it will be seen, being easily secured in any position of adjustment by means of thumb-screws F'''. If desired, adjusting-scales, as 1 2 3 and 1' 2' 3', may be provided for setting these brackets for the required miter-cut, with the box expanded and contracted.

The saw-guides preferably are constructed in two similar sections D' D'', as shown in Figs. IV to VI, and are riveted together through the stem. As shown in the drawings, the guiding-faces thereof are made of converging convex form, so that the saw is engaged only by the center of said guiding-faces. The support or guide designed for use with saws having no set is shown in cross-section, Fig. IV, the device being formed wholly of metal.

If a saw with any decided set is to be employed, the guide of Fig. VI should be used, which has tubular supporting-walls and a softer core D'', as wood, which will not injure the saw-teeth.

With the above exception the entire device preferably is constructed of metal, as iron and steel, and accordingly is very durable and not subject to wear. The core and sectional saw-guide may be replaced with slight expense when required.

The utilities of my improved miter-box will now be readily appreciated. When the forward guide is placed in the middle bracket C', the box is set for a square cut, and to insure this adjustment a small notch and entering lug are provided, respectively, in the frame and on the rear face of the bracket. This feature, quite obviously, could be utilized for the various more common miter-cuts; but I prefer to give the other brackets the widest range of close adjustment, and accordingly provide them with plain engaging-faces adapted to be clamped at any point on the front face of frame A.

For miter-cuts substantially greater than forty-five degrees the box is adjusted by loosening the thumb-screws F'', removing the bottom board, if too wide, and bringing the front and back frames as near together as required, which makes possible a cut (indicated by line L L) closely approaching ninety degrees. This wide capacity of my device may be materially increased merely by reversing the position of bracket C'', which makes it very valuable to certain classes of workmen, as pattern-makers. This increased capacity for adjustment is secured without resorting to the use of a long arc or other cumbersome appliance for adjustably carrying the guide or guides.

The miter-box is very readily set for any desired cut, since the part to be cut may be marked therefor and placed in the box. The saw within its adjustable guides is moved so that its blade is parallel with the mark designating the required miter-cut and the bracket is clamped in position, after which the cut is made in the usual manner.

As indicated by Fig. III, the miter-box may be folded to very small compass, both for the purpose of adjustment and for packing or transporting the box.

Various changes in and utilities of my improved device will readily occur to one accustomed to its use; but I believe that my invention has been sufficiently set forth herein in its preferred form, and I accordingly claim, with such changes in form, the following:

1. In a device of the class described, the

combination with parts or frames A B, of collapsible connecting mechanism adapted to maintain the same parallel in various positions of adjustment with respect to each other, and saw-guides, as D, adjustable with respect to each other upon the frames, and carried by said frames, substantially as set forth.

2. In a miter-box, the combination with frames A B, of brackets, as C E, carried thereby, said brackets C being adjustably mounted on frame A, saw guides or supports, as D, rotatably mounted in said brackets, and collapsible or folding connecting parts permitting the adjustment of frames A B toward and from each other, substantially as set forth.

3. The combination with a miter-box of a saw-guide D comprising two similar parts secured together near their lower ends to form a slotted rotatable supporting part or upright having stationary convex engaging faces and a cylindrical stem, substantially as set forth.

4. In a device of the class described, the combination with parts or frames A B, of pivoted connecting-links F, adjustably uniting the same, saw-guides, as D, carried upon said frames and relatively adjustable thereon, and means for securing the parts in their positions of adjustment, substantially as set forth.

5. In a folding and adjustable miter-box, the combination with front and back frames A B, of sets of adjustable quadrilaterally-united links, as F F, connecting the same, saw-guides, as D, carried by said frames and adjustable thereon, and means for securing the parts in their positions of adjustment, substantially as set forth.

6. In a folding miter-box, the combination with front and back frames or parts A B, of brackets carried thereby and relatively adjustable thereon, saw-guides mounted in said brackets, sets of connecting-links F F, uniting and permitting the expansion and contraction of the frames, and arms I, adapted to be folded to the plane of the frames, substantially as set forth.

7. In a miter-box, the combination with frames A B, of brackets, as C C' E carried thereby, the former being adjustably mounted in frame A, saw guides or supports D adapted to be interchangeably carried in said brackets C C', and sets of connecting-links F F adjustably uniting frames A B substantially as and for the purpose set forth.

Signed by me, in the presence of two witnesses, this 5th day of January, A. D. 1901.

C. NOELL FELIX.

Witnesses:

JOHN MCNAMARA,
RALPH W. EDWARDS.