(No Model.)

E. G. HERBERT & F. L. YORK.

MITER BOX.

No. 419,772. Patented Jan. 21, 1890.

Fig. 1.

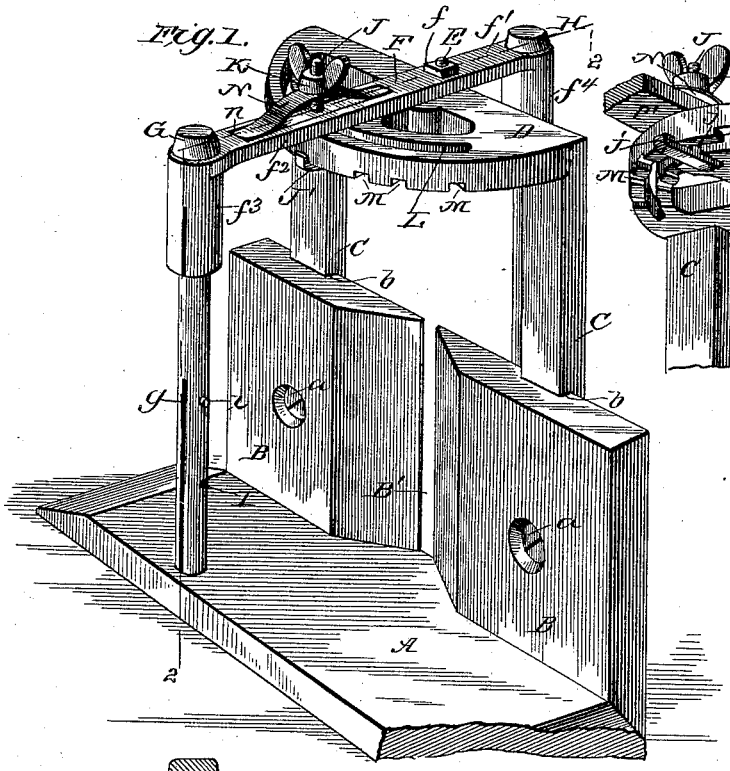


Fig. 3.

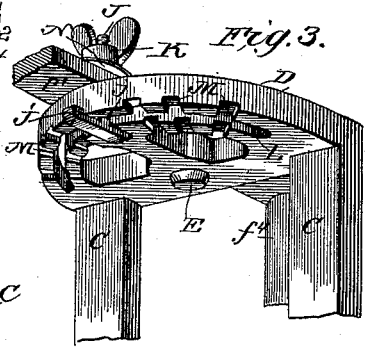


Fig. 2.

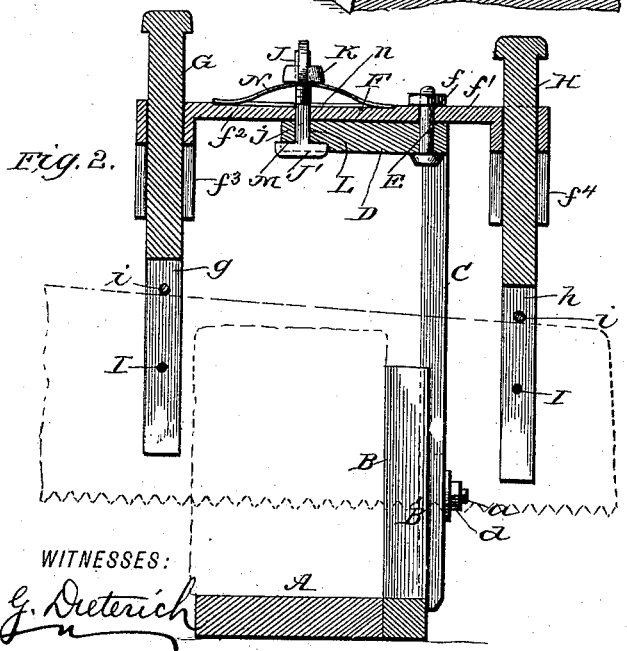
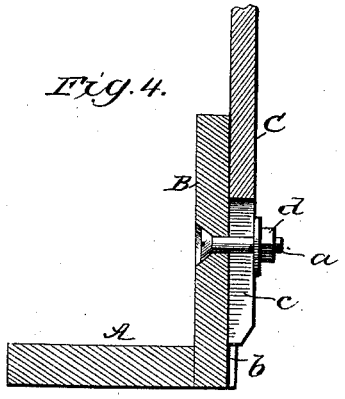


Fig. 4.



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MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 419,772, dated January 21, 1890.

Application filed July 13, 1889. Serial No. 317,476. (No model.)

To all whom it may concern:

Be it known that we, EDWIN G. HERBERT and FRANCIS L. YORK, residing at Ann Arbor, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification.

Our invention has for its object to provide a simple, cheap, and efficient miter-box which can be used with any ordinary handsaw, whether long or short, thick or thin, wide or narrow, which sets itself automatically at the more commonly used mitering-angles, and which may be set at any angle from ninety degrees to about ten degrees in either direction.

To this end our invention consists in the peculiar combination and novel construction of parts, all of which will hereinafter be fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of our improvement. Fig. 2 is a transverse section of the same, taken on the line 2 2, Fig. 1; and Figs. 3 and 4 are detail views hereinafter referred to.

In the accompanying drawings, A denotes the bed, and B B the back, of the box, which is provided with the usual saw-guide opening B′, said parts being formed of wood and sanded to prevent the slipping of the stuff to be sawed.

C C indicate upright posts secured to the backs B, and which have formed integral therewith the horizontal outwardly-projecting table D, as clearly shown in the drawings.

The posts C C have their lower ends seated in vertical grooves *b b*, formed in the rear side of the back B, and have the said ends provided with vertical slots *c c*, which fit over clamp-bolts *a a* and are held in vertical adjustment in said grooves *b b* by the nuts *d d*, as clearly shown in Fig. 4 of the drawings, and by means of which the table D may be raised or lowered, as the size of the stuff being sawed may require. The table consists of a semicircular plate, which is provided with a pivot-pin E at the center of the circle, upon which is pivoted a swinging bar F, said bar being pivoted upon said pin E near one end, as at *f*, forming a short extension or arm *f′*, which projects rearward, and a long extension or arm f^2, which projects forwardly, said extended ends having depending bearings f^3 f^4, in which are held and move easily two guide-bolts G H. The lower ends of the guide-bolts G H are provided with vertical slots *g* and *h*, the bearings f^3 f^4 being also provided with vertical slots, which align the slots *g* and *h*, as shown.

I denotes a series of transverse holes formed in the lower ends of the guide-bolts, and *i i* denote pins, which may be adjusted in said holes for a purpose hereinafter explained.

The bar F, which swings in the arc of a circle upon the table D, is arranged to be adjusted at any desired angle upon said table. For this purpose I provide the table at its outer edge with a slot L, arranged in a semicircle about the pivot-pin E, through which passes a guide-screw J, which extends up through the bar F and is provided at its upper end with a thumb-nut K. On the lower face of the table D, and arranged adjacent to the lower edges of the slot L, a series of radially-arranged notches M are formed, which are arranged so as to indicate the angles most commonly used, such as forty-five degrees, sixty-five degrees, ninety degrees, one hundred and five degrees, one hundred and twenty degrees, and one hundred and thirty-five degrees. By this arrangement, it will be observed, the bar F, which carries the saw-guide bolts, can be readily swung on its pivot and be adjusted to any of the said notches. To admit of said bar being automatically adjusted to any of the aforesaid angles, I form the guide-screw J and its connection with the table D and bar F in the manner most clearly shown in Fig. 3 of the drawings. By reference to said figure it will be observed that I form the lower end of the screw J with a transverse head J′, which is adapted to fit into any of the notches M. That portion of the screw which passes through the slot L is flattened, as at *j*, to prevent same turning in said slot, and between the upper face of the bar F and the thumb-nut K, I arrange a leaf-spring N, the ends of which are seated in a recess *n*, formed in the top of said bar, as shown. By this construction it will be seen that when it is desired to change the angle by simply depressing the thumb-nut the head J′ of the screw J will drop out of the recess

in which it is seated, and, turning the bar to the right or left to the next angle desired and releasing the pressure from the thumb-nut, the head J′ will slip into the notch and thus automatically lock the bar in position, the flat spring N normally pulling the screw up into the notches. When it is desired to adjust the bar to any angle not located by any of the notches, the arm is released from its previous position and set by a bevel-square at the desired angle, the thumb-nut is tightened, and the arm thereby locked in position.

It is manifest that any number of notches may be provided to locate the various angles; but only a sufficient number are here shown to locate the angles most commonly used in connection with the miter-boxes.

In operation the bar F is adjusted to the desired angle and the saw entered in the slots of the guide-bolts G H, which bolts will move easily up and down in their bearings and follow the saw during the operation of sawing. The length of the slots in the guide-bolts may be varied, according to the size of the saw used, by adjusting the pins in the holes before referred to, said pins riding on the back of the saw, and thereby reducing the friction.

All of the parts of our miter-box except the bed and back are formed of cast metal.

From the foregoing description, taken in connection with the drawings, the operation of our invention will be readily understood.

Some of the advantages of our invention are as follows: First, the same allows of any ordinary saw being used; second, that by its construction the same may be set at any angle without any change in the action of the machine and without limiting the width or thickness of the stuff being sawed; third, that it sets itself automatically at the commonly-used angles by simply pressing a spring and turning the saw-guide bar; fourth, that the width of the stuff to be sawed is not limited by the distance between the guide-bolts, but that any width may be sawed; fifth, by forming all of the parts except the bed and back of metal the same may be formed at a very small cost and the parts being so adjusted that nothing can wear out, and the entire apparatus being so light and readily detachable it can be packed in a very small space, making it much more convenient than the heavy iron boxes.

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

1. In a miter-box, the combination, with the body of the box, of a horizontal table or frame arranged above the work, a bar pivoted on said table and adapted for lateral movement thereon, and depending bolts secured to the ends of said bar and adapted to receive the back of the saw-blade and guide the said saw, substantially as and for the purpose described.

2. In a miter-box, the combination, with the body of the box, of a horizontal table or frame arranged above the work, a bar pivoted on said table and adapted for lateral movement thereon and provided with bearings at its outer ends, and bolts loosely seated in said bearings and adapted for vertical movement therein, said bolts adapted to receive the back of the saw-blades and guide the saw, substantially as shown and described.

3. In a miter-box, the combination, with the body of the box, of a horizontal table or frame arranged above the work having depending arms, said arms connected to the body and vertically adjustable thereon, a bar pivoted on said table and adapted for lateral movement thereon, and slotted bolts secured in the ends of said bar and adapted to receive the back of the saw-blade and guide the saw, substantially as and for the purpose described.

4. In a miter-box, the combination, with the fixed table arranged above the work, provided with a pivot-pin and a semicircular slot arranged about the pivot, of a swinging arm journaled on said pivot-pin and adapted to be set at various angles with and over the work, vertically-adjustable bolts held in the ends of said bar, said bolts forming guides for the saw, a guide-screw operating in the slot in the table and passed through the bar, and a thumb-nut for securing said bar and screw in adjusted positions, substantially as and for the purpose described.

5. In a miter-box, the combination, with the fixed table arranged above the work, provided with a semicircular slot and a series of radially-arranged notches on its under face arranged adjacent to the sides of said slot, of a swinging bar pivoted on said table and adapted to be turned to and set at various angles with said work and provided with depending bolts forming guides for the saw, a guide-screw operating in said slot, provided with a head at its lower end adapted to engage the said notches, its upper end passed through the swinging bar, and provided at its outer end with a thumb-nut, and a spring arranged between said nut and the top of the bar, whereby said guide-screw is normally drawn into engagement with said notches, substantially as and for the purpose described.

6. In a miter-box, essentially as described, the combination, with the swinging bar pivoted on the fixed table, as shown and described, provided with bearing-boxes at its outer ends, of the bolts G and H, loosely seated in said bearings and adapted for vertical adjustment therein, the lower ends of said bolts provided with vertical slots adapted to receive the saw-back, a series of transverse apertures arranged at said slotted ends, and movable pins arranged to be inserted in said apertures, substantially as and for the purpose described.

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