No. 876,266. PATENTED JAN. 7, 1908.

O. CASSITY.

MITER BOX.

APPLICATION FILED MAY 5, 1906.

3 SHEETS—SHEET 1.

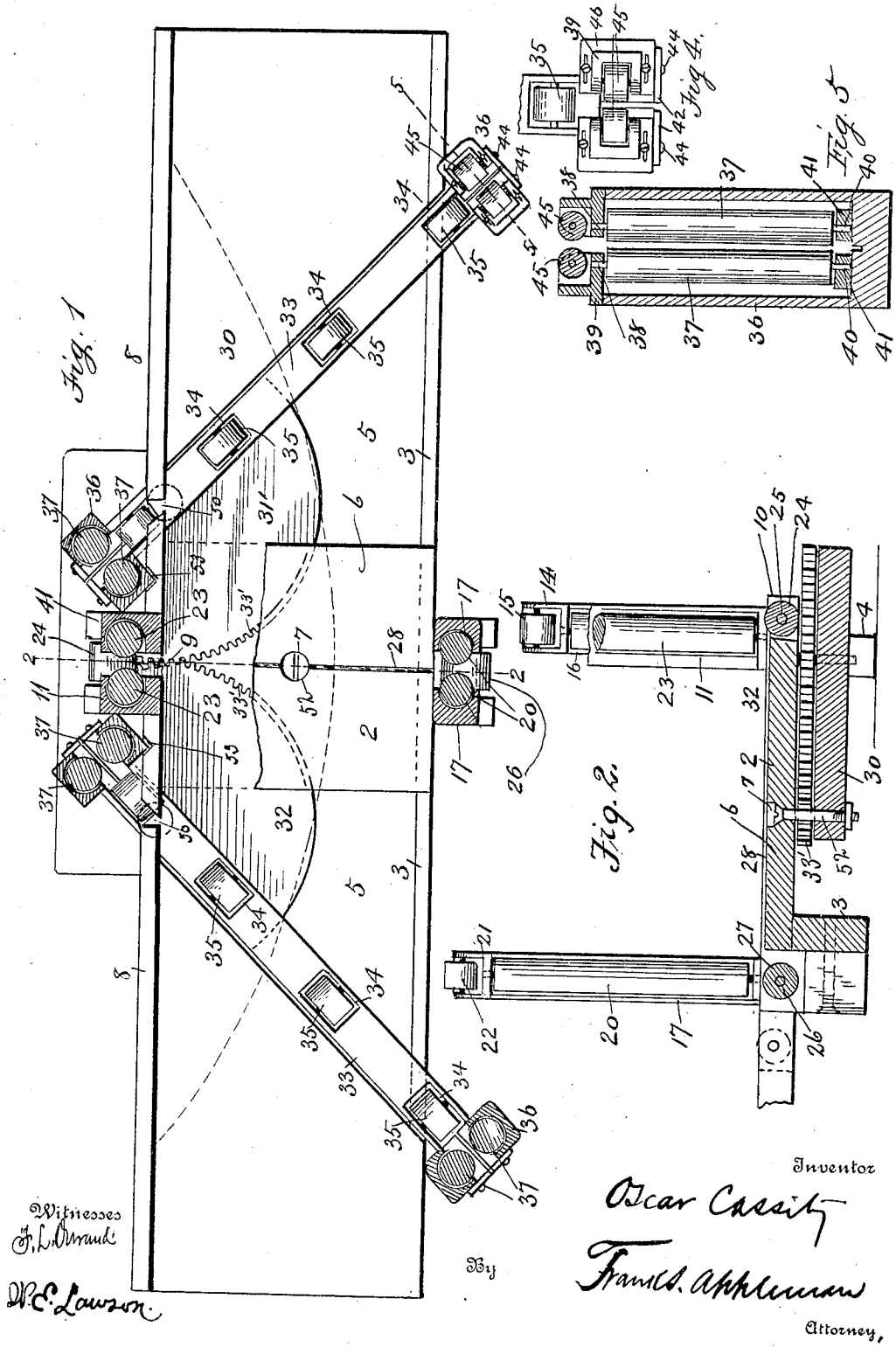


Fig. 1

Fig. 2.

Fig. 3

Fig. 4.

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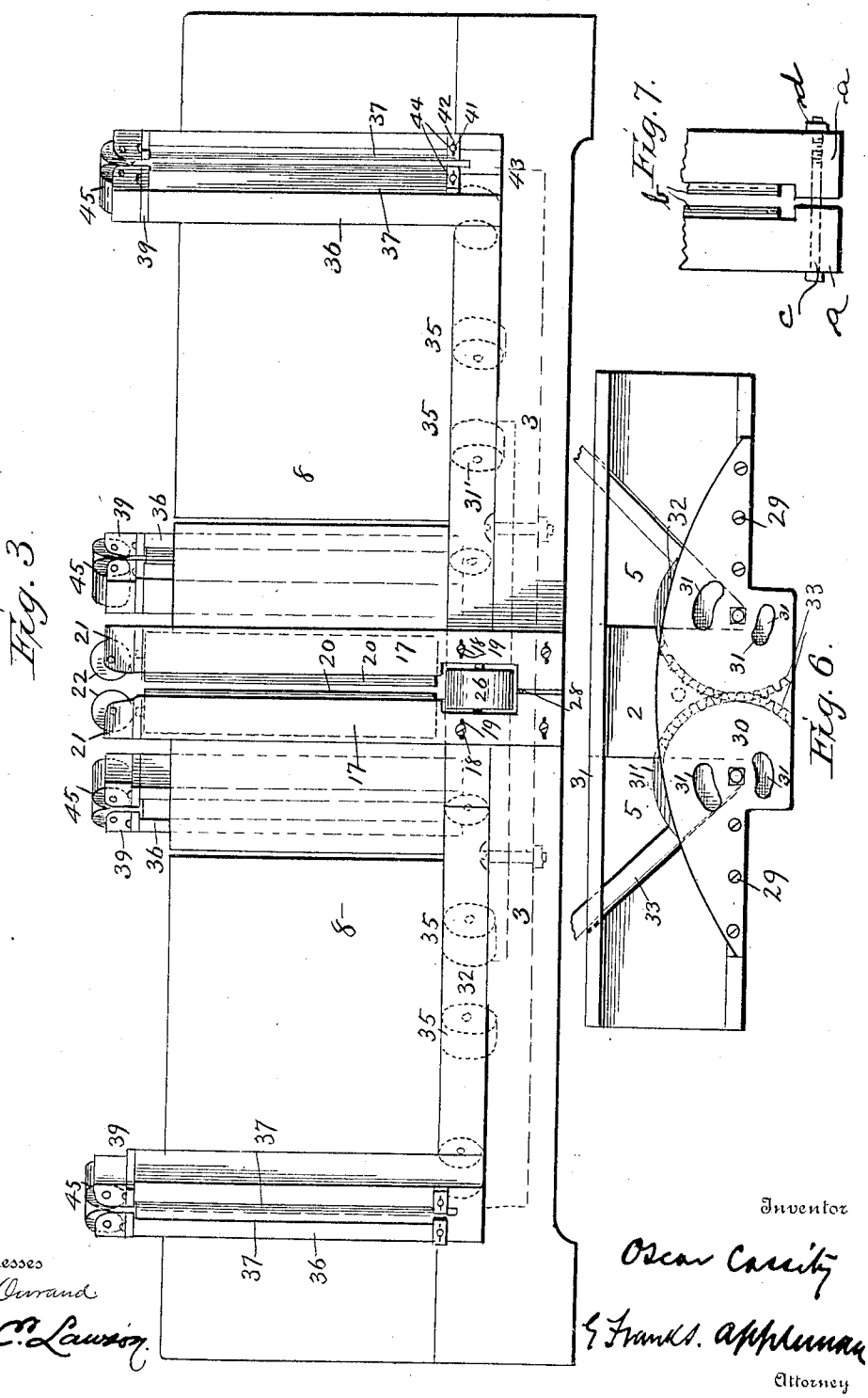


Fig. 3

Fig. 7.

Fig. 6.

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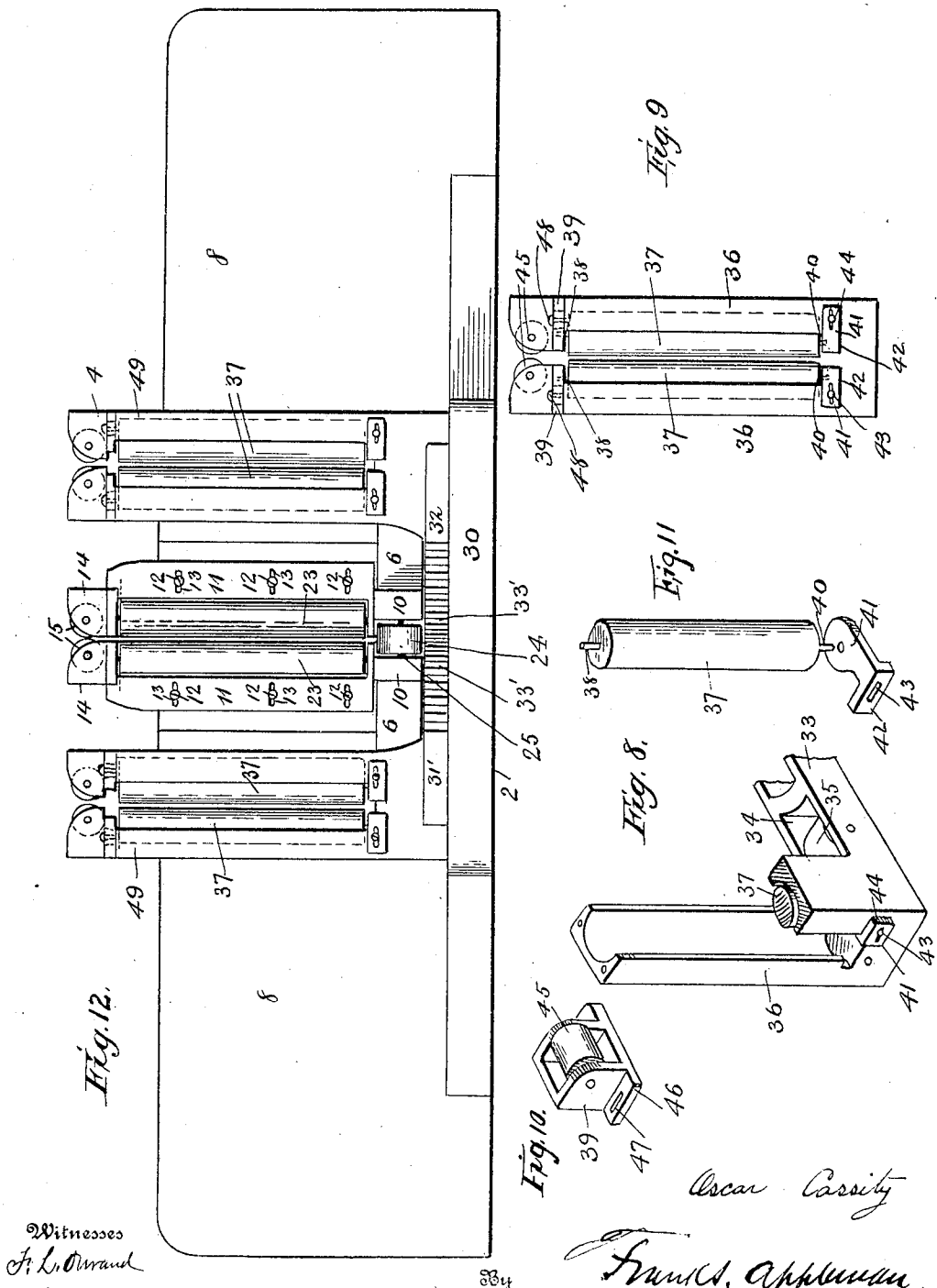


Fig. 12.

Fig. 9

Fig. 11

Fig. 8.

Fig. 10.

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UNITED STATES PATENT OFFICE.

OSCAR CASSITY, OF STURGEON, MISSOURI.

MITER-BOX.

No. 876,266. Specification of Letters Patent. Patented Jan. 7, 1908.

Application filed May 5, 1906. Serial No. 315,441.

To all whom it may concern:

Be it known that I, OSCAR CASSITY, a citizen of the United States of America, residing at Sturgeon, in the county of Boone and State of Missouri, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification.

This invention relates to new and useful improvements in miter boxes and has for its primary object the provision of a novel device of this character that will permit a square cut and the two miter cuts.

It is also an object of the invention to provide in a device of this character novel means whereby the angle of the miter cuts may be easily and readily adjusted.

A further object of the invention is to provide in a device of this character novel guides for the saws, said guides being so mounted as to permit the insertion of saw blades of varying thicknesses.

It is also an object of the invention to provide, in a device of this kind novel means whereby the miter arms are caused to move in unison at all times.

A further object of the invention is to provide a novel device of this character that will be simple in construction, efficient in practice and economical to manufacture.

With the above and other objects in view the invention consists in the arrangement and combination of parts to be hereinafter more fully described and claimed.

In describing the invention in detail reference will be had to the accompanying drawings forming part of this specification wherein like characters of reference denote corresponding parts in the several views and in which:

Figure 1 is a top plan view of the device, partly in section; Fig. 2, is a fragmentary view partly in elevation and partly in section taken on the line 2—2 of Fig. 1; Fig. 3, is a view in elevation of the device taken from the front; Fig. 4, is a fragmentary view in top plan, slightly enlarged of one of the miter arms; Fig. 5, is a sectional view taken on the line 5—5 of Fig. 1; Fig. 6, is a bottom plan view of the invention on a smaller scale; Fig. 7, is a fragmentary view illustrating a slight modification of a detail of the invention. Figs. 8, 9, 10 and 11 are views of various details of the invention. Fig. 12, is a rear elevation of the device.

In the drawings 2, denotes the base or floor of the box having on its under surface along its front longitudinal edge a supporting flange or rib 3. This flange may be formed integral with the base or attached thereto as the requirements of practice may necessitate. Along the rear longitudinal edge of the base or floor is secured a fixed back plate 8, which extends below the base 2, at each end a distance equal to the flange 3, and forms the feet 4, for supporting the rear of the base.

The base 2, has to either side of the center thereof cut-out portions 5, which are approximately right-triangular in form. The portion 6, of the base intermediate the cut-out portions 5, is approximately square although of course, this forms no part of the invention, being determined by the distance separating the portions 5. Approximately centrally of the portion 6, is an opening 7, the purpose of which being hereinafter explained.

Centrally of the plate 8, is a vertical slot 9, and projecting from the rear edge of the base 2, at each side of the slot 9, is a projection or lug 10. Resting on the lugs 10, are the boxes 11, which are secured to the outer face of the side 8, by means of the screws 12, passing through the elongated openings 13, in the boxes. By this arrangement the boxes can be adjusted laterally with relation one to the other. The boxes extend above the upper edge of the plate 8, and mounted in each of said boxes is a roller 23. It is to be observed that the opposing faces of the boxes 11, are opened and that the rollers closely approach each other.

Secured to the top of the boxes, are the bearings 14, which have their opposing faces open and in said bearings are mounted the rollers 15, which have their axes at right angles to the axes of the rollers 23, and extending transversely of the base 2. These bearings 14, have depending portions 16, which are secured to the inner faces of portions of the boxes 11, extending above the side plate 8. These bearings move with the boxes to which they are attached.

To the front edge of the base 2, and adjacent either side of the center of the portion 6, are vertical boxes 17, of the same construction and arrangement as the boxes 11, and said boxes are held in position by means of the screws 18, passing through the elongated openings 19, and engaging both

the base 2, and the supporting flange 3. Within these boxes 17, are mounted rollers 20, as in the boxes 11.

On the top of the boxes 17, are secured the bearings 21, in which are mounted the rollers 22, positioned as the rollers 15, of the bearings 14.

The boxes 11 and 17, act as saw guides in making a right angle cut, the saw passing between the rollers 15 and 23; 23 and 20. The rollers 15 and 22, facilitate the insertion of the saw while the rollers 23 and 22, reduce the friction of the saw in operation. It will be seen that in applying the saw, the contact of the saw with the rollers of the bearings will cause said saw to readily enter the guides. By having the boxes adjustable one with relation to the other the guides may be employed with saws of varying thicknesses, as will, it is thought, be readily appreciated by those skilled in the art to which this invention appertains.

Intermediate the lugs 10, is mounted a roller 24, said roller being positioned in alinement with the slot of the side. The pintles 25, of the roller are loosely held by the lugs in order that the lugs may be free to move in their adjustments, as has been heretofore set forth. The roller 24, extends slightly above the upper surface of the base 2. Arranged between the boxes 17, at their bases, is mounted a roller 26, which has its pintles 27, loosely mounted in the boxes, said roller also extending slightly above the upper surface of the base. These rollers are for the purpose of protecting the saw teeth in operation. The base is intended to be made of metal and any contact of the saw teeth therewith would have a tendency to injure the teeth. By having the teeth contact with the roller such a disadvantage is obviated. It is the intention of the invention to have these rollers of soft wood, such as pine, as this grade of wood has proven best in practice. In order that the contact of the saw with the rollers can be made more positive, a groove 28, is arranged transversely of the center of the portion 6, the opposite ends of the groove terminating between the rollers 23 and 20.

Interposed between the feet 4, of the side 8, and secured thereto by the screws 29, is a plate 30, which extends beyond the back wall 8. This plate is provided with series of apertures or openings 31, which will readily permit the discharge of any dust or refuse that may accumulate thereon.

Pivotally secured to the plate are two segments 31″, and 32 which are provided on their periphery with the teeth 33′, which intermesh. By this construction the movement of one of the segments causes the second segment to move in unison therewith and the distance of travel is equal. This is a very essential arrangement as on these segments are attached the miter guides and it is necessary in practice that the two miter guides must at all times be on the same angle. As both the miter arms and guides are of the same construction, it is to be mentioned that the description of one will apply to both.

The segments 31, and 32, are semi-circular in shape and along the straight edge of the segment 31, is secured an arm 33, which has its upper surface concaved and is provided throughout its length with a series of suitably separated openings 34. In each of the openings 34, is mounted a roller 35, which extends slightly above the lowest plane of the concaved portion of the arm and is for the same purpose set forth with reference to the rollers 24 and 26.

The arm 33, extends beyond the front edge of the base 2, and to the rear of the side 8. Extending upward from the rear of the arm and resting on the segment 31, is a double boxing 36, which has arranged therein the opposed vertical rollers 37. The upper pintle 38, of each of the rollers is mounted in the base of a bearing 39, resting on a branch or section of the double boxing 36. The lower pintle 40, of the roller is mounted in a sliding plate 41, which has on its side the extension 42, which engages a side of the boxing 36. This extension is provided with an elongated slot 43, through which passes the securing screw 44. By means of the elongated slots the rollers 37, can be adjusted one with relation to the other for the purpose of admitting therebetween saws of varying thicknesses. It is to be stated that the plate 41, rests loosely on the base of the boxing 36, and is free to move thereon.

Within the bearing 39, is mounted a roller 45, the purpose of which being, it is thought, clearly apparent. The bearings 39, are provided on their bases with flanges 46, which rest on the boxing 36. These flanges are provided with elongated openings 47, through which securing screws 48 pass. This allows an adjustment of the bearings independent of the adjustment of the rollers.

On the opposite end of the arm 33, is secured a second double boxing 49, which is of the same construction and has same parts as have been just described and a further description can, it is believed, be omitted.

The arms rest within the cut-out portions 5, of the base 2, and pass beneath vertical slots 50 in the fixed side 8. These arms also rest on the supporting flange 3, of the base.

It is thought that the manner whereby both of the arms 33, move in unison is clear to those skilled in the art through the function of the meshing segmental gears.

It is necessary that the arms 33, be held in their different movements or adjustments and to effectually accomplish this means a screw 52, is passed through the opening 7, before mentioned, and embedded within the

plate 30. By loosening the screw 52, the segments are free to rotate on their pivots, and by tightening the screw they are effectually held against rotation.

In order that the fixed side 2, will not interfere with the movement of the arms 33, notches 53, are cut in the rear of the side, the same being intended to receive the double boxings 36.

The opening 7, of the central portion 6, is reduced at its lower portions, in order that the head of the screw 52, may find seat, to provide a proper clamp between the portion 6, and the plate 30, to effectually lock the segments 31 and 32.

In lieu of the roller adjusting means as hereinbefore described, the method illustrated in Fig. 7, may be employed. The ends of the arms 33, may be bifurcated to form the extensions *a*, *a*, and said bifurcated portions carry the rollers *b*, *b*. Passing transversely of the arm and through the bifurcated portion *a*, is a screw *c*, provided with the nut or bur *d*. By the turning of this nut or bur *d*, the bifurcated portions can be caused to approach or separate from each other. By this means a simple method is provided for adjusting the rollers *b*, one with relation to the other.

Having fully described my invention what I claim as new and desire to secure by Letters Patent, is—

1. In combination, a base, a fixed plate thereon, said plate having slots, movable arms on the base, a series of vertical rollers arranged in pairs carried by each of the arms adjustable one of each pair with relation to the other, and additional rollers positioned above the vertical rollers, the axis of the last named rollers being at right angles to the axis of the vertical rollers and parallel to the arms.

2. In combination, a base, a fixed plate thereon, said plate having slots, movable arms on the base, a series of vertical rollers arranged in pairs carried by each of the arms adjustable one of each pair with relation to the other, and additional rollers positioned above the vertical rollers, the axis of the last named rollers being at right angles to the axis of the vertical rollers and parallel to the arms, said additional rollers being adjustable one with relation to the other.

In testimony whereof I affix my signature in the presence of two witnesses this 30th day of April, 1906.

OSCAR CASSITY.

Witnesses:
N. W. STEWART,
A. J. HARRIS.