No. 847,557. PATENTED MAR. 19, 1907.

P. DOSCH.

MITER BOX.

APPLICATION FILED OCT. 24, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

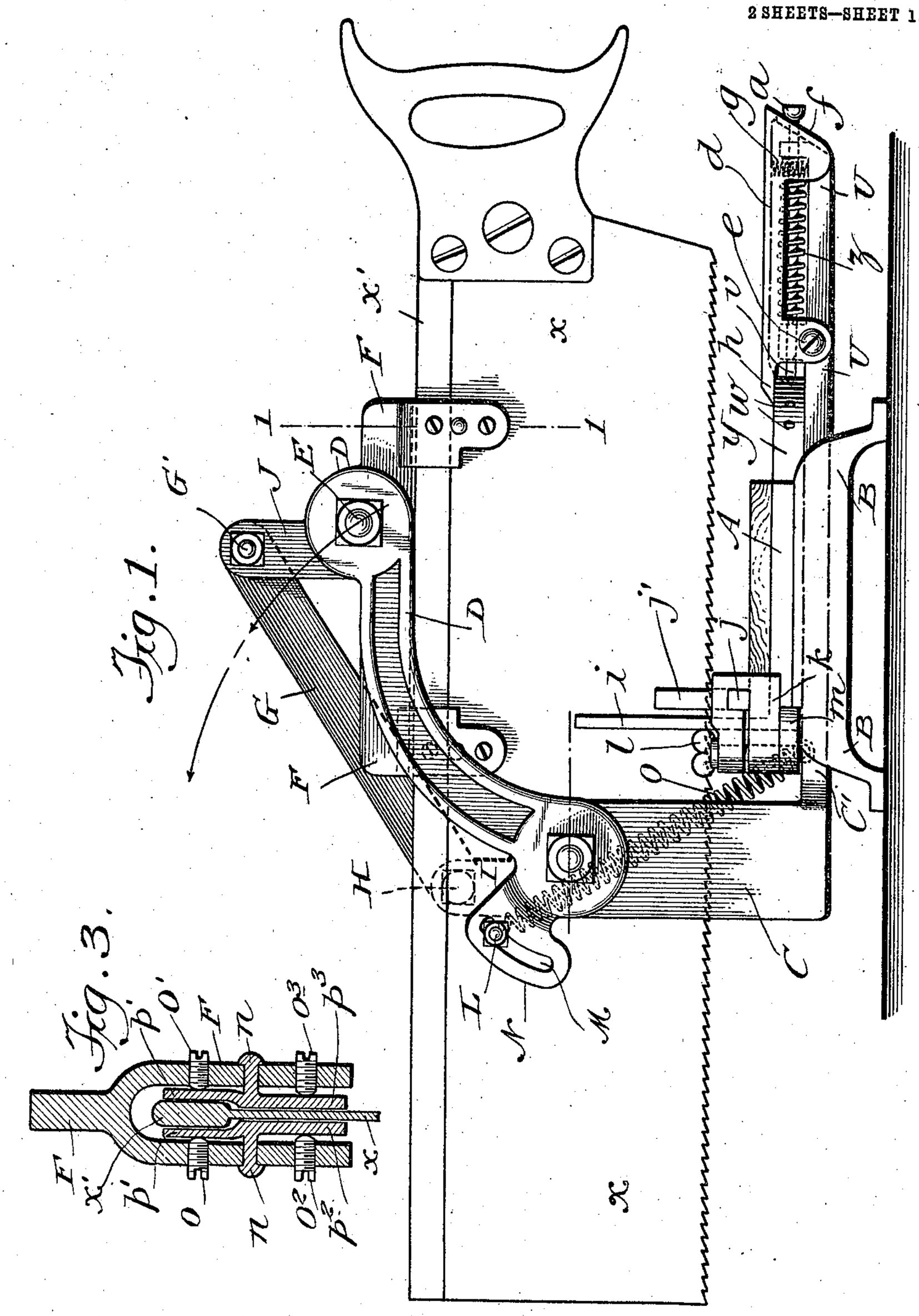

Fig. 3.

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2 SHEETS—SHEET 2.

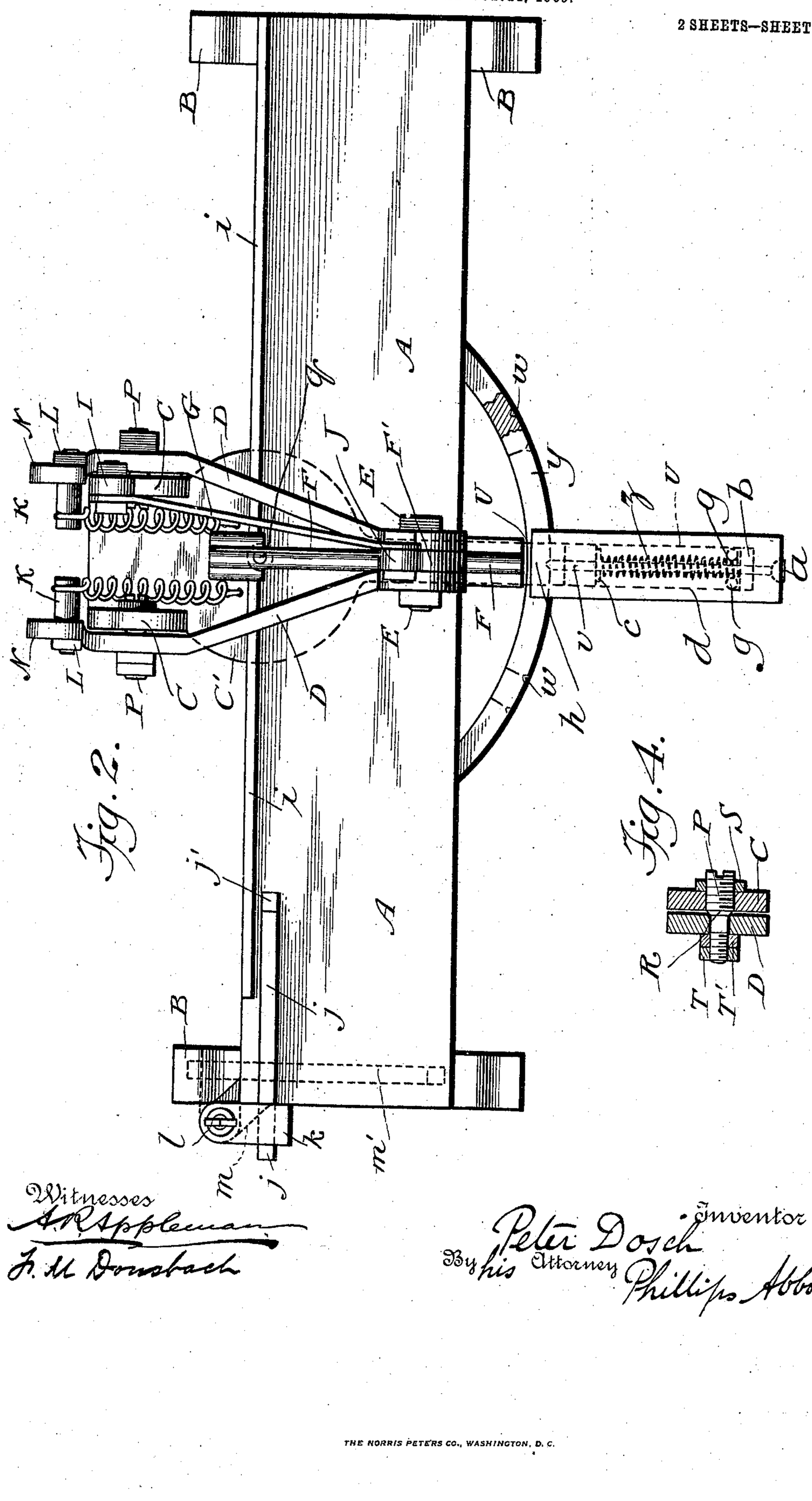

Fig. 2.

Fig. 4.

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UNITED STATES PATENT OFFICE.

PETER DOSCH, OF BRIDGEPORT, CONNECTICUT.

MITER-BOX.

No. 847,557. Specification of Letters Patent. Patented March 19, 1907.

Application filed October 24, 1905. Serial No. 284,132.

To all whom it may concern:

Be it known that I, PETER DOSCH, a citizen of the United States, and a resident in the city of Bridgeport, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 illustrates a view in elevation of the apparatus. Fig. 2 illustrates a plan view. Fig. 3 illustrates a vertical sectional view of the adjustable devices which immediately support the saw, taken on the line 1 1 of Fig. 1. Fig. 4 illustrates a view, partly in vertical section, of the method of supporting the A-frame upon the standards of the device.

A represents the platform or table of the apparatus, which is preferably supported upon standards B. It is immovable.

C C are uprights which are supported upon and form part of a turn-table C′.

D D are curved arms constituting the A-frame. Between their forward or meeting ends is pivotally supported upon a pivot E the saw-carrying frame F, which has an upwardly-extending part or lug F′, the sides of which are nicely machined, as likewise are the adjacent surfaces of the front end of the A-frame, so that the pivotal movement of the latter within the former is smooth, even, and exact.

G is an equalizing-bar pivoted at H to a part I, which projects upwardly from one of the uprights C. This equalizing-bar is also pivotally connected at its upper end, as at G′, with an upwardly-extending arm J, which is connected with the saw-carrying frame F.

K K are two studs adjustable by means of set-screws L in slots M, made in projecting parts N on the rear side of each of the members of the A-frame.

O O are balance-springs which are respectively connected at one end to the studs K K and at the other end to some fixed part of the frame of the machine, as shown.

The A-frame may be pivoted to the standards in any desired manner. I prefer that shown in Fig. 4, in which P represents a double diameter-screw threaded throughout, the larger diameter of which threads into the uprights C in such manner that the line of the reduction of the screw shown at R is flush with the outer surface of the upright. It is then locked in this position by the lock-nut S.

The members of the A-frame are suitably bored with holes slightly larger than the reduced part of the double diameter-screw, the inner end of the opening being reamed out smooth and exact, so that when these members of the A-frame are mounted upon the reduced ends of the double diameter-screws and pressed inwardly against the beveled shoulder R at the point of reduction there will be smooth and exact fit, engagement, and registration of the parts between the reamed-out surface of the hole through the A-frame members and the incline of the reduction. The members of the A-frame are suitably locked in position without undue friction by double set-nuts T T′.

U is a forwardly-projecting arm rigidly connected with the turn-table and on it is mounted a locking-pin V, the point of which engages with holes W, made in a curved rack Y, which is marked off in divisions which indicate and determine degrees of angle, the holes for the reception of the locking-pin being of course made opposite such indicating-marks. The locking-pin is normally thrust forwardly, so as to enter and lock in the holes W by the action of a spring Z. It may also be withdrawn by pull-knob *a*. The spring engages at one end against an abutment *b*, made on the arm U, and at its other end presses against a cross-pin or washer *c*, rigid on the locking-pin V.

d is a thumb-latch pivoted at *e* to the arm U, the rear face of which, *f*, is inclined, as shown, so that when the latch is depressed it will engage with the knob *a*, and thus retract the locking-pin V. The latch is normally thrown upwardly by a spring *g*, so that its forward end *h* rests upon the top of the curved rack Y, and the spring *g* is given such tension that owing to the proximity of the pivotal point *e* to the edges of the rack the pressure of the inner end *h* of the latch upon the curved rack is sufficient to maintain the device at such angle as it may then occupy. The purpose of this construction is if at any time it shall be desired to make a cut at an angle intermediate those determined by the locking-pin and holes in the rack then by depressing the latch the pin may be withdrawn from the rack and the device swung into exactly the desired position and there utilized, provided some care be exercised that the position of the apparatus be not changed. If desired, the under side of the end of the latch *h* and the upper surface of the curved rack may be mechanically rough-

ened or roughened in the casting of the part, so that frictional contact between the latch and the rack-bar may be increased.

i is the usual guide on the rear side of the fixed table, and *j* is an adjustable stop for the work. It comprises a straight bar, as shown, having an upwardly-projecting terminal *j'*, arranged, preferably, at right angles to the horizontal bar; but the latter passes through what I term a "clamping-bracket" *k*, which is bifurcated and caused to grip the bar *j* by thumb-nut *l*, which enters into an ear or bracket *m*, which is formed on and projects diagonally from the corner of the table A, as shown in Fig. 2. I call particular attention to the fact that the construction of this clamp is such that upon loosening the set-screw *l* (which not only closes the clamp, thus holding the bar *j*, but likewise connects the clamp itself to the bracket *m*) the clamp and stop-bar supported by it may be swung around and be presented at the other side of the corner of the table of the machine. Thus the stop-bar will be presented transversely or crosswise of the table, instead of longitudinally thereof, as indicated in dotted lines *m'*.

In order that the saw itself may be maintained in vertical position within the carrying-frame F, I provide the instrumentalities shown in Fig. 3, in which F represents one of the bifurcated ends of the saw-carrying frame as illustrated in Fig. 1, within which are supported, as by rivets *n n*, two structures which I call "adjustable bearing-plates." They are preferably, but not necessarily, made of sprung brass, and adjusting-screws *o o' o² o³* thread into the sides respectively of the bifurcated saw-frame and engage with the elastic ends *p p' p² p³* of these structures, whereby they may be pressed inwardly or allowed to spring outwardly, thus accommodating themselves to a reasonably snug fit with the saw *x* and its stiffened back *x'*. If the saw have no stiffened back-piece, of course the upper part of the bearing-plates will be made to coincide with the thickness of the backless saw-blade.

As above stated, the table A is immovable; but the saw-manipulating frame, turn-table, and coacting parts are adapted to horizontal rotation about the axis *q*, the center of which is upon the inner line of the guide *i*.

The operation is as follows: The work is applied upon the table against the guide *i* in the usual manner, the stop *j'* being used to determine its position, if desired, in a manner well known. The angle at which the cut is to be made having been predetermined, the locking-pin V is retracted from the hole in the curved rack-bar, in which it may be at that time, either by depressing the latch *d* or by pulling outwardly the pull-button *a*, and the saw-carrying frame and coacting parts are then swung to the right or left, as occasion may require, to the desired degree, whereupon the locking-pin is allowed to reenter the appropriate hole or notch in the curved rack-bar. If, as heretofore stated, the cut is to be made at an angle differing from those represented by either of the holes in the rack-bar, then the pinch or frictional contact between the overhanging inner end *h* of the latch upon the upper end of the curved rack-bar is relied upon to hold the parts in the desired position. The adjustment of the springs O O is such that when the saw and coacting parts are in operative position the springs do not quite counterbalance their weight, so that the sawing operation may be effected by utilizing the weight of the saw and coacting parts plus such additional pressure as the operator desires to apply manually. Sometimes I prefer to adjust the springs O in such manner that they will more than counterbalance the saw and coacting parts, so that when the latter are released they will automatically rise out of the way of the work. This construction frequently expedites. For this reason, and also that the apparatus may be more conveniently usable with saws of different size and weight, I provide the means shown and described, whereby the springs may be adjusted upon the arm of the A-frame. The equalizing-bar G maintains the saw always in a substantially horizontal position. It will be noted that when desiring to make a cut on an exceedingly long angle—that is to say, an angle more acute than the swing of the saw will normally permit—the stop *j* may be moved around to the opposite side of the corner of the table, so that its laterally-projecting end may be used as a guide for the work, in conjunction with the swing of the saw and coacting parts, thus effecting a cut of any desired angle.

I call attention to the fact that my apparatus embodies a number of features which, so far as I know, are entirely new in structures of this class, among which are the following: First, by the employment of the A-frame I hold the saw perfectly rigid against lateral movement, because the saw-carrying device being supported at the meeting ends of the members of the A-frame, the other ends of which are widely separated, engaging at or near their extremities with the rigid uprights of the machine, I secure a pressing action, whereby the lateral movement of the saw is rendered impossible, thus avoiding the necessity of any device upon the turn-table or any other part of the apparatus for maintaining the saw in proper alinement at its cutting edge; second, by the employment of the adjustable saw-guiding device—to wit, the adjustable bearing-plates—I additionally maintain the saw in a perfectly vertical or "plumb" position, as it is called; third, by the adjustable arrangement of the counterbalance-springs I am enabled to effect

the automatic withdrawal of the saw from the work or permit it to drop thereon by its own weight, as preferred; fourth, by the employment of the peculiarly-constructed latch I am enabled first to withdraw the locking-pin in a most convenient and expeditious manner and likewise to properly hold the mitering mechanism at angles intermediate those provided for in the curved rack-bar; fifth, by the employment of the swiveling support and clamp for the stop-bar I am enabled to adjust it transversely relative to the stationary table, as well as longitudinally thereof or at any intermediate angle, thus securing greater range of use as well as convenience. Aside from these there are several improvements from a commercial standpoint, among them the following: the simplicity and low cost of the construction, the compactness of the apparatus, the absence of small parts, and the adaptability of the device to saws of different size and weight.

I claim—

1. The combination in a mitering apparatus of a stationary table, a frame pivoted to the stationary table, an A-frame pivotally connected to the pivoted frame at its separated ends, a device pivotally supported upon the other end of the A-frame provided with means which engage the back and sides of the saw at a distance from its teeth, means connected with said pivoted device and with the pivoted frame for maintaining the saw in a horizontal position at all positions of the A-frame and counterbalance-springs which coact with the A-frame.

2. In a mitering apparatus a saw supporting and guiding device provided on its interior with resilient bearing-plates adapted to immediate engagement with the sides of the saw at a distance from its teeth, the opposite ends whereof are independently adjustable toward and from the saw.

3. In a mitering apparatus a frame pivotally supported at one end in the axis or center of the apparatus, another swinging frame pivoted to the first-named frame at two points to the right and left of its axial line, a saw supporting and guiding device pivotally supported at the other end of the last-named frame in substantially the axial line of the device, and saw centering and controlling bearing-plates within the saw supporting and guiding device the opposite ends whereof are independently adjustable toward and from the saw-blade at a distance from its teeth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER DOSCH.

Witnesses:
F. M. DONSBACH,
IRVING FRANKEL.