

No. 692,699.

Patented Feb. 4, 1902.

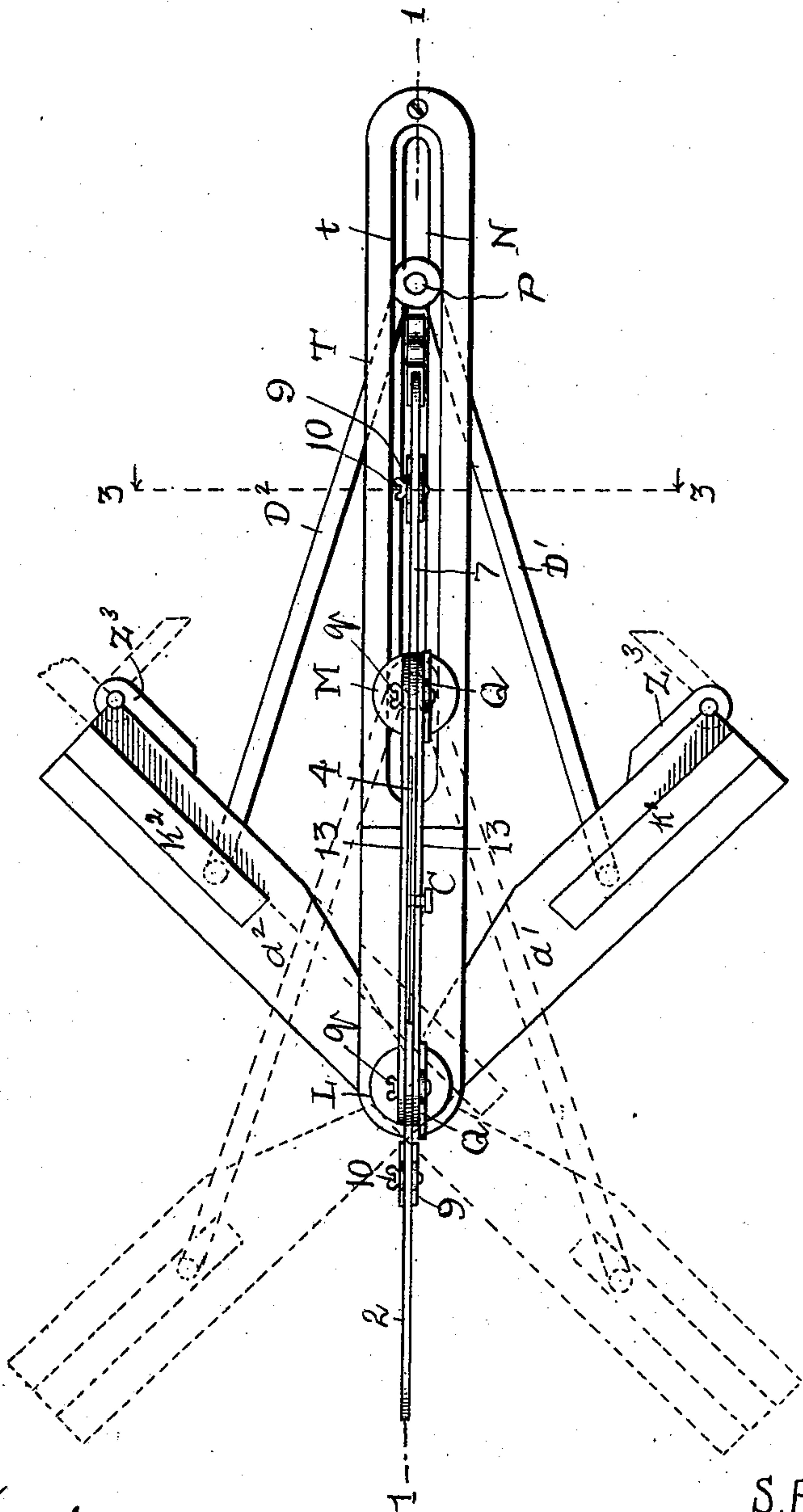
S. R. OWEN.  
MITER SAWING MACHINE.

(Application filed Mar. 29, 1901.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1.



WITNESSES.

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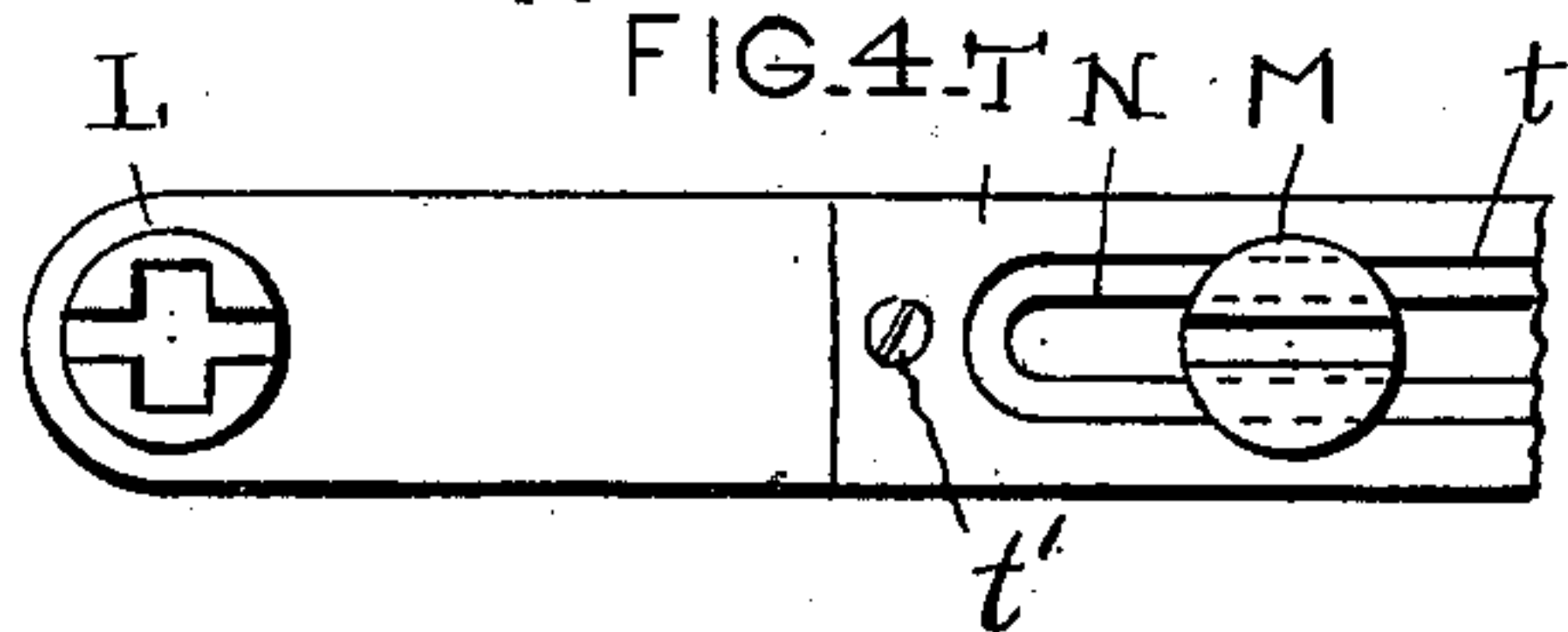
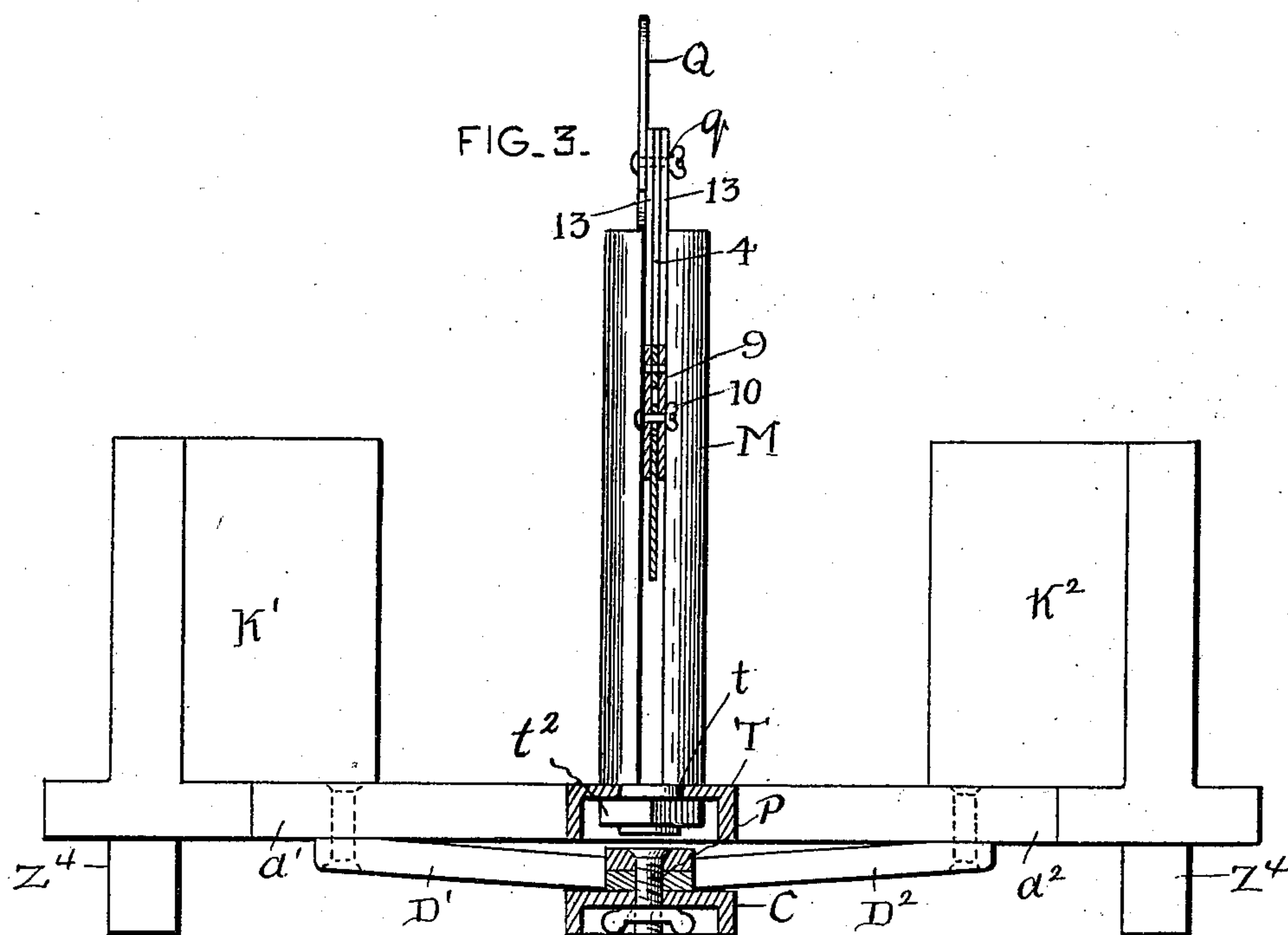
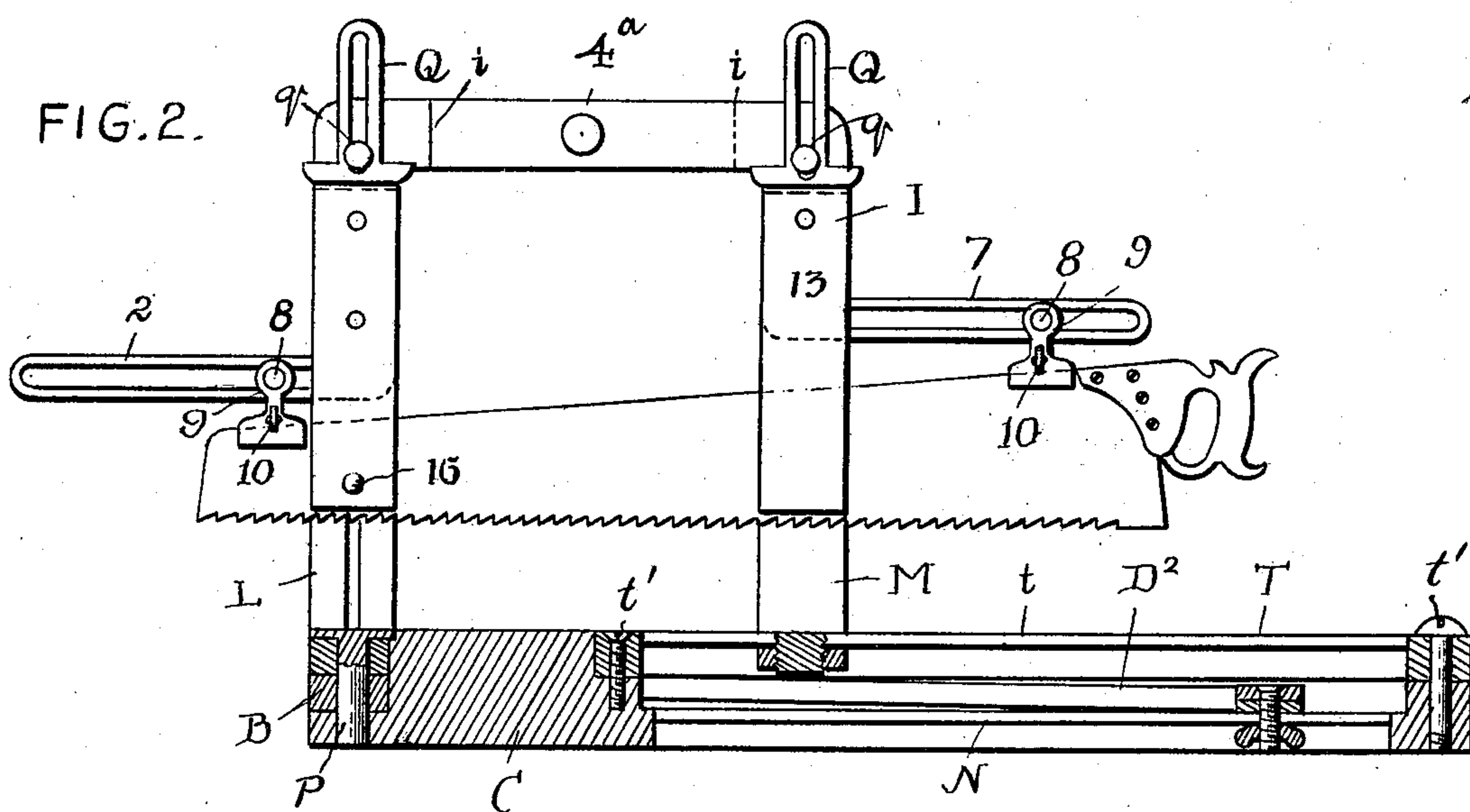
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**3 Sheets—Sheet 2.**



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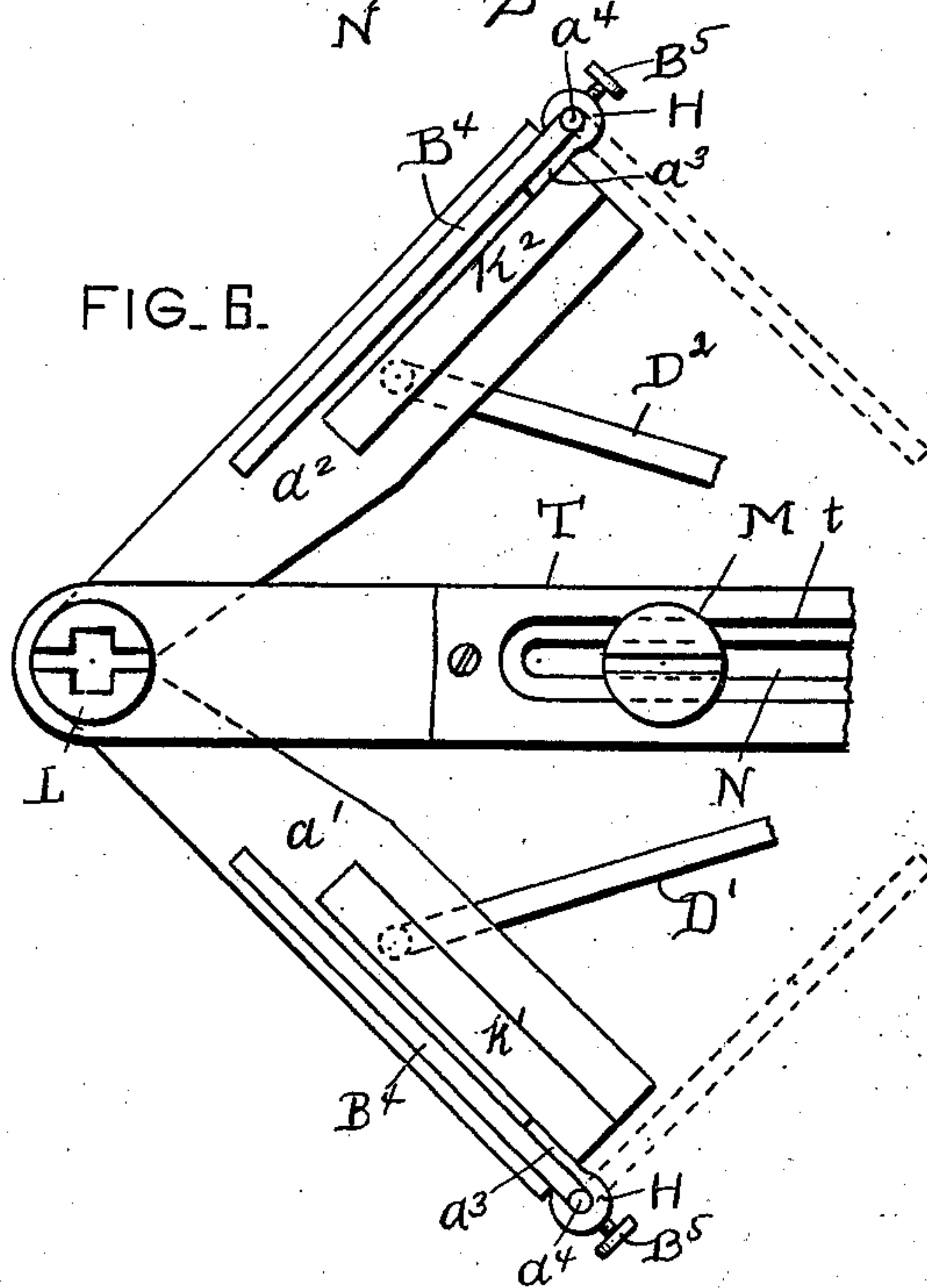
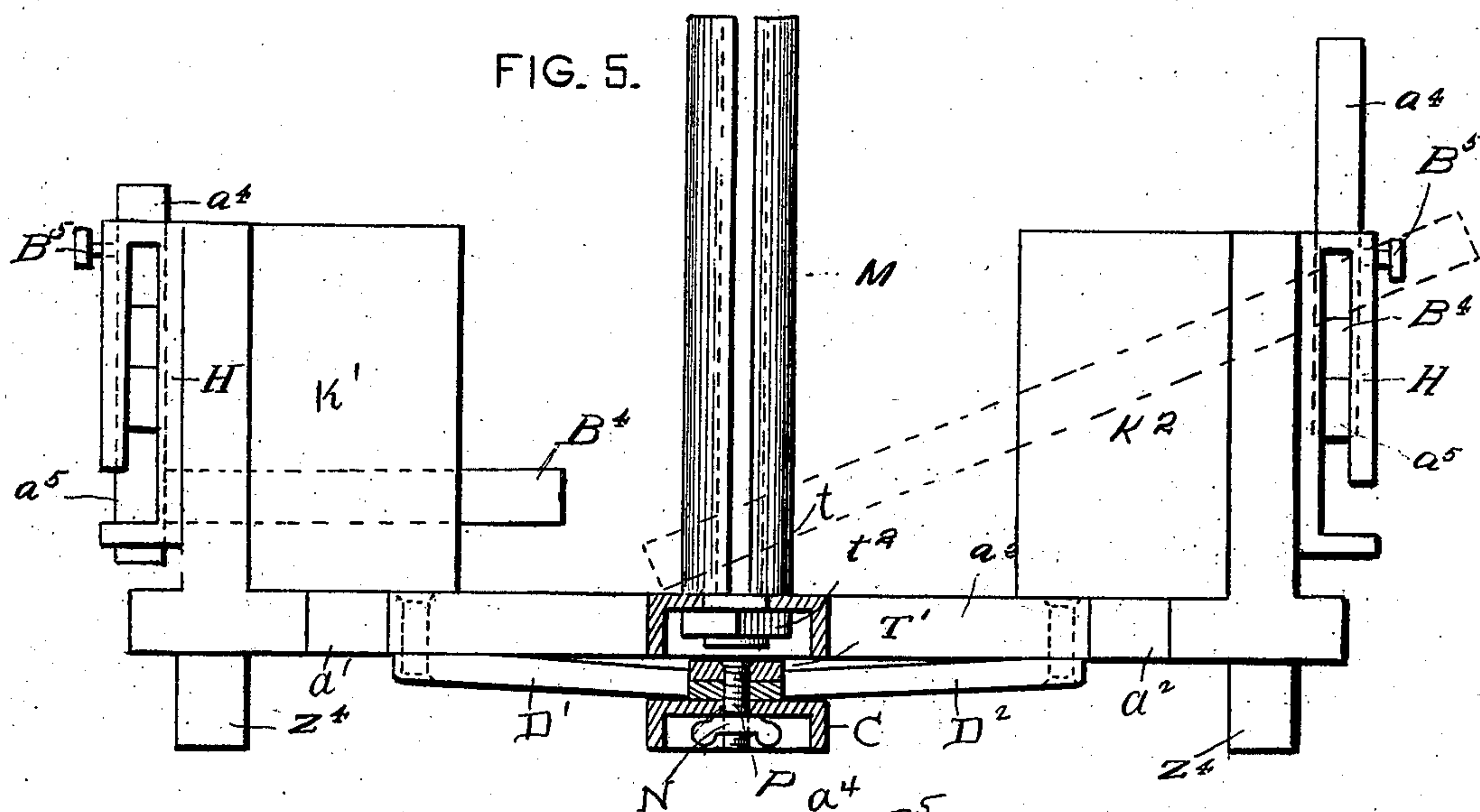
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3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

SILAS R. OWEN, OF ST. JOSEPH, MISSOURI.

## MITER-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,699, dated February 4, 1902.

Application filed March 29, 1901. Serial No. 53,452. (No model.)

*To all whom it may concern:*

Be it known that I, SILAS R. OWEN, a citizen of the United States, and a resident of St. Joseph, in the county of Buchanan and State of Missouri, have made a certain new and useful Invention in Mitering-Machines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a plan view of my machine, parts being indicated in different adjustments by dotted lines. Fig. 2 is a section on the line 2-2, Fig. 1, the saw-carrying frame and saw being out of section. Fig. 3 is a section on the line 3-3, Fig. 1. Fig. 4 is a detail plan view of a portion of bar C, showing the guide-posts in plan view. Fig. 5 is a view similar to Fig. 3, showing the modification employed when two angles are involved in the cut. Fig. 6 is a plan view of a portion of the machine and showing this modification, the position of parts B<sup>4</sup> when out of use being indicated in dotted lines.

The invention relates to devices for guiding a saw in cutting miters; and it consists in the novel construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings the letters *a' a'* indicate two wings, which are hinged to the saw-guide post L by a rule-joint B, the guide-post serving as the hinge-pin of the joint. This guide-post is rigidly secured by its lower end in the horizontal base-bar C, which is slotted at N. The wings *a' a'* have free lateral swing, but no vertical play, and can be adjusted at any angle to the miter-line.

Connecting bars or braces D' D<sup>2</sup>, pivoted to the wings *a' a'*, are hinged together also by a rule-joint at their ends farthest from said wings, the pin of said joint (indicated at P) passing down through the slot N of the bar C and being provided with a head to engage such braces. The other end of the pin is threaded and provided with a set-nut. When this nut is loosened, the pin acting as a traveler can be moved to any point in the slot N

and can be secured after adjustment by tightening the nut.

The uprights K' K<sup>2</sup>, which serve a purpose analogous to that of the rest-wall of an ordinary miter-box, are rigidly secured to the wings *a' a'* and stand at right angles thereto in such wise that their inner vertical surfaces are in line with the corresponding peripheral surface of the guide-post L. The stick or piece to be mitered lies on the wings *a' a'* against the uprights K' K<sup>2</sup> and the post L while being operated upon by the saw. A second slotted saw-guide post M is also secured to the bar C in line with the slotted guide-post L and slot N of said bar.

As the connecting-bars D' D<sup>2</sup> are of equal length and are pivoted to the wings *a' a'* at points equidistant from the axis of the guide-post L, any adjustment by means of the traveler-pin P must cause said wings to act simultaneously and to assume the same degree of angular relation to the miter-line, and as the slotted guide-posts L and M, through which the saw acts, are secured to the bar C in such wise that their slots are in the plane of the slot N it is obvious that this plane must be the true miter of any angle to which the wings *a' a'* may be adjusted.

Usually the bar C is cut away at its end sufficiently to form a depressed seat for the joint B, so that it will be below the level of action of the teeth of the saw and not liable to be injured thereby. The bar C is also slotted or cut away from side to side to allow for the play of the connecting-bars D' D<sup>2</sup>.

In order to provide an adjustment for sawing wide boards arranged flatwise or horizontally, the post M instead of being secured rigidly to the bar C may be adjustable in a slot of detachable bridge-piece T, which is secured to base-bar C by screws *t' t'*. A slot or interval T' separates the bridge-piece T from the base-bar, and in such slot or interval work the connecting-bars D' D<sup>2</sup>. Above the bars D' D<sup>2</sup> sufficient space is allowed in the bridge-piece for the play of the securing-nut *t*<sup>2</sup> upon the lower end of the post M.

An attachment is provided for use when two angles are involved in the cut—as, for instance, when the sides of a pyramidal structure, such as a mill-hopper, are to be worked



around with mitered edges. To this end a cylindrical case H is provided with a flange  $\alpha^8$  for attachment to the rear surface of the wing-upright. In each cylinder H is a vertically-adjustable slide-rod  $\alpha^4$ , designed to be moved up or down at the will of the operator. The rod  $\alpha^4$  is provided with a rest-arm B<sup>4</sup>, which may be swung around to the rear of the upright, a horizontal curved slot  $\alpha^5$  being provided for allowing this movement of said arm when not desired for use. When said arm is to be used, the rod is turned until the arm is in the lower end of the slot of the cylinder, when it can be raised to the proper elevation and then made fast by means of a set-screw B<sup>5</sup>.

Z<sup>3</sup> represents folding rest-bars, which are hinged to the uprights of the wings and are designed to be swung out for use when it is desired to saw moldings to be set at an inclination, such as a crown-molding of a cornice of a building.

Short legs or stud-supports Z<sup>4</sup> are provided for the wings  $\alpha'$   $\alpha^2$  near their outer ends in order to give them stability to support the weight when heavy timbers are being cut.

In order to provide for cutting miter edges on wide boards set up edgewise, I have designed an attachment saw-frame I, which is composed of thin steel and is formed with a rectangular bow portion 4, whereof the horizontal part extends from the post L to the post M and the vertical portions extend down in the slots of said posts. These vertical portions are secured between guide-plates 13 13, the latter extending below the ends of the former. The vertical portions of the bow 4 are provided at their lower ends with horizontal extensions 2 and 7, which are slotted longitudinally to receive the connecting-pins 8 of the traveling hanger-clamps 9, which are provided with clamp-screws 10. The inner walls of the slot in the post L are grooved vertically to receive the pivot rollers or travelers 16, which turn on pins attached to the guides 13. These rollers are designed to facilitate the free up-and-down movement of the handle end of the saw and saw-frame, the latter being secured to the saw by the hanger-clamps 9, hereinbefore referred to. As the hanger-clamps are free to move in the longitudinal slots of the extensions 2 and 7 of the frame I, the saw has free motion of reciprocation. The bow formed by the frame is high enough to receive the widest board set up edgewise, and the steel frame acts as a brace, taking the strain off the upper portions of the posts; yet the saw-frame has free vertical and pivotal motion, and the saw has free motion of reciprocation.

Q Q are gages for limiting the depth of the cut by engagement with the tops of posts L and M, such gages having a slot-and-bolt connection with the frame I at q for adjustment to vary the depth of the cut.

In order to adjust the length of the frame to allow movement of rear post M without

interfering with the proper engagement of the frame I with the guide-posts L and M, a lap-joint i is provided in the upper cross-bar 4<sup>a</sup> of frame 4, or any other suitable means may be employed for this purpose.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In a miter-sawing machine, the combination with a base-bar, its guide-posts, and angularly-adjustable wings, of the vertically-adjustable rests at the outer end portions of said wings, substantially as specified.

2. In a miter-sawing machine, the combination with a base-bar, its guide-posts, and angularly-adjustable wings, of the vertical wing-post, the vertically-adjustable bar in said post carrying a rest, and means for securing said bar, and rest as adjusted, substantially as specified.

3. In a miter-sawing machine, the combination with a base-bar, its guide-posts, and angularly-adjustable wings, of the vertical wing-posts, the vertically and pivotally adjustable bars in said posts, the rests carried by said bars, and means for securing said bars and rests as adjusted, substantially as specified.

4. In a miter-sawing machine, the combination with the base-bar, its guide-posts, and the angularly-adjustable wings, of the saw-carrying frame engaging said posts, the extensions of said frame, and the saw-clamps having a sliding engagement with said extensions, substantially as specified.

5. In a miter-sawing machine, the combination with the base-bar, its separable guide-posts, and the angularly-adjustable wings, of the vertically-adjustable, extensible saw-carrying frame engaging said posts, and having the forward and rear extensions, the slidable saw-clamps engaging said extensions, and the adjustable depth-gages carried by said frame, substantially as specified.

6. In a miter-sawing machine, the central hollow base bar or support having upper and lower, and lateral longitudinal slots, the forward stationary bifurcated guide-post, having guideways in the bifurcations thereof, the angularly-adjustable wings or braces, having guide ribs or uprights, the braces connecting said wings and bar, and working in the lateral slots of said bar, the rear longitudinally-adjustable bifurcated guide-post working in the upper slot of said bar, the saw-carrying frame engaging said posts, and having lateral pins or extensions working in the longitudinal slots of the forward post, the forward and rear extensions of said frame, and the saw-clamps having a slidable engagement with said extensions, substantially as specified.

7. In a miter-sawing machine, the central hollow base bar or support, having an upper longitudinal slot, the forward stationary guide-post, the angularly-adjustable wings



5 having guide ribs or uprights, the rear longitudinally-adjustable guide-post working in the slot of said bar, the saw-carrying frame engaging said guide-posts, and having forward and rear guide extensions, means for adjusting the length of said saw-carrying frame to accord with movement of said rear post, and the saw-clamps having a slidable en-

gagement with said guide extensions, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

SILAS R. OWEN.

Witnesses:

P. V. WISE,

P. E. CASTERLINE.