

June 19, 1923.

1,458,951

H. POOLE ET AL

MITER BOX

Filed Sept. 15, 1921

2 Sheets-Sheet 1

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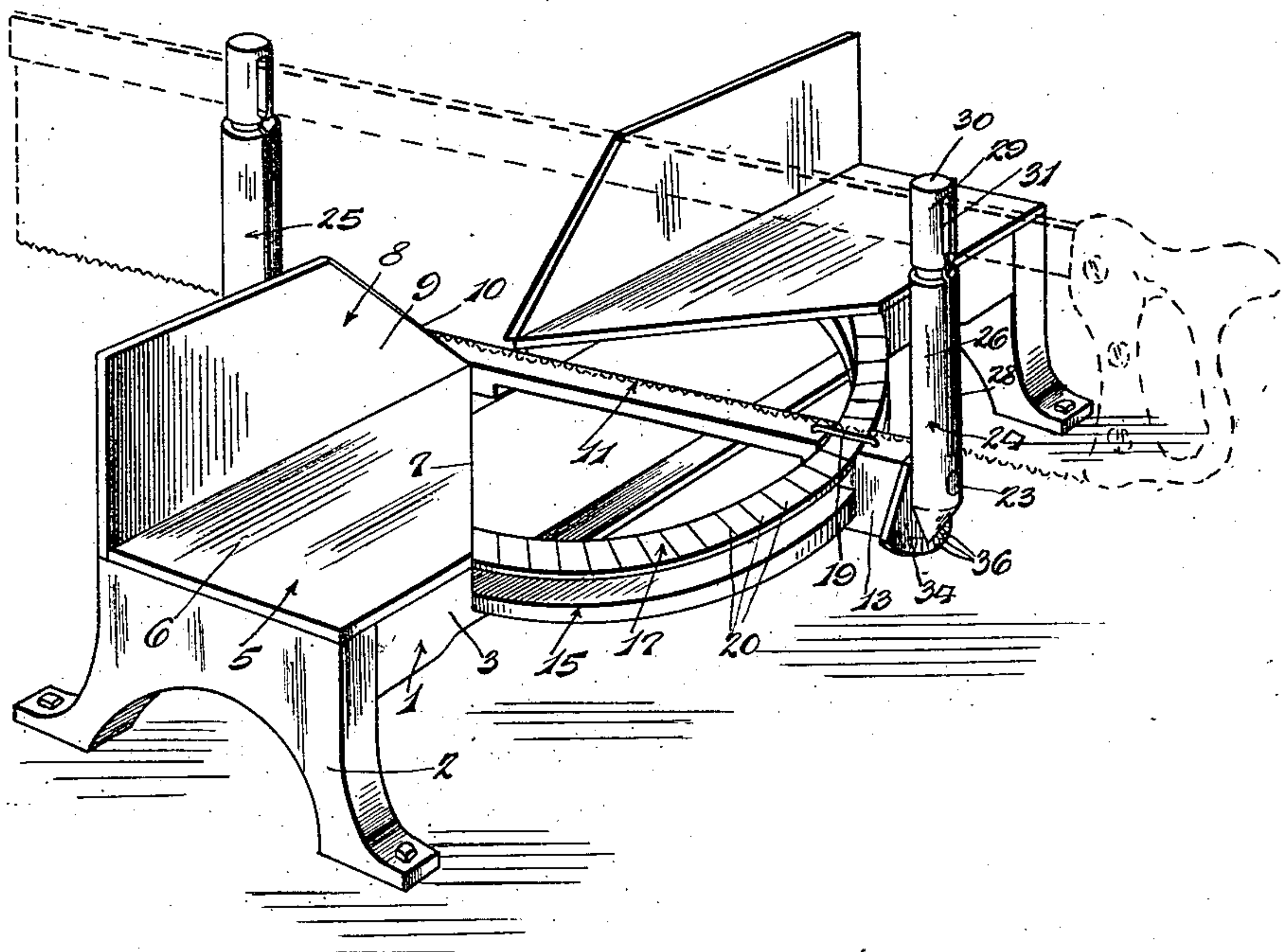
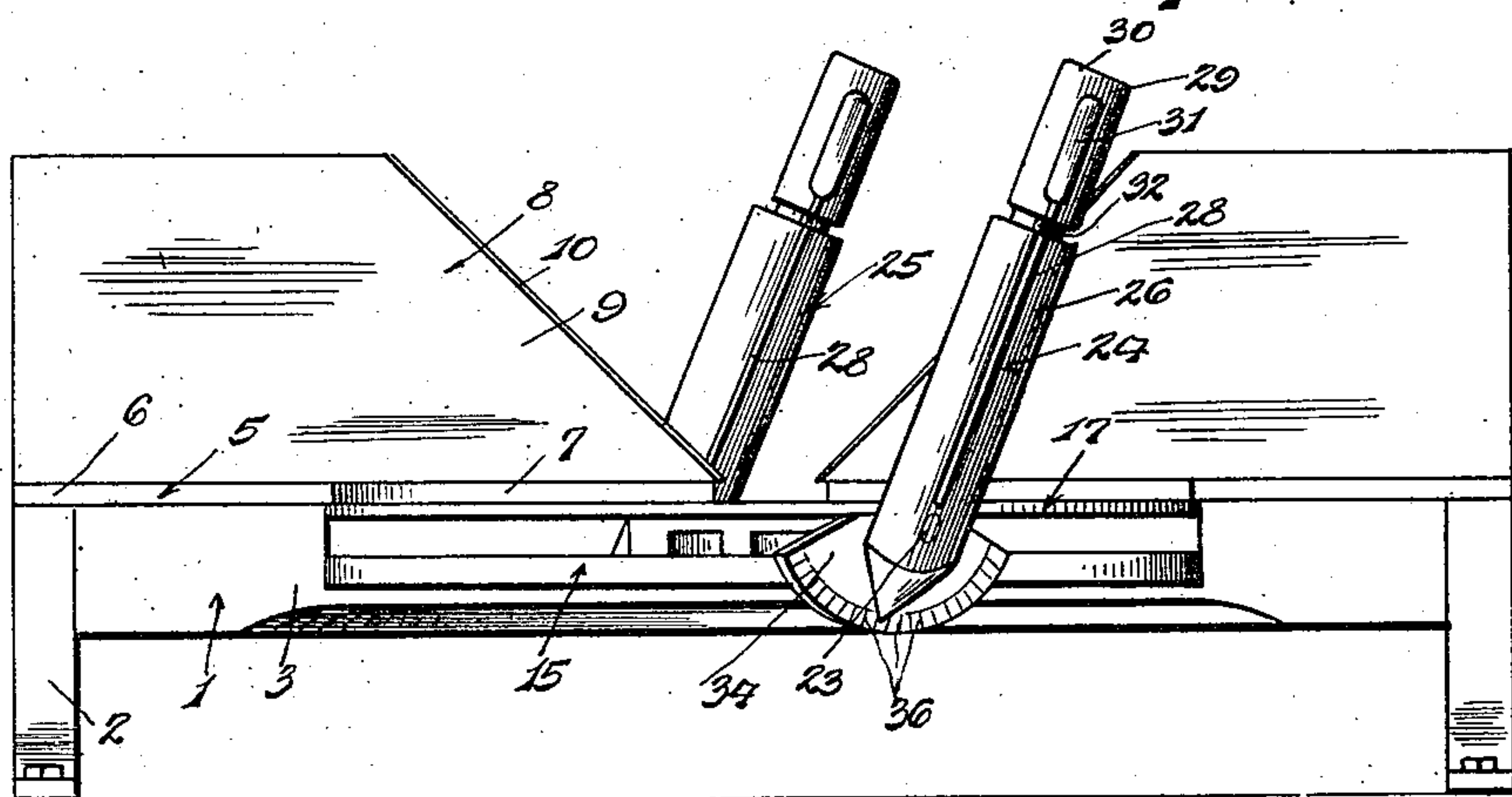


Fig. 2.



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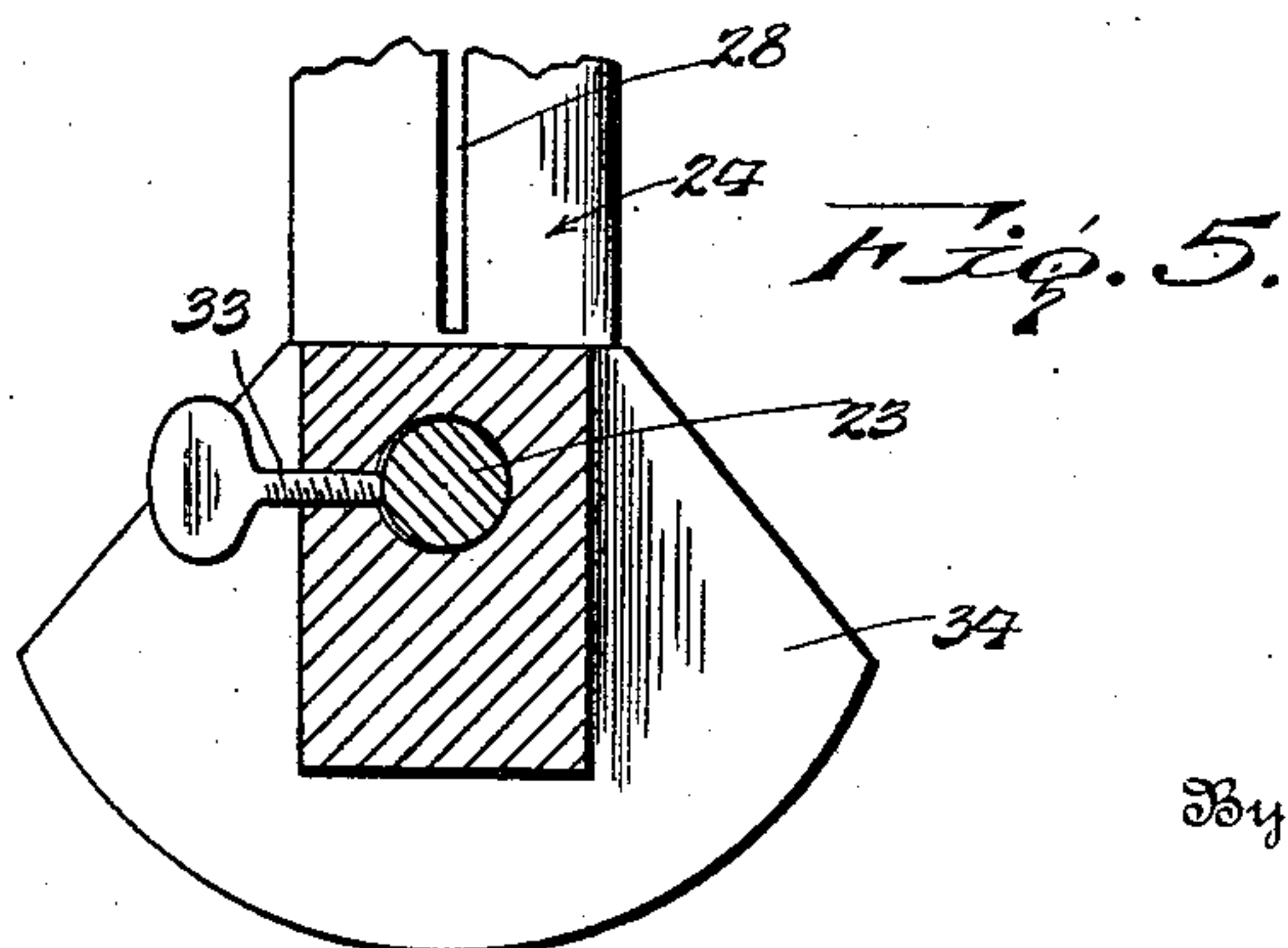
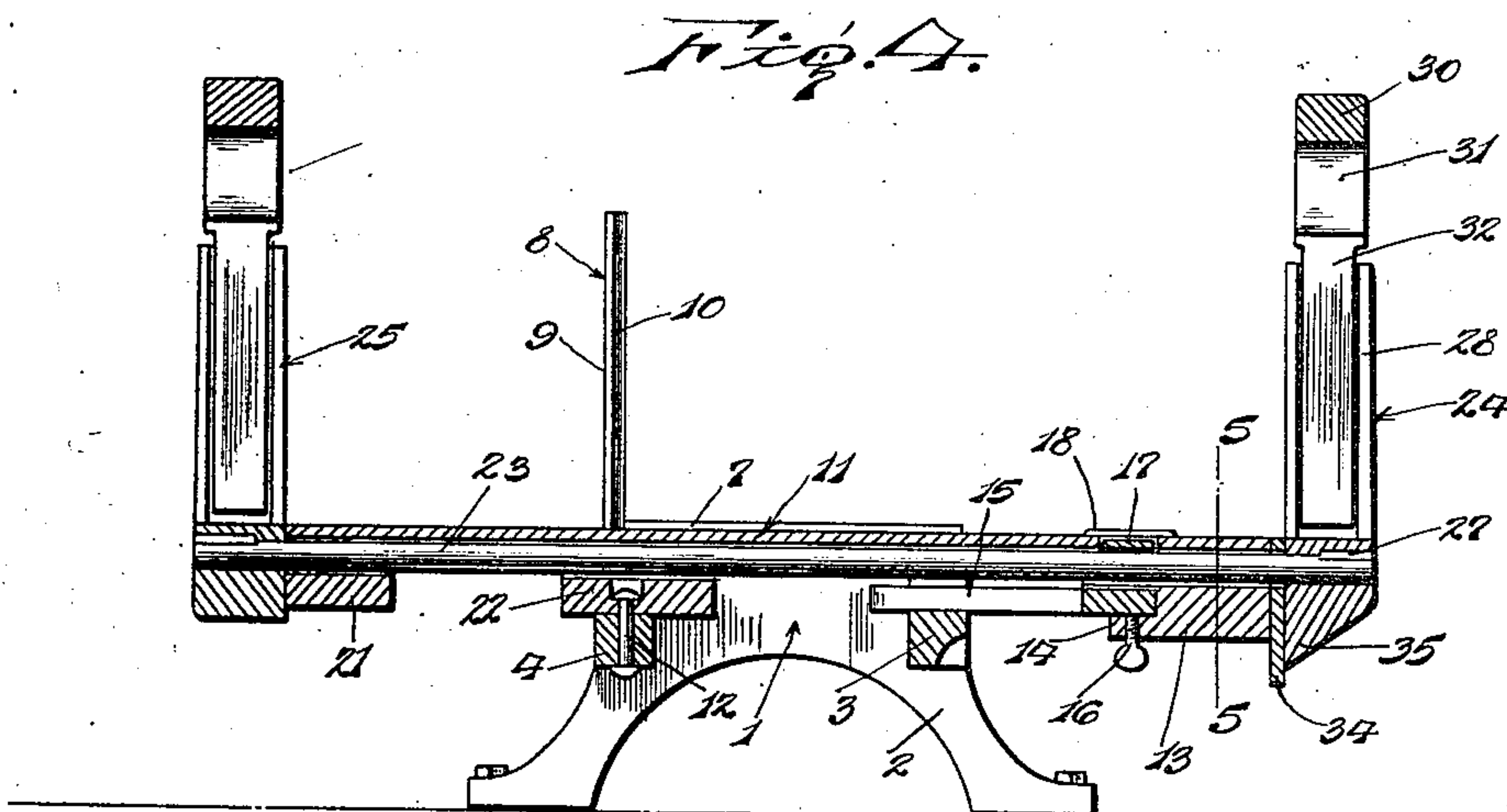
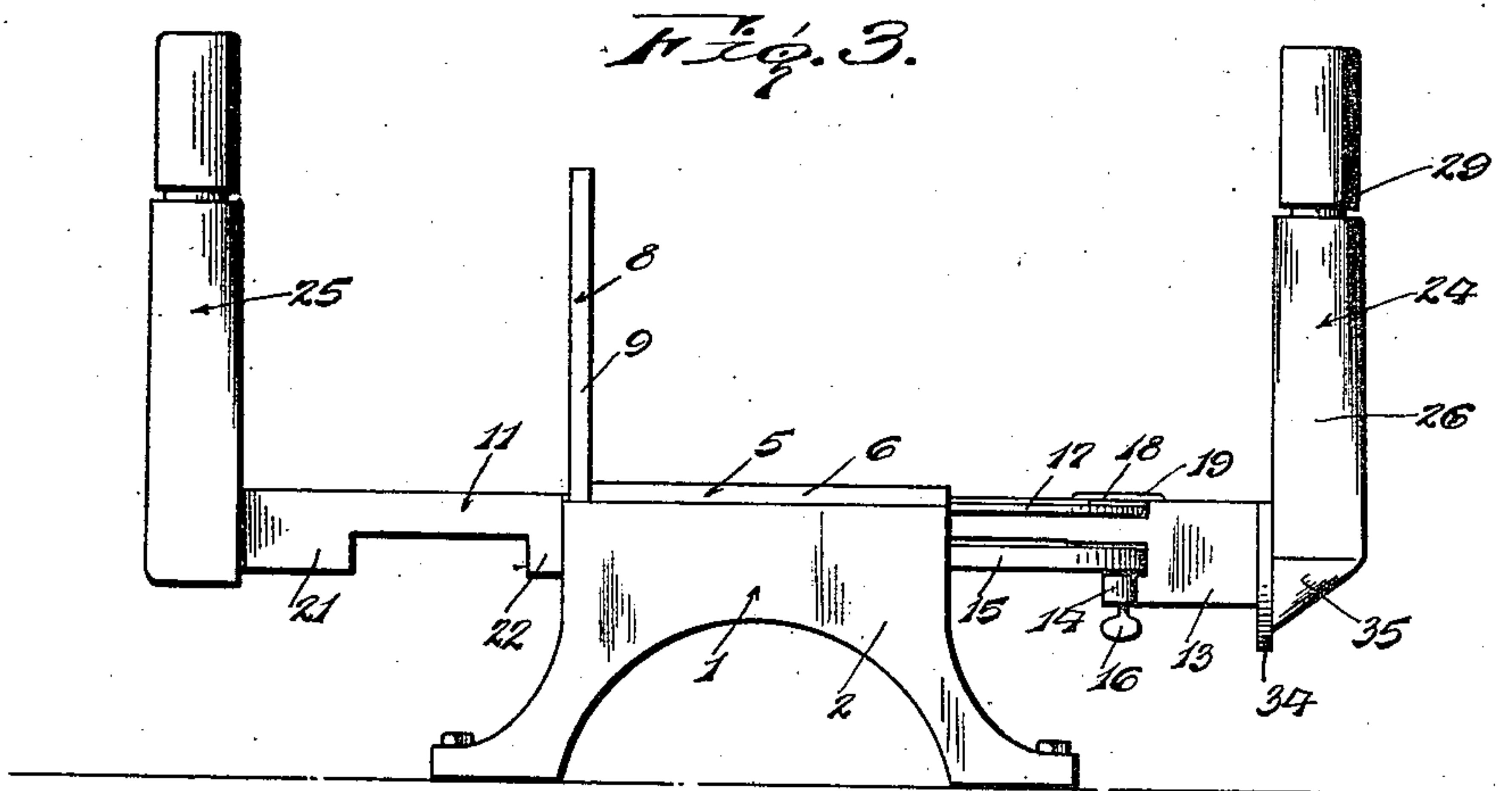
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2 Sheets-Sheet 2



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Patented June 19, 1923.

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UNITED STATES PATENT OFFICE.

HARRY POOLE AND GEORGE P. ROMAIN, OF DILLON, MONTANA.

MITER BOX.

Application filed September 15, 1921. Serial No. 500,937.

To all whom it may concern:

Be it known that we, HARRY POOLE and GEORGE P. ROMAIN, citizens of the United States, residing at Dillon, in the county of Beaverhead and State of Montana, have invented certain new and useful Improvements in Miter Boxes, of which the following is a specification.

This invention relates to improvements in miter boxes.

The ordinary miter box is so constructed that by its use a piece of work may be cut diagonally at practically any desired angle, but it frequently becomes necessary to cut a piece of work not only diagonally but also obliquely and when one is confronted with this task the ordinary miter box is found to be useless, and the work must be measured and the cut laid out thereon and the saw then guided by hand in making the cut. It is therefore the primary object of the present invention to provide a miter box so constructed that the means for supporting and guiding the saw may be adjusted to adapt the saw to cut not only diagonally but also obliquely through the piece of work laid upon the bed plate of the box and thus, in a single operation, accurately cut the work on a plane which is both diagonal and oblique to one of its faces.

Another object of the invention is to so construct and mount the means for supporting and guiding the saw that the saw when supported thereby may be adjusted to assume any desired angle with relation to the back plate of the box and at the same time any desired angle oblique to the bed plate of the box so that when the saw is manipulated, it will cut not only diagonally but also obliquely into a piece of work laid upon the bed plate and against the back plate.

Another object of the invention is to provide for accurate adjustment of the saw supporting and guiding means and for securely holding the parts in positions of adjustment while the saw is being reciprocated.

In the accompanying drawings:

Figure 1 is a perspective view of a miter box constructed in accordance with the present invention;

Figure 2 is a front elevation of the miter box;

Figure 3 is a side elevation thereof;

Figure 4 is a vertical front to rear sectional view through the miter box;

Figure 5 is a vertical transverse sectional

view taken substantially on the line 5—5 of Figure 4 looking in the direction indicated by the arrows.

The miter box embodying the invention comprises a bed frame which is indicated in general by the numeral 1 and which includes end supporting members 2 which may if desired be secured in place upon a work bench or other suitable support. The bed frame further includes a front member 3 and a rear member 4 which members extend respectively transversely of the front and rear of the said frame and between the end members 2 thereof.

The bed plate of the box is indicated in general by the numeral 5 and the same comprises two sections 6 which are supported in horizontal position upon the opposite ends of the frame 1 and which have their adjacent end edges diagonally disposed as indicated by the numeral 7. The box further includes a back plate indicated in general by the numeral 8 and comprises two sections 9 which upstand in a vertical plane at the rear edge of the bed plate 5, the adjacent end edges of the sections 9 being obliquely disposed as indicated by the numeral 10. The head and back plates of course occupy planes at right angles to each other, and a piece of work to be cut is to be laid within the angle between these plates as in the use of the ordinary miter box.

The supporting and guiding means for the saw comprises a bar indicated in general by the numeral 11, this bar being swiveled as at 12 at a point intermediate its ends, upon the upper side of the rear cross member 4 of the bed frame 1 so that it may have angular movement in a horizontal plane. The bar is so formed that its upper side will be located in a plane spaced slightly below the plane of the upper face of the bed plate 5 as shown in Figure 4 of the drawings, and by reference to said figure and to Figure 1 it will be observed that the swivel 12 is located between the adjacent ends of the sections of the bed and back plates, these ends of the plate sections being spaced apart a distance sufficient to permit of swinging adjustment of the bar 11. At its forward end the bar is provided with a head 13 having a rearwardly projecting lip 14 located in spaced relation to the under side of the bar. The forward portion of the bar is supported upon the upper side of an arcuate forwardly curved rail 15 which is in turn supported at

its ends upon the upper side of the member 3 of the frame 1, and a set screw 16 is fitted through the lip 14 and may be adjusted to bind against the under side of the rail 15 so as to secure the bar 11 in various positions of angular adjustment diagonally of the plane of the bed plate 5. In order that the angular position of the bar 11 with relation to the plane of the back plate 8 of the miter box may be accurately determined, an arcuate scale blade 17 is mounted upon the base frame 1 and over-lies the arcuate rail 15 in spaced relation thereto, the bar 11 being recessed in its upper side as at 18 to accommodate the said blade 17, the blade and rail being concentric to the swivel pin 12. An indicator element 19 which may be in the nature of a short length of wire, spans the recess 18 above the blade 17 and is adapted to be brought into selective registration with the scale marks 20 upon the said blade. It will be understood at this point that the saw employed in connection with the miter box is to be supported for reciprocation above the bar 11 and that when the saw is in full lowered position as for example after having passed entirely through the piece of work being cut, its lower or cutting edge will be positioned longitudinally medially above the said bar and substantially in registration with the indicator element 19. Therefore by providing, in connection with the scale marks 20, numerals to indicate the angles represented by the marks, the set screw 16 may be loosened and the saw supporting bar 11 may be angularly adjusted about the swivel pin 12 so as to position the saw supported thereby at any desired angle with relation to the back plate 8 and to thus obtain the desired diagonal cut.

The bar 11 is provided, in addition to the head 13 with a head 21 located at its rear end, and an intermediate head 22 in which the swivel pin 12 is engaged, this latter head resting upon the upper side of the rear cross member 4 of the bed frame 1. A shaft 23 is journaled for rotative adjustment in the heads 13, 21 and 22 and extends above the rail 15 and beneath the scale blade 17 and projects at its ends beyond the said heads 13 and 21 as shown in Figure 4 of the drawings. The projecting ends of the shaft 23 support the saw guides the forward one of which is indicated in general by the numeral 24 and the rear one by the numeral 25. Except as will presently be explained, these guides are of counterpart construction and each comprises a tubular arm 26 which is keyed at its lower end as at 27 to the respective projecting end of the shaft 23 and extends upwardly radially therefrom. The arms occupy the same plane in a general front to rear direction and each is formed with a diametric longitudinally extending slot 28, these slots being in alignment and

being adapted to receive the blade of the saw employed in connection with the box. Each of the supports 24 and 25 further comprises the usual stem 29 which is telescopically fitted within the bore of the respective arm 24 or 25 as the case may be and which is provided at its upper end with the usual head 30 provided with a slot 31 sufficiently broad to accommodate the back of a hack saw, the stem 29 being formed with a longitudinally extending diametric slot 32 opening at its upper end into the slot 31 and being designed to register with the slot 28 of the respective arm and accommodate the blade of said saw.

In the ordinary miter box the saw supporting arms corresponding to the arms 24 and 25 are rigidly mounted in perpendicular position and the saw is capable only of angular adjustment about a vertical axis so as to effect diagonal cuts, but in the present construction by mounting the arms 24 and 25 upon the ends of the shaft 23 which shaft is capable of angular adjustment, the arms may be swung laterally toward either side to position the saw blade at any desired oblique angle so that when occasion requires an oblique as well as a diagonal cut may be effected by the saw. In order that the shaft 23 may be held in positions of adjustment, a set screw 33 is threaded into one side of the head 13 and may be tightened to bear against the shaft 23, and in order that the angle of oblique disposition of the saw blade may be definitely determined, a sector shaped scale plate 34 is fixed upon the outer end of the head 13, and the lower end of the arm 24 is provided with a pointer 35 for selective registration with the scale marks 36 upon this plate.

It will be evident from the foregoing that as the relatively angularly disposed edges 7 of the bed plate sections 6 afford clearance for the cutting edge of the saw in all positions of diagonal adjustment thereof, so do the upwardly diverging edges 10 of the back plate sections 9 provide for oblique disposition of the saw blade while maintaining its diagonal adjustment.

Having thus described the invention what is claimed as new is:

1. A miter box comprising a bed plate, a saw-supporting bar provided with depending bearings one of said bearings being swiveled to the bed plate whereby the saw-supporting bar may have pivotal movement in a plane parallel with the plane of the bed plate, a shaft journaled in said bearings, saw guides secured to the ends of said shaft and projecting upwardly radially therefrom, means for securing said shaft in a set position, means for securing the saw-supporting bar in a set position, said bar having a recess in its upper side, a guard plate concentric with the pivot of the bar

passing through said recess, and a marker on the upper side of the bar bridging said recess.

2. A miter box comprising a bed plate, 5 a saw-supporting bar provided with depending bearings at its ends and at a point between its ends, the last-mentioned bearing being swiveled to the bed plate whereby the saw-supporting bar may have pivotal 10 movement in a plane parallel with the plane of the bed plate, a shaft journaled in said bearings, saw guides secured to the ends of said shaft and projecting upwardly radially therefrom, means for securing said shaft 15 in a set position, means for securing the

saw-supporting bar in a set position, a horizontal rail upon which the saw-supporting bar rests, said rail being concentric with the pivot of said bar and said bar having a recess in its upper side vertically over said 20 rail, a guard plate concentric with the pivot of said bar passing through said recess, a marker on the upper side of the bar bridging said plate, an index plate on the front bearing, and a pointer on the front saw 25 guide co-operating with said index plate.

In testimony whereof we affix our signatures.

HARRY POOLE. [L. s.]
GEORGE P. ROMAIN. [L. s.]