

No. 773,896.

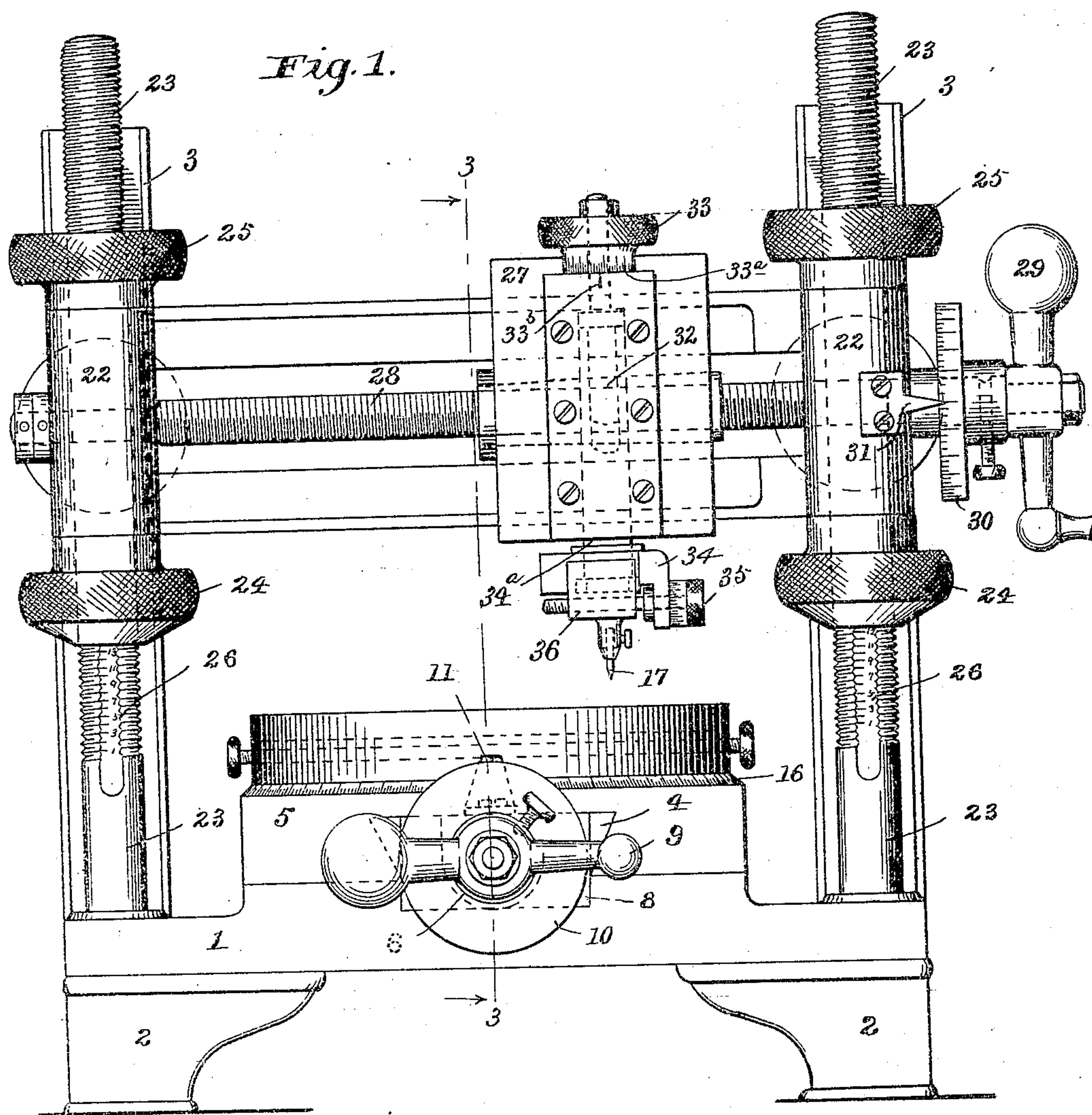
PATENTED NOV. 1, 1904.

W. J. RICHARDS.
MACHINE FOR MARKING AND LAYING OUT DIES.

APPLICATION FILED JUNE 11, 1903.

3 SHEETS—SHEET 1.

NO MODEL.



Witnesses
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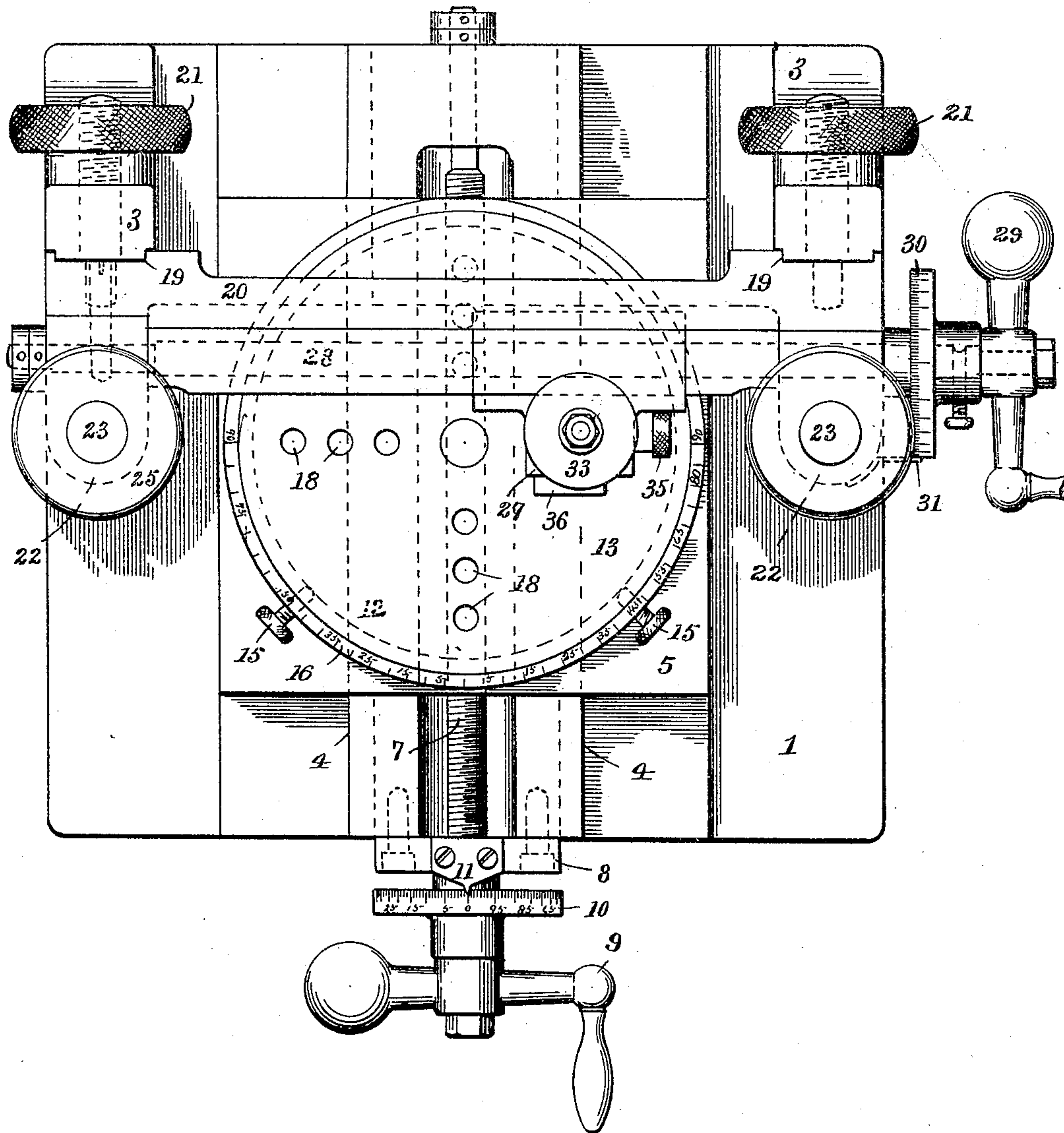
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3 SHEETS—SHEET 2.

Fig. 2.



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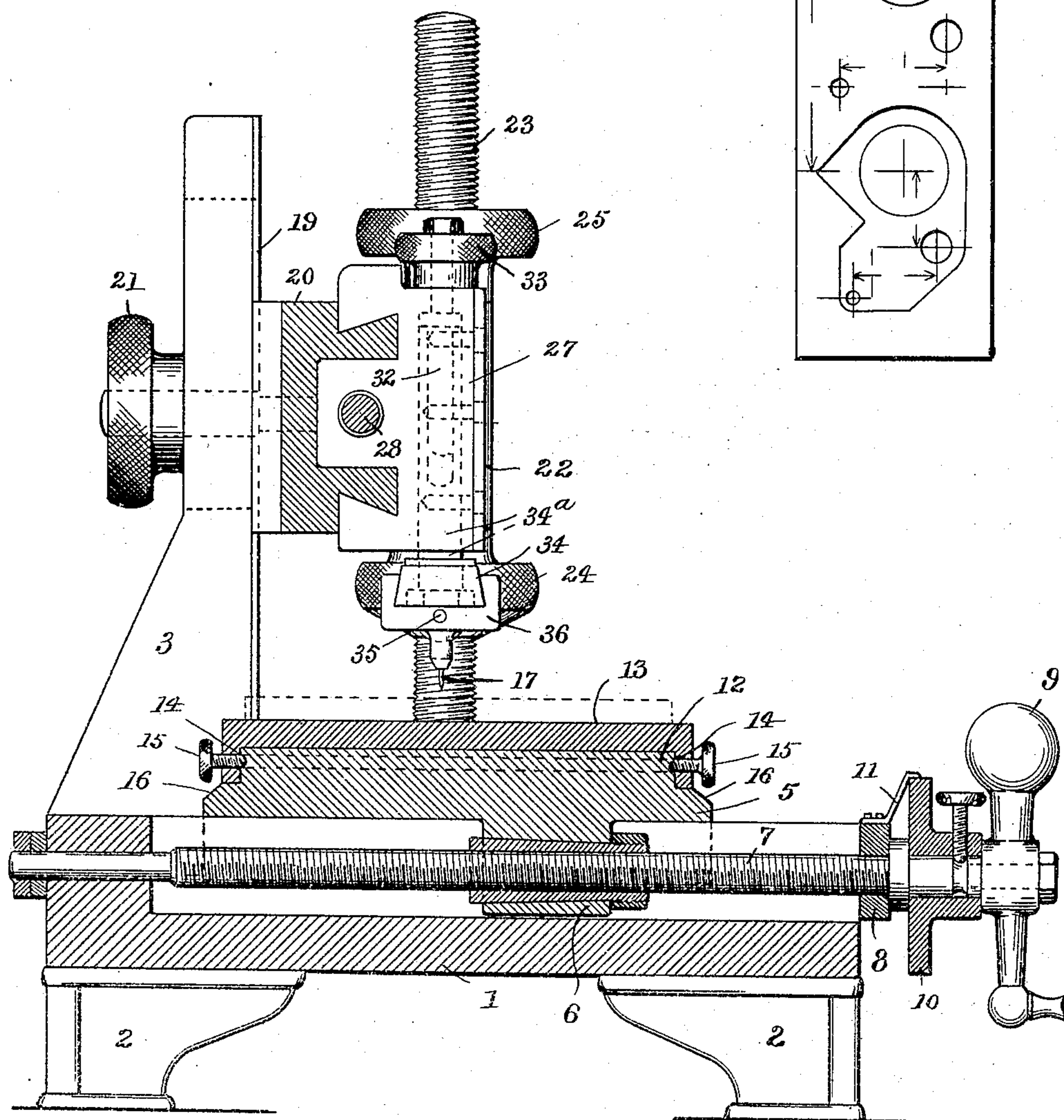
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3 SHEETS—SHEET 3.

Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM J. RICHARDS, OF WATERBURY, CONNECTICUT.

MACHINE FOR MARKING AND LAYING OUT DIES.

SPECIFICATION forming part of Letters Patent No. 773,896, dated November 1, 1904.

Application filed June 11, 1903. Serial No. 161,030. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. RICHARDS, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Machines for Marking and Laying Out Dies, of which the following is a specification.

My invention relates to new and useful improvements in machines for laying and marking out dies, templets, and the like.

It is the object of the invention to provide a machine which may be especially adapted for the use of die-sinkers, tool-makers, or jewelers whereby they are enabled to quickly and accurately mark out a die or templet, including the locating and marking of centers, the inscription of straight, angular, and circular lines, all of which may be followed in marking the die; further, to adapt the machine for a large variety of work, including dies of different thicknesses and sizes, and to construct it in such a way that its usefulness will not be limited to the laying out of dies, but to the laying out of other classes of work—as, for instance, that of engraving; finally, to provide a machine with a fine adjustment and a system of graduations whereby accuracy is assured and whereby several dies of like or varying designs may be marked out separately from a chart or memorandum without applying a pattern to the work.

With the above and other minor objects in view my invention resides and consists in the novel construction and arrangement of parts shown upon the accompanying three sheets of drawings, forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a front elevation of my improved machine complete. Fig. 2 is a top or plan view of Fig. 1. Fig. 3 is a central vertical cross-section taken on line 3 3 of Fig. 1; and Fig. 4 is a plan view of a die, representing in part some of the work for which my machine is designed.

Referring in detail to the numerals of reference marked upon the drawings, 1 indicates a bed, 2 legs for supporting the same, and 3

standards or brackets of the bed, one of which is located at either side of the rear of the machine. The bed is provided with a transverse way 4, upon which is mounted a slide 5. This slide is provided with a central depending bracket 6 for the engagement of an adjusting-screw 7, which is journaled in the bed at one end and in a bracket 8 of the bed at the other end. A handle 9 is provided on the outer end of this screw for rotating the same and adjusting the slide to and from the operator. A disk 10 is secured to the screw and turns with it. The periphery of said disk is further provided with a series of graduations which in practice are preferably divided into hundredths or two-hundredths for metric system. A pointer 11 is secured to the bracket of the bed and is read in connection with the graduations upon the disk. The threads of this screw are preferably cut ten to an inch or two millimeters pitch, while the disk is divided into one hundred or two hundred for metric system. Therefore each one-hundredth movement of the disk would represent one one-thousandth or .01 millimeter in movement of the slide. It will thus be seen that a very desirable and accurate adjustment of the bed may be had by the simple adjustment of the screw when operated in connection with the graduations of the disk and pointer.

The top slide is provided with a pivotal hub 12, upon which is mounted a rotatable stock-carrying table 13. Said hub 12 is provided with an annular groove 14, over which the depending flange of the table extends and into which the screws 15 on said table project to secure the same in place. This table may be at times rigidly secured to the slide, while at others the screws would be loosened to permit of its rotary adjustment thereon in order to swing the work around under the pointer.

The slide referred to is provided with a bevel annular ledge 16, upon which is inscribed in proper order a series of graduations on each of its two front quarters, said series reaching from front center to side and representing one to ninety degrees, each set of graduations indicating a quarter of a circle and the two combined a half-circle. These graduations are read in connection with a suit-

able indicating-line on the table, so that this adjustment may be accurately determined with relation to the slide upon which it is mounted.

The table is further provided with a series of holes 18, by means of which the die-block may be clamped to the table for the operation thereon of the marker 17, which is located above and which is susceptible of vertical, horizontal, transverse, and independent circular movement, as will later be more fully explained.

The two standards or brackets 3, before mentioned, are provided with vertical ways 19, against which the cross-rail 20 is adjustably secured by means of studs and clamping-nuts 21, said standards being provided with vertical grooves to accommodate the vertical movement of the stud and cross-rail for said nut, as will be apparent from Fig. 3. On this cross-rail is provided at either end a forwardly-disposed bearing 22, through which loosely pass vertical screw-posts 23, the same being secured to the bed of the machine and provided with a supporting-nut 24 below said bearing 22 and a lock-nut 25 above the bearing. These nuts, as will be seen, are knurled to facilitate hand manipulation, whereby they are run up and down on the screw to raise and lower the cross-rail and the marking-tool carried thereby. These screws are further provided with corresponding graduations 26, as shown in Fig. 1, so as to enable the operator to adjust and set the two sides alike in order to keep the cross-rail horizontal. Upon this rail is slidably mounted an adjustable head 27, which carries the marking-tool 17 before mentioned. An adjusting-screw 28 is rotatably mounted in this cross-rail, being provided with an operating-handle 29 and graduated disk 30, the latter being read in connection with a pointer 31, as in the case of the adjusting mechanism for the die-carrying table and slide.

The head 27, which is mounted upon the rail, as before stated, carries the marking-tool through the medium of an independently-adjustable holder and carrier, which are movable vertically and laterally, besides being rotatable independent of the before-mentioned head and adjusting mechanism. The holder 34 is pivoted to a shank 34^a, which snugly fits into a rectangular vertical hole of the head mounted upon the rail and is supported by a central adjusting-screw 32, having a knurled head 33. This head is graduated, as at 33^a, to be read in connection with the line 33^b on the head, and consequently the shank and holder may be raised and lowered by the rotation of this screw 32. The holder is provided with a transverse way and an adjusting-screw 35, which engages and operates the needle-carrier 36, adjustably mounted upon the ways of the holder in a manner to permit of a slight transverse movement of the needle by the operation of the screw 35 independent of the move-

ment of the head mounted upon the rail to throw the needle off of the center for the marking of small circles.

From the foregoing it will be noted that the die to be operated upon is secured to the table, that the table is susceptible of both rotary and transverse movement. In addition to this the head and marking-needle are each provided with two independent horizontal and vertical movements, also circular movement for the needle. It is therefore possible by the two combined movements of the screws 7 and 28 to bring the needle over any portion of the surface of the die, and such position of the needle when so placed can be read upon the graduations of disks 10 and 30. It is further true that when so placed the needle can be lowered in contact with the work for marking the same. By the manipulation of the handle 29 the needle can be carried directly across the die in a way to inscribe a line across the face of the same, or by the manipulation of the handle 9 a line may be inscribed at a right angle to the before-mentioned line. The needle may also be used for inscribing small circles by adjusting screw 35 to set the needle at a given point from beneath the center of screw 32 and then rotating the holder or slide of its pivot on part 34. Thus the needle will inscribe any circle or part of circle desired upon the face of the die. If a series of centers is desired, as in the case of those indicated in Fig. 4, it can be had by simply adjusting the screws before mentioned a certain number of turns in accordance with the desired distance between the centers whereupon they may be located, as will be apparent.

The machine is quick of operation, accurate in its work, and particularly desirable and convenient for the line of work for which it is designed.

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

1. In a machine for marking out dies, the combination with a bed, of a slide mounted thereon with adjusting means, a table upon the slide, a cross-rail, a head mounted thereon, a shank adjustably mounted in said head, a holder pivotally attached to the shank, a carrier adjustably attached to the holder, a needle mounted in the carrier and means for adjusting said carrier and needle radially with respect to the holder in a manner to set the needle to inscribe circles of different sizes.

2. In a machine for marking out dies, the combination with a bed, of a slide mounted thereon with means for adjusting the same, a table upon the slide, an adjustable cross-rail and head thereon, a holder rotatably mounted on the head, a carrier adjustably secured to the rotatable holder, a marking-needle mounted in the carrier, means for adjusting the carrier on the holder to move the needle to and from the pivotal center of the holder.

3. In a machine for marking out dies, the combination with a bed, of a slide mounted thereon, a screw bearing a graduated disk for adjusting the slide, a rotatable table mounted upon the slide, a marking-needle to operate upon the face of the die when carried by the table, means for adjusting the needle vertically, mechanism for moving it forward, backward and sidewise and pivotal means to permit of the rotation of the needle for inscribing circles.

4. A machine for marking out dies, the same comprising a bed, a slide therein, a table carried upon the slide, a screw for adjusting the slide and table crosswise, a disk bearing graduations to determine the amount of movement of the slide, screw-posts mounted upon the bed, a cross-rail carried by the posts, nuts to adjust the rail vertically upon said posts, a head carried by the slide, a screw engaging the head for adjusting the same upon the slide, a holder rotatably attached to the head, a needle-carrier slidably mounted on the holder and means for adjusting the carrier to and from the center of rotation of the holder in a manner to inscribe different size circles.

5. In a machine for marking out dies, the combination of a table for supporting the die, a needle and carrier for engaging and marking the surface thereof, a rotatable holder upon which the carrier is adjustably mounted, mechanism for moving the needle and table with relation to each other in either a vertical, crosswise or forward and backward direction, and means for adjusting the needle to and from the pivotal line of the rotary holder to set the needle for circles of different sizes.

6. In a machine for marking out dies, the combination of a table for supporting the die, a needle for engaging and marking the surface thereof, means for moving the pointer and table with relation to each other in either a crosswise or backward and forward direction, a rotatable table beneath the needle for the purpose of inscribing circular lines upon the die and separate means for rotating the

needle over the table and die, to inscribe independent circular lines on any section of its face, comprising a rotatable holder bearing ways, a carrier mounted thereon and a screw for adjusting the needle-carrier with respect to the holder.

7. A machine for laying out dies, the same comprising a bed, a slide and rotary table mounted upon the bed with means for adjusting the same in a forward and backward direction, standards carried by the bed, a cross-rail guided in ways on the standards, means for clamping the two together, means for adjusting the rail vertically, a head carried upon the rail, a screw to engage the head for adjusting it crosswise of the rail and table, a needle-holder rotatably carried by the head, means for adjusting the holder with respect to the head, and a needle with means for adjusting it to and from the center of rotation of said holder.

8. A machine for marking out dies, the same comprising a bed with standards, a cross-rail mounted upon the face of the standards, with means for adjusting it vertically and locking it in such adjusted position, a head mounted upon the rail, a screw engaging the head for adjusting it lengthwise of the rail, a disk carried by the screw bearing graduations to determine the amount of adjustment of the screw, a die-carrying table beneath the rail, means for operating it at a right angle to the face of the rail, and adapted to be under the needle, a shank adjustably mounted in the head, a holder rotatably mounted on the shank, a needle and carrier slidably mounted on the holder and a screw for adjusting the needle and carrier longitudinally with respect to the holder.

Signed at Waterbury, in the county of New Haven and State of Connecticut, this 1st day of June, A. D. 1903.

WILLIAM J. RICHARDS.

Witnesses:

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