

No. 790,963.

PATENTED MAY 30, 1905.

F. JACKSON.
CENTERING MACHINE.

APPLICATION FILED JUNE 24, 1902. RENEWED JULY 11, 1904.

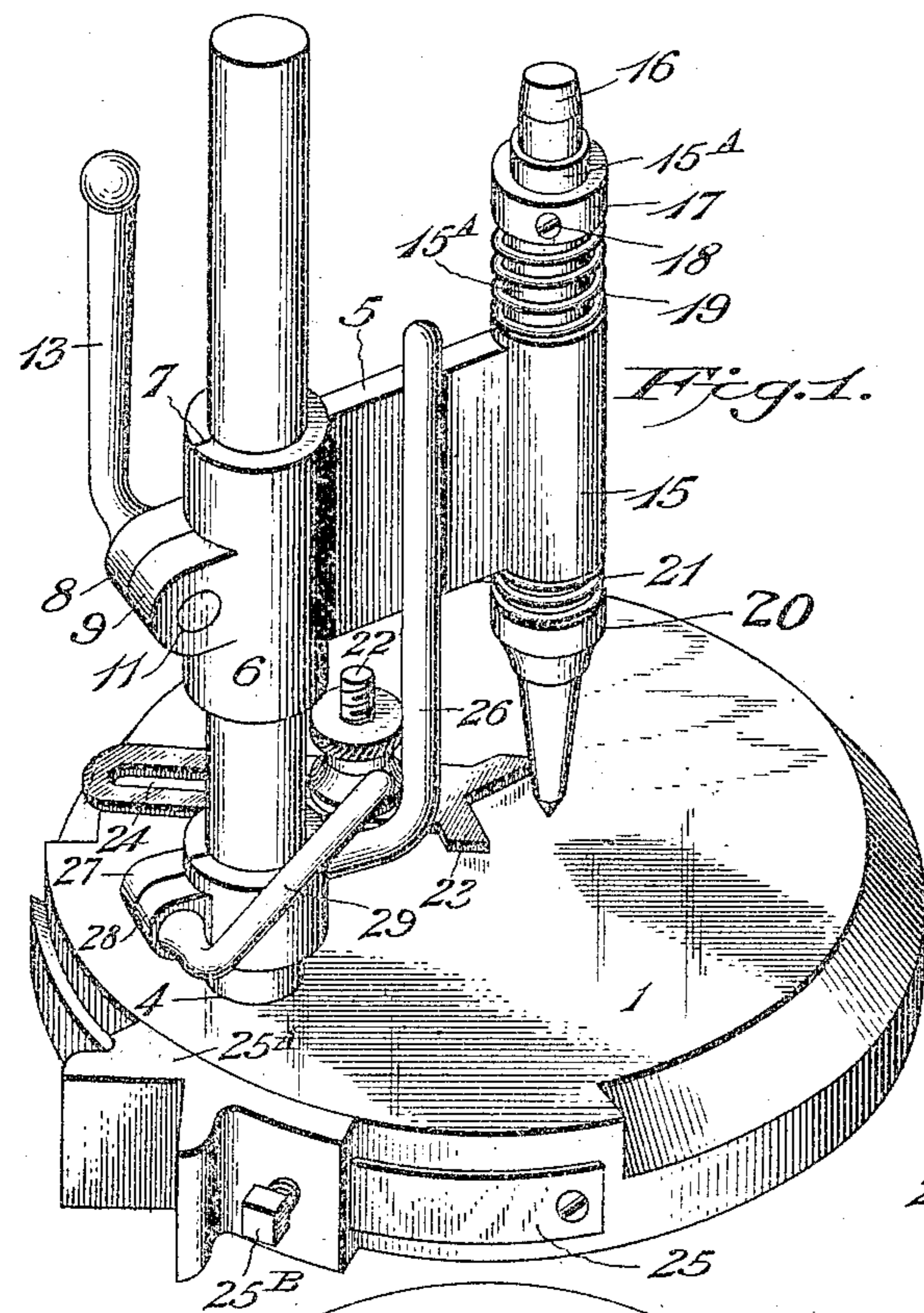


Fig. 1.

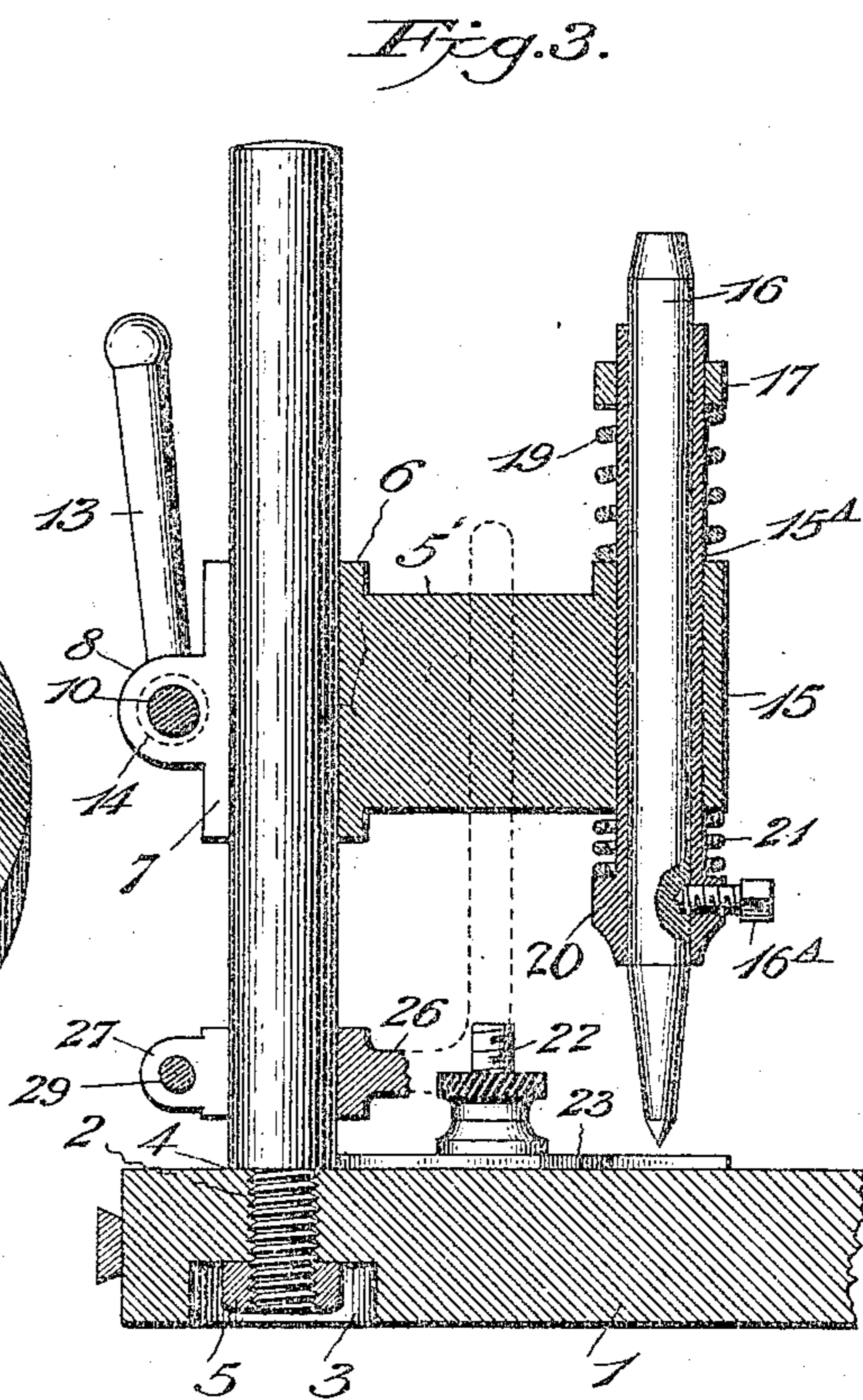


Fig. 3.

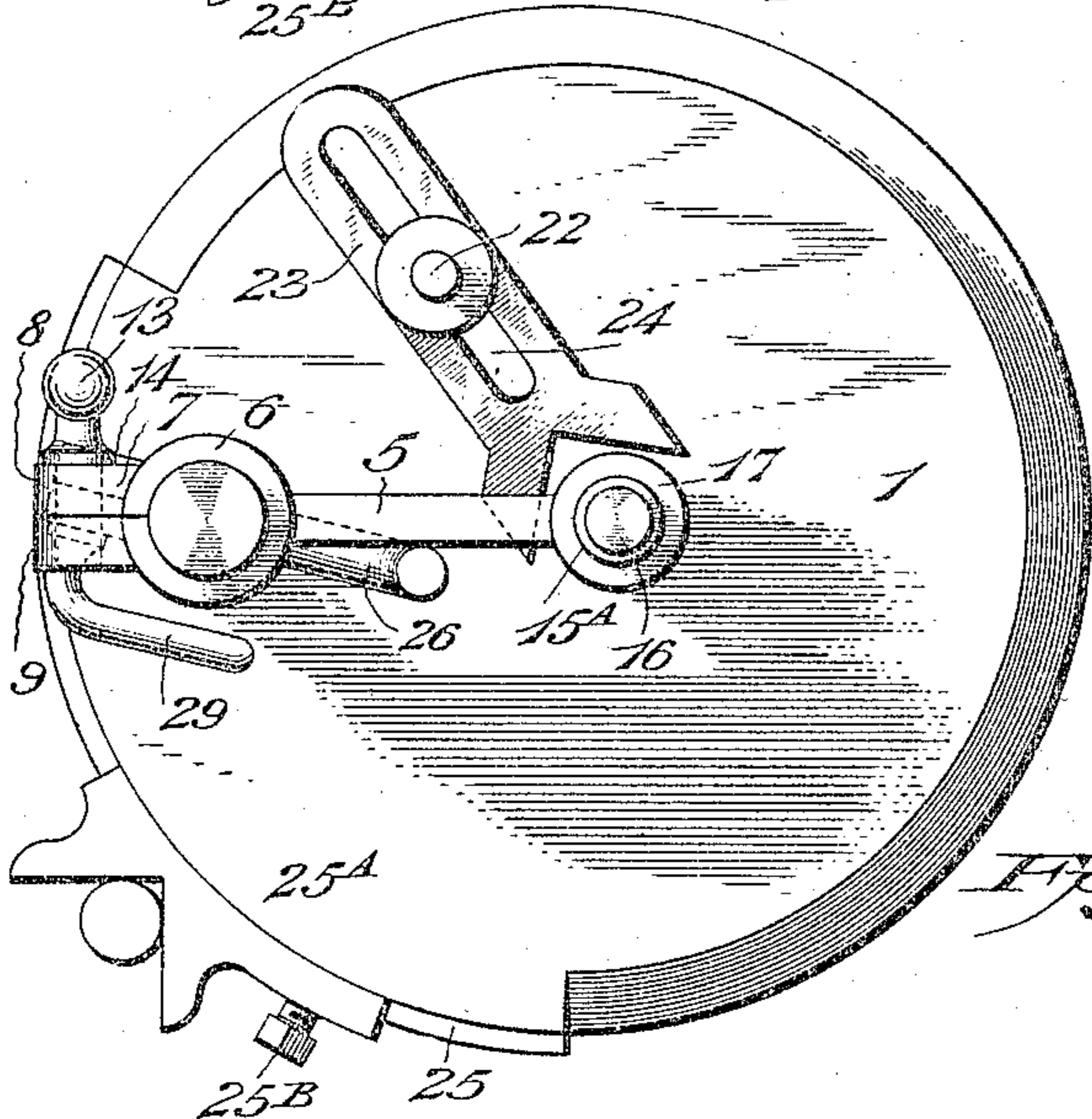


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK JACKSON, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO
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CENTERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 790,963, dated May 30, 1905.

Application filed June 24, 1902. Renewed July 11, 1904. Serial No. 216,054.

To all whom it may concern:

Be it known that I, FRANK JACKSON, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Centering-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in work-centering machines; and the objects of my invention are, first, to provide a work-centering machine for use on benches in machine, novelty, and bicycle-repair shops for centering small pieces of work that have to be either turned or drilled or straightened; second, to provide a work-centering machine provided with a vertically-adjustable and a horizontally-swinging arm and with an adjustable rest-gage. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved bench centering-machine. Fig. 2 is a plan view of the centering-machine, and Fig. 3 is a sectional view through the center-punch head.

Similar numerals of reference refer to similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates the base-plate of machine. This base-plate is finished with its bottom and top parallel. Close to its periphery at one side of its top I form an aperture 2, which connects with a concentric counterbored hole 3, of larger diameter, in the bottom of the base. In the aperture 2 I fit tightly the end of a shaft, which I arrange to stand at right angles to the top surface of the base. The end of the vertical standard that fits in the aperture 2 is reduced in diameter, and a square shoulder 4 is formed at the juncture of this reduced portion with the main portion of the standard. The shoulder rests squarely on the

top surface of the base. The adjacent terminal end of the standard is threaded, and a nut 5 is threaded to it and is screwed tightly against the bottom of the counterbore, thus bolting the standard tightly to the base. The standard extends several inches above the base. On the standard I place a horizontal arm 5. This arm comprises, preferably, a rectangular plate or blade of metal provided with a hub portion at each end. The hub 6 of the arm is fitted slidably on the standard. The hub is divided by a slot 7, that extends into the bore of the hub. Upon each side of the slot projecting lugs 8 and 9 are formed. The lug 8 is provided with a clear hole 10, and the lug 9 is provided with a threaded hole 11. A crank-handled clamping-bolt 13 is provided with a collar 14 at the end of the handle. The end adjacent to the collar is threaded. The threaded end is arranged to project loosely through the clear hole of the lug 8 and to thread into the threaded hole in the ear 9, while the collar bears against the outside of the lug 8. The arm can thus be swung around and clamped in any desired horizontal position relative to the surface of the base and also at any desired height above the base on the standard. The hub portion 15 at the opposite end of the arm is provided with an aperture that is parallel to the standard and at right angles to the surface of the base. In this apparatus I slidably fit a sleeve 15^A, through which passes a center punch 16, secured within the sleeve by a set-screw 16^A, the upper end of which is adapted to be struck by a hammer. Its lower end is tapered to nearly a point, while its end is pointed to make a round-pointed dent in any piece of material placed under it and struck by it. The center punch is longer than the sleeve and is positioned so that a portion of its length extends both above and below the sleeve. A collar 17 is secured by a screw 18 on the sleeve adjacent to the striking end of the punch, and between this collar and the top of the hub I place around the sleeve a coiled spring 19, which is under expansive pressure and normally holds the center punch and sleeve up against a collar 20, that is secured on the sleeve-punch just below the lower

end of the hub and which is held up against the lower end of the hub by the expansive pressure of said spring. The center punch when struck is driven down against the work, compressing the spring, which instantly recoils and forces it up again. Where a large number of pieces of work of the same kind vary in thickness quite a little, I insert between the collar and the lower end of the hub a short coiled spring 21, as shown in Figs. 1 and 3, which enables an operator to raise the punch above its normal set position and enables pieces that are considerably thicker than the average of the particular kind of work that the punch is working on to be slipped under the punch without raising the arm on the standard. The spring 21 should be slightly weaker than the spring 19, the expansive tension of which is downward on the collar; but the upward expansive pressure of the top spring 19 should be enough stronger to raise the punch quickly after it is struck by a hammer. I secure a vertical stud-screw 22 to the top surface of the plate, on which I place a clamping thumb-nut, which is preferably round and is provided with a knurled peripheral portion, which forms a gripping-surface for the hand of an operator.

23 designates a work-rest or a work-positioning gage, and while I may make this gage of various forms and characters, depending on the form of the work to be positioned under the center punch, I illustrate a thin flat plate having a V-shaped recess in one end, in and against which the work to be centered is placed. The opposite end and body of the plate contains an oblong slot 24. The plate is placed on the stud, which projects through its slot and rests between the clamping-nut and the surface of the base and can be adjusted and clamped at any desired point relative to the center punch that the work to be centered may require.

At one side of the periphery of the base and in the horizontal path of the sweep of the arm and of the center of the punch I secure a strip of metal 25, the edges of which are inclined or beveled, so as to retain in sliding movement thereon a lug 25^A, which has a groove to fit upon the said strip 25. This lug is formed with a V-shaped recess, in which may be centered shafts, long pins, studs, &c., one of the ends of which may be placed in the V-shaped recess within striking distance of the center punch, and the opposite end may be rested on a suitable support below the base, which for this purpose can be placed on the edge of a bench. An extension on the lug is provided with a threaded hole, in which is secured a set-screw 25^B, by means of which the lug may be clamped at any desired point on the strip 25.

To the standard I adjustably secure a punch gage-arm 26, which is provided at one end with a hub portion that is split through one

side and is fitted to slide up and down on the standard. The hub is provided with projecting lugs 27 and 28, in which a crook-handled clamping-bolt 29 is placed in a similar manner to the crank-bolt of the arm of the center punch. This punch-gage is bent at right angles, and its opposite end extends up by the supporting-arm of the center punch, and when the center punch and its arm has been set in any desired position and clamped there the gage-arm is moved up against it and then tightly clamped to the standard. Then if any work to be centered is of such a character that the center-punch arm has to be raised and lowered on each piece it can be done and the center punch brought to its exact position by bringing it against the gage-arm each time.

My invention is very simple, durable, and adapted to facilitate the accurate centering of a large range of small work.

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

1. In a centering-machine the combination with the base-plate, of a round vertical standard secured to said base-plate, and positioned at right angles to the surface of said base-plate; an arm slidably adjustable, mounted on said standard to swing in across said base-plate, including a clamping-bolt for securing said arm in adjusted positions; a manually-operating center punch reciprocally mounted vertically in the free end of said arm, a spring arranged to move said center punch in the upward direction of its movement, and a spring and collar arranged to variably define the vertical reciprocal movement of said center punch, whereby said center punch is held in a flexible reciprocal position in said arm, substantially as described.

2. In a centering-machine, the combination with the base and vertical standard of the horizontal arm adjustably secured to said standard to move in a horizontal and vertical plane, the center punch resiliently positioned in a vertical plane in the free end of said arm, a suitable work-rest adjustably secured to the top surface of said base-plate, and means, including a clamping-bolt, for securing said work-rest in adjusted positions relative to said center punch, substantially as described.

3. In a centering-machine, the combination with the base and vertical standard of the horizontal arm adjustably secured to said standard to move in a horizontal and vertical plane, the center punch resiliently positioned in a vertical plane in the fore end of said arm, and a position-gage for said arm comprising a right-angled arm adjustably secured to said standard and having its free end extend vertically and substantially parallel to said standard, and positioned to engage said arm at right angles to said base-plate, substantially as described.

4. In a centering-machine, the combination of a base-plate, a vertical round standard se-

cured to said base-plate, a horizontal arm, provided with a split hub on said arm, slid-
ingly mounted on said support to swing hori-
zontally over said base, a handled clamping-
5 bolt operative arranged through said hub to
clamp said arm to said standard in adjusted
positions, a manually-operated center punch,
reciprocatingly mounted vertically on the free
end of said arm and spring-controlled in the
10 vertical direction of its movement, a project-
ing lug in sliding engagement with the pe-

riphery of said base and a V-shaped space
formed in said lug, having its apex positioned
in the swinging path of the striking-point of
said center punch, substantially as described. 15

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

FRANK JACKSON.

Witnesses:

G. SARGENT ELLIOTT,
MARTIN J. WICKLEM.