

No. 672,399.

Patented Apr. 16, 1901.

J. HARTNESS.

TOOL HOLDER.

(Application filed Aug. 28, 1900.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 1.

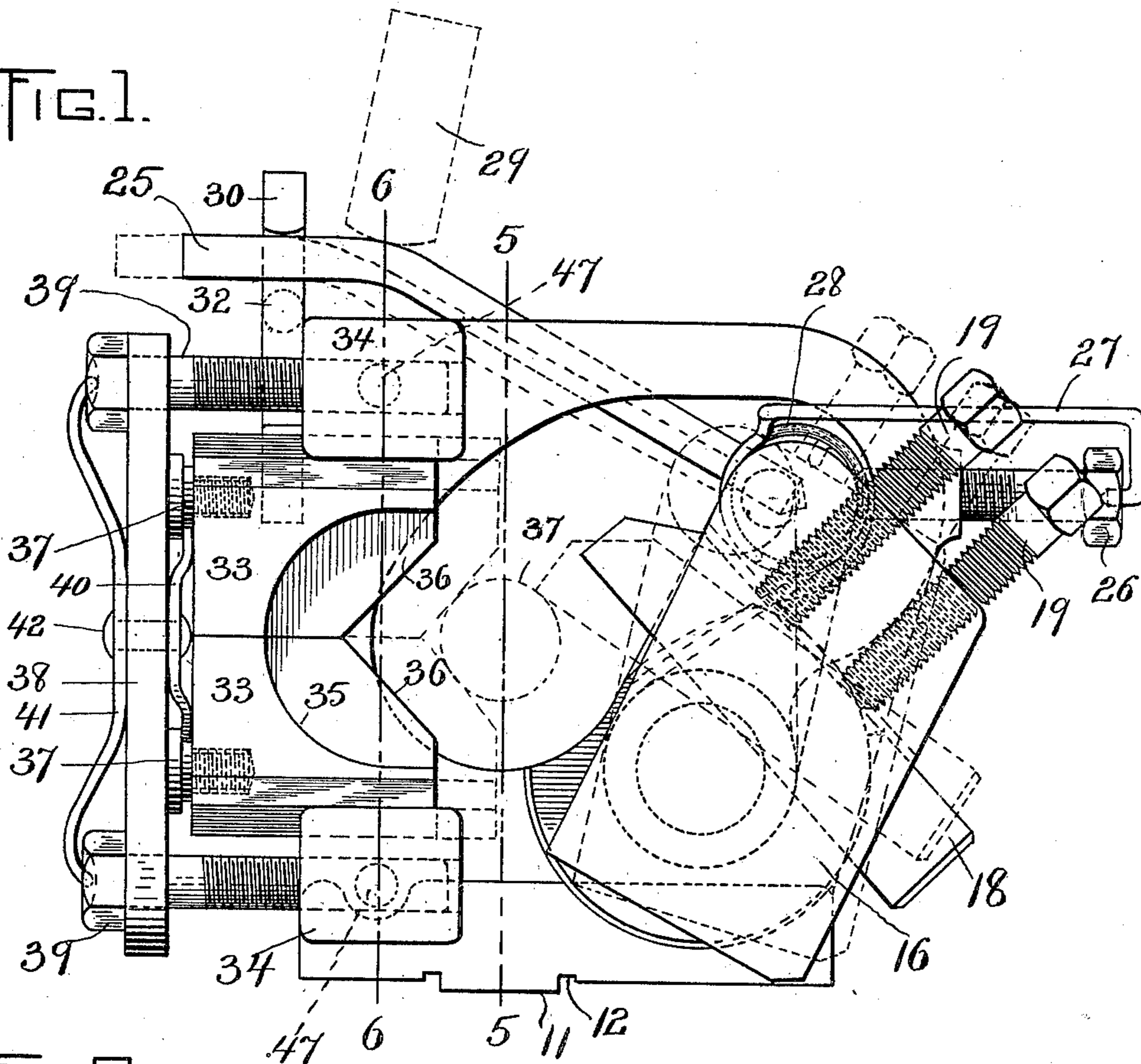
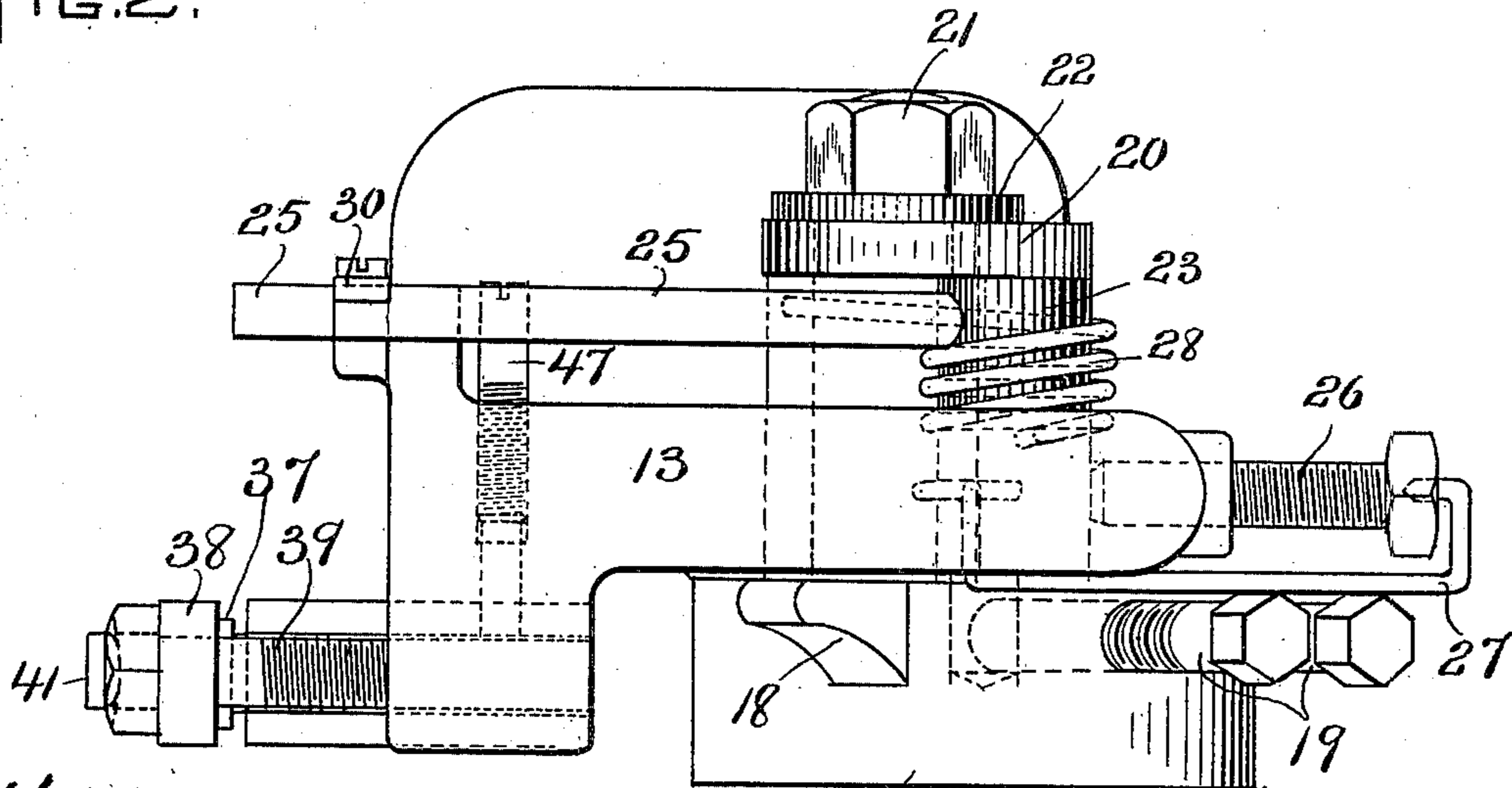


FIG. 2.



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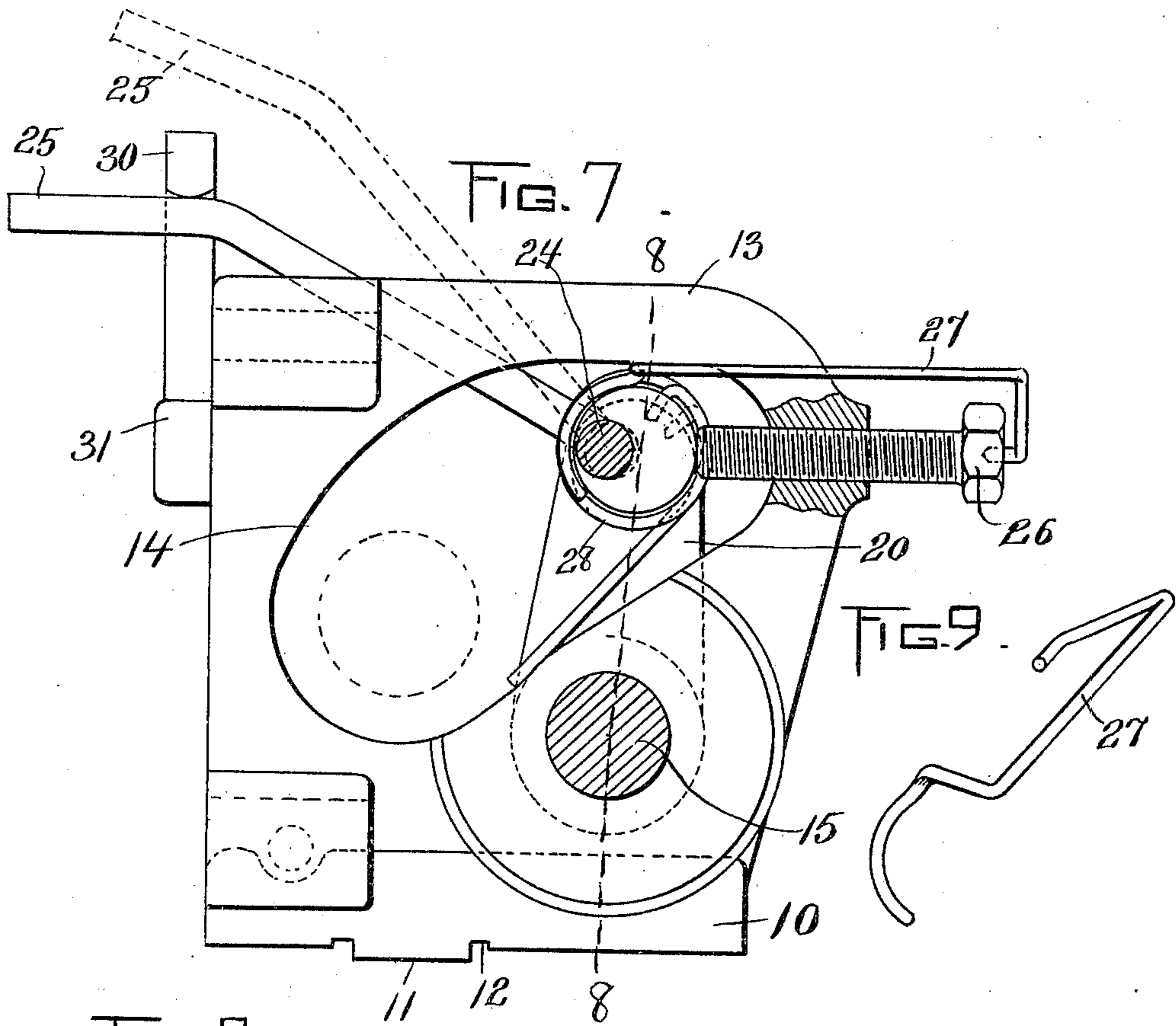
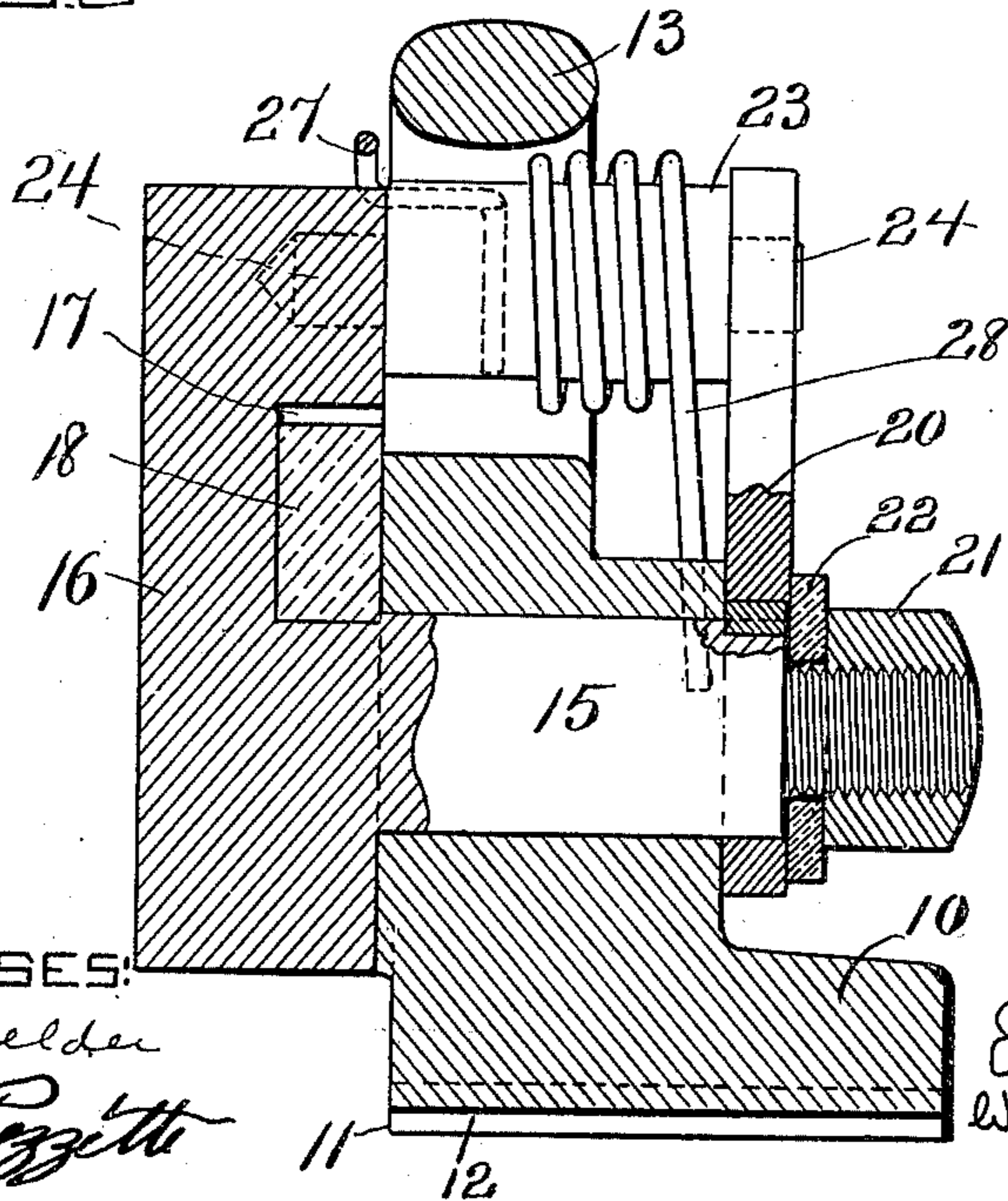


FIG. 8



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UNITED STATES PATENT OFFICE.

JAMES HARTNESS, OF SPRINGFIELD, VERMONT.

TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 672,399, dated April 16, 1901.

Application filed August 28, 1900. Serial No. 28,298. (No model.)

To all whom it may concern:

Be it known that I, JAMES HARTNESS, of Springfield, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

This invention has relation to tool-holders, and while it relates particularly to those devices which are employed for securing a tool to a turret-lathe and presenting it properly to the work at the same time it is capable of other uses, which will readily suggest themselves to those familiar with machinery.

As illustrated on the drawings and subsequently described in the specification, the present invention may be used to best advantage with a turret-lathe such as shown in my copending application, Serial No. 741,615, filed December 26, 1899, which illustrates and describes a lathe having provisions for automatically moving the tool from a position of clearance to a position for operating on the stock.

Referring to the said drawings which accompany this specification, Figure 1 represents one embodiment of the invention. Fig. 2 represents a plan view of the same. Figs. 3 and 4 are views of the opposite ends of the holder. Figs. 5 and 6 are sections on the lines 5 5 and 6 6, respectively, of Fig. 1. Fig. 7 is a front view of a holder with the tool-carrier detached. Fig. 8 is a section on the line 8 8 of Fig. 7. Fig. 9 is a perspective view of the spring which holds the eccentric shaft against the adjusting-screw.

Referring to the drawings, the tool-holder comprises a base 10, which is laterally projected or flanged to provide a firm foundation, and it has provisions, such as the tongue 11 and grooves 12, whereby it may be secured to a lathe-turret. An upright or standard 13 rises from one side of the base and is formed with a segmental slot or opening 14, as best shown in Figs. 1 and 7, through which the work (usually a bar) may pass. The lower portion of the upright is swelled or thickened to provide a bearing for the shaft 15 of the tool-carrier 16, the latter being substantially trapezoidal in shape and having an inclined groove 17 in its inner face for the reception of the shank of a suitable tool 18, which is secured in place by set-screws 19 19. The

shaft 15 may or may not be formed integrally with the carrier, and it projects laterally from the inner face thereof at a point below the shank of the tool, so that when it is rocked the tool will be moved toward or from the work. Provision is made for rocking the said shaft to move the tool from a position of clearance to a cutting position and also for adjusting the carrier in accordance with the diameter of the stock being operated upon. On the projecting end of the shaft is keyed an arm 20, there being a nut 21 and washer 22 for holding said arm against movement axially of the shaft. Between the upper ends of the tool-carrier and the arm there is an eccentric shaft 23, having studs or trunnions 24 journaled in apertures therein, and projecting from said shaft is an arm or lever 25, by means of which it may be rocked. Said eccentric shaft passes through the aperture 14 in the upright, and it bears against the end of an adjusting-screw 26, passed into the said upright, as illustrated in Fig. 7. On swinging the eccentric shaft about the studs or trunnions the tool-carrier and the arm 20 are rocked toward the stock to bring the tool to a cutting position from a position of clearance. In order to at all times hold the eccentric shaft against the end of the said adjusting-screw 26, I employ a spring 27, as shown in Fig. 9, said spring being provided with a bent end which projects into a socket in the head of a screw and with a curved end partially encircling and secured to the shaft. When the screw is rotated to adjust the carrier, the spring moves with it, as will be readily understood, so as to always preserve the same relationship between the eccentric shaft and the adjusting-screw.

A spring 28 loosely encircles the eccentric shaft and has one end inserted in a socket in the latter, its other end resting upon the inner wall of the aperture 14 in the upright, as clearly illustrated in Fig. 7. The office of this spring is to normally hold the carrier in position of clearance, and when said shaft is rotated by the tool-closing mechanism the spring is wound more tightly around the said shaft. Any form of tool-closing device may be used, and in Fig. 1 I have illustrated by dotted lines a bar 29, which is arranged to descend upon the lever 25 to rotate the ec-

centric shaft. The tool may be temporarily locked in closed position by a spring-hooked catch 30, secured to a lug 31, projecting from the back of the upright, and to release said lever I may use a bar 32, (shown in dotted lines in Fig. 1,) which will engage said catch and move it back far enough for the spring 28 to return the tool to a position of clearance. The bars 29 and 32 may form a part of an automatic lathe and may be operated by a suitable mechanism, or I may, if desired, operate said parts manually.

A back-rest for the work is employed to resist the thrust of the cutter or tool. The said back-rest consists of two sliding vertically-arranged plates 33 33, placed one above the other and having the top edge of one and the bottom edge of the other beveled to slide in ways 34 34, formed on the base and upright of the holder. The plates are cut away, as at 35, to escape the cutting-tool, and their corners are beveled, as at 36, to form an angular recess to receive the rotating bar or work. (Shown in dotted lines at 37 in Fig. 1.)

In the rear ends of the plate 33 are inserted headed screws 37, against which bears an upright bar 38, through which headed screws 39 are passed into the ways or lugs 34. The bar 38 is held in engagement with the screws 38 and 39 by two leaf-springs 40 and 41, which are secured to the front and rear of the bar, respectively, by a bolt or rivet 42, passed through the middle portions thereof. The free ends of the spring 40 are passed under the heads of the screw 37 and hold the said heads with some degree of pressure against the bar, while the free ends of the spring 41 rest against the outer ends of the heads of the screws 39 and draw the said bar against the inner faces of the heads. By adjusting the said screws 39 the plates 33 33 may be adjusted toward and from the axis of the work. Said screws are locked against movement after being adjusted by pins 45 46, against the end of which set-screws 47 48 are respectively driven, as shown in Fig. 6.

It is unnecessary to enumerate the advantages resulting from the construction and arrangement of parts in the tool-holder I have thus illustrated and described, and yet I desire to point out that the tool is moved positively into cutting position, where it may be locked until released, whereupon the spring returns it to a position of clearance, and that the leverage obtained by the rocking eccentric and the tool-carrier is sufficient to prevent an inaccurate positioning of the tool. Again, the springs which connect the parts of the back-rest hold said parts continuously in engagement and prevent their vibrating.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A tool-holder comprising a support, a tool-carrier swinging on said support, an eccentric member on said carrier and resting against said support, and means for yieldingly holding said member against said support.

2. A tool-holder comprising a support, a tool-carrier swinging on said support, an adjusting-screw passed through said support, an eccentric member journaled on said carrier and resting against the end of said screw, and a spring for holding said member against said screw.

3. A tool-holder comprising a support, a tool-carrier swinging on said support, an adjusting-screw passed through said support, an eccentric member on said carrier and resting against the end of said screw, and a spring having one end engaged with the outer end of said screw and its other end engaged with the said member.

4. A tool-holder having a support, a tool-carrier, and a back-rest, said back-rest comprising slides movable in said support, an adjustable bar for adjusting said slides, and yielding means for holding said slides against said bar.

5. A tool-holder having a support, a tool-carrier, and a back-rest, said back-rest comprising slides movable in said support, an adjustable bar for adjusting said slides, and a leaf-spring fastened to said bar and having its ends engaging the slides.

6. A tool-holder having a support, a tool-carrier, and a back-rest, said back-rest comprising slides movable in said support, an adjustable bar for adjusting said slides, headed screws passed into said slides and resting against said bar, and a leaf-spring secured to said bar and having its ends taking under the heads of said screws.

7. A tool-holder having a support, a tool-carrier, and a back-rest, said back-rest comprising work-engaging slides, a bar, screws passed loosely through the ends of said bar into the support, screws located between the slides and the bar, and springs for holding the said bar in engagement with all of said screws.

8. A tool-holder having a support, a tool-carrier, and a back-rest, said back-rest comprising work-engaging slides, a bar, screws passed loosely through the ends of said bar into the support, and a spring secured to said bar and engaging said screws to hold said bar in engagement with said screws.

9. A tool-holder comprising a support, a tool-carrier swinging on said support, an eccentric member journaled on said carrier and resting against said support, and a latch for detachably locking said member in a predetermined position.

10. A tool-holder comprising a tool-carrier, means for holding said carrier in a closed and operative position, a spring for automatically opening said carrier upon its being released

from the said holding means, and means for releasing the carrier.

5 11. A tool-holder comprising a tool-carrier, a spring for moving said carrier to and holding it in an inoperative position, and a latch adapted to engage said carrier and lock it in an operative position.

10 12. A tool-holder comprising a tool-carrier, an eccentric member for actuating said carrier, and a spring for moving said eccentric member to and holding it in an inoperative position.

15 13. A tool-holder comprising a tool-carrier, an eccentric member for actuating said carrier, a spring for moving said eccentric member to and holding it in an inoperative position,

tion, and a latch for holding said member in an operative position.

14. A tool-holder comprising a tool-carrier, a spring for moving said carrier to and holding it in an inoperative position, a latch adapted to engage said carrier and hold it in an operative position, an eccentric member for moving said carrier to operative position, and a spring for returning said eccentric member to inoperative position. 20 25

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

JAMES HARTNESS.

Witnesses:

ANNA C. POND,

JAMES R. W. BATES.