

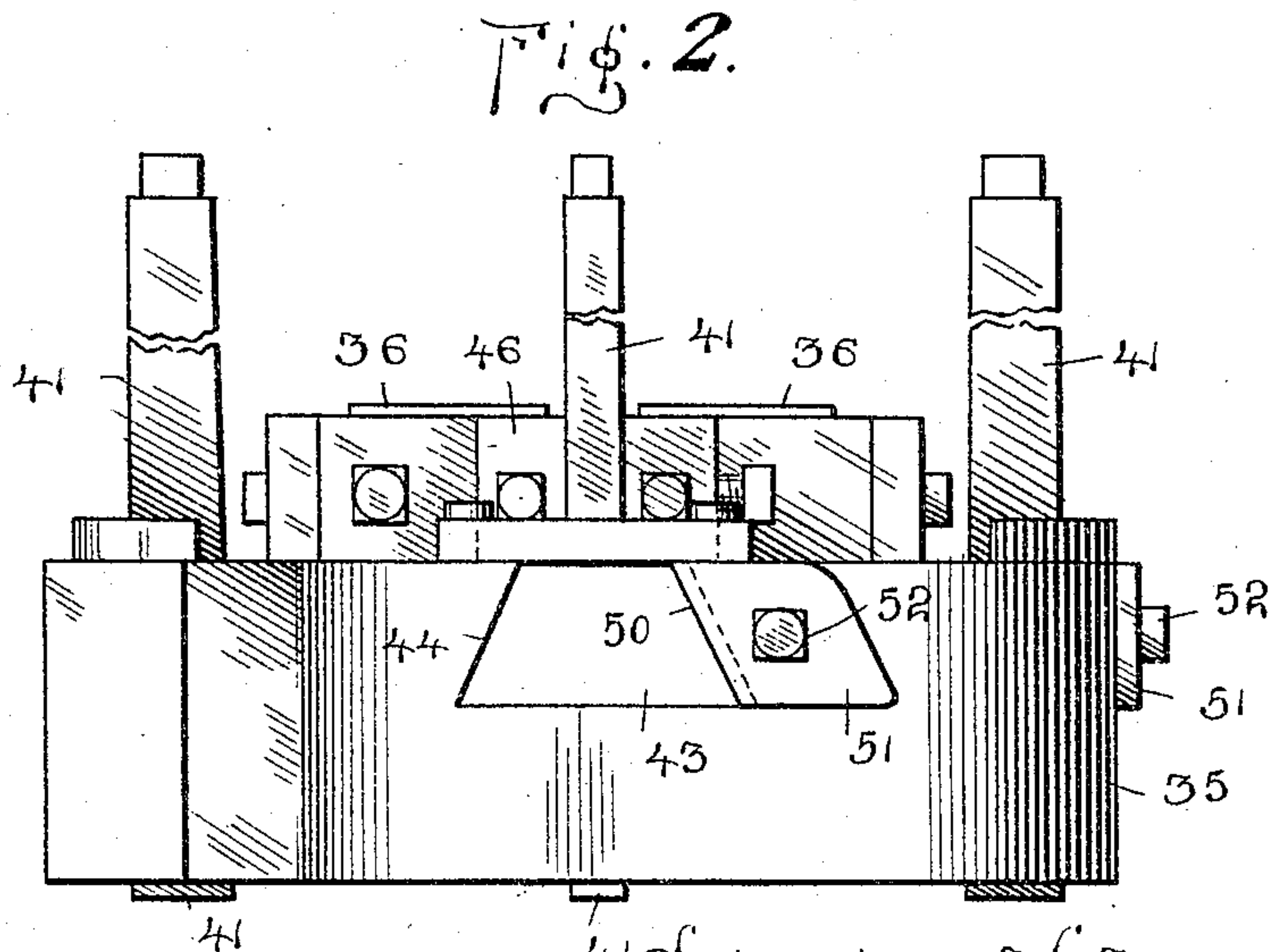
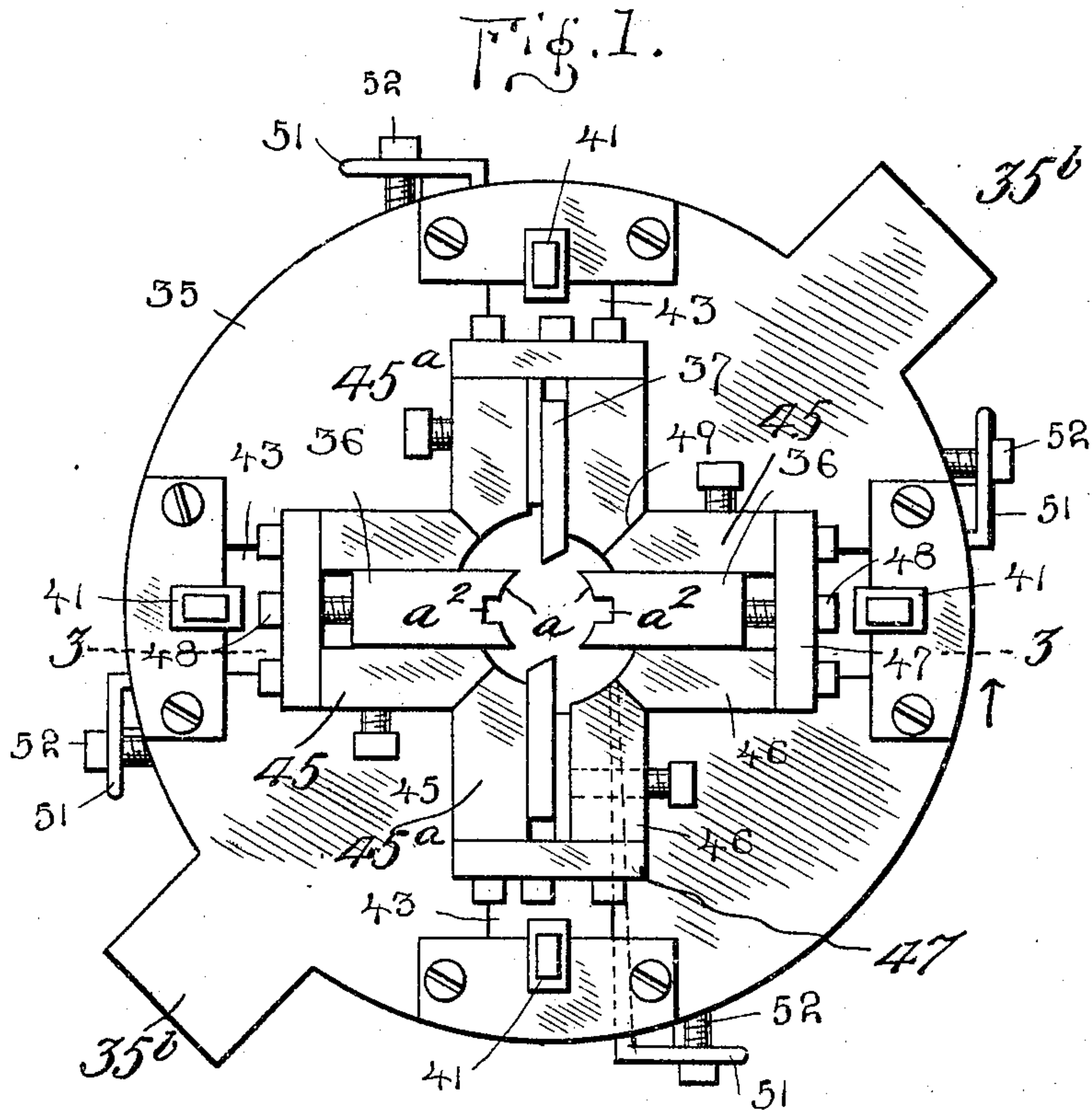
No. 791,918.

PATENTED JUNE 6, 1905.

C. K. LASSITER.
BOLT TURNING MACHINE.

APPLICATION FILED JUNE 11, 1901. RENEWED SEPT. 16, 1902.

2 SHEETS—SHEET 1.



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Geo. Ackman

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Fig. 3.

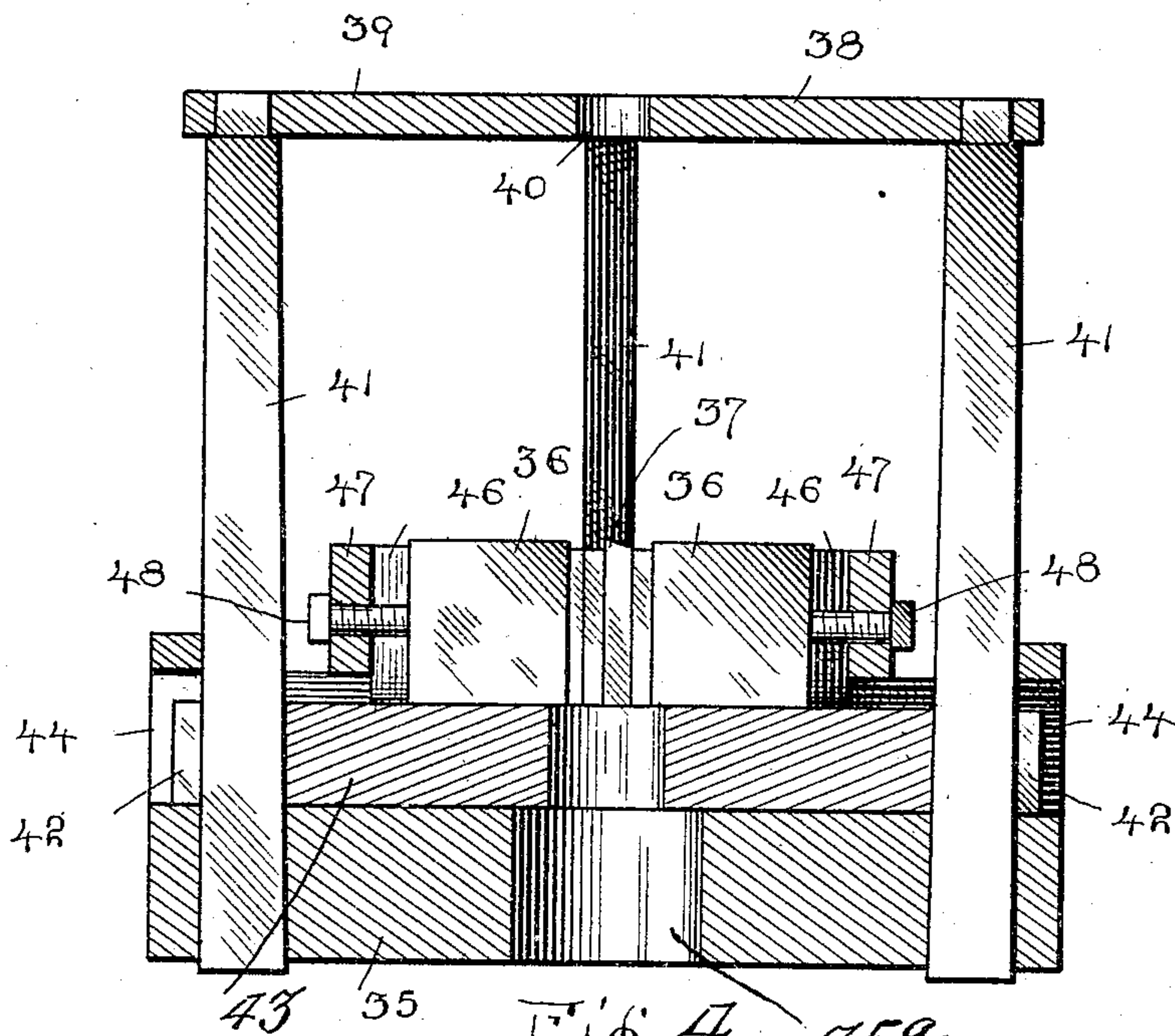
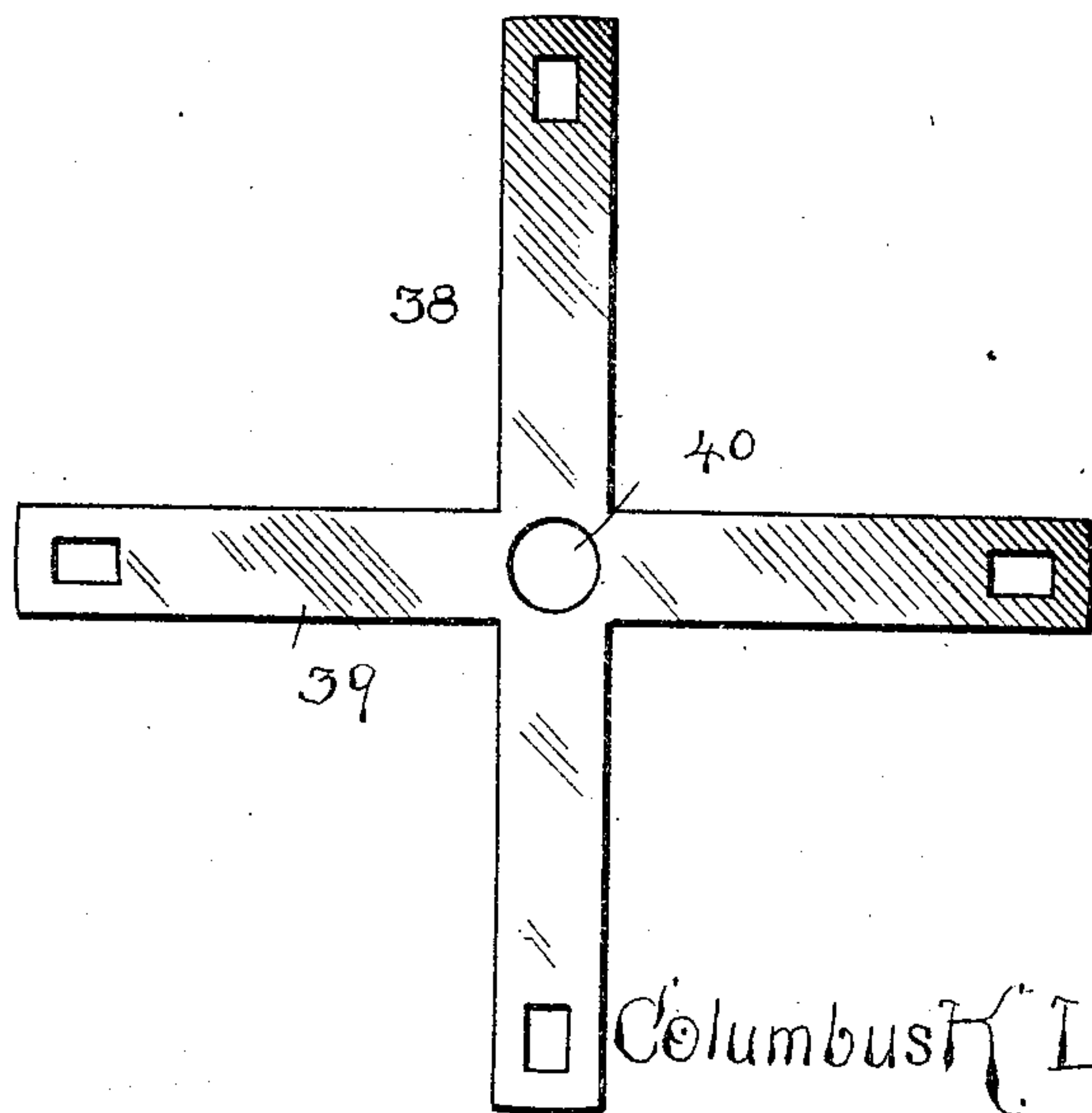


Fig. 4.



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UNITED STATES PATENT OFFICE.

COLUMBUS K. LASSITER, OF RICHMOND, VIRGINIA.

BOLT-TURNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,918, dated June 6, 1905.

Application filed June 11, 1901. Renewed September 16, 1902. Serial No. 123,641.

To all whom it may concern:

Be it known that I, COLUMBUS K. LASSITER, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented new and useful Improvements in Bolt-Turning Machines, of which the following is a specification.

This invention relates to bolt-turning machines for machining both straight and tapered bolts, and especially bolts adapted for use in locomotive building where tapered bolts are required, which are secured in place by what is known as a "driving fit."

My improved machine is designed to be employed in connection with a four-spindled vertical machine; but as the latter does not constitute a part of the present invention only the lower ends of the machine-spindles and their chucks are illustrated in the drawings.

The invention consists in the construction and arrangement of parts, which will be more fully hereinafter set forth.

In the drawings, Figure 1 is a top plan view of a block or cutter-head embodying my improved means for producing tapered bolts. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section on line 3 3 of Fig. 1. Fig. 4 is a plan view of the cross-head.

Referring now more particularly to the drawings, the numeral 35 designates a circular block or head formed with a central bore 35^a and diametrically-projecting arms 35^b, by which the block may be held within suitable supports. The bore 35^a is of sufficient size to permit of the discharge of the cuttings there-through. Upon the upper surface of the block 35 are provided pairs or sets of guides 45 and 45^a, arranged at right angles to each other, said guides being constructed as hereinafter described. Within the guides 45^a are mounted guiding-jaws 36, which are notched or hollowed out at their inner ends to form concaved recesses α' to hold the bolts centered as they are fed downward, and clearance-passages α'' , communicating with said recesses to permit the cuttings to pass fully down to the bore 35^a. Within the guides 45^b are arranged cutters 37, which are disposed in alinement with each other and at right angles to the jaws 36.

In order to produce the necessary taper, it is requisite to provide means whereby the cutters, as well as the bolt-holding jaws, may be spread or caused to move apart as a bolt is fed downward by the operating spindle and chuck. To effect this adjustment, I employ a vertically-movable cross-head 38 (illustrated in plan in Fig. 4) and consisting, preferably, of four radiating arms 39, provided at their point of crossing or intersection with an opening 40 to fit over the bolt and receive the pressure of the chuck, by means of which the bolt is rotated. Extending downwardly from the outer extremities of the arms 39 are keys 41, the outer edges of which are exactly vertical and parallel with each other and the inner edges of which taper regularly from top to bottom, as clearly shown in Fig. 3, the distances between the keys at the upper ends thereof being greater than the distance between the lower inner edges of the keys. The keys 41 slide through openings or notches 42 in a corresponding series of dovetailed slides 43, mounted in dovetailed grooves or ways 44 in the block or casing, and said slides have rigidly connected thereto or formed integrally therewith the jaw-holders or guides 45 and 45^a, each comprising the parallel side portions 46 and the connecting end portions or cross-piece 47. The jaws 36 and cutters 37 are slidingly mounted between the sides 46 and adjusted by means of screws 48, which pass through the cross-pieces 47 and bear against the outer edge of the jaws. All of the jaw-holders 45 and 45^a are provided with mitered meeting edges 49, and as each oppositely-located pair of jaw-holders is movable in a plane at right angles to the remaining pair all of the jaws are adapted to be moved outward and inward radially to provide for the variation in the diameter of the bolt as it is fed downward through the central opening in the block or casing and subjected to the action of the cutters. As the jaws and cutters are secured to their respective holders, they will move outward or inward therewith, and thus produce a regular taper on the bolt. As the bolt is forced downward by the chuck of the driving-spindle the cross-head 38 is simultaneously forced downward, and the keys carried

thereby in their downward movement serve to allow the dovetailed slides 43 to recede from each other radially, thereby allowing the jaws and cutters to correspondingly recede. Therefore during the feeding-down movement of the bolt the jaws and cutters recede gradually and uniformly, thus producing the required taper cut.

One wall of each of the dovetailed grooves or ways 44 is comprised by a tapered gib 50, provided at the outer end with an angular flange or head 51, through which is inserted an adjusting-screw 52, which enters a threaded socket in the block or casing to compensate for wear between the dovetailed slides and the walls of the ways in which the slides move.

In inserting a new bolt in the central opening of the block or casing the cross-head, together with the keys carried thereby, is lifted in order to bring the jaws and cutters into proper relation to the bolt preparatory to the forcing-down movement of the bolt.

I claim—

1. In a bolt-cutting device, the combination of a block having a series of dovetailed grooves disposed radially therein, a dovetailed slide mounted in the grooves and having holders, the slides having slots extending vertically

through their outer extremities, jaws and cutters disposed in the holders and adjustable independently of the latter in radial directions, and a series of vertically-disposed longitudinally-tapered keys movable through the slots in the slides and connected at their upper ends for simultaneous operation to equally and regularly shift all of the slides and holders and the parts carried by the latter, said keys being disposed in planes at right angles to the slides.

2. In a bolt-cutting device, the combination of a block having a series of grooves disposed therein, a slide mounted in each groove and formed at its outer end with a notch, cutters connected with the slides, means for adjusting the cutters independently of the slides, and a plurality of vertically-disposed longitudinally-tapered keys, each of said keys fitting in the notch in the end of the slide, said keys being connected at their upper end for simultaneous operation, and disposed in planes at right angles to the slides.

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

COLUMBUS K. LASSITER.

Witnesses:

GEORGE E. FRECH,
H. SCHMIDT.