

No. 805,539.

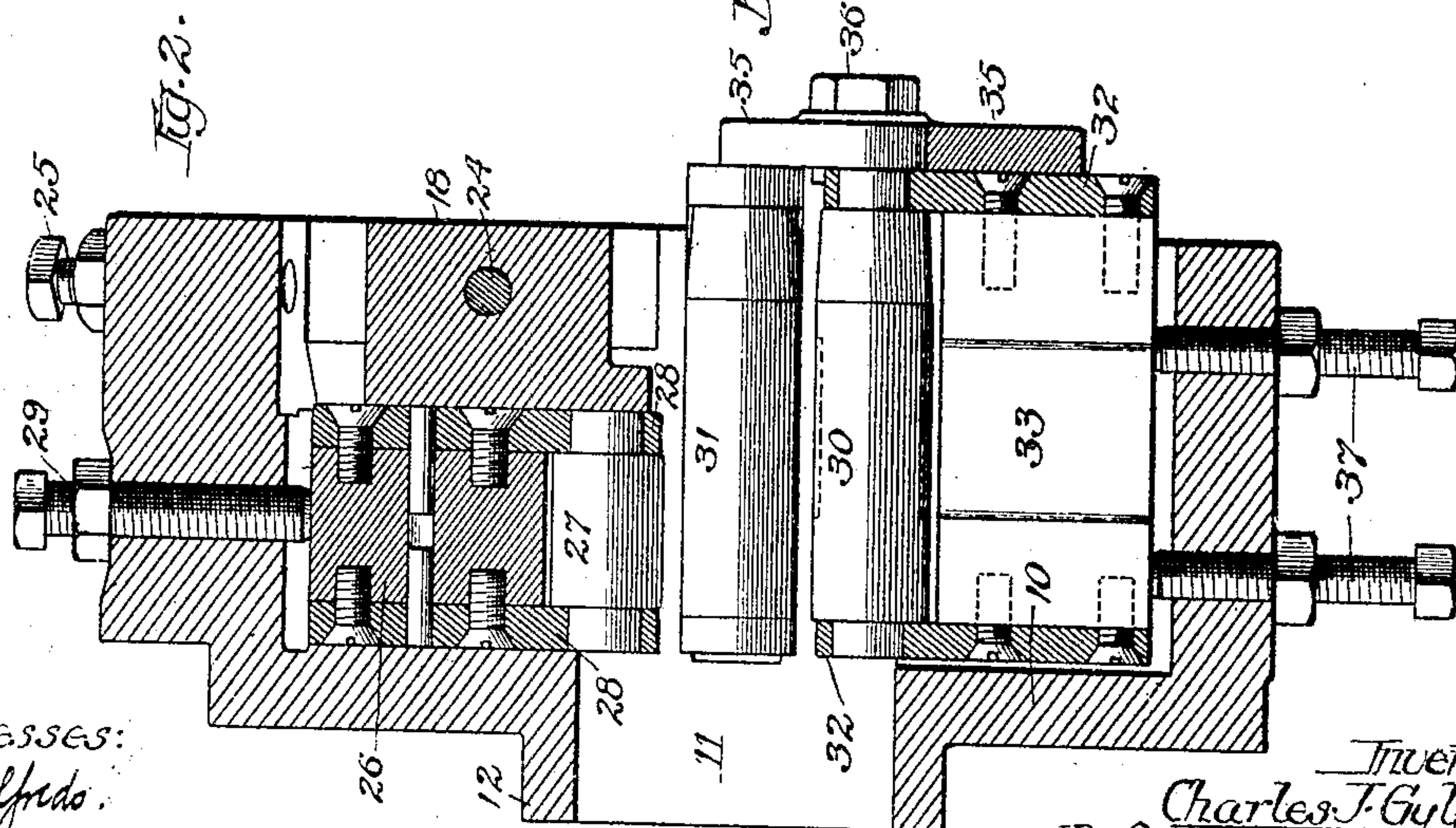
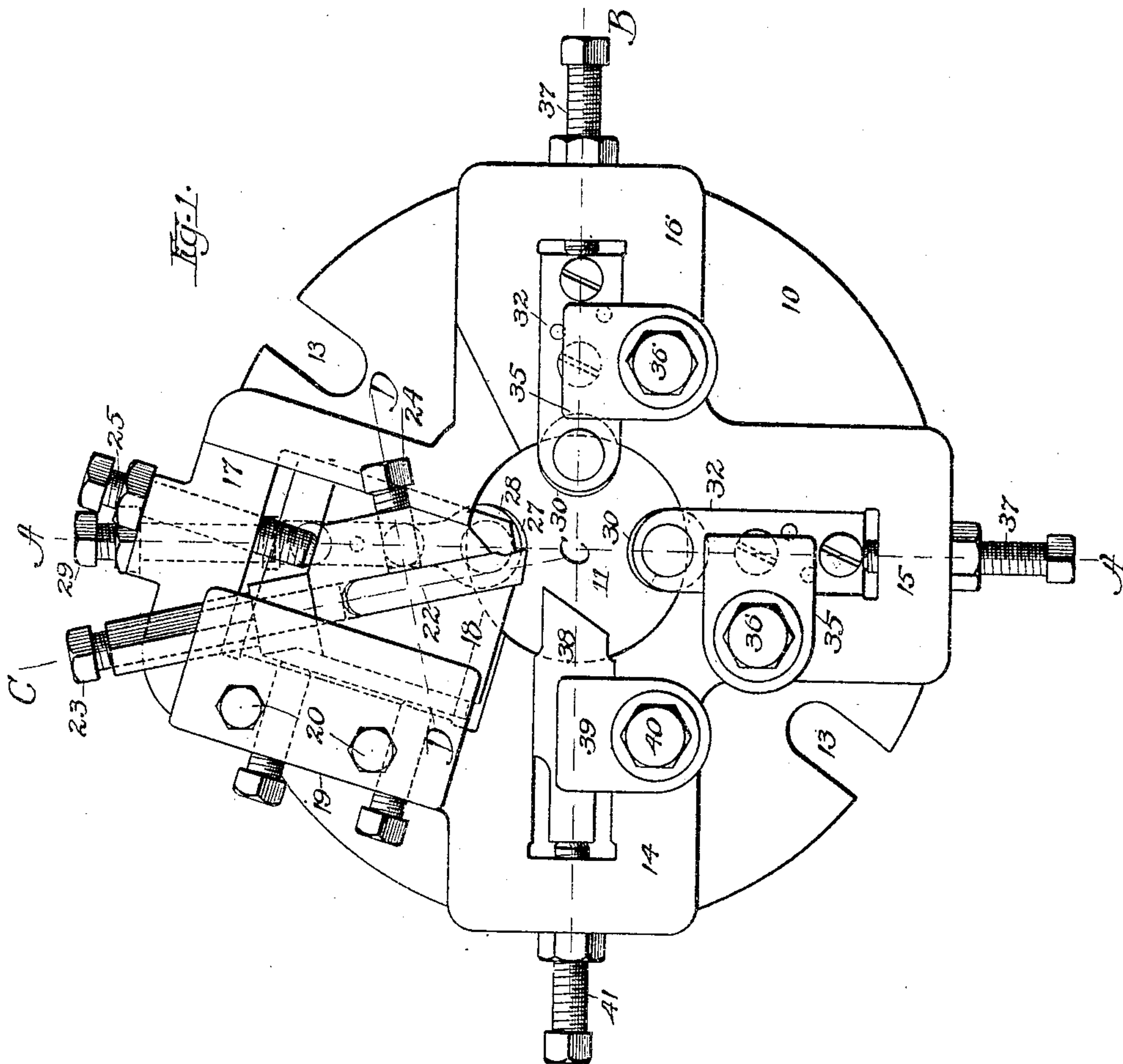
PATENTED NOV. 28, 1905.

C. J. GYLFE.

CUTTER HEAD FOR SHAFT TURNING MACHINES.

APPLICATION FILED OCT. 24, 1904.

3 SHEETS--SHEET 1.



Witnesses:
J. M. Alfido.
J. N. Daggett.

Inventor:
Charles J. Gylfe.
By Edw. Burgess
Attorney

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3 SHEETS—SHEET 2.

Fig. 3.

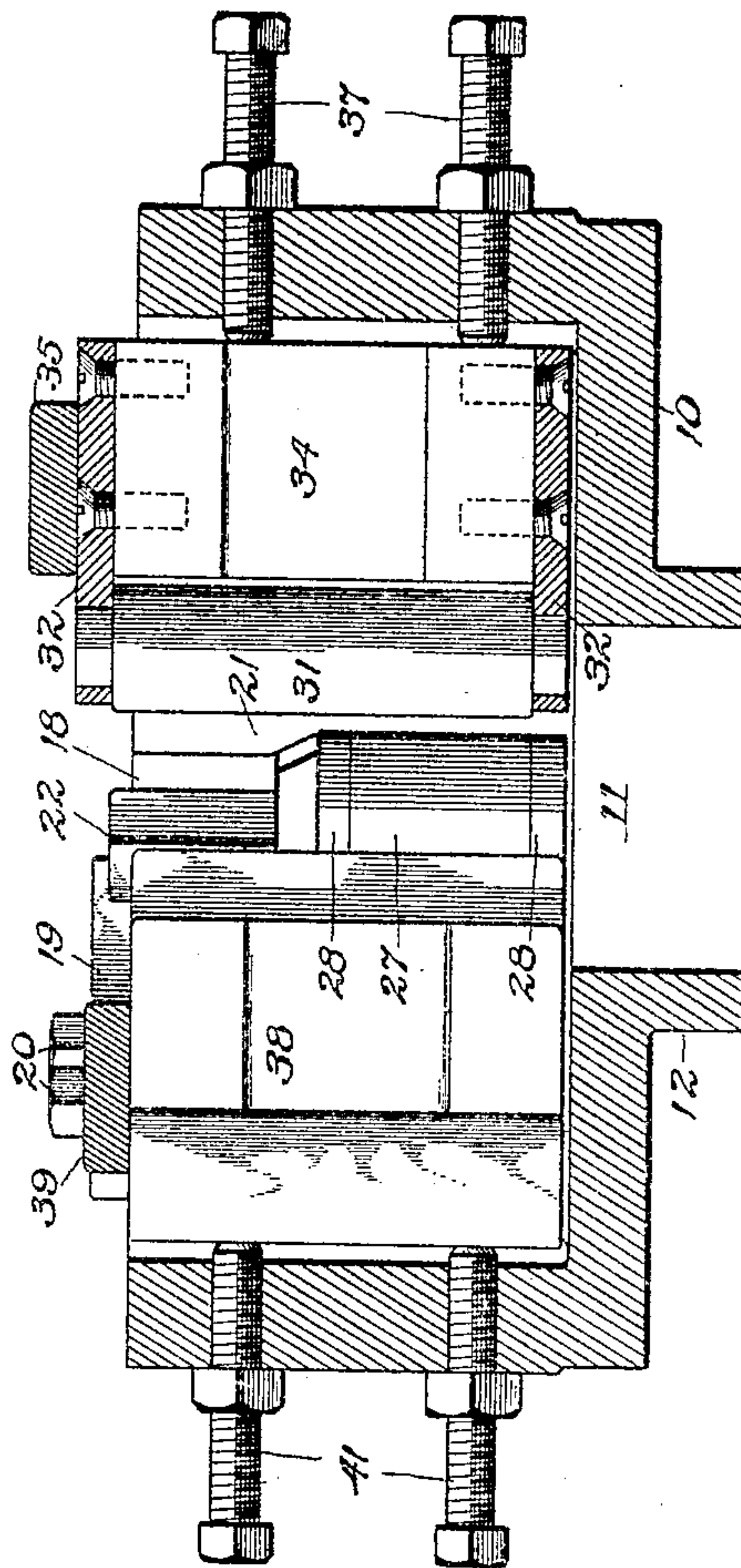


Fig. 4.

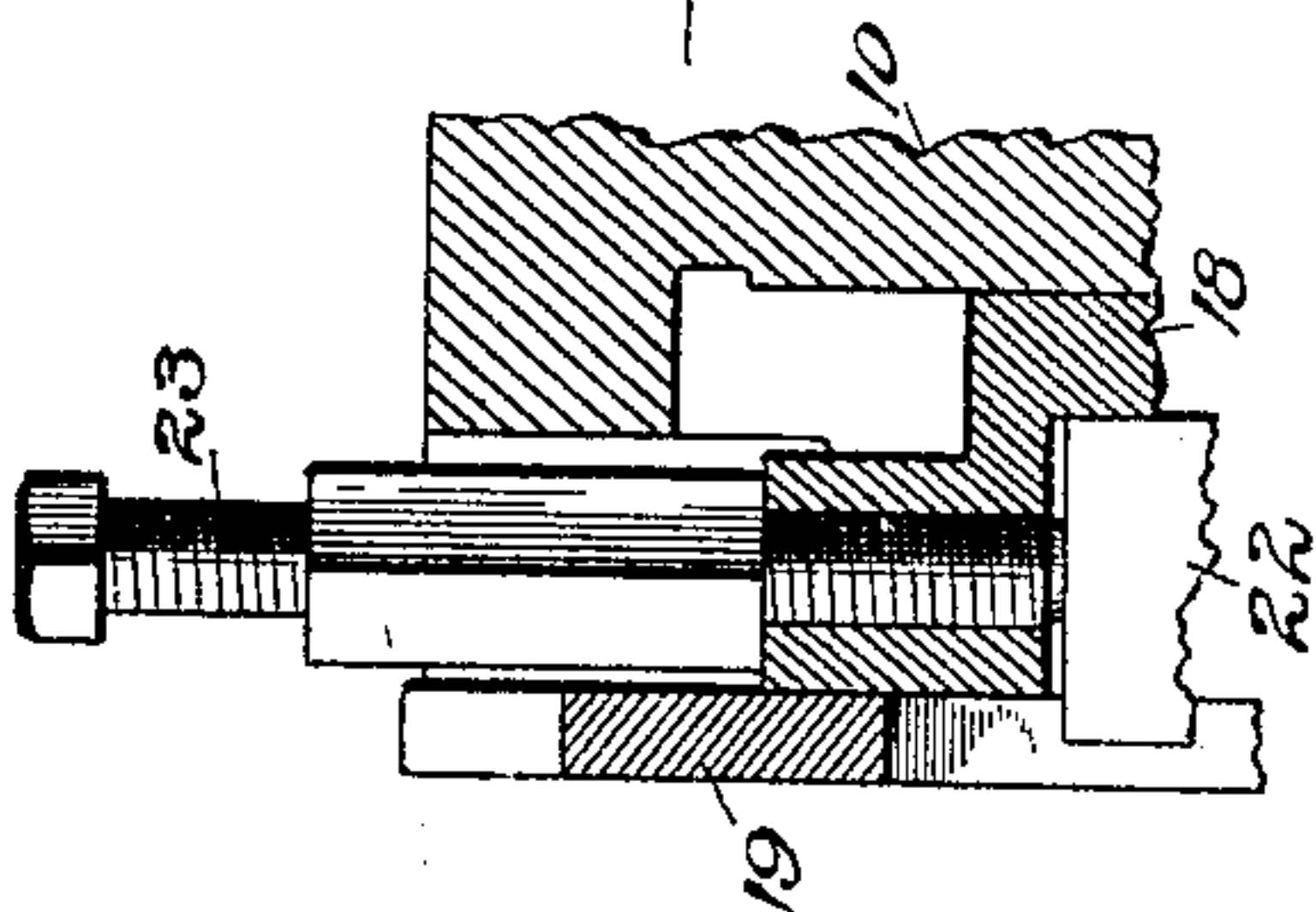
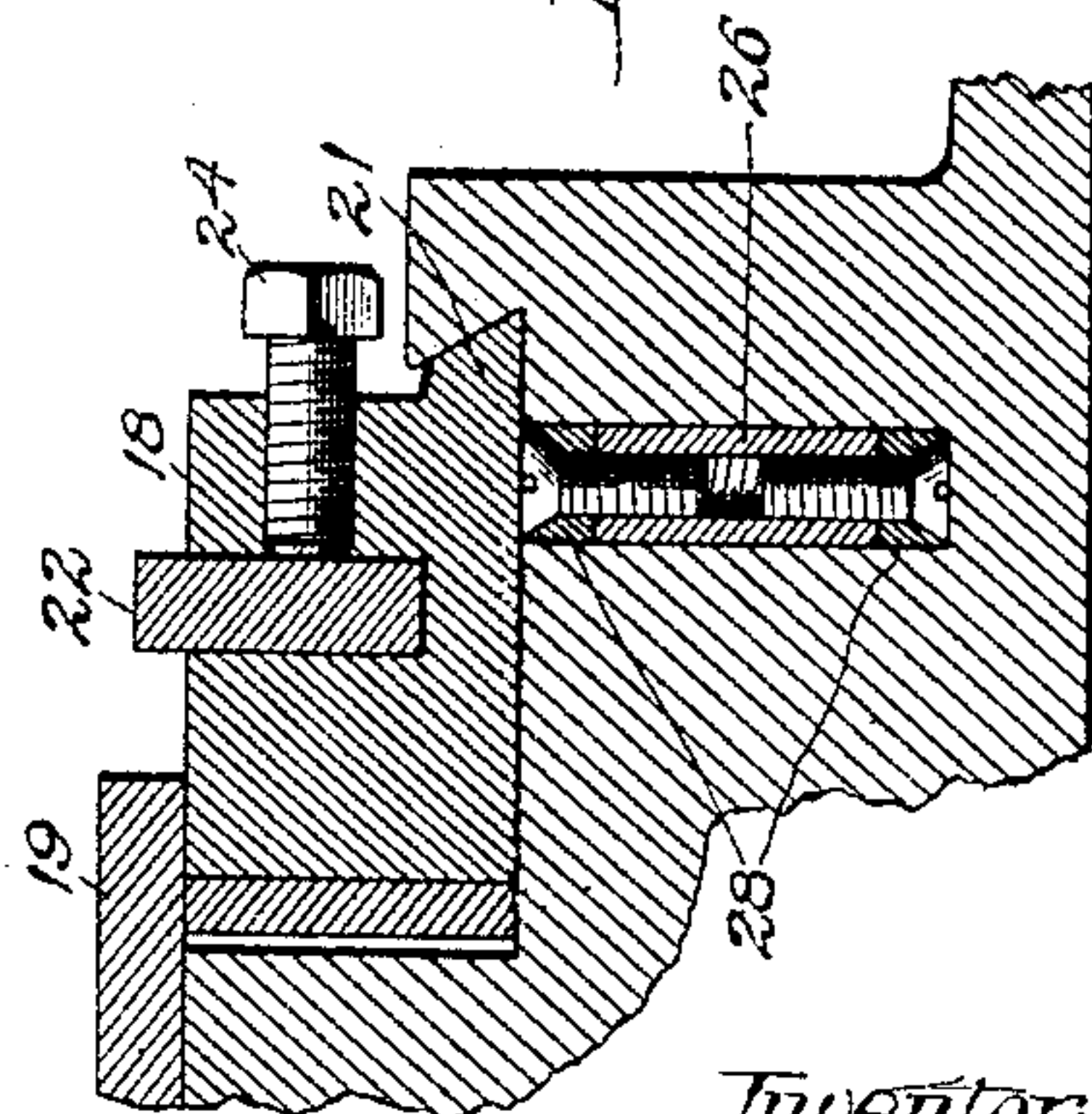


Fig. 5.



Witnesses:

J. H. Alfaro.

J. W. Daggett.

Inventor:

Charles J. Gylfe.

By E. W. Burgess

Attorney.

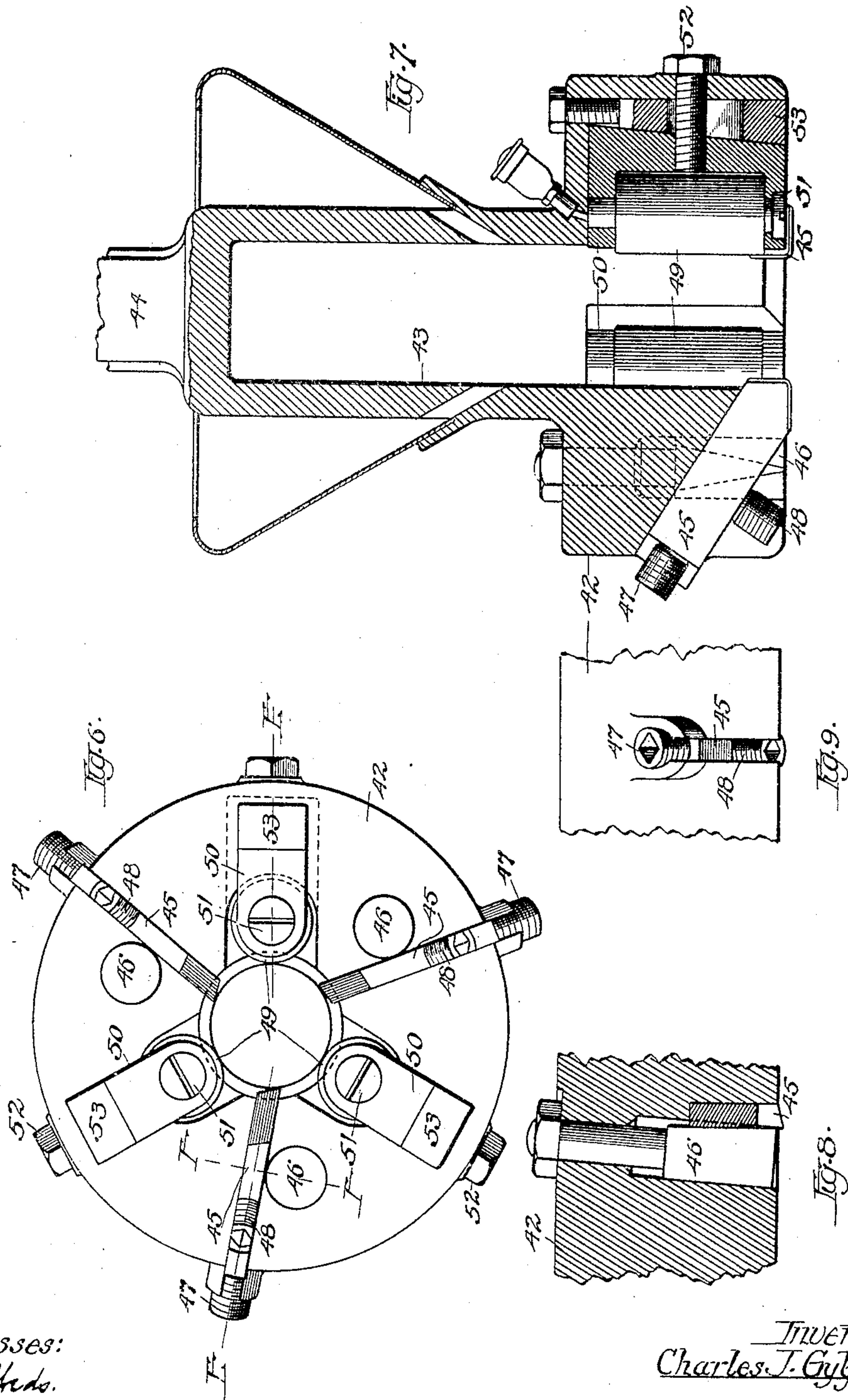
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3 SHEETS—SHEET 3.



Witnesses:
T. H. Alfords.
J. N. Daggett.

Inventor:
Charles J. Gylfe.
By E. W. Burgess
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES J. GYLFE, OF CHICAGO, ILLINOIS.

CUTTER-HEAD FOR SHAFT-TURNING MACHINES.

No. 805,539.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed October 24, 1904. Serial No. 229,748.

To all whom it may concern:

Be it known that I, CHARLES J. GYLFE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cutter-Heads for Shaft-Turning Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to cutter-heads similar to those used in connection with shaft-turning machines of the type shown in Patent No. 625,922, L. H. Brightman, May 30, 1899, or to cutter-heads forming a part of what are commonly called "hollow milling-tools."

The object of the invention is to provide a tool of the above class that will be more rapid and accurate than those heretofore used.

I attain the above object by the mechanism illustrated by the drawings and described in the accompanying specification, in which—

Figure 1 is a face view of a complete cutter-head embodying my invention. Fig. 2 is a cross-section of Fig. 1 on line A A. Fig. 3 is a cross-section on line B B of Fig. 1. Fig. 4 is a detail section on line C C of Fig. 1. Fig. 5 is a detail section on line D D of Fig. 1. Fig. 6 is a face view of a modified form of cutter-head forming part of a "hollow mill." Fig. 7 is a sectional side elevation of Fig. 6 on line E E. Fig. 8 is a detail section on line F F of Fig. 6, and Fig. 9 is a detail end view of the adjusting means for the cutting-tool.

The same reference-numerals designate like parts throughout the drawings.

The cutter-head, as shown in Fig. 1, has a back plate 10, a central opening 11, an annular flange 12, surrounding the opening, and short radial slots 13 for the reception of bolts used to secure the head to the face-plate of the machine to which it may be applied. A series of radially-disposed blocks 14, 15, and 16 project outward from the plate 10, and 17 is a block portion tangentially disposed and also projecting outward from the surface of the plate. A movable rectangular block 18 is fitted to slide in a bearing formed for its reception in the portion 17 and is held therein by means of the plate 19 and cap-screws 20 upon one side and the angular rib portion 21 fitting into the corresponding angular seat upon its opposite side. The block 18 is provided with a slot adapted to receive a steel primary cutter 22, the slot being radially dis-

posed relative to the cutter-head and angularly disposed relative to the medial longitudinal line of the sliding block that, if extended, would pass outside the center of the head. The steel cutter is adjustable in the slot in the direction of its length, and the screw 23 operates to govern its position, and it is secured in such adjusted position by means of the screw 24. The block 18 may be adjusted in the direction of its length, and the screw 25 operates to govern its position. Back of the sliding block 18 there is a radially-disposed slot in the block portion 17, adapted to receive a sliding roller-carrier 26. The roller 27 is journaled at the ends of plates 28, secured to the carrier 26 by means of screws, as shown in Fig. 2. The roller-carrier 26 is adjustable radially in the slot, and its position is governed by the adjusting-screw 29. The primary cutter is designed to operate with its cutting edge in line with the bearing of the roller 27 upon the work, and by the double means of adjustment of the cutter and holding-block it may be maintained in that line with varying sizes of shafts to be operated upon. Rollers 30 and 31 are journaled in plates 32, secured to the movable carriers 33 and 34, arranged to slide in radial slots formed in the blocks 15 and 16. The roller-carriers are secured in the slots by means of the binding-plates 35 and cap-screws 36 and are adjusted radially by means of the adjusting-screws 37 and operating as steady-rests.

The block 14 is provided with a slot designed to receive a finishing-cutter 38, that is arranged to be adjusted radially relative to the cutter-head, and is secured in said slot by means of the binding-plate 39 and cap-screw 40 and adjusted by means of the screws 41. That side of the head facing the entrance of the shaft to be operated upon is called the "front," and the primary cutter and roller back of it precede the finishing-cutter relative to its operation in the direction of the rotation of the head.

In the modified form of cutter-head, as shown in Figs. 6 and 7, 42 represents the back plate integral with a hollow body 43, that is carried by a common form of tapered shank 44, designed to be received by a lathe or drill-spindle in the well-known way and forming what is usually called a "hollow milling-tool." The cutter-head carries a series of three cutting-tools 45, that are adjustably held in slots

formed in the head, the slots being arranged at an angle with a radial line of about ten degrees outward and rearward relative to the direction of travel of the tool and outward and rearward at an angle with the face of the tool of about thirty degrees. The cutting-tools are adjustable along the slots and are clamped against the side of the slot by means of the tapered key-bolts 46, as shown in Figs. 7 and 8, while two hollow set-screws 47 and 48 are arranged to bear against their outer ends and edges, respectively. Opposite each cutting-tool are rollers 49, carried by blocks 50, that are fitted to move in radial slots formed in the head 42. The rollers are journaled on studs 51 and the blocks are adjusted in the slots by means of the cap-screws 52 and slotted key-bolts 53, as shown in Fig. 7.

In my improved cutter-head the cutting-tools are directly opposed by moving rolling surfaces that act as positive resistants to hold the work up to the action of the cutting-tools. In the Brightman machine, as shown in the patent before noted, the steady-rests are close to the cutting-tools, either in their rear or front.

What I claim, and desire to secure by Letters Patent, is—

1. A cutter-head comprising a back plate having a central opening therethrough, a plurality of radial slots communicating with said opening, steady-rests adjustably mounted in said slots, a cutting-tool mounted on said head in front of one of said steady-rests and having its cutting edge substantially in line with the longitudinal bearing of said rest upon the work and means for adjusting said cutting-tool longitudinally in a radial line or laterally at an angle to said radial line.

2. A cutter-head comprising a back plate having a central opening therethrough, a plurality of radial slots communicating with said opening, steady-rests adjustably mounted therein, a finishing-cutter mounted on said head and radially adjustable relative thereto, the cutting operation of said cutter being directly opposed by the steady-rests, a primary cutting-tool mounted in said head in front of the steady-rest immediately preceding said finishing-cutter in the direction of rotation of said head, and having its cutting edge substantially in line with the longitudinal bearing of said steady-rest upon the work, and means for adjusting said primary cutting-tool longitudi-

nally in a radial line or laterally at an angle to said radial line.

3. A cutter-head provided with a plurality of radial slots having steady-rests adjustably mounted therein, a block mounted on said head in front of one of said steady-rests and adjustable along a longitudinal medial line thereof passing outside the center of the plate, a cutting-tool mounted in said block and adjustable longitudinally along a radial line relative to the head, whereby the cutting edge of the tool may be maintained substantially in line with the longitudinal bearing of said steady-rest upon the work.

4. A cutter-head comprising a back plate having a central opening therethrough, a series of four radial slots extending outward from said opening on diametrical lines forming ninety-degree angles, roller-carriers adjustably held in three of said slots and having steady-rollers journaled at their inner ends, a finishing-cutter adjustably held in the remaining slot, a primary cutter mounted in said head in front of the adjustable roller-carrier immediately preceding said finishing-cutter in the direction of rotation of said head and having its cutting edge substantially in line with the axis of the steady-roller journaled in said block.

5. A cutter-head comprising a back plate having a central opening therethrough, a series of four radial slots extending outward from said opening on diametrical lines forming ninety-degree angles, roller-carriers adjustably held in three of said slots and having steady-rollers journaled at their inner ends, a finishing-cutter adjustably held in the remaining slot, a primary cutter mounted in said head in front of the adjustable roller-carrier immediately in advance of said finishing-cutter in the direction of rotation of said head, having its cutting edge substantially in line with the axis of the steady-roller carried by said block, and means for adjusting said primary cutter longitudinally in a radial direction relative to the head and laterally at an angle to the radial adjustment.

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

CHAS. J. GYLFE.

Witnesses:

F. EARLE,
F. B. CROOKER.