

No. 670,331.

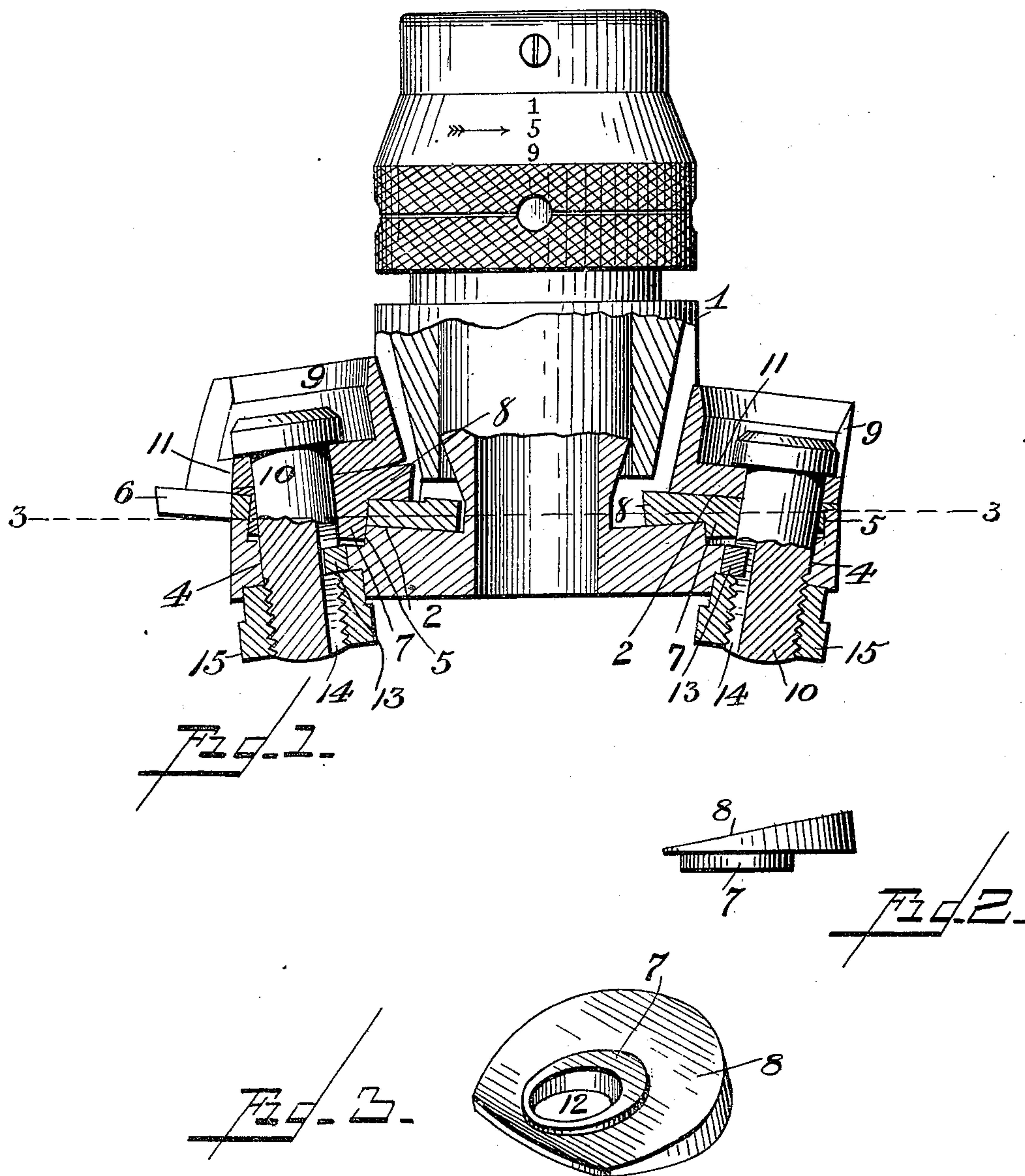
Patented Mar. 19, 1901.

S. J. SHIMER.
CUTTER HEAD.

(Application filed Jan. 23, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Inventor:
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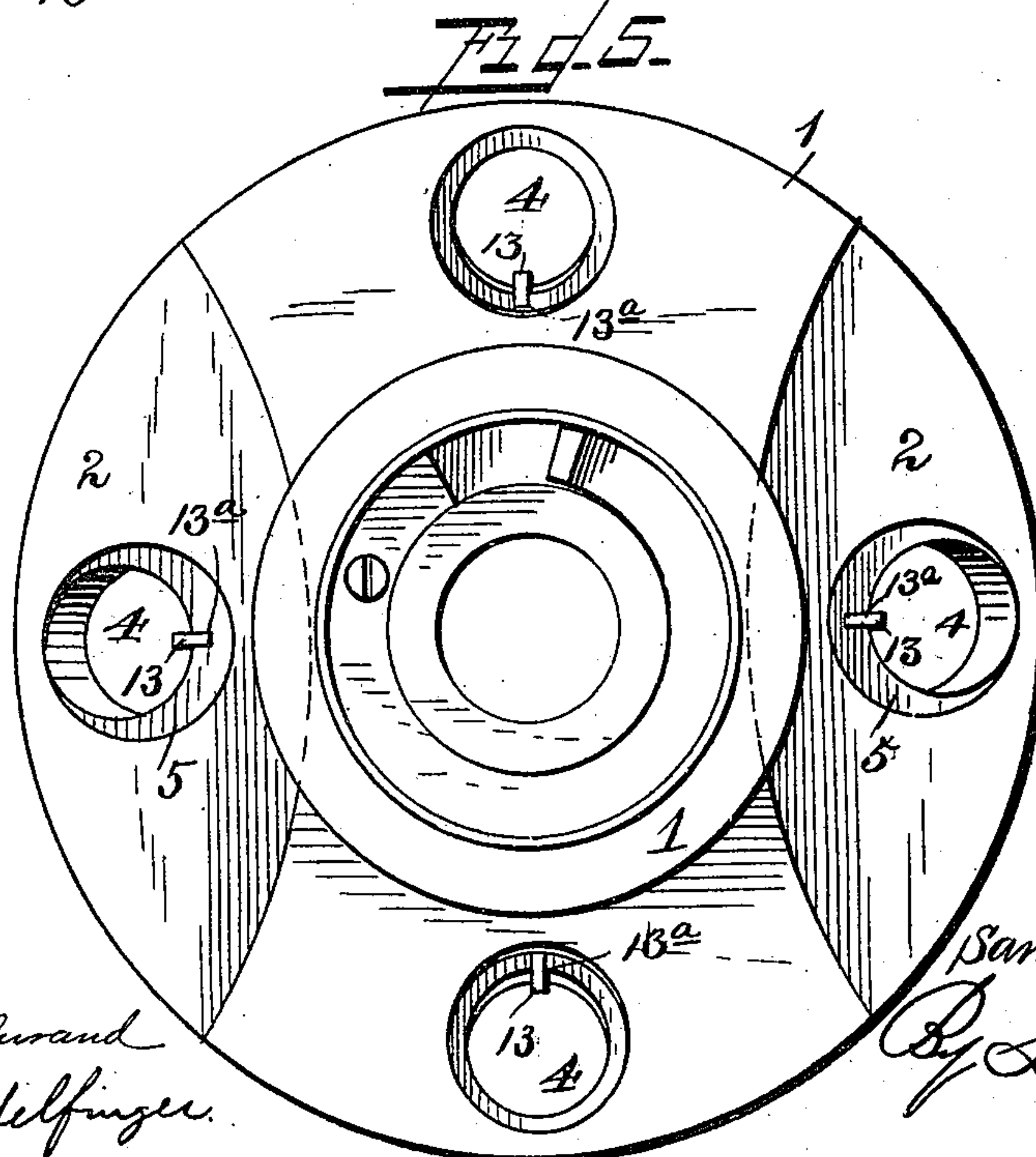
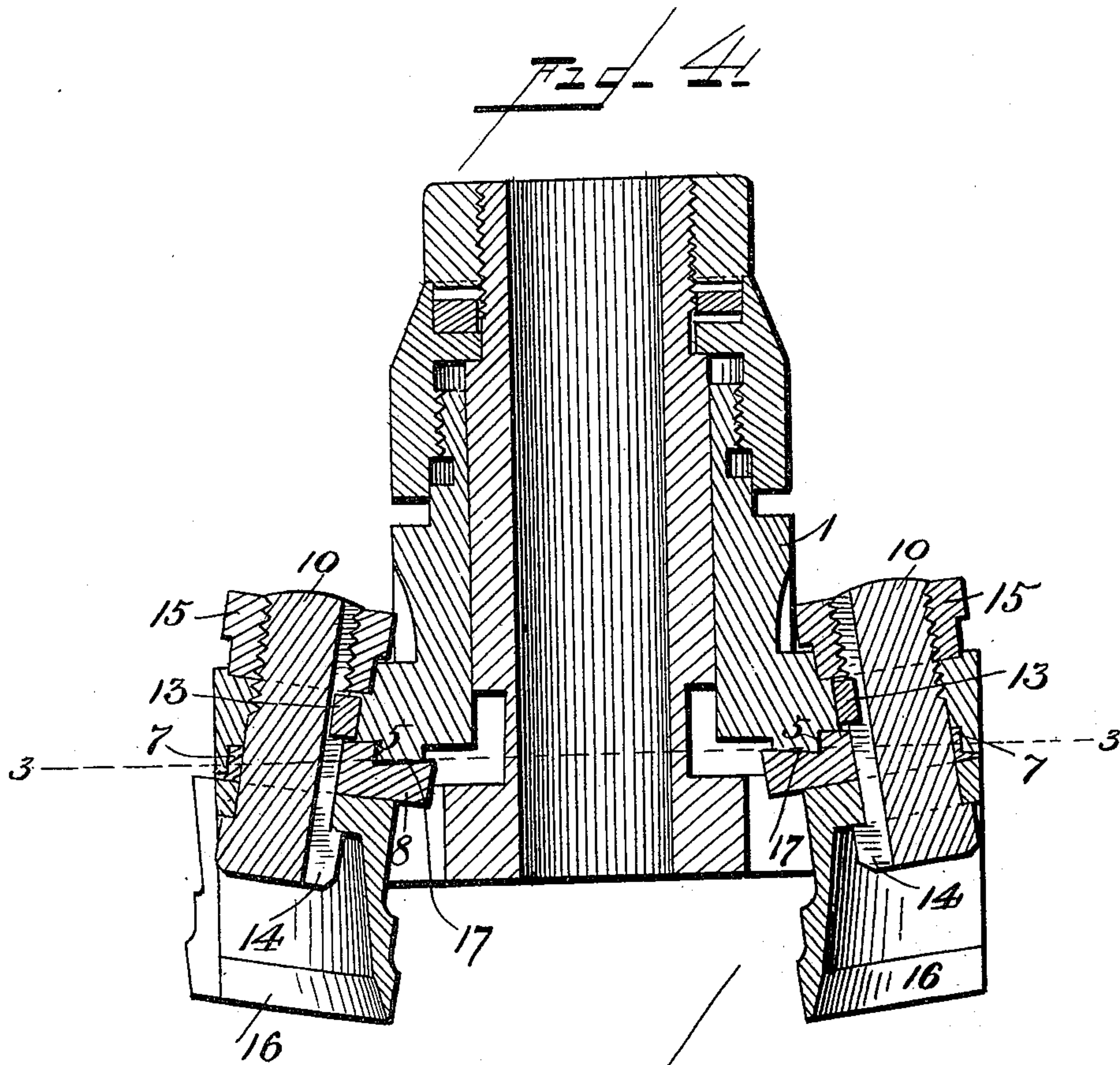
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UNITED STATES PATENT OFFICE.

SAMUEL J. SHIMER, OF MILTON, PENNSYLVANIA.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 670,331, dated March 19, 1901.

Application filed January 23, 1901. Serial No. 44,437. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. SHIMER, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented new and useful Improvements in Cutter-Heads, of which the following is a specification.

My invention relates to cutter-heads of the Shimer type, and has for its object an improvement in bit-seats and the mounting of one or more bits thereon, so as to always provide clearance for each bit and at the same time be simple in construction, with all adjustments not liable to disturbance.

With this object I have designed the novel construction described in this specification and claimed, and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a vertical longitudinal section of a cutter-head through the upper pair of bits. Fig. 2 is a detail elevation of a beveled washer. Fig. 3 is a detail perspective view of the beveled washer inverted. Fig. 4 is a vertical longitudinal section of the cutter-head through the lower pair of bits. Fig. 5 is a plan view of the cutter-head with the bits removed.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates an expansible cutter-head having bit-seats 2 on opposite upper sides thereof. The planes of these seats incline backwardly and downwardly from a horizontal radial line 3 3 in order to provide clearance for the bits seated thereon, as will appear. An inclined aperture 4 also pierces the face of the bit-seat, which aperture has an enlarged eccentric portion 5. Located in one of the seats 2 is a first bit 6, which is centered on a downwardly-extending boss 7, formed integral with a backwardly and upwardly inclined washer 8—that is, the inclination of the washer 8 is opposite to the inclination of the seats 2, and thus provides overcut clearance for a second bit 9, mounted on the upper face thereof. Both of these bits 6 and 9 are apertured and are secured by a bolt 10, which is perpendicular to the upper face 11 of the bit 9, traverses an eccentric aperture 12 in the boss 7, and extends through

the inclined aperture 4 in the head-flange. A key 13, fitting a slot 13^a in the side wall of the aperture 4, engages a slot 14 in the bolt and holds it against rotation. A nut 15 firmly secures the bits and washer in place.

In case it is desired to employ but one bit and that a bit with an overcutting clearance this bit is mounted in the manner shown in the companion seat 2 on the right. The beveled washer 8 is first placed in position, with the boss 7 extending into the enlarged eccentric portion 5 of the aperture 4. The bit 9 is then mounted on the beveled washer and then secured by the bolt 10 in the same manner as before. It should be noted that by this construction the beveled washer 8 is held against rotational displacement after the inclined bolt has been inserted in the aperture 4 and the boss 7 in the eccentric portion 5, that each bit has its own center and is provided with clearance, that both bits and the washer are secured by a single bolt, and that the inclined boss-bearing washer may be used with either one or two bits. In case two bits are employed it is generally advisable to make the boss 7 of greater length than in the case of one bit.

In Fig. 4 is illustrated the manner of mounting a pair of bits 16 in backwardly-inclined bit-seats 17 on the under face of the head. They are provided with apertures 4 and 5 and beveled washers 8 and secured by bolts 10 in the same manner as before stated for bits 9.

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

1. The combination, with an inclined bit-seat, of a first bit mounted in said seat, a beveled washer placed on said first bit and provided with a boss on which said bit is centered, a second bit mounted on said washer, and a bolt securing both of said bits and said beveled washer in said seat, substantially as described.

2. The combination, with a bit-seat, of a beveled washer having a boss thereon fitting an eccentric portion of an aperture piercing said bit-seat, a bit mounted on said beveled washer, a bolt passing through an aperture in said bit, through an eccentric aperture in

said boss, and through the said aperture in said bit-seat, and means for holding said bolt against rotation, substantially as described.

3. The combination, with an inclined bit-
5 seat, a first bit mounted in said seat, a beveled washer placed on said first bit and provided with a boss on which said bit is centered, said boss fitting an enlarged eccentric portion of an aperture in said bit-seat, a sec-
10 ond bit mounted on said washer, a bolt securing both of said bits and said beveled washer, said bolt passing through an eccen-

tric aperture in said boss and through the said aperture in said seat, and means for holding said bolt against rotation, substantially as 15 described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL J. SHIMER.

Witnesses:

W. H. BECK,

H. A. KERR.