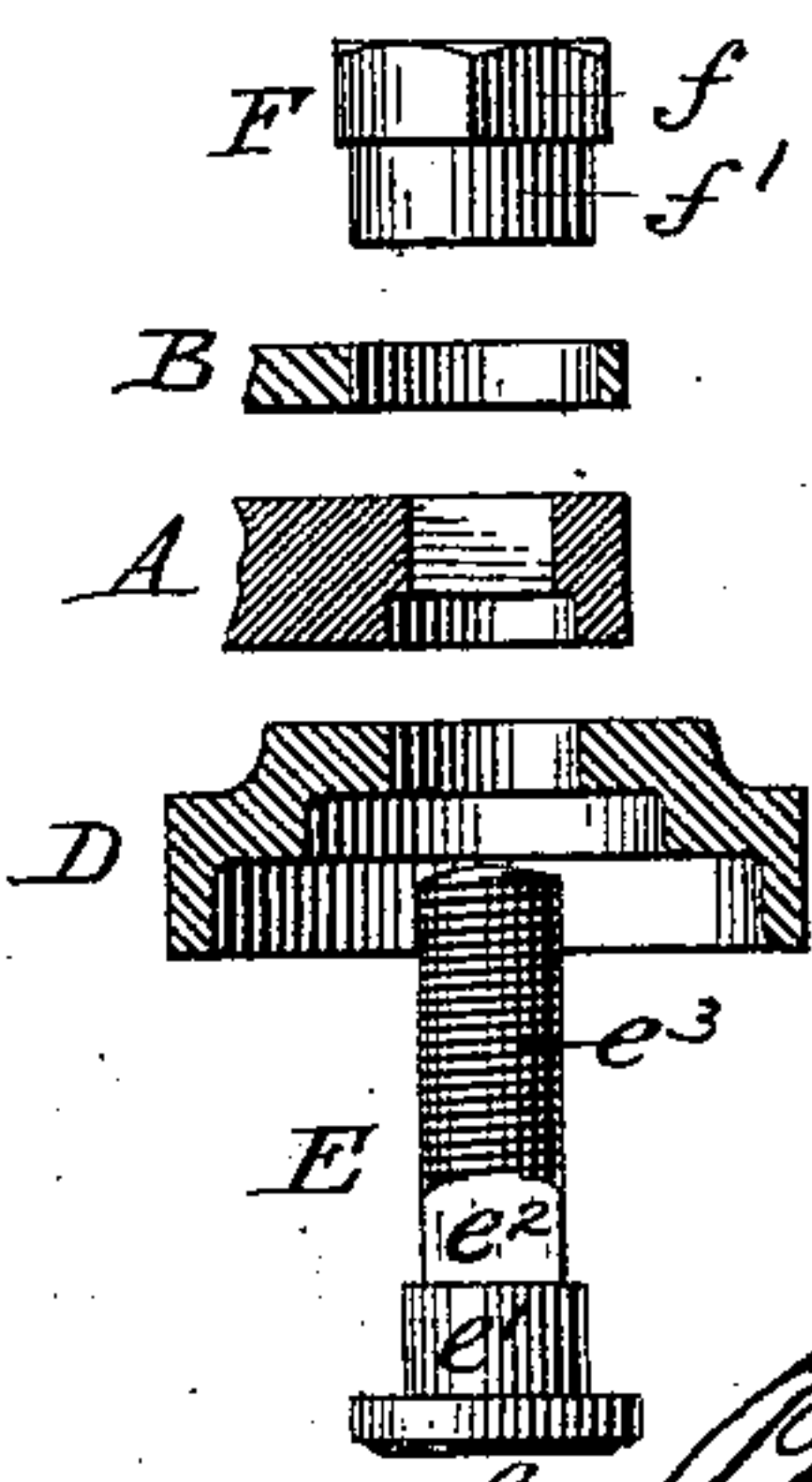
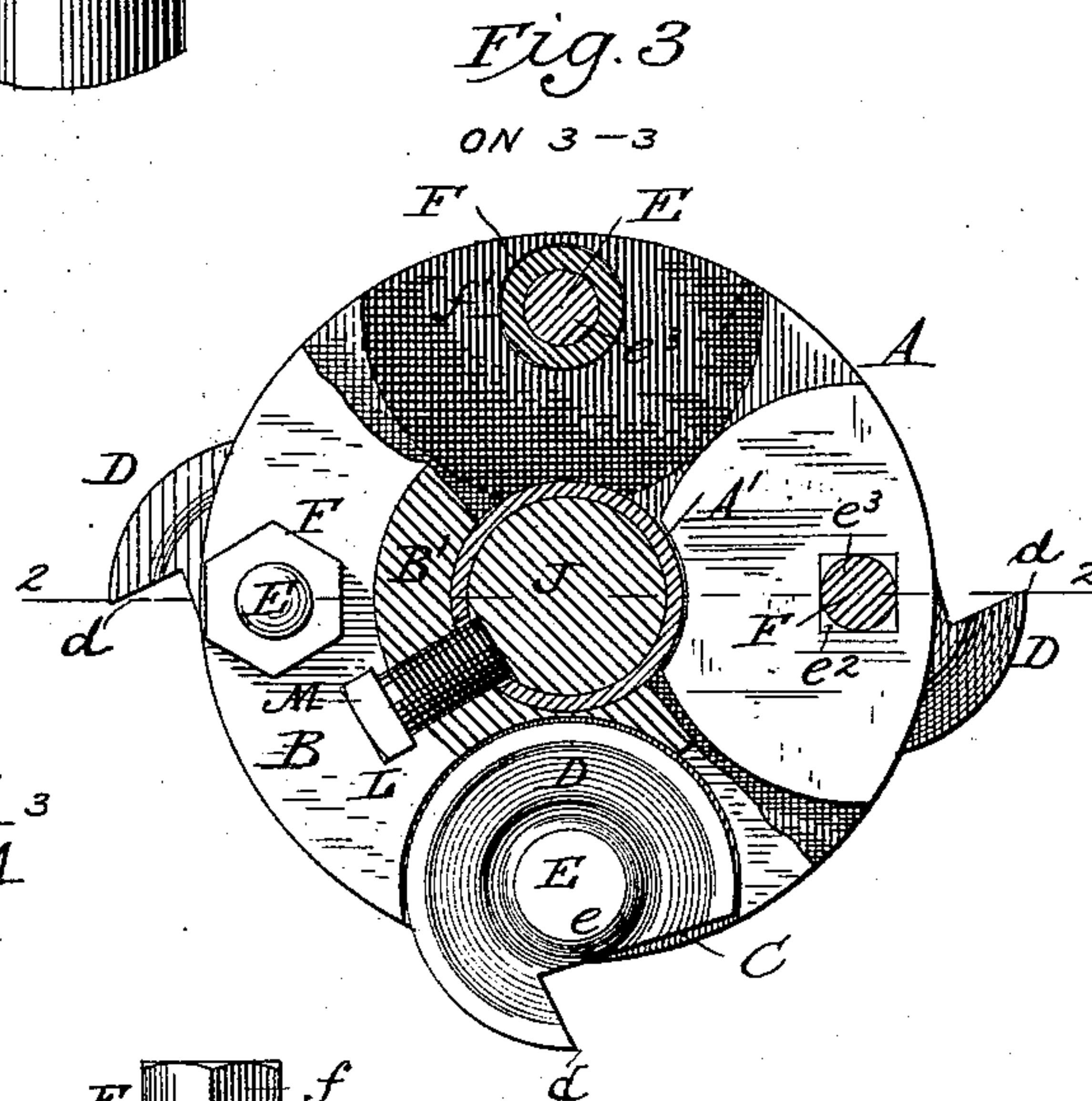
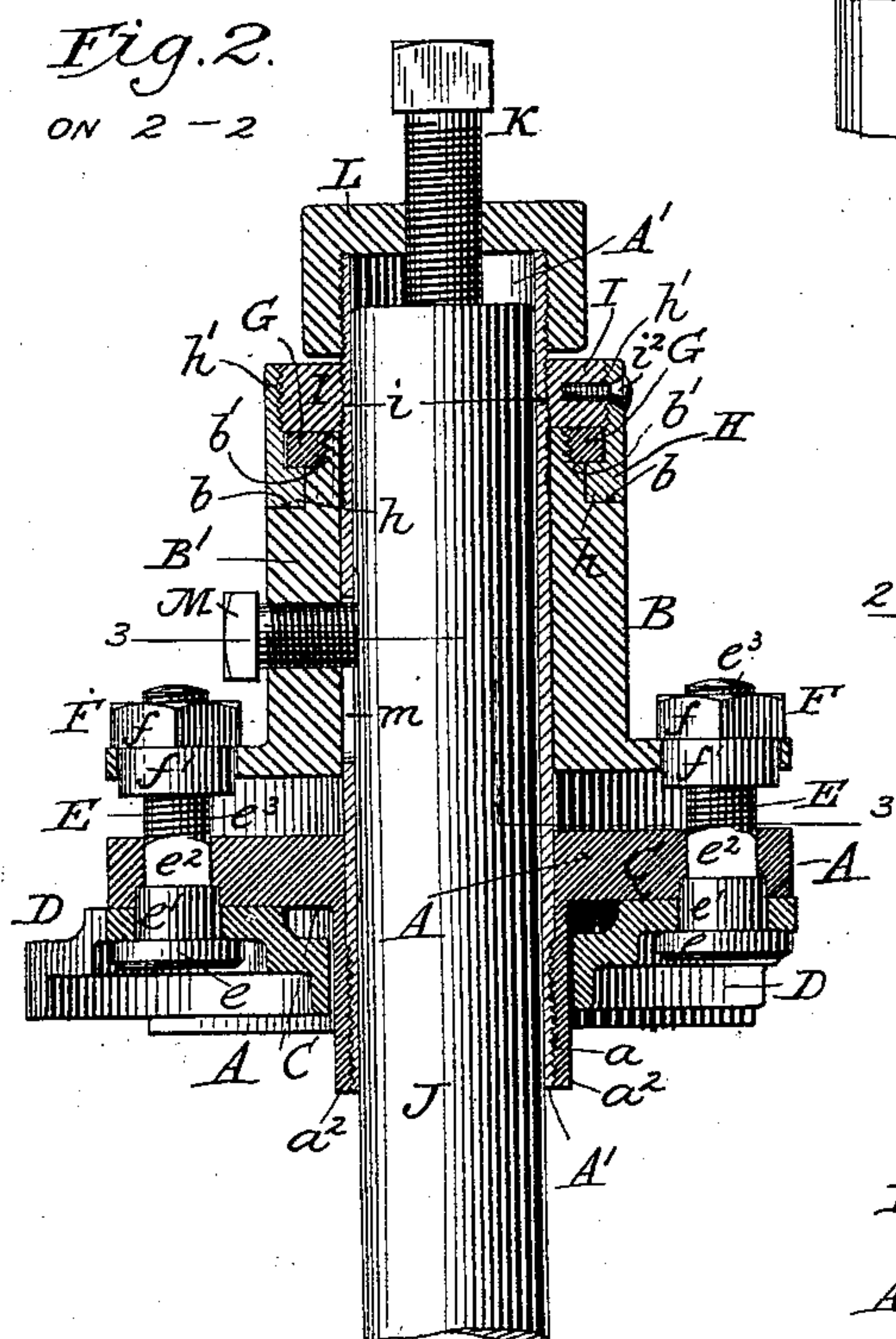
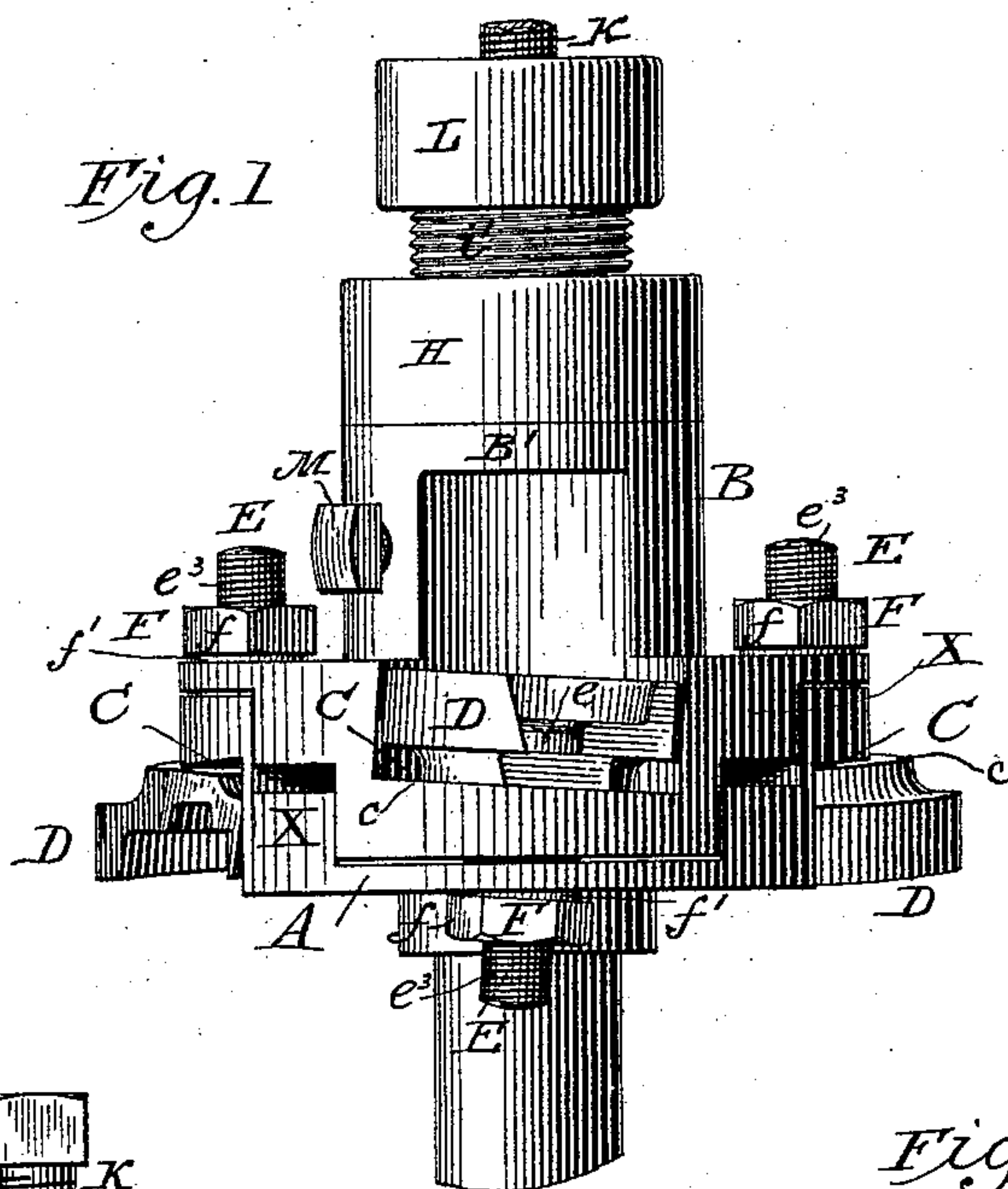


(No Model.)

J. ETTINGER.
ROTARY CUTTER.

No. 529,115.

Patented Nov. 13, 1894.



Witnesses:

Sidney F. Hollingworth
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UNITED STATES PATENT OFFICE.

JOEL ETTINGER, OF MILTON, PENNSYLVANIA.

ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 529,115, dated November 13, 1894.

Application filed April 27, 1894. Serial No. 509,211. (No model.)

To all whom it may concern:

Be it known that I, JOEL ETTINGER, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Cutters, of which the following is a specification.

My invention relates especially to that class of rotary cutters in which a cutter-head formed of two separable members adjustable relatively to each other, carry bits or cutters arranged to cut grooves or tongues in boards.

The object of my invention is to provide improved mechanism for adjusting the cutter-head members, and improved devices for connecting the bits or cutters to the cutter-head.

In the accompanying drawings illustrating my invention,—Figure 1 is an elevation; Fig. 2, a vertical, central section on the line 2—2 of Fig. 3; Fig. 3, a transverse section on the line 3—3 of Fig. 2, and Fig. 4, a detail view illustrating the manner of connecting the cutter to the cutter-head.

The cutter-head is made in two sections, A and B. They are preferably circular with their peripheries in line with each other, but their adjacent faces are arranged to interlock, as shown at X, in Fig. 1.

Each member of the cutter-head is provided with one or more (two being shown) seats C, for a bit or cutter D, which, as shown, is circular, and is provided with a cutting edge *d*. The supporting wall *c*, of the seat is inclined, as shown in Fig. 1, as is usual in this class of cutters. Each of the cutters or bits D, is secured to both members of the cutter-head by means of the devices shown in Fig. 4.

A bolt E, with a head *e*, and cylindrical portion *e'*, a square portion *e²*, and a threaded portion *e³*, extends through the bit, and through both members of the cutter-head, and receives on its screw-threaded end a nut F, which has a squared portion or head *f*, and a cylindrical portion *f'*. The cylindrical portion *e'*, of the bolt extends through a circular opening in the bit, or cutter, and preferably a short distance into the adjacent member of the cutter-head. The square portion *e²* of the bolt fits in a square opening in one of the cutter-head members. The screw portion of the

bolt extends through the cutter-head member, and the cylindrical portion *f'*, of the nut extends through a circular opening in this member of the cutter. By this arrangement, the bit or cutter D, when the bolt is loosened, may be turned on its axis to give it the proper adjustment without turning the bolt, and one cutter-member may be adjusted toward the other cutter-member without turning the nut, by reason of the cylindrical portion *f'* on the nut fitting a circular opening in one of the cutter-head members.

All the bits are secured to the cutter-head in the same way.

Of course, after one member of the cutter-head is adjusted towards the other, the nuts are tightened up to securely hold the bits in place. When the cutter-heads are expanded, the nuts must be loosened before the devices hereinafter described are brought into operation to separate the members.

The cutter member B, is provided with a hollow or tubular cylindrical boss B', through which extends a spindle A', secured to the cutter member A. Preferably, it is secured by screw-threads *a*, to corresponding screw-threads in an annular flange or projection *a²*, extending from the body portion of the cutter-head A. The boss B', of the member B, is recessed or stepped at *b, b'*, which latter receives a ring G, which is secured to the shoulder *b'*. A ring or nut H, is provided with a flanged lower end *h*, which fits into the stepped portion *b*, of the boss B', and under the ring G. Its upper end is screw-threaded at *h'*, and engages the screw-threaded periphery of a nut I, which is also provided with an internal screw-thread *i* that engages and works upon the screw-threaded upper portion of the spindle A'. A set screw *i²* secures the nut I, to the nut H.

The driving shaft J, extends through the spindle A', and a set screw K, extending through a screw-cap L, on the outer end of the spindle is used for adjusting the cutter-head on the shaft. A bolt M, screwing through the boss B', and extending through a slot *m*, in the hollow spindle A', bears against the shaft and secures it thereto, the slot *m* permitting the adjustment of the cutter member A, relatively to the member B, or vice versa.

A cutter-head thus organized may be arranged for cutting tongues on boards, and by substituting proper tools, it may be used for cutting grooves therein.

5 It will be observed that the cutters are arranged on opposite sides of the cutter-head so as to operate upon opposite sides of the board to form the tongue, being properly shaped for this purpose. Boards of different widths may
10 be accommodated and tongues of different widths may be formed by adjusting the members A and B relatively to each other by the mechanism just described. This mechanism is operated by the nut or ring H. By turning
15 ing this ring in the proper direction, the nut I, is caused to work upon the screw i' , of the spindle A', and cause the member A to separate from the member B, being properly guided by the interlocking arrangement
20 shown at X, in Fig. 1. This interlocking arrangement insures the proper relation of the members while rotating, *i. e.*, one member cannot rotate faster than the other, or slip by its fellow, but when the nut H is operated,
25 one member may be adjusted toward and from the other to vary the relation of the bits. It will be observed that the arrangement is such that the nut H, may be turned about the boss B', without giving a rotary move-
30 ment thereto, the flanged lower end h of the nut being arranged under the plain, flat surface of the ring G, and on the flat surfaces of the shoulder b —that is to say, the nut H, is free to move relatively to the boss B', and to
35 the ring G, but it moves with it the nut I, which working on the hollow spindle A', gives movement to the member A, relatively to the member B.

I claim as my invention—

40 1. A cutter-head comprising two interlocking members, each carrying one or more bits mounted in bit seats in the members, each

bit being secured by a bolt having a square portion entering a square socket in one of the members, and having also a cylindrical por- 45
tion extending through a circular opening in the bit, and a nut for each bolt provided with a cylindrical portion extending through a circular opening in a member of the cutter-head, substantially as and for the purpose 50
set forth.

2. A cutter-head comprising two members having stepped or interlocking surfaces fitting closely, as described, to prevent rotary movement relatively to each other, but to ad- 55
mit of adjustment toward and from each other, in combination with adjustable circular cutters or bits mounted in seats in the cutter-head members, bolts extending through both members of the cutter-head and through the 60
bits, which latter are adjustable on the bolts, devices for preventing the bolts from turning relatively to the cutter-heads, and means for adjusting the cutter-head members relatively to each other. 65

3. The combination of the two members of the cutter-head, one of which is provided with a hollow boss, and the other with a hollow or tubular spindle, a ring secured to a shoulder of the boss, a nut working on the screw- 70
threaded end of the spindle, and a ring secured to the nut, extending below the first mentioned ring and moving relatively thereto, the arrangement being such that when the ring is turned the nut works on the spindle, 75
and gives endwise movement thereto relatively to the boss.

In testimony whereof I have hereunto subscribed my name.

JOEL ETTINGER.

Witnesses:

T. L. WILSON,
JOS. ANGSTADT.