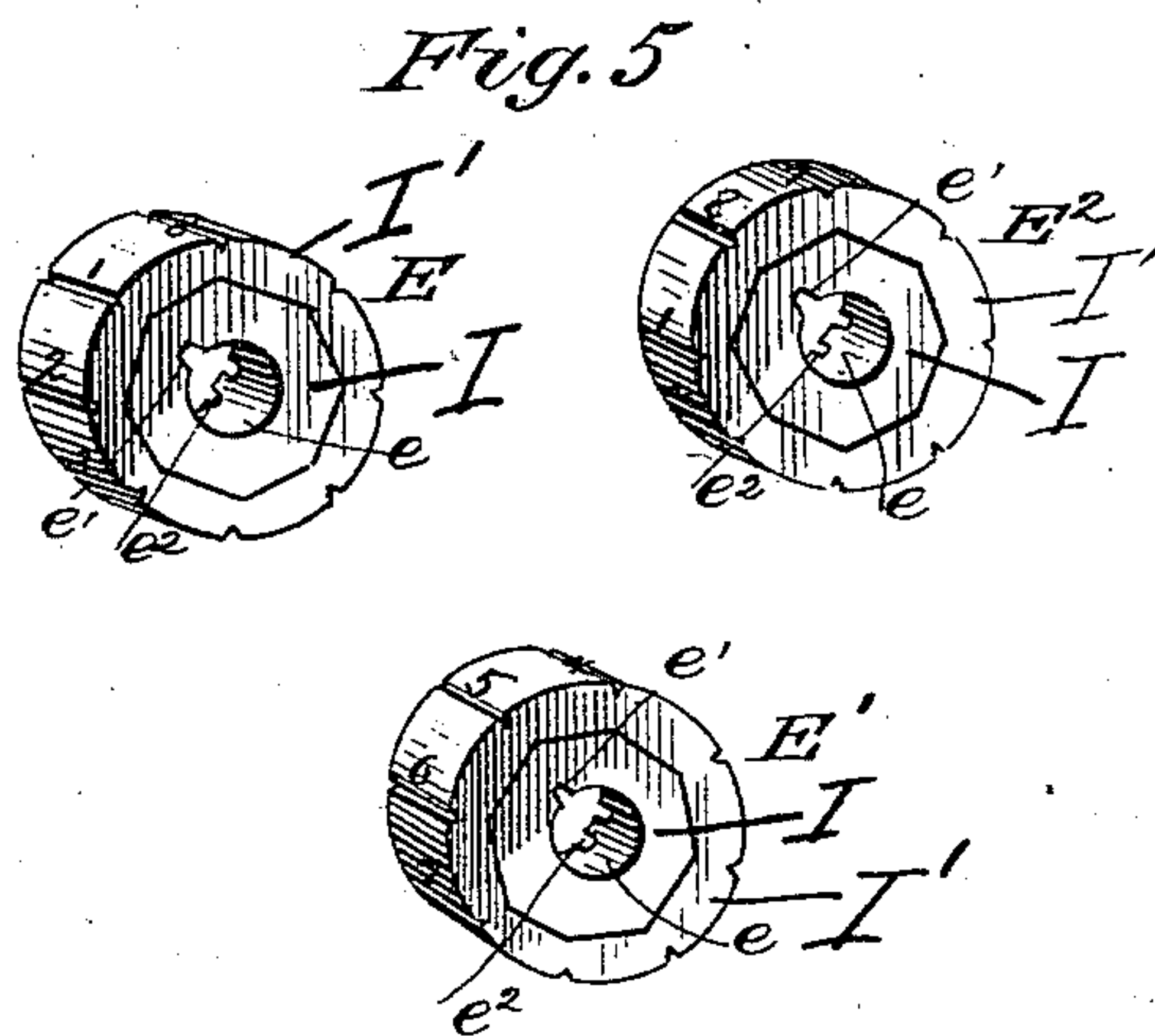
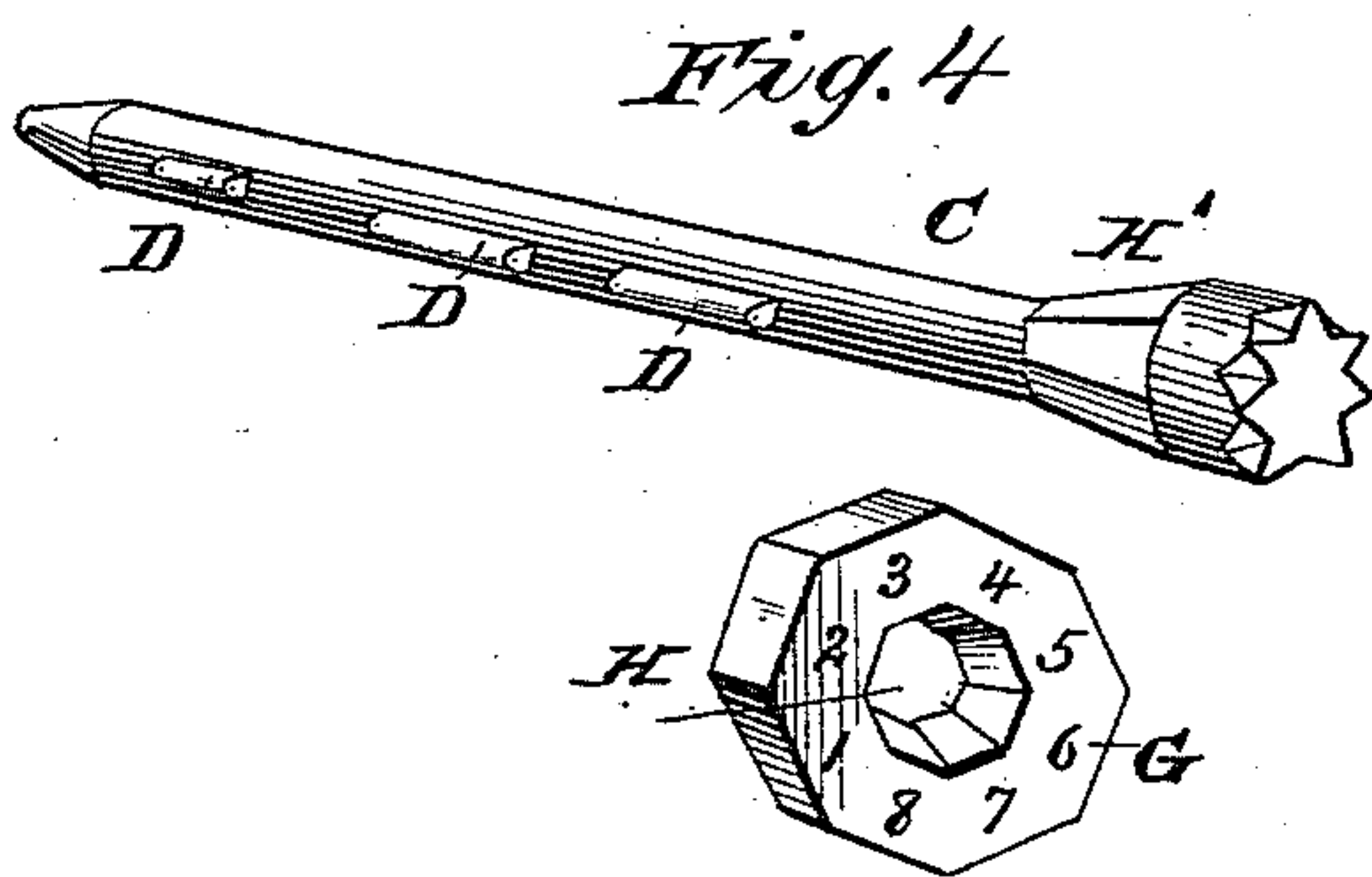
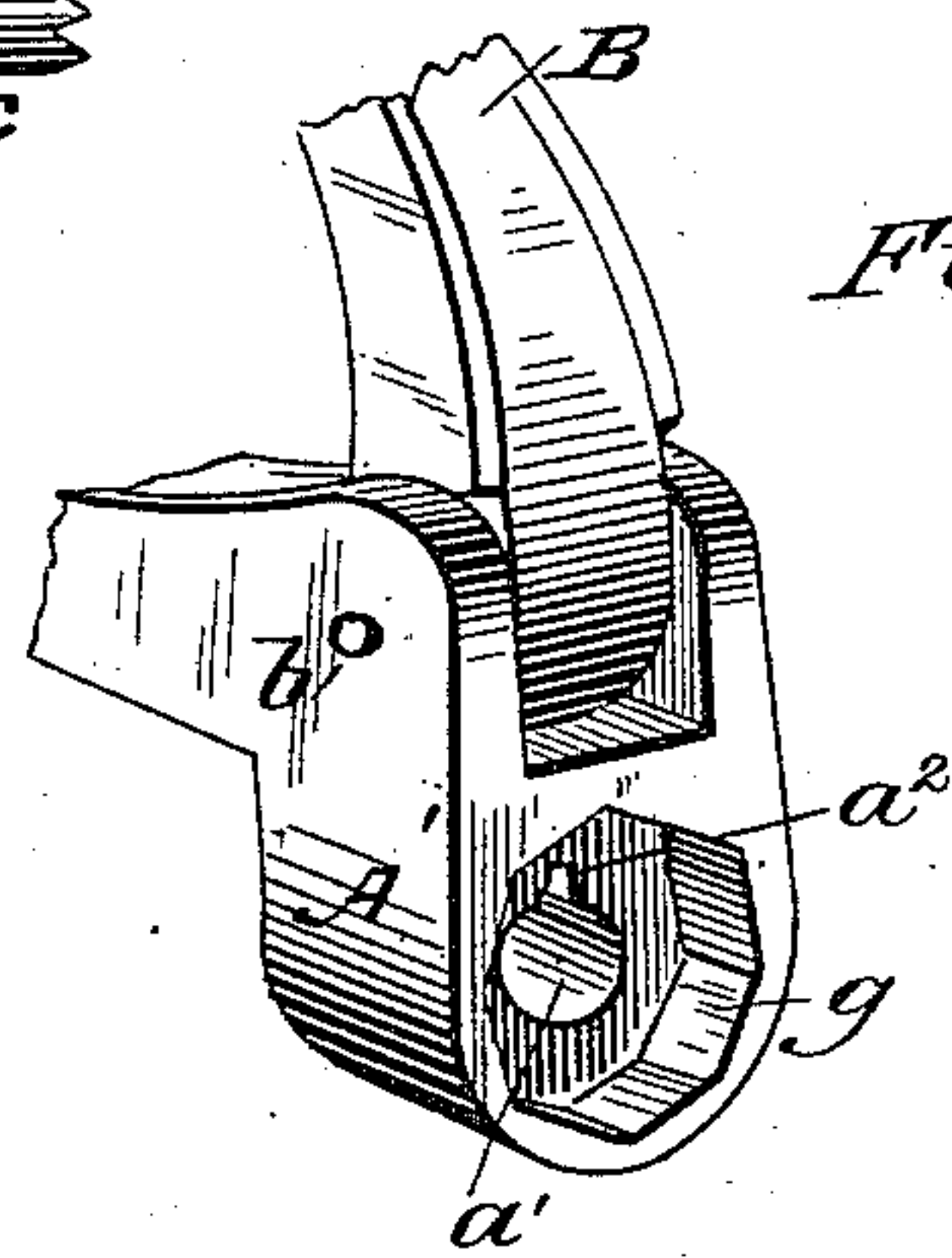
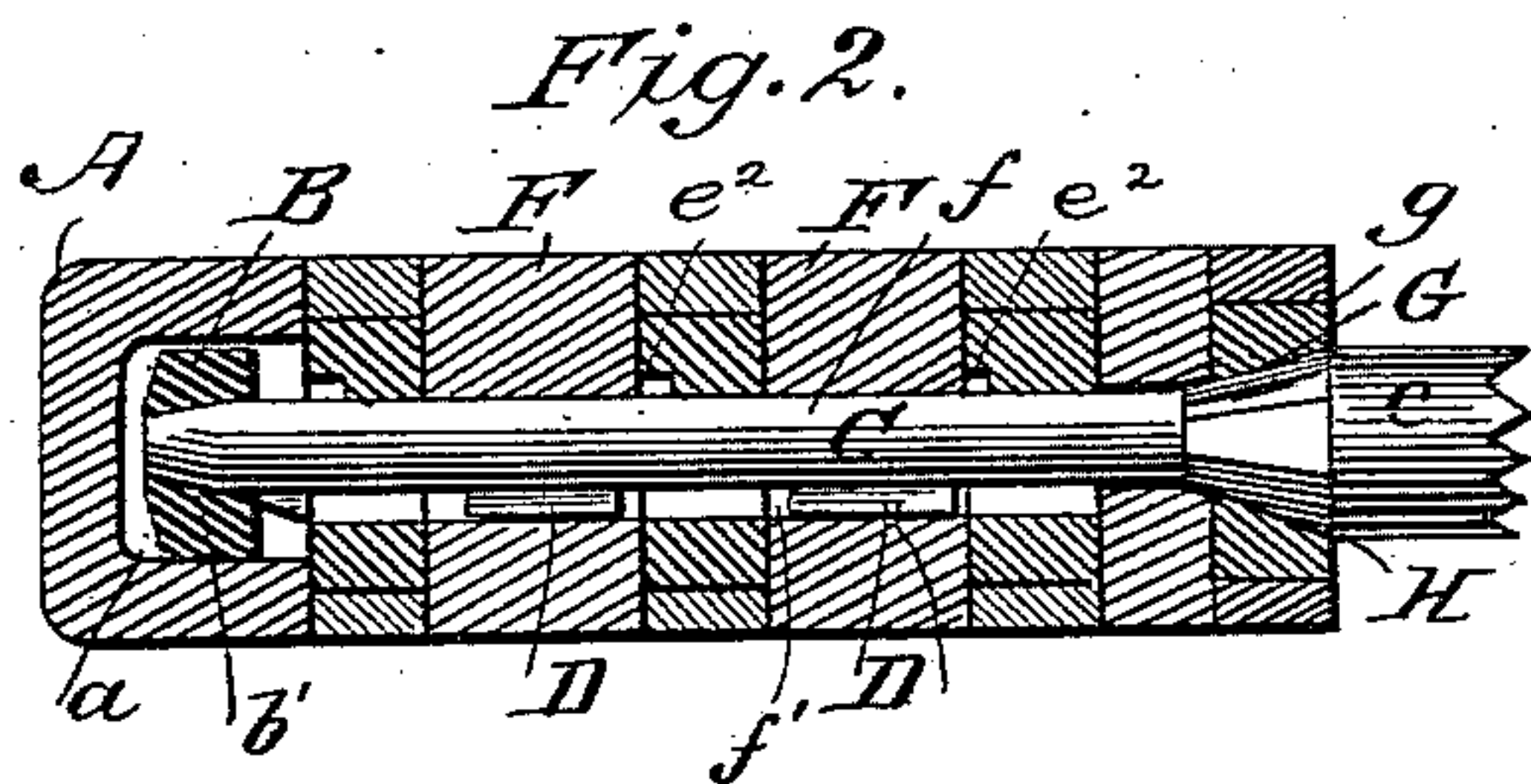
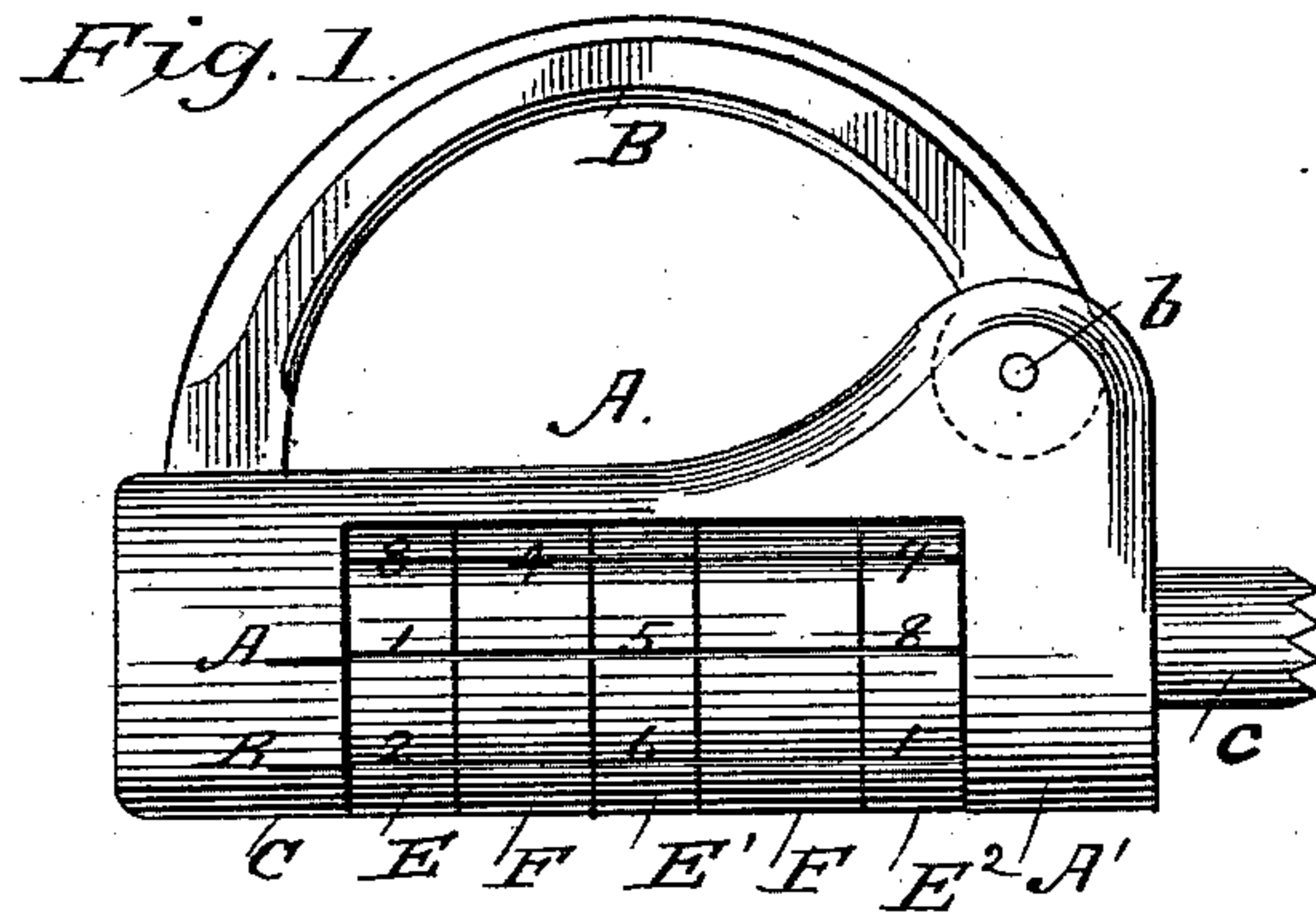


(No Model.)

E. L. DRAKE.
COMBINATION PADLOCK.

No. 379,508.

Patented Mar. 13, 1888.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN L. DRAKE, OF WINCHESTER, TENNESSEE.

COMBINATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 379,508, dated March 13, 1888.

Application filed July 22, 1887. Serial No. 245,030. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. DRAKE, of Winchester, in the county of Franklin and State of Tennessee, have invented a new and
5 useful Improvement in Combination-Padlocks, of which the following is a specification.

My invention is an improved combination-padlock; and it consists particularly in the novel constructions and combinations of parts
10 whereby to facilitate the changes of the combination in the manner more fully described hereinafter.

In the drawings, Figure 1 is a side view of my improved padlock. Fig. 2 is a sectional
15 view thereof with the tumblers and washers in position for the adjustment of the bolt to unlocked position. Fig. 3 is a detail perspective view of one end of the lock-case. Fig. 4
20 is a detail view of the bolt and its crown-piece, and Fig. 5 represents the tumblers in detail.

The lock-case A may be of any suitable shape. It is provided at one end with a socket, *a*, to receive the swinging end of the shackle B, which is pivoted at one end, *b*, to the case,
25 and has its said swinging end formed with an opening, *b'*, to receive the point of the bolt when the parts are in locked position. At its socketed end the case is provided with a number of letters, A, B, C, &c., or other suitable
30 characters, with adjacent guide-lines to assist in properly aligning the tumblers in the use of the invention.

Through the end A' of the case I form an opening, *a'*, for the bolt C. This opening *a'*
35 has a slot or wing, *a''*, formed from it, through which the bolt may be removed from the case when so desired. The bolt C has a suitable head, *c*, by which it may be turned, and is provided with a number of bits, D, the number of which, like that of the tumblers E E' E'',
40 hereinafter described, may obviously be varied.

In the construction shown I employ three tumblers, which are alike in construction, having central bolt-openings, *e*, and radial slots *e'*
45 for the bits D. I also provide the tumblers with blind-notches *e''* surrounding the bolt-opening, for the purpose of misleading any one who should attempt to "feel" the lock, as the said notches will give the same impression to
50 one feeling the lock as the slot for the bit. These tumblers are provided around their pe-

ripheries with series of figures or other characters, preferably figures from 1 to 8, as shown.

From Fig. 5 it will be seen that the slots for the bits are formed in the different tumblers
55 in radial line with different figures, that of tumbler E being in line with 1, of tumbler E' in line with 5, and tumbler E'' in line with 8, the combination of said tumblers for unlocking being 1, 5, and 8 when in the arrangement
60 shown in Fig. 1; but, manifestly, the combination of the tumblers might be 5 8 1, 8 1 5, 5 1 8, 8 5 1, or 1 8 5 by transposing the tumblers. Between the tumblers I place
65 washers F, which have bolt-openings *f* and slots *f'*, and said washers are made wider than the tumblers; so they are keyed on the bolt in both the locked and unlocked positions of the bolt. These washers serve to avoid the turn-
70 ing of one tumbler by the frictional contact of the next tumbler in turning the latter.

The bolt, outside of the case and next its head, is provided with a crown-piece, G, which is non-circular, conforming to the non-circular
75 recess *g* in the end A' of the lock-case, such case and crown-piece being thereby formed with interlocking portions. It is preferred to form the crown-piece with a large number of
80 sides; but it is obvious that by providing a single projection or key on one of such parts—that is, the end A' and crown-piece G—and
85 numerous keyways on the other the parts may be set in a large number of different positions or adjustments. This crown-piece has
90 a number of marks, usually figures 1, 2, 3, &c., one (in the arrangement shown, 3) of which is in line with the bits of the bolt; so by bringing the combinations 1, 5, 8, and 3 in line the
95 bolt may be moved longitudinally to lock or unlock it.

It is preferred to form the crown-piece separate from the bolt and to interlock it with
such bolt by providing it with a non-circular opening, H, fitting a non-circular portion, H',
95 of the bolt, so the crown-piece may be set on the bolt to bring different ones of its characters in line with the bits to change the combination. By the aid of this crown-piece it will
100 be seen a great number of different combinations may be made.

In order to further increase the number of combinations which may be formed, I prefer

to form the tumblers with inner and outer sections, I and I', the outer section, I', being practically a ring, and the construction being such as to permit the adjustment of the outer section to different rotary positions relative to the inner one. By this means it is manifest the number of combinations may be largely increased. In carrying out this feature of my invention the inner section may be formed non-circular and be fitted in a correspondingly-shaped opening in the other section, as shown most clearly in Fig. 5.

Having thus described my invention, what I claim as new is—

1. In a lock, the combination of the case, the bolt provided with a non-circular crown-piece, such case and crown-piece being provided with interlocking portions, and the tumblers and bits, substantially as set forth.
2. The combination of the bolt having bits and a crown-piece, such crown-piece and bolt being provided with interlocking portions, and the tumblers, substantially as set forth.
3. The combination of the case, the bolt having bits and provided with a non-circular

portion, the crown-piece having a non-circular opening to fit the non-circular portion of the bolt, such crown-piece and case being provided with interlocking portions, and the tumblers, substantially as set forth.

4. The combination, in a lock, of the case having a non-circular recess, *g*, and provided with an opening, *a'*, leading from said recess, and with a socket, *a*, for the point of the shackle, the shackle, the crown-piece *G*, fitted to recess *g* and having a non-circular opening, *H*, the bolt having a non-circular portion, *H'*, the tumblers, and the washers interposed between the same, substantially as set forth.

5. A combination - padlock comprising a case, a bolt having bits, the tumblers, and the washers fitted on the said bolt between the tumblers and made of a width exceeding the length of the bits, substantially as and for the purposes specified.

EDWIN L. DRAKE.

Witnesses:

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T. O. COWSERT.