

(No Model.)

C. H. WILMOTH.
RATCHET DRILL STOCK.

No. 378,639.

Patented Feb. 28, 1888.

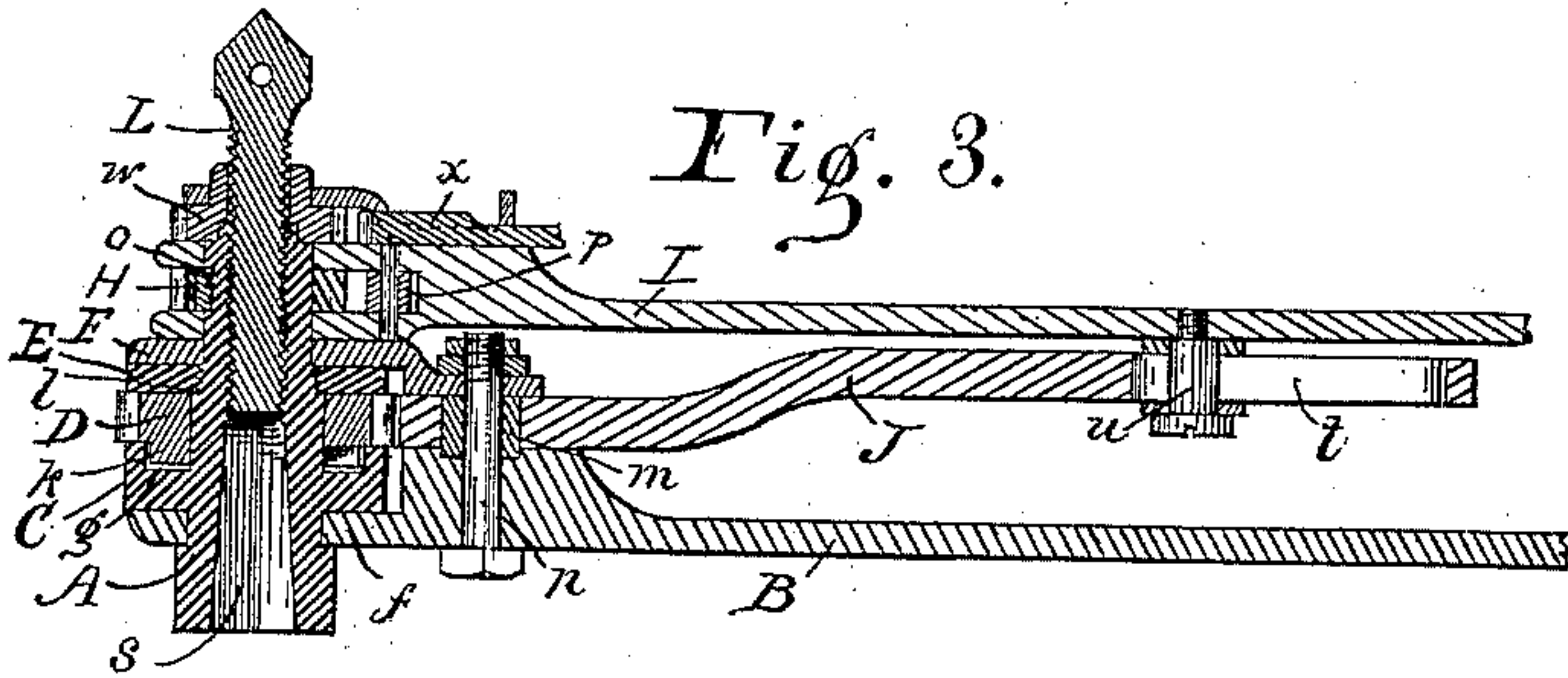


Fig. 3.

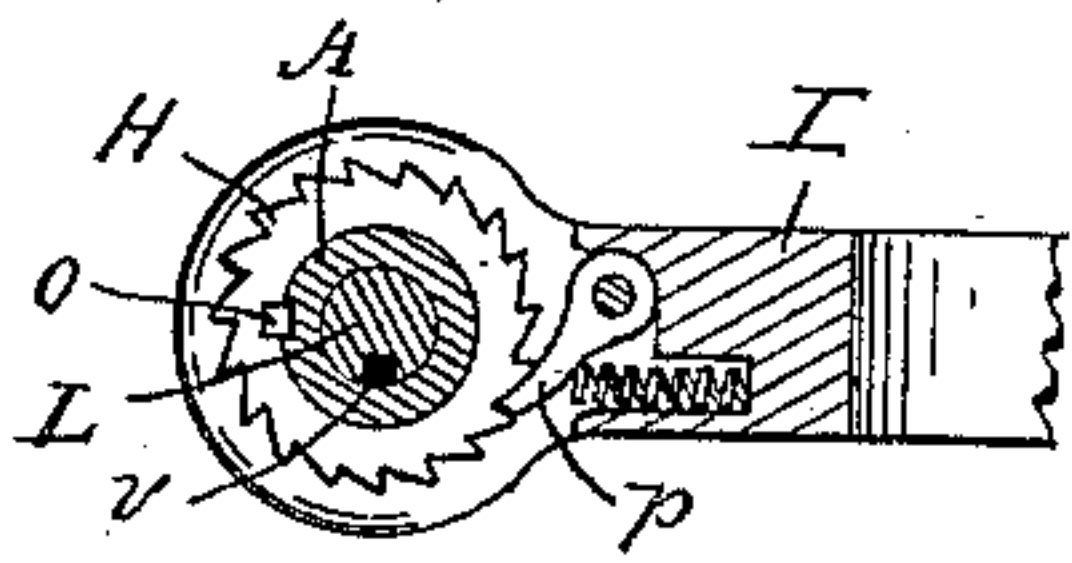


Fig. 4.

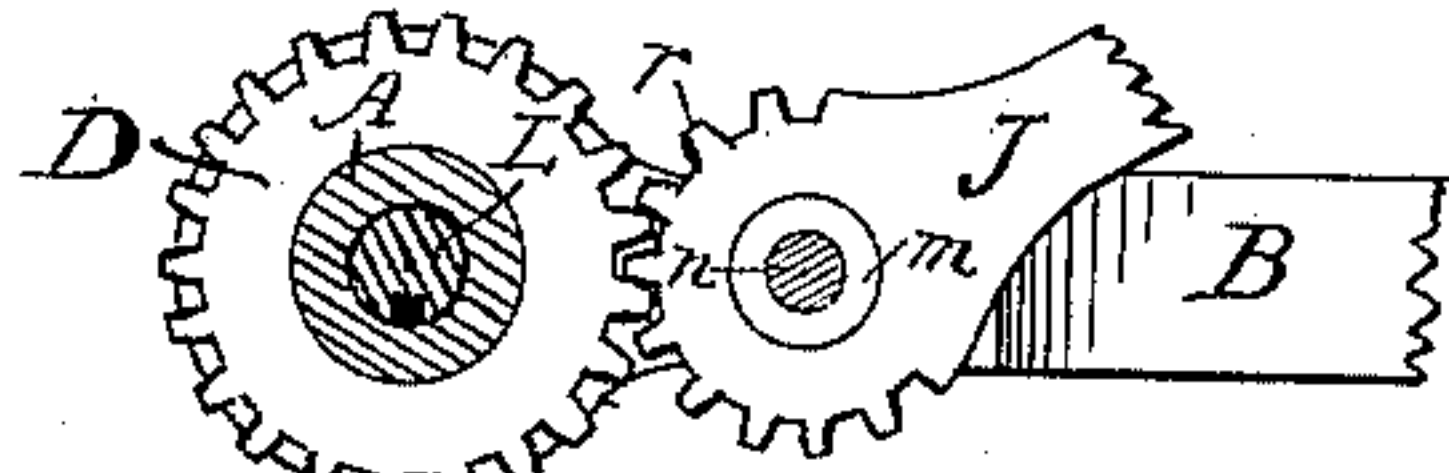


Fig. 5.

Fig. 6.

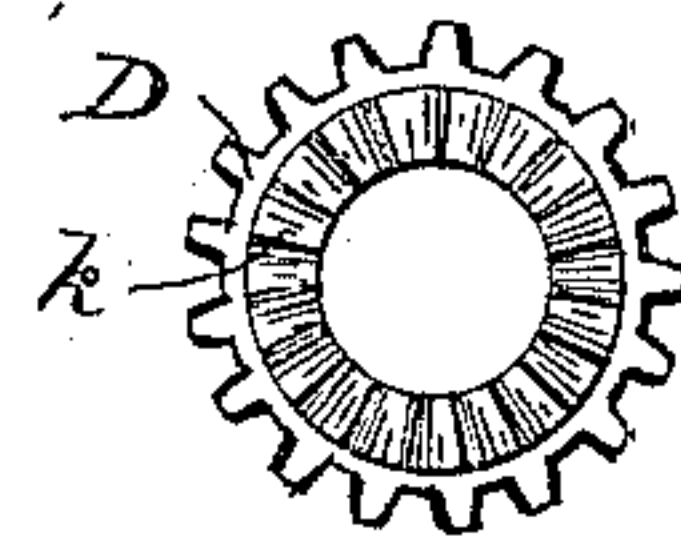
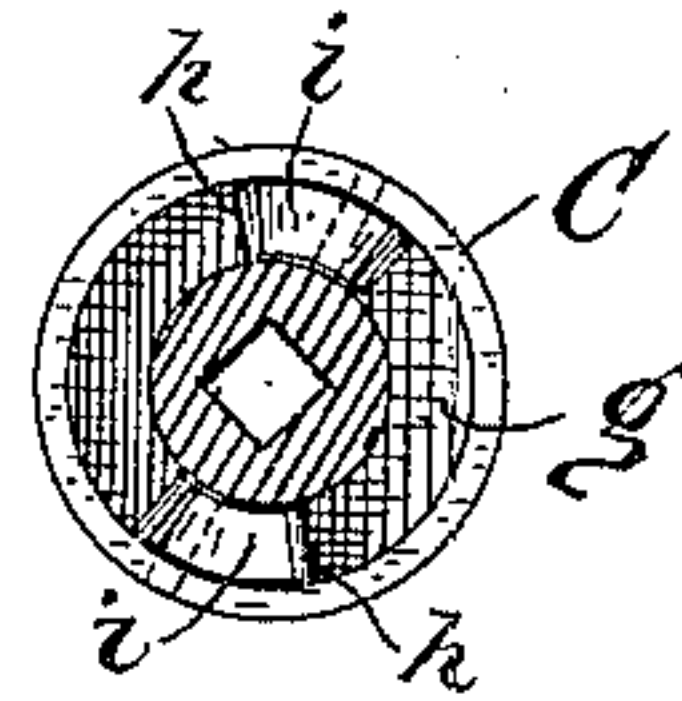


Fig. 7.

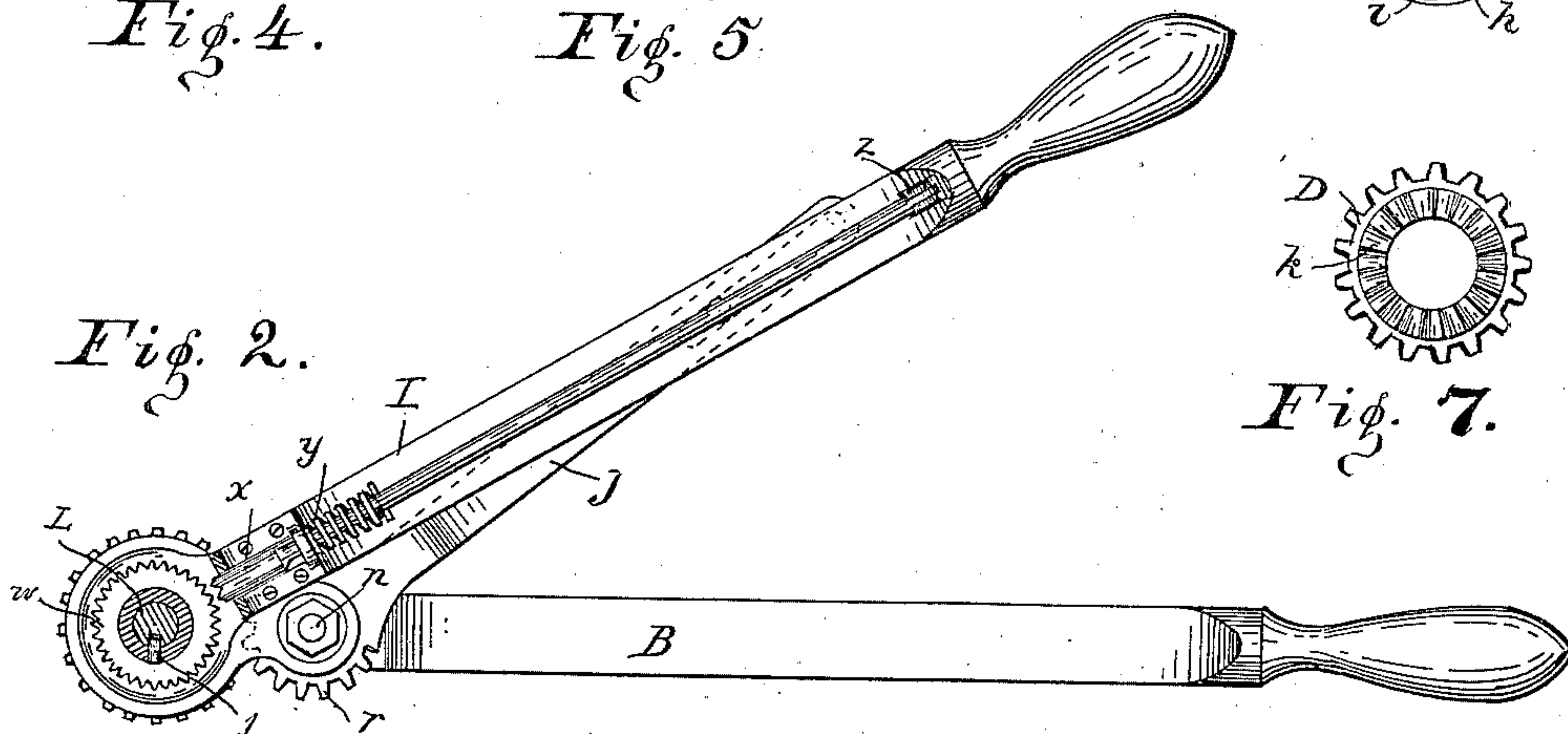


Fig. 2.

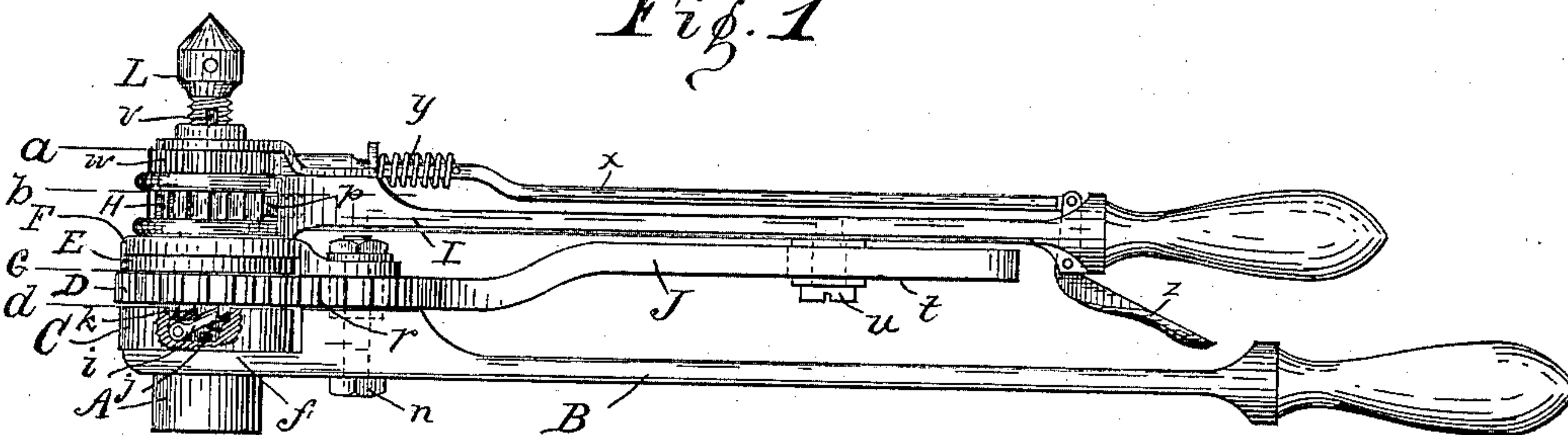


Fig. 1.

Witnesses,

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Inventor

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UNITED STATES PATENT OFFICE.

CORYDON H. WILMOTH, OF TERRE HAUTE, INDIANA.

RATCHET DRILL-STOCK.

SPECIFICATION forming part of Letters Patent No. 378,639, dated February 28, 1888.

Application filed August 13, 1887. Serial No. 246,833. (No model.)

To all whom it may concern:

Be it known that I, CORYDON H. WILMOTH, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented a new and useful Improvement in Ratchet Drill-Stocks, of which the following is a specification.

My invention relates to an improvement in a ratchet drill-stock for which Letters Patent No. 365,214 were issued to me June 21, 1887.

The object of my present improvement is to facilitate the manufacture of the drill-stock and to provide a novel, stronger, and more practical arrangement of its working parts.

The accompanying drawings illustrate my improvement.

Figure 1 is a side elevation having a small portion broken away. Fig. 2 is a plan at *a*, Fig. 1. Fig. 3 is a vertical section. Fig. 4 is a transverse section at *b*, Fig. 1. Fig. 5 is a transverse section at *c*, Fig. 1. Fig. 6 is a transverse section of the tool-holding shaft at *d*. Fig. 7 is a plan of the under side of the ratchet-collar.

My invention as described in the above-mentioned Letters Patent consists, essentially, of a short shaft having a socket in one end to receive a drill-shank, a ratchet-wheel secured to said shaft, a handle having bearings in which the shaft revolves, an operating-lever mounted on the shaft so as to turn thereon, and carrying a pawl which engages the ratchet-wheel and turns the shaft when the operating-lever is turned in one direction, a second ratchet-wheel, also secured to the shaft, a collar mounted on the shaft so as to turn about said second ratchet-wheel, and carrying a pawl which engages the ratchet-wheel, and provided also with cog-teeth on the periphery of the collar, which engage similar teeth formed on a lever which is pivoted to the handle and is connected to the operating-lever, the arrangement being such that the shaft is driven in the same direction by both the forward and backward movement of the operating-lever. There is also a feed-screw for forcing the drill against the work and means for operating said screw.

In practice it has been found necessary to form the above-mentioned collar in several pieces in order to properly embrace the second ratchet-wheel, and it is necessary to secure

these pieces forming the collar together after they have been mounted on the shaft, which is inconvenient and expensive. In my present improvement this difficulty is avoided as follows:

A is the drill-shaft, having a socket, *s*, adapted to hold the drill-shank.

B is the handle. The handle is perforated at one end to form a bearing, *f*, for the shaft. On the shaft is formed a collar, C, having on its upper side an annular recess, *g*, Fig. 6. In this recess are formed depressions at *h h*, in which are pivoted pawls *i i*, which are each supported at their free ends by a spring, *j*, Fig. 1.

Mounted on the drill-shaft, immediately above the collar C, is a cog-wheel, D, having formed on its under side an annular projection fitted to turn easily in the recess *g*, and having a series of ratchet-teeth, *k*, which engage the pawls *i*, as clearly shown in Fig. 1. Wheel D is held in place on the shaft and in engagement with the pawls *i* by a collar, E, which is screwed onto the shaft against a shoulder at *l*, Fig. 3, so that the cog-wheel D is held so as to turn easily between the collars C and E.

F is a plate resting at one end on a stud, *m*, projecting from the handle B, the plate being secured by a bolt, *n*, and forming at its other end a bearing for the shaft A.

H is a ratchet-wheel secured to shaft A by a key, *o*.

I is the operating-lever, forked at one end to embrace the ratchet-wheel and perforated so as to turn on the shaft. Lever I carries a pawl, *p*, which engages the ratchet-wheel H.

J is a lever pivoted to the handle B on the stud *m*, and having teeth *r*, which intermesh with the cogs of wheel D. The other end of lever J is slotted at *t* and is attached to the operating-lever, so as to move therewith, by a stud, *u*.

The upper end of shaft A is bored out and screw-threaded to receive the feed-screw L, which has a keyway, *v*, extending nearly its entire length, and is turned by means of a notched wheel, *w*, having a pin, *z*, which projects into the keyway of the screw, and which is turned at the will of the operator by means of a rod, *x*, having its end notched to engage the wheel *w*, and which is held normally out

of engagement with the wheel by a spring, *y*, and is forced into engagement by the bell-crank lever *z*.

In operation lever I, being moved toward
5 the left, engages ratchet-wheel H and turns
the drill-shaft in the same direction, at the
same time operating lever J and turning wheel
D in the opposite direction, the ratchet-teeth
of said wheel slipping idly over the pawls *i*.
10 Lever I being now moved in the opposite di-
rection, the ratchet-teeth *k* of wheel D engage
the pawls *i* on C and turn the drill-shaft in the
same direction as when the operating-lever
moved toward the left. The drill-shaft is thus
15 rotated in one direction by both movements
of the operating-lever.

I claim as my invention—

1. In a ratchet drill-stock, the combination,
with the drill-shaft, the ratchet-wheel secured
20 thereto, the operating-lever mounted on the
shaft and carrying a pawl which engages said
ratchet-wheel, the handle, also mounted on the

shaft, and the toothed lever pivoted to the
handle and attached to the operating-lever, of
the recessed collar C, having one or more 25
pawls, *i*, pivoted in the upper face thereof,
and the cog-wheel arranged to turn on the
shaft and to intermesh with said toothed lever,
and having on one side a ratchet-toothed an-
nular projection arranged to engage the pawls 30
on the collar, in the manner and for the pur-
pose specified.

2. In a ratchet drill-stock of the above-de-
scribed class, the combination of the drill-shaft
having the recessed collar C, the pawls piv- 35
oted in said recess, the cog-wheel D, having
the ratchet-teeth *k*, the collar E, the handle B,
and the lever J, all arranged to co-operate sub-
stantially as and for the purpose specified.

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Witnesses:

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