

(No Model.)

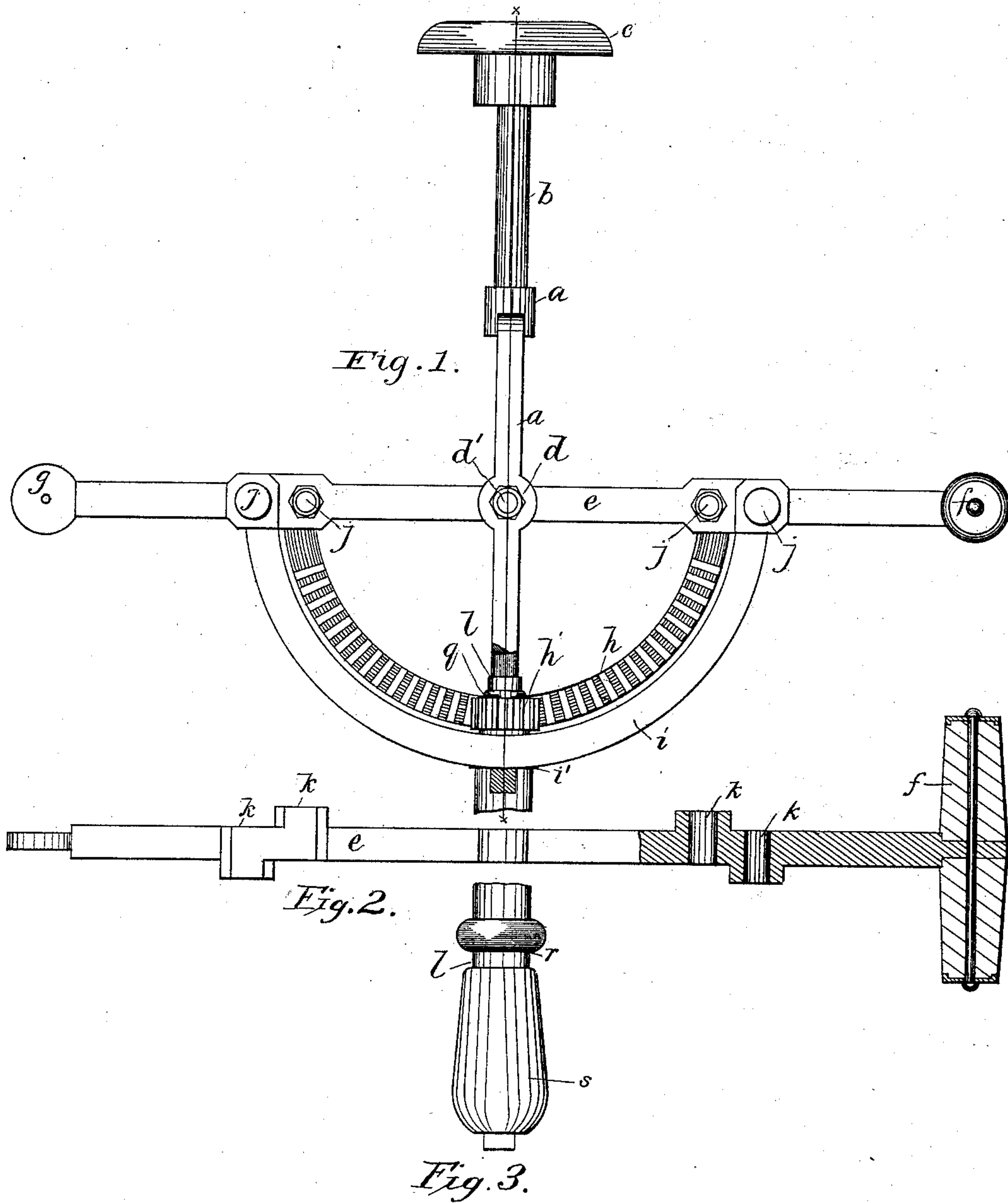
2 Sheets—Sheet 1.

W. B. GILMORE.

BIT STOCK.

No. 374,185.

Patented Dec. 6, 1887.



WITNESSES:

W. B. Gilmore
W. B. Sawyer

INVENTOR

Willis B. Gilmore

BY

R. M. McDermott

his
ATTORNEY

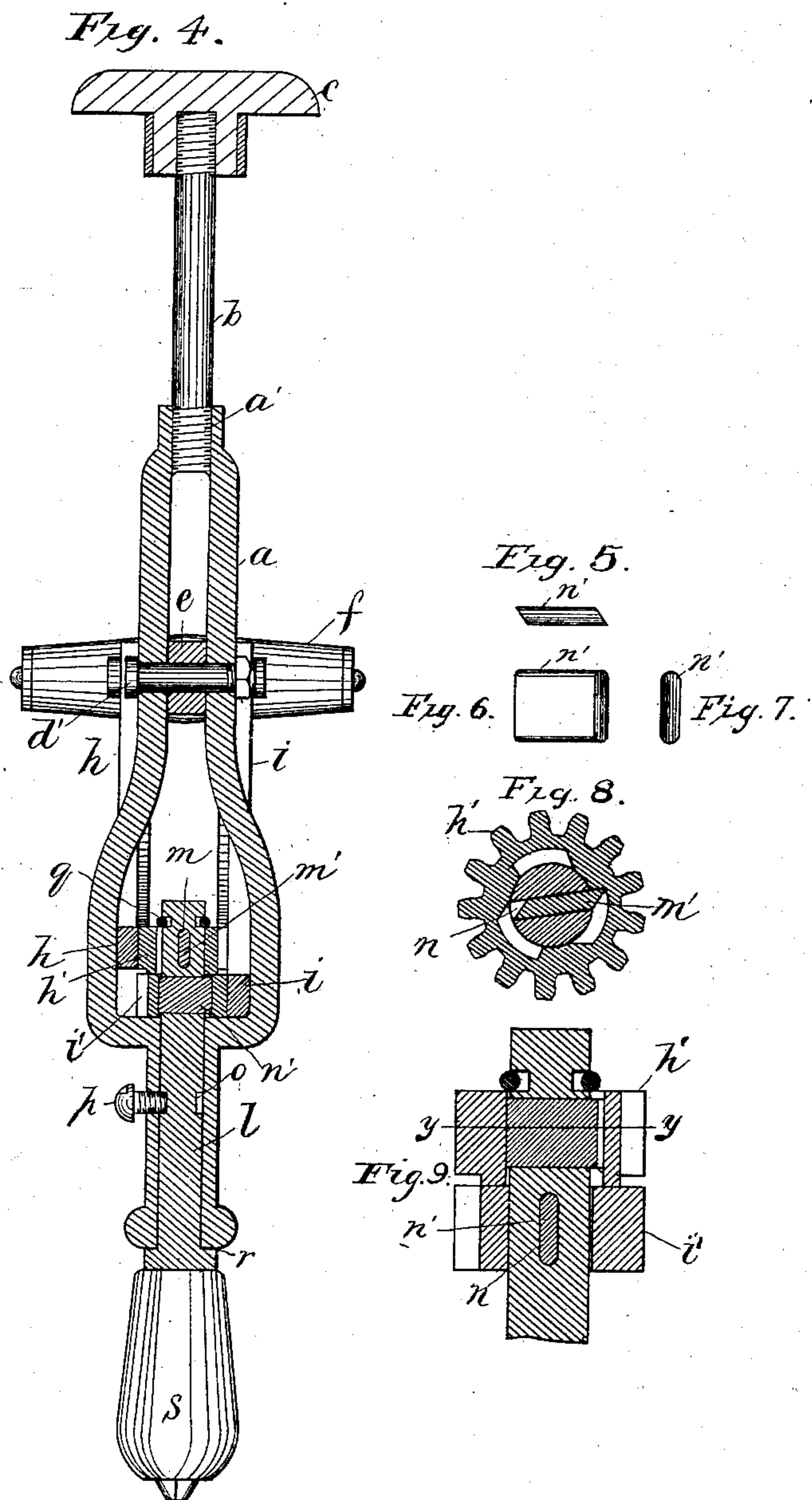
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J. H. Arnold
W. J. Sawyer

INVENTOR

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UNITED STATES PATENT OFFICE.

WILLIS B. GILMORE, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO
FRANKLIN S. GILMORE, OF SAME PLACE.

BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 374,185, dated December 6, 1887.

Application filed June 17, 1887. Serial No. 241,613. (No model.)

To all whom it may concern:

Be it known that I, WILLIS B. GILMORE, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Bit-Stocks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to bit-stocks or drill-braces for holding and operating boring-tools which are revolved.

The special object of my invention is to provide improved means for operating bits or drills, as hereinafter fully described, and pointed out in the claims. I accomplish this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of my device with a portion broken away in order to show the rack and pinion. Fig. 2 is a top view of the actuating-lever and one handle, which, with a portion of the lever, is shown in section. Fig. 3 is a side view of holding device. Fig. 4 is a sectional view of the entire device taken on the line *x x*, Fig. 1. Fig. 5 is a top view of the sliding pawl. Fig. 6 is a side view of the same. Fig. 7 is an end view of the same. Fig. 8 is a horizontal section through the line *y y*, Fig. 9. Fig. 9 is a sectional view of the shaft, the pinions, and the pawls, taken at right angles to the view shown in Fig. 4.

Similar letters refer to similar parts throughout the several views.

In the drawings, *a* represents the main frame, which is formed as shown, and is provided with a threaded hole, *a'*, in its upper end, into which the extension *b* (which is a metal rod having screw-threads on either end) may be placed. On the other end of this extension a rest of any desired form may be placed, but preferably the style shown and marked *c*.

The operating-lever *e* is fulcrumed on the bolt *d'* in the bearings *d* in the frame *a*, and the outer ends of said lever are provided with suitable handles, *f* and *g*. To the sides of the lever *e* the semicircular racks *h* and *i* are at-

tached by the bolts *j*, which pass through the holes *k*. The rack *h* is made of such a size that it will operate the pinion *h'*, and the rack *i* should be the proper size required to operate the pinion *i'*. The pinions are placed on the upper end of the spindle *l*, which is firmly attached to the device for holding the bits, which may be of any ordinary kind now in use. The spindle is provided with two transverse slots, *m* and *n*, cut entirely through the spindle, one above the other, preferably at right angles to each other. These are to act as guides for the sliding pawls *m'* and *n'*, which should fit the slots neatly, in order that they may freely slide back and forth when operated by the internal ratchets within the pinions *h* and *i*, (shown in Fig. 8,) which internal ratchets have inclined and abrupt faces, against which the sliding pawls act.

The pinions and pawls should be placed on and in the spindle in such a manner that when the actuating-lever moves in either direction the spindle will be operated in only one direction, which can readily be done by placing one pinion and pawl on the spindle, as shown in Fig. 8, and the others in a reversed position, and it will be seen that all that is necessary to operate the spindle in the opposite direction is to reverse the pinions and pawls, which latter should be of the form shown.

The spindle *l* should be provided with an annular groove, *o*, for the reception of the end of a set-screw, *p*, which is held in the frame *a*, as shown in Fig. 4, and which serves to hold the spindle in position vertically.

The pinions may be held in position on the spindle by a nut screwed against a shoulder, by a split key, or by a spring-ring, *q*, clamping the spindle, and held in position by an annular groove in such a manner that the pinions will be partially covered, as shown in Fig. 4.

The spindle should be provided with a shoulder forming a bearing, *r*, which operates against the lower end of the frame *a*.

In operating, the bit is inserted in the chuck *s* and the point placed in position against the material to be operated upon, the rest *c* against the breast of the operator, whose hands should grasp the handles and operate the actuating-lever with a reciprocating motion, which

will revolve both pinions, one in the opposite direction to the other; but as they so revolve only one is operating the spindle. When the motion is reversed, the one which has been acting runs loose and the other in turn operates the spindle.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

10 1. In a bit-brace, the combination, with the frame, of the bit-spindle provided with a slot, a pawl of greater length than the diameter of the spindle, located to slide in said slot, a pinion on said spindle, having an internal ratchet
15 with faces adapted to pass the projecting end of the pawl when the pinion is turned in one direction, and faces adapted to engage the projecting end of the pawl to turn the spindle when the pinion is turned in the opposite di-
20 rection, and a suitable rack-bar connected with the frame for turning said pinion, substantially as set forth.

2. In a bit-brace, the combination, with the frame, of the bit-spindle provided with two slots, two pawls of greater length than the diam- 25 eter of the spindle, located and adapted to slide in the slots, pinions on said spindle, each having internal ratchets with faces adapted to pass the projecting end of the pawl when the pinion is turned in one direction, and faces adapted 30 to engage a projecting end of the pawl to turn the spindle when the pinion is turned in the opposite direction, and suitable rack-bars connected with the frame for operating said pinions, substantially as shown and described. 35

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

WILLIS B. GILMORE.

Witnesses:

A. W. RICHARDS,

E. ANTHONY, Jr.