

(No Model.)

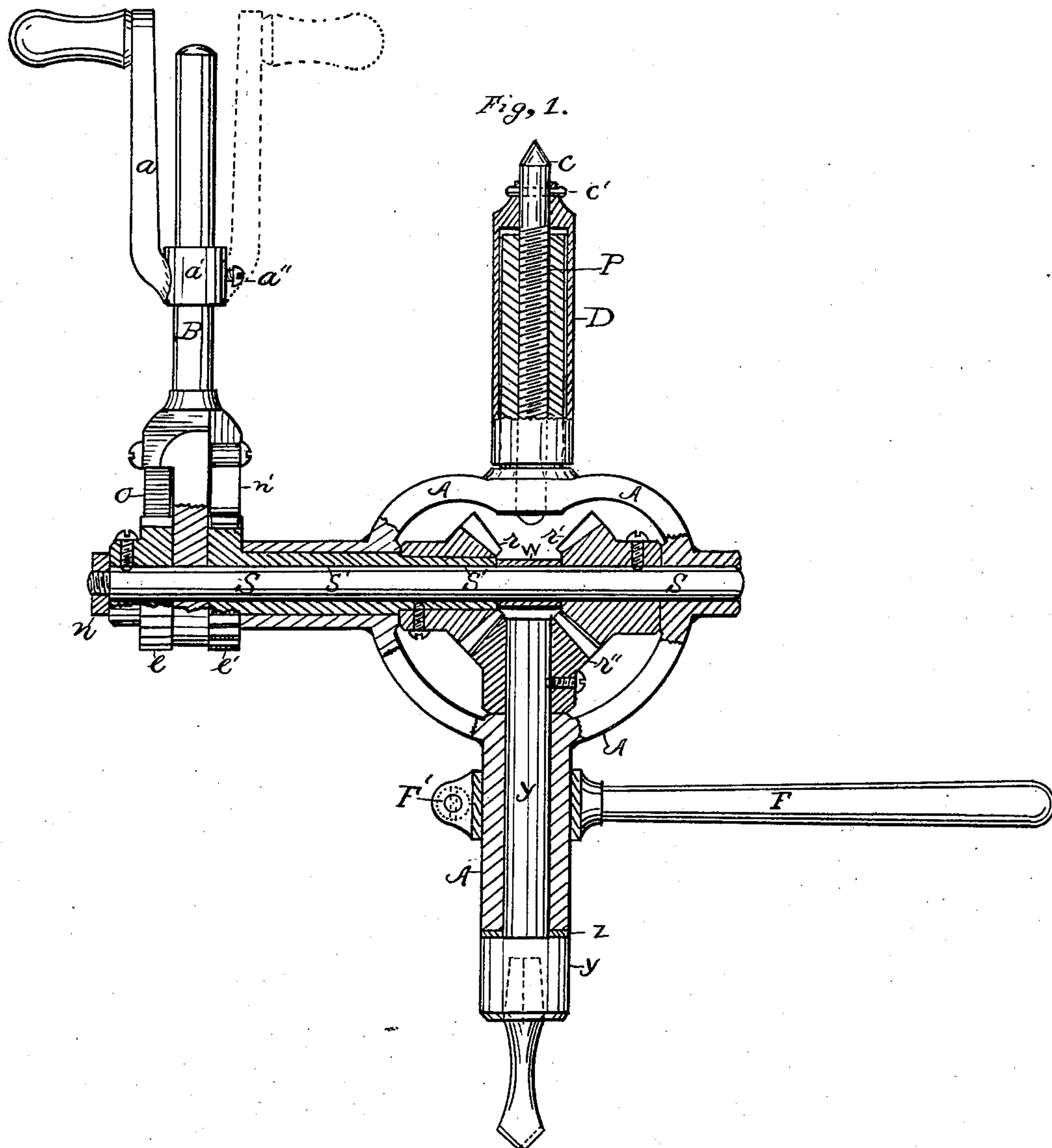
2 Sheets—Sheet 1.

W. SANDIFORD.

RATCHET DRILL.

No. 264,107.

Patented Sept. 12, 1882.



Witnesses

Thos H. Hutchins.

Wm J. Hutchins.

Inventor.

William Sandiford.

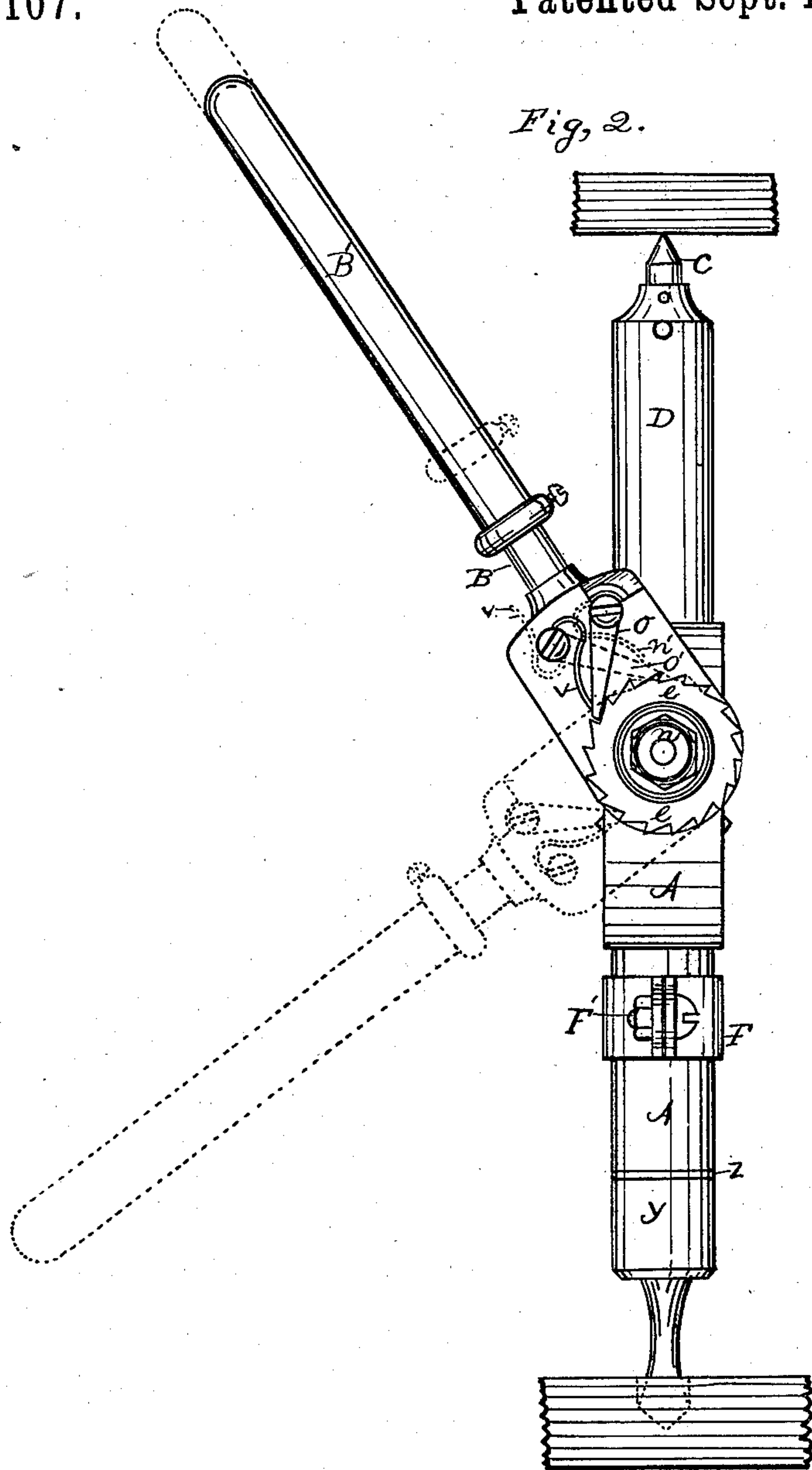
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UNITED STATES PATENT OFFICE.

WILLIAM SANDIFORD, OF JOLIET, ILLINOIS.

RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 264,107, dated September 12, 1882.

Application filed December 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SANDIFORD, of the city of Joliet, in Will county, and State of Illinois, have invented certain new and useful Improvements in Ratchet-Drills, the construction and operation of which I will proceed to explain, reference being had to the annexed drawings and the letters and figures thereon, in which—

Figure 1 is a vertical central section, and Fig. 2 an end elevation.

The nature of my invention consists in the construction and arrangement of a ratchet-drill, as will be hereinafter more fully set forth.

Referring to the drawings, A represents the main frame of the drill, depressed somewhat at the top to prevent pressure causing the frame to spread, and extending downward to support the drill-shaft *y*, and at one side at right angles with its other extension to support the driving-shafts S and S'. The driving-shaft S is provided at its outer end with the ratchet-wheel *e* and at its inner end with the miter-wheel *r'*, both of which are firmly keyed to it or held firm by set-screws. The hollow driving-shaft S' is sleeved upon the driving-shaft S, and is also provided at its outer end with the ratchet-wheel *e'* and at its inner end with the miter-wheel *r*, both firmly fixed thereto by means of keys or set-screws. The upper end of the drill-shaft *y* is provided with the miter-wheel *r''*, firmly fixed to it, and which meshes with both the other miter-wheels *r* and *r'*, and from them receives a continuous forward rotary motion.

The operating-lever B is boxed upon the outer end of the driving-shaft S between the ratchet-wheels *e* and *e'*, and is provided with the two pawls *o* and *o'*, arranged one on either side of the operating-lever B, so that the pawl *o* engages with the teeth of the ratchet *e* and the pawl *o'* engages with the teeth of the ratchet *e'*. The teeth of the ratchets *e* and *e'* are turned in opposite directions. It will be readily seen that by moving the operating-lever B in one direction the pawl *o*, operating on the ratchet *e*, will rotate the driving-shaft S, and as the miter-wheel *r'* is attached to said driving-shaft S it will rotate the miter-wheel *r''* and with it the drill-shaft *y*. As the operating-lever B is moved in the opposite direction the pawl *o'*

engages with the ratchet-wheel *e'*, which rotates the hollow driving-shaft S', and the miter-wheel *r*, which meshes with the miter-wheel *r''* on the upper end of the drill-rod *y*, and rotates the said drill-rod *y* in the same direction it was rotated by the reverse motion of the operating-lever B, so that as the operating-lever B is moved back and forth it imparts a continuous rotary motion to the drill in the same direction.

In Fig. 2, B' is an extensible sleeve on the operating-lever B, to lengthen it to any desired length, and held at any place by the set-screw at its lower end.

The springs *v* and *v'*, that operate on the pawls *o* and *o'*, to hold them down to work, may be turned backward, as shown in said Fig. 2 in the dotted lines, to relieve the pawl from pressure on the ratchets, or on one of the ratchets, when the adjustable crank *a* is attached to the operating-lever B, and it is rotated forward continuously instead of operating the operating-lever B back and forth, as stated, so that the ratchet not in use will not be worn by its pawl needlessly. The steadying-handle F has an eye at its inner end, which fits over the lower hub or projection of the frame A loosely. The eye of said handle F is cut and provided with gripes and a bolt, F', passing through said gripes to hold them together, by means of which arrangement the handle F may be held firmly at any place or any position desired. A loose washer, *z*, is placed on the drill-shaft *y*, between the frame A and the shoulder of the said drill-shaft *y*, as shown in Fig. 2, so as to prevent friction and wear of the parts.

The arrangement to feed the drill to its work consists of the barrel P, being a continuation and a portion of the frame A, and threaded on its inner surface to receive the feed-screw *c*, to which screw *c* is attached a cap, D, by means of a pin, *c'*, at its upper end, by means of which cap D the feed-screw is rotated to drive the machine to its work, the point at the upper end of the feed-screw *c* being placed against some resisting object. The cap D not only forms a convenient object for the hand to grasp to rotate the feed-screw *c*, but forms a shield or cover to the other parts to keep them free from dirt or injury.

The sleeve *w* on the shaft S is to prevent a

nearer approach of the miter-wheels r and r' to each other.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In the ratchet-drill described, in combination with the frame A, the hollow shaft S' , having the miter-wheel r and ratchet e' , rigidly fixed thereto and sleeved upon the shaft S, having the miter-wheel r' and ratchet e , rigidly fixed thereto, miter-wheel r'' , drill-spindle y , lever B, boxed upon the shaft S and provided with the reversed spring-pawls o and o' , and feed consisting of the barrel P, screw c , and cap D, all arranged to operate in the manner and for the purpose set forth.

2. In the ratchet-drill described, the combination of the frame A, bevel-gears r r' r'' , shafts S and S' , ratchets e and e' , reversed spring-pawls o and o' , lever B, provided with the adjustable crank-handle a , steadying-handle F, drill-spindle y , and feed consisting of the barrel P, feed-screw c , and cap D, all arranged to operate in the manner and for the purpose set forth.

WILLIAM SANDIFORD.

Witnesses:

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W. E. COMSTOCK.