

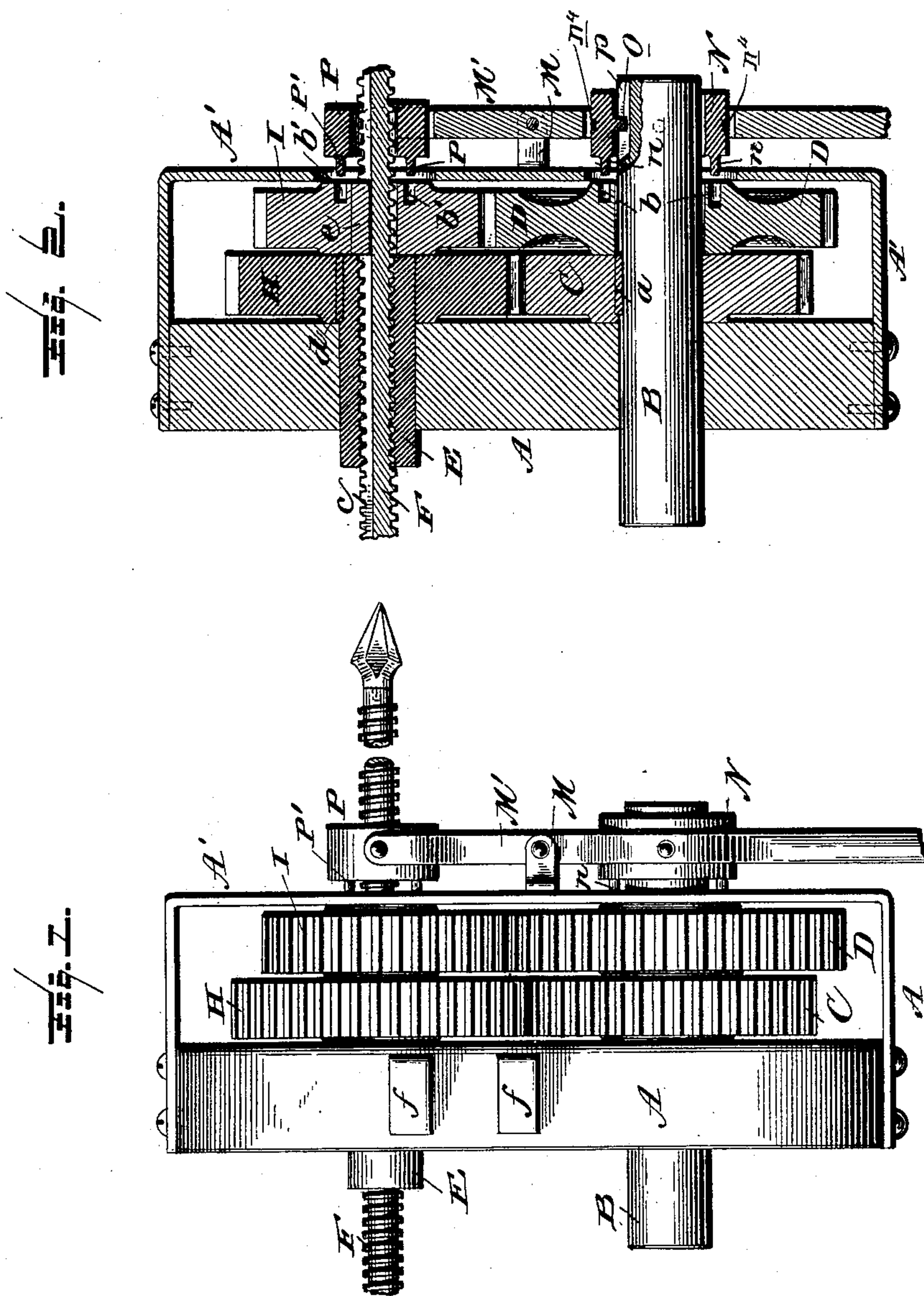
(No Model.)

2 Sheets—Sheet 1.

H. B. WYMAN.
DRILLING MACHINE.

No. 434,576.

Patented Aug. 19, 1890.



Witnesses

L. C. Hills.
Chas. B. Cooley.

Inventor

Horace B. Wyman.

By his Attorney

Chas. H. Fowler.

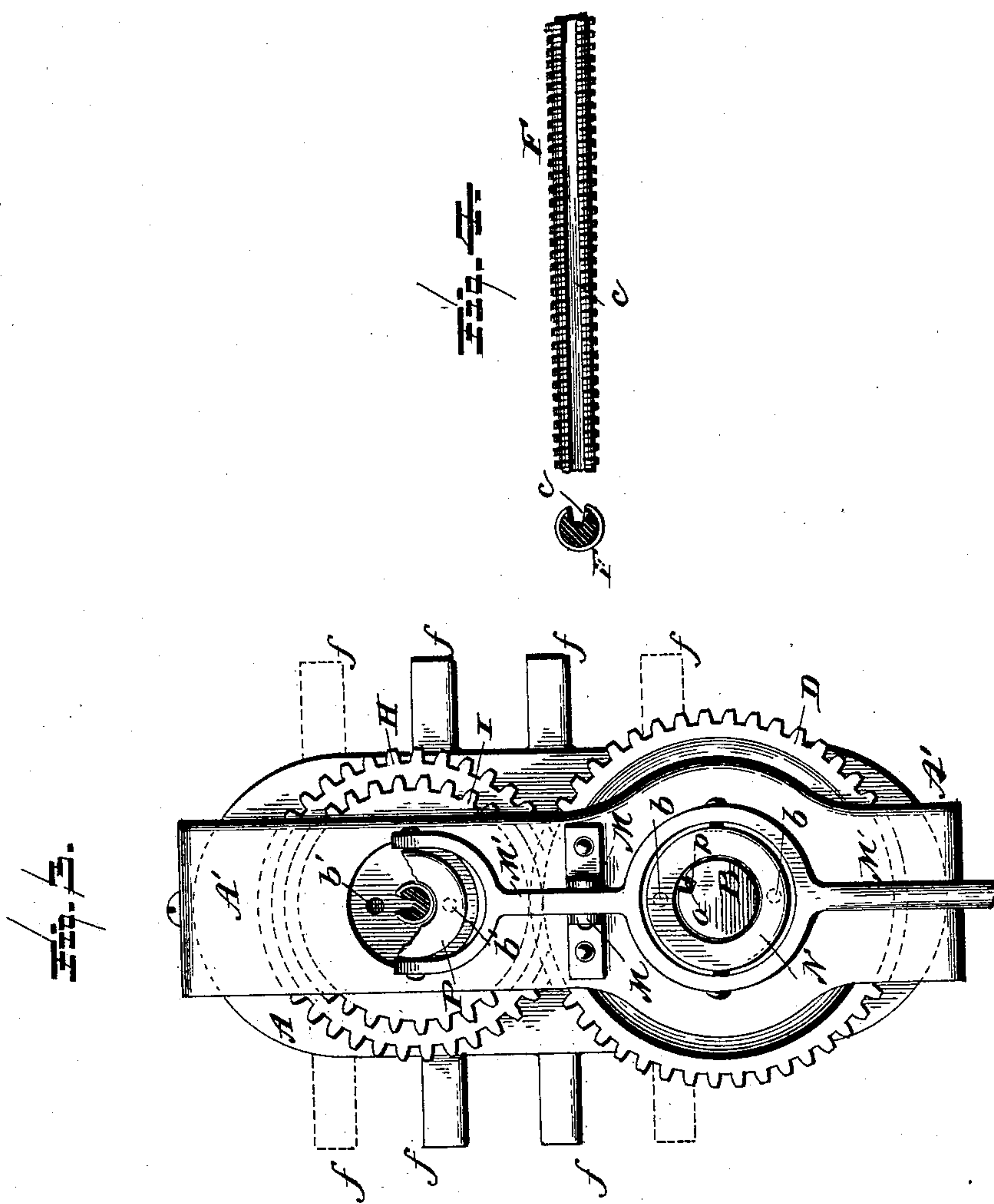
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UNITED STATES PATENT OFFICE.

HORACE B. WYMAN, OF NEWBURYPORT, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CHARLES G. WELCH, OF OSCEOLA MILLS, PENNSYLVANIA.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 434,576, dated August 19, 1890.

Application filed May 16, 1890. Serial No. 352,065. (No model.)

To all whom it may concern:

Be it known that I, HORACE BARTLETT WYMAN, a citizen of the United States, residing at Newburyport, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Drilling-Machinery; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain new and useful improvements in drilling-machines for use more particularly in mining; and it has for its object to provide for a steady feed in the direction of feed of the drill and a quick return. I provide improved clutch mechanism for changing the feed. I provide improved means for holding the device in position. I simplify and otherwise improve generally upon the device as a whole.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side view of my improved machine. Fig. 2 is a central vertical section through the same. Fig. 3 is an end view, looking in the direction of the arrow in Fig. 1, with the screw-shaft shown in cross-section. Fig. 4 shows in cross-section and side view the screw-shaft.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a suitable plate or casting, to which is secured the bar A', having a portion parallel with the plate and portions at right angles thereto, the said plate and bar serving to support the operating parts of the device, and provided with bearings for the shafts thereof, as shown, and as will be hereinafter more particularly explained. These parts may be of any suitable material

and of a size suited to the character of work to be performed.

B is a shaft having a bearing in the plate or frame and adapted to be revolved in any suitable manner—as, for instance, by connection with an electric motor. (Not shown.) This shaft carries a gear-wheel C, which is secured fast thereto by a key *a*, (see Fig. 2,) and also a gear-wheel D, which is not keyed thereto, but which is designed to revolve therewith when engaged by the clutch, being provided upon its outer face with a plurality of holes *b* to receive the pins of the clutch, as will be hereinafter more fully set forth.

E is a sleeve adapted to revolve in its bearing in the frame, and is internally threaded to receive the cutter-bar or holder F, which is exteriorly threaded to engage the threads of the sleeve, and is provided with a longitudinal groove or channel *c*, as shown best in Fig. 4. This cutter-bar carries the drill or cutter G, which may be integral therewith or detachable therefrom, as may be deemed best.

H is a gear-wheel keyed to the inner end of the sleeve by means of a key *d*. (See Fig. 2.)

I is a gear provided with a key *e*, which works in the groove or channel of the cutter-bar and is free to slide therein, except when prevented from so doing. Its outer face is provided with a plurality of holes *b'* to receive the pins of the clutch, as will be hereinafter more particularly explained.

The frame or plate A is formed with lugs *f*, between which are received and secured the lugs of the clamp which may be used to secure the device in position.

M are arms extending at right angles from the bar A', and between these arms is pivoted the clutch-lever M', to which is pivotally connected the ring or band N, provided with pins *n*, designed to engage the holes *b* in the gear D, and a feather or key *o*, which works in a groove or channel *p* in the shaft B, as seen best in Figs. 2 and 3. An annular groove *n'* is formed in the periphery of the ring N to permit its rotation with the shaft B while also maintaining engagement with the lever M'. This lever has pivotally attached thereto upon the opposite side of its pivot the band or ring

P, which is provided with the pins p' , which are adapted to engage the openings b' in the gear I, as shown in Fig. 2. The bar A' has openings to admit of the passage of these pins, as clearly shown in Fig. 2.

The operation is apparent and will be readily understood. The gears cause both the cutter-bar and sleeve to revolve in the same direction; but the cutter-bar revolves the faster, causing it to feed in or out, according to the direction of rotation. The manipulation of the clutch-lever changes the direction of the feed and obtains a quick return.

What I claim as new is—

1. The combination, with the frame and the sleeve free to revolve in bearings therein and provided with internal threads, of the gear fast to said sleeve, the threaded and longitudinally-grooved cutter-bar working in the sleeve, the gear having a key working in the groove of the cutter-bar, the gears on the main shaft meshing with the first-mentioned gears, and means engaging one of the said gears for changing the direction of the feed, substantially as and for the purpose specified.

2. The combination, with the frame and its bar, of the sleeve, the cutter-bar working therein, the fast and loose gears, the main shaft, the clutch-lever pivoted on the said bar, and the rings pivoted to the lever and having pins engaging openings in the loose gears, substantially as specified.

3. The combination, with the frame and the main shaft, of the sleeve, the cutter-bar working therein and revolving therewith, the gears fast on the sleeve and main shaft, the gears loose on the main shaft and cutter-bar, and the clutch mechanism for actuating the loose gears, substantially as specified.

4. The combination, with the frame, the main shaft, and the fast and loose gears, of the bar on the frame, the lever pivotally connected with the bar, and the rings pivoted to the lever and provided with pins, one of the rings having a key working in a groove of the main shaft, substantially as specified.

5. The combination, with the shaft B, the frame, and its bar, of the sleeve, the cutter-bar, the fast and loose gears, the lever pivoted on the bar and carrying rings N and P, formed with pins, and the ring N formed with lug o, engaging a groove in the shaft B, and with a peripheral groove engaging a projection on the lever, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HORACE B. WYMAN.

Witnesses:

H. H. VROMAN,
SIMON KEPHART.