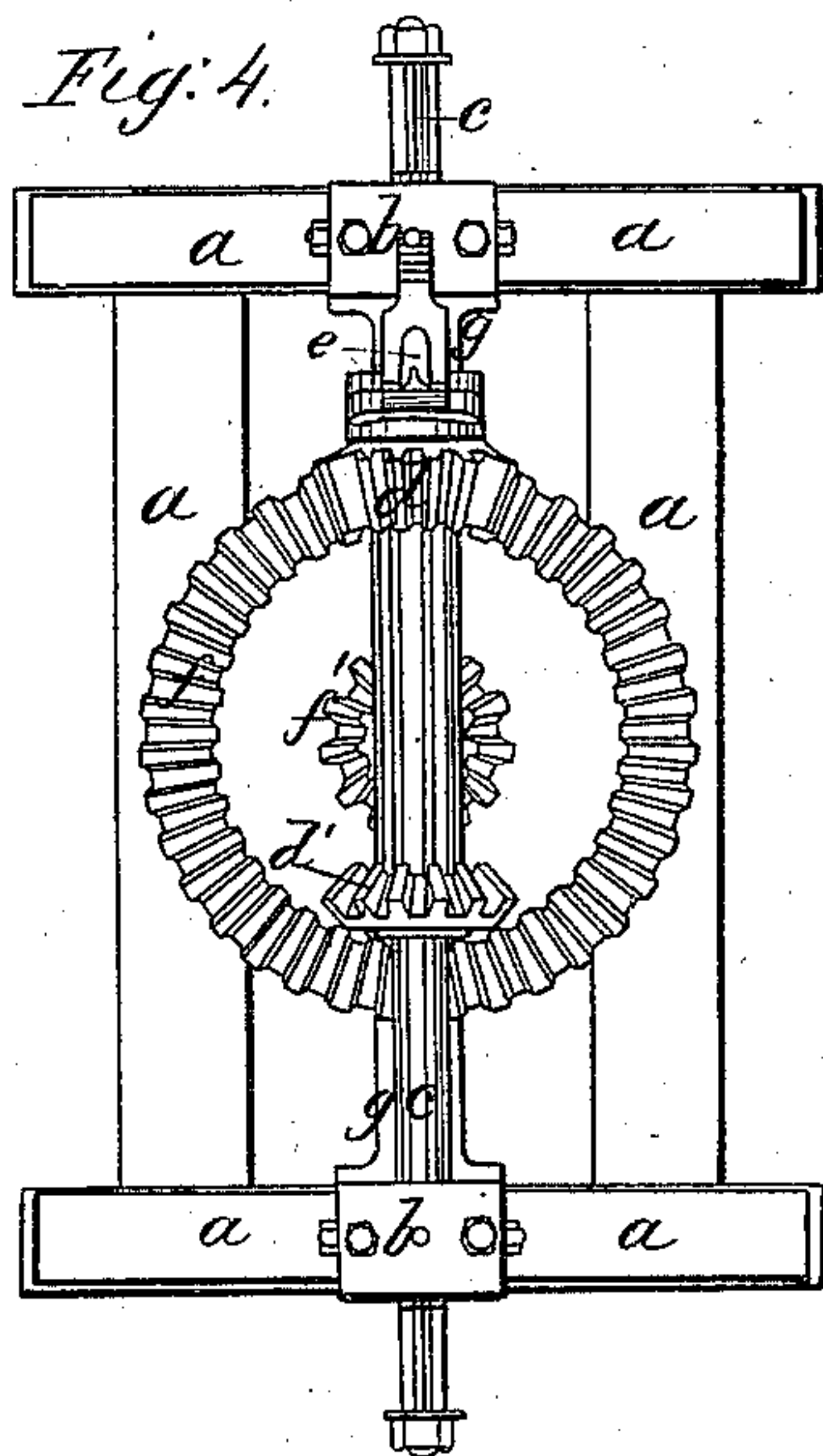
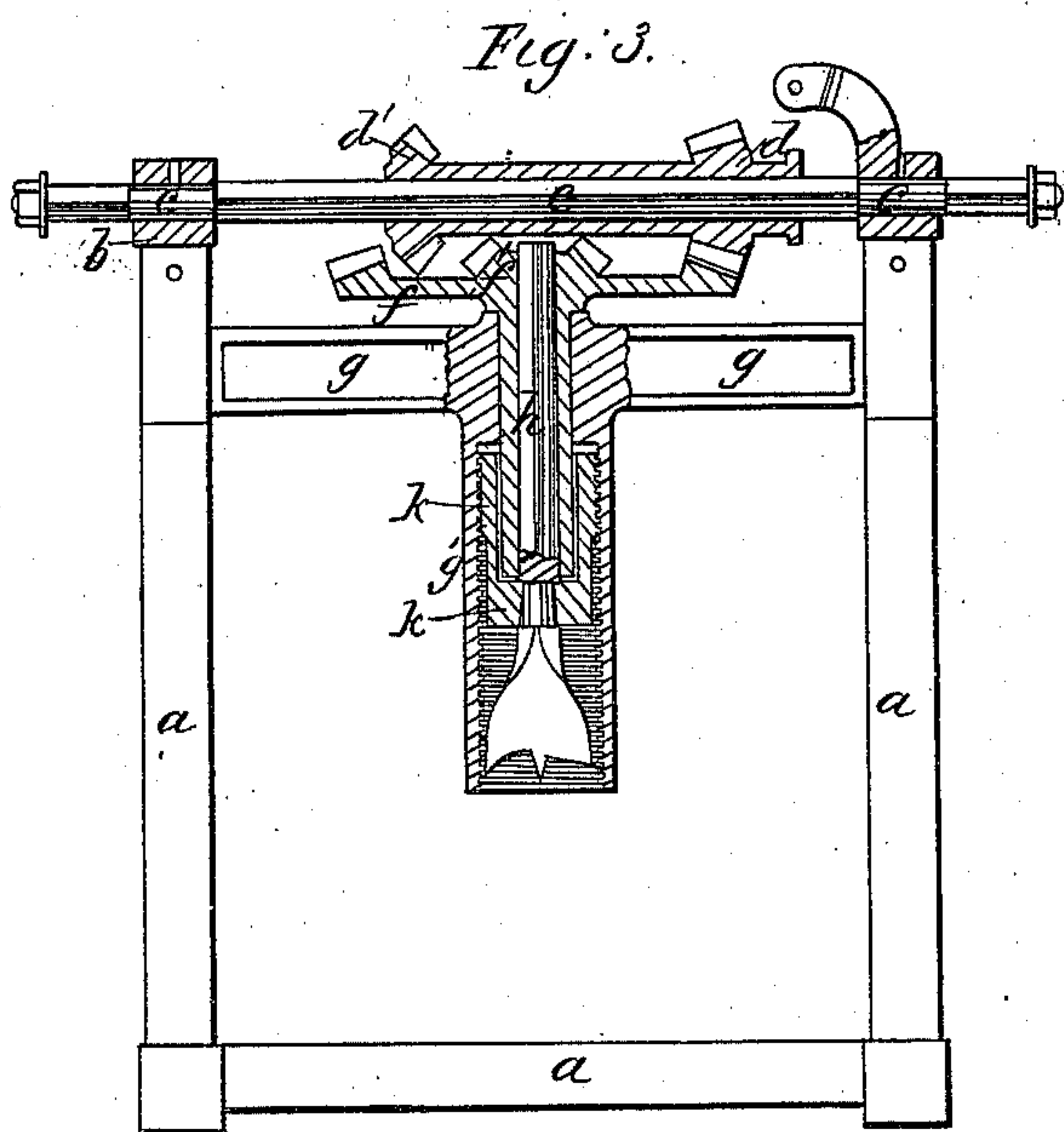
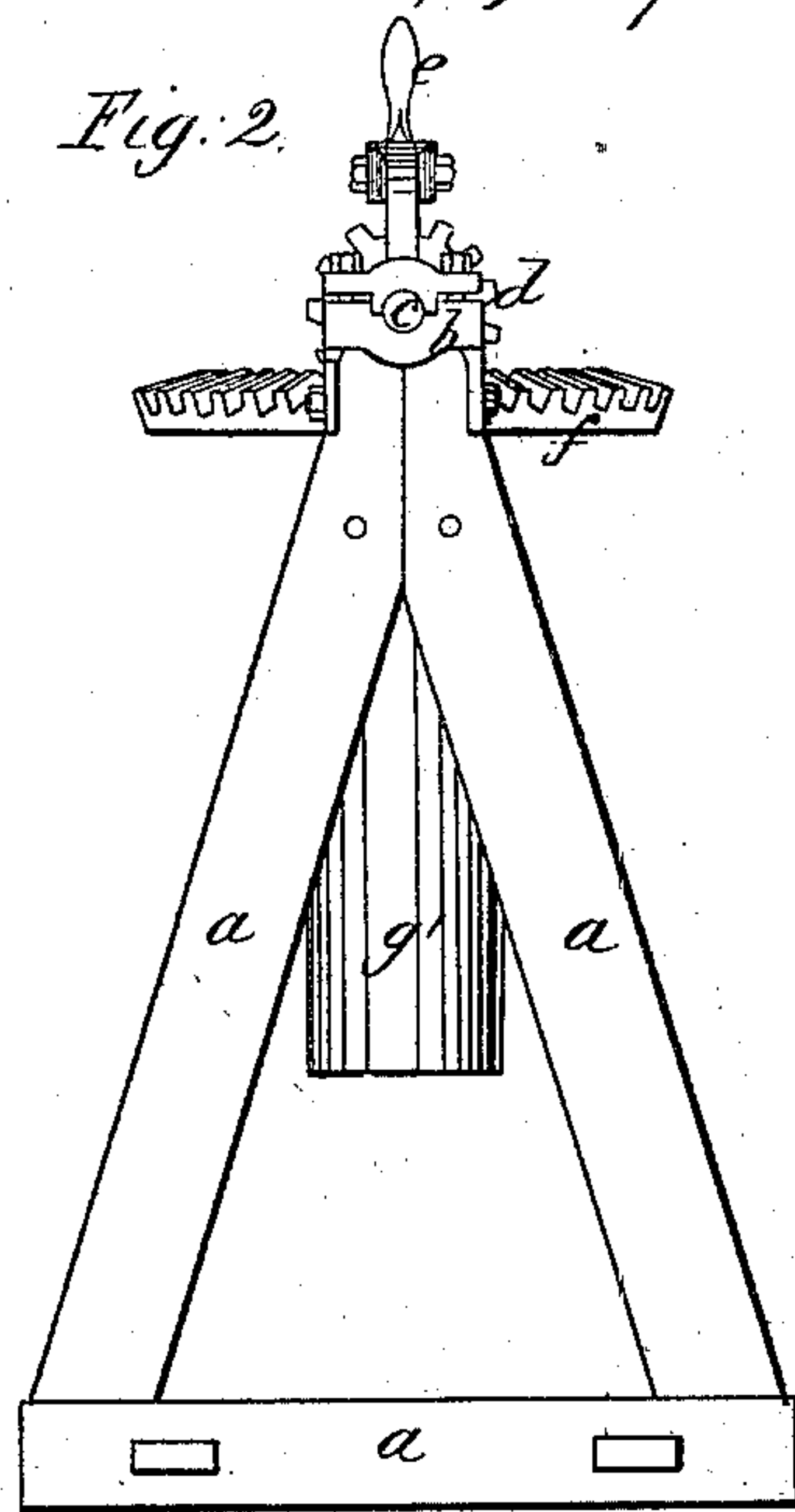
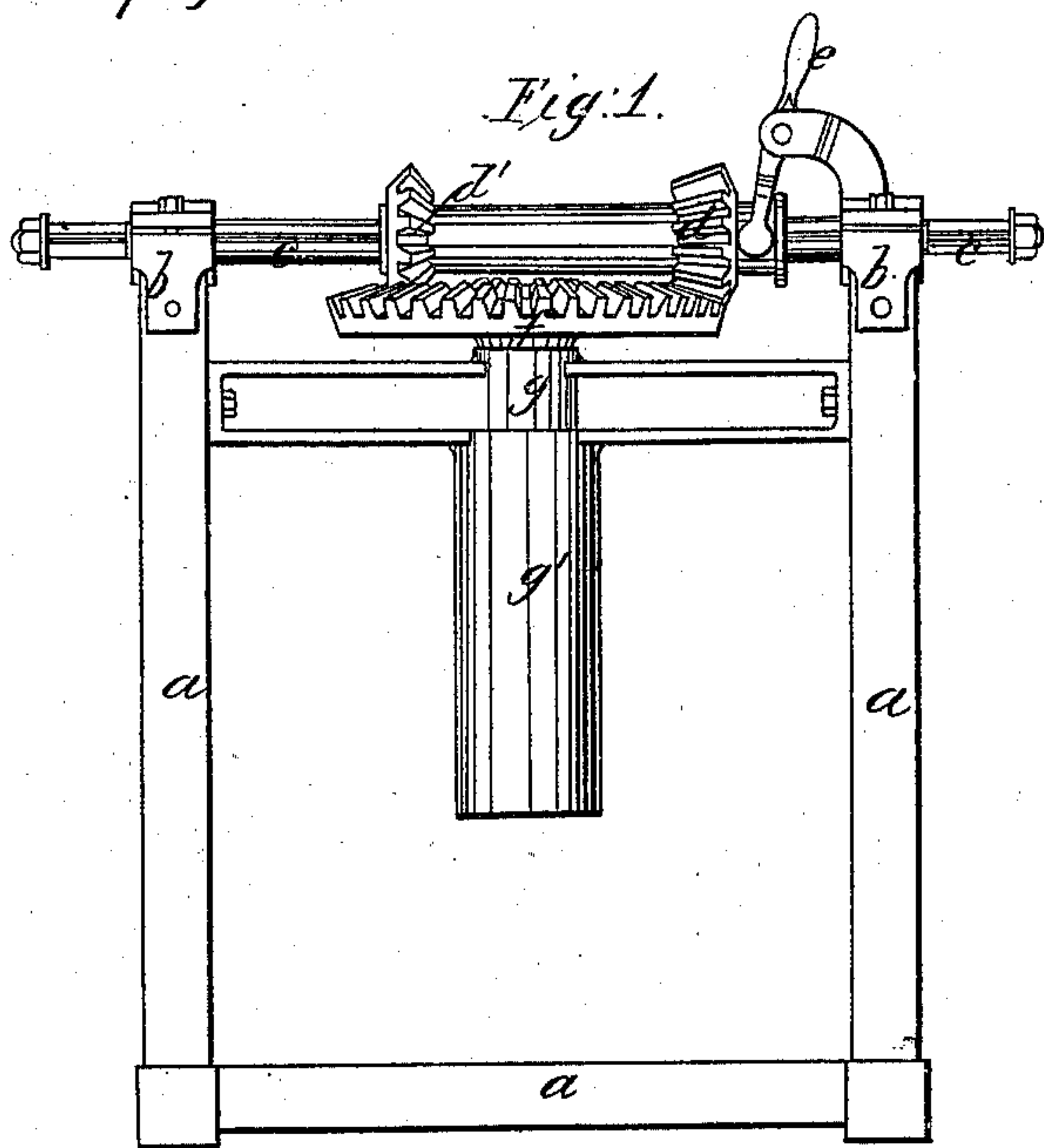


J. Ribon.

Boring Mach.

Nº 98,633.

Patented Jan. 4, 1870.



Witnesses;
Wm. Linsyone
P. Nallely,

Inventor;
Juan Ribon.

UNITED STATES PATENT OFFICE.

JUAN RIBON, OF NEW YORK, N. Y.

IMPROVEMENT IN BORING-MACHINES.

Specification forming part of Letters Patent No. 98,633, dated January 4, 1870.

To all whom it may concern:

Be it known that I, JUAN RIBON, of New York city, county and State of New York, have invented a new and Improved Boring-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 represents a side elevation of my improved boring-machine. Fig. 2 is an end elevation of the same. Fig. 3 is a longitudinal section of the same. Fig. 4 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to construct a drill which can be adjusted in such manner that the speed can be reduced and power increased during the operation of boring, while the power may be readily diminished and the speed increased when the drill is reversed to be withdrawn from the wood or other material.

The invention consists in a novel combination of adjustable gear-wheels with the operating stationary nut, and arranged as hereinafter more fully described.

a in the drawings represents the frame of my improved boring-machine. It is made of wood or other suitable material, of suitable form and size. On the frame are arranged the bearings *b b* of a horizontal shaft, *c*, which is the operating-shaft of the drill. Upon the shaft *c* is fitted a sliding sleeve, which carries bevel-gear wheels *d* and *d'* at its ends, and which can be moved longitudinally by means of a clutch-lever, *e*, that is pivoted to the frame. The sleeve is by groove and feather so connected with the shaft *c* that it must necessarily revolve with the same.

g is a cross-bar of the frame, perforated to receive the tubular axle of a wheel, which carries on its face two concentric circles, *f* and *f'*, of beveled teeth. These teeth *f f'* are so ar-

ranged that the wheel *d* can gear into the outer circle, *f*, or the wheel *d'* into the inner circle, *f'*, by moving the wheel of the shaft *c*. The socket of the drill proper is formed in a screw, *k*, which is fitted into a stationary nut, *g'*, that is suspended from the bar *g*, the screw being vertically adjustable in the tubular nut. The screw *k* is of tubular form, closed at the lower end, and is fitted concentrically around and secured to the lower end of a shaft, *h*, that is fitted through the tubular hub or shaft of the wheel *f f'*. The shaft *h* is by feather and groove fitted in said hub, so that it will revolve with and slide in the same. The lower end of the wheel-hub fits into the annular space which is between the screw *k* and shaft *h*, as shown.

The operation is as follows: When the wheels *d* and *f* are in gear, and the shaft *g* is turned by proper mechanism in the right direction, the wheel and with it the shaft *h*, and screw *k*, will be turned, so as to move the latter down in the nut and to force the tool down. The wheel *f* being much larger than the wheel *d*, the screw is turned slow and with much power. When a hole has been drilled, the lever *e* is moved to carry *d'* into gear with *f'*; thereby the motion of the screw and tool will be reversed and made much more rapid. The drill will consequently be withdrawn much more rapidly than it was forced in, but with less power. For boring soft wood the wheels *d' f'* can be always kept in gear, in which case the motion of the shaft *c* must be reversed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The shaft *c* and sliding sleeve which carries the wheels *d d'*, in combination with the concentric wheels *f f'*; nut *g'*, screw *k*, and vertical shaft *h*, all arranged to operate substantially as herein shown and described.

JUAN RIBON.

Witnesses:

ALEX. F. ROBERTS,
FRANK BLOCKLEY.