

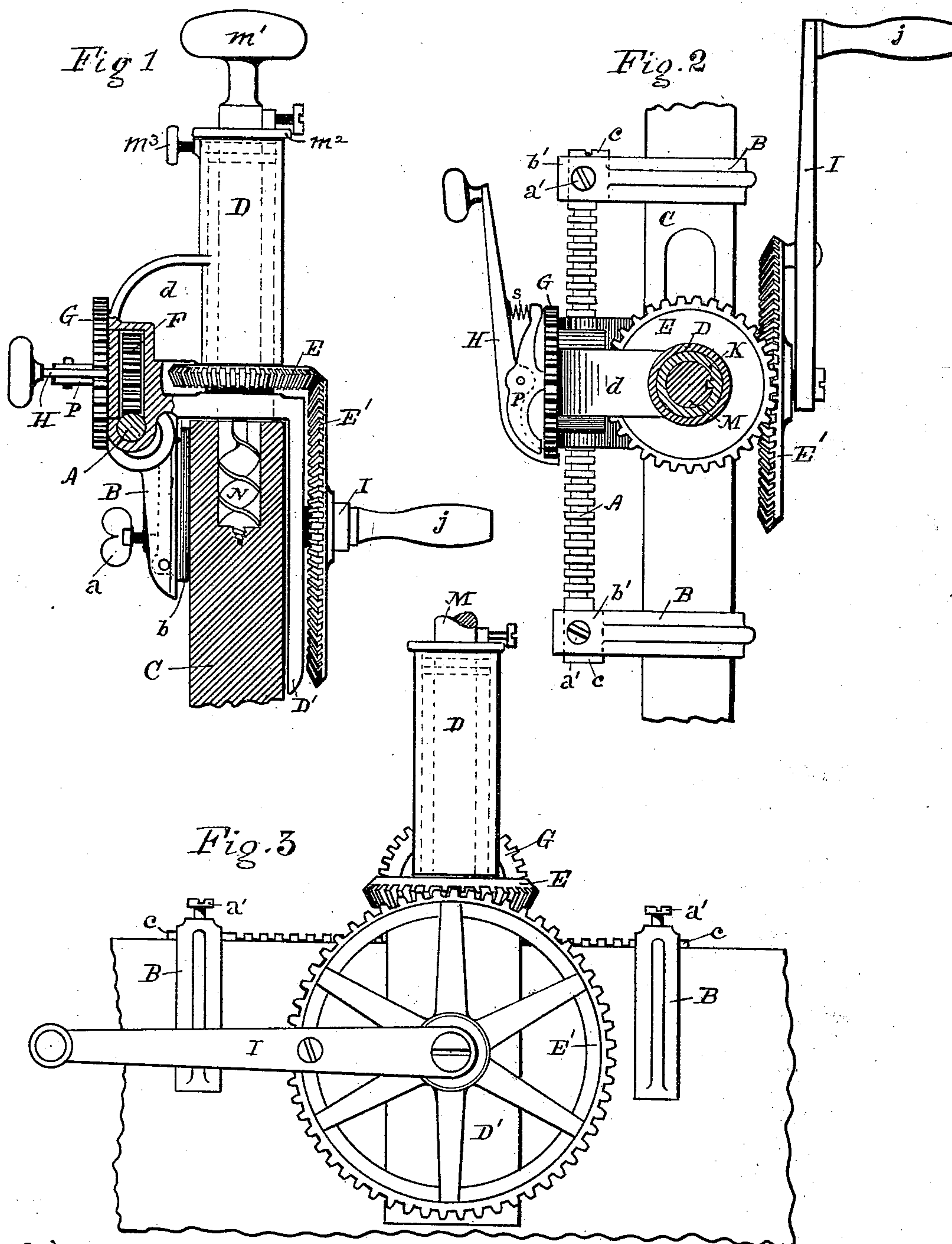
(No Model.)

2 Sheets—Sheet 1.

C. REED.  
BORING AND MORTISING IMPLEMENT.

No. 450,338.

Patented Apr. 14, 1891.



Witnesses:  
O. L. Spurr  
Olla Hosea.

Charles Reed, Inv.  
by O. L. Spurr  
Atty.

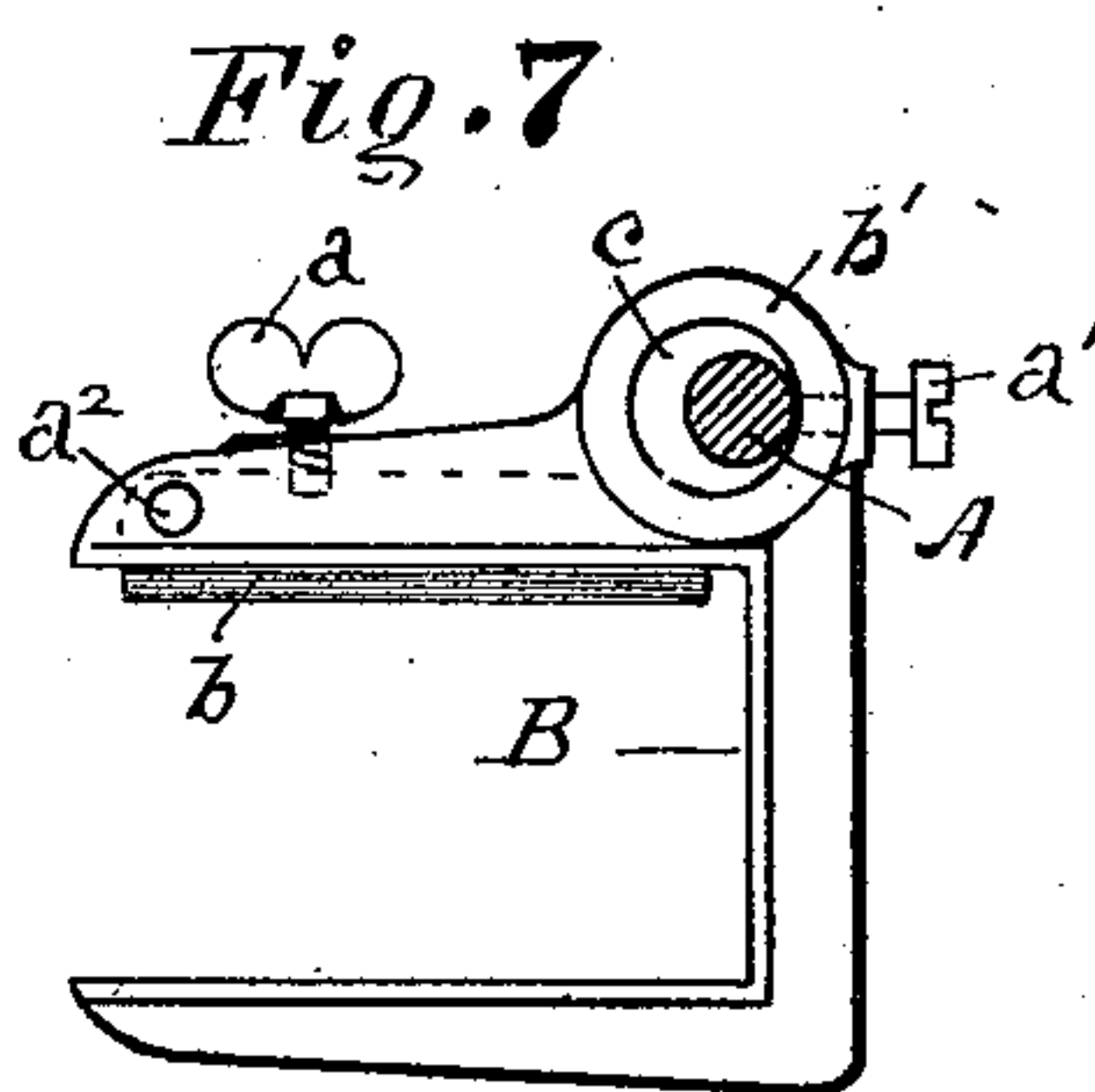
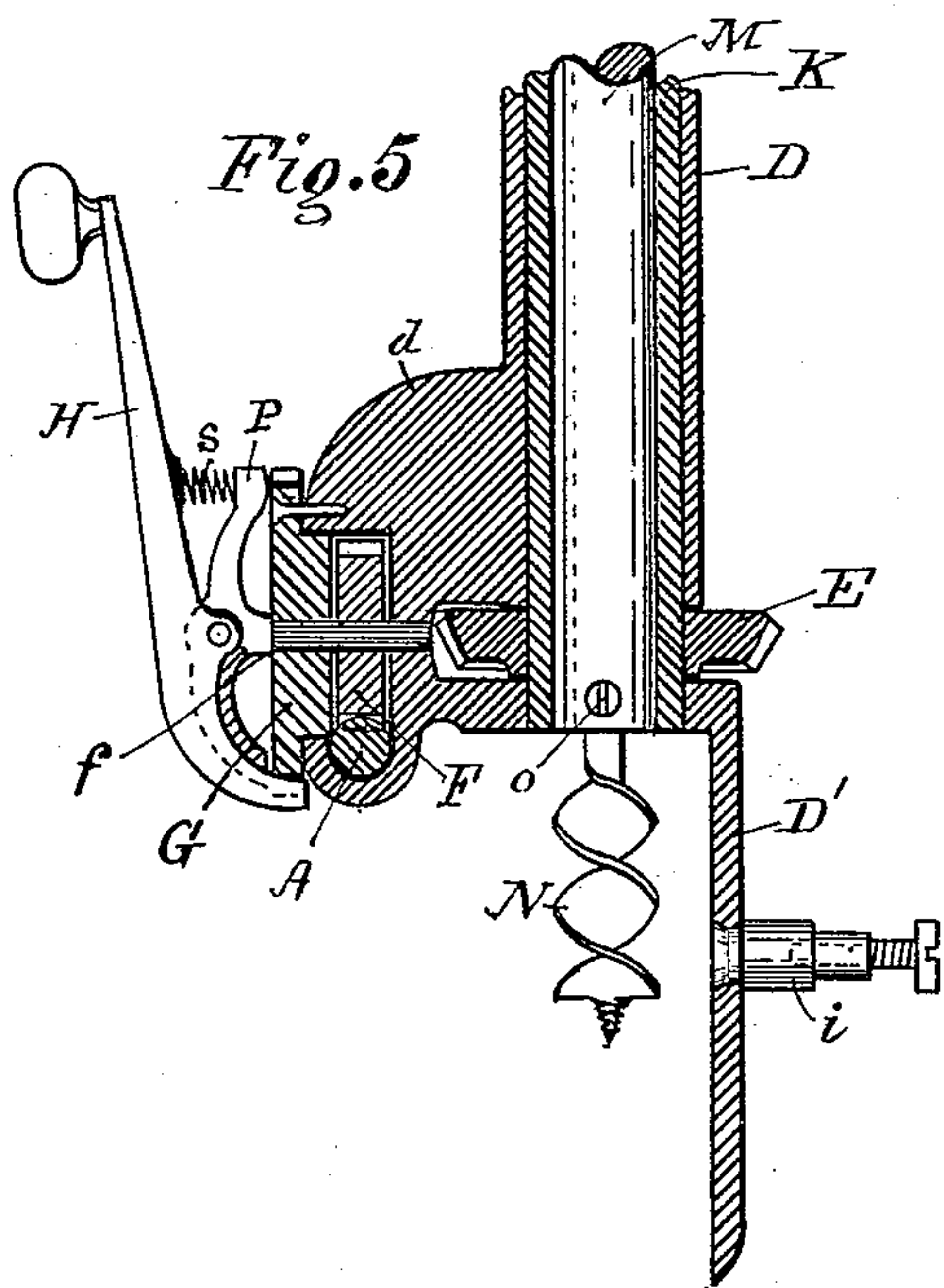
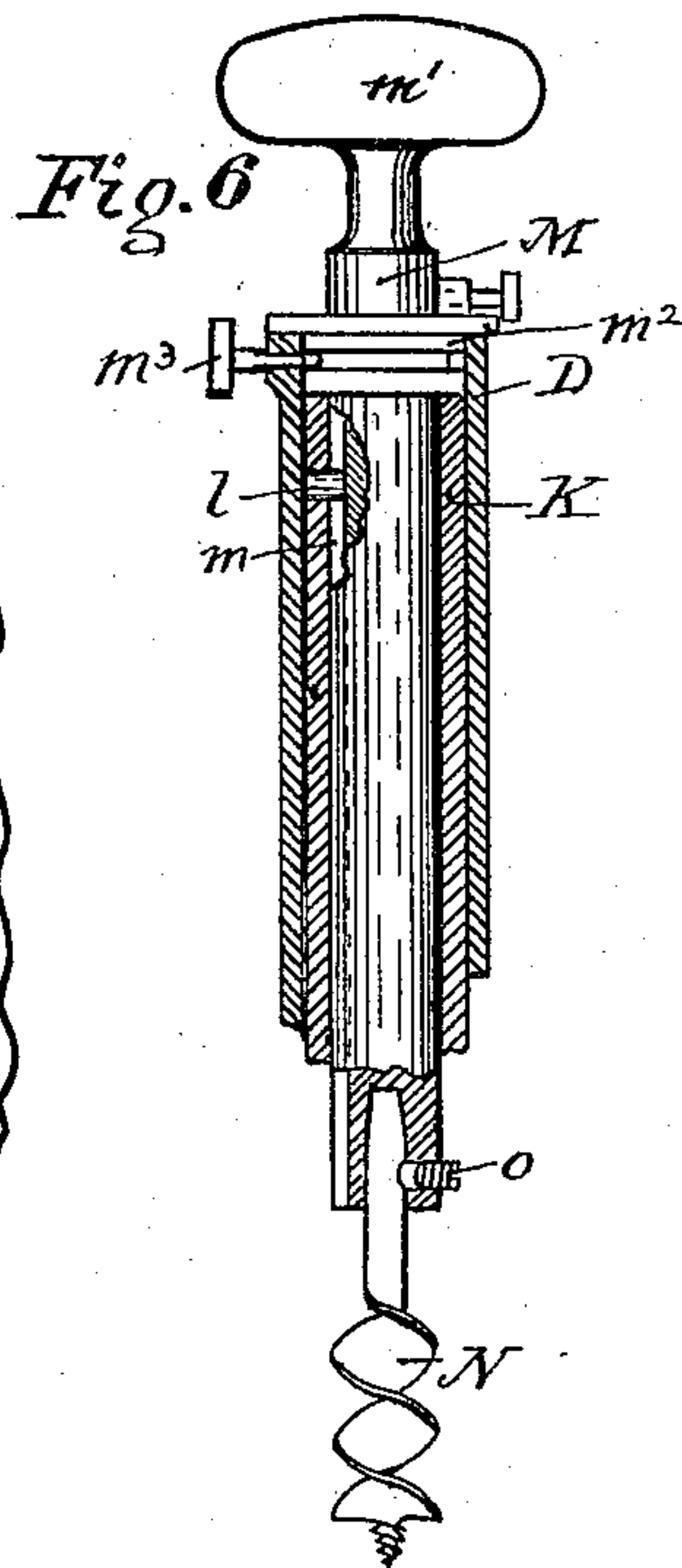
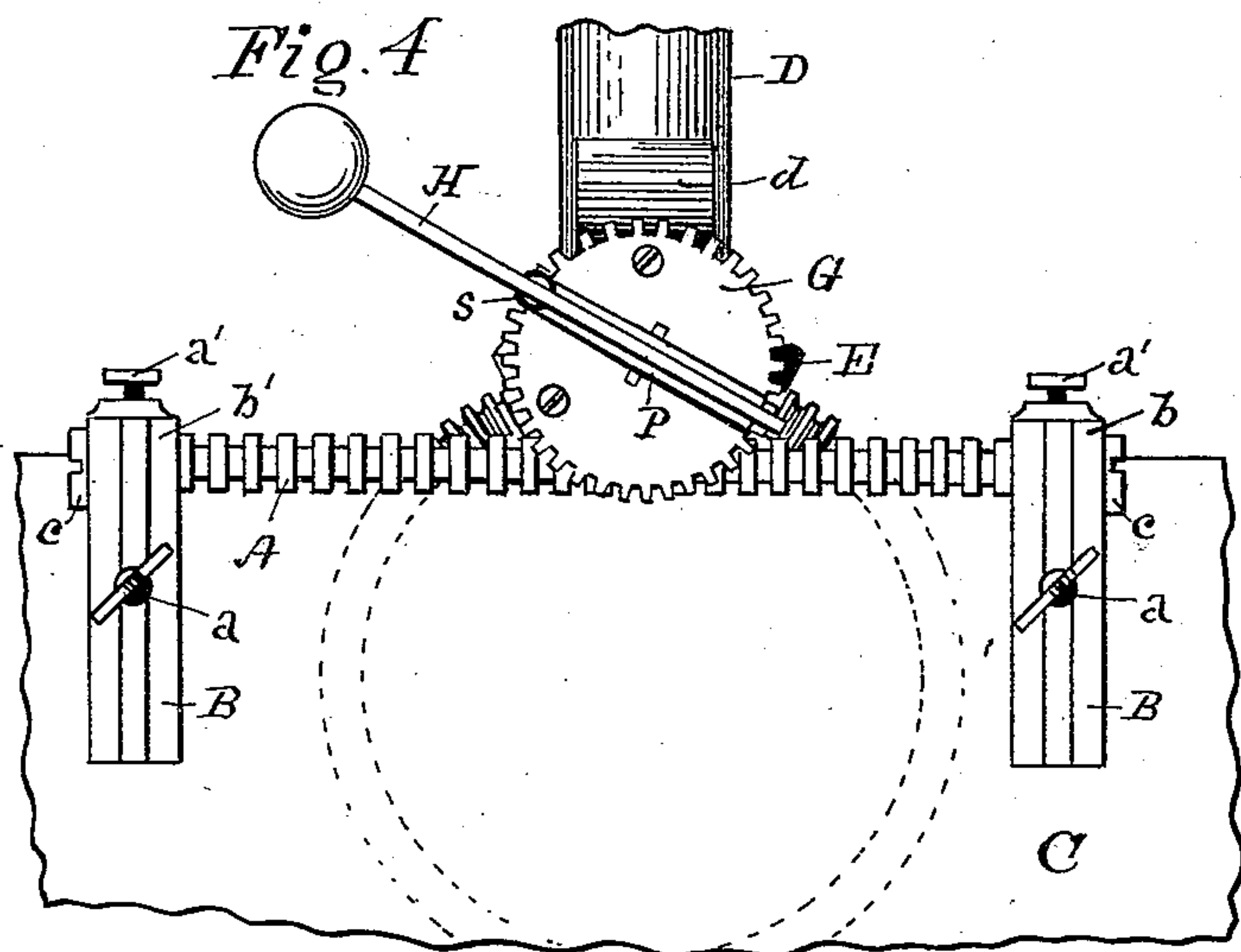
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2 Sheets—Sheet 2.

C. REED.  
BORING AND MORTISING IMPLEMENT.

No. 450,338.

Patented Apr. 14, 1891.



Witnesses.  
C. L. Harris  
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Charles Reed, Inv.  
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Atty.



# UNITED STATES PATENT OFFICE.

CHARLES REED, OF CHILLICOTHE, OHIO.

## BORING AND MORTISING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 450,338, dated April 14, 1891.

Application filed March 17, 1890. Serial No. 344,109. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES REED, a citizen of the United States, residing at Chillicothe, Ross county, Ohio, have invented new and useful Improvements in Boring and Mortising Implements, of which the following is a specification.

My invention relates to hand drilling and boring machines, its object being to produce an implement adapted to general use designed, primarily, for boring mortises and recesses in doors, &c., for the placing and insertion of mortise-locks, hinges, &c., and for tenoning the frames of doors, shutters, &c. It may also be used for drilling metal in many situations where a series of holes are required.

To this end my invention consists, generally, in a rack-bar or support adapted to be secured to a door or other object, with which is combined a drill or auger carrier with driving and adjusting mechanism, whereby the operations of mortising, recessing, &c., may be conveniently and expeditiously performed.

It also consists in certain details embodying principles of construction and operation of useful application to kindred devices, all of which are hereinafter described, and pointed out in the claims.

A door-mortising implement embodying and illustrating my invention is exhibited in the accompanying drawings, in which—

Figure 1 is an end elevation of the implement complete with section of the door to which it is applied, showing the auger in the mortise made by its operation. Fig. 2 is a plan view of the implement complete, sectioned horizontally through the auger-carrier; Figs. 3 and 4, opposite side elevations of the implement complete, omitting part of the auger-carrier already shown in Fig. 1; Fig. 5, a detail axial cross-section of the lower part of the auger-carrier, showing the construction and the relative position of the adjusting-wheel, rack-bar, and adjusting parts. Fig. 6 is a detail section of the auger and carrier detached; Fig. 7, a detail view of one of the end clamps or supports for the rack-bar, showing its eccentric seat for lateral adjustment of the mortise to the width of the door or framing.

Referring now to the drawings, in which

letters of reference designate the various parts hereinafter described, I may describe the device or implement as consisting of two main parts, to wit: first, the adjustable support, and, second, the boring mechanism adjustable on said support.

The supporting part of the implement consists of a rack-bar A, adjustably held in clamps B B, adapted to fit over and upon the door, beam, or piece C. The clamps B are in the usual jaw form, provided with set-screws *a*, threaded through one of the jaws and preferably bearing against a rubber-faced block *b*, operating in a socket or recess of the jaw in the usual manner of such constructions. The clamps are each extended at one exterior corner into a loop *b'*, each embracing a cylindrical sleeve *c*, in which an end of the rack-bar A is journaled eccentrically, a set-screw *a'* being provided in the wall of the loop to secure the sleeve *c* in ultimate positions.

The rack-bar A, I prefer to form, as shown, with equidistant circumferential corrugations or grooves, forming edges or racks for the engagement of a cog-wheel attached to the auger-carrier, by which the carrier may be moved in longitudinal relations to the rack-bar A, upon which it is held and guided, all as hereinafter explained.

Each of the sleeves *c* is at its outer end cut across by a slot for the engagement of a screw-driver, by which it may be rotated for the purpose of moving and adjusting the auger laterally in relation to the door or mortise to be cut.

The auger-carrier consists of a hollow cylindrical casing D, divided horizontally near the lower end for the reception of a bevel-pinion E, the two parts of the casing being connected around said opening by an arm *d*, which in the vicinity of the rack-bar A is looped around the same, forming a sliding fit and at the same time a laterally-extended pivotal supporting-guide and connection. The vertical web of the arm is sufficiently enlarged above and adjacent to the rack-bar A to incase a small spur-pinion F, meshing with the corrugations or grooves of the said rack-bar. The spur-pinion F is rigidly attached to a pin-*f*, extending laterally through the walls of



its socket or recess and through a rack-plate G, secured at right angles to said pintle to the outside of the arm *d*. The pintle *f* terminates exteriorly in a cross piece P, extending diametrically across the face of the plate G. Centrally upon said cross-piece, between suitable lugs, is pivoted a lever-latch H, extended into a manipulating-handle over and beyond one end of the cross-piece P, from which it is upheld by a spring S, and extending at the other through a guide-slot or recess formed in the opposite end of the cross-piece to an engagement with the teeth of the rack-plate G. Normally, therefore, the lever-latch H is engaged with the rack-plate G and prevents rotation of the pinion F, which thus forms a lock with the rack-bar A to retain the entire boring mechanism in fixed relations to its support. By slightly depressing the handle H against its spring, however, its latching end is held disengaged from the rack-plate G, and by due rotation the boring mechanism is shifted in the proper direction upon its supports.

The lower portion of the casing D, at the side opposite the arm *d*, is extended downward into a lug D', resting against the side of the door or piece to be mortised, and carries a stud *i*, projecting outwardly, upon which is mounted a driving bevel-pinion E', meshing with the pinion E, before referred to, and carrying a hand-crank *j* for its manipulation.

The casing D carries within it in a close rotating fit a hollow sleeve K, extending throughout its length and across the space occupied by the bevel-pinion E, and through the said pinion, which is rigidly attached to it, and causes its rotation when power is given by the driving-pinion E' and crank *j*. The sleeve K carries a small pin or stud L, projecting inwardly, as indicated in Fig. 2, near its upper terminus. Within the tube K is carried in a close rotating fit another tube or bar M, which constitutes the mandrel for holding the auger. The tube or bar M is furnished at one side with a longitudinal slot *m*, engaging the pin or stud *l* of the tube K. The upper terminus of the mandrel M projects beyond the casing D, and is provided with a switching-knob *m'*. There is also provided a flanged collar *m*<sup>2</sup>, adjustably secured to the mandrel M to bear against the upper edge of the casing D and form a guide-stop, and in a portion of the collar projecting downward within the casing D is formed a circumferential groove, in which engages the end of a thumb-screw *m*<sup>3</sup>, threaded through the tube D. This is only used to hold the mandrel rigidly against vertical movement while permitting its free rotation when it is desired to form a shallow depression in the face of the door, as will be more particularly described. The auger N is held in the lower end of the mandrel by a set-screw or in any other convenient manner.

The operation of the device is as follows: The device being clamped to the door, as in-

dicated, the mandrel M is drawn upward entirely out of its containing casing and fitted with an auger of suitable length to form the mortise, and the gage-collar *m*<sup>2</sup> is set at the proper point and properly secured. The carrier D is then, by means of the handle H and the pinion F, moved along to the proper point for boring, where it is held by the engagement of the latch or detent in the spaces of the rack-plate G, by which the pinion F is prevented from rotating, and becomes a lock by its engagement with the rack-bar A. The mandrel is then inserted in its carrier K with its slot *m* engaging the pin, and held down upon the wood, when by rotating the driving-pinion F by its handle *j* the auger is caused to enter the wood as far as permitted by the stop-collar *m*<sup>2</sup>. It is then withdrawn and the device moved along the proper distance for a new bore and the operation repeated. It will be seen that the longitudinal bearing of the mandrel M and its holding sleeve in the casing always insures a proper action of the auger in its proper axis as against inequalities in the grain of the wood and other causes, so that holes may be bored side by side or merging into each other, as may be required.

By using an auger without a gimlet-point and properly setting the gage-collar and starting the auger down by pressure upon the knob *m'* and then setting up the thumb-screw *m*<sup>3</sup>, the entire carrier may be moved along with one hand, while the rotation of the auger is given with the other, and thus a shallow recess of any desired length between the clamps B may be formed to receive hinges or the projecting spaces of a mortise-lock.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a hand mortising implement, the combination of a supporting rack-bar provided with clamps adapting it to be adjustably secured to the object to be mortised, an auger-carrier provided with operating mechanism and carried on said rack-bar, a spur-wheel journaled in said auger-carrier and operating to shift the position of the carrier, and means for rotating or locking said spur-wheel at will, substantially as described.

2. The combination of the auger-carrier, the rack-bar, the spur-wheel journaled in or upon the carrier and meshing with said rack-bar, the circular rack-plate attached to the carrier, and the spring-handle adapted to engage the rack-plate, substantially as set forth.

3. In a hand mortising implement, the combination of a rack-bar, an auger-carrier supported by said rack-bar, and the adjustable clamps for holding the rack-bar, and the eccentric adjustable sleeves forming the journal-seats of the rack-bar in the clamps and enabling the bar to be shifted to laterally adjust the auger-carrier, substantially as described.

4. In a hand mortising implement, the combination of a rack-bar adapted to be clamped to the work in parallel relations to the same,



an auger-carrier carried adjustably on said guide bar and an extension of said carrier downward at the side of the work and resting against the same for support, and the driving crank-wheel carried upon such extension, substantially as set forth.

5. In a mortising implement, a hollow cylindrical supporting-casing divided across its axis, a tubular driving-guide extended through the casing across said division-space, a bevel-gear occupying said division-space and rigidly centered upon said driving-guide, an auger-mandrel telescoped within said driving-guide and connected therewith by a slot and feather, permitting longitudinal movement but compelling interrotation, and a driving bevel-gear carried at the outside of the casing and meshing with the first-named gear, and a hand-crank connected to such

driving-gear, in combination, as and for the purpose set forth.

6. In a hand mortising implement, in combination with the tubular casing, the tubular driving-guide, the cylindrical auger-mandrel within the guide and connected therewith by the slot and feather, the adjustable collar upon the upper extension of the mandrel provided with a circumferential groove, and the screw-stop adjustable through the casing into said groove to maintain the auger at a fixed depth, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES REED.

Witnesses:

JNO. G. HATHAWAY,  
LUTHER B. YAPLE.