Ira S. Hamilton

116955

Imp't in

RATCHET DRILLS

Patented Jul 11 1871

Fig. 1

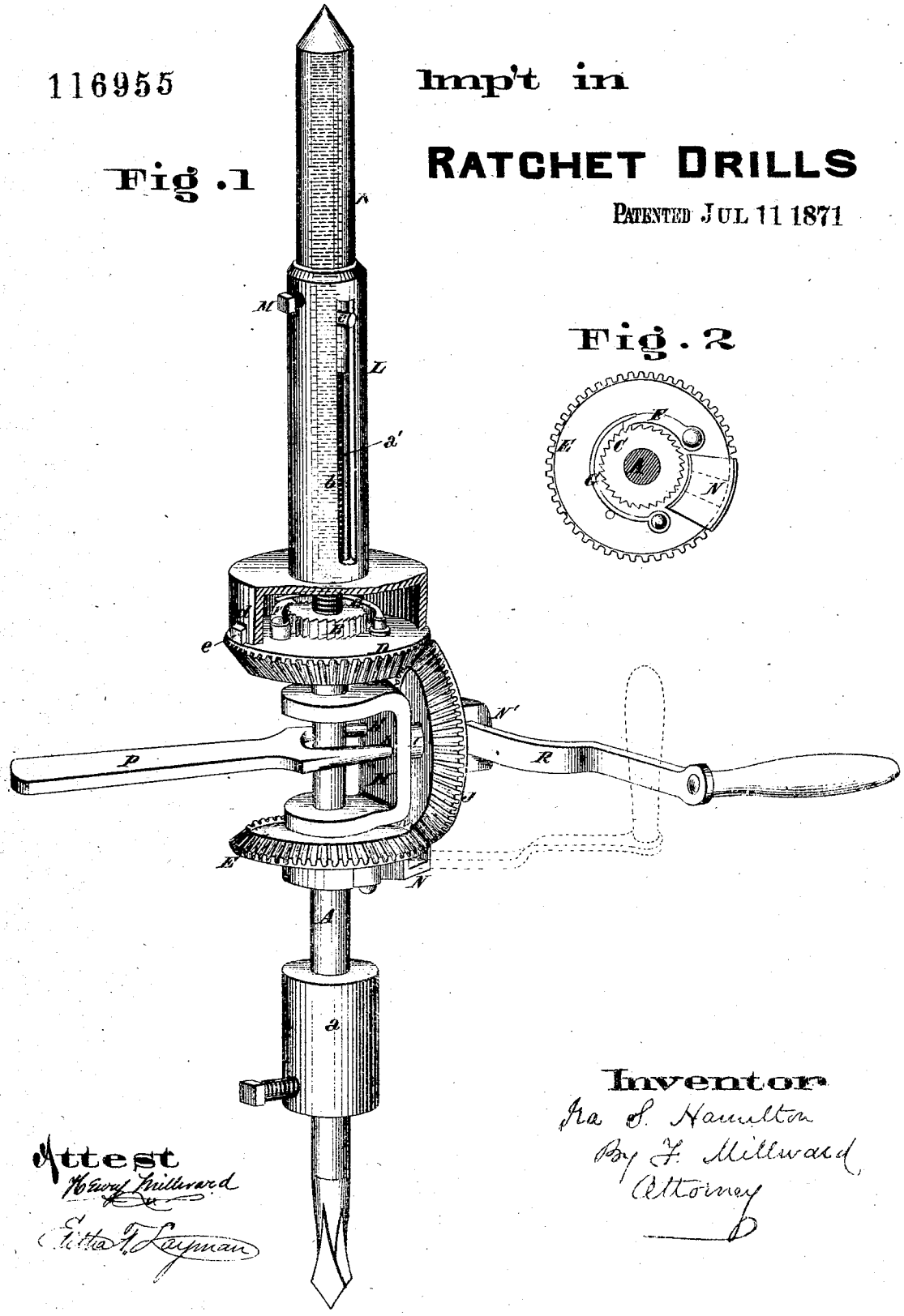

Fig. 2

Attest

Henry Millward

Fitta F. Layman

Inventor

Ira S. Hamilton

By F. Millward

Attorney

UNITED STATES PATENT OFFICE.

IRA S. HAMILTON, OF HAMILTON, OHIO.

IMPROVEMENT IN RATCHET-DRILLS.

Specification forming part of Letters Patent No. 116,955, dated July 11, 1871.

To all whom it may concern:

Be it known that I, IRA S. HAMILTON, of Hamilton, Butler county, State of Ohio, have invented certain new and useful Improvements in Ratchet-Drills, of which the following is a specification:

My invention consists of a certain construction of ratchet hand-drill, which provides for the operation of the handle in different angles or positions to suit the work or the requirements of the operator, the construction also being such that the drill can be revolved by a continuous rotary motion or by an intermittent rotary motion, in which the movement of the hand-lever in either direction serves to rotate the drill, or by an intermittent rotary motion, in which the movement of the lever in one direction only rotates the drill. My invention further consists of a screw, sleeve, and peculiar connecting device for feeding the drill to the work.

Figure 1 is a perspective view of a drill embodying my invention. Fig. 2 is a plan of the ratchet device.

The drill-spindle A is constructed with a socket, *a*, for the drill, and a feeding-screw, *a'*. It has also secured to it a ratchet-wheel, B, above the upper bevel-wheel, and a ratchet-wheel, C, cut in the same direction, below the lower bevel-wheel. The lower ratchet-wheel C is seen in Fig. 2, which represents the under side of the lower bevel-wheel. Between the ratchet-wheels B C the two bevel or miter-wheels D E are fitted to revolve loosely on spindle A. Each wheel carries a pawl, F, and spring G, to keep the pawl engaged in the teeth of the ratchet except when backing. Between the bevel or miter-wheels D E a frame, H, is fitted loosely to the spindle A in the manner shown, the frame having a journal, I, attached, on which an intermediate wheel, J, revolves, the wheel J gearing, as shown, into the wheels D E. A nut, K, closed and pointed in the usual way, is fitted to the screw *a'*, and a sleeve, L, is fitted to slide upon the nut K. They are compelled to rotate simultaneously by the provision of slot *b* and pin *c*. The lower part of sleeve L is enlarged, as shown, to fit over the ratchet mechanism, and notched at the lower edge, at *d*, to fit over a stud, *e*, on the wheel D. The sleeve L can be raised so as to be detached from the pin or stud *e*, and in this position it may be supported by set-screw M. When the sleeve is so supported the feed is inoperative, except by hand in the usual way, viz., by revolving the nut K. The wheel E and wheel J are each provided with a socket, N and N'. The frame H is provided with two apertures, *h h'*, for the reception of the forked handle or lever P, which, when the hand-lever R which works the drill is fitted to the socket N and a movement of the drill is required for each motion of the lever, must be used, in the manner shown in the drawing, to prevent a revolution of the frame H.

When the drill is operated by the attachment of the operating-lever R to the socket N, and without the employment of the forked handle P, the drill is not fed automatically, and merely rotates when the lever R is moved in one direction. When the drill is operated by the lever R in socket N, and the handle P is employed in the manner shown, the drill rotates with each motion of the lever, and is then fed automatically if the sleeve is in contact with stud *e*. When the lever R is used in socket N' the drill can be rotated continuously by turning the handle in either direction. In place of the notch-and-stud device *d e* to feed automatically, the sleeve L may have ratchet-teeth upon it, and the outside of wheel D be provided with an elastic pawl to fit the teeth, which would be adapted to feed less as the pressure upon the drill increased.

I claim—

1. A ratchet hand-drill, constructed substantially as herein described, in which the intermediate wheel J and the wheel E have each a handle-socket, N and N', respectively, and the loose frame H, which supports the intermediate wheel, is provided with the means shown, or their equivalents, for holding it stationary, all in the manner and for the purposes set forth.

2. In a ratchet hand-drill, constructed substantially as herein described, the automatic feeding mechanism composed of the screw-threaded spindle *a'*, nut K *c*, sleeve L *b d*, and stud *e* of the wheel D, operating in the manner set forth.

In testimony of which invention I hereunto set my hand.

IRA S. HAMILTON.

Witnesses:

FRANK MILLWARD,

JOB E. OWENS.