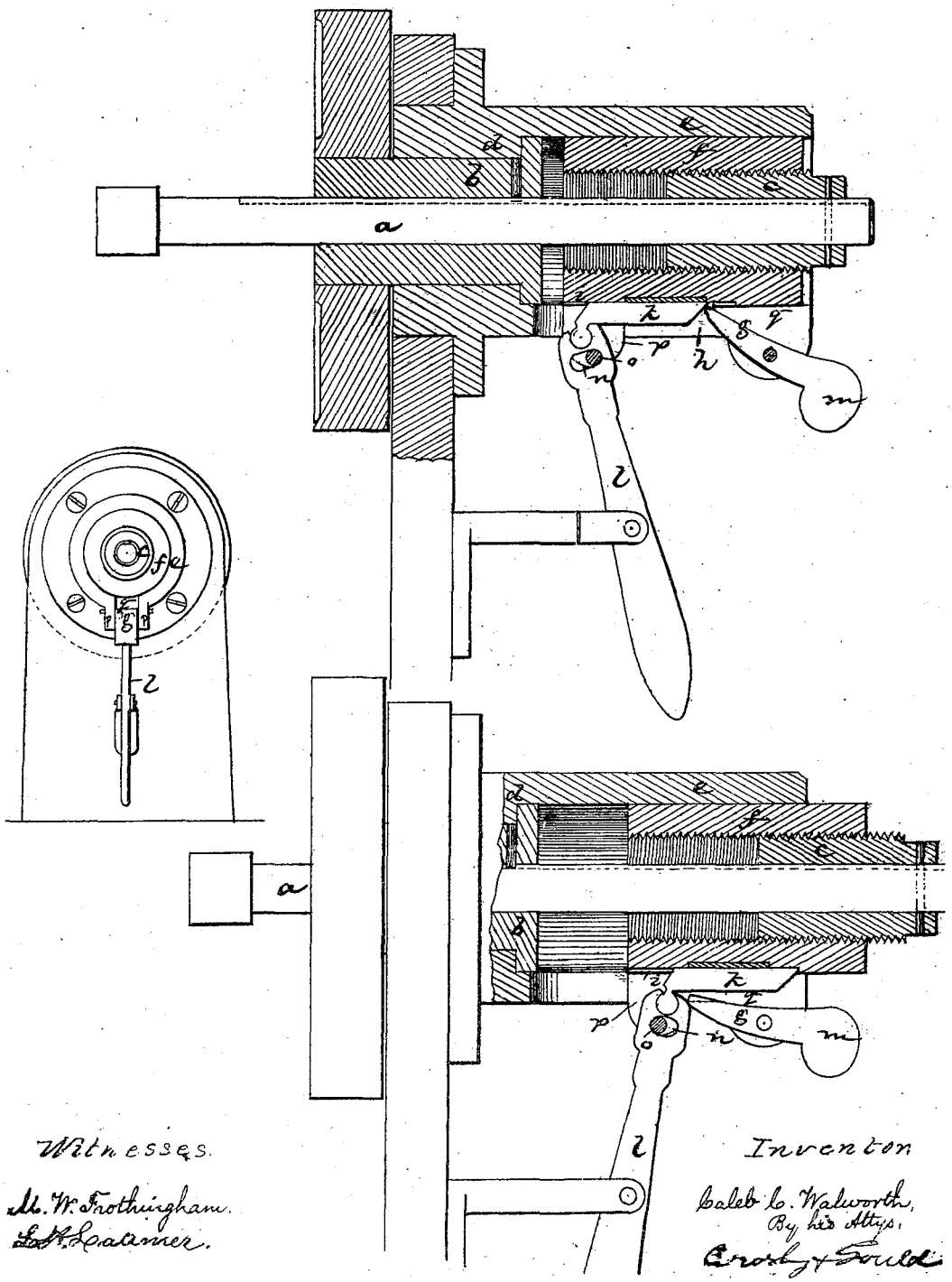
C. C. WALWORTH.

Screw-Cutting Machines.

No. 141,299. Patented July 29, 1873.



Witnesses.

M. W. Frothingham.

E. K. Loadamer.

Inventor

Caleb C. Walworth,

By his Attys.

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UNITED STATES PATENT OFFICE.

CALEB C. WALWORTH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SCREW-CUTTING MACHINES.

Specification forming part of Letters Patent No. **141,299**, dated July 29, 1873; application filed February 27, 1873.

To all whom it may concern:

Be it known that I, CALEB C. WALWORTH, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Screw-Cutting Lathes; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to a method of letting back the tool of a screw-cutting lathe when the nut has been turned back at the completion of the operation of the tool, so as to enable the work to be released without screwing back the tool after it leaves the work. For this purpose I combine with the rotating feed-screw, to which the tool-carrying spindle is made fast, and the stationary nut, in which said screw turns to effect the feed and return movements of the tool, a locking and relief mechanism, by which the nut is held fast in position during the forward and return movements of the tool, and by which it may be unlocked or disengaged and slipped back when the tool is withdrawn from the screw cut by it. It is in this provision that the invention consists.

The drawing represents, in sectional elevation and in end view, the arrangement of mechanism embodying my invention.

a denotes the tool-spindle, splined to and sliding in a rotating box, *b*, extending through and fixed to the feed-screw *c*. The box *b* rotates in a bearing, *d*, in the rear extension *e* of which is supported the nut *f*, in which rotates the screw *c*, the said nut being stationary for the working of the tool, and effecting the forward or feed movement of the tool and the return movement thereof as the spindle is rotated. Instead of making the nut immovable, it is locked in position for the working of the tool, and is made capable of a short back movement, so that, by releasing the locking mechanism when the tool has been drawn back far enough to clear the screw-thread cut by it, the nut with the spindle attached to it can be thrown back so as to clear the cutting-tool from its work—far enough to allow the work to be removed or new work introduced—without waiting to screw back the tool further. The nut is held or locked by a weighted pawl, *g*, the tooth of which slips by a shoulder, *h*, at the under side of the nut. In a slot, *i*, made in the under surface of the nut is a slide, *k*, which is pivoted at one end to a lever, *l*, as seen in the drawing. The opposite end of the slide is chamfered or inclined, so that, if the slide be thrown back by the lever *l*, the incline will slide under the pawl-tooth and move it from the shoulder *h*, while, if moved in the opposite direction, the pawl-tooth, by the weight of its outer end *m*, will be carried into engagement with the shoulder. The lever *l* is connected to the nut *f* by a pin, *o*, extending through a slot, *n*, in the lever, and through ears *p* extending from the nut; and when the lever is moved to release and throw back the nut, the slot *n* enables the lever to first start the slide and disengage the pawl, and then, acting against the pin *o*, to slide back the nut, and with the nut the screw *c*, spindle *a*, and cutting-tool. These movements are effected as soon as the tool, in turning back from the screw-thread cut by it, passes out of action with such screw-thread. For reception and action of the pawl *g* and lever-slide *k*, a slot, *q*, is cut through the bearing or sleeve *d*.

I claim—

In combination with feed-screw and its tool-carrying spindle, the nut *f*, pawl *g*, lever *l*, and slide *k*, substantially as described.

CALEB C. WALWORTH.

Witnesses:

FRANCIS GOULD,

M. W. FROTHINGHAM.