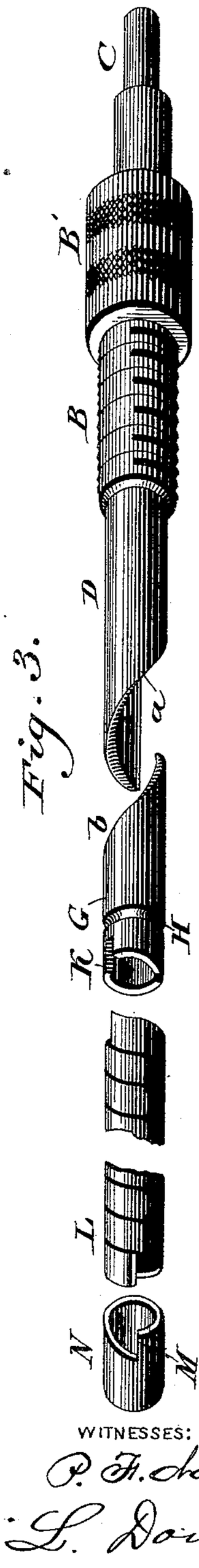
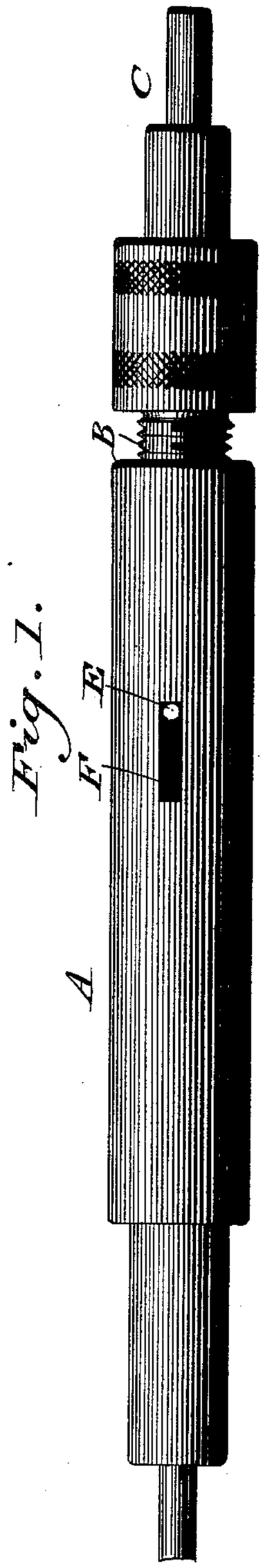
(No Model.)

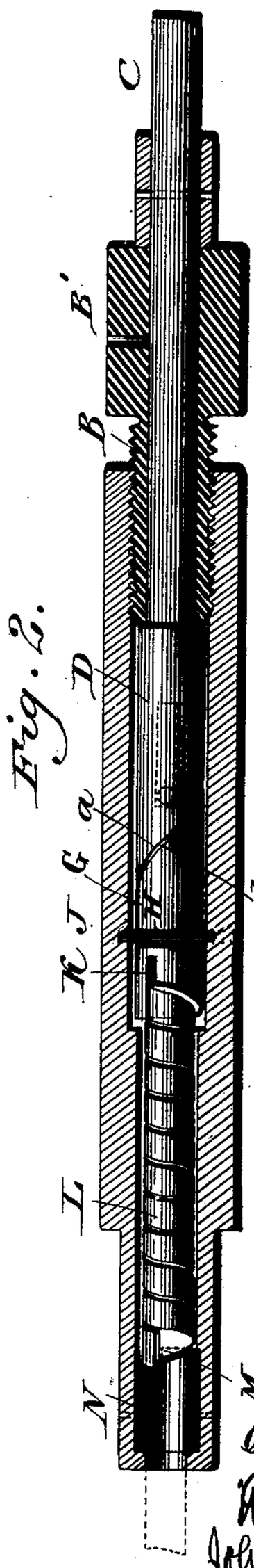
G., M. O. & J. G. REHFUSS.

TOOL HOLDER.

No. 414,078. Patented Oct. 29, 1889.







WITNESSES:

P. F. Hagler.

L. Dowville.

INVENTORS.

George Rehfuss,

Martin O. Rehfuss.

John George Rehfuss.

BY Wiederhein & Kirchner

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE REHFUSS, MARTIN O. REHFUSS, AND JOHN GEORGE REHFUSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO HENRY D. JUSTI, OF SAME PLACE.

TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 414,078, dated October 29, 1889.

Application filed April 29, 1889. Serial No. 308,981. (No model.)

To all whom it may concern:

Be it known that we, GEORGE REHFUSS, MARTIN O. REHFUSS, and JOHN GEORGE REHFUSS, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Tool-Holders, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of a coiled spring which when expanded permits the introduction of the shank of a tool thereinto, and which when contracted closes upon said shank and firmly embraces the same, thus tightly holding the tool.

Figure 1 represents a side elevation of a tool-holder embodying our invention. Fig. 2 represents a partial longitudinal section of the casing and a side view of the interior spindle, sleeve, and coil-spring. Fig. 3 represents a perspective view of a portion thereof, the parts being separated and the spring broken, so as to be reduced in length. Fig. 4 represents a side elevation of a tool that may be held.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates the casing of the tool-holder, and B designates an exteriorly-threaded follower or plunger, which is fitted in one end of said case and provided with a milled head B′ for convenience of operation, said follower embracing the sliding spindle C, the end of which within the casing has secured to it a sleeve D, to which is secured a pin E, the latter entering a longitudinally-extending slot F in the casing, whereby rotation of the spindle is prevented. Within the casing is a rotatable sleeve G, which is in contact with the sleeve D, the contiguous edges of the sleeves being spiral, as at *a b*. In order to prevent sliding motions of said sleeve G and permit rotation thereof, the periphery of the sleeve is formed with a groove or neck H, into which freely projects a pin J, the latter being secured to the casing A and adapted to permit the rotary movement of said sleeve G without advancing it in the casing. The end of the sleeve G opposite to its spiral edge *b* has a recess or groove K, to receive and hold one end of a coiled spring L, which is located within the casing, and has the end opposite to said sleeve G abutting against and held by a shoulder M on a collar N, which is fixed within the casing at the forward end thereof. It will be seen that the opening of the collar N and that formed by the interior of the coiled spring are in communication, so that the shank of a tool may be inserted thereinto. The diameter of the opening of the spring, when in normal condition, is less than that of the shank of the tool, so that it is essential to expand the spring in order to introduce the shank thereinto. For this purpose the follower or plunger B is rotated, and as the inner end of said follower or plunger is in contact with the sleeve D the latter is advanced against the sleeve G. Owing to the spiral edges *a b* of the two sleeves, the pressure of the sleeve D against the sleeve G causes the latter to rotate, and as one end of the spring is connected with said sleeve G the coils of the spring are rotated, so that they open or distend, and the spring is accordingly uncoiled or expanded in diametrical direction, so that the shank of the tool may be readily inserted thereinto.

When the tool is properly located or adjusted, the follower or plunger B is rotated in opposite direction or unscrewed, thus withdrawing the sleeve D from the sleeve G, and as the latter is no longer controlled by the former the spring approximately assumes its normal coiled condition or contracts upon the shank of the tool, thus firmly embracing the latter, the tool being thereby tightly held. Owing to the contraction of the spring, the sleeves return to their normal positions, without, however, affecting the holding action of said spring.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A tool-holder consisting of a coiled spring connected with a casing and adapted to receive a tool and hold the same by contraction thereon, substantially as described.

2. A tool-holder consisting of a coiled spring, a casing containing said spring, and

means for uncoiling or expanding the same, substantially as described.

3. In a tool-holder, a coiled spring and a rotatable sleeve connected therewith, in combination with a sliding sleeve which engages with said rotatable sleeve, the contiguous edges of the sleeves being spiral, substantially as described.

4. A coiled spring held at one end within a casing and connected at the other end with a rotatable sleeve, in combination with a sliding sleeve which engages with said rotatable sleeve, and a follower or plunger fitted to the casing adapted to operate said sliding sleeve, substantially as described.

5. A tool-holder consisting of a casing, a coil-spring having one end stationary, a rotary sleeve to which the other end of the coil is attached, and mechanism, substantially as described, for rotating said sleeve, said parts being combined substantially as described.

6. A tool-holder consisting of a casing, a threaded follower working in said casing, a sliding sleeve operated by movement of said follower, a rotary sleeve, said sliding and rotary sleeves having spiral contact edges, and a coil-spring having one end attached to said rotary sleeve and the other end bearing against a collar on the inner side of the casing, said parts being combined substantially as described.

GEORGE REHFUSS.
MARTIN O. REHFUSS.
JOHN GEORGE REHFUSS.

Witnesses:
JOHN A. WIEDERSHEIM,
A. P. JENNINGS.