

(No Model.)

J. E. SINCLAIR.  
RATCHET WRENCH.

No. 470,954.

Patented Mar. 15, 1892.

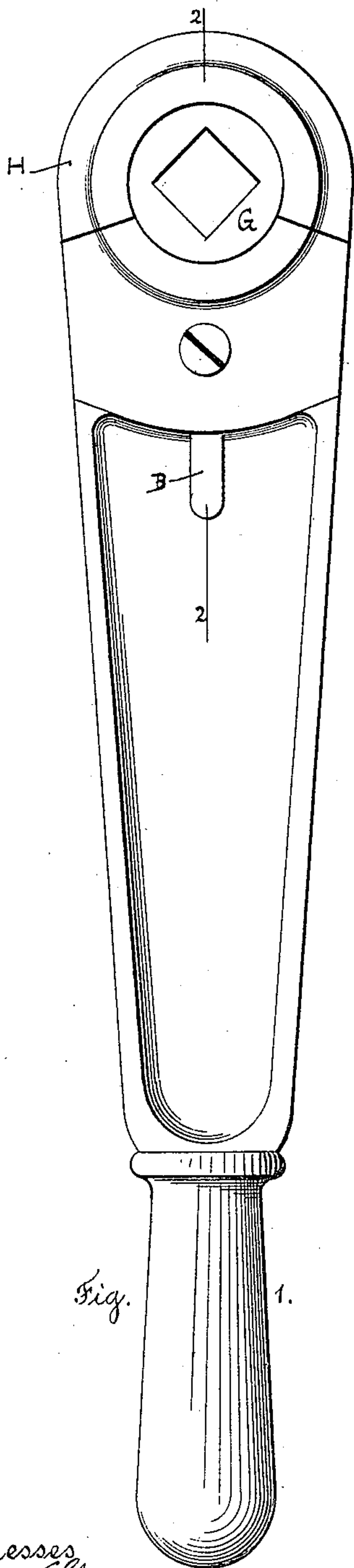


Fig. 1.

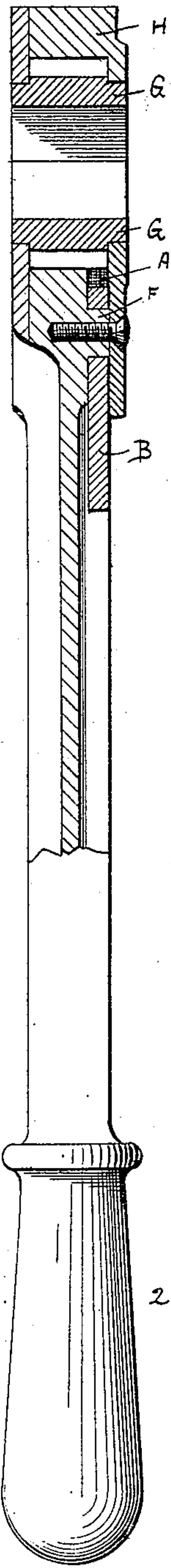


Fig. 2.

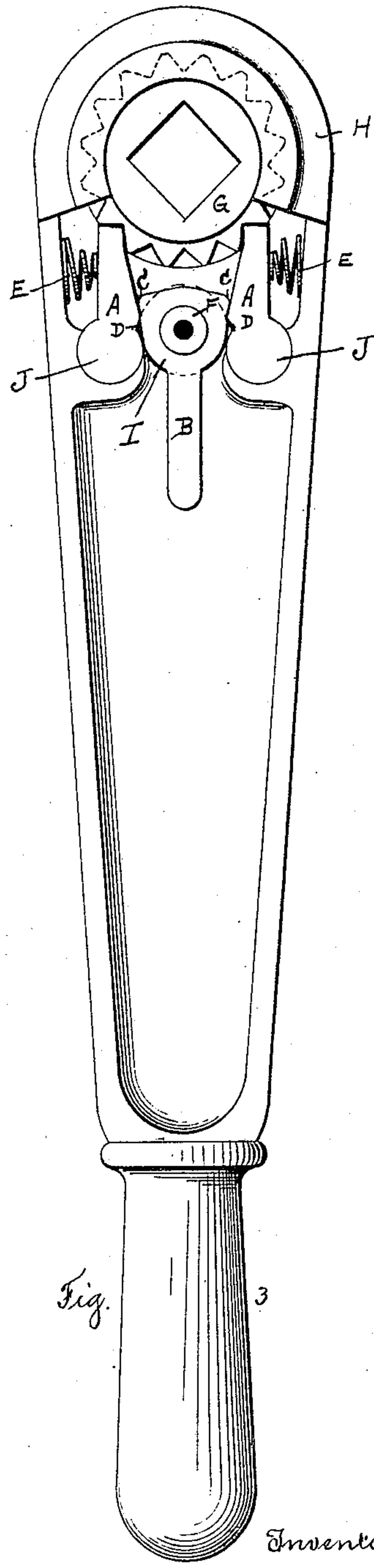


Fig. 3.

Witnesses  
Chas. F. Schuch  
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By his Attorney  
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# UNITED STATES PATENT OFFICE.

JOHN E. SINCLAIR, OF WORCESTER, MASSACHUSETTS.

## RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 470,954, dated March 15, 1892.

Application filed June 24, 1889. Serial No. 315,444. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. SINCLAIR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Ratchet-Wrench, of which the following is a specification.

My invention relates to improvements in that class of ratchet-wrenches in which two pawls are used to cause rotation to the right or left hand, at pleasure.

The objects of my invention are to produce pawls of so simple outline that they may conveniently be cut from solid stock by the common milling-machine, and, secondly, a reversing-lever of such a form that the pawls may be thrown into and out of engagement with the rotating part of the wrench by an angular displacement of the lever as small as possible. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 shows an elevation of the device; Fig. 2, a side view partly in section; and Fig. 3, a front view, the plate usually covering the pawls being removed.

A A denote the pawls, and B the reversing-lever, provided with projecting wings C C. The inner edges of the pawls are provided with V-shaped notches D.

E E denote springs placed behind and acting against the free ends of the pawls to carry them into engagement with the teeth of the ratchet-wheel G.

F denotes the stud upon which the reversing lever is pivoted, and H represents the head or solid frame-work holding the several operating parts. The ratchet-wheel G rotates in a cavity in the head H and is provided with teeth engaged by the free ends of pawls A A, which are pivoted at their opposite ends in sockets formed within the head. The free ends of the pawls are carried toward each other and into engagement with the teeth of the ratchet-wheel by the springs E E, held in cavities provided for them in the head. The stud F is placed between the center of the ratchet-wheel G and the centers of the pivoted pawls A A, and the reversing-lever B, pivoted thereon, is provided with a circular and concentric head I, which fills the space between the opposing edges of the pawls A,

and projecting from the concentric periphery of the head I are the wings C C, placed upon opposite sides and so disposed that they will bear against the edges of the pawls A A, so that when the reversing-lever B is brought into the central position shown in Fig. 3 and with the free ends of the pawls engaging the teeth of the ratchet-wheel the springs E E will press the pawls A A against the outer edges of the wings C C and hold the reversing-lever from rotation. The notches D D upon the inner edges of the pawls A are placed in the same plane as the axis of the reversing-lever B, so that by a slight angular movement of the reversing-lever in either direction one of the wings C will be carried into a notch D and the reversing-lever again become locked from rotation. The reversing-lever will therefore be constantly subject to the tension of either one or both of the springs E E by which it is held in position, whether one or both of the pawls A engage the ratchet-wheel G. The tension of the springs E E is exerted to hold the reversing-lever B in position through the pawls A, and the pivoted ends of the pawls are provided with the circular heads J J, rotating in circular sockets in the head H and against which the wings C are brought as they enter the notches D, thereby locking the reverse-lever from rotation by its engagement with the pawl alone.

I am aware that double-acting ratchet-wrenches have been long in use. I do not therefore claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

In a ratchet-wrench, the combination of a ratchet-wheel, pawls pivoted at one end and provided with cylindrical heads at their pivoted ends and having notches at the peripheries of said cylindrical heads, a reversing-lever pivoted in the plane of said notches, wings projecting from said lever and bearing against the opposing edges of said pawls, and springs applied to said pawls to carry them into engagement with said ratchet-wheel, substantially as described.

JOHN E. SINCLAIR.

Witnesses:

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