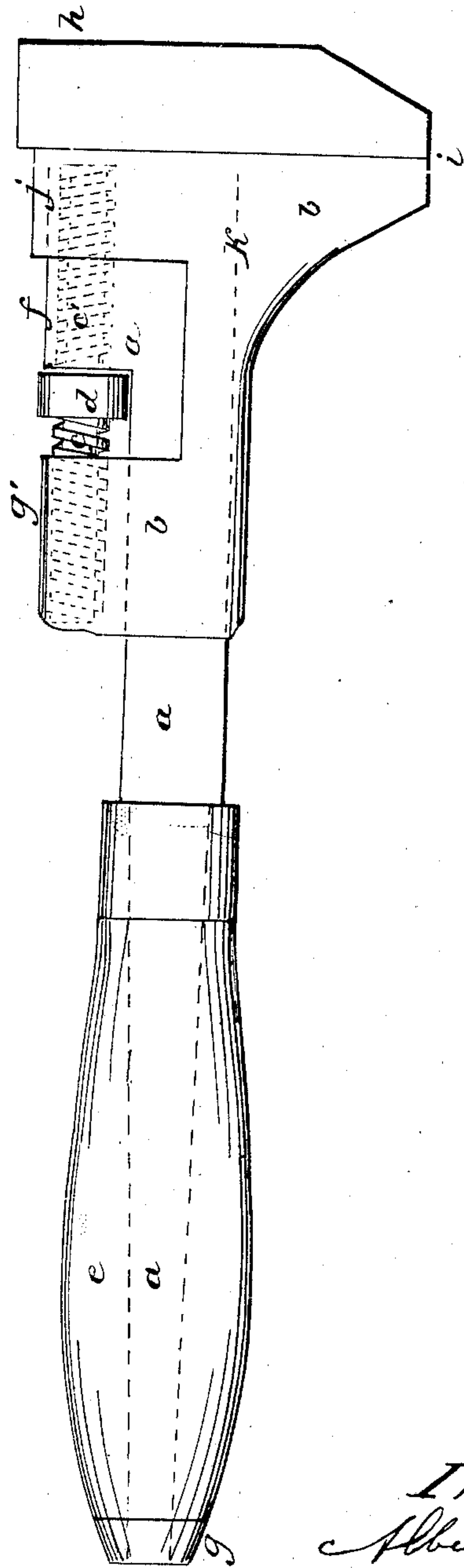


A. C. Richard,

Wrench.

N^o 27,090.

Patented Feb. 7, 1860.



Witnesses:

*David Sanford
Hugh Campbell*

Inventor:

Albert C. Richard

UNITED STATES PATENT OFFICE.

ALBERT C. RICHARD, OF NEWTOWN, CONNECTICUT.

WRENCH.

Specification forming part of Letters Patent No. 27,090, dated February 7, 1860; Reissued June 27, 1871, No. 4,450.

To all whom it may concern:

Be it known that I, ALBERT C. RICHARD, of Newtown, in the county of Fairfield and State of Connecticut, have invented a new and Improved Mode of Constructing Screw-Wrenches; and I do hereby declare that the following is a full and exact description, to wit:

The nature of my invention consists in so combining and arranging a female screw with the main stem of a screw-wrench that the same is thereby much strengthened while the time of operating the wrench is also shortened.

To make others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

My improved wrench is represented in the accompanying drawings which is part of this specification and to which reference will be made in describing my invention.

(a) is the main stem or body of the wrench which is secured in a handle (c) by means of a nut (g). Near the head (h) where the effect of the strain is concentrated, when the wrench is applied to turn a nut or other object, I add to the stem (a) a female screw (f); (b) is the sliding part of the wrench having a female screw at (g'), this sliding part (b) has a hole or passage longitudinally cut through it, as indicated in dotted lines in the drawings; (c) and (c') are two male screws, each working in opposite directions, (c) being a left handed, and (c') a right handed screw; the female screws (g') and (f) correspond to the same; (d) is a wheel having a corrugated periphery; this wheel is fastened on the center of the male screws (c) and (c').

The operation of this screw wrench is as follows: When the wheel (d) is made to revolve, the male screw (c) will propel the nut (g') while the male screw (c') at the same

time moves the female screw (f) in an opposite direction the result of which is that the wrench becomes opened or closed, as the case may be, at (i), when the same may be applied to the object to be wrenched.

In all wrenches of a similar nature, having a stem in a handle, and a head (h), the maximum strain applied in wrenching-off, or turning a tenacious object, is centered in the weakest point between (j) and (k); there is where all other screw-wrenches bend and fail; by the combination of the nut (f) to that part, I render the wrench capable of withstanding a greater amount of strain without its being possible to bend it or spring it, thus overcoming a great objection hitherto urged against the use of screw-wrenches. Another advantage resulting from my improved arrangement of parts is: that all the operating gearing is on the back of the wrench, in contradistinction to being situated on the side (i) were the heads or jaws open for practice or use; thus enabling the operator of my wrench to apply it in confined situations where other wrenches, now in common use, could not be employed.

I do not claim the separate mechanical devices above described but

What I do claim and desire to secure by Letters Patent of the United States is:

The peculiar construction and arrangement of screw wrench above described, having the shank (d) made broad near the outer or fixed jaw (h) and provided with the female screw or nut f, as part of said shank, in combination with sliding jaw operated by a screw substantially as set forth for the purposes described.

ALB. C. RICHARD.

Witnesses:

DAVID SANFORD,
HUGH CAMPBELL.