

(No Model.)

D. R. PORTER.  
WRENCH.

No. 450,681.

Patented Apr. 21, 1891.

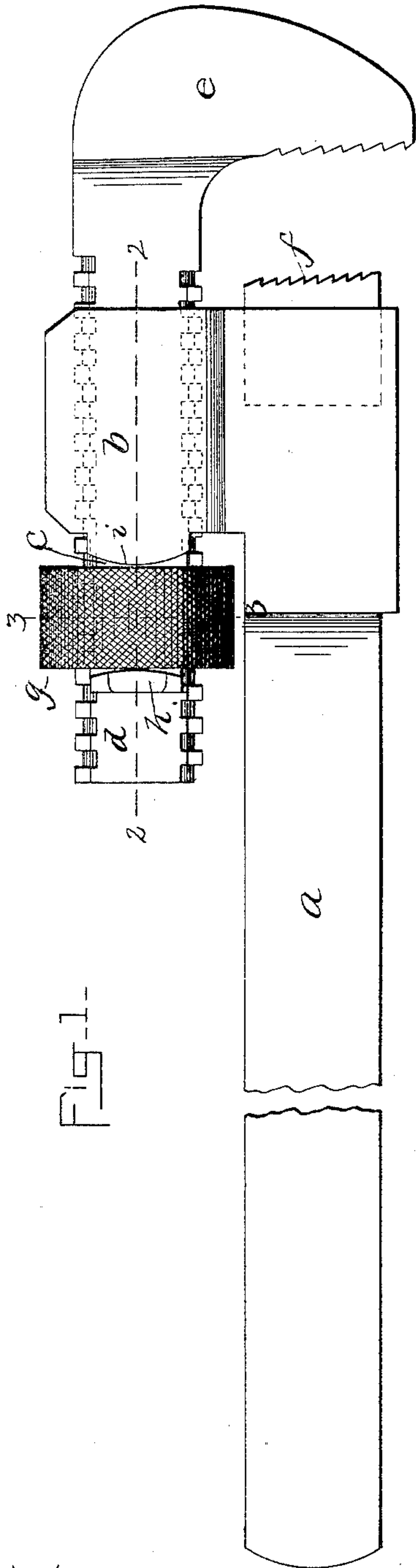


Fig. 1-

WITNESSES:  
*C. C. Parrott*  
*A. D. Henning*

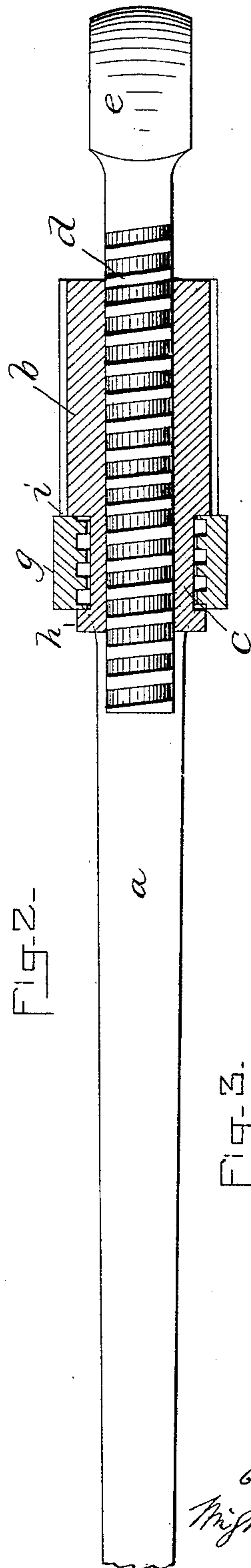


Fig. 2-

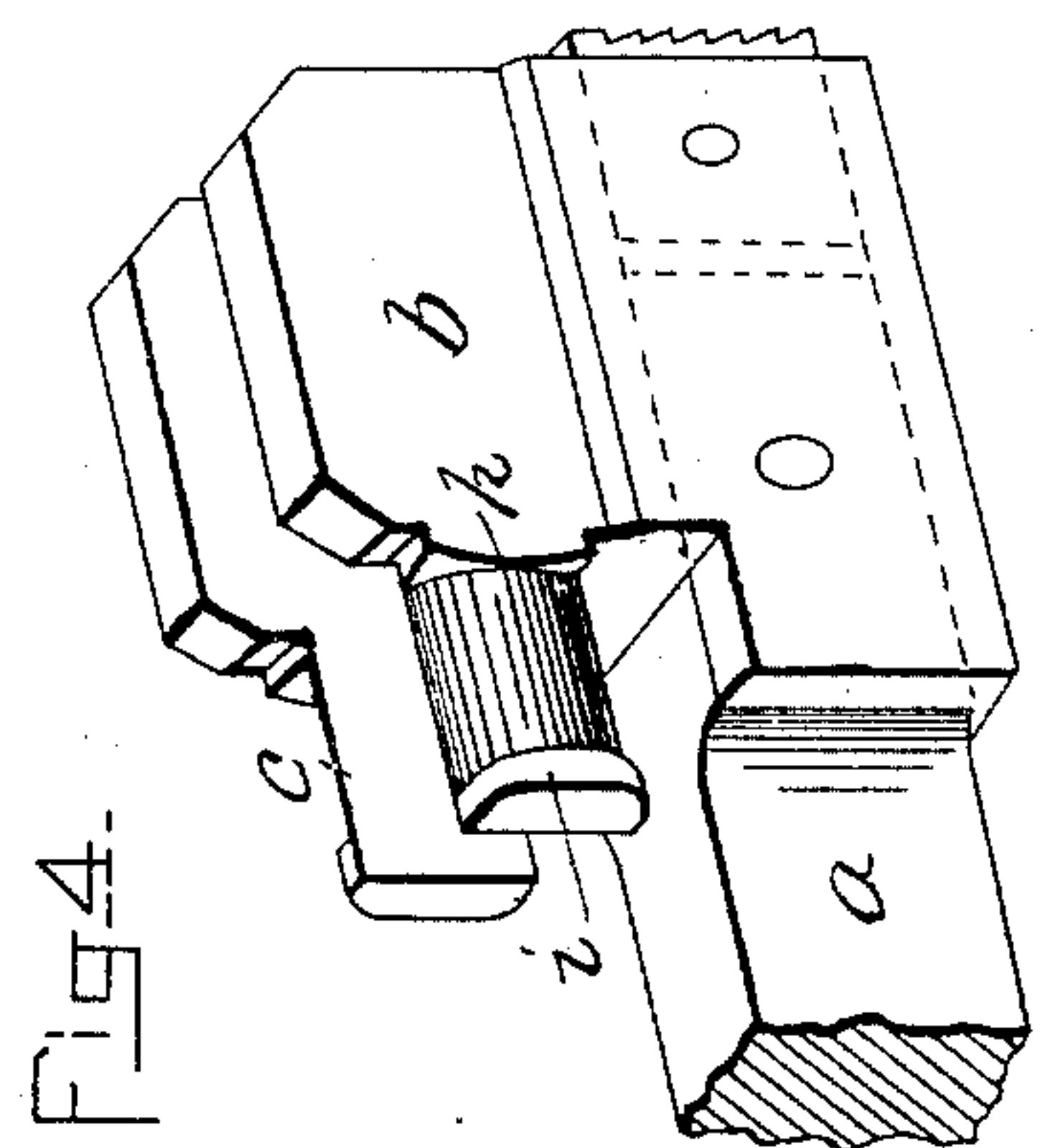


Fig. 4-

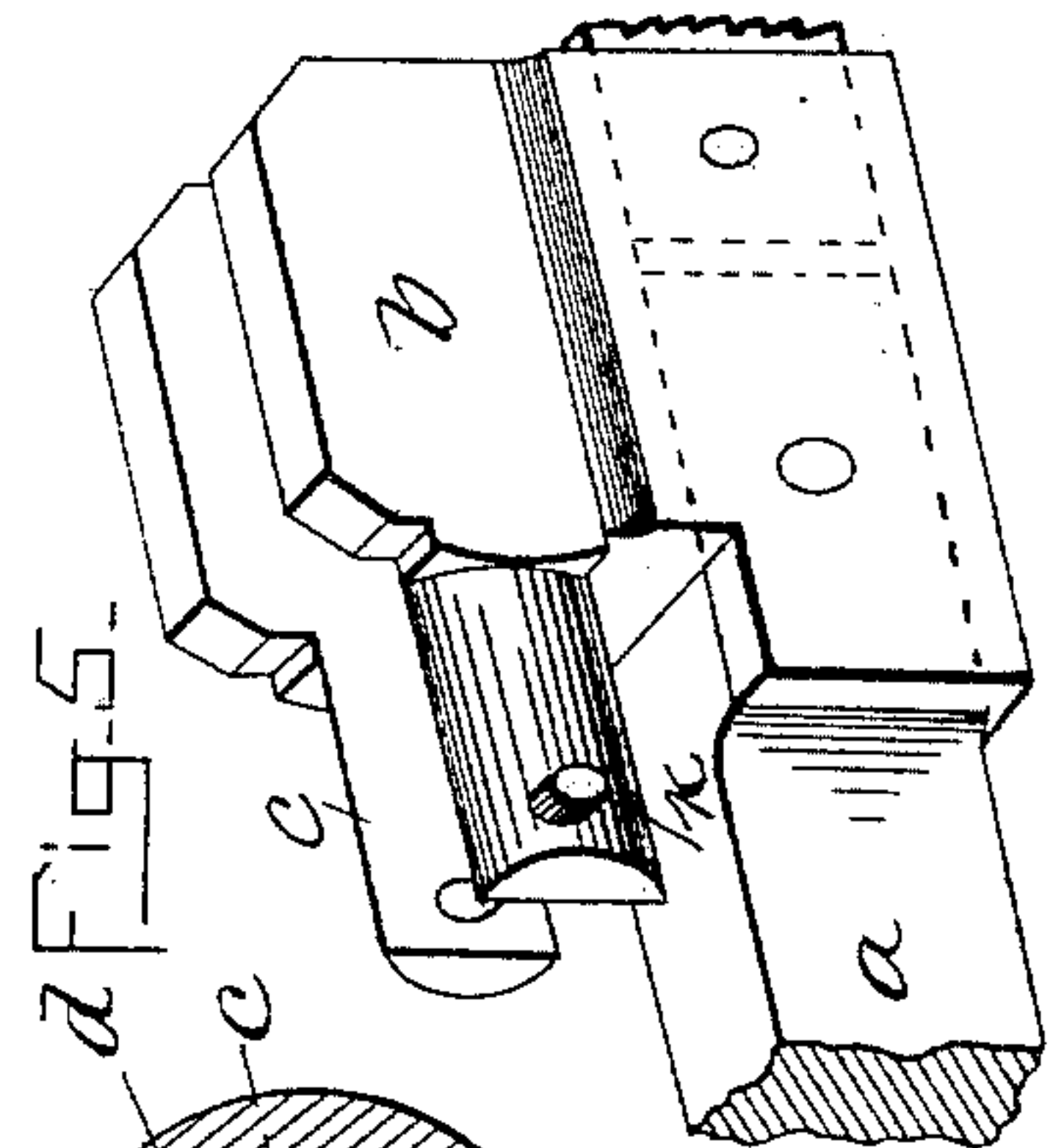


Fig. 5-

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# UNITED STATES PATENT OFFICE.

DANIEL R. PORTER, OF CHELSEA, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO WILLIAM F. GOLDTHWAIT, OF SAME PLACE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 450,681, dated April 21, 1891.

Application filed May 10, 1890. Serial No. 351,225. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL R. PORTER, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention has reference to wrenches generally, and particularly to the kind of such devices as is commonly known as "pipe-wrenches."

It is the object of the present invention to provide an improvement on the wrench shown and described in United States Letters Patent No. 426,956, granted April 29, 1890, whereby the construction of the wrench may be greatly simplified, its efficiency and durability increased, and its cost of manufacture materially lessened.

In the wrench aforesaid the nut whereby the movable jaw and its shank are operated is connected with the ears of the handle or lever by means of a bar or lever pivoted to the said ears. I have found that a more economic and efficient construction is afforded by dispensing with the pivoted bar and providing rigid rearward extensions to the ears, or it might be to but one of them, which extension may form an integral part of the ears.

My improvement consists of a wrench comprising in its construction a handle or lever having ears and a rigid extension connected with one or both of the said ears, the said handle being provided with a fixed jaw, in combination with a movable jaw having a screw-threaded shank and an adjusting-nut engaging the said shank and inclosing said rigid ear-extensions, the latter being provided with an abutment or bearing for the nut, so that by turning the nut, which is not inclosed or secured at any point, the shank and its jaw may be moved or adjusted, all as I will now proceed to describe and claim, making reference to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification.

Of the drawings, Figure 1 is a side view of my improved wrench, a part of the handle being shown as broken out. Fig. 2 is a longitudinal sectional view taken on the line 2-2 of Fig. 1. Fig. 3 is a sectional view taken on the line 3-3 of Fig. 1. Fig. 4 is a detail in

perspective, showing the part upon which my improvement has been wrought. Fig. 5 is a detail showing a modification.

The same letters designate the same parts or features, as the case may be, wherever they occur.

In the drawings, *a* designates a handle or lever having ears *b*, provided with rigid rearwardly-extending portions *c*, which extensions may or may not form an integral part of the ears. The ears and their extensions are constructed and arranged so that they may form lateral bearings for the screw-threaded shank *d* of the movable jaw *e*, which shank is adapted to be moved longitudinally between the said ears. The handle or lever *a* is provided with a fixed jaw *f* to co-operate with the movable jaw *e*.

*g* designates a nut adapted to engage the screw-threaded shank *d* and to at the same time embrace and inclose the extensions *c* of the ears *b*, the said extensions being provided with bearings *h i* for the sides of the nut, so that by turning the latter the shank *d* may be adjusted or moved longitudinally, said inner bearings being formed by the shoulders at the point of conjunction of the ears and the extensions. By this arrangement the entire outer surface of the nut is exposed and can be grasped at any point and is firmly held against lateral movement by the bearings at the inner and outer ends of the extensions.

The bearings *h i* may (though not necessarily) be slightly curved, as shown, to permit the jaw *e* and its shank to have a greater rocking motion with the nut as its axis than they would otherwise have.

The ears may be made as an integral part of the handle *a*, with the fixed jaw *f* secured in the forward end of said lever or handle, as shown in Fig. 1, or the said fixed jaw may also form an integral portion of the lever or handle; or the ears *b* may be formed on a part separate from the handle, which separate part may be secured to the forward end of the handle and the jaw *f* fixed therein, as shown by full and dotted lines in Fig. 4.

In assembling the parts, as shown in Fig. 1, I may spring the outer or free ends of the extension-pieces *c* together sufficiently to en-



able the nut *g* to be slipped thereover, when the extensions may be sprung back to place and the shank *d* passed between the ears and engaged by the nut.

5 Instead of providing the extensions *c* with bearings *i*, as shown in Figs. 1, 2, and 4, I may form the outer bearings for the nut as pins *k*, inserted in the ends of the extensions *c*, as shown in Fig. 5, in which case in assembling the parts the ends of the extensions *c* of the ears need not be sprung together and pressed apart, as hereinbefore described; but after placing the nut *g* in position the bearing-pins may be secured in place.

15 By the improvement described a very strong and efficient wrench may be produced, while the cost of manufacturing the same may be reduced to the minimum.

20 The construction of the wrench is simplified and at the same time materially improved. The parts can be readily operated, and the nut being held between firm bearings is prevented from becoming loose or deranged.

Having thus described my invention, I declare that what I claim is—

25 The herein-described wrench, comprising a handle or lever having a fixed jaw, the ears projecting from said handle or lever, the parallel extensions formed with said ears, having shoulders at their points of conjunction, 30 forming inner bearings, and shoulders at the outer edges of said ears, forming outer bearings, in combination with a movable jaw having a screw-threaded shank and an adjusting-nut engaging the shank and encircling said 35 parallel extensions and held by said inner and outer shoulders, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of May, A. D. 40 1890.

DANIEL R. PORTER.

Witnesses:

ARTHUR W. CROSSLEY,  
A. D. HARRISON.