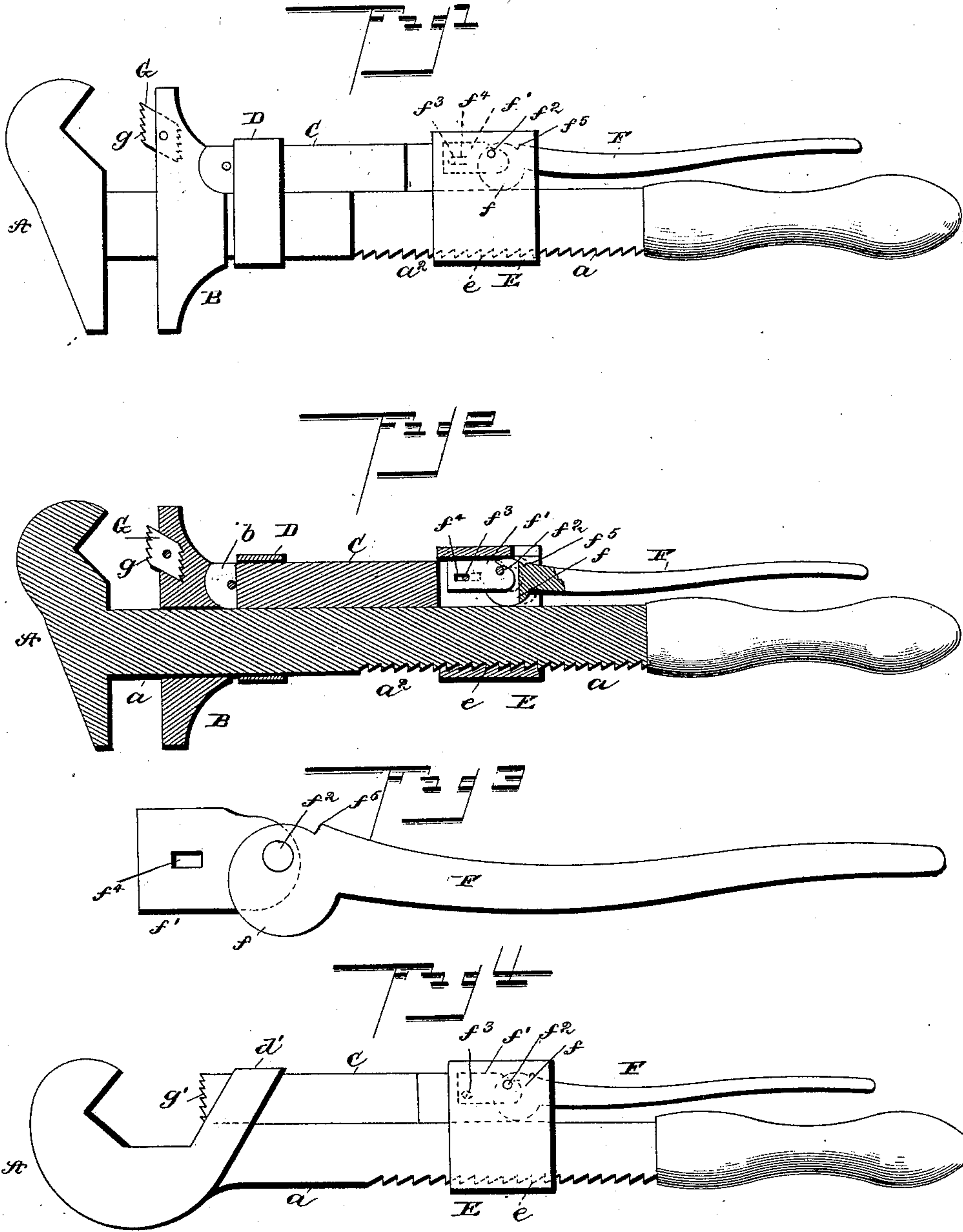


(No Model.)

C. W. DIXON.  
WRENCH.

No. 437,102.

Patented Sept. 23, 1890.



Witnesses  
*John Aniric*  
*Wm. S. Hodges*

Inventor  
*Charles W. Dixon.*  
By his Attorney  
*John D. W. Hill.*



# UNITED STATES PATENT OFFICE.

CHARLES W. DIXON, OF BLOOMFIELD, INDIANA.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 437,102, dated September 23, 1890.

Application filed March 24, 1890. Serial No. 345,051. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. DIXON, a citizen of the United States of America, residing at Bloomfield, in the county of Greene and State of Indiana, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention pertains to certain new and useful improvements in wrenches, having for its object the production of simple and highly efficient means for readily and easily adjusting and securing the movable jaw or member at any desired point, a nicety of adjustment being obtained, and for securely holding the wrench in contact with the article being operated upon as against slipping.

20 The invention comprises the detail construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a view in side elevation of my improved wrench. Fig. 2 is a longitudinal sectional view. Fig. 3 is a view of the cam-lever and its connection. Fig. 4 is a side elevation of a modified form of my invention.

30 Referring to the drawings, A designates the rigid jaw formed at or secured to one end of handled shank *a*. The ends of this jaw are extended beyond the shank, one of said ends being hook shape, as shown.

35 B is the adjustable jaw or member provided with an opening so as to fit on shank *a*, said opening being slightly deeper than the shank to permit of slight back and forward movement of the ends of the jaw. The ends of this jaw are likewise extended, whereby a combined nut and pipe wrench is secured. To jaw B is pivotally connected the forward end of a bar or pitman C, the connection being effected by a lug or ear *b* of said jaw pivotally secured in a slot of said bar or pitman, so as to permit jaw B to swing to a limited degree in obtaining a further hold or bite on a pipe or other object.

40 A loop D, inclosing shank *a*, is secured at its ends to bar or pitman C, adjacent the pivoted

end thereof, whereby said bar or pitman is fixedly held with relation to the shank.

E is a loop, also inclosing shank *a*, and the outer free end of pitman C. This loop is also provided in its lower portion with teeth *e*, 55 which intermesh with similar teeth *a*<sup>2</sup> on the under side of shank *a*. It will be seen in Fig. 2 that these teeth *e* are all rearwardly inclined, the advantage being that a better connection is thereby secured and any possible 60 rearward slipping is prevented.

F is a lever having a cam end *f*, which is pivotally connected to a link *f'* by a pin *f*<sup>2</sup>. This link is loosely secured to the free end of bar or pitman C by a pin *f*<sup>3</sup>, which is extended 65 through a slot *f*<sup>4</sup> thereof. The pin *f*<sup>2</sup> has its ends extended into coincident apertures of loop E, whereby the latter has a movement corresponding to the cam end of lever F, and through this means is connected with the bar 70 or pitman C, so as to control jaw B. A shoulder *f*<sup>5</sup> on this lever limits the outward movement thereof by coming in contact with the end of bar or pitman C. The object of this link with the slot between the cam on the lever and the pitman is to provide for securing 75 an increased bite or contact with the pipe or other object. This increased bite is accomplished after the sliding jaw has been slid up against the object by first raising the outer 80 end of the lever and then sliding the cam and the link on the main shank outward—i. e., toward the jaw—which will throw the pivot-pin *f*<sup>2</sup> forward, and the latter, having its ends in the loop E, will carry it forward also the 85 extent of one or two teeth. The lever, being again depressed, will cause the teeth of loop E and those of shank *a* to firmly bind, and thus, as has been above described, will move forward the pitman C and through it the jaw 90 B to a greater extent. The latter are not disturbed in this second or further operation of the lever until the loop has been moved forward and the parts are further tightened.

To jaw or member B is rigidly secured a 95 die G, having teeth *g* on both its ends, one of said ends being always held in a socket of said jaw. This die serves to secure a firm bite on a pipe being operated upon and prevents slipping, and being removable its ends 100



can be reversed when the teeth of one end become worn. When not in use, the die G enters the hooked portion of jaw A.

The foregoing device is designed as a combined pipe and nut wrench; but, if desired, the same may be modified for use as a pipe-wrench alone, as shown in Fig. 5. In this form a loop  $d'$  is formed integral with shank  $a$ , and through it is passed the end of bar or pitman C, which end is provided with teeth  $g'$  serving the office of die G. This pitman serves in the capacity of the movable jaw and in lieu thereof. The toothed loop E, the cam-lever F, and the link-connections are the same as above described, and the invention is not changed beyond the points specified.

I claim as my invention—

1. In a wrench having its shank provided with a series of teeth and a rigid jaw, a lever, an adjustable jaw or member operated by said lever, a slotted link interposed between the said lever and the said sliding adjustable jaw, and a loop connected to the said lever and having teeth engaging the teeth of said shank, whereby an increased bite is secured on the object being acted upon, as set forth.

2. A wrench having its shank provided with a series of teeth and a rigid jaw, the adjustable jaw secured on said shank, a lever having a cam end, a bar or pitman pivotally con-

nected at its forward end to said adjustable jaw and adapted at its rear end to receive the cam on the said lever, the slotted link connected to the rear end of the said bar or pitman and secured to the said cam end of the lever, and the loop having teeth engaging the teeth of said shank and connected to said lever, substantially as set forth.

3. The herein-described improved wrench, consisting of the shank provided with a series of teeth and having a rigid jaw, an adjustable jaw secured on said shank and provided with teeth on its outer face, a bar or pitman pivotally secured to said jaw, loops connecting the said bar or pitman with the said shank, one of the said loops being provided with teeth, a slotted link connected to the said bar or pitman, and a lever having a cam end designed to bear against the rear end of the said bar or pitman and pivotally secured to the outer end of said link, and connected with one of the said loops, all combined and arranged substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. DIXON.

Witnesses:

JOSEPH E. WALTON,  
H. E. KNOPP.