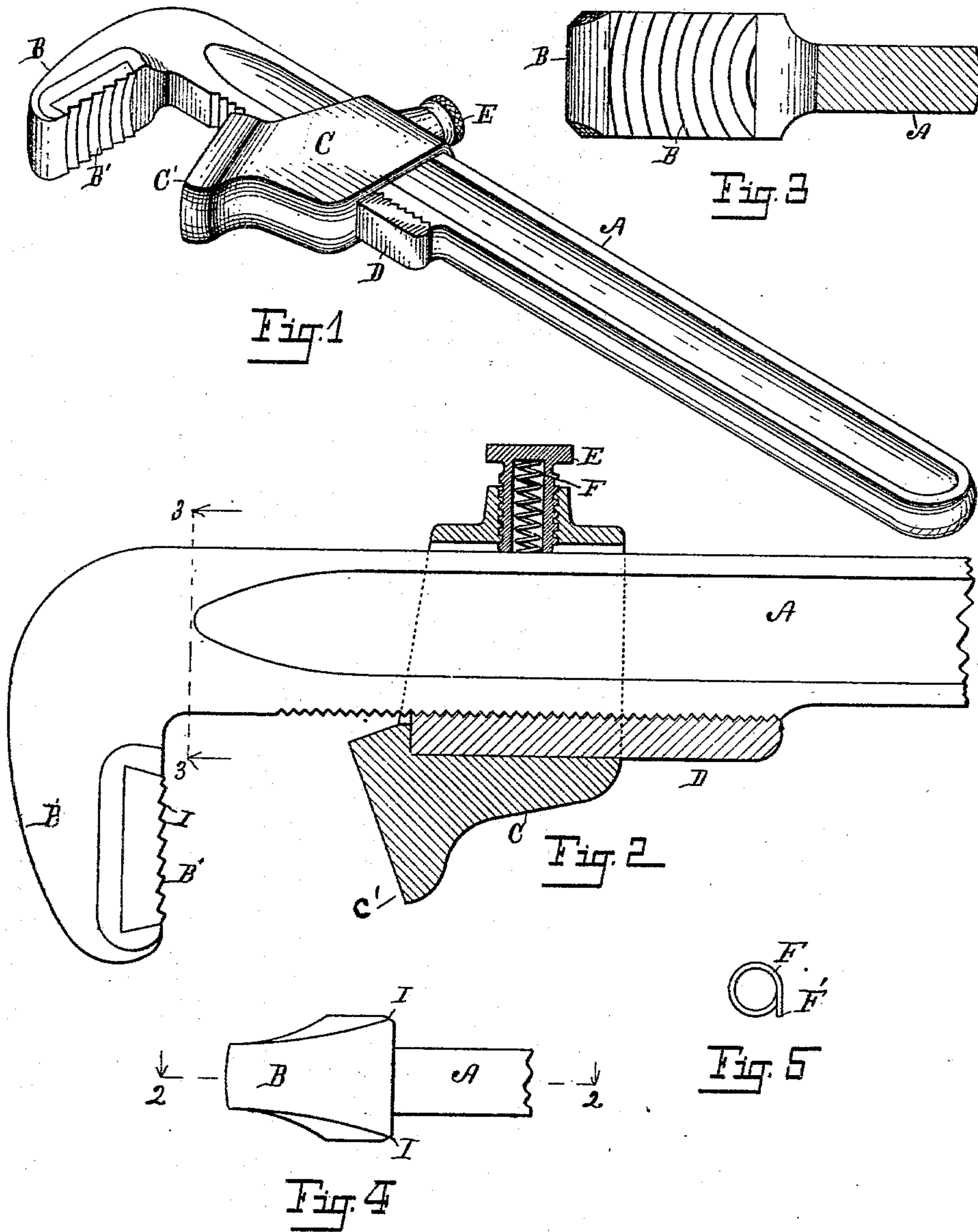


(No Model.)

G. L. IVES.  
PIPE WRENCH.

No. 551,285.

Patented Dec. 10, 1895.



Witnesses:  
*Walter S. Howard*  
*Marian Longyear*

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Att'y.



# UNITED STATES PATENT OFFICE.

GEORGE L. IVES, OF KALAMAZOO, MICHIGAN.

## PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 551,285, dated December 10, 1895.

Application filed May 18, 1895. Serial No. 549,814. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE L. IVES, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches and more particularly to improvements in pipe-wrenches.

The objects of my invention are, first, to provide a conveniently adjustable jaw for a wrench which will be held rigidly in place; second, to provide improved teeth in a tooth-jaw of the wrench; third, to provide a wrench which will seize firmly a very small as well as a very large piece of pipe; fourth, to provide teeth on the jaw that will be strong and durable.

Further objects will appear in the detailed description of my invention.

I accomplish these objects of my invention by the device shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a wrench embodying all of the features of my invention. Fig. 2 is an enlarged detail side view of the head of the wrench with the collar C and movable jaw C' shown in section on a line corresponding to line 2 2 of Fig. 4. Fig. 3 is a sectional detail view taken on line 3 3 of Fig. 2, looking in the direction of the little arrows. Fig. 4 is a view taken from the under side of the fixed jaw of the wrench as shown in Fig. 2, looking up from the bottom of that figure. Fig. 5 is a detail view of the spring F, contained in the thumb-screw E to the back of the wrench.

Referring to the lettered parts of the drawings, A represents the handle of the wrench, to the end of which and cast integral with it is formed the fixed jaw B of the wrench, the parts being properly rounded and formed to prevent any unnecessary use of the wrench as a hammer, the form being indicated in Fig. 4. A piece of steel is embedded in the jaw B of the wrench, on which are formed the teeth B', for properly grasping a pipe or rod. A dovetail recess is cut in the jaw of the wrench and a piece of steel for facing the jaw is formed in a dovetailed manner to fit into the dovetail recess formed in the jaw of the

wrench so that the face of the jaw can be quickly removed and replaced, should it become injured, by merely driving it out and driving in a new jaw-piece. Around the handle of the wrench is fitted a collar C, which is made integral with the jaw C', which stands at an angle to the jaw B.

On the front side of the handle A are formed little ratchet-teeth or serrations, and inserted into the collar C is a piece of steel D, having corresponding ratchet-teeth or serrations facing the teeth on the handle. The collar is larger than the handle A of the wrench and in the back of it is inserted a tubular thumb-screw E.

A compressible coiled spring F is inserted into the thumb-screw E, one end of the wire being turned out to one side, as indicated at F', so that it will grasp the inside of the thumb-nut E and retain itself there securely. To adjust the jaw C', the thumb-nut E is loosened and the spring holds the same so that the teeth on the strip of steel D engage the teeth on the front of handle A; but by compressing the same they will be disengaged. By compressing the spring the jaw can be moved along quickly to any desired position. The spring will retain it there until the operator has had an opportunity to turn down the thumb-nut E, when the jaw will be held very securely in place. The strip of steel D I prefer to extend outside of the collar, so that it can serve for protection for the serrations on the front of the handle. The teeth B' in the fixed jaw B are formed preferably in concentric curves, as is indicated in Fig. 3. The object in so forming them is that they will engage evenly any piece of pipe that may be put in the jaws of the wrench, the curvature insuring that they will engage positively and accurately the pipe or tube or rod of any size when it comes against them, the construction being so effective that a small nail can be taken hold of with this wrench when the jaw is properly adjusted, and it can be twisted in two on account of the strong hold of the wrench. The sides of the jaw are rounded off at I to afford an obtuse angle at the corners to prevent the breakage in the teeth that so often occurs in steel-jawed wrenches. (See Fig. 4.)

Having thus described my improved wrench,



I desire to say that it can be somewhat varied in its details without departing from my invention. The movable jaw C would work very well with ordinary rectilinear teeth on the fixed jaw, or the peculiar form of the jaw which I have shown could be used on a wrench having fixed jaws, and would be very satisfactory and effective when so used, or it can be used for other variety of jaws. The projecting protecting-piece D will be very serviceable with other styles of wrench. In the operation of my wrench, it will be found to be very effective on account of the formation of the jaw B, because it takes hold of the pipe firmly at any point, the jaw C' being at an angle to it which allows the pipe to be crowded into place to be properly grasped very readily without any hinging or pivoting of either jaw.

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

1. In a wrench, the combination of the handle, A; the fixed jaw, B, integral therewith containing the face piece with concentric curved teeth, B', therein pointing toward the handle of the wrench; a collar, C, to embrace said handle, A, bearing the angled jaw, C', opposite the fixed jaw, B; a steel plate, D, in said collar, C, bearing serrations to engage oppositely facing serrations on the handle, A; a tubular thumb-screw, E, on the back of said collar, C; a spring, F, in said tubular thumb-screw formed with a projecting end, F', to engage in the bottom of the screw to retain the spring in place, all co-acting together substantially as described for the purpose specified.

2. In a wrench, the combination of the handle, A; the fixed jaw, B, integral therewith containing the steel face piece with concentric curved teeth, B', therein pointing toward the handle of the wrench; a collar, C, to embrace said handle, A, bearing angle jaw, C',

opposite the fixed jaw, B; the steel plate, D, in said collar, C, bearing serrations to engage oppositely facing serrations on the handle, A; the thumb-screw, E, on the back of said collar to clamp it against the serrations, all co-acting together substantially as described for the purpose specified.

3. In a wrench, the combination of the handle, A, with a fixed jaw, B, at one end thereof; a collar, C, bearing a jaw thereon facing the fixed jaw on said wrench; the serrations on the inner side of said collar to engage appropriate serrations on the handle; the tubular thumb-screw, E, containing the compressible coiled spring, F, at the back of said collar for clamping the movable jaw in place and permit of its being readily adjusted, as specified.

4. In a wrench, the combination with the handle, A, of the fixed jaw at the outer end thereof; the collar surrounding said handle and movable thereon with a movable jaw fixed thereto; a steel plate, D, bearing appropriate serrations inserted into the collar, C, the serrations of which are adapted to fit suitable serrations on the handle, A; a thumb-screw on the back of the collar to clamp the same together, as specified.

5. In a wrench, the combination of a fixed jaw with curved teeth formed thereon pointing toward the handle thereof, the teeth being formed in concentric curved lines with the arcs of the smaller circles next to the handle, to engage objects of different size and an angular smooth jaw facing said fixed jaw all co-acting together as specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE L. IVES. [L. S.]

Witnesses:

MARIAN I. LONGYEAR,  
WALTER S. WOOD.