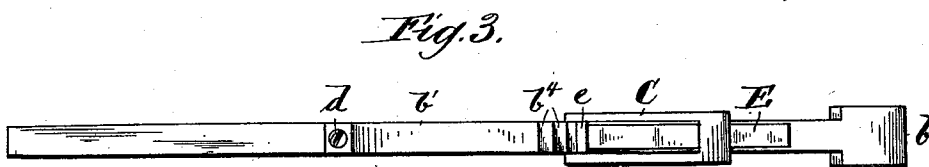
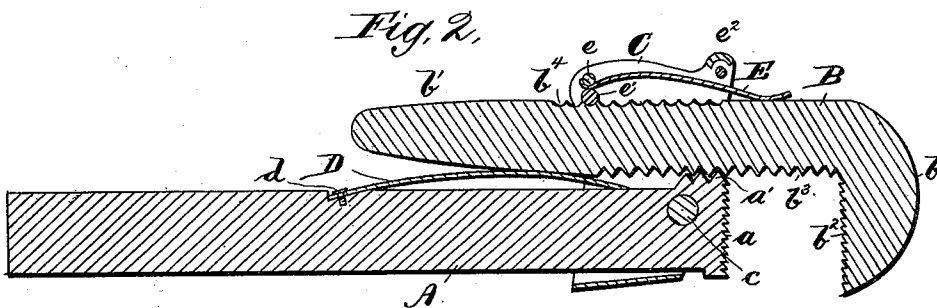
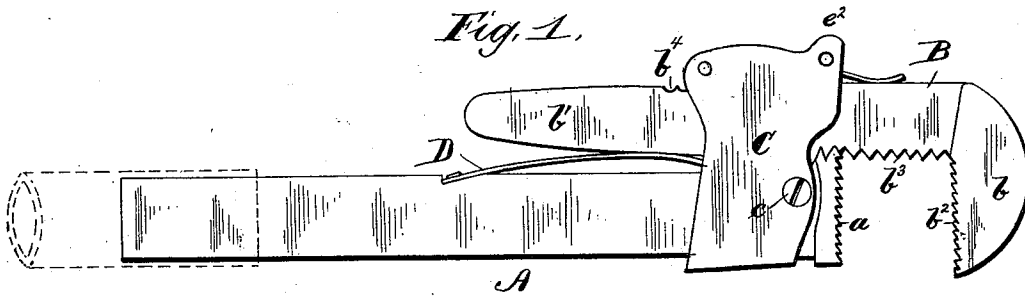


(No Model.)

S. C. BOLE.
WRENCH.

No. 507,407.

Patented Oct. 24, 1893.



Witnesses:
Wm. O. Boulter
C. A. Michener

Inventor:
Samuel C. Bole,
by his attorney
H. B. Willson.

UNITED STATES PATENT OFFICE.

SAMUEL C. BOLE, OF LEECHBURG, PENNSYLVANIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 507,407, dated October 24, 1893.

Application filed April 7, 1893. Serial No. 469,447. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. BOLE, a citizen of the United States, residing at Leechburg, in the county of Armstrong and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to pipe wrenches, and more especially to that class thereof wherein a sliding jaw is used to co-operate with a fixed jaw for the purpose of turning a pipe and among the objects in view is to provide a wrench of the character described which is extremely simple and inexpensive in construction and efficient in operation, and the invention consists in the peculiar construction, and combination of parts, all as will hereinafter be fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings:—Figure 1 is a side view of my improved pipe wrench; Fig. 2 a vertical longitudinal section thereof; Fig. 3 a plan view of the wrench.

In carrying out my invention I provide a fixed jaw A which is made of some length as shown whereby it will serve as a handle for operating the wrench and I prefer to make the said handle portion of the jaw of rectangular shape at its outer end whereby a section of pipe may be slipped over the same when it is desired to obtain greater leverage, as shown in dotted lines in Fig. 1. The inner end of the jaw is provided with a series of teeth a , arranged vertically, and said end of the jaw is also provided with a number of teeth a' arranged horizontally as shown, for a purpose presently explained.

B indicates the sliding jaw of the wrench the shank of which extends rearwardly so as to provide a portion b' adapted to be operated by the thumb of the operator, and the opposite end of said jaw B is provided with the vertically-extending portion b , the inner face of which is provided with the series of vertically-arranged teeth b^3 . The teeth a , and b^2 are inclined in opposite directions as shown, whereby to obtain a better grip upon the pipe or rod being turned.

The under face of the jaw B is provided with a series of horizontally-arranged teeth b^3 , which in practice would be placed at predetermined distances apart, and the upper face of said jaw is provided with a series of shallow depressions or grooves b^4 .

C indicates the body or housing of the wrench through which extend the fixed and sliding jaws as shown, and said housing is pivoted upon a screw c , which passes through the fixed jaw, and said housing is provided with a transversely-arranged stud e' near its upper edge which is adapted to engage with the grooves b^4 of the sliding jaw.

D indicates a leaf spring which is secured at one end by means of a screw d , to the upper side of the fixed jaw, and bearing upon the under side of the sliding jaw so as to normally effect the engagement of the stud e' with the grooves b^4 .

E indicates another leaf-spring which is secured at one end to a pin or stud e carried by the housing, and the opposite end of said spring bearing upon the upper face of the jaw B so as to normally effect the engagement of the teeth b^3 , and a' .

The upper forward end of the housing is provided with an upwardly-extending projection or lug e^2 which is adapted to be operated by the thumb of the operator as presently explained.

The operation of my improved wrench may be briefly described as follows: When it is desired to adjust the wrench so as to grip a pipe or rod which is to be turned, the operator holds the wrench in one hand and with his thumb presses down upon the portion b' of the sliding jaw until the teeth b^3 free the teeth a' , when by pressing forwardly with the thumb upon the sliding jaw the latter may be adjusted forwardly until the pipe or rod will be gripped between the jaws, the stud e' riding over the grooves b^4 during the adjustment of the sliding jaw. The pipe or rod which is now gripped firmly by the teeth a , b^2 , b^3 , may be turned in the desired direction by means of the wrench. When it is desired to adjust the wrench to grip a pipe or rod of smaller diameter, the operator presses forwardly with his thumb upon the lug or projection e^2 , and at the same time presses upwardly and rearwardly with a finger upon

the portion b , of the sliding jaw, whereby the housing C will be tilted to cause the stud e' to free the grooves b^4 , and the teeth b^3 made to free the teeth a' , so that the sliding jaw will be forced rearwardly until the pipe or rod is gripped between the jaws in the manner above explained.

It will be seen from the foregoing description, that my wrench may be adjusted almost instantly to pipes of various diameters, and its advantages will be readily apparent.

What I claim, and desire to secure by Letters Patent, is—

1. In a pipe wrench of the character described, the combination with a fixed jaw provided upon its inner end with a series of vertically-arranged teeth, and a series of horizontally arranged teeth, as described, and a housing pivoted upon the fixed jaw and having a transverse stud, of a sliding jaw passed through the housing and provided upon its under side with a series of teeth adapted to engage with the horizontally-arranged teeth of the fixed jaw, and upon its upper side with a series of grooves adapted to be engaged by the stud of the housing, said slid-

ing jaw being provided with a vertical portion having a series of teeth adapted to cooperate with the vertical teeth of the fixed jaw, as and for the purpose specified.

2. In a pipe wrench of the character described, the combination with the fixed jaw provided with the series of vertical teeth a , and the series of horizontal teeth a' , and a housing pivoted upon said jaw and provided with the transverse stud e' , of the sliding jaw provided upon its under side with the series of teeth b^3 adapted to engage with the teeth a' , and upon its upper side with the series of grooves b^4 adapted to be engaged by the stud e' , said sliding jaw having a vertical portion b , provided with a series of teeth b^2 , and springs D, D, adapted to normally effect the engagement of the stud with the grooves and the teeth b^3 with the teeth a' , as and for the purpose specified.

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

SAMUEL C. BOLE.

Witnesses:

L. A. KEPPEL,
M. R. HUNTER.