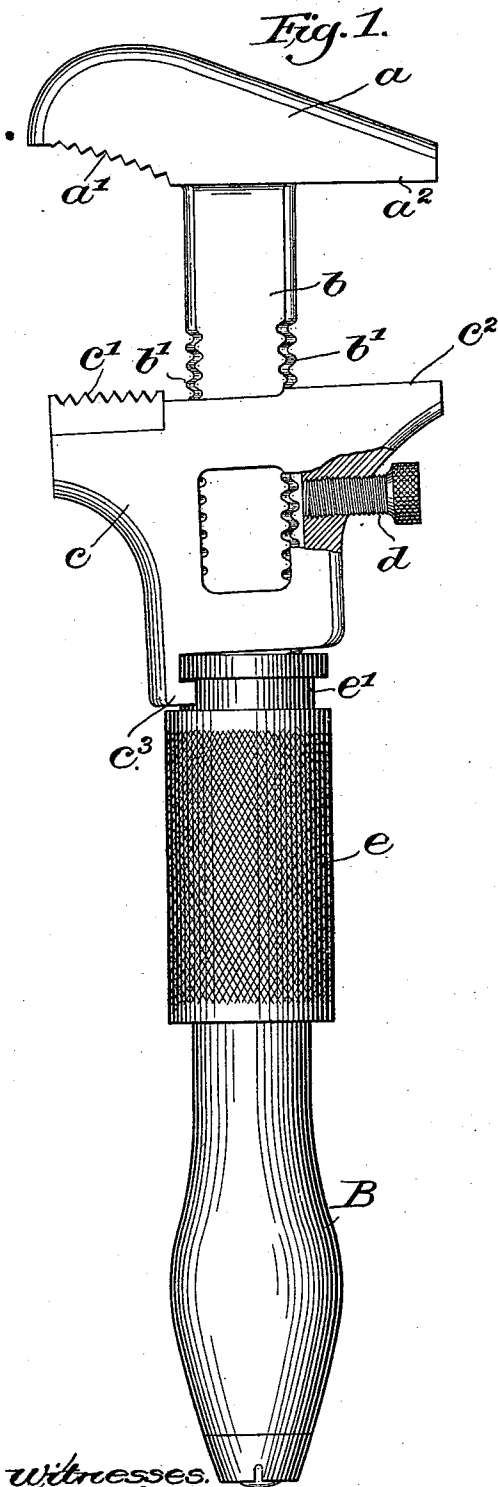


(No Model.)

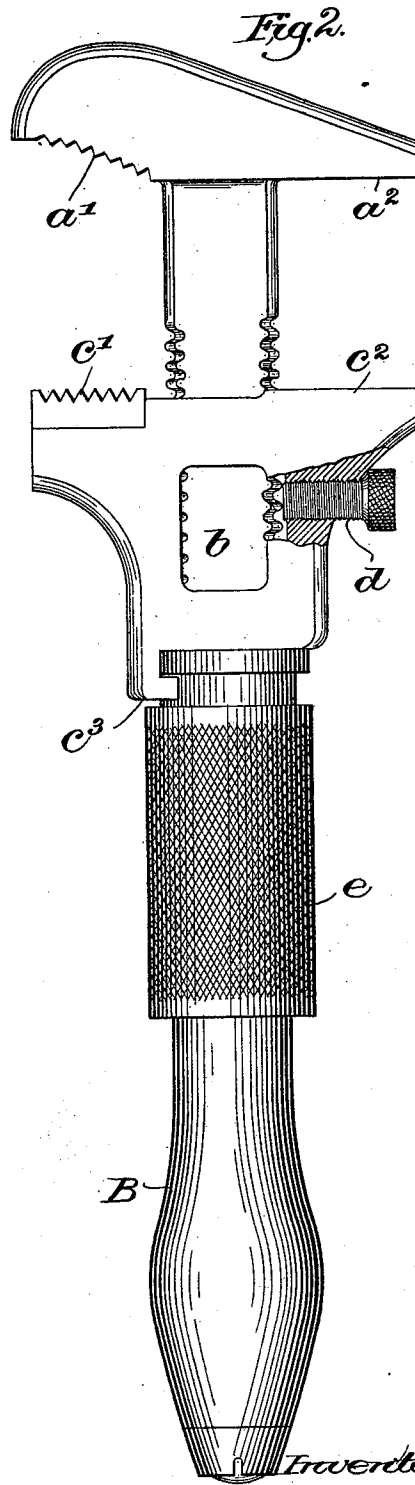
E. O. ELY.
COMBINATION WRENCH.

No. 516,191.

Patented Mar. 13, 1894.



Witnesses.
Edward F. Allen.
Louis W. Small



Inventor:
Edward O. Ely.
by Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

EDWARD O. ELY, OF BOSTON, MASSACHUSETTS.

COMBINATION-WRENCH.

SPECIFICATION forming part of Letters Patent No. 516,191, dated March 13, 1894.

Application filed March 27, 1893. Serial No. 467,798. (No model.)

To all whom it may concern:

Be it known that I, EDWARD O. ELY, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Combination-Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Wrenches have been made for use either as pipe wrenches or nut wrenches, as desired, the movable jaw in such wrenches being given sufficient tilt or lateral motion upon the shank to permit of the removal or application of the wrench to the pipe, and a spring has been interposed between the shank and the inner side of the throat of the movable jaw, to prevent the free tilting thereof when used as a nut wrench. This construction is not, however, satisfactory, for the action of the spring draws the movable jaw up against the shank in a diagonal direction, so that when the jaws are removed from contact with a nut, the spring forces the extremity of the movable jaw toward the fixed jaw, making the opening between them too small to admit the nut when the wrench is again applied without having recourse to the hand-piece. So also with this construction, the tilting movement given to the movable jaw is so slight as to be insufficient to permit the application or removal of the wrench to a pipe unless the inner face of the fixed jaw is substantially the shape of an inverted V.

This invention has for its object the production of a combined pipe and nut wrench which shall be free from the foregoing objections, a positive stop being employed, rather than a yielding spring, whereby it is impossible for the movable jaw to tilt unless it is so desired.

In accordance therewith, my invention consists in the combination in a pipe and nut wrench, of a shank, and a fixed jaw thereon having pipe and nut engaging faces, respectively located at opposite sides of said shank with a movable jaw on said shank having faces similarly located and co-operating with those on the fixed jaw, said movable jaw being adapted to tilt laterally, and a rotatable stop movable toward and from the shank to adjust the amount of tip, or to prevent tilting, substantially as will be described.

Other features of my invention will be hereinafter described and particularly pointed out in the claims.

Figure 1 of the drawings, in side elevation and partly in section, shows a wrench embodying my invention and adapted to be used as a pipe wrench. Fig. 2 is a similar view thereof showing the stop in position to prevent tilting of the jaw when used as a nut wrench.

I have herein shown the wrench as comprising a fixed jaw or head *a* rigidly secured to or forming part of a shank *b* threaded as at *b'* to receive thereon a longitudinally movable jaw *c*, the throat of said jaw being large enough to permit it to tilt laterally with relation to the shank when used as a pipe wrench, as will be described. The fixed jaw *a* has a series of teeth *a'* formed in its under face at one side of the shank, the face at the other side of the shank being plane as at *a²*, and the upper face of the movable jaw is serrated at *c'* and plane at *c²*, the parts *a'*, *c'*, acting when the wrench is used upon pipes, the plane faces *a²*, *c²*, being used when the wrench is operated as a nut wrench. An L-shaped projection *c³* forming a part of the movable jaw engages an annular groove *e'* of a milled nut *e* internally threaded to engage the threads *b'* of the shank, rotation of the said milled nut in one or the other direction moving the jaw *c* toward or from the fixed jaw *a* in usual manner.

Referring to Fig. 1 it will be seen that the throat or shank opening of the movable jaw is of sufficient size to permit the said jaw to tilt laterally upon the shank, when a stop, herein shown as a headed screw *d*, is in its withdrawn position, as shown in Fig. 1, the jaw being free to tilt on the shank when the wrench is being used to manipulate a pipe. When, however, it is desired to use the wrench as a nut wrench, the face *c²* of the movable jaw must be maintained parallel to the face *a²* of the fixed jaw, no matter what the longitudinal position of said jaw may be with relation to the shank, and in order to, at such times, obviate and entirely prevent the tilting of the jaw *c*, I have provided the stop *d* which is extended through a threaded opening in one side of the movable jaw, rotation of the said stop moving its inner end posi-

tively until it engages or bears upon the tops of the threads *b'*, though at the same time the jaw is free to be moved longitudinally by means of the milled nut *e*. Having adjusted the stop *d*, so that the jaw cannot tilt, it in turn is moved longitudinally by means of the milled nut to the size of the nut to be operated upon, and the jaws will remain parallel one to the other so long as the longitudinal position of the movable jaw upon the shank remains unchanged. The stop also serves to adjust the amount which the movable jaw may tilt.

For convenience of operation, I have herein shown the head of the screw stop *d* as milled, but it is obvious that the same might have a slot in its face or other means for rotating the same.

I claim—

1. In a pipe and nut wrench, a shank, and a fixed jaw thereon having pipe and nut engaging faces respectively located at opposite sides of said shank, combined with a movable jaw on said shank having faces similarly lo-

cated and co-operating with those on the fixed jaw, said movable jaw being adapted to tilt laterally, and a rotatable stop movable toward and from the shank to adjust the amount of tilt, or to prevent tilting, substantially as described.

2. In a wrench, a shank, and a fixed jaw thereon having its under face concave and serrated at one side, and plane at the other side of the shank, combined with a movable jaw on said shank, having its upper face serrated and plane, to co-operate with the fixed jaw, said movable jaw being adapted to tilt laterally, and a rotatable stop movable toward and from the shank to adjust the amount of tip, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD O. ELY.

Witnesses:

GEO. W. GREGORY,
JOHN C. EDWARDS.