D. B. EDWINS.

PIPE WRENCH.

APPLICATION FILED DEC. 24, 1908.

922,866. Patented May 25, 1909.

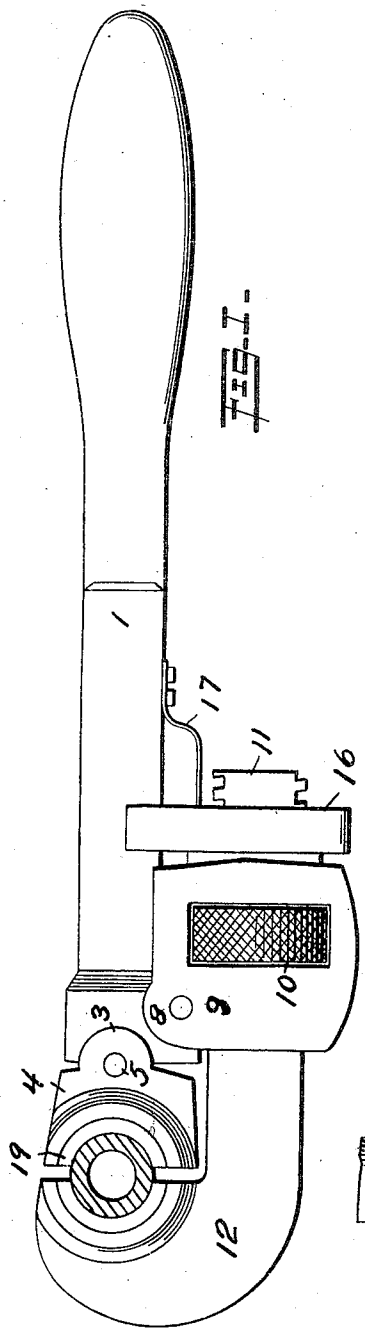


Fig. 1.

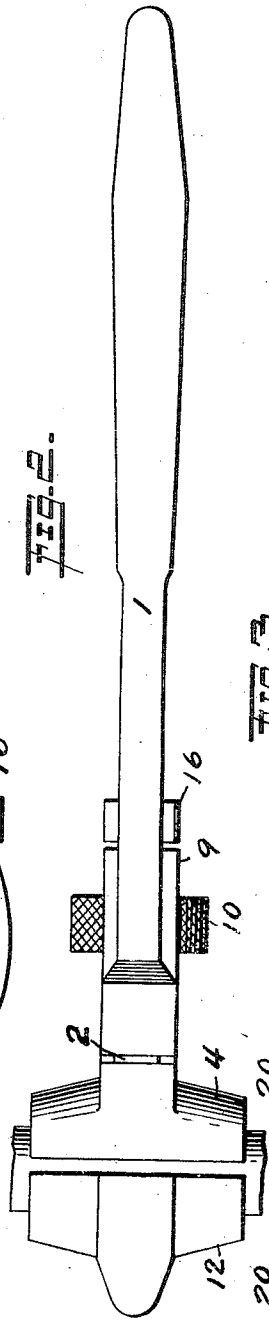


Fig. 2.

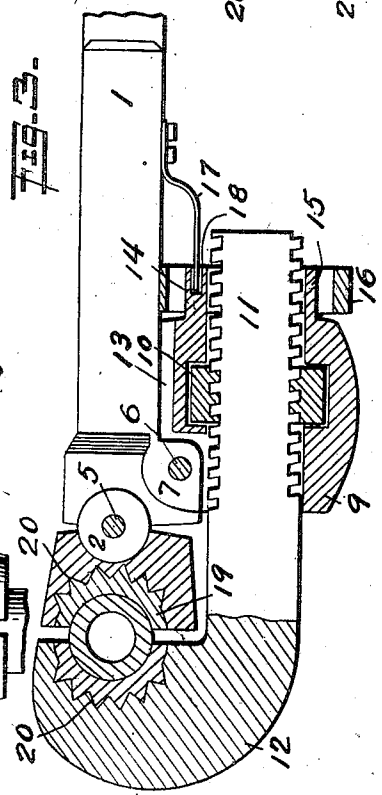


Fig. 3.

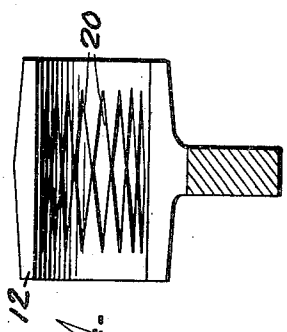


Fig. 4.

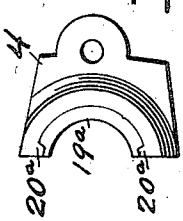


Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

DAVID B. EDWINS, OF ABERDEEN, SOUTH DAKOTA.

PIPE-WRENCH.

No. 922,866. Specification of Letters Patent. Patented May 25, 1909.

Application filed December 24, 1908. Serial No. 469,130.

To all whom it may concern:

Be it known that I, DAVID B. EDWINS, a citizen of the United States of America, and a resident of Aberdeen, in the county of Brown and State of South Dakota, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to pipe wrenches adapted for use particularly with nickeled or burnished pipes; and the object of the invention is to make possible the use of smooth, soft metal jaws, in place of the customary serrated, hard metal ones, and at the same time to provide for a degree of clamping pressure that is fully adequate for all requirements.

Prefacing that the wrench is of the nut and traveling jaw type, I would analyze the combination whereby I attain the above dual object, as follows:—

First, the jaws are of soft metal, so as not to scratch a polished pipe.

Second, the jaws are arcuate, that is, their gripping faces are approximately struck on a circular arc, and, not only this, but they are equally arcuate, that is, have the same radius of curvature. I do not claim that equally arcuate jaws, *per se*, are new; but I do desire to point out the importance of combining soft metal in the jaws with this configuration of gripping surface, since the curvature of the jaws contributes largely to that adequate pressure upon the cylindrical pipe which would be lacking with soft metal jaws of another configuration.

Third, both the inner and outer jaws are pivoted. The importance of this feature is directly dependent upon the construction of the jaws of soft metal and with arcuate gripping faces as just described. This will be the clearer when the ordinary pipe wrench jaws, serrated, and of flat, V-shaped, or roller-like configuration, are considered. With all such, the grip upon the pipe is distinctly in the nature of a bite; and the "bite" and complementary release will be attained so long as one only of the jaws is pivoted. But in my wrench the grip upon the pipe is in the nature of a clasping pressure, by reason of the equally arcuate, soft-metal jaws; and, with such jaws, the most important benefits flow from pivoting both the inner and the outer jaws. The result of this special combination is that the peculiar jaws center automatically upon the pipe and thereby secure the maximum effect of their clasping pressure. Were but one of the jaws pivoted and the other rigid, eccentricity as to the jaws, during the gripping operation, would result; and, not only would this diminish the pressure, but, owing to the unequal pressure of the different parts of the jaw surfaces, would tend to cause scratching of the pipe, the avoidance of which is the fundamental proposition upon which my invention is based.

In the preferred construction or embodiment of my invention, the inner jaw is connected directly with the outer end of the handle shank by means of a pin pivot, and the outer jaw is the traveling jaw, being pivotally mounted by reason of passing through a nut sleeve that is connected by a pin pivot to the end of the handle shank at one side of the pivot of the inner jaw. The essence of the invention, however, will be gathered from the foregoing analysis.

In the accompanying drawings, Figure 1 is a side elevation of a wrench embodying my invention; Fig. 2 is a front view thereof; Fig. 3 is a view corresponding to Fig. 1, with part of the handle broken away and the jaws and pivoted parts in section; Fig. 4 is a detail of one of the jaws without its soft metal facing; and Fig. 5 is a detail of a jaw, showing another manner of securing the facing therein.

Referring now to these drawings, for a better understanding of my invention, through a detailed description of the preferred embodiment thereof: The numeral 1 indicates any suitable form of handle and handle shank. The outer end of this handle shank is provided with a pivot lug or ear 2, which is received between two pivot ears 3 on the inner, non-traveling jaw 4. Said ears 2 and 3 are connected by a transverse pivot 5. To one side and below the pivot 5 is the pivot 6, which connects a pivot lug 7 at the back of the handle shank 1 with a pair of pivot lugs or ears 8 on the nut sleeve 9. Through this nut sleeve and the contained nut 10 passes in customary manner the shank 11 of the outer jaw 12. The side of the nut sleeve 9 next the handle shank 1 may be channeled out, so as to allow for a clearance 13, as indicated in Fig. 3.

The pivotal or swinging movement of the jaw 12 may be limited by two stop projections 14 and 15, extending downward from the sleeve 9, which are adapted to engage, respectively, with the front and back inner sur-

faces of the guide loop member 16, secured to and projecting rearward from the handle shank 1. I prefer to dispose these projections 14 and 15 immediately adjacent the shank 11, so that danger of the lugs becoming broken is minimized.

A controlling leaf spring 17 may be secured at its lower end to the handle shank 1 and be received at its free upper end in a slot 18 in the lower end of the projection 14, which is itself housed in the loop 16.

The bodies of the jaws 4 and 12 may be, and preferably are, of hard metal, and their inner faces may be substantially arcuate in cross-section. To these inner faces are secured the soft-metal facings. The soft-metal facings 19 of Figs. 3 and 4 are of lead, solder or Babbitt, and are cast into the jaw bodies, with their gripping surfaces substantially equally arcuate, as described. In order to insure the retention of the facings 19, depressions 20 may be formed in the inner surfaces of the jaw bodies, but spaced within the four margins thereof, so that the marginal regions of the jaw bodies shall not be liable to breakage, (see Figs. 3 and 4).

If the jaw facing be of brass, copper, or other relatively soft metal, it may be formed separately and slipped into the inner side of the jaw. Fig. 5 shows such a facing 19^a, retained in position by longitudinal flanges or ribs 20^a projecting from the inner face of the jaw body. Or any other suitable sliding interlocking engagement may be utilized. As indicated, I am not limited to the particular metal of which the facings are made. Lead, solder, Babbitt, soft brass, copper, soft iron, or other metal that will not scratch polished pipes, may be used. And while the foregoing description is detailed, I wish to observe again that details are not of the essence of the invention, though certain of the appended claims are directed to details which I regard as novel and desirable. Of course, it will be understood that my wrench will be constructed with jaws of various curvature, for use upon pipes of different sizes.

What I claim as new is:—

1. A pipe wrench of the nut and traveling jaw type adapted for use particularly on polished pipes, having a handle shank, a non-traveling jaw pivoted thereto and provided with a substantially arcuate soft-metal facing, and a traveling, nut-operated jaw also pivotally connected with the handle shank and provided with a substantially equally arcuate soft-metal facing.

2. A pipe wrench of the nut and traveling jaw type, adapted for use particularly on polished pipes, having a handle shank, an inner, soft-metal jaw with an arcuate gripping surface pivoted to the end of said shank, a nut sleeve pivoted to the end of said shank at one side of the pivot of said inner jaw, and an outer jaw having a shank received within said nut sleeve, said outer jaw also being of soft metal and having an equally-arcuate gripping surface.

Signed at Aberdeen, S. D. this 10th day of December 1908.

DAVID B. EDWINS.

Witnesses:

C. LOUIS ALLEN,

W. D. SWAIN.