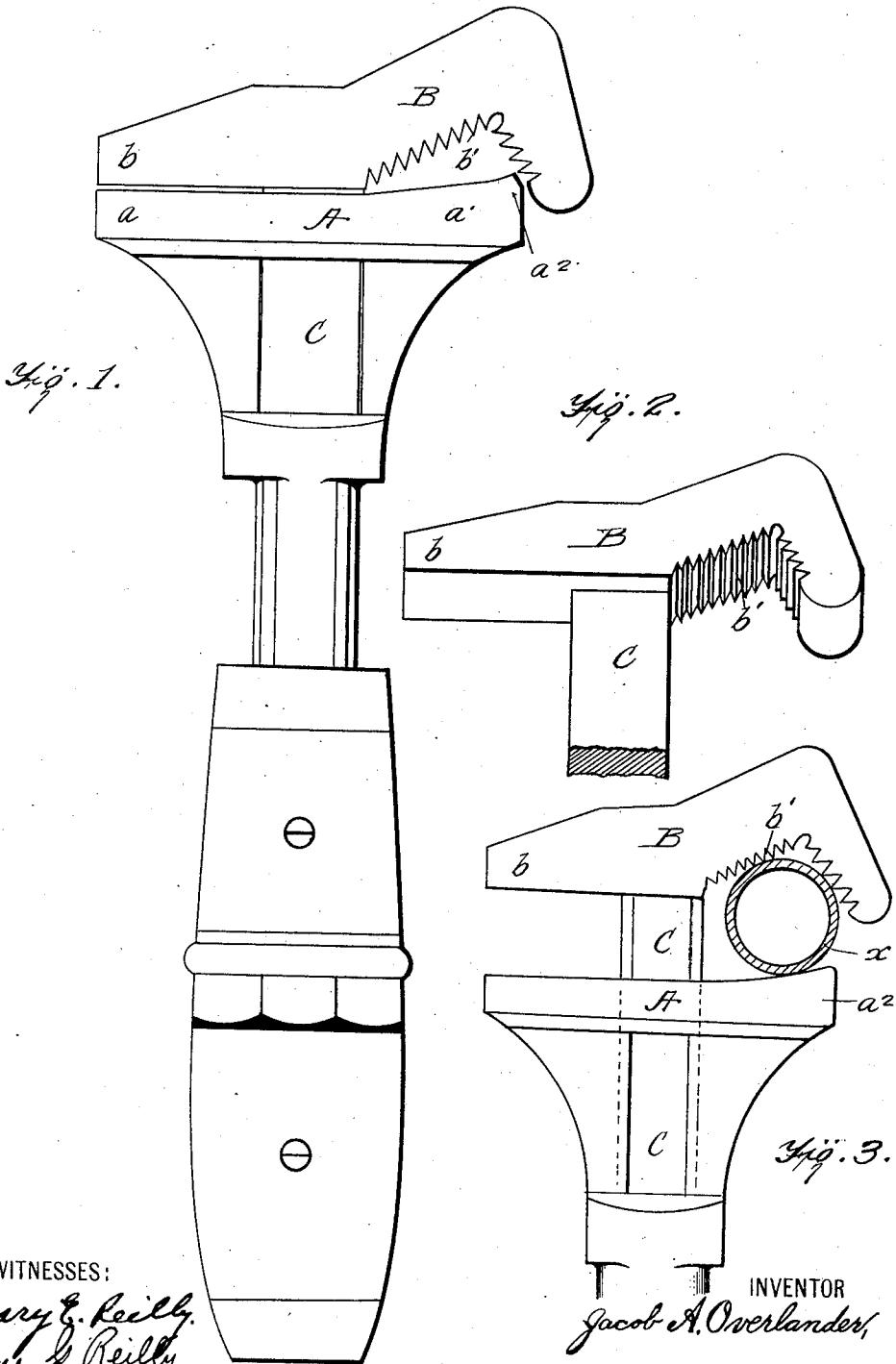


J. A. OVERLANDER.
PIPE WRENCH.
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1,050,683.

Patented Jan. 14, 1913.



WITNESSES:
Mary E. Reilly
Anne S. Reilly

INVENTOR
Jacob A. Overlander

UNITED STATES PATENT OFFICE.

JACOB A. OVERLANDER, OF NEW YORK, N. Y.

PIPE-WRENCH.

1,050,683.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB A. OVERLANDER, a citizen of the United States, and a resident of New York city, in the county and State of New York, have invented an Improvement in Pipe-Wrenches, of which the following is a specification.

My invention is an improvement in that class of pipe wrenches which comprise a fixed jaw and a movable or sliding jaw, the latter being formed integral with the shank which slides in the handle or frame and is provided with a screw-thread to which a portion of the handle constructed as a nut is applied for the purpose of adjusting the movable jaw.

The improvement is embodied in the new and related features of construction and arrangement of the two jaws of the wrench as hereinafter described and illustrated in the accompanying drawing, in which—

Figure 1 is a side view of the main portion of the wrench. Fig. 2 is a perspective view of the movable jaw with a portion of the shank. Fig. 3 is a side view of the main portion of the wrench illustrating its application to a pipe.

My improved pipe wrench comprises a fixed jaw A and a movable or sliding jaw B which is formed integrally with a shank C. Both jaws have extensions *a* and *b*, adapted for use as a nut-wrench. The inner face of jaw B, which is provided with ribs or teeth *b'*, presents two sides of unequal length arranged at an obtuse angle, which angularity combined with the angularity of said jaw at its junction with shank C, constitutes novel features of operation, as will hereinafter appear. The ascending inner face of jaw B, Fig. 1, from shank C to its common point of intersection or the apex of notch, is longer than the descending. By such construction the circumference of any object gripped between the jaws is never in contact with shank C, and upon rotation is always eccentric to the axis of the pipe so placed; that is to say, a plane passing through the point of tangent of the pipe with plane or face *a'* and the common point of the intersecting planes forming the notch or apex of the jaw angle is rearward of and therefore eccentric to the point of radial rotation of the pipe. The opposed plane or face *a'* of jaw A is smooth and flat. Outwardly it has a shoulder *a²* and is inclined inward and

downward from this shoulder to shank C, as shown in Figs. 1 and 3.

The operation of the wrench does not depend upon the grip of the jaws produced by any pivotal action of the handle, upon any mechanism, which by manipulation in operation increases the grip of the jaws or essentially by the grip of the respective jaws of the pipe. When the wrench is applied to pipe *x*, as in Fig. 3, and rotated to the right, it is evident that the plane or face *a'* of jaw A moves in peripheral relation with the pipe while the ascending plane of jaw B tends to draw upward and forward, thus producing a common point of rotation for the wrench and pipe. Since the latter is impossible, owing to the unyielding pipe and the further fact that the inclination of plane *a'* tends to wedge the pipe in the angle rather than rotate about it, the teeth *b'* bite or set into the pipe in consequence of lateral pressure on the handle. In other words the greater the leverage, the firmer the engagement of the teeth with the pipe. It may be further emphasized that the inclination of plane *a'* of jaw A contributes materially to this result, namely, to a firm grip on the pipe, since it resists the tendency of the lower side of the pipe to move or slide rearwardly. In brief, by the coaction of the inwardly inclined teeth *b'* and jaw face *a'*, I obtain a grip on a pipe or other cylindrical object which is the firmest practicable. This is due to the particular arrangement of the biting surfaces of the jaws. As will be understood by reference to Fig. 3, if a straight line be drawn parallel to the shank from the apex of the angle of jaw B to the inclined surface of jaw A, it will pass considerably outside of the middle of a pipe that is held between the jaws; and this would be the case whatever might be the diameter of the pipe. This construction and arrangement of the angle of jaw B with reference to the inclination of the surface of jaw A insures a very firm, secure bite on a pipe that makes it practically impossible for the wrench to slip and at the same time the bearing surfaces or points of contact of the jaws with a pipe are as broad as practicable so that there is little danger of crushing even a very thin pipe.

What I claim, is:—

An improved pipe wrench comprising outer and inner jaws, relatively adjustable, the

outer jaw provided with an obtuse angle
notch formed by two unequal biting faces
whose point of intersection is located within
a common point of rotation of the wrench
5 about a cylindrical object bearing against
the smooth flat face of the inner jaw, such
face being provided outwardly with a
shoulder, and inclined inward toward the
handle, as described.

JACOB A. OVERLANDER.

Witnesses:

MARY E. REILLY,
ANNA G. REILLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."