No. 720,385. PATENTED FEB. 10, 1903.

O. O. STORLE.

PIPE WRENCH.

APPLICATION FILED OCT. 1, 1902.

NO MODEL.

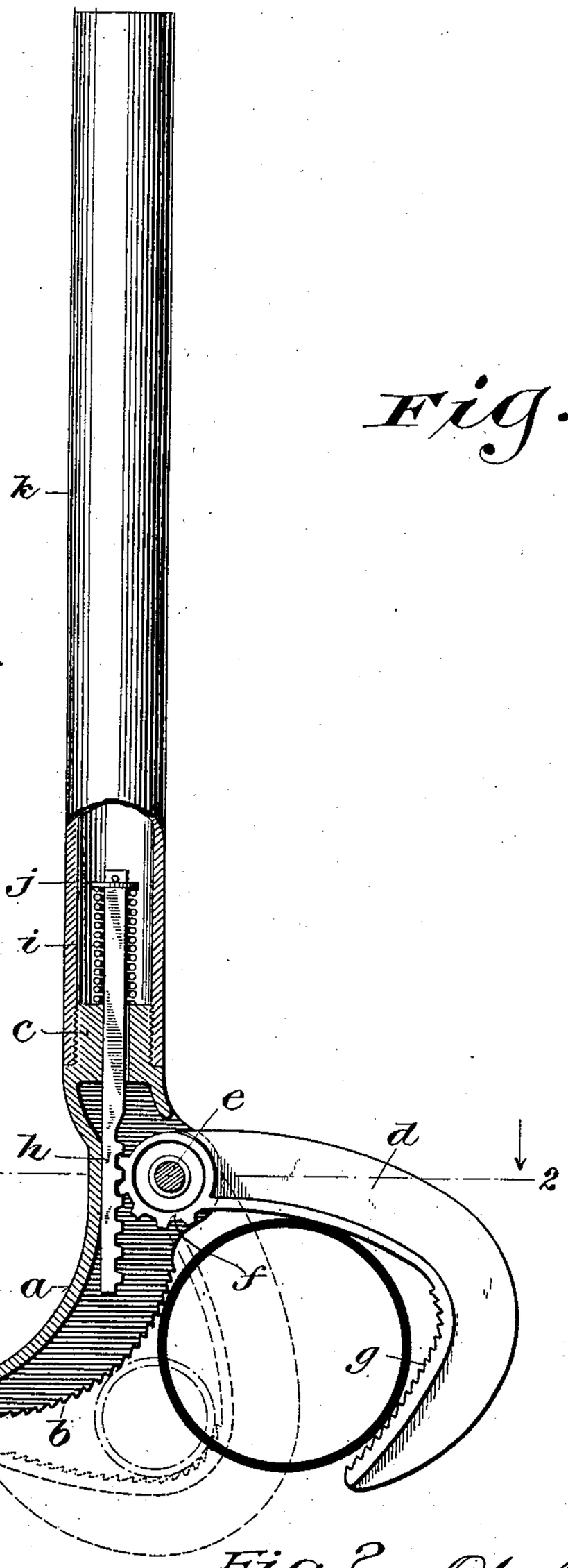

Fig. 1.

Witnesses:
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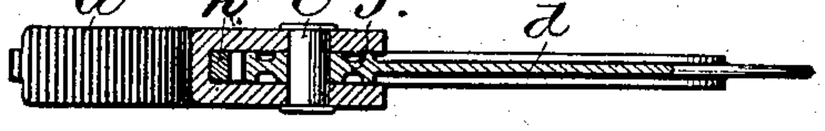
Fig. 2.



UNITED STATES PATENT OFFICE.

OLE O. STORLE, OF BURLINGTON, WISCONSIN, ASSIGNOR TO BURLINGTON BRASS WORKS, OF BURLINGTON, WISCONSIN, A CORPORATION OF WISCONSIN.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 720,385, dated February 10, 1903.

Application filed October 1, 1902. Serial No. 125,472. (No model.)

To all whom it may concern:

Be it known that I, OLE O. STORLE, a citizen of the United States, residing at Burlington, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The main objects of this invention are to provide a pipe-wrench which will adjust itself to a pipe of any size from the largest that the jaws will pass over to the smallest, to connect the jaws with each other in such a way that they can be easily opened to the fullest extent and will be held against a pipe of any size with such force as will cause them to bite when the wrench is turned in one direction and will allow them to freely slip over the pipe when the wrench is turned in the reverse direction, and generally to simplify and improve the construction and operation of tools of this kind.

It consists of certain novel features of construction and in the novel arrangement and combinations of parts hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in both figures.

Figure 1 is a side view, partly in longitudinal section, of my improved pipe-wrench; and Fig. 2 is a cross-section of the same on the line 2 2, Fig. 1.

a is the relatively fixed jaw, which is longitudinally recessed and has on the inside, next to said recess, longitudinally-curved serrated faces *b*. It may be conveniently cast or forged from steel with a threaded shank *c* at one end.

d is the movable jaw, pivoted at one end in the recess of the fixed jaw *a* on a pin *e*. It is angular in shape and is formed or provided at its pivoted end with gear-teeth or a pinion *f* and on its inner side, opposite the recess between the serrated faces of the jaw *a*, with an opposing serrated face *g*. The pivoted jaw, like the fixed jaw, may be cast or forged from steel. The teeth on the working faces of the two jaws *a* and *b* are inclined in opposite directions, as shown in Fig. 1, so that they will more effectively bite upon a pipe when the wrench is turned in one direction and more readily slip upon the pipe when the wrench is turned in the opposite direction. The serrated faces of both jaws are tempered or hardened.

A rack-bar *h*, engaging the pinion *f*, passes loosely through a hole in the shank *c* of the fixed jaw and is guided axially therein. A spiral spring *i*, bearing at one end against the shank *c* and at the other end against a collar *j* on the rack-bar, tends to turn the jaw *d* toward the jaw *a*. A tubular handle *k*, which may be conveniently made from gas-pipe, is threaded inside at one end and screwed on the threaded shank *c* of the fixed jaw.

In Fig. 1 the wrench is shown by full lines as applied to a pipe of a size nearly as large as the jaws are designed to operate upon, and the relative position of the pivoted jaw for operating on a much smaller pipe, though not the smallest to which the wrench is applicable, is indicated by dotted lines. The wide range of adjustment of the device to pipes of different sizes is thus partially illustrated.

Various changes in minor details of construction may be made without departing from the principle and intended scope of the invention.

I claim—

1. In a pipe-wrench the combination of a relatively fixed jaw provided with a handle, a movable jaw pivoted thereto and provided at its pivoted end with a pinion, a rack guided in the fixed jaw in engagement with said pinion, and a spring acting through said rack and tending to turn the pivoted jaw toward the fixed jaw, substantially as described.

2. In a pipe-wrench the combination of a recessed jaw, an angular jaw pivoted to the other jaw and provided with a pinion at its pivoted end, a rack engaging said pinion and guided axially in the fixed jaw and a spring acting through said rack and tending to turn the movable jaw toward the fixed jaw, substantially as described.

3. In a pipe-wrench the combination of a longitudinally-recessed jaw having curved serrated faces on opposite sides of the recess

therein, an angular jaw pivoted at one end to the other jaw in said recess and provided at its pivoted end with a pinion and on its inner side opposite the recess in the other jaw with a serrated face, a rack movable axially in the recessed jaw and engaging the pinion on the pivoted jaw, and a spiral spring interposed between a bearing on the recessed jaw and a bearing on said rack and tending to turn the pivoted jaw toward the opposing jaw, substantially as described.

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

OLE O. STORLE.

Witnesses:
CHAS. L. GOSS,
ALICE E. GOSS.