(No Model.)

E. M. WATSON.

PIPE WRENCH.

No. 457,064. Patented Aug. 4, 1891.

Fig. 1.

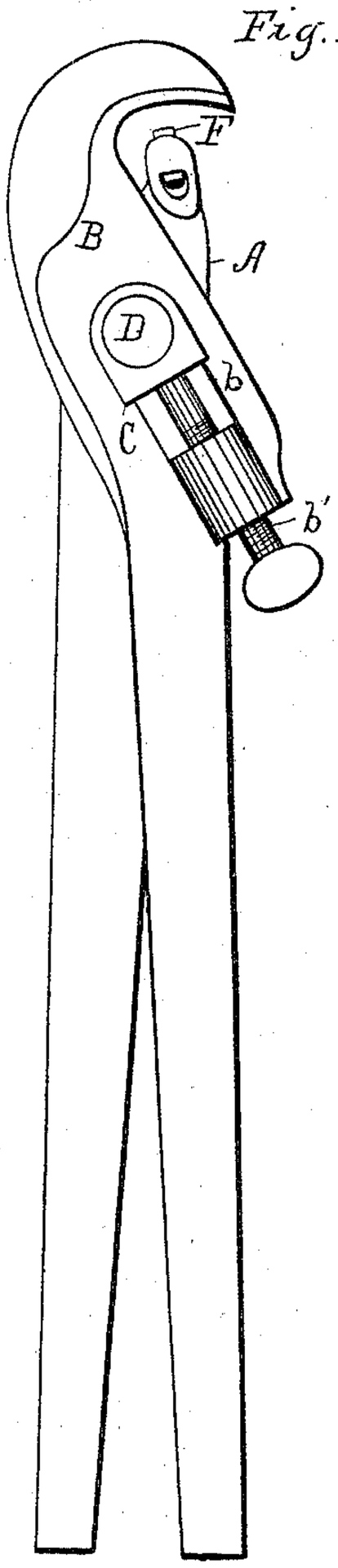


Fig. 2.

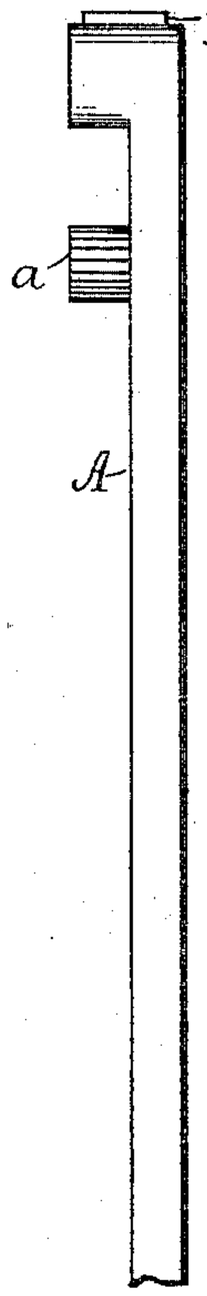


Fig. 3.

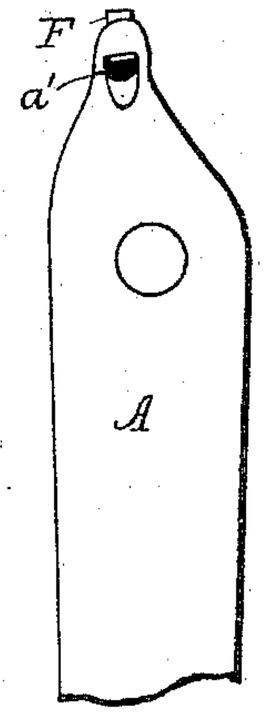


Fig. 4.

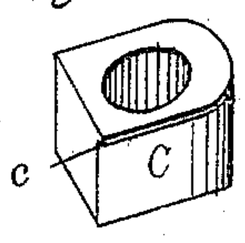


Fig. 5.

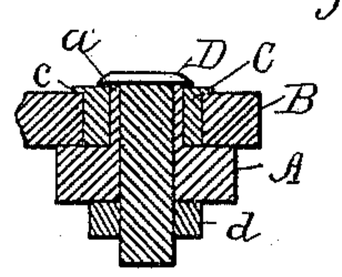
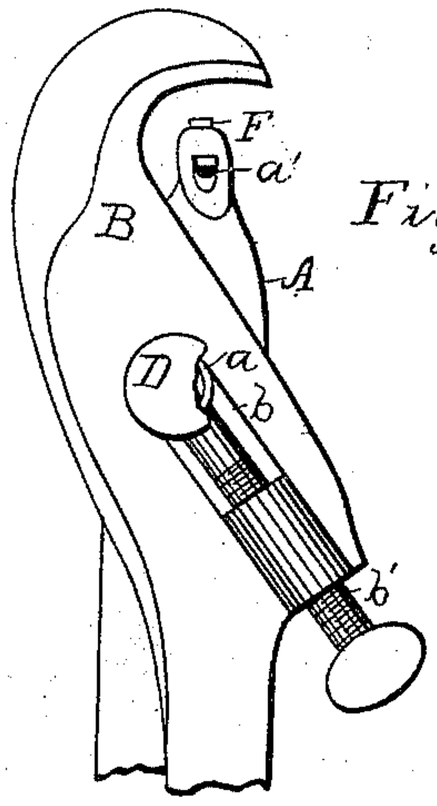


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

ELIAS M. WATSON, OF BELOIT, WISCONSIN.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 457,064, dated August 4, 1891.

Application filed April 23, 1887. Renewed June 27, 1891. Serial No. 397,702. (No model.)

To all whom it may concern:

Be it known that I, ELIAS M. WATSON, of Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a description, reference being had to the accompanying drawings.

The objects of my invention are, first, to provide novel means for pivoting the two jaws together, so that they will neither bind nor work loose and so that they may be readily adjusted for use on different sizes of pipe, and, second, to provide novel means for removably securing a steel bit to one jaw thereof.

To this end it consists in the construction and combination of parts herein fully described, and pointed out in the claims.

In the drawings, Figure 1 is a side view of my improved wrench. Fig. 2 is a back edge view of the shorter jaw. Fig. 3 is a side view of the upper end of the shorter jaw. Fig. 4 is a perspective view of the collar which surrounds the stud on said jaw, and Fig. 5 is a vertical section on the line *x x* in Fig. 1. Fig. 6 is a side view of an alternative form of my invention.

In the drawings, which show my improved wrench in its preferable form, A represents the short jaw, and B the long jaw, both of which have handles extending beyond their pivot. The long jaw is provided with the usual hooked or curved end adapted to grasp the pipe, and also with a slot or mortise *b*, through which the pivoting devices pass. The jaw A is provided with a cylindrical stud *a*, standing at right angles to the face of the jaw and made integral with it, which stud is made hollow to permit the passage of a bolt D.

C represents a collar adapted to fit over the stud *a* and turn freely upon it. This collar is provided with a flange *c* around its upper edge, as shown in Fig. 4, and preferably with parallel sides, which fit between the sides of the slot *b* in the jaw B, so that the collar can slide freely back and forth in said slot, but which causes the jaw B and collar C to revolve together.

The jaws are secured together as follows: The stud *a* is inserted in the slot *b*, and the collar C is then slipped over said stud. The body of the said collar lies in the slot *b*, while the flange *c* extends beyond the edges of the slot. A bolt D is passed through the slot and fastened by a nut *d*. The head bears upon the stud *a*, which extends slightly beyond the collar, and the nut may therefore be secured as tightly as necessary to hold the parts together without affecting the free motion of the jaws. The bolt-head holds the collar from slipping off, and the flange on the collar performs the same office with respect to the jaw B. By this construction the jaws may be adjusted to fit various sizes of pipes without unscrewing the nut *d* by screwing in or out the thumb-screw *b*, the inner end of which bears against the collar C. Another advantage of this construction is that the motion of the jaws does not tend to loosen the nut, because there is substantially no friction between the bolt and nut which are secured to the jaw A and move with it and any other point of the device which moves independently of it.

While the above-described construction is preferable, there are several less desirable modifications which, as at present informed, I regard as embodying the principle of the invention shown. For instance, the body of the collar C might be cylindrical instead of having parallel sides, or said collar might be omitted altogether and the bolt-head extend over the jaw B at the sides of the slot. This last modification, while it would be operative, would certainly not be as durable as the form shown, and obviously would be inferior to it in other respects.

It is found that in use the short jaw wears out much quicker than the long curved jaw, and various means have been devised for securing a steel bit to said short jaw, so that said bit may be removed when dulled or worn. The means I have devised for this purpose are as follows: I provide the end of said short jaw with a mortise, into which a steel bit E may be driven, and in which said bit is held by the friction. In the side of the jaw I provide orifices *a'*, connecting with said mortise below the lower end of the bit E. When it is desired to remove said bit to turn it around or to replace it by a new one, a wedge or plug is driven into these orifices *a'* behind the bit, and the bit is thereby forced out. The bit may be made rectangular, in which case it

has four edges, which may be used to bite on the pipe. In this case the mortise must be accurately formed to fit the bit, or the bit may be made tapering, in which case it would have but two edges available for use, but the mortise would not need to be so accurately formed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the jaw B, containing the slot *b* and provided with the screw *b'*, with the collar C, fitted into said slot, and with the jaw A, having a hollow stud *a*, passing through said collar and forming an abutment for the bolt D, as and for the purpose stated.

2. In a pipe-wrench, a jaw A, having a mortise in its end, a bit F, driven into said mortise and held there by friction with the walls thereof, and a hole *a'*, extending through the side of said jaw into said mortise back of the bit F, as and for the purpose stated.

ELIAS M. WATSON.

Witnesses:
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