(No Model.)

N. D. MACDONALD.

PIPE WRENCH.

No. 543,494. Patented July 30, 1895.

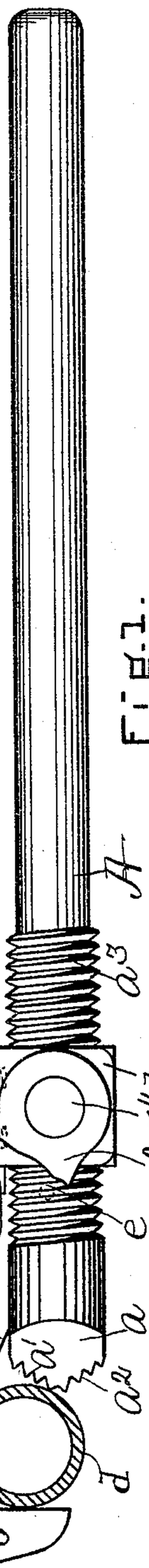

Fig. 1.

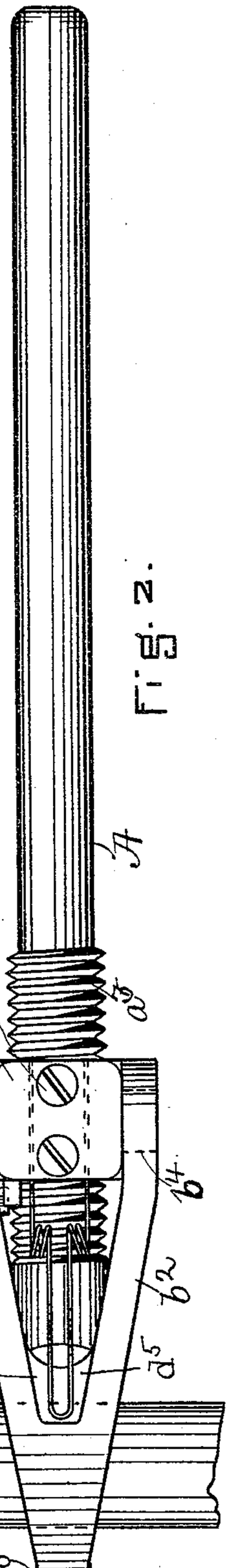

Fig. 2.

WITNESSES.

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PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 543,494, dated July 30, 1895.

Application filed December 11, 1894. Serial No. 531,458. (No model.)

To all whom it may concern:

Be it known that I, NORMAN D. MACDONALD, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Pipe-Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to wrenches of that class known as pipe-wrenches, and has for its object to provide a simple, cheap, and efficient instrument for the purpose specified.

In accordance with this invention, the wrench referred to comprises two members, one of which is made as a spindle or rod provided at one end with preferably two oppositely-inclined toothed or serrated surfaces constituting one jaw of the wrench, the said spindle or rod below the said jaw being provided with screw-threads, which are engaged by an internally screw-threaded sleeve, having pivotally secured to it the forked arms of the second jaw of the wrench. The forked arms referred to form on their inner sides a bearing surface, from which projects, over the toothed jaw on the spindle, an arm forming with the forked arms an angular jaw, the inner surface of which arm constitutes a second bearing of the said angular jaw. The angular jaw referred to is preferably acted upon by a spring which normally holds it against the spindle for a purpose as will be described. These and other features of this invention will be pointed out in the claim at the end of this specification.

Figure 1 is a side elevation, partially broken out, of a pipe-wrench embodying this invention, the wrench being shown as applied to a pipe which is shown in section; and Fig. 2, a top or plan view of the wrench shown in Fig. 1.

A represents a metal spindle or rod, which at one end is provided with an enlargement or head a preferably integral with the said spindle or rod, and for the best results made wedge-shaped, the two faces of the wedge being provided with teeth a' a^2 to form one jaw of the wrench. The spindle or rod A is provided below the head a with screw-threads a^3 which are engaged by an internally screw-threaded sleeve b, preferably having its outer surface in the form of a square. The sleeve b has pivotally secured to two of its opposite sides the forked arms b' b^2 of the second jaw of the wrench, the said arms being represented as fitted upon studs or arbors b^3 b^4 projecting from the opposite sides of the sleeve b.

The forked arms b' b^2 are preferably cast in one piece with an arm b^5 projecting toward the head a on the spindle, and the said forked arms are inclined and come together below the arm b^5 to form a solid bearing surface. (See Fig. 1.) The arm b^5 is horizontally disposed with relation to the forked arms b' b^2, which are inclined with relation to the arm b^5, so as to form an angular jaw co-operating with one of the toothed inclined surfaces of the head or jaw a.

The angular jaw is adjustable with relation to the jaw a, and vice versa, for the reception of pipes d of varying sizes or diameters, and by an inspection of Fig. 1 it will be seen that the pipe when grasped by the jaws of the wrench has a bearing on three points, which results in a more effective gripping of the pipe, obviates slipping, and avoids crushing of the pipe, thereby enabling this wrench to be used with brass and like pipes without danger of injury to the pipe.

Normally, the weight of the angular jaw would cause it to fall away from the jaw a when the wrench is held with the head a in a substantially vertical position, and in some instances when working with the head a downward—as, for instance, when working below a floor of a building—the angular jaw would be forced backward away from the jaw a by contact with the pipe, and would require that it be fitted over the pipe by hand, which might in some cases be impossible or highly inconvenient to do without removing the said floor. To avoid such contingencies the wrench is preferably provided with a spring d', which may be made of the form herein shown or of any other suitable form, it being located between the forked arms b' b^2 and secured at one end to the sleeve b, preferably by a plate d^2 fastened thereto as herein shown by screws d^3, and the other end of which bears against the angular jaw within a recess d^4, formed between the arms b' b^2 and the solid portion d^5 of the said jaw.

The spring d' normally holds the angular jaw forward or in contact with the jaw a of

the spindle, so that as soon as the arm b^5 of the angular jaw has been carried beyond the pipe, it will be forced forward over the said pipe by the said spring.

I prefer to limit the backward movement of the angular jaw away from the jaw a, which may be accomplished, as herein shown, by providing one of the forked arms—as, for instance, the arm b'—with a stud or pin e which engages a stop or pin e' projecting upward from the sleeve b. The spindle A below the screw-threads may be made of smaller diameter to form a handle, but if desired this portion of the spindle may be provided with a wooden or other non-metallic handle of any usual or suitable construction.

I claim—

In a pipe wrench, the spindle A provided at one end with teeth and with the screw threads a^3 below said teeth, the internally threaded sleeve b, the angular jaw consisting of the forked arms b' b^2 and the arm b^5, the said forked arms being united to form the solid bearing d^5, and the recess d^4, the spring d' secured to the sleeve b and having its free end acting against the bearing d^5 within the recess d^4, and a stop to limit the movement of the angular jaw away from the spindle A, substantially as described.

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

NORMAN D. MACDONALD.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.