

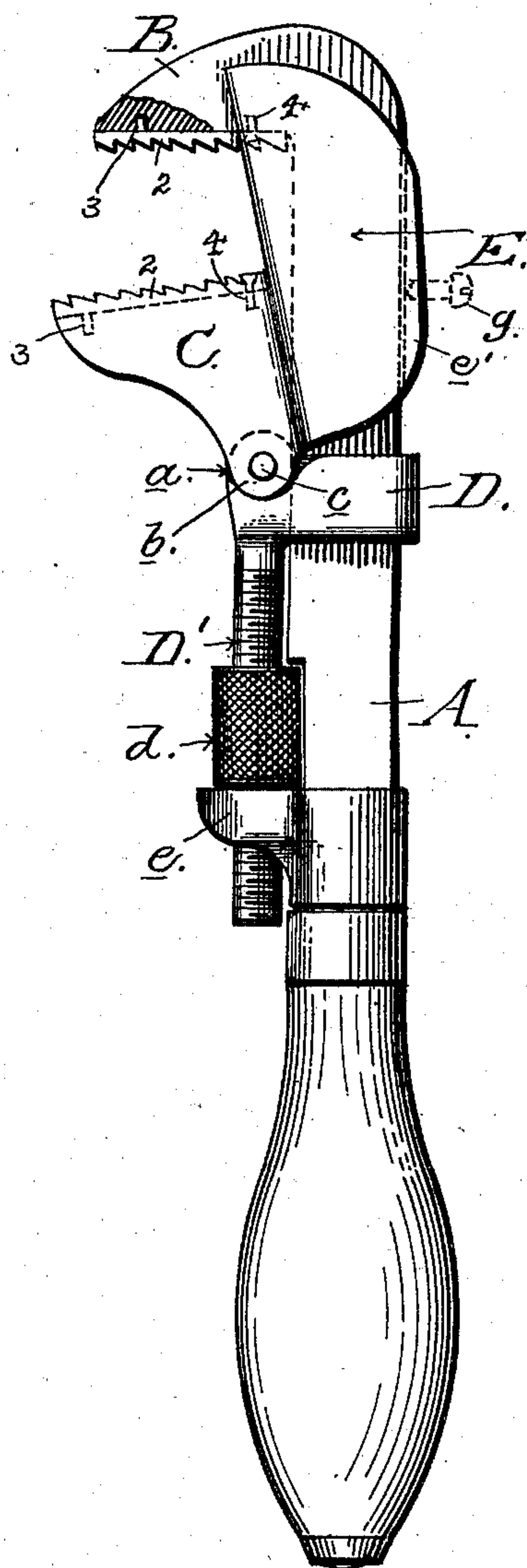
No. 698,498.

Patented Apr. 29, 1902.

H. DE F. HILLIARD.
WRENCH.

(Application filed Feb. 3, 1902.)

(No Model.)



WITNESSES
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UNITED STATES PATENT OFFICE.

HARRY DE F. HILLIARD, OF LANCASTER, NEW HAMPSHIRE, ASSIGNOR OF
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WRENCH.

SPECIFICATION forming part of Letters Patent No. 698,498, dated April 29, 1902.

Application filed February 3, 1902. Serial No. 92,364. (No model.)

To all whom it may concern:

Be it known that I, HARRY DE F. HILLIARD, a citizen of the United States, residing at Lancaster, in the county of Coos and State of New Hampshire, have invented new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to certain improvements in pipe-wrenches of the type employing a stationary jaw and a pivoted swinging jaw operated by a screw and adapted to grip the pipe between itself and the fixed jaw, so that a downward movement on the handle portion of the wrench will result in the swinging jaw gripping the pipe firmly, and when the downward movement of the handle is arrested and said handle is moved in the reverse direction the pivoted jaw will swing sufficiently upon its pivot to release the pipe.

The invention consists of the parts and the constructions and combinations of parts which I will hereinafter fully describe, and point out in the claims.

In the accompanying drawing, in which similar letters of reference indicate like parts, the figure is a side elevation of a wrench embodying my invention.

In carrying out my invention I construct a bar A with an end portion turned at or about right angles to form a stationary jaw B, said bar being extended in the usual manner to form the handle for operating the wrench. The movable jaw C has an opening through it for the bar A, and its gripping-face and the like face of the jaw B are serrated or formed with corrugations or ratchet-surfaces to make these jaws more readily and securely grip the pipe which they are intended to embrace. The opening through the jaw C is also sufficiently larger than the diameter of the bar A to provide for the swinging movement of the jaw C, as I will hereinafter fully describe. A yoke or collar D also encircles the bar A and has a lug formed with it at *a* to receive ears or lugs *b*, projecting from the movable jaw, the two parts—namely, the jaw and collar—being pivotally connected by a pin or bolt *c* passing through the front portion of the collar and the lugs in a plane which is at one side of the front edge of the bar A.

Extending parallel with the front edge of the bar A and in the plane of the pivot-pin or axis of the swinging jaw is a screw D', which is rigid with or an integral part of the yoke, the opposite end of the screw extending through a nut *d*, confined within a recessed part of the handle portion of the jaw A and the lower end of the screw passing through a guide or lug *e*, said nut serving as means by which the screw may be moved lengthwise to adjust the movable jaw toward and from the fixed jaw. By thus locating the screw in the plane of the axis of the movable jaw the pressure transmitted from the jaw when the wrench is in operation is applied in the direction and line of the screw, thereby securing the requisite strength of the parts and not weakening the jaw, as in cases where the end of the screw enters the jaw direct.

Projecting from and forming an integral part of each side of the upper end of the movable jaw is a flange or plate E, one on each side of the stationary jaw and connected at the rear end by a web *e'*, the object of which is to prevent the pipe engaged by the jaws from settling up to the bar A after or when the wrench is adjusted to the pipe. The front edges of these plates or flanges E lie in a plane a little in front of the front edge of the bar A in order that they may accomplish the object just stated, and the plates or flanges have the further function of keeping the teeth or serrations of the jaws always on the pipe, so that the jaws will readily catch on applying downward pressure to the handle of the wrench.

In wrenches employing pivoted jaws of the type shown, but without the equivalent of my plates or flanges E, the tendency of the pipe is to become wedged more deeply into the tapering opening between the two jaws with each successive downward movement of the wrench—that is, when the wrench is moved to cause the jaws to take a new hold upon the pipe—thereby retarding the speed with which the pipe can be turned; but this is obviated by my extending plates or flanges E or equivalent bars, which as soon as the downward pressure of my wrench is released

will always rest upon the top of the pipe and prevent said pipe from becoming wedged in the manner before indicated and secure greater freedom of pipe release.

5 In the actual operation of my wrench the movable jaw is not to be screwed tightly against the pipe, but is to be left sufficiently loose so that the freedom to swing may be present when the direct pressure on the pipe
10 is released and the wrench is moved upward.

If desired, a screw *g* (shown in dotted lines) may be used to regulate the distance through which the swinging jaw may drop when the wrench is screwed onto the pipe and when the
15 reverse movement is applied, thus regulating the degree of pressure that the movable jaw will be capable of exerting before its upward movement is arrested by its coming in contact with the bar A. By setting the screw *g*
20 against the bar A the swinging jaw may be locked in a fixed position, in which instance the wrench will be serviceable as a nut-wrench.

The device is strong and simple in construction. It is also easily operated and is effective as a combined pipe and nut wrench.

The serrated portions of the jaws may be formed of removable plates 2, having pins 3 on the back to fit recesses in the jaws and
30 having screws 4 or equivalent means for securing the plates to said jaws.

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

35 1. A wrench including a fixed and movable jaw between which the article is received, said movable jaw slidable upon the shank of the fixed jaw and having members extending on each side of and parallel with the shank and
40 substantially embracing the fixed jaw.

2. A wrench including a bar and fixed and movable jaw said movable jaw being slidable upon the shank of the fixed jaw and pivotally mounted at its lower portion and having

members extending from its upper portion 45 one on each side of the fixed jaw.

3. A wrench including a bar having a fixed jaw, a jaw slidable on the bar, a collar or yoke also slidable on said bar said collar or yoke and slidable jaw being pivotally united 50 at a point in front of the bar, and said movable jaw having a projecting portion extending in the direction of the length of the shank of the fixed jaw and adapted to be engaged by the pipe or rod to rock the movable jaw 55 about its pivot, and a screw parallel with the bar and in the plane of the pivot of the movable jaw, whereby said movable jaw is adjusted toward and from the fixed jaw.

4. A wrench including a bar having a fixed 60 jaw, a jaw slidable on said bar and a collar or yoke also slidable on the bar and pivotally connected with the slidable jaw said slidable jaw having portions extending in the direction of the length of the shank and adapted 65 to be engaged by the pipe or rod to rock the movable jaw about its pivot, and a screw carried by the pivoted jaw and adapted to engage said bar to limit the rocking movement of the jaw. 70

5. A pipe-wrench consisting of a bar having a handle portion and a fixed jaw, a yoke slidable on the bar and a jaw also slidable on the bar and pivotally connected with said yoke forward of the plane of the front of the 75 bar, an operating-screw parallel with the bar and in the plane of the pivotal axis of the movable jaw, and plates or flanges extending from the movable jaw substantially parallel with the bar and embracing the outside of the 80 latter.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY DE F. HILLIARD.

Witnesses:

BURLEIGH ROBERTS,
BERNARD JACOBS.