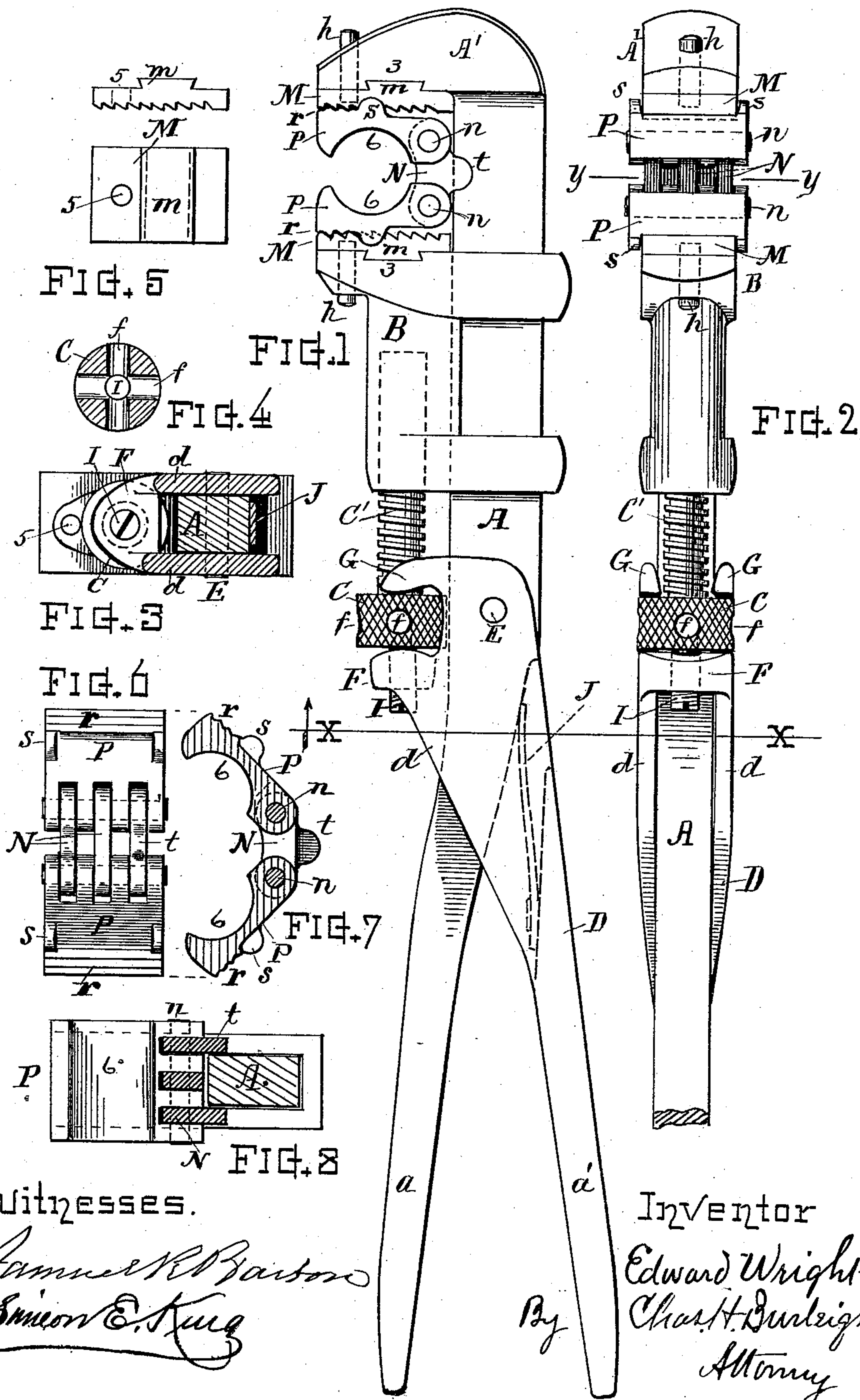


(No Model.)

E. WRIGHT.
PIPE WRENCH.

No. 543,665.

Patented July 30, 1895.



Witnesses.

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PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 543,665, dated July 30, 1895.

Application filed December 3, 1894. Serial No. 530,670. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WRIGHT, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Pipe-Wrenches, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

This invention relates more especially to that class of wrenches described in Letters Patent No. 505,869, heretofore granted me.

The object of my present invention is to adapt the adjustable pipe-wrench for efficient operation both as a hand-grip and as a vise-grip wrench, the several parts and adjusting devices being constructed and organized for operating in the manner hereinafter explained.

Another object is a simple and efficient attachment to the jaws of the jaw-facing plates in the peculiar manner set forth.

Another object is to provide a coupled jaw-facing guard for supplemental use in combination with the wrench-jaws for protecting from injury the surface of polished, plated, or smooth-finished pipes, thus adapting the wrench for use thereon.

These objects I attain by the wrench constructed as illustrated in the drawings, wherein—

Figure 1 is a side view of my improved pipe-wrench. Fig. 2 is a front view of the same. Fig. 3 is a transverse section at line $x x$. Fig. 4 is a transverse section of the adjusting-screw rosette. Fig. 5 shows a plan and side of the jaw-facing plate. Fig. 6 is a back view, and Fig. 7 a section view showing the jaw guard or protector to supplement the jaw-facing when the wrench is used on polished or fine-finished pipes. Fig. 8 is a transverse section through the protecting-jaw and wrench-bar at line $y y$.

Referring to parts, A denotes the main bar, having the integral head or fixed jaw A' at its upper end and a suitable handle a at its lower end.

B indicates the sliding jaw mounted on the bar A below the fixed jaw A'.

C' indicates the adjusting-screw of the jaw

B, and C its rosette or cylindrical head burred in usual manner to facilitate rotation of the screw.

B indicates the operating-lever fulcrumed on the pin or bolt E, disposed transversely through the cheeks d and bar A, as shown. The lower end of the lever is formed as a handle a' , and the upper end of the lever, forward of the bar, is fitted with a back support F and fingers or lugs G, that engage the rosette of the screw for sustaining the jaw B with the back support and for drawing back the jaw by the lugs when the lever is operated, the screw forming an extendible connection between the jaw B and the lever D, these parts being and operating substantially as related in my prior Letters Patent above referred to.

I denotes the screw-threaded step arranged through the back support and engaging an axial recess in the end of the rosette, thereby retaining the same in line with said back support.

Within the rosette of the adjusting-screw, which is embraced by the back support and fingers of the operating-lever and controls the movable jaw B, I provide transverse or radial holes f , for the introduction of a short bar or lever, whereby the adjusting-screw can be forced and a vise-grip be given to the jaws when desired, or their grip readily relieved when the operating-lever is swung outward sufficiently, or so far that the under part of the back support strikes and rests upon the main bar. The flat spring J is secured to the lever B and presses against the back of the bar A for normally swinging said lever outward.

M M indicate the jaw-facing plates, which are made of hardened steel, and in accordance with my present improvement are formed and attached in the peculiar manner shown—that is, each of the wrench-jaws has a transverse dovetailed groove 3 formed across its inner face and the jaw-facing plate is formed with a transverse dovetailed projection m on its seating side to match said groove. Corresponding holes 5 are formed through the jaws and facing-plates near their front ends perpendicular to the face of the jaw. The parts are assembled by sliding the projection m of the facing-plate laterally into the groove 3,

then a pin *h* (either straight or tapered) is driven into the holes 5 from the exterior of the jaw. The inner end of said pin, entering the hole in the facing-plate, retains said plate from lateral displacement and the dovetailed portion holds the plate securely in position. This manner of attaching the plates *M* to the jaws by a transversely-disposed dovetailed rib and groove, and the vertical pin inserted through the jaw and plate makes a strong plate without at the same time materially weakening the jaws by cutting away the material. It gives a very rigid and secure attachment for the jaw-facing plate, affording an absolutely secure fastening, which perfectly sustains the plate against liability of being torn off by the strain in the use of the wrench when the teeth of the plates are gripped upon the pipe and the force applied thereto for turning it. It also affords a connection for the facings, which permits of old plates being readily removed from the jaws and replaced by new plates whenever the teeth become worn to a degree that renders them less sufficient than is desired in taking into the surface of the pipe, or for at any time substituting smooth-faced plates in place of the ratcheted or toothed plates.

The toothed facing-plates, while adapted for turning ordinary steam-pipe, would be liable to injure smooth-finished surfaces. I therefore provide a supplemental protector or jaw-guard adapted for use with the wrench-jaws when working on polished or fine finished pipes. This protector consists of a pair of jaw-facings or guard-sections *P* hinged or coupled together at their inner ends, preferably by a series of links *N* and pivoting-pins *n*. The inner faces of said guard-sections are formed with laterally-disposed cylindrical smooth surfaces 6 for matching onto the pipe, their exterior being provided at their outer ends with raised bearing-lugs *r*, the bearing portions thereof preferably corrugated. The raised lugs or bearing-surfaces *r* engage the notched jaw-plates at the outer ends of the jaws *A'* and *B*, as illustrated in Fig. 1, while the rear portion, being reduced, is free from contact with the wrench-jaw faces or plates *M*, so that the pressure for effecting the grip will act at the outer ends of the guard-sections and close the cylindrical surfaces firmly upon the plate. Lips *s* are formed on the edges of the guards to prevent lateral displacement when on the jaws, and the outer hinging-links can also be formed with a lip *t* to engage the sides of the wrench-bar for similar purpose. These guard-jaws are hinged to open and close, as illustrated in Fig. 7. For handling the polished pipes the supplemental jaw is placed thereon, the wrench brought in position, and the grip imparted by pressing the operating-lever and bar-handles toward each other, or in other circumstances, by means of a lever inserted in the holes *f* in the rosette, the jaws of the

wrench can be firmly set onto the pipe with a vise-grip. This facility of positive or vise grip, together with the facility for the hand-grip of the operating-lever renders the wrench more efficient and convenient, enabling the operator to use it under various conditions of service and under circumstances where it might not otherwise meet the specific requirement of some situations; also, when the wrench gets set or cramped in use upon irregular pipe, it enables the operator to readily relieve the jaws and free the wrench without the necessity of using a hammer or pounding it to get it off, as is sometimes customary with pipe-wrenches.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination with the pipe-wrench having toothed jaw-faces, of a removable jaw-guard, or pipe-surface protector, composed of two sections coupled together by hinging links, and pivots loosely connecting their inner ends, said sections having, at their outer ends external raised bearing-surfaces fitted for engaging the toothed jaw-faces, and projecting lugs *S* at the sides thereof, substantially as set forth.

2. The combination of the wrench-bar having the fixed jaw, the movable jaw sliding thereon, the operating lever pivoted to said bar, the protector or jaw-guards fitting between said fixed jaw and movable jaw at their front ends, their rear ends linked together, and the jaw-adjusting screw having its rosette-head provided with transverse holes, substantially as set forth.

3. The wrench-jaw guard or protector for finished pipe, consisting of a pair of jaw-sections having their inner faces formed with semi-cylindrical cavities to receive a pipe; their exterior adapted for seating against the jaws of the wrench, and their rear ends connected together by a series of links and pivots that form hinging joints at the respective ends of the links, the outer links being provided with lugs *t* for engaging the sides of the wrench-bar, as set forth.

4. The protector or jaw-guard formed of two parts or sections having semi-circular smooth faces for gripping finished pipe, and provided upon the exterior outer ends with elevated bearing lugs that engage the jaw-facing-plate or wrench-jaw, the inner ends of said guard sections being connected together by a series of links and hinging pivots, the dimension of the guard being less at the rear end than at the front end, substantially as set forth.

Witness my hand this 30th day of November, 1894.

EDWARD WRIGHT.

Witnesses:

CHAS. H. BURLEIGH,
ELLA P. BLENUS.