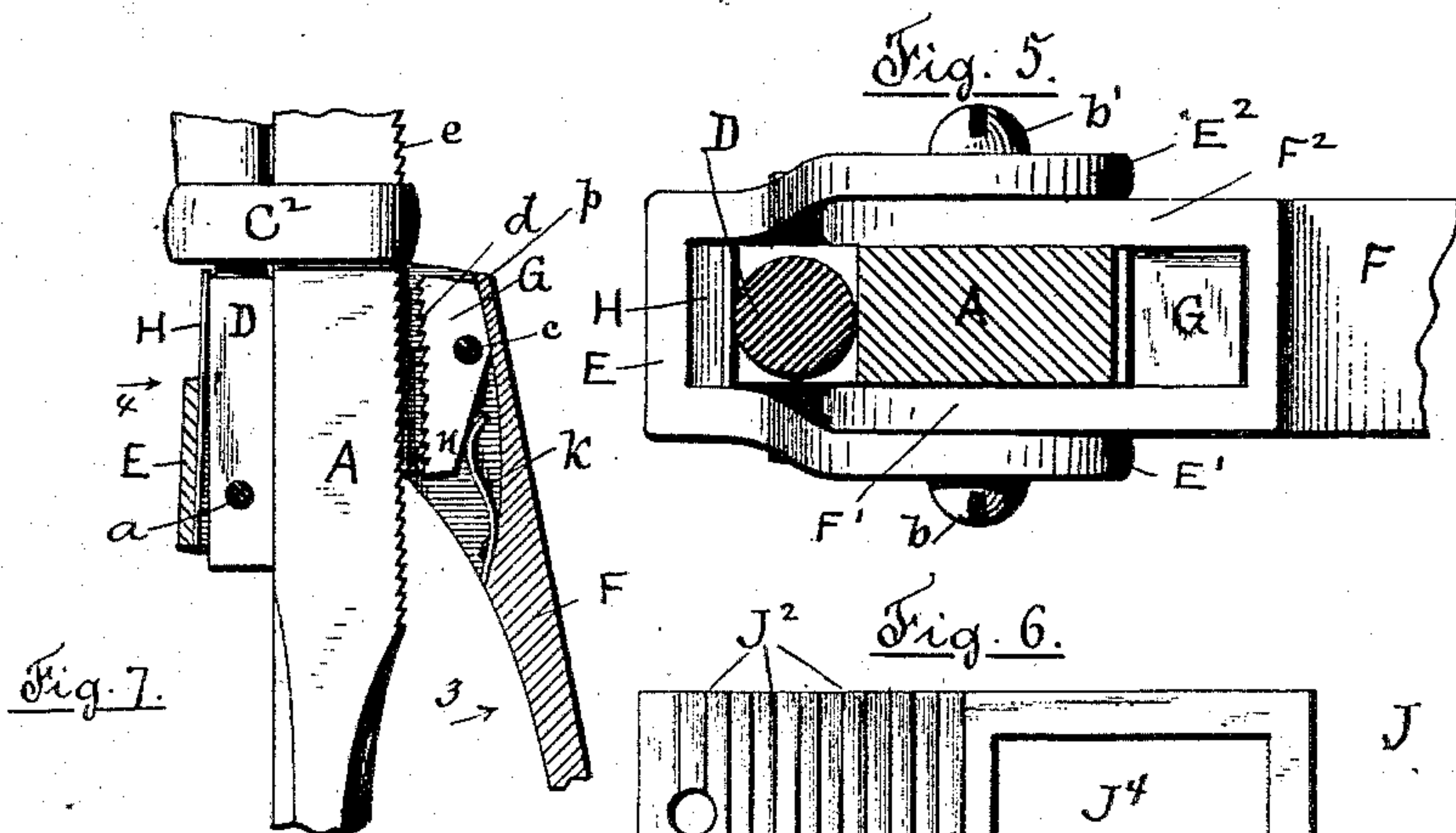
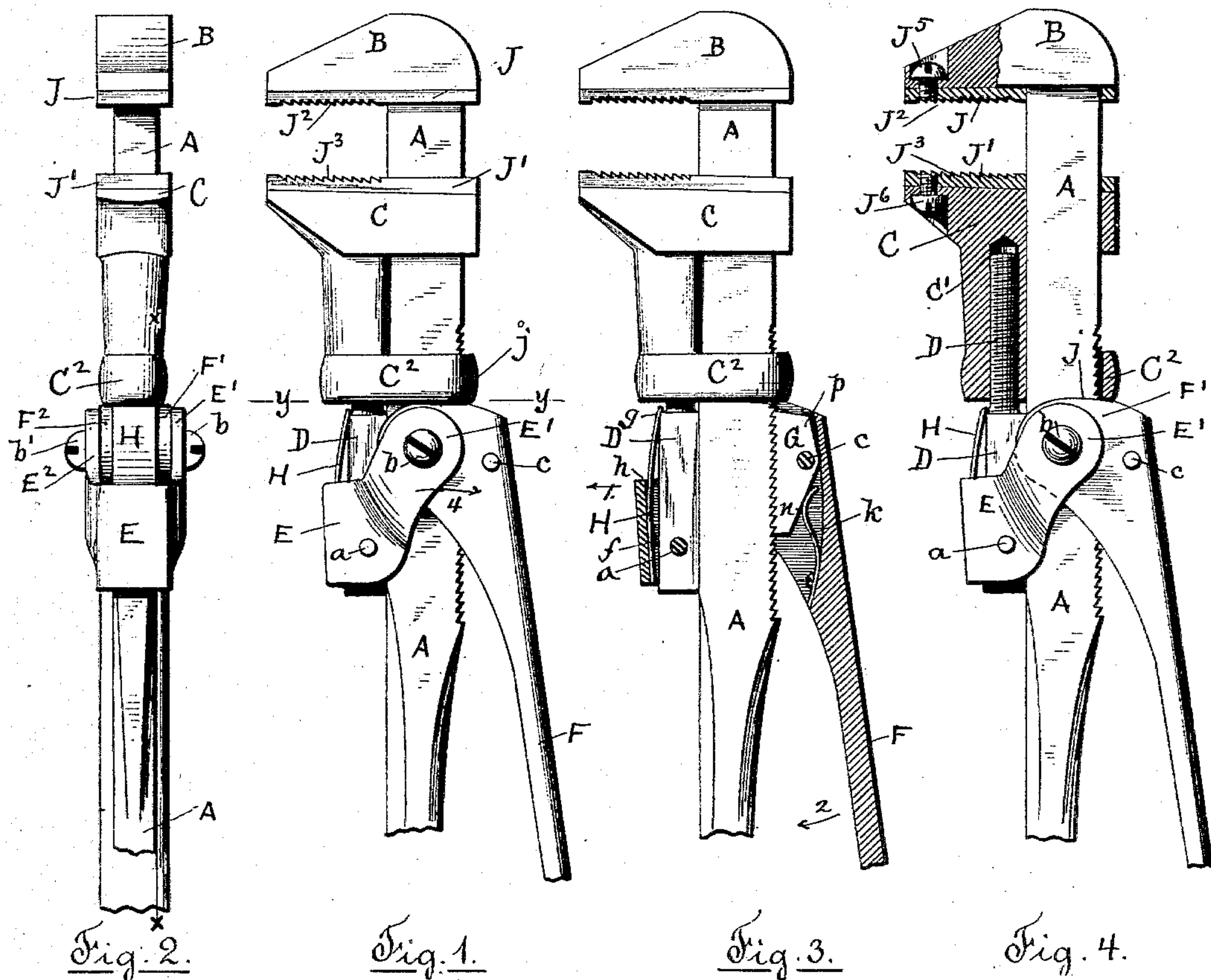


(No Model.)

J. E. WAKEFIELD.
PIPE WRENCH.

No. 545,323.

Patented Aug. 27, 1895.



Witnesses
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JOHN E. WAKEFIELD, OF WORCESTER, MASSACHUSETTS.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 545,323, dated August 27, 1895.

Application filed April 1, 1889. Serial No. 305,525. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. WAKEFIELD, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Pipe-Wrenches, of which the following is a specification, accompanied by drawings which represent a pipe-wrench embodying my invention, and in which—

Figure 1 represents a side view of a pipe-wrench, a portion of the handles having been omitted. Fig. 2 is an edge view of the portion of the wrench shown in Fig. 1. Fig. 3 represents a side view with a portion shown in sectional view in order to better disclose the operating parts of the wrench. Fig. 4 is a side view, the movable jaw and a portion of the fixed jaw being shown in central vertical sectional view. Fig. 5 is a transverse sectional view on line Y Y, Fig. 1. Fig. 6 represents one of the toothed plates forming a portion of the jaws; and Fig. 7 is a sectional view of the portion of the operating parts of the wrench shown in sectional view in Fig. 3, but in the position assumed when the movable jaw and operating-lever are to be moved along the fixed bar for the purpose of adjusting the space between the fixed and movable jaws to adapt the wrench to different sizes of pipe.

Similar letters refer to similar parts in the different figures.

Referring to the accompanying drawings, A denotes the bar; B, the fixed jaw, in the present instance integral therewith; C, the movable jaw sliding upon the bar A and provided with a screw-threaded socket C' and a box C², inclosing the bar A. Within the screw-threaded socket C', I place the screw-threaded bolt D, forming an arm extending from the sliding jaw downward parallel with the bar A, and to this arm is pivoted the link E by a pivot *a*. The link E consists of a strap inclosing three sides of the rectangular end of the screw-threaded bolt or arm D and having the wings E' E² extending over the bar A.

F denotes the lever-handle, provided at its upper end with the wings F' F², inclosing the sides of the bar A. The wing F' and the wing E' of the link E are pivoted together

by a screw *b*, and the wing F² and the wing E² are similarly pivoted together by the screw *b'*, with the axes of both pivots coincident. The lever-handle F is also pivoted by the pin *c* to a saddle G, which is provided with the teeth *d*, adapted to engage the teeth *e* upon the rear edge of the bar A. Between the bolt or arm D and the link E, I place a blade-spring H, attached to the link at *f*, with its free end *g* resting against the front side of the rectangular bolt or arm D, with its tension applied to press the point *h* of the link in the direction of the arrow 1, rotating the link E on its pivot *a* and holding the saddle G against the side of the bar A, with its teeth engaging the teeth upon the bar in the position shown in Fig. 3 of the drawings. If pressure be applied to the handle F in the direction of the arrow 2, the handle will turn upon the pivot *c*, and the wings F' and F², acting as the short arm of a bell-crank lever, will raise the link E and attached movable jaw C, sliding it along the bar A toward the fixed jaw B, the saddle G being held from slipping along the bar A by means of the teeth *d* and *e*. A limited sliding motion is thus imparted to the movable jaw B toward the fixed jaw sufficient to seize the pipe to be held. If it is required to adjust the movable jaw for pipe of a different size, the handle F is moved away from the bar A in the direction of the arrow 3, the upper edges of the wings F' and F² are brought against the lower side of the box C², forming a fulcrum at *j*, lifting the saddle G, and as the wings F' and F² form the short arm of a bell-crank lever between the point *j* and the pivots *b b'* the upper end of the link E will be carried in the direction of the arrow 4, rocking the link E slightly on its pivot *a* and compressing the spring H, the parts assuming the position shown in Fig. 7, with the teeth *d* of the saddle G entirely disconnected from the teeth *e* of the bar A, allowing the movable jaw C, together with its connected link E and handle F, to be moved along the bar A, thereby increasing or decreasing the distance between the jaws B and C, as desired. When the movable jaw has been adjusted on the bar, as described, and the handle F has been released, the tension of the spring H will serve to return the link E and connected handle F to their normal position, as shown in Fig. 3,

bringing the saddle G against the bar A, with its teeth d engaging the teeth e of the bar. Within the wings F' and F^2 and attached to the handle F is a spring k , with its free end bearing against the end n of the saddle G in order to hold the end p of the saddle against the handle, as shown in Fig. 7, so as to maintain the toothed edge of the saddle substantially parallel with the toothed edge of the bar A as the saddle is being raised from contact with the bar A.

In the operation of disconnecting the saddle G from the bar A, as described, I bring the lower side of the box C^2 in close proximity to the curved upper edges of the wings F' F^2 in order to form a fulcrum at j , about which the handle F is rocked to raise the saddle G from the toothed bar A. The distance between the wings F' F^2 and the box C^2 is adjusted by removing the movable jaw C and its connected parts from the bar A and turning the movable jaw C upon the screw-threaded bolt D either a complete revolution or a multiple of a revolution. When the bar A is stripped by the removal of the jaw C and its connected parts, the plates J J' can be removed and others inserted in their place, if desired. The plates J J', as shown in the accompanying drawings, are steel plates provided with ratchet-teeth J^2 J^3 , pointing in opposite directions. The plates have rectangular mortises J^4 fitting the contour of the bar A, and they are attached to their respective jaws B and C by the screws J^5 J^6 . The fineness and shape of the teeth J^2 J^3 are adapted to the special work to be done, and in case other shaped teeth or even jaws of other shapes than that shown are required the plates J J' are readily removed and others substituted. The plates can be hardened separately from the jaws and

in case they are broken or worn by use they can easily be replaced.

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

1. The combination with a bar having a fixed head and provided with teeth, of a saddle engaging the teeth on said bar, a sliding jaw sliding on said bar, an arm carried by said sliding jaw and parallel with said bar, said arm being adjustable in length, substantially as described, a lever handle pivoted on said saddle and a link connection between said lever handle and said arm, substantially as described.

2. A bar having a fixed head and provided with teeth, a sliding jaw sliding on said bar and provided with a screw-threaded socket, a screw-threaded bolt entering said socket and extending parallel with said bar and forming an adjustable arm, a saddle engaging the teeth on said bar and a lever handle pivoted on said saddle and operatively connected with said adjustable arm by a link connection, substantially as described.

3. The combination of a bar having a fixed head and provided with teeth, a saddle engaging said teeth, a lever handle pivoted on said saddle, a jaw sliding on said bar, a pivoted link connecting said jaw and said lever handle and capable of an angular movement, by which said saddle is lifted out of engagement with said toothed bar and a spring held by said lever handle and having its tension applied to said saddle to rock it upon its pivot and hold its surface parallel with the toothed surface of said bar, substantially as described.

JOHN E. WAKEFIELD.

Witnesses:

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