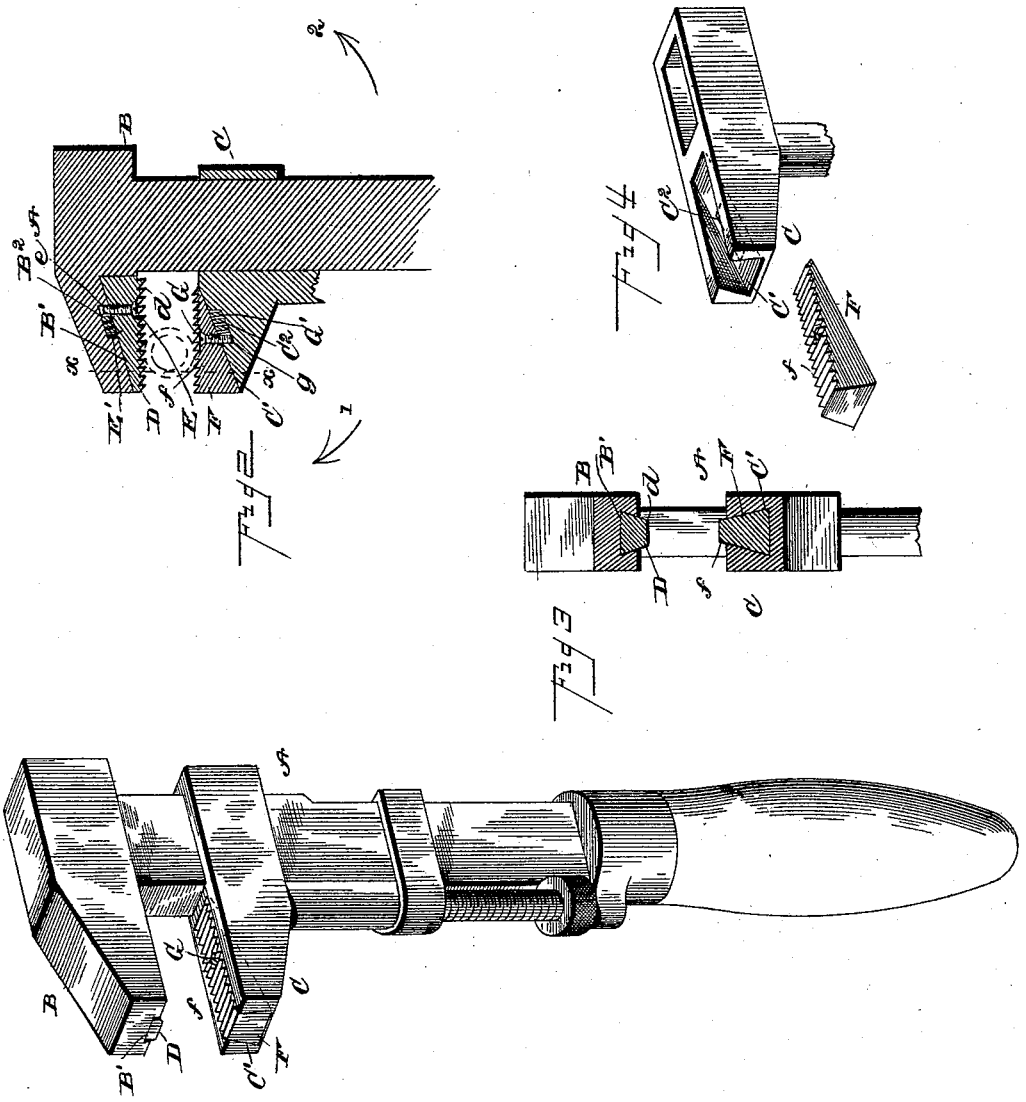
(No Model.)

C. A. ADAMS.

WRENCH.

No. 454,896. Patented June 30, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES AUGUSTUS ADAMS, OF WEST GARDNER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO BRUCE HOUGH, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 454,896, dated June 30, 1891.

Application filed November 24, 1890. Serial No. 372,557. (No model.)

To all whom it may concern:

Be it known that I, CHARLES AUGUSTUS ADAMS, a citizen of the United States, residing at West Gardner, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of wrenches designed for use as a monkey-wrench or as a pipe-wrench; and the object of the invention is to provide a tool of this character adapted to automatically increase the grip upon the article held therein as leverage is applied to the handle, and which is also adapted to turn pipes or other cylindrical articles in either direction without the necessity of readjusting the wrench.

A further object of the invention is to provide a simple and improved wrench embodying removable binding-jaws, whereby the latter can be replaced when they have become worn or removed for purpose of repairing.

To this end the invention consists substantially of the combination, with the stationary and movable jaws, of a wrench provided at their opposing faces for reversely-located inclined grooves, binding-jaws sliding in said grooves and provided upon their outer faces with reversely-arranged teeth or serrations, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a wrench embodying my invention. Fig. 2 is a detail longitudinal sectional view thereof. Fig. 3 is a sectional view on the line $x\,x$, Fig. 2. Fig. 4 is a detail perspective view of the movable jaw and its binding-jaw detached.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates a wrench, which may be in the main of any suitable or preferred construction, and comprises a stationary jaw B and a sliding or movable jaw C.

The stationary jaw B is provided with an inclined dovetailed groove B′, located centrally at the inner face of said jaw and increasing in depth from its outer to its inner end. At the bottom of the groove B′ and approximately at the center thereof is an auxiliary groove B^2, arranged longitudinally with relation to the groove B′. D designates a binding jaw or block, corresponding in configuration to and fitting within the groove B′, said jaw D projecting beyond the face of the stationary jaw B, and is provided upon its outer face with rearwardly-inclined teeth *d*. A screw E is passed transversely through the jaw D and has its inner end *e* normally seated in the rear end of the auxiliary groove B^2. A spring E′ is disposed in the latter groove between the end *e* of the screw and the front end of said groove, said spring serving to normally retain the jaw D in a position abutting against the rear wall of the groove B′.

In the movable jaw C is provided an inclined dovetailed groove C′, corresponding to the groove B′, but reversely arranged in its relation to the latter. At the bottom of the groove C′ is also provided an auxiliary groove C^2. A binding jaw or block F, corresponding to the groove C′, is seated therein and is held against accidental removal therefrom by a transversely-disposed screw G, having its inner end *g* working in the auxiliary groove C^2 and normally at the outer end thereof. A spring G′ is disposed in the auxiliary slot between the rear end thereof and the end *g* of the screw G, said spring serving to retain the jaw F in its normal position. The jaw F projects beyond the groove C′ and has its face opposing the outer face of the jaw D, provided with outwardly-inclined teeth *f*.

The operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains. The movable jaw C is first adjusted up to the pipe or other article to be operated upon and the wrench turned in the direction desired. If turned in the direction indicated by the arrow 1, Fig. 2, the teeth of the binding-jaw F binds against the pipe or other article, and said jaw as leverage is applied to the wrench slides up its inclined way, thus binding tighter as the power is increased correspondingly. If the movement of the wrench be re-

versed or operated in a contrary direction, (see arrow 2, Fig. 2,) the binding-jaw D comes into play and operates in the manner just described for the jaw F. When the wrench is detached, the jaws are thrown to their normal positions by the tension of their respective springs.

I claim as my invention—

1. The combination, with the jaws of a wrench provided at their opposing faces with reversely-inclined grooves, of binding jaws or blocks corresponding to and seated in said grooves and adapted to slide therein, said jaws being provided upon their opposing faces with teeth or serrations, substantially as set forth.

2. The combination, with the jaws of a wrench provided at their opposing faces with reversely-inclined dovetailed grooves, of binding jaws or blocks corresponding to and working in said grooves and having their opposing faces provided with reversely-inclined teeth, substantially as set forth.

3. The combination, with the jaws of a wrench provided at their opposing faces with reversely-inclined dovetailed grooves and with auxiliary grooves at the bottom of the latter and arranged longitudinally with relation thereto, of binding jaws or blocks corresponding to and working in said dovetailed grooves and having their opposing faces provided with teeth or serrations, and a screw passed transversely through each jaw and having its inner end working in the auxiliary groove, substantially as set forth.

4. The combination, with the jaws of a wrench provided at their opposing faces with reversely-inclined grooves and with auxiliary grooves at the bottom of the latter, of binding jaws or blocks corresponding to and working in said dovetailed grooves, screws passed through said jaws and having their inner ends working in said auxiliary grooves, and springs seated in the latter and bearing against the screws to return the binding-jaws to normal position, substantially as set forth.

5. The combination, with the jaws of a wrench provided at their opposing faces with reversely-inclined grooves, of binding jaws or blocks corresponding to and working in said grooves, substantially as and for the purpose set forth.

6. The combination, with the jaws of a wrench provided at their opposing faces with reversely-inclined grooves, of binding jaws or blocks corresponding to and working in said grooves, and means for returning said binding-jaws to their normal positions, substantially as and for the purpose set forth.

7. As an improved article of manufacture, a wrench comprising a stationary jaw and a movable jaw, said jaws being provided with reversely-inclined dovetailed grooves and with auxiliary grooves at the bottom of the latter and arranged longitudinally with relation thereto, binding jaws or blocks corresponding to and sliding in said dovetailed grooves, a screw passed transversely through each jaw and having its inner end working in said auxiliary groove, and springs seated in the latter and bearing in reverse directions upon the ends of the screws, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES AUGUSTUS ADAMS.

Witnesses:

ROY E. MAYO,

JAMES MULLIGAN.