

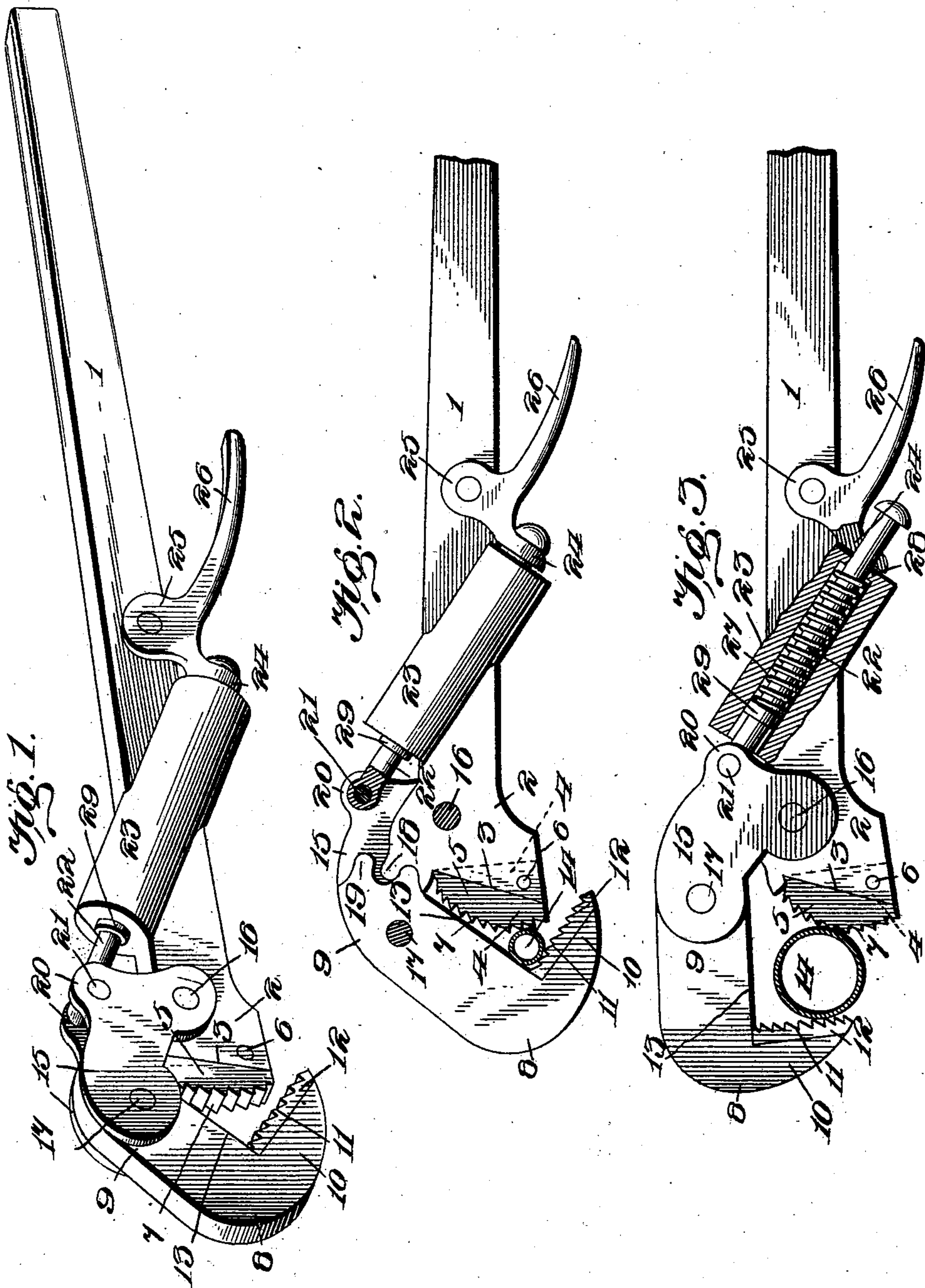
No. 668,645.

Patented Feb. 26, 1901.

A. F. JACKSON.
PIPE WRENCH.

(Application filed May 31, 1900.)

(No Model.)



Witnesses

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AMBROSE F. JACKSON, OF ROCK ISLAND, ILLINOIS.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 668,645, dated February 26, 1901.

Application filed May 31, 1900. Serial No. 18,598. (No model.)

To all whom it may concern:

Be it known that I, AMBROSE F. JACKSON, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented a new and useful Pipe-Wrench, of which the following is a specification.

My present invention relates to improvements in pipe-wrenches, and is directed more particularly to the improvement of that particular form of wrench described and illustrated in Letters Patent granted to me June 5, 1900, No. 650,974.

One object of the present improvement is to provide more positive means for urging the pivoted jaw toward the stationary jaw and a jaw-operating handle or lever mounted upon the handle or stock of the wrench in a manner to permit the operator, without releasing his grip upon the stock, to open the jaws by the depression of the lever or to permit them to close under the impulse of the jaw-closing device to be described.

In a somewhat more specific aspect, a further object of the invention is to provide a novel construction by means of which the connection of the operating mechanism with the links will be located behind the links, while the jaw-operating lever or handle will be located at the front edge of the wrench-stock, where it may be manipulated by the fingers of the operator without necessity for the position of the hand being changed in order to open the jaws at the end of such movement as may have been imparted to the wrench during its application to the object operated upon.

Still further and subordinate objects will hereinafter more fully appear as the necessity for their accomplishment is developed in the succeeding description, which will be fully understood when taken in connection with the accompanying drawings, employed to illustrate the preferred embodiment of the present improvement.

In said drawings, Figure 1 is a perspective view of a wrench embodying my present invention. Fig. 2 is a side elevation of the same, showing the jaws in engagement with a pipe of diminutive size, a portion of the wrench stock or handle being broken away. Fig. 3 is a similar view with one of the links

removed and showing the jaws in engagement with a somewhat larger pipe, a portion of the spring-casing being broken away for the purpose of illustrating interior parts.

Referring to the numerals of reference employed to designate corresponding parts in the several views, 1 indicates the stock or handle of the wrench, provided at one end with a lateral extension 2, having a somewhat oblique end face 3, within a recess in which is designed to be received the shank 4 of a stationary convex jaw 5 of the wrench, said shank being rigidly retained within the recess by a pin 6, extending transversely through the extension 2 and shank 4. The form of the stationary jaw 5 may be varied within wide limits; but its engaging face is preferably of segmental form, as illustrated, and is provided with gripping-teeth 7. 8 indicates the pivoted jaw, designed, as usual, to cooperate with the stationary jaw 5. The jaw 8 is of angular form—that is to say, it is composed of two right-angularly-disposed arms 9 and 10, the latter of which is provided with a toothed face 11, integral with the jaw or formed in a removable wear-face 12. The adjacent or inner face of the arm 9 is left plain, as shown at 13, and constitutes a rest or abutment designed to prevent the crushing or distortion of the pipe 14 or other object engaged between the toothed faces 7 and 11 of the stationary and pivoted jaws.

The pivoted jaw 8 is movably connected to the stock or handle 1 by means of a pair of parallel links 15, connected at their inner ends by a pivot 16, which passes through the links and through the handle 1 immediately under the extension 2 and slightly nearer the rear edge of the wrench. The upper ends of the links are connected to each other and to the arm 9 of the pivoted jaw by a pivot 17, piercing the ends of the links and passing through the arm 9, at a slight distance from the end thereof opposite the arm 10. The stationary and movable or pivoted jaws are by means of the links rendered capable of independent movement; but in order that the movement of the pivoted jaw may be controlled through the actuation of the links, and, further, in order to insure the movement of the pivoted jaw in a predetermined path, the jaws are geared together by the inter-

meshing teeth 18 and 19, formed in the contiguous faces or extensions of the stock 1 and the rear end of the pivoted jaw 8. By reason of this connection when the handle 1 is vibrated to force the stationary jaw against the pipe the teeth of the movable jaw are urged in the opposite direction and are caused to bite against the pipe at the opposite side, while the plain abutting face 13 of the arm 9 forms a rest or abutment designed to sustain the pipe, but to permit the latter to move freely thereon.

It is evident that in place of the links 15 it might be possible to employ a single link or that some other form of coupling member bearing an equivalent relation to the other parts of the wrench might be employed. I shall therefore designate the link connection as a "coupling element" in certain of the claims, and by this term I wish to be understood as defining a connection generally equivalent to the links and distinguished from a mere pivotal mounting.

Thus far my wrench is constructed substantially in accordance with my invention as described and illustrated in the application aforesaid; but I shall now proceed to describe that particular improvement in which resides the novelty of my present invention and which is designed to facilitate the manipulation of the movable or pivoted jaw for the purpose of permitting the attachment of the wrench to the object to be operated and its detachment therefrom. From the rear edge of each link 15, in a plane intermediate of the pivots 16 and 17, but considerably nearer the former, is a bearing-ear 20, said ears being opposed and pierced by the opposite ends of a trunnion-head 21, formed at one end of a plunger 22, extending obliquely from the ears 20 through a cylindrical spring-casing 23, cast in the stock 1, to a point beyond the front edge of the stock or handle 1, where said plunger is passed through and headed beyond the short arm 24 of the pivoted jaw-lever 25, pivoted upon the shank 1 adjacent to its front edge. The long arm of this lever extends in acute-angular relation to the edge of the stock and constitutes a handle 26, the depression of which in the direction of the stock by the fingers of the operator will cause the plunger 22 to be drawn longitudinally against the resistance of a spiral spring 27, encircling the plunger 22 within the spring-casing 23 and bearing at its opposite ends against the front end 28 of the casing and a circular enlargement or bearing-flange 29 upon the plunger 22. The depression of the handle 26 will therefore cause the links to be swung back on the pivot 16 and will cause the pivoted jaw to be swung away from the fixed jaw to open the jaws of the wrench—as, for instance, to facilitate the attachment of the wrench to or its detachment from a pipe or other object to be operated upon. The release of the jaw-operating handle 26 will obviously permit the spring 27 to urge the

plunger 22 in the opposite direction to swing the links forwardly for the purpose of yieldingly urging the jaws together in a manner which will be obvious.

Special utility resides in the peculiar oblique arrangement of the plunger with respect to the stock of the wrench, and in order that this may be fully apparent attention is called to the fact that when the wrench is operated to turn a pipe gripped between the jaws the power is applied to the stock or wrench-handle 1 from the rear side, and as this power is exerted manually the palm of the hand is ordinarily brought into contact with the rear edge of the handle, which, as a matter of course, brings the fingers of the operator around the front edge of the handle. It is for this reason that the pivoted-jaw-operating lever has been arranged at the front side of the handle or shank to permit of its actuation without making it necessary for the operator to release his grip upon the wrench-handle. This relation of the parts is particularly useful when the wrench is vibrated successively, as it permits the operator to quickly release the grip upon the pipe for the purpose of returning the wrench to its initial position after each forward vibration. This oblique disposition of the plunger 22 furthermore effects the exertion of its pressure in a direction substantially at right angles to a line piercing the pivots 16 and 21, which constitutes the links, in effect, a bell-crank lever and insures the effective operation of the pivoted jaw under the impulse of the spring 27.

From the foregoing it will be seen that I have produced a substantial improvement over the construction shown in my concurrent application and that I have devised a simple and effective form of mechanism for insuring the approach of the wrench-jaws and for permitting their separation without necessity for the release of the grip from the wrench-handle; but while the construction shown and described is believed at this time to be preferable I do not wish to limit myself thereto, but reserve the right to effect such changes, modifications, and variations as may be comprehended within the scope of the protection prayed.

What I claim is—

1. A wrench comprising a handle having stationary and movable jaws, a coupling member connecting the handle with the movable jaw, a jaw-actuating handle, and means connecting said handle with the coupling member, the jaw-actuating handle and coupling member being located at opposite sides of the wrench-handle.

2. A wrench comprising a handle, a stationary jaw thereon, a movable jaw, links connecting the handle with the movable jaw and located at the rear side of the wrench, means for yieldingly urging said links in a direction to close the jaws, a jaw-actuating handle located at the front side of the wrench, and means connecting said handle with the links.

3. A wrench comprising a handle, a fixed jaw thereon, a movable jaw, links pivotally connecting the rear end of the movable jaw to the handle, a jaw-actuating handle located at the front side of the wrench, and a spring-pressed plunger extending obliquely across the wrench-handle and connected at its opposite ends to the jaw-actuating handle and to the links, respectively.

4. A wrench comprising a handle, a stationary jaw thereon, a movable jaw, links pivotally connecting the rear end of the movable jaw to the wrench-handle adjacent to the rear edge thereof, a cylindrical spring-casing extending obliquely through the wrench-handle, a jaw-operating lever pivotally mounted at the front side of the wrench-handle, a plunger extending through the spring-casing and connected at its opposite ends to the links and jaw-operating lever, respectively, an enlargement on the plunger, and a spring within the spring-casing and bearing at its opposite ends against one end of the spring-casing and against the enlargement, respectively.

5. A wrench comprising a handle, a station-

ary jaw thereon, an angular movable jaw geared to the handle, a pair of links pivoted at their opposite ends to the wrench-handle adjacent to its rear edge and to the rear end of the movable jaw, a pair of rearwardly-extending ears upon the links, a spring-casing extending obliquely through the wrench-handle, a plunger extending through said casing and provided with a fulcrum-head at one end engaging the ears of the links and with a bearing-head, a spring encircling the plunger within the spring-casing and bearing at its opposite ends against a fixed part and the bearing-head of the plunger, respectively, and a bell-crank lever pivoted at the front side of the wrench-handle and connected to the plunger.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

AMBROSE F. JACKSON.

Witnesses:

OLIVER B. MOORE,
HILMA M. JOHNSON.