

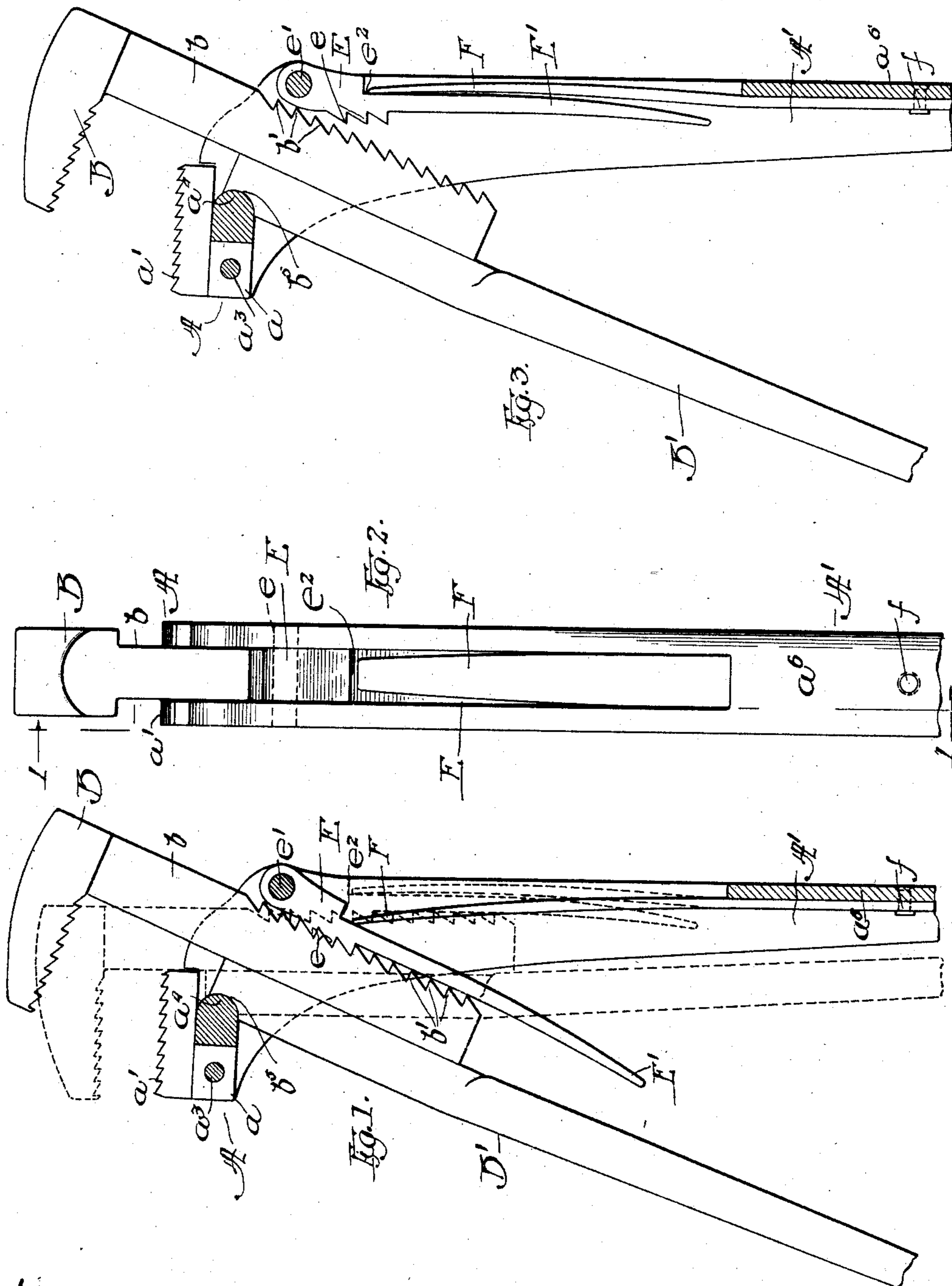
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J. REIF, JR.

WRENCH.

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UNITED STATES PATENT OFFICE.

JOSEPH REIF, JR., OF HEBRON, INDIANA.

WRENCH.

No. 883,237.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH REIF, Jr., a citizen of the United States, and a resident of Hebron, in the State of Indiana, have invented certain new and useful Improvements in Wrenches, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

The present invention has for its object to provide a simple and effective construction of wrench that shall be adapted for a great variety of uses and which may be readily adjusted to suit the size and character of the work for which it is designed.

The invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawing and particularly pointed out in the claims at the end of this specification.

Figure 1 is a view in vertical longitudinal section upon the line 1—1 of Fig. 2. Fig. 2 is a back view of the wrench. Fig. 3 is a view similar to Fig. 1 but showing the retaining dog or pawl release to permit the sliding jaw to be withdrawn.

As shown my improved wrench comprises what for convenience may be termed a stationary jaw A at the end of a handle A' and a movable jaw B that is actuated by a handle B'. The stationary jaw A and its handle A' are preferably formed of a single piece of metal, the jaw A being recessed to receive the shank or stem *a* of the toothed working face or block *a'*, this working face or block being connected to the jaw A by a through pin *a*³. The handle B' is preferably pivotally connected to the jaw A, as shown; that is to say, the handle B' is formed at its end nearest the jaws with a curved socket or recess *b*⁵ adapted to receive the curved rear edge of the web or projection *a*⁴ that extends between the side walls of the jaw A.

As shown, the shank *b* of the movable jaw B extends between the side walls of the stationary jaw handle A' and is provided with a set of ratchet teeth *b'* that are preferably formed upon its rear edge. With these ratchet teeth *b'* engages the pawl or dog E having one or more teeth *e* to mesh with the teeth *b'*. The dog or pawl E is pivoted at one end upon a pin *e'* that extends between the side walls of the stationary handle A'.

The dog or pawl E may be formed with a handle E' whereby the dog or pawl E may

be readily disengaged from the shank of the movable jaw B. The pawl E is held normally interlocked with the teeth of the shank *b* of the jaw B by means of a suitable spring F. As shown, this spring F is a plate spring, the free end of which bears against the pawl or dog E and engages the shoulder *e*² thereof, while the opposite end of the spring F is connected as at *f* to the web *a*⁶ that extends between the side walls of the stationary handle A'.

From the foregoing description it will be seen that when it is desired to adjust the movable jaw B to adapt it for turning of the pipes, nuts, bolts or the like of different sizes, the dog E will be disengaged from the teeth of the jaw shank *b* thereby permitting the jaw B to be readily shifted. Indeed, in the preferred form of the invention, the teeth *b'* of the jaw B are inclined, as shown, towards the jaw shank *b* so that when the jaw B is to be brought nearer to the stationary jaw A it is only necessary to press against and force inward the jaw B, as the dog E will readily yield to permit this adjustment of the movable jaw. When however, the jaw B is to be extended, the dog E will be disengaged from the teeth of the jaw shank *b*, as before described. Preferably, the spring that holds the pawl or dog E in normal engagement with the jaw shank *b* is so arranged as to also serve to hold the jaws A and B in normally open position.

With the preferred form of the invention shown, the shank *b* of the movable jaws B serves to hold the inner end of the movable handle B' in normal engagement with the web *a*⁴ about which it pivots.

There are many advantages incident to my present invention, all or some of which will be found to exist according as the invention is used in whole or in part. By combining with the stationary jaw and its handle, a movable jaw mounted to swing towards the stationary jaw and actuated by a separate pivoted handle, a most effective leverage is secured, because as the handle B' is drawn towards the handle A' a double leverage is secured upon the jaw B. That is to say, the handle B' acts as a lever, the fulcrum of which is at its inner end and the leverage of this handle is exerted upon the adjacent end of the shank *b* of the jaw B which is free to slide with respect to the handle, the shank of the jaw B turning upon a different center from that of the handle B'. Again, it will be

seen that the jaw B can be readily adjusted while the wrench is in position upon the pipe or other article with which the wrench is engaged. So also, it will be observed that the jaws stand automatically open so that nuts or bolts can be turned without removing the wrench therefrom. These and many other advantages and modes of operation will be found incident to my improved wrench aside from the advantages and economy due to its extreme simplicity and the readiness with which the parts may be constructed and assembled.

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

1. A wrench of the character described, comprising a stationary jaw, a handle for said stationary jaw provided adjacent its end with two fulcra, a movable jaw provided with a shank extending between said fulcra and a handle for said movable jaw having a non-revoluble part slidably engaging said shank, said handle having its end pivoted to one of said fulcra, said handle and said movable jaw being arranged to automatically change their position with respect to each other, as the handles of the jaws are opened and closed.

2. A wrench of the character described comprising a stationary jaw having a handle, a movable jaw having a shank and arranged to swing towards the stationary jaw and a pivoted handle for shifting said movable jaw, said pivoted handle being fulcrumed at its end and having a bearing face engaging the shank of the movable jaw and arranged to automatically slide longitudinally with respect to said shank as the handle of the movable jaw is shifted towards the handle of the stationary jaw.

3. A wrench of the character described comprising a stationary jaw having a handle, said jaw being provided with a part serving as a fulcrum for the handle of the movable jaw and being provided at its back with a part serving as a fulcrum for the shank of the movable jaw, a movable handle pivoted to said stationary jaw and a movable jaw having a shank extending upon opposite sides of the fulcrum of the movable jaw and between said fulcrum and said part that serves as a fulcrum for said shank, the shank of said movable jaw being free to slide automatically with respect to its handle as the said handle is shifted.

4. A wrench of the character described comprising a stationary jaw having front and rear parts serving as fulcra for the movable jaw and its handle, a swinging movable jaw and a movable handle for shifting said jaw arranged between said fulcra, said mov-

able handle having a non-revoluble part in sliding engagement with said movable jaw whereby said jaw is free to slide with respect to its handle as the said handle is shifted.

5. A wrench of the character described comprising a stationary jaw formed with an opening to receive the shank and handle of a movable jaw and having parts serving as fulcra for said movable jaw and its handle, a movable jaw having a shank and a pivoted handle having a non-revoluble part for shifting said movable jaw arranged between said fulcra, said shank and said movable handle being in sliding engagement with each other and means for holding said shank and said movable handle in engagement as the movable jaw is swung towards the stationary jaw.

6. A wrench of the character described comprising a stationary jaw formed with an opening and with a fulcrum said opening having a curved face, a movable jaw arranged to swing towards the stationary jaw and having a shank extending within the opening of the stationary jaw, a movable handle to swing said movable jaw having a curved seat to engage said fulcrum of the stationary jaw said movable handle being in sliding engagement with said shank and means for detachably holding said movable jaw and its handle in position within said stationary jaw.

7. A wrench of the character described comprising a stationary jaw having a handle, a movable jaw provided with a shank having teeth or projections, a movable dog engaging the teeth or projections of said shank for holding said movable jaw in different positions with respect to said stationary jaw, and a pivoted handle arranged to engage the shank of said movable jaw, said shank being free to slide with respect to its said handle as the said handle is shifted to open and close the jaws.

8. A wrench of the character described comprising a stationary jaw having a handle and having an opening, a movable jaw provided with a shank slidably mounted within the opening of the stationary jaw, a spring-actuated dog for engaging the shank of the movable jaw and serving to hold said jaw in different position with respect to the stationary jaw and a pivoted handle extending within the opening of the stationary jaw and engaging the shank of the movable jaw to swing said movable jaw towards the stationary jaw.

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Witnesses:

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