R. Y. BOVEE.

PIPE WRENCH.

APPLICATION FILED AUG. 20, 1913.

1,125,946. Patented Jan. 26, 1915.

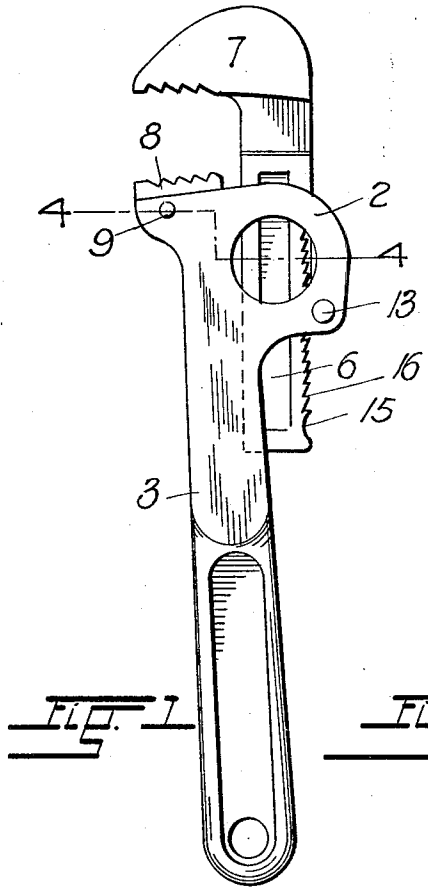


FIG. 1

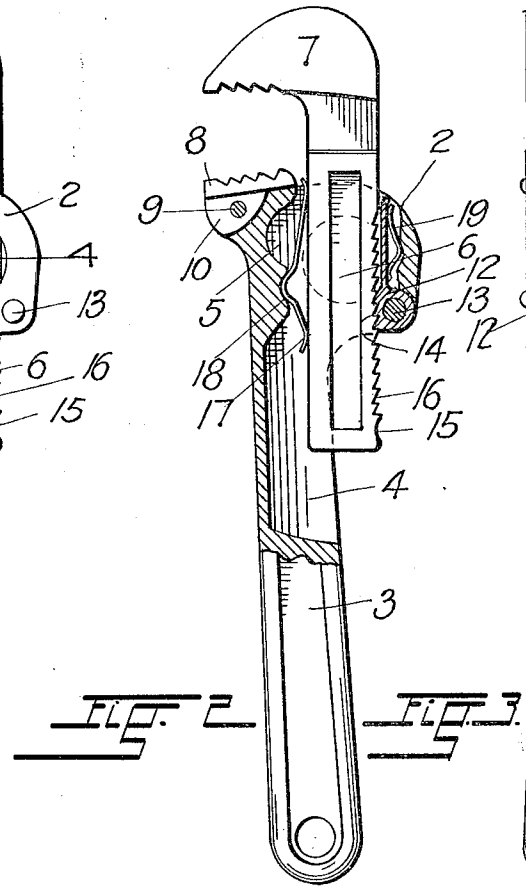


FIG. 2

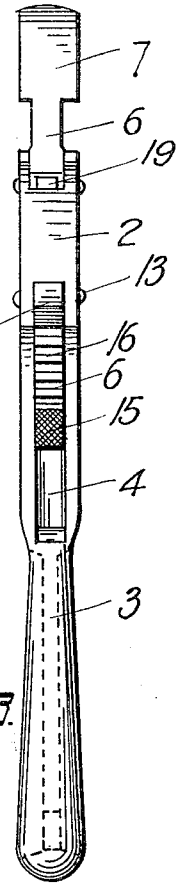


FIG. 3

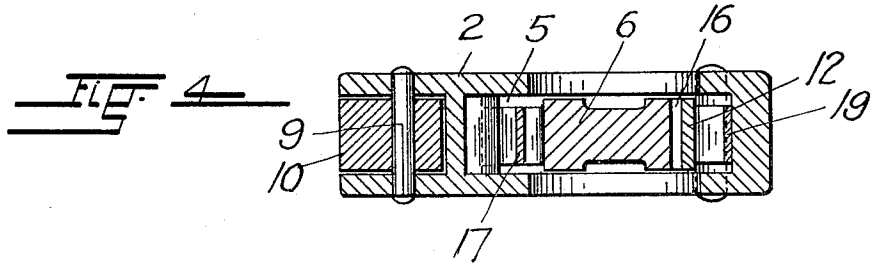


FIG. 4

WITNESSES:

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PIPE-WRENCH.

1,125,946. Specification of Letters Patent. Patented Jan. 26, 1915.

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To all whom it may concern:

Be it known that I, RANSOM Y. BOVEE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to improvements in pipe-wrenches and its principal object resides in the provision of a tool of very simple construction which by virtue of peculiar automatic and manual adjustments of its movable jaw, is particularly adapted to be readily and effectively applied to objects of different shapes and sizes and by the same means is rendered capable of releasing the objects with equal ease.

In accordance with my invention, I provide in coöperative relation to a fixed jaw, a loose jaw which is movably disposed between a pivoted spring-pressed member with which it is adjustably connected by means of an integral rack, and a spring which yieldingly opposes its forward motion about said pivot. Mere pressure upon an end of the movable jaw by the hand in which the tool is held, is sufficient to adjust the said jaw to any desired position, and it is automatically locked in its adjusted position as soon as released. The movable jaw provides in itself, the means for the automatic adjustment of its position to firmly grip an object to which the tool is applied, in contradistinction to other wrenches at present in common use, in which the manipulation of a separate piece is required to vary the distance between the jaws.

The peculiar construction of my wrench as hereinbefore briefly described, furthermore renders the movable jaw capable of a resilient self adjustment which increases the capacity of the mouth of the tool beyond that determined by the normal distance between its jaws and greatly increases the effect of its gripping action on an object to which the wrench is applied, and the movability of the loose jaw on the handle both backward and forward, provides a range of action in gripping and releasing an object which is not possible in wrenches of a more rigid construction.

An embodiment of my invention has been illustrated in the accompanying drawings in the various views of which like parts are similarly designated and in which—

Figure 1 represents a side elevation of my improved wrench, Fig. 2, a similar view, partially in section, Fig. 3, an end view of the tool looking in the direction of the arrow in Fig. 1, and Fig. 4, a transverse section taken along the line 4—4 Fig. 1, drawn to an enlarged scale.

Referring more specifically to the drawings, the reference numeral 2 designates a socketed jaw stock which is formed integrally at one end of the operating handle 3.

An elongated recess 4 in the rear edge of the handle is formed continuous with the socket 5 of the stock for the reception of the stem 6 of the movable jaw 7 as will hereinafter be more fully described.

The serrated face of the fixed jaw is provided by a plate 8 which is detachably secured to the stock by means of a pin 9 which fixes a lug 10 on the said plate in a correspondingly formed cavity in the face of the stock opposite to the working face of the movable jaw.

The movable jaw is adjustably connected with the jaw stock through the instrumentality of a locking-member 12 which at one of its ends is pivotally secured in the socket of the stock adjacent the rearward wall thereof, as at 13.

The member 12 is at its pivoted extremity provided with a series of ratchet-teeth 14 which are disposed to mesh with a like number of a succession of similarly formed teeth 16 in the rear edge of the jaw stem which extends loosely through the socket of the stock.

The opposite edge of the stem 6 is engaged by the ends of a leaf-spring 17 which at an intermediate point is seated in a depression 18 in the opposite wall of the socket, and a second spring 19 is disposed between the body portion of the locking member and the rear wall of the socket, in engagement with both, for the purpose of yieldingly maintaining said member in engagement with the toothed edge of the jaw stem. It will thus be seen that when the parts are in their normal position as shown in the drawings, the movable jaw is movably suspended between the two springs by its interlocking connection with the pivoted member 12.

The socket of the stock and the therewith continuous recess in the handle are of sufficient width and depth to permit of a limited oscillatory movement of the movable jaw about the pivoted axis of the locking mem-

ber, and the handle is disposed with relation to the jaw stock so that when the movable jaw is in its normal position, its stem extends partially within and partially without the recess 4.

The stem is at the extremity of its toothed edge, milled, as at 15, to facilitate its adjustment by pressure of the hand in which the handle is held for the operation of the tool.

When the parts are in their normal position the two springs 17 and 19 coöperate to yieldingly maintain the loose jaw in interlocking relation to the pivoted member 12 and to apply the wrench to an object interposed between its opposite, serrated jaws, it is but necessary to press the milled extremity of the jaw-stem 6 inwardly, whereby the loose jaw is moved about the pivotal axis of the locking member until the movement of the latter is arrested by its engagement with the wall of the socket when a continued pressure on the milled end of the jaw-stem will cause it to disengage the teeth at the pivoted end of the member 12. The jaw now being free to move longitudinally through the socket of the stock, is readily adjusted to its proper position with relation to the object to which the wrench is applied, it being understood that the said jaw when released will immediately move again into rigid connection with the locking member by the coöperative action of the two springs. After the parts of the wrench are thus applied, the loose jaw being suspended between the two springs, is capable of a resilient self-adjustment the advantages of which have been fully explained in the foregoing description, it being understood that by rearward pressure on the tool, the jaws may be separated sufficiently to prevent them from continuing their gripping action on the interposed object when it is desired to release the same.

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

1. A wrench comprising a body member formed to provide a handle, a socketed jaw-stock and a fixed jaw, a loose jaw operatively disposed with relation to the fixed jaw and formed at the end of a stem which extends loosely through said socket and which has in its edge rearward with relation to its jaw, a series of teeth, a locking member disposed in said socket for engagement with the toothed edge of said stem, said member being pivoted on the body member at its extremity farthest remote from the jaws, and having a detent adapted to mesh with the said teeth, a spring pressing the member toward the stem, and a spring held in said socket to engage the forward edge of the said stem at points at opposite sides of that at which its toothed edge is engaged by said detent.

2. A wrench comprising a body member formed to provide a handle, a socketed jaw-stock and a fixed jaw, a loose jaw operatively disposed with relation to the fixed jaw and formed at the end of a stem which extends loosely through said socket and which has in its edge rearward with relation to its jaw, a series of teeth, a locking member disposed in said socket for engagement with the toothed edge of said stem, said member being pivoted on the body member at its extremity farthest remote from the jaws, and having at the same extremity a detent adapted to mesh with the said teeth, a spring pressing the member toward the stem, and a spring engaging the forward edge of the stem to yieldingly hold the teeth on said stem in mesh with the detent.

3. A wrench comprising a body member formed to provide a handle, a socketed jaw-stock and a fixed jaw, a loose jaw operatively disposed with relation to the fixed jaw and formed at the end of a stem which extends loosely through said socket and which has in its edge rearward with relation to its jaw, a series of teeth, a locking member disposed in said socket for engagement with the toothed edge of said stem, said member being pivoted on the body member at its extremity farthest remote from the jaws, and having at the same extremity a detent adapted to mesh with the said teeth, a spring pressing the member toward the stem, and a spring held in said socket to engage the forward edge of the said stem at points at opposite sides of that at which its toothed edge is engaged by said detent.

4. A wrench comprising a body member formed to provide a handle, a socketed jaw-stock and a fixed jaw, a loose jaw operatively disposed with relation to the fixed jaw and formed at the end of a stem which extends loosely through said socket free from engagement with the forward and rearward edges of the same and which has in its edge rearward with relation to its jaw, a series of teeth, a locking member disposed in said socket for engagement with the toothed edge of said stem, said member being pivoted on the body member at its extremity farthest remote from the jaws, and having a detent adapted to mesh with the said teeth, a spring pressing the member toward the stem, and a spring engaging the forward edge of the stem to yieldingly hold the teeth on said stem in mesh with the detent.

5. A wrench comprising a body member formed to provide a handle, a socketed jaw-stock and a fixed jaw, a loose jaw operatively disposed with relation to the fixed jaw and formed at the end of a stem which extends loosely through said socket and which has at its edge rearward with relation to its jaw, a series of teeth, a locking mem-

ber pivoted in said socket and having adjacent its pivot, a detent adapted to mesh with said teeth, a spring engaging the forward edge of the stem to yieldingly hold the teeth on the stem in mesh with the detent, and a spring disposed between the said locking member and an abutment formed in the said recess for limiting the movement of the locking member and thereby compelling the stem to disengage the detent when by inward pressure on the extremity of the said stem, the said member is moved about its pivot.

6. A wrench comprising a body member including a fixed jaw, a loose jaw formed at the end of a stem which has at its edge rearward with relation to its jaw, a series of teeth, a locking member pivoted on said body member and extending from its pivot along the said rear edge of the said stem, said locking member having adjacent its pivot a detent adapted to mesh with the said teeth of the said stem, and a pair of springs between which said loose jaw is yieldingly suspended on the said body member in operative relation to the fixed jaw, the said body member having an abutment for limiting the movement of the locking member and thereby compelling the stem to disengage the detent when by inward pressure on the extremity of the said stem, the said member is moved about its pivot.

7. A wrench comprising a body member formed to provide a handle, a socketed jaw-stock and a fixed jaw, a loose jaw operatively disposed with relation to the fixed jaw and formed at the end of a stem which extends loosely through said socket and which has at its edge rearward with relation to its jaw, a series of teeth, a locking member pivoted in said socket, in interlocking engagement with teeth of said stem, and a pair of springs between which the movable jaw is suspended within the socket, and which permit of its movement with the locking member about the pivotal axis thereof, free from contact with the jaw stock.

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

RANSOM Y. BOVEE.

Witnesses:
G. A. HENDRICK,
B. B. BOVEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."