

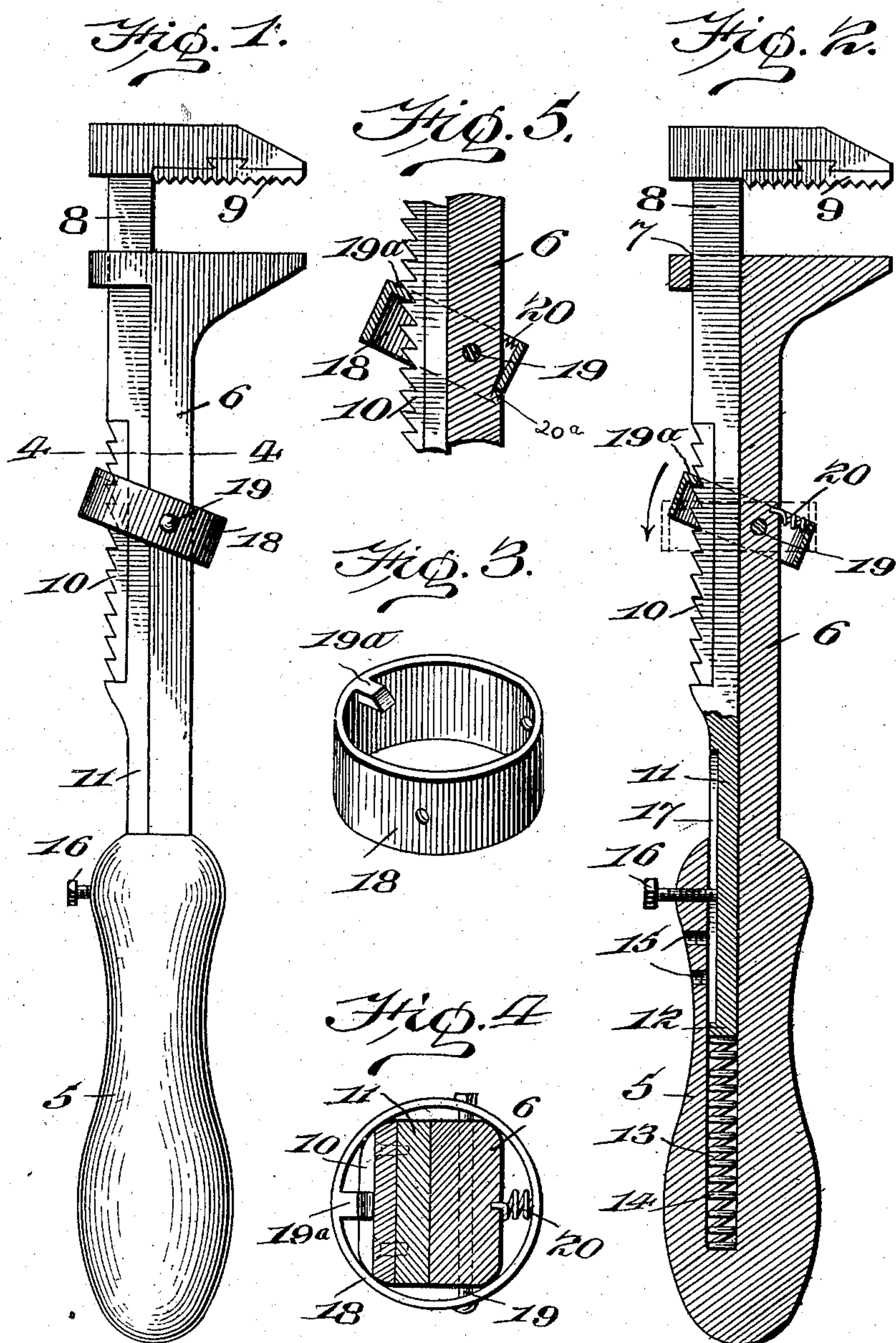
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A. P. HARTZELL.  
WRENCH.

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NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## WRENCH.

SPECIFICATION forming part of Letters Patent No. 741,906, dated October 20, 1903.

Application filed March 4, 1903. Serial No. 146,119. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT PIERCE HARTZELL, a citizen of the United States, residing at Hudson, in the county of Lincoln and State of South Dakota, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The object of my invention is to produce a wrench that is cheap, simple, and effective; and with these and minor objects in view my invention consists of the parts and combination of parts, as will be hereinafter more fully set out.

In the drawings, Figure 1 is a side elevation of a wrench embodying my invention. Fig. 2 is a vertical central section of the same, parts being in elevation. Fig. 3 is a perspective view of the locking-catch. Fig. 4 is a section on the line 4-4, Fig. 1; and Fig. 5 is a detail central section of a modified form.

5 represents a suitable handle, from which projects what will be hereinafter referred to as the "fixed jaw" 6, having the usual opening 7 in its head.

8 is a movable jaw provided with a serrated gripping-plate 9. The stem of the jaw 8 is provided with a ratchet 10, below which is a depending stem 11, provided with a lug 12 integral with its lower end.

The handle 5 is provided with a recess 13, within which is secured a coil-spring 14, said recess being adapted to receive the depending stem 11 of the movable jaw 8. The lower end of the depending stem 11 is seated in said recess 13 upon the coil-spring 14; the lug 12 on said stem providing a seat for the upper end of said coil-spring, as shown in Fig. 2.

The handle 5 is provided with a series of perforations 15, extending through the handle and opening into the recess 13. 16 is a set-screw adapted to be secured in either of said perforations 15, the inner end of said screw projecting into a groove 17, formed in the stem 11. The object of this set-screw is first to prevent the movable jaw moving entirely out of the recess 13, by reason of the engagement of the lug 12 on said stem with said screw 16. Further, by providing a series of these perforations I can limit the upward movement of the movable jaw so as to obviate unnecessary manipulation of said movable jaw. For

instance, if the work on the one hand involves the tightening of nuts of large diameter the set-screw is placed in the uppermost perforation, while, on the other hand, if the nuts to be tightened are of small diameter the set-screw is placed in the lowermost perforation.

It will be seen that the movable jaw has a tendency, by reason of the coil-spring 14, to move upward, but this movement is checked by means of a circular band 18, pivoted at 19 to the fixed jaw, the said band being provided with a pawl 19<sup>a</sup>, projecting inwardly and laterally within said band, said pawl being adapted to engage the rack 10 on movable jaw. It will be observed that the band is pivotally mounted eccentric to the movable jaw, and therefore would have a tendency to drop to an inoperative position. To overcome this tendency, I interpose the coil-spring 20 between the band and the fixed jaw 6, the ends of said spring being securely attached to said jaw and band, respectively.

The operation of the device is as follows: In fastening the wrench around a nut the band is thrown to the position shown in dotted lines in Fig. 2, whereupon the movable jaw is free to slide. As soon as the fixed and movable jaw are the desired distance apart the pressure is released from the band 18, whereupon under the influence of the spring 20 it swings on its pivot 19 to the position shown in Fig. 2, so that the dog or pawl 19<sup>a</sup> will engage one of the teeth of the ratchet 10, and thereby lock the jaws of the wrench around the nut. To change the distance between the respective jaws, it is only necessary to swing the band 18 upon its pivot.

In Fig. 5 I have shown a slight modification wherein the fixed jaw 6 is notched, as at 20<sup>a</sup>, whereby the band 18 is adapted to fit in the notch 20<sup>a</sup> of the fixed jaw 6. The object of this construction is to relieve the pivot-pin 19 from carrying all the strain incident to the use of the wrench.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a wrench, the combination with a fixed jaw and a movable jaw, the movable jaw being provided with a rack, of a band surrounding said jaws and eccentrically piv-



oted on the fixed jaw and adapted to be moved on its pivot to engage said rack on the movable jaw and impinge against the fixed jaw.

2. In a wrench, the combination with a 5 fixed jaw, of a movable jaw resiliently mounted and provided with a rack, and a band surrounding both of said jaws, eccentrically pivoted upon the fixed jaw, constructed to engage the rack on the movable jaw and im- 10 pinge against the fixed jaw to lock said jaws against relative movement.

3. In a wrench, the combination with a fixed jaw, and a handle therefor having a recess, of a movable jaw mounted in said re- 15 cess and provided with a rack, a band surrounding both of said jaws eccentrically pivoted upon the fixed jaw, a pawl on said band constructed to engage said rack on the movable jaw, and means for holding the tooth of 20 said band in engagement with said rack to lock the parts against relative movement.

4. In a wrench, the combination with a fixed jaw and a handle integral therewith, said handle being provided with a recess, a 25 movable jaw provided with a rack, and a depending stem, said stem projecting into the recess in the handle, a spring secured in said recess upon which said stem is seated,

of a band surrounding the fixed and movable jaws and eccentrically pivoted upon the fixed 30 jaw, a tooth or pawl integral with said band adapted to engage the rack of movable jaw, and a coil-spring interposed between the band and the fixed jaw.

5. In a wrench, the combination with a 35 fixed jaw, and a handle integral therewith, said handle being provided with a recess, screw-threaded openings passing through said handle and opening into said recess, a set-screw mounted in one of said openings, a 40 movable jaw provided with a rack and a depending stem, said stem having a groove in which said set-screw is adapted to project, said stem projecting into the recess in the handle, a spring secured in said recess upon 45 which the lower end of the stem is mounted, of a band surrounding the fixed and movable jaws and eccentrically pivoted upon the fixed jaw, a pawl integral with said band adapted to engage the rack of the movable jaw, and 50 a coil-spring interposed between the band and the fixed jaw.

ALBERT PIERCE HARTZELL.

In presence of—

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