J. JOHNSON.

WRENCH.

APPLICATION FILED SEPT. 7, 1909.

954,301.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.

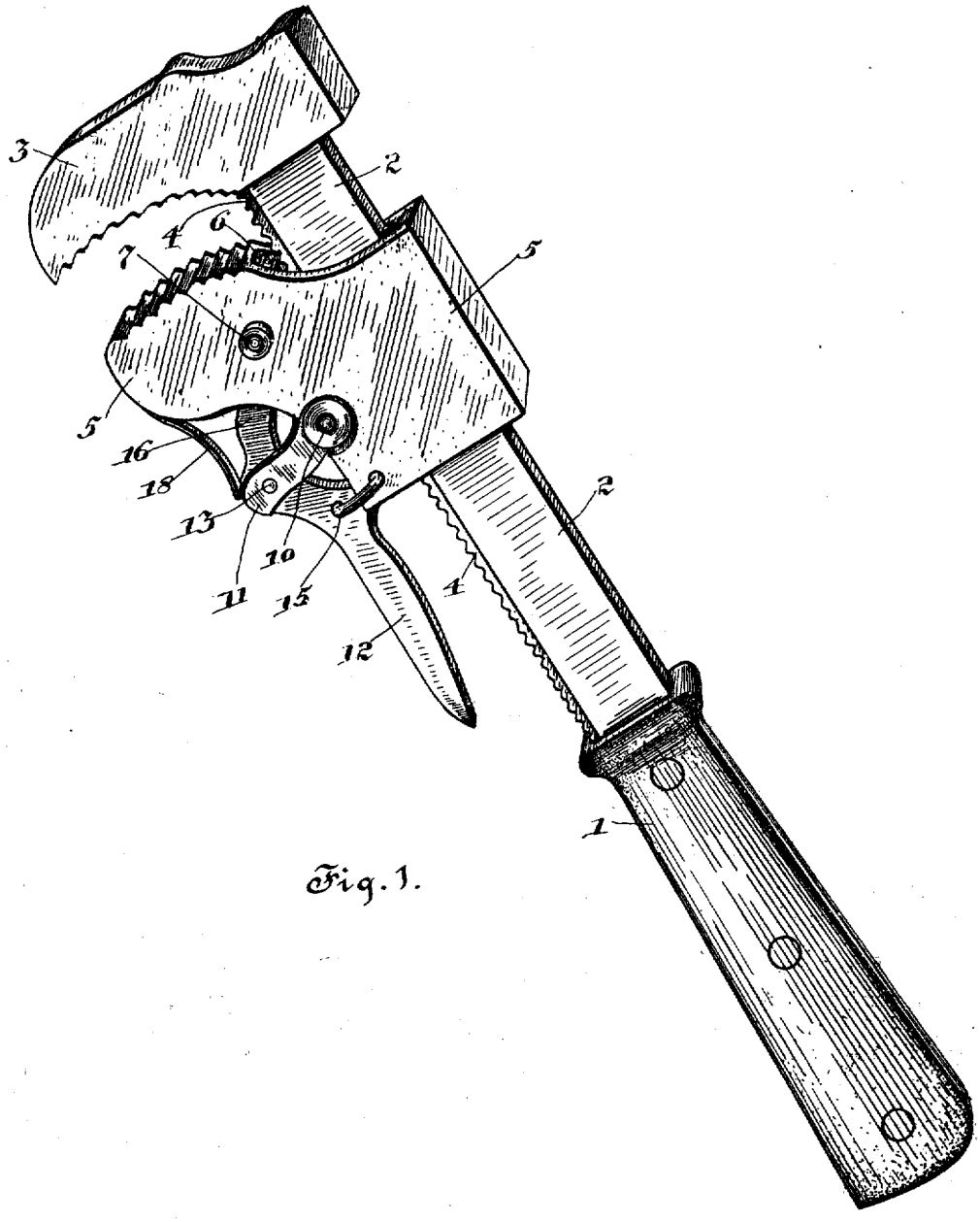

Fig. 1.

Witnesses

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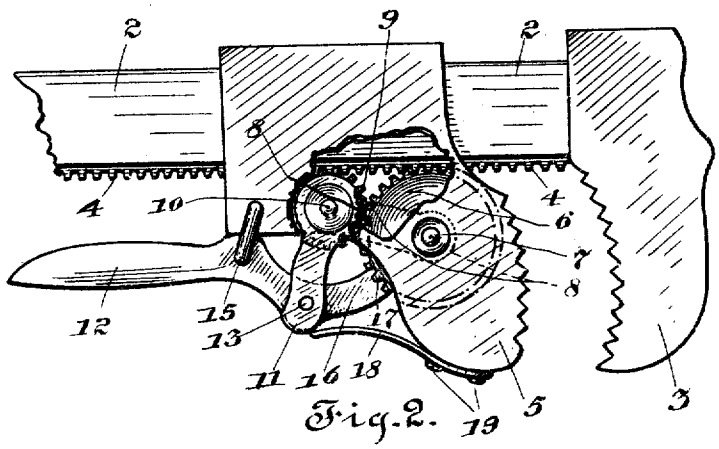

Fig. 2.

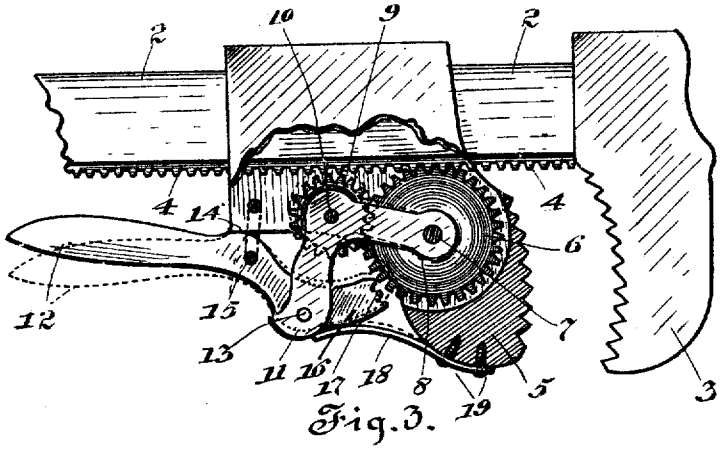

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN JOHNSON, OF PHILADELPHIA, PENNSYLVANIA.

WRENCH.

954,301. Specification of Letters Patent. Patented Apr. 5, 1910.

Application filed September 7, 1909. Serial No. 516,426.

To all whom it may concern:

Be it known that I, JOHN JOHNSON, a subject of the King of Norway, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches and has for its object the production of a wrench which may be readily and quickly adjusted to different sizes of work and which shall be of simple construction and efficient in operation.

My invention consists in the combination and arrangement of parts hereinafter described and claimed.

My invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a perspective view of a wrench embodying my invention, Fig. 2, a partial elevation of the same with portions broken away, and Fig. 3 another partial elevation with portions broken away and showing the pinion 9 moved away from the rack bar 4 so as to permit the adjusting of the movable jaw.

The wrench comprises the usual handle 1, shank 2 and fixed jaw 3. To the front edge of shank 2 is secured a rack bar 4. A movable jaw 5 is slidably mounted upon shank 2 and carries a gear 6 mounted upon shaft 7 therein and meshing with rack bar 4. Link arms 8 are pivoted on shaft 7 and carry a pinion 9 mounted upon shaft 10 therein. The pinion 9 is constantly in mesh with gear 6 and may be intermittently thrown into mesh with rack bar 4 below gear 6 and thus lock said movable jaw against downward or opening movements on shank 2. Link arms 8 carry outwardly projecting arms 11 in which is pivoted a lever 12 by means of the shaft 13. Lever 12 has a bearing 14 against jaw 5 to which it is secured by a link 15. The lever 12 carries a projection 16 provided with teeth 17 adapted to mesh with gear 6. A spring 18 secured to jaw 5 by screws 19 serves to normally hold pinion 9 and teeth 17 in mesh with rack bar 4 and gear 6 respectively. By this construction it will be seen that upon depression of lever 12, pinion 9 and teeth 17 will be withdrawn from mesh with rack bar 4 and gear 6 respectively, thus permitting ready adjustment of jaw 5 to different sizes of work. When lever 12 is released spring 18 returns pinion 9 and teeth 17 into mesh with said rack bar and said gear to lock the jaw 5 in position. This locking effect is due to the fact that when both gear 6 and pinion 9 are in mesh with rack bar 4, longitudinal movement of jaw 5 would tend to rotate said gear and said pinion in the same direction an operation which is prevented by the interaction between said gear and said pinion which tend to rotate each other in opposite directions. The engagement of teeth 17 with gear 6 also prevents rotation of the latter and at the same time tends to hold pinion 9 in positive engagement with rack bar 4. Thus it will be seen that the movable jaw may be readily adjusted to different sizes of work and when so adjusted will be automatically locked in position against opening of said jaw.

While I have illustrated and described the preferred construction for carrying my invention into effect this is capable of variation or modification without departing from the spirit of my invention. I, therefore, do not wish to be limited to the exact details of construction set forth but wish to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. A wrench comprising a toothed shank, a fixed jaw on said toothed shank, a slidable jaw on said shank adapted to coöperate with the fixed jaw, a gear carried by said slidable jaw and in mesh with the teeth of the shank, a pinion movably mounted in said slidable jaw, constantly in mesh with the gear and normally in mesh with the teeth of the shank, a lever adapted to move said pinion toward and away from the teeth of the shank, and teeth on said lever adapted to engage the teeth of the gear.

2. A wrench comprising a toothed shank, a fixed jaw on the shank, a jaw slidable on said shank and adapted to coöperate with the fixed jaw, a gear carried by said slidable jaw and meshing with the teeth of the shank, links pivotally connected to the axis of the gear, a pinion mounted in said links constantly engaging the teeth of the gear and normally the teeth of the shank, a lever fulcrumed between its ends and connected

to said link whereby when said lever is moved in one direction, the pinion will be moved away from the shank, and teeth on one end of said lever adapted to engage the teeth of the gear.

3. A wrench comprising a toothed shank; a fixed jaw; a jaw slidable on said shank and adapted to coöperate with said fixed jaw; a gear carried by said slidable jaw and meshing with the teeth on said shank; a pinion mounted on a link pivoted on the axis of said gear, the said pinion being constantly in mesh with said gear and adapted to intermittently engage the teeth on said shank below said gear; a lever pivoted in said link and having a link held bearing against said slidable jaw; and a spring for normally holding said pinion in mesh with said teeth on said shank, substantially as described.

4. A wrench comprising a toothed shank; a fixed jaw; a jaw slidable on said shank and adapted to coöperate with said fixed jaw; a gear carried by said slidable jaw and meshing with the teeth on said shank; a pinion mounted on a link pivoted on the axis of said gear, the said pinion being constantly in mesh with said gear and adapted to intermittently engage the teeth on said shank below said gear; a lever pivoted in said link and having a link held bearing against said slidable jaw; a toothed projection on said lever, adapted to engage said gear and lock it against rotation; and a spring for normally holding said pinion and said projection in mesh with said teeth on said shank and said gears respectively, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN JOHNSON.

Witnesses:

JAMES LOWE,

HARRY LOWE.