R. J. COLSON.

WRENCH.

APPLICATION FILED APR. 18, 1916.

1,231,131. Patented June 26, 1917.

Fig. 1.

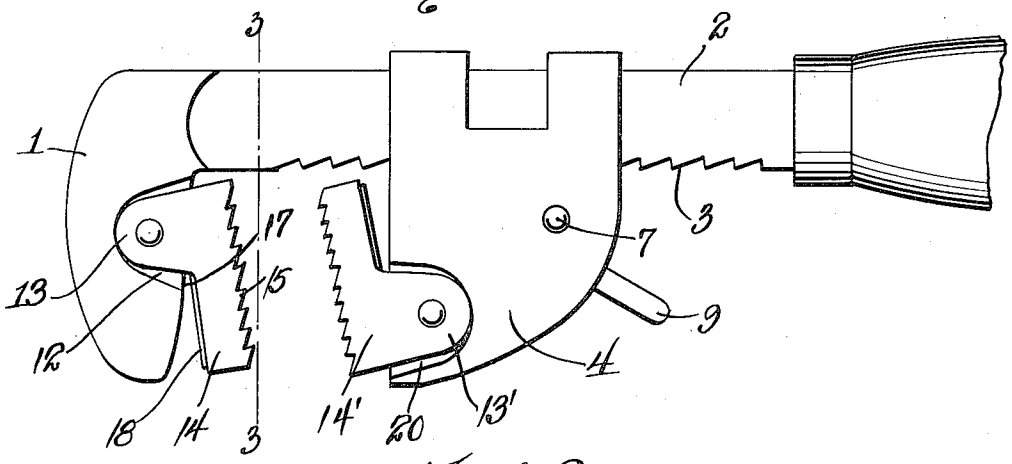


Fig. 2.

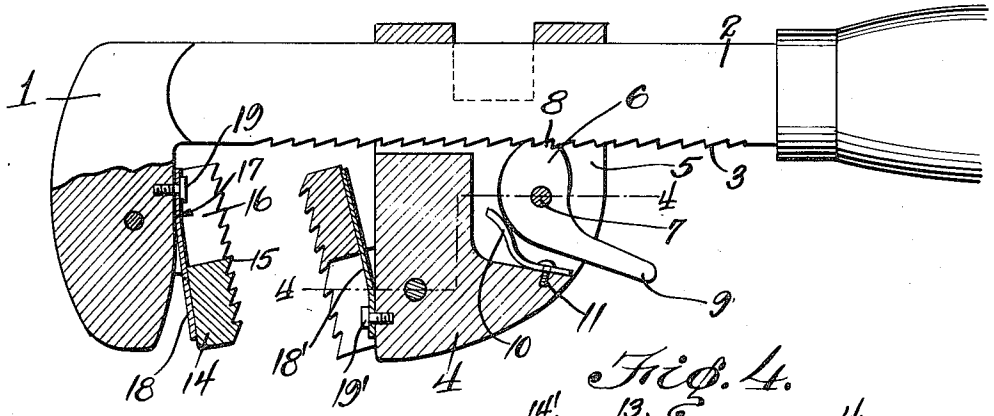


Fig. 3.

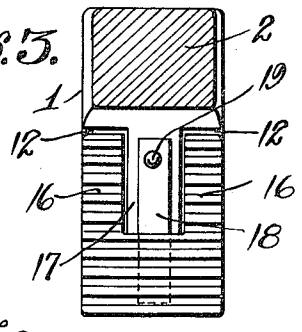
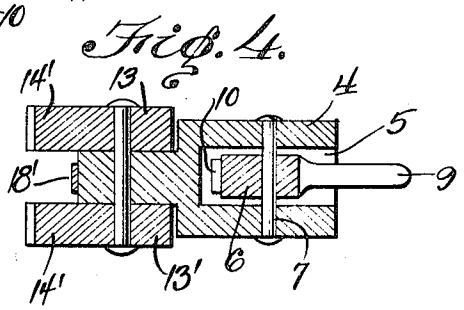


Fig. 4.



WITNESSES

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WRENCH.

1,231,131. Specification of Letters Patent. Patented June 26, 1917.

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To all whom it may concern:

Be it known that I, ROBERT J. COLSON, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in a Wrench, of which the following is a specification.

This invention relates to improvements in wrenches and the primary object is to provide a pipe wrench for use in turning pipes or pipe fittings and containing means for preventing the slipping of the pipe engaging jaws while the wrench is in operation.

As a further object of the invention the device contemplates the provision of means which will be constructed for causing the teeth of the gripping jaws to grip the pipe or pipe fitting with a firmer grip than is obtained in the wrenches of ordinary construction.

A further object of the invention is the provision of a pawl provided with teeth for engaging the shank of the wrench whereby the movable jaw of the wrench will be held in the desired position for causing the gripping jaws to engage the pipe.

A further object of this invention is the provision of a wrench which consists of comparatively few parts and is simple in construction, but durable and well adapted to withstand the rough usage to which devices of this character are ordinarily subjected.

For a full description of the invention and the advantages and merits thereof, reference is to be had to the following description and the accompanying drawings, wherein is illustrated the preferred form of my invention, in which,

Figure 1 is a side elevation.

Fig. 2 is a vertical longitudinal section.

Fig. 3 is a vertical section on the line 3—3 of Fig. 1, and

Fig. 4 is a section on the line 4—4 of Fig. 2.

The stationary jaw 1 is provided with the extended shank 2 in the usual manner. The inner edge of the shank 2 is provided with a plurality of teeth or serrations 3. Slidably mounted on the shank 2 is the movable jaw 4 which is provided with an interior recess 5 having mounted therein a pawl 6 which is rotatably mounted on the pivot pin 7. The pawl 6 is provided with teeth 8 which are adapted to engage the teeth 3 of the shank 2. For moving the teeth 8 into and out of engagement with the teeth of the shank 2, I provide the pawl 6 with a finger handle 9 which extends outwardly from the recess 5 within convenient reach of the operator of the wrench. The teeth 8 of the pawl 6 are adapted to be normally held in engagement with the teeth 3 by the flat spring 10 which is secured by the screw 11 to the wall of the recess 5 while the free end of the flat spring engages the pawl at a point at which it will exert a pressure against the pawl for normally holding the teeth of the pawl in engagement with the teeth of the shank.

The stationary jaw 1 is provided with opposed recesses or depressions 12 which are adapted to receive the ears 13 of the auxiliary gripping jaw 14. The front of the gripping jaw 14 is provided with a plurality of teeth 15 which are disposed at an angle and extend upwardly as shown by Figs. 1 and 2 of the drawing. By referring to Fig. 3 of the drawing it will be observed that the formation of the auxiliary gripping jaw 14 is substantially U-shape and the ears 13 which extend from both sides of the jaw are integrally formed with the leg portions of the U-shape auxiliary gripping jaw. By placing the recesses 12 on opposite sides of the stationary jaw 1 and constructing them of a depth sufficient to receive the ears 13 of the gripping jaws, there remains an edge face 17 on the inner edge of the stationary jaw upon which is mounted one end of the flat spring 18 secured to the edge 17 by a screw 19 and its free end is engaged with the end of the U-shaped gripping jaw for exerting a pressure against the end of the jaw, whereby it may be held in angularly disposed position as is clearly indicated by Fig. 2 of the drawing. It will be observed that the slots 12 of the stationary jaw 1 are arranged adjacent the inner portion of the jaw. On the outer portion of the movable jaw 4 are similar recesses or depressions 20 and these depressions receive the ears 13′ of the jaw 14′ which is of the same construction as the jaw 14, it being merely mounted in reversed position with respect to the jaw 14. The teeth of the jaw 14′ are thereby disposed at an angle opposite to the angular disposition of the teeth 15 of the jaw 14. A flat spring 18′ is also employed in connection with jaw 14′ and is secured by a screw 19′ and has its free end in engagement with the end of the gripping jaw 14′.

In operation, the jaws 14 and 14′ are

placed in engagement with the pipe and the movable jaw 4 moved forwardly as far as possible according to the diameter of the pipe which is to be turned. The pawl 6 will then be released, it having been first disengaged from the shank 2, and the jaw 4 will thereby be locked in operative position. A turning movement of the wrench will cause the teeth of the gripping jaws to tightly grip the pipe and, by virtue of the flat springs, the jaws will be prevented from slipping while the wrench is being operated.

In reduction to practice I have found that the form of my invention illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practicable, yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in the details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of my invention, as defined in the appended claims.

I claim:

1. In a pipe wrench, the combination with a stationary and a movable jaw, the said stationary jaw being provided with a shank having serrations formed on one edge, and a movable jaw being slidably movable upon said shank, of auxiliary jaws carried by said stationary and movable jaws, said auxiliary jaws being pivotally mounted upon the stationary and movable jaws, each of said auxiliary jaws being adapted to swing toward the other and provided with teeth, and a spring element carried by the movable and the stationary jaw and resiliently engaging the said auxiliary jaws for normally holding said auxiliary jaws at an angle and for giving them a tendency to engage each other.

2. In a pipe wrench, the combination of a stationary and a movable jaw, said stationary jaw having a shank upon which said movable jaw is mounted, each of said jaws provided with a depression on their opposite sides whereby a comparatively narrow face is provided on each of said jaws at one portion thereof, auxiliary jaws provided with ears straddling said restricted face portions and pivotally engaged within the recesses in said movable and stationary jaws, one of said auxiliary jaws being disposed in the opposite position to that assumed by the other auxiliary jaw, and flat springs having their ends secured to the restricted face portions in said stationary and movable jaws and resiliently engaging said auxiliary jaws.

3. In a pipe wrench, the combination with a pair of main jaws, one stationary and the other movable, the stationary jaw provided with a shank having a plurality of serrations formed on one edge, of auxiliary jaws carried by said main jaws, the gripping portions of said auxiliary jaws being U-shaped, ears carried by the leg portions of the U-shaped jaws, said main jaws being provided with depressions in their sides for receiving said ears, and carrying pivot pins upon which said auxiliary jaws are pivotally mounted, and a locking pawl pivotally mounted on the movable main jaw and adapted to engage the serrations on said shank.

4. In a pipe wrench, the combination with a pair of main jaws, one stationary and the other movable, the stationary jaw provided with a shank having a plurality of serrations formed on one edge, of auxiliary jaws carried by said main jaws, the gripping portions of said auxiliary jaws being U-shaped, ears carried by the leg portions of the U-shaped jaws, said main jaws being provided with depressions in their sides for receiving said ears, and carrying pivot pins upon which said auxiliary jaws are pivotally mounted, said movable main jaw being also provided with an enlarged recess opening from the edge opposite to the edge upon which said auxiliary jaw is mounted, a locking pawl pivotally mounted within the recess and provided with a handle disposed outwardly beyond the main jaw, and a flat spring for normally holding said pawl in engagement with the serrations on said shank.

5. In a pipe wrench, the combination with a pair of main jaws, one stationary and the other movable, the side face of the said jaws being provided with depressions, the proximate edges of the said main jaws being substantially flat at right angles to the shank of the said stationary jaw, auxiliary jaws provided with ears disposed within the said depressions, the main jaws carrying pivot pins for receiving the said ears, the gripping portions of the said auxiliary jaws being substantially U-shaped, the said ears projecting from the legs of the U-shaped portions, and a flat spring carried by each of the said proximate edges of the said main jaws and having its free end engaged with the connecting portion of the said U-shaped portions whereby the said auxiliary jaws will normally be held at an angle to the proximate edges of the main jaws and in parallelism with each other.

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

ROBERT J. COLSON.

Witnesses:

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EDWARD M. CANDA.