No. 738,003. PATENTED SEPT. 1, 1903.

W. A. CUMBIE.

WRENCH.

APPLICATION FILED MAY 21, 1903.

NO MODEL.

Fig. 1.

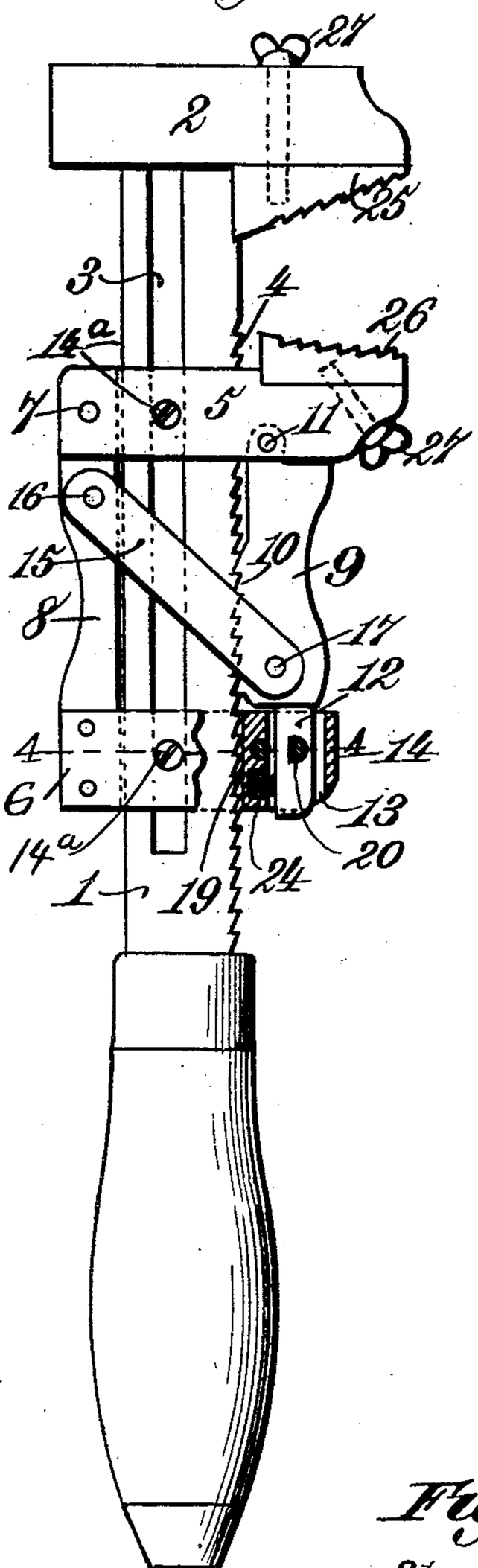


Fig. 2.

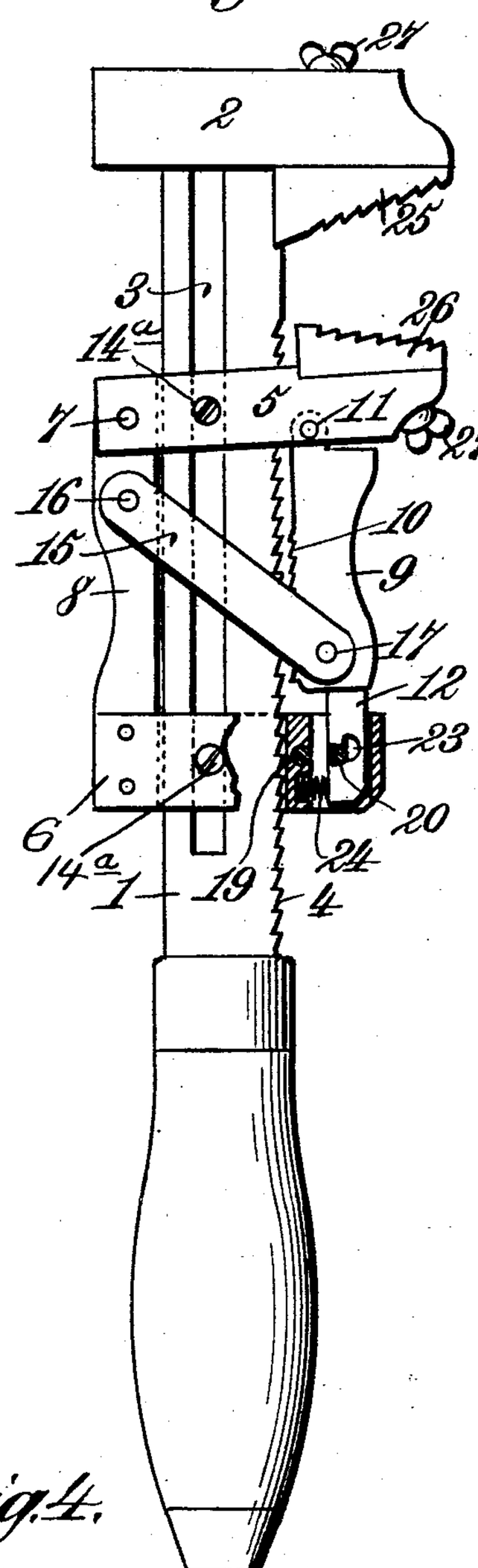


Fig. 3.

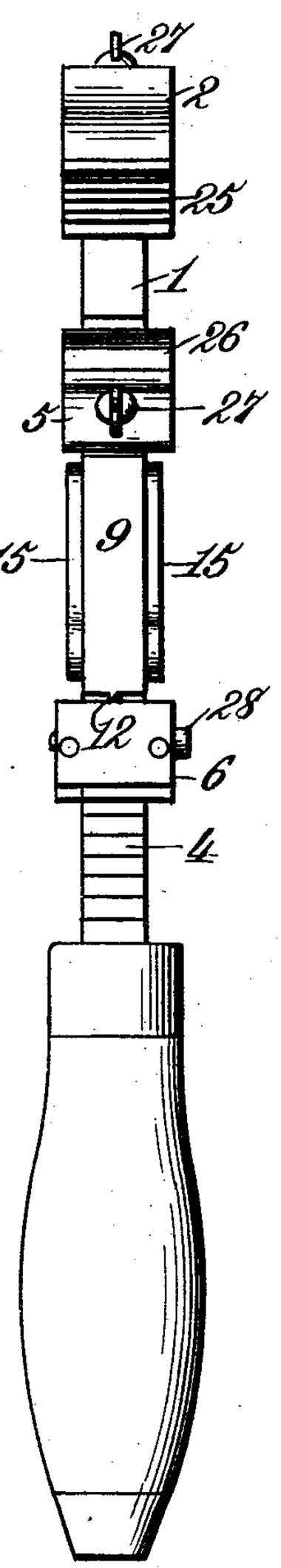
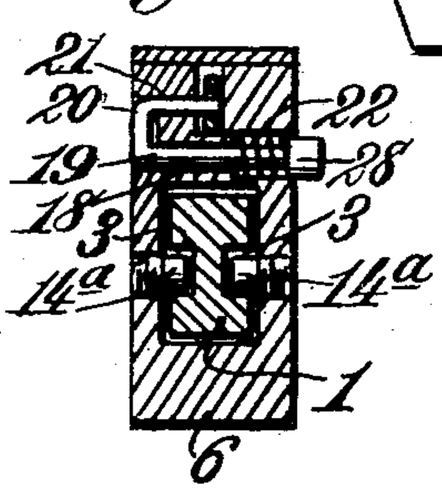


Fig. 4.



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No. 738,003. Patented September 1, 1903.

UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 738,003, dated September 1, 1903.

Application filed May 21, 1903. Serial No. 158,183. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. CUMBIE, a citizen of the United States, residing at Morris Station, in the county of Quitman and State of Georgia, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to a combined pipe and nut wrench, and has for its object to provide novel mechanism whereby the movable jaw of the wrench is automatically locked in its adjusted position when the wrench is employed for turning a nut or pipe and also has for its object to provide novel means for automatically throwing the movable jaw out of engagement with the shank of the wrench when the movable jaw is released. It also has in view certain other objects which will be hereinafter made apparent.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a side elevation, partly in section, of my improved wrench, showing the parts in their locked position. Fig. 2 is a similar view showing the parts released. Fig. 3 is an edge view of the wrench, and Fig. 4 is a section taken on the line 4 4 of Fig. 1.

Referring to the drawings, the numeral 1 indicates the shank of the wrench, which is rectangular in cross-section and is provided at one end with a rigid jaw 2, said shank being provided on its opposite sides with longitudinal grooves 3 and upon its upper edge with rack-teeth 4. Movably arranged upon said shank is a sliding jaw 5 and a collar 6, and to the lower end of the sliding jaw 5 is pivotally attached, as at 7, an arm 8, which at its rear end is riveted or otherwise rigidly attached to the collar 6. The upper ends of the sliding jaw 5 and the collar 6 are connected together by a rack-bar 9, which is arranged over the upper edge of the shank 1 and is provided with rack-teeth 10, which are adapted to engage the rack-teeth 4 and formed on the upper edge of the shank. Said rack-bar is pivotally attached, as at 11, to the sliding jaw and is provided at its rear end with a thin extension 12, which fits within a slot 13, formed in the upper edge of the collar 6, and is confined therein by a plate 14, fastened in place to said upper end of the collar.

The sliding jaw 5 and collar 6 are respectively provided on each side with pins 14^a and 14^a, which project into and are adapted to travel freely in the grooves 3, formed in the side of the shank.

Disposed on the opposite sides of the shank of the wrench are links 15, each of said links being pivoted at one end to the forward end of the arm 8, as at 16, and at its other end to the rear end of the rack-bar 9, as at 17, the arrangement being similar to that of a parallel-ruler.

Formed transversely in the collar 6 is a perforation 18, in which is endwise movably arranged a bolt 19, provided at one end with a U-shaped extension 20, which is movable in a perforation 21, formed in one side of the collar and communicating with the slot 13, formed in the upper edge thereof. The spring 22 is arranged in the perforation 18 underneath the head of the bolt and operates to draw the end of the U-shaped extension of said bolt into engagement with the thin extension 12 on the rack-bar. Said extension on the rack-bar has formed therein a perforation 23, which is adapted to be engaged by the hooked end of the bolt, and arranged beneath the said extension is a coiled spring 24, which is disposed within the slot 13 and operates to normally hold said extension elevated.

The jaws 2 and 5 are adapted to grasp the opposite sides of the nut when the device is intended to be used as a nut-wrench; but I provide serrated blocks 25 and 26, which are adapted to be attached to the adjacent faces on the sliding and fixed jaw by set-screws 27, whereby the wrench may be used as a pipe-wrench.

The operation of my improved wrench is as follows: By placing the finger upon the head 28 of the bolt or latch 19 and pressing the same inwardly the sliding jaw 5 may be quickly adjusted to fit the nut or pipe being operated upon. As the wrench is turned to turn the nut or pipe the pressure upon the end of the sliding jaw 5 rocks said jaw upon its fulcrum 7, and this rocking movement

through the medium of the links 15 communicates a downward pressure upon the rack-bar 9 and forces the teeth of the latter positively into engagement with the teeth on the upper edge of the shank of the wrench, thereby locking the sliding jaw firmly into position. The slight backward movement of the sliding jaw 5 also causes the rack-bar 9 to move slightly rearward, bringing the perforation 23 in the extension of said rack-bar into register with the hooked end 20 of the bolt 19, whereupon the spring 22 immediately forces said hooked end into the perforation of said extension and locks the rack-bar 9 into engagement with the rack-teeth formed on the shank of the wrench, so that the rigid and movable jaws will be positively held in their relative positions. By pressing upon the head 28 of the latch or bolt 19 the hooked end of the said latch or bolt will be withdrawn from the perforation in the extension of the rack-bar and the latter will be released, whereupon the coiled spring 24 will immediately throw said rack-bar up, thereby causing its teeth to disengage the teeth of the shank, whereupon the sliding jaw will be quickly adjusted to any desired position.

Having described my invention, what I claim is—

1. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw and a collar arranged on said shank, an arm connecting said shank and collar together on one side of the shank, a rack-bar connected at its opposite ends to said sliding jaw and collar and the other side of the shank, and links connected at their ends to the opposite ends of said arm and rack-bar, substantially as described.

2. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw and a collar arranged on said shank, a rack-bar connected at its opposite ends to said sliding jaw and collar on one side of the shank, an arm arranged on the other side of the shank and rigidly connected at one end to said collar and pivotally attached at its other end to the sliding jaw, and links disposed on the opposite sides of the shank and pivotally attached to the opposite ends of the sliding jaw and collar, substantially as described.

3. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw arranged on said shank and having a slight rocking movement thereon; a collar movably arranged on the shank, a rack-bar connected at its opposite ends to said sliding jaw and collar on one side of the shank, an arm disposed on the other side of the shank and pivotally attached at one end to the sliding jaw and rigidly attached at its opposite ends to the collar, and links disposed on the opposite sides of the shank and pivotally attached respectively to the opposite ends of said arm and rack-bar, substantially as described.

4. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw having a slight rocking movement on the shank, a collar movably arranged on the shank, a rack-bar connected at its opposite ends with the sliding jaw and collar on one side of the shank, an arm on the other side of the shank pivotally attached at one end to the sliding jaw and rigidly attached at its opposite end to the collar, links pivotally connected at their opposite ends, respectively, to the opposite ends of the arm and rack-bar, and means for locking said rack-bar in engagement with the shank of the wrench, substantially as described.

5. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw having a slight rocking movement on the shank, a collar movably disposed on the shank, a rack-bar pivotally connected at one end to said sliding jaw and movably fitted at its other end to the collar, an arm disposed on the other side of the shank and pivotally connected at one end to the sliding jaw and rigidly attached at its other end to the collar, links disposed on the opposite sides of the shank and pivotally connected to the opposite ends of said rack-bar and arm, and means for locking the rack-bar to said collar, substantially as described.

6. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw having a slight rocking movement on the shank, a collar movably disposed on said shank, a rack-bar pivotally connected at one end to the sliding jaw and provided at its other end with a perforated extension movably fitted in a slot in said collar, a transverse bolt arranged in said collar and adapted to engage said perforation and lock the rack-bar and collar together, an arm disposed on the opposite side of the shank and pivotally connected at one end of the sliding jaw and rigidly connected at its other end to the collar, and links disposed on the opposite side of the shank and pivotally connected at their ends to the opposite ends of said arm and rack-bar, substantially as described.

7. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw having a slight rocking movement on the shank, of a collar movably disposed on said shank, a rack-bar pivotally connected at one end to the sliding jaw and provided at its other end with a perforated extension movably fitted within a slot on the collar, a bolt movably arranged transversely in the collar and adapted to engage the perforation in said extension to lock the extension and collar together, an arm removably connected at one end to the sliding jaw and rigidly connected at the other to said collar, and links pivotally connected at their opposite ends to the opposite ends of said arm and rack-bar, substantially as described.

8. In a wrench the combination with a toothed shank, provided on its opposite sides

with longitudinal grooves and having a fixed jaw on one end, of a sliding jaw arranged on said shank and provided with projections adapted to travel in said grooves, a collar movably disposed on said shank, a rack-bar pivotally connected at one end to the sliding jaw provided at its other end with an extension removably connected to the collar, an arm disposed on the other side of the shank and pivotally connected at one end to the sliding jaw and rigidly connected at its other end to the collar, links connecting said rack-bar and arm together, and means for positively locking the rack-bar in engagement with the shank of the wrench, substantially as described.

9. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw and a collar arranged on said shank, a rack-bar pivotally connected at one end to the sliding jaw and provided at its other end with a perforated extension movably fitted in said collar, a U-shaped bolt arranged transversely in said collar and adapted to engage the perforation in said extension, an arm arranged on the opposite side of the shank and pivotally connected to the sliding jaw at one end and rigidly connected to the collar at its opposite end, links pivotally connected to the opposite ends of the rack-bar on said arm, and a spring arranged to normally hold the end of the bolt in engagement with said perforation, substantially as described.

10. In a wrench the combination with a toothed shank and a rigid jaw thereon, of a sliding jaw and a collar movably arranged on said shank, a rack-bar connected at its opposite ends to said sliding jaw and collar, means for drawing said rack-bar into engagement with the two ends of the shank when the wrench is operated, means for locking said rack-bar in engagement with the shank, and a spring arranged to throw said rack-bar out of engagement with the shank when the locking means are released, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM A. CUMBIE.

Witnesses:
T. J. ORR,
A. B. CUMBIE.