(No Model.)

J. W. CUSHMAN.

WRENCH.

No. 548,355. Patented Oct. 22, 1895.

Fig. 1.

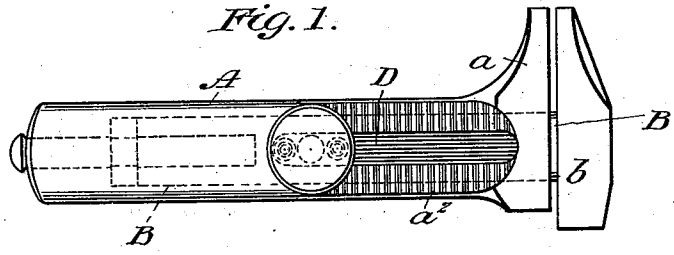


Fig. 2.

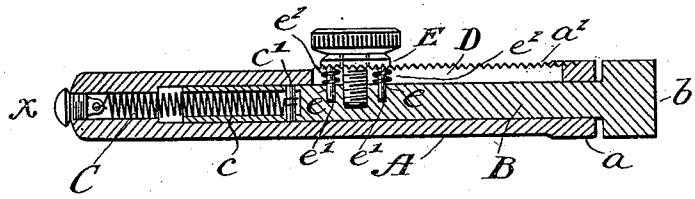


Fig. 3.

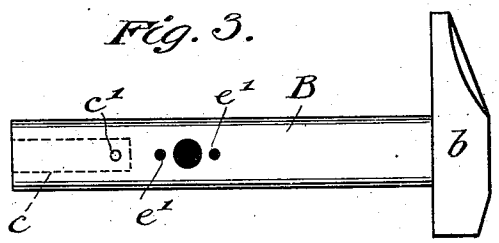
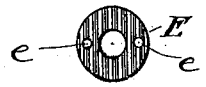


Fig. 4.



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SPECIFICATION forming part of Letters Patent No. 548,355, dated October 22, 1895.

Application filed April 3, 1895. Serial No. 544,257. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. CUSHMAN, a citizen of the United States, residing in the city, county, and State of New York, 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 designed more especially for the use of bicyclists, but applicable to other purposes.

In my improved wrench the outer jaw is mounted upon a stem that slides in the handle, to which the inner jaw is attached, and is normally drawn inwardly by a spring. The handle is slotted longitudinally and is formed with a roughened or serrated surface on each side of the slot. A clamping device consists of a set-screw passing through the slot and screwing into the stem of the outer jaw. The set-screw has a loose collar with a serrated face adapted to engage the serrated surface of the handle, and this collar is normally pressed upwardly away from the handle by coil-springs bearing on the sliding stem of the outer jaw and embracing pins on the under face of the loose serrated collar, that are seated in recesses in the sliding stem. The clamping device being loosened or unscrewed, the serrated collar is pressed out of engagement with the serrated faces of the handle, and by the pressure of the thumb upon the set-screw or clamping device the outer jaw may be forced outwardly to the desired extent, and when the thumb is removed the jaw is drawn toward the fixed jaw by the spring. There is no interference with these movements, because the loose collar is thrown up out of engagement with the face of the handle. When the set-screw is screwed up, the serrations of the collar engage the serrations on the handle and positively lock the sliding jaw. I prefer to mark a scale upon the sliding stem of the outer jaw. Such an arrangement may be conveniently applied to nuts or nipples more or less difficult of access. It is strong and positive in action; it is light, and may be manufactured at small cost.

In the accompanying drawings, Figure 1 is a plan view; Fig. 2, a longitudinal section; Fig. 3, a detail view of the sliding spindle carrying the movable jaw, and Fig. 4 an under-face view of the clamping-collar.

A indicates the handle, to which the fixed jaw *a* is permanently attached. The outer jaw *b* is carried upon a stem B that slides within the longitudinal opening in the handle. A coil-spring C lies partly within a recess *c*, formed or bored longitudinally in the end of the sliding stem, and is secured by a cross-pin *c'* passing through the stem. The other end of the spring is connected to a swivel attached to a short screw *x*, that screws into the reduced threaded end of the longitudinal passage or opening in the handle. The handle is slotted, as indicated at D, and a clamping or thumb screw located in the slot screws into the sliding stem B. A loose collar E, serrated on its under face, surrounds the clamping-screw between its head and the face of the handle. Two small pins *e e*, carried by this collar, extend into recesses *e' e'*, formed in the sliding stem, and are surrounded by small spiral springs e^2 e^2, that tend to press the collar outwardly. The face of the handle on each side of the slot is serrated, as indicated at a^2. When the clamping-screw is unscrewed, the springs e^2 e^2 throw the serrated collar out of engagement with the serrated faces of the handle and permit the stem to be forced outwardly against the tension of the spring C. When the object to be clamped is brought between the jaws, the spring C is allowed to draw the stem inwardly. The jaws may then be locked by tightening up the clamping-screw. The serrations on the side or face of the handle appear as distinct transverse cuts, and the under face of the collar, which is prevented from rotating by the pins *e*, is correspondingly serrated. Of course the serrating or roughening of the face of the handle and the face of the collar might be differently formed. For instance, they could both have ordinary file-like surfaces.

The longitudinal bore in the sliding stem, in which the spring lies, permits of the wrench being made relatively short and still give a long bearing of the stem in the handle part.

I claim as my invention—

1. The combination of the handle carrying the fixed jaw and having a longitudinal passage therethrough and a slot therein, the sliding stem carrying a movable jaw and sliding in such passage-way, the spring C attached respectively to the sliding stem and handle

and tending normally to draw the moving jaw inwardly, and a clamping device or thumb screw located in the slot of the handle and connected with the sliding stem, substantially as set forth.

2. The combination of the handle having the fixed jaw, the longitudinal passage-way therethrough and a slot therein, the faces of the handle at the sides of the slot being roughened or serrated, a coil spring attached respectively to the sliding stem and handle and tending to draw the moving jaw inwardly, the clamping screw occupying the slot in the handle and screwing into the stem, and the loose collar having a serrated face interposed between the head of the screw and the face of the handle, substantially as set forth.

3. The combination of the handle having the fixed jaw, a passage-way therethrough and a slot therein, the coiled spring attached respectively to the sliding stem and the handle and tending to draw the moving jaw inwardly, the clamping screw occupying the slot and screwing into the stem, a loose collar surrounding the screw, the pins thereon entering recesses in the stem, and the coiled springs surrounding the pins, substantially as set forth.

4. The combination of the handle having the fixed jaw, and a passage-way and slot therein, a sliding stem carrying the moving jaw and having a longitudinal bore or recess formed in its end, the coiled spring lying in such bore or recess and attached to the stem, a screw screwing into the threaded end of the passage-way in the handle and attached to the other end of the spring, and a thumb screw or clamping device located in the slot in the handle and screwing into the stem, substantially as set forth.

5. The combination of the two parts of the wrench carrying respectively the fixed and sliding jaw, a spring interposed between the two and tending to draw the jaws together, and a clamping device attached to and movable with the part carrying the sliding jaw for locking the jaws in any adjusted position, substantially as set forth, the clamping device affording a means for forcing the sliding jaw outwardly against the pressure of the spring.

In testimony whereof I have hereunto subscribed my name.

JOSEPH W. CUSHMAN.

Witnesses:
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