(No Model.)

J. DU SHANE.

WRENCH.

No. 455,183. Patented June 30, 1891.

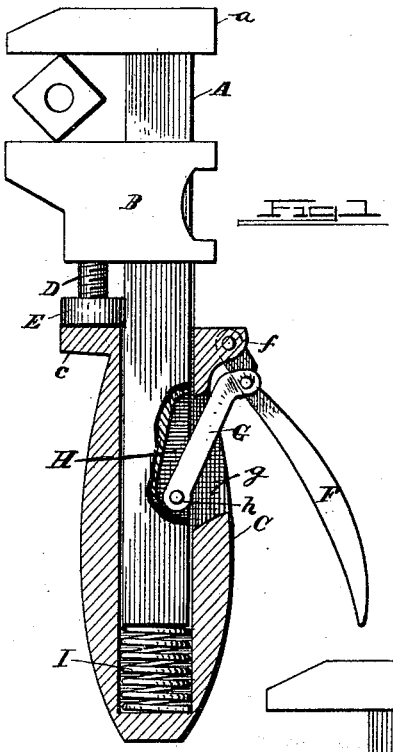

Fig 1

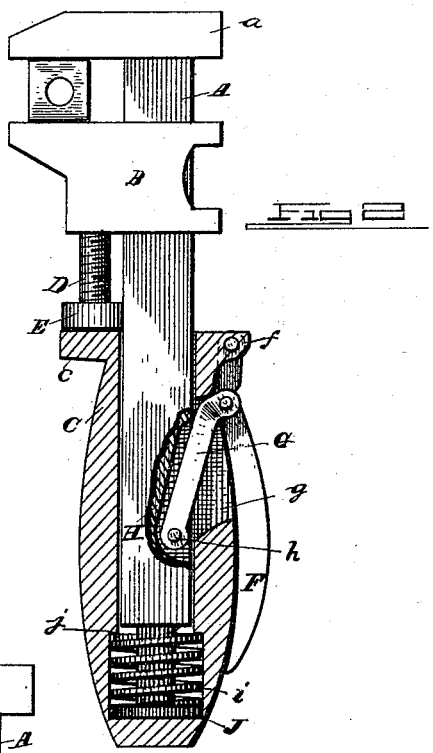

Fig 2

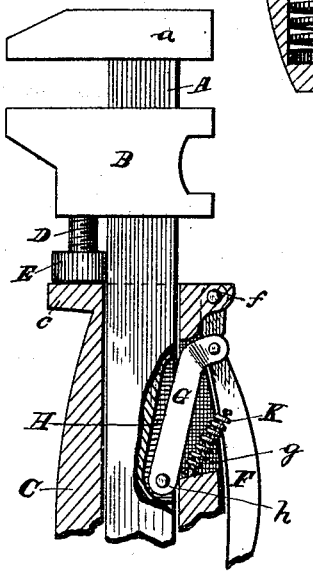

Fig 3

WITNESSES

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JAMES DU SHANE, OF SOUTH BEND, INDIANA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 455,183, dated June 30, 1891.

Application filed November 22, 1890. Serial No. 372,335. (No model.)

To all whom it may concern:

Be it known that I, JAMES DU SHANE, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a longitudinal partly-sectional view of my improved nut-wrench. Fig. 2 is a similar view showing a slight modification. Fig. 3 is a similar view showing a slight modification.

This invention is an improvement in nut-wrenches; and its object is to provide a sliding-jaw wrench and to so construct the same that the sliding jaw may be quickly thrown into or out of working position, may be independently adjusted to suit nuts of varying size, and can be operated without entirely disengaging the wrench from the nut; and to these ends it consists in the novel construction and arrangement of parts hereinafter clearly described and claimed.

Referring to the drawings by letter, A designates the straight shank of the wrench, and *a* the fixed jaw or head on one end thereof.

B is the sliding or movable jaw sliding on the shank, as usual.

C designates a handle fitted loosely on the other end of the shank, so that it can slide or telescope thereon. This handle is provided on its inner end with a depending perforated ear *c*, in which is journaled one end of a screw-shaft D, the threaded front end of which engages a threaded socket in jaw B, and E is a hand-button on shaft D, by which it is turned and so adjusts jaw B toward or from handle C.

F designates a short lever pivoted at its front end between ears *f* on the inner end of handle C, and G designates a link pivotally connected to lever F near the fulcrum thereof by one end and extending through a slot *g* in handle C and curved forwardly and pivoted to the shank A, as at *h*, the shank being slotted or recessed, as at H, to accommodate this link. The lever F and link G form a toggle connection between the handle and shank, which toggle is straightened when lever F is forced toward the handle or lowered, and when thus lowered the handle is slid on the shank, or vice versa, in such manner as to forcibly move jaw B toward jaw *a*, the amount of this movement being regulated by the length of the toggle connections.

In using the wrench, jaw B is first adjusted toward jaw A so as to grasp the nut by means of the screw-shaft, as usual. Then the operator grasps the handle and lever F, drawing the latter toward the handle and consequently through the connections, forcing jaw B toward jaw *a* and firmly gripping the nut so that it cannot slip, and as more power is exerted to draw lever F to the handle the jaws will tighter bite the nut. Instead of removing the wrench from the nut after each forward movement, lever F is released sufficiently to relax the toggle-joint and the wrench turned backward. The jaw B, being thus freed, will move away from jaw *a* and ride over the corners of the nut until the wrench is shifted to first position. The lever F is grasped or forced in toward the handle during the forward stroke of the wrench, causing the jaws to grip and turn the nut as before.

In order to facilitate the spreading apart of the jaws when the shank is turned backward and lever F released, I preferably employ springs, which may be arranged as shown in the several figures.

In Fig. 1 a coiled spring I is placed in the hollow handle between its closed end and end of shank, the natural tendency of this spring being to force the handle off the shank, thereby keeping the jaws open. In Fig. 2 a coiled spring *i* is slipped on the inner end of the shank, which is provided with a head J, against which the end of spring bears, while the other end of spring bears against an annular shoulder *j* in the handle. This spring acts to draw the handle on the shank and consequently close the jaws. In Fig. 3 a coiled spring K is connected to lever F and the handle and tends to draw the lever to the handle, thus keeping the jaws closed. By properly altering the form of the fixed or movable jaw the wrench can be used for pipes.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent thereon, is—

1. The combination of the shank, the fixed and movable jaws thereon, and the handle loosely mounted on the shank and connected to the movable jaw, with the lever and link forming a toggle-joint connection between the handle and shank, for the purpose and substantially as described.

2. The combination of the shank and fixed jaw, the movable jaw mounted on the shank, and the loose handle thereon connected to said movable jaw, with the lever pivoted to the handle and the link pivotally connected to said lever and to the shank, as and for the purpose set forth.

3. The combination of the shank, its fixed jaw, the movable jaw thereon, and the handle loosely mounted on said shank and connected to the movable jaw, with the lever and link constituting a toggle joint connection between the shank and handle, and the spring, substantially as and for the purpose specified.

4. The combination of the shank, the fixed jaw attached thereto, the movable jaw and loose handle thereon, and the device adjustably connecting said movable jaw to the handle, with the lever pivoted to said handle and the link pivotally connecting said lever to the shank, substantially as described.

5. The combination of the shank, the fixed jaw attached thereto, the movable jaw and handle thereon, and the screw-shaft adjustably connecting said movable jaw and handle, with the lever and link forming a toggle-joint connection between the handle and shank, and the spring for controlling the position of the handle in relation to the shank, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES DU SHANE.

Witnesses:
RUFUS ROMINE,
JEANIE ANDERSON.