J. W. HYATT.
Wrench.

No. 209,569. Patented Nov. 5, 1878.

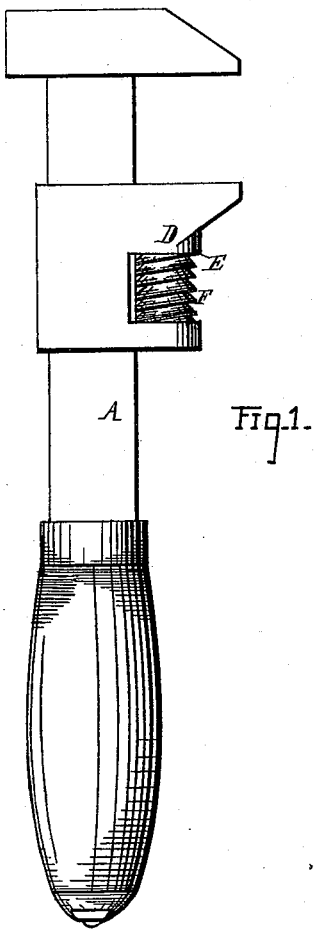

Fig. 1.

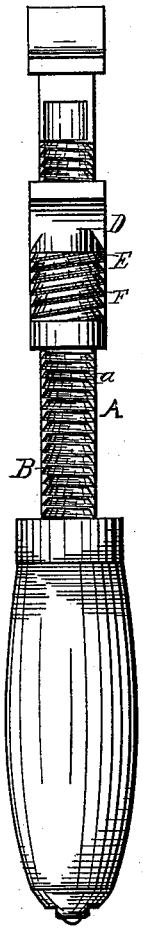

Fig. 2.

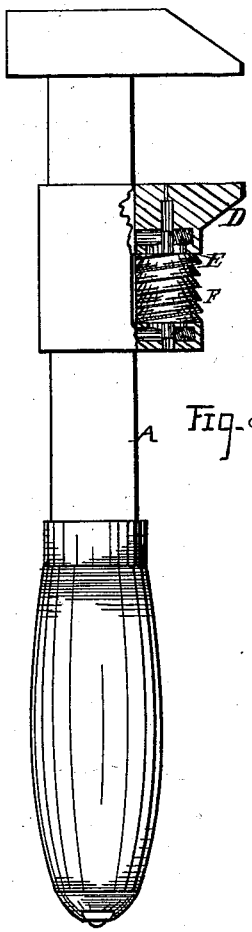

Fig. 3.

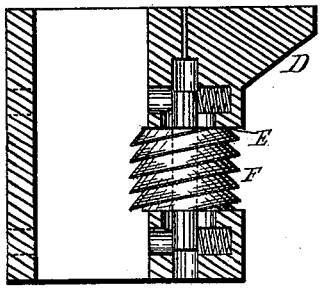

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN W. HYATT, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **209,569**, dated November 5, 1878; application filed March 7, 1878.

To all whom it may concern:

Be it known that I, JOHN W. HYATT, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Wrenches, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to an improvement in wrenches; and consists in providing the wrench-bar upon one side with a mutilated female thread, which is preferably undercut, and which is so situated as to be capable of being engaged by a male screw, also preferably undercut, and mounted on axles provided at each end, which have their bearings in the jaw of the wrench at each side of the slot, the bearings being so constructed as to permit the male screw to be rotated or moved toward or away from the wrench-bar on lines parallel therewith, the said male screw being guided somewhat by the sides of the slot, wherein it fits smoothly, being of a diameter equal to or greater than its length, to prevent its tilting or canting and consequent binding upon being moved. The axles of the screw are provided with or operated upon by suitably-placed springs, causing the screw to engage the female thread, or permitting the screw to be raised clear of the said thread.

The jaw of the wrench can be moved on the wrench-bar toward the head of the wrench, the threads of the screw and mutilated female thread passing over each other without obstruction; or the jaw can be retracted toward the handle by raising the screw clear of the female thread, which permits the motion last aforesaid.

The male screw may be constructed as above indicated, though it is plain that it would be operable, but not so satisfactorily, if of greater length than diameter.

The above construction permits the male screw to be moved toward or retracted from the wrench-bar in such manner that its axis is always parallel with the axis of the wrench-bar. This prevents uneven movement of the screw, and insures the full contact of the screw and female thread when the former is depressed, and instant and entire disengagement from end to end as the screw is elevated.

It is also plain that in the above device the jaw can be moved to assume a relation to the head very nearly approximating to the size of the object to be griped, and then, by rotating the screw, any excess of space be taken up, and a firm gripe secured; but should the object be of a size exactly corresponding to the distance between the position the jaw can be moved to, and the head of the wrench, then it is only necessary to suitably advance the jaw into contact with the object.

Figure 1 is a side elevation of the invention. Fig. 2 is a front view of same. Fig. 3 is a side elevation, partly in section. Fig. 4 is a sectional view of the sliding jaw.

In the accompanying drawings, A represents the wrench-bar, provided on one side or edge with the mutilated female thread B, which is undercut—that is, the threads *a* have an inclination transversely downward toward the handle of the wrench. Upon the wrench-bar A, and capable of movement thereon, is mounted the jaw D, having in that portion thereof facing the female thread a slot, E, the walls or sides of which are parallel, and preferably vertical, and in them are provided the elongated bearings to receive the axles at each end of the male screw F, and thus enable its rotation or retraction from the wrench-bar or its approach thereto.

The male screw F fits smoothly in the slot E, the walls of which assist in directing its movement, and is preferably of less length than diameter, to the end that, in being moved, it will not be canted or tilted, which would have a tendency to cause it to bind between the walls of the slot. The edges of the threads of the male screw F are milled to facilitate its being rotated, and are so cut as to readily and fully engage the parts of the mutilated female screw B when the two are in the locking position. The screw F is cylindrical in cross-section, and its axles aforesaid are operated upon by springs placed in the bearings thereof, so as to give the screw a tension or pressure toward the mutilated female thread, and to hold the screw in contact therewith.

As the threads of the male screw and female thread incline parallel to each other and on planes transverse to the wrench-bar, the jaw of the wrench can be advanced toward the head thereof, as desired, by simply moving it in that direction; but the same construction of the said threads prevents the retraction of

the jaw until the screw is raised; hence, should the object to be griped be of such size as to be capable of being accurately held between the head and jaw in any position they can assume, it is only necessary to advance the latter; but should said object be of less size than the distance between the head and jaw when the latter is advanced as near as it can be to the object, then it is only necessary to move the jaw as close to the object as possible, and rotate the male screw, which further advances the jaw, taking up the excess of space and bringing the jaw firmly against the object. In this movement the jaw is fully sustained on the wrench-bar in all positions, and has no play or lost motion, whereby great strength is obtained and an absolutely accurate and certain gripe is secured.

To move the jaw toward the handle of the wrench, it is only necessary to elevate the male screw clear of the female thread, which done, the jaw can be moved either up or down on the bar, as desired.

It should here be stated by the term "parallel movement," as given in the summary of the invention hereinafter, is intended a movement of a male screw toward or away from a female-screw in such manner that in said movement the axes of said bodies are parallel to each other.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a wrench, a mutilated female screw in combination with a male screw, the latter mounted in spring-bearings in the jaw of the wrench, which is capable of movement on the wrench-bar, substantially as specified.

2. In a wrench, a male screw secured in the jaw of the wrench and provided at each end with spring-bearings, which cause it to engage a mutilated female screw on the wrench-bar, and permit the jaw of the wrench to be moved toward the head of the wrench, as stated, or toward the handle of the wrench, by raising the male screw and retracting the jaw, substantially as specified.

3. The male screw F, having the edges of its thread milled and mounted in spring-bearings at each end, substantially as set forth.

4. A wrench-jaw provided with a slot, upon each side of which is placed an elongated slot or bearing, to receive the axles of a male screw and permit the movement and rotation thereof in the slot, substantially as specified.

5. A wrench-bar having a mutilated female thread, in combination with a male screw capable of being rotated, and also of being moved toward or away from the wrench-bar, its axis in such movement being parallel to the axis of the wrench-bar, the movements being independent of such other, substantially as set forth.

6. A locking mechanism engaging the wrench-bar at more than one point, capable of independent rotation, and of independent parallel movement toward or from the wrench-bar, substantially as set forth.

7. In a wrench, a male screw mounted in the jaw of the wrench, and capable of being rotated and moved with its axis parallel to the surface it engages, substantially as specified.

8. In a wrench, a male screw of a diameter equal to or greater than its length, fitting in a slot in the jaw of the wrench, and capable of independent rotation and parallel movement, in combination with a mutilated female thread, substantially as set forth.

9. In a wrench, a locking mechanism placed upon one side of the wrench-bar, and capable of being either rotated or moved with its operative surface parallel to the surface it engages, substantially as specified.

In testimony that I claim the foregoing improvement in wrenches, as above described, I have hereunto set my hand this 5th day of March, 1878.

JOHN W. HYATT.

Witnesses:
SAMUEL S. TIFFANY,
WILLIAM R. SANDS.