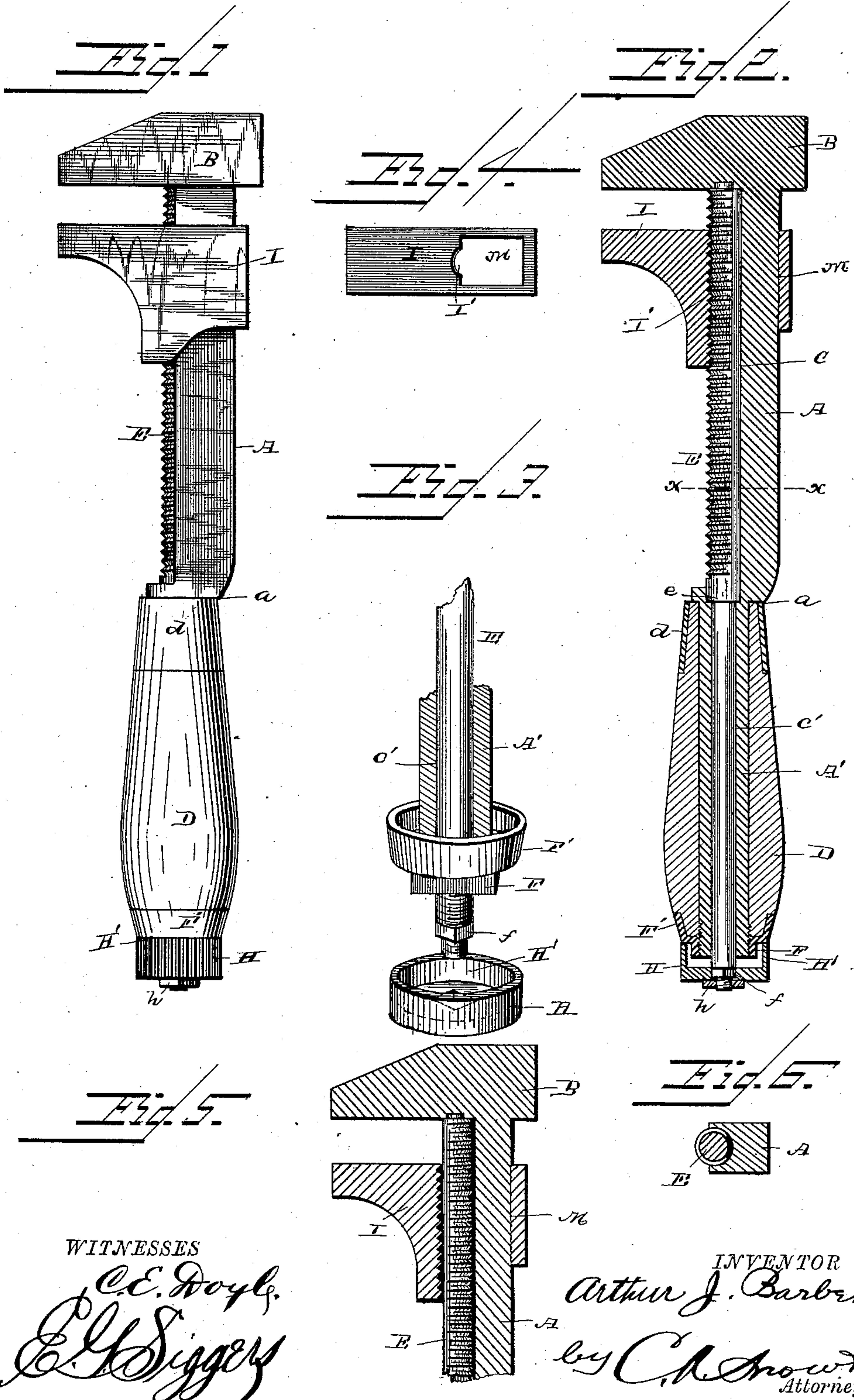


(No Model.)

A. J. BARBER.
WRENCH.

No. 370,848.

Patented Oct. 4, 1887.



WITNESSES

C. E. Doyle
E. L. Siggers

INVENTOR

Arthur J. Barber
by *C. A. Mowley*
Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR J. BARBER, OF AUBURN, NEW YORK, ASSIGNOR OF ONE-HALF TO
CHARLES D. GAYLORD, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 370,848, dated October 4, 1887.

Application filed May 17, 1887. Serial No. 238,536. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. BARBER, a citizen of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented a new and useful Improvement in Wrenches, of which the following is a specification.

The invention relates to improvements in wrenches; and it consists in a certain novel construction and arrangement of parts for service, fully set forth hereinafter, and specifically pointed out in the appended claims.

In the drawings hereto annexed, Figure 1 is a side view of the wrench. Fig. 2 is a longitudinal section thereof. Fig. 3 is a detail view of the lower end of the handle, showing the manner of securing the ferrule and milled nut in place. Fig. 4 is a plan view of lower jaw. Fig. 5 is a section of wrench to show smooth side of rod outward. Fig. 6 is a section on line *x x*, Fig. 2.

Referring by letter to the drawings, A designates the shank of the wrench, to the upper end of which is attached the stationary or rigid jaw B, and C is a groove formed in one side of the said shank and extending its entire length. The lower portion of the said shank is reduced, as at A', thus forming a shoulder, *a*, and the said reduced portion is provided with an opening, C', therethrough, to align with the groove in the upper portion of the shank, the said opening C' being, however, slightly smaller than the groove C.

D designates a handle having a longitudinal opening therethrough, adapted to receive the lower portion of the shank, and the ferrule *d* on the upper end of the said handle is adapted to bear against the shoulder *a* at the lower end of the larger portion of the shank. The extreme lower end of the shank, beyond the end of the handle, is threaded, and on the said threaded portion is screwed the nut F, having a ferrule, F', formed integrally therewith, to fit on the lower end of the handle, and it will be seen that when the said nut F is screwed up tightly the handle will be clamped securely between the shoulder *a* on the shank and the ferrule F' on the said nut, and thus kept from rattling or becoming loose.

E represents a rod secured in the groove C and the opening C' in the shank, pivoted at the upper end in a socket in the lower side of the upper or rigid jaw and extending the entire length of the shank, the portion in the groove being threaded on one side and smooth on the other, and the lower portion in the opening C' being reduced, thus forming a shoulder, *e*, to operate on the shoulder formed at the upper end of the said opening C'. The lower end of the rod E, beyond the nut F, is squared, *f*, and on the same is fitted the squared opening in the milled nut H, and a small nut, *h*, is screwed on the extreme lower threaded end of the rod E on the outer side of the milled nut, to hold the same in place. The upper side of the milled nut is provided with a flange, H', and the upper edge of the said flange is adapted to close up tightly against the lower side of the ferrule F' on the lower end of the handle, to completely conceal the arrangement of the parts at the end of the handle and give the appearance thereto of a milled ferrule below the plain ferrule F'.

I designates the movable jaw of the wrench, provided with a vertical opening, M, therein to embrace the shank of the wrench, and the side of the said opening adjacent to the rod E is provided with a threaded groove, I', as shown by the drawings. The rod E is threaded on one side and smooth on the other, as before described; and it will be seen that when the threaded side is exposed and engaging with the threads in the groove I' in the movable jaw the smooth side will be concealed in the groove in the shank, and when the threaded side is concealed the smooth side is exposed and the movable jaw will slide freely thereover.

To adjust the wrench to fit any desired nut, turn the milled nut until the smooth side of the rod E is exposed, move the jaw I up to the nut, and turn the said milled nut to the left, (as if unscrewing a right-hand screw,) and the said movable jaw will be forced up and clamped tightly against the nut to be turned.

The advantages gained by providing the adjusting means for the movable jaw at the lower extremity of the handle are various. The head or forward end of the wrench is thus

made lighter, and therefore easier to handle. The appearance of a wrench so constructed is much neater than if the clamping mechanism is attached to the movable jaw. The wrench
 5 may be used in situations where there is a limited space to operate the handle more easily than if the adjusting means were near the head, as it is not necessary to pass the hand beyond the handle to adjust the movable jaw; also,
 10 with two wrenches of the same length a larger nut can be clamped with one constructed as herein described than with one provided with the adjusting means near the head, for the reason that the range of motion of the movable
 15 jaw in this wrench extends the entire length of the shank above the handle, none of the said space being occupied by the said adjusting means; also, the construction of the improved wrench is very simple, and the strain in turn-
 20 ing a bolt or nut is brought in line with the center of the tool, thus enabling the tool to stand great strain; also, the threaded adjusting-rod being extended the entire length of the wrench, it will be seen that there is less lia-
 25 bility of the movable jaw becoming displaced or in any way altered in position than if the rod were shorter, and, also, as the said rod extends down the center of the handle, it is evident that a jar upon the tool will not have as
 30 much effect to disarrange the parts as if the same were on one side of the said handle.

Having thus described the construction, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent
 35 of the United States, is—

1. The combination, in a wrench, of the shank A, rigid jaw B, groove C, and longitudinal opening C' in the said shank, handle secured on the lower end of the shank, rod E, passing
 40 through the groove and opening in the shank, milled nut H, secured to the lower end of the rod, the said rod being smooth on one side and threaded on the other, and the movable jaw I, to operate on the said shank and having a
 45 threaded groove, I', to receive and engage the threaded side of the said rod E, substantially as and for the purpose set forth.

2. The combination, in a wrench, of the shank A, having a groove, C, in the upper end, shoulder a, and reduced lower end having an open-
 50 ing, C', therein, handle D, to fit on the lower reduced end of the shank and bear against the

said shoulder a, nut F, to screw on the lower end of the shank and having a ferrule, F', thereon to fit over the lower end of the handle, 55 rigid jaw B on the upper end of the shank, rod E, pivoted in the lower side of the said jaw and adapted to operate in the said groove C and opening C', milled nut H, to be secured on the lower extremity of the said rod, the upper 60 portion of the said rod being threaded on one side and slightly larger than the lower portion in the opening C', and the movable jaw I, having an opening therein, and a threaded groove in one side of the said opening to receive the 65 side of the rod E, all to be constructed and operated substantially as and for the purpose set forth.

3. In a wrench, the shank and handle, in combination with the rigid and movable jaws, 70 the latter moving on the shank, and a longitudinal turning rod, E, engaging with the movable jaw to lock the same, the said rod E passing entirely through the handle, the latter thereby serving as a bearing for the rod, and 75 a nut, H, fitted on the extended end of the rod E outside of and at the extreme outer end of the handle, said nut being fixed on the rod E and serving as a means for operating the same, 80 as set forth.

4. In a wrench, the shank A, having its lower portion made tubular or hollow, combined with the rigid and movable jaws, the latter moving along the upper portion of the shank, the rod E, passing through an opening 85 in the movable jaw and constructed to lock the same when the rod is turned, the said rod passing through and beyond the tubular portion of the shank, the handle D, fitted around the tubular portion of the shank, the nut F, to 90 lock the handle and shank together, and the nut H, fitted rigidly on the extended end of the rod E outside of the outer end of the handle and adapted to fit over the nut F, said nut H serving as a means for operating the rod 95 E, as set forth.

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

ARTHUR J. BARBER.

Witnesses:

C. J. WILLIAMS,
 F. L. ALLEN.