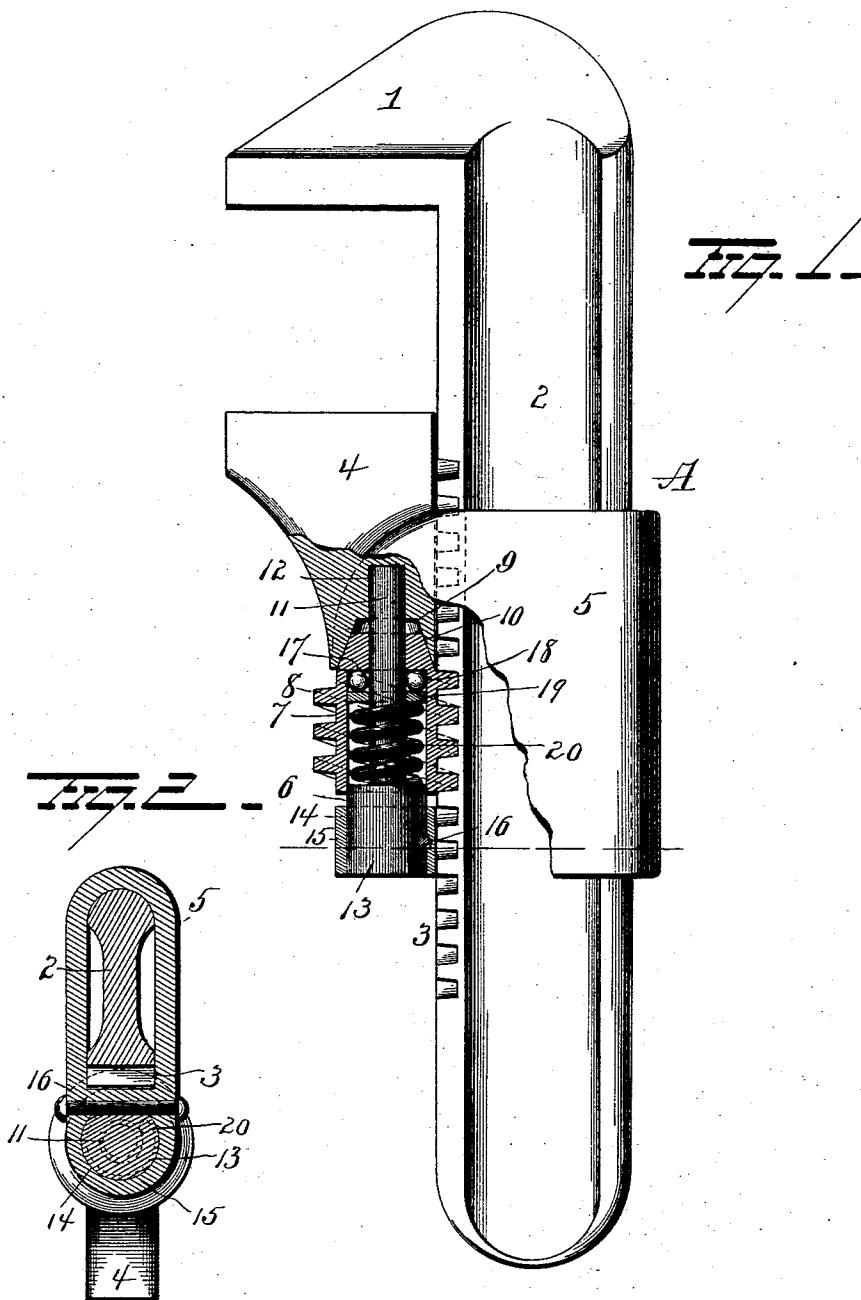


(No Model.)

M. WENGER.
WRENCH.

No. 572,185.

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WRENCH.

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To all whom it may concern:

Be it known that I, MILTON WENGER, a resident of New Holland, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in wrenches, the object of the invention being to provide a wrench with simple and efficient devices for effecting a movement of the jaws relatively to each other, said devices being so constructed and arranged that by their operation the movable jaw can be made to recede from the fixed jaw and so that said jaws can be made to approach each other without the necessity for manually operating said devices.

A further object is to provide a wrench having a fixed and a movable jaw with a simple and efficient operating-nut which shall be so constructed and arranged that when turned in one direction the jaws will be separated from each other and locked in such manner as to prevent their further accidental separation, and so that the jaws can be made to approach each other without manipulating said nut.

A further object is to construct a wrench which shall be simple in construction, which can be accurately and quickly adjusted to a nut or other device, and which shall be effectual, in all respects, in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a wrench, partly in section, illustrating my invention. Fig. 2 is a cross-section.

A represents a wrench to which my improvements are applied, and comprises a fixed jaw 1, having a shank 2, one edge of which latter is made with numerous threads 3 of long pitch, and a movable jaw 4, having a yoke 5, which loosely embraces the shank 2 and adapted to slide thereon. The yoke 5 is

cut away behind the jaw 4 to form an opening 6 for the reception of the operating-nut 7, said nut being provided externally with threads 8 of long pitch adapted to mesh with the threads on the shank 2. The end wall of the opening 6 next to the jaw 4 is made with a conical recess 9, into which the conical end 10 of the nut 7 is adapted to enter and with the wall of which said conical end 10 is adapted to have frictional contact. The nut 7 is made hollow and is mounted to revolve on a pin 11, the forward end of which passes through a hole in the forward end of the nut and enters a socket 12, which communicates with the conical recess 9. The other end of the pin 11 is provided with a head 13 of a size to neatly but loosely enter the open end of the nut, said head also entering a hole 14 in the arm 15 of the yoke and rigidly secured in said opening by means of a rivet or key 16.

The forward end of the nut is made so as to form an internal shoulder 17, which forms a seat for a series of antifriction-balls 18, which are retained in place against said seat by means of a washer 19, encircling the pin 11. A spring 20 also encircles the pin 11 within the hollow nut and bears, respectively, against the head 13 of the pin and against the washer 19. The spring 20 serves to retain the antifriction-balls in place and also to normally force the conical end of the nut into frictional contact with the wall of the conical recess 9.

From the construction and arrangement of parts above described it will be seen that by turning the nut in one direction the jaws of the wrench can be separated. Any pressure which might be brought to bear against the jaws (other than the manipulation of the nut) to further separate them will cause the conical end of the nut to bind tightly against the wall of the conical recess 9 and thus form in effect a frictional clutch or lock, which will prevent any possibility of such further separation of the jaws by any pressure or force which might be brought to bear against them, except the operation of the nut. Thus the jaws will be automatically locked from accidental separation of the jaws from any cause whatever. Should it be desired, however, to cause the jaws to approach each other, this may be accomplished by merely pushing said

jaws toward each other without even manipulating the nut. The reason of this is clear when it is remembered that the threads on the shank 2 and the nut are of long pitch 5 and that when pressure is applied against the jaws, so as to cause them to approach each other, the nut will be moved longitudinally (being made sufficiently shorter than the nut-opening to permit such movement) and 10 the conical end thereof moved away from the wall of the conical recess 9, thus releasing the nut from its frictional contact with the yoke of the movable jaw and permitting it to revolve freely.

15 My improvements are very simple in construction, comparatively cheap to construct, and effectual in all respects in the performance of their functions.

20 Slight changes might be made in the details of construction herein set forth without departing from the spirit of my invention or limiting its scope, and hence I do not wish to limit myself to the precise details of construction herein set forth; but,

25 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench, the combination with the fixed and the movable member thereof, one 30 of said members being provided with a portion having threads of long pitch, of a nut having threads of long pitch to mesh with said first-mentioned threads, said nut being mounted in one member of the wrench in 35 such manner that when pressure is applied to said members of the wrench to separate them, said nut will have frictional contact with the member in which it is located and so that when pressure is applied to the mem- 40 bers to cause them to approach, such frictional contact will be relieved, substantially as set forth.

2. In a wrench, the combination with the fixed jaw and a shank projecting therefrom, 45 said shank having threads of long pitch, of a movable jaw having a yoke to embrace said shank, said yoke having a nut-opening, of a nut mounted in said opening and having threads of long pitch to mesh with the threads 50 on the shank of the fixed jaw, a conical seat for one end of said nut, and a spring for forcing said nut against said conical seat, substantially as set forth.

3. In a wrench, the combination with a 55 fixed and a movable member, one of said members having a portion with threads of long pitch, of a nut having threads of long pitch to mesh with said first-mentioned

threaded portion, said nut being supported in one member of the wrench and a spring 60 located within said nut and adapted to force it into frictional contact with the member of the wrench in which it is supported, substantially as set forth.

4. In a wrench, the combination with a 65 fixed member and a movable member having a portion with threads of long pitch, of a hollow nut having threads of long pitch to mesh with said first-mentioned threads and revolv- 70 ably mounted in one member of the wrench, said nut being adapted to have a slight longitudinal movement and to have frictional contact with the member of the wrench in which it is mounted, an internal shoulder at one end of the nut, antifriction-balls bearing 75 against said shoulder, a washer in the nut bearing against said antifriction-balls, a fixed pin having a head at one end and passing loosely through the nut and washer for revolv- 80 ably supporting the nut, and a spring within said nut bearing at its respective ends against said washer and against the head of the pin on which the nut is mounted, sub- 85 stantially as set forth.

5. In a wrench, the combination with a 85 fixed jaw and a shank projecting therefrom, said shank having a number of threads of long pitch on one edge, of a movable jaw, a yoke on said movable jaw embracing said shank, said yoke having a nut-opening there- 90 in and one wall of said opening having a conical recess therein, a hollow nut in said opening, a pin fixed in the yoke and passing through the nut-opening for revolvably sup- 95 porting the nut, one end of said nut being made conical to enter said conical recess, external threads of long pitch on said nut adapted to mesh with the threads on the shank, an internal shoulder at the conical end of the nut, antifriction-balls bearing against said 100 shoulder, a washer encircling the pin on which the nut is mounted and bearing against said antifriction-balls, a shoulder at the rear end of said pin, and a spring located within the nut and bearing at its respective ends 105 against said last-mentioned shoulder and the washer, substantially as and for the purpose set forth.

In testimony whereof I have signed this specification in the presence of two subscrib- 110 ing witnesses.

MILTON WENGER.

Witnesses:

MARTIN D. LAFFERTY,
LLOYD H. OVERLY.