To all whom it may concern:

Be it known that I, Victor L. Ochoa, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented a certain new and useful Improvement in Wrenches, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates broadly to improvements in wrenches, but in its more intense aspect it deals with the construction of the end wrenches, rather than the screw adjusting wrenches. It will be conducive to clearness to disclose this invention through one of its embodiments in such relation as thereby certain of its characteristics, and advantages will more prominently appear.

This invention has in view, among other objects, the provision of a wrench, automatically self-adjustable and self releasable, without in the least impairing the tension, which throughout, is uniform in its application to all sizes and forms of nuts.

Another object residing within the contemplation of this invention is to devise a simple and effective mechanism for enabling the operator to use a single hand, as well as to save the time lost in adjusting wrenches. In general, this invention seeks to provide a device of the nature disclosed, which from a practical operative standpoint, will possess a high degree of effectiveness and durability, and which from structural considerations, will be of the greatest possible simplicity,—being composed of but few parts, all of which may be made at a minimum of cost, and which are so correlated as to be capable of being very readily assembled to accomplish the purpose intended.

Other objects will be in part obvious from the annexed drawings, and in part pointed out in the following description.

In order that this invention may be more fully disclosed and made comprehensible to others skilled in the art, drawings illustrating one of the many possible adaptations of the same are annexed as a part of this disclosure, though obviously, the underlying features of the same may be otherwise amplified by modifications deductible from this disclosure and accordingly comprehended within the intended scope of the annexed claims.

In the accompanying drawings, corresponding parts are similarly referred to by like characters of reference throughout the figures of which Figure 1 is a front elevation of one embodiment of this invention, certain parts being shown in broken lines, so as to more clearly exemplify the features of my construction.

Figure 2 is a side elevation of the device shown in Figure 1, showing, in broken lines, the positions of the working parts of the apparatus, as well as its lever.

Figure 3 is a side elevation of the moving member, or jaw, of the same, shown in Figures 1 and 2, and Figure 4 is a cross sectional view of the same moving member or jaw, shown in Figure 2.

Continuing now by way of a more detailed description of my device with such occasional reference to the drawings as may be demanded by the reference characters, A comprises a jaw or member with a protruding lip, B, and into which is cut a passage C. The other jaw D is formed with a shank D' extending at right angles to the jaw D, this shank operating within the passage C, this shank or yoke D' being formed with abutments d extending at right angles to the length of the shank. The jaw D travels, or is pushed to and fro by the member, or lever, E, journaled at F and at the upper end of which lever is a partly circular head e whose function it is to impart to the moving member D, a reciprocating movement, and in that way pushing in and out, the aforesaid member, or jaw D.

It will be noted from the drawings that the circular head e has a diameter nearly equal to the distance between the abutments or shoulders d.

The lip B on the jaw, or member A, is made a trifle longer than the jaw D to enable the jaws to open automatically on coming in contact with any surface or nut by means of the lever E, and then by pressing the inside of the jaw D, against the nut, the jaws automatically come together and the cam action of the circular head e holds the nut firmly to the point that it admits of no slip. This will be easily understood by a glance at the fulcrum, at F, and the point of resistance on the surface of the cam, at G.

Attention is particularly called to the shape and function of the circular head e on the lever E and to the position of the pivot F with relation to this circular head. It
will be noted that the fulcrum for the lever E is disposed just clear of the shank D' of the movable jaw or member D and that the peripheral face of the head constitutes a cam or continuous wedge which bears against the lug or abutment D on the member D' so that as the lever E is drawn toward the left in Figure 1, the peripheral face of the circular head will exert a camming and wedging action on the lug D, which will draw the movable jaw D toward the relatively fixed jaw. I am aware of the fact that wrenches constructed somewhat like my wrench have been devised, but in all of the wrenches of this character known to me the fulcrum of the lever is farther away from the point of resistance (that is the point of contact between the peripheral face of the head of the lever and the lug D) than the length of one of the faces or sides of the nut which it is desired to turn, and if this is the case I have found in practice that the wrench will slip over a nut which is at all tight or fast. It is further to be noted that the handle or lever E in my construction requires but a slight movement to shift the movable jaw D and that the pressure upon the movable jaw D or resistance to the movement of the jaw in an opposite direction to that exerted by the lever E will not cause the opening of the jaw. In other words, in the use of this wrench it is not particularly the pressure exerted by the hand on the lever E which holds the wrench clamped upon the nut, but it is the camming action of the circular head which does this. The hand of the operator rotates this cam but the cam wedges against the lug D and causes the movable jaw to shift toward the fixed jaw. This is the essential feature of my invention, as by the use of this eccentrically pivoted head, which acts like a true cam, I can apply more power to close the jaws of the wrench.

It will be seen that with this construction it is only necessary to slip the wrench in place, engage the longer jaw against the nut with the jaws open, and then draw upon the handle E, which would cause the jaws to close and bind firmly upon the nut so that there can be no possible slipping of the wrench over the nut however fast or tight this nut may be. This wrench opens at the touch of the nut.

Inasmuch as the special features of this invention could be readily modified in form and utilized in many seemingly different constructions, I make the foregoing disclosures in an illustrative rather than a limiting sense, and I also desire it to be understood that the language of the following claims is to be interpreted as covering the generic and specific features of this invention, and all statements of the scope thereof, which form the aspect of the prior art, might be said to fall therebetween.

I claim:
1. A wrench comprising a jaw, a second jaw movable with relation to the first and having a shank extending at right angles to the second named jaw, and a handle formed with a circular head larger in diameter than the width of the handle at the junction of the head, the handle being pivoted adjacent the junction of the head with the handle to said first named jaw, said pivot for the handle being disposed closely adjacent the shank for the second named jaw and the periphery of the head operating in the manner of a cam against the shank of the second named jaw to cause its movement relative to the first named jaw upon an oscillation of the handle.

2. A wrench comprising a pair of jaws movable with relation to each other, one of said jaws having a shank slidably engaged with the other jaw and formed to provide a laterally projecting pair of abutments, and a handle formed with a circular head having a diameter nearly equal to the space between the abutments, the handle being pivoted to one jaw adjacent the other jaw and the periphery of the head operating as a cam against the abutments on said shank.

3. A wrench comprising a jaw having an opening, a second jaw having a shank slidably mounted in said opening, the shank having lateral extensions forming opposed abutments, and a handle formed with a circular head, the handle being pivoted adjacent its head to the first named jaw and opposite the pivot of the handle being disposed adjacent the shank of the second named jaw, the diameter of the head being nearly equal to the distance between said abutments on the second named jaw and the periphery of the head having positive operative engagement against both of said abutments whereby to cause a movement of the jaws upon an oscillation of the handle.

4. A wrench comprising a jaw having a body portion extending at an angle to the jaw, said body portion being slotted, a second jaw having a shank extending at right angles to the jaw and sliding through said body portion, said shank being formed with oppositely disposed, spaced abutments, a handle having a circular head at one end extending through a slot of said body portion and into the space between said abutments, the circular head having a diameter nearly equal to the distance between said abutments, and a pivot pin extending through said body closely adjacent said shank.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

VICTOR L. OCHOA.

Witnesses:
T. G. FAGLE.
P. E. GARDNER.