R. E. SUTHERLAND.

WRENCH.

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1,066,679. Patented July 8, 1913.

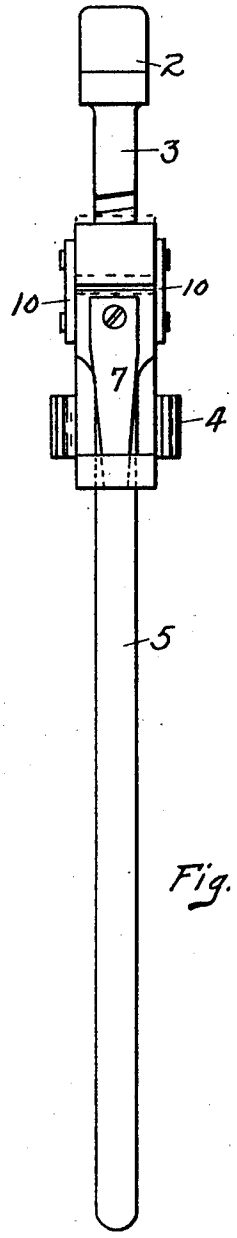


Fig. 2.

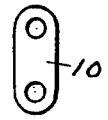


Fig. 3.

Fig. 1.

Witnesses.
F. M. Bullington
R. H. Baughman

Inventor.
Roland E. Sutherland
By D. C. Litzenberg
Attorney.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROLAND E. SUTHERLAND, OF PORTLAND, OREGON.

WRENCH.

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To all whom it may concern:

Be it known that I, ROLAND E. SUTHERLAND, a citizen of the United States, residing in the city of Portland, county of Multnomah, and State of Oregon, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to wrenches, and more particularly to improvements therein, whereby to facilitate the application of the wrench to and its removal from pipe, nuts, or other objects upon which wrenches are used.

In all wrenches with which I am familiar, it is necessary, after applying the wrench to the pipe or other object upon which it is to be used, to tighten the jaws of the wrench thereupon, by means of the usual adjustment nut, it being necessary in some cases to move the wrench slightly while tightening the adjustment nut, in order to tighten the jaws thereof sufficiently to prevent their slipping upon the pipe.

The principal object of my invention is to do away with the necessity of tightening the grip of the jaws of the wrench by means of the adjustment nut, and to provide a wrench in which, in addition to the usual means for adjusting the jaws for different sized objects, there is a slight movement of one of said jaws toward and from the other, which is controlled by the handle of the wrench, whereby, after the wrench has been placed upon the pipe or nut, and the jaws thereof have been adjusted so as to barely engage said pipe or nut, the movement of the handle forward from its normal position operates to move said jaws into gripping engagement with the pipe or other object, while the movement of the handle relatively in the opposite direction operates to move said jaws apart and away from the pipe or other object, so as to permit of the free and loose movement of the wrench upon the object or of its removal therefrom without any manipulation of the adjustment nut. In other words, the object of my invention is to provide, in a wrench having a body, a handle and an adjustable jaw member, with means for adjusting same, of a movable jaw member with connections between it and said handle whereby to hold said jaw member in a fixed or normal position relative to said handle and body, but by means of which, any movement of the handle relative to said jaw operates to move said jaw toward or from the adjustable jaw and thereby tighten or release its grip upon any object between the jaws thereof.

In order to more clearly describe and illustrate my invention, I have shown it in the accompanying drawings, as embodied in a pipe wrench, which I will now describe.

In the drawings,—Figure 1 is a side elevation of one embodiment of my invention, with gripping and releasing positions of the handle shown in dotted lines; Fig. 2 is a front edge view of the same; and Fig. 3 is a detail, showing view of a connecting link or plate from the side of the wrench.

Referring to the drawings, 1 designates the body portion of the wrench, and 2 the movable or adjustable jaw, having a stem 3 and an adjustment nut 4, turning in the body 1 upon said stem 3 for the purpose of adjusting the jaw 2.

5 designates a handle pivotally attached at its upper end to the body 1, as at 6, with spring members 7 and 8 operating between said handle and the body portion.

9 designates a second or movable jaw member attached at its forward end by means of side links or plates 10—10 to the upper end of the handle 5, while its opposite end is provided, in the present showing, with an opening through which works the stem 3 of the jaw 2, as clearly indicated. The forward end of said jaw 9 is slightly raised or separated from the body 1, leaving a space therebetween indicated as 11. The upper end of the handle 5 is formed into an eccentric cam, as 12, engaging the under side of the movable jaw 9, as clearly indicated in solid lines in Fig. 1. The movable jaw 9 is held in a position relative to the body 1, so as to leave the space 11 therebetween, by means of the springs 7 and 8. With the parts in their normal positions the wrench is applied to the pipe or other object and the adjustment nut 4 is turned in the usual manner until the jaws 2 and 9 barely touch or engage the pipe or nut upon which the wrench is to be used. It is not necessary with this wrench that the jaws be tightened upon the pipe or other object by means of the adjustment nut 4 in order to insure their grip thereupon, for with the parts in their

normal position and the jaws barely touching the opposite sides of the pipe or nut, as soon as the handle is moved forwardly, as indicated in the dotted line position to the left of Fig. 1, the cam or eccentric end 12 of the handle operates to move the jaw 9 toward the jaw 2, as indicated in the upper dotted line position of said jaw 9, thereby tightening the grip of the jaws upon the object therebetween.

When it is desired to release or remove the wrench from the object, it is only necessary to move the handle backwardly, toward the position shown in dotted lines to the right of the handle, whereupon, through the links 10—10, the jaw 9 is drawn or moved away from the object and into the position indicated by the lower dotted line position of said jaw 9. By means of this movement of the jaw 9, controlled by the handle of the wrench, the jaws are tightened or loosened upon the object therebetween without the manipulation or adjustment of the nut 4, thereby avoiding the difficulty common in removing a wrench of this character from a pipe or other object after it has been tightened through the nut 4 and the members have been more firmly locked to said pipe through the strain and friction necessary in the use of the wrench. In the wrenches now upon the market, if the jaws thereof have been tightened by means of the adjustment nut, and any considerable strain has been applied to the handle thereof, the jaws not only bite into the pipe, but the adjustable jaw, the adjustment nut and the body of the wrench are all drawn together under the strain until the friction therebetween makes it very difficult to loosen the parts and to remove the wrench, and if the wrench is being used in close quarters the difficulty is increased. By making provision for an independent movement of one of said jaws, which movement is controlled by a relative movement of the handle, I make it possible, not only to tighten the grip of the jaw upon the pipe when the handle is moved relatively forward, but it is also possible to loosen the grip of the jaws and make the detachment of the wrench from the pipe a very simple and easy matter. This is accomplished by a relative movement of the handle in the opposite direction, which operates to draw the jaw 9 downwardly from its normal position, and into the space 11. In other words, the space 11 below the jaw 9 is transferred, as it were, above said jaw 9 and between it and the pipe. The springs 7 and 8 operate to hold the handle and the jaw 9 yieldingly in the positions shown in solid lines, and the wrench is applied with the parts in the positions shown, including the space 11 between the jaw 9 and the body 1. The application of the wrench to a pipe or other object, and the adjustment of the nut 4 does not take up the space 11. This space is maintained through the springs 7 and 8, in order that when the handle is moved to the position shown in dotted lines to the right, the jaw 9 may be moved away from the pipe or other object, thereby loosening the jaws upon the pipe.

I am aware that the invention can be embodied in other constructions without departing from the spirit thereof, and I do not, therefore, wish to limit the invention to the particular showing here made for purposes of illustration, but intend that the invention shall be considered broadly under the claims hereunto appended and made a part hereof.

I claim:

1. A wrench comprising in combination a body, a jaw member with stem extended adjustably through said body, means for adjusting the same therein, a handle pivotally connected to said body, and a second jaw member pivotally connected at one end to said handle and resting loosely upon said body about said stem whereby to be moved bodily away from and toward said body by the movement of said handle relatively to said body.

2. A wrench comprising in combination a body, a jaw member with stem extended adjustably through said body, means for adjusting the same therein, a handle pivotally connected to said body, and a second jaw member pivotally connected at one end to said handle and having its opposite end unattached to said body and held in place by the stem of said adjustable jaw member, whereby it can be moved bodily away from and toward said body by the movement of said handle relatively to said body.

3. A wrench of the character referred to comprising in combination a body of substantially rectangular form, a handle pivotally mounted upon said body with its end projected above said body and forming a cam, an adjustable jaw member mounted in said body and means for adjusting the same, and a second jaw member pivotally connected at one end to said handle and resting at its opposite end upon said body at a point beyond the front edge of the stem of said adjustable jaw member, whereby said second jaw member is moved bodily away from and toward said body by the movement of said handle relative to said body, for the purpose described.

4. A wrench comprising in combination a body, a jaw member with stem adjustably mounted therein, with means for adjusting said jaw member relative to said body, a handle pivotally connected at its upper end to said body with said upper end in substantial alinement with the upper edge of said body, spring members interposed for holding said body and handle in proper

normal positions relative to each other, and a second jaw member resting loosely upon the upper edge of said body whereby to be moved bodily away from and toward it, said second jaw member being pivotally attached at its outer end to the upper end of said handle, substantially as described.

Signed at Portland, Oregon, this 28th day of January, 1911.

ROLAND E. SUTHERLAND.

Witnesses:
W. S. MOORE,
W. A. BURKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."