

(No Model.)

2 Sheets—Sheet 1.

J. A. LOWE.
WRENCH.

No. 518,041.

Patented Apr. 10, 1894.

Fig. 1.

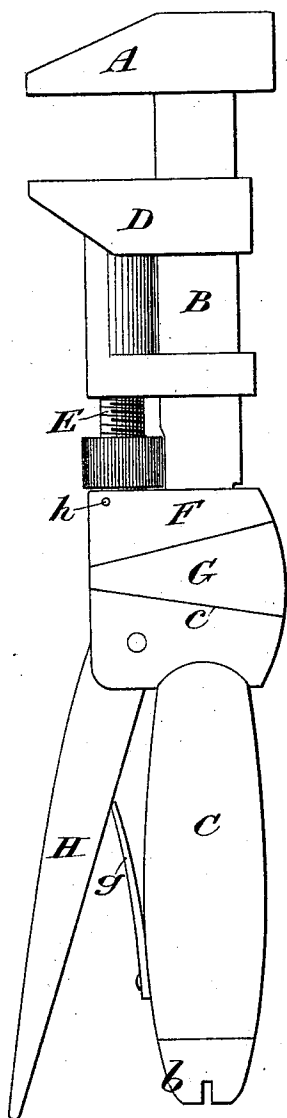


Fig. 2.

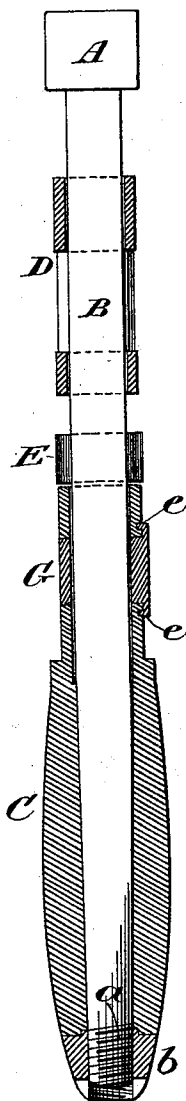
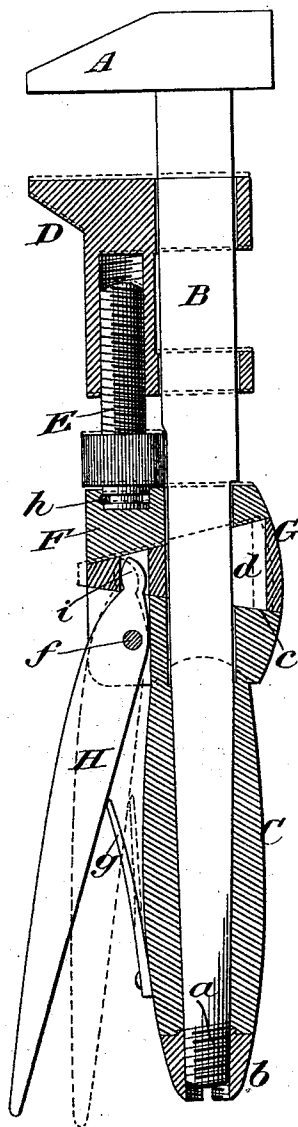


Fig. 3.



Witnesses:
George Barry,
C. Sundgren

Inventor:
James A. Lowe
by attorneys
Brann & Howard

(No Model.)

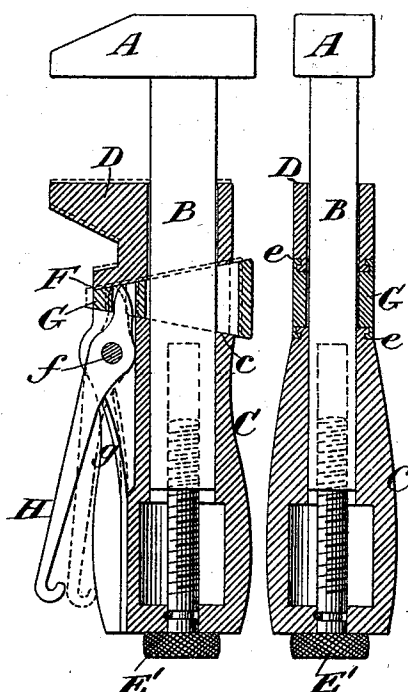
2 Sheets—Sheet 2.

J. A. LOWE.
WRENCH.

No. 518,041.

Patented Apr. 10, 1894.

Fig. 4. *Fig. 5.*



Witnesses:-
George Barry,
C. Sundgren

Inventor:-
James A. Lowe
by attorneys
Flown & Howard

UNITED STATES PATENT OFFICE.

JAMES A. LOWE, OF NORTH BRANCH, NEW JERSEY.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 518,041, dated April 10, 1894.

Application filed January 22, 1894. Serial No. 497,637. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. LOWE, of North Branch, in the county of Somerset and State of New Jersey, have invented a new and useful Improvement in Wrenches, of which the following is a specification.

This invention relates to wrenches with movable or loose jaws.

Its special object is to provide for the automatic adjustment of the movable or loose jaw to such variations in the size as commonly occur in nuts or bolt-heads which are supposed or intended to be of the same size, such automatic adjustment insuring the tightening of the wrench on the nut or head notwithstanding such variations in the size thereof.

Figure 1 in the accompanying drawings is a side view of a wrench embodying my invention. Fig. 2 is a sectional view taken at right angles to Fig. 1. Fig. 3 is a sectional view taken parallel with Fig. 1. Fig. 4 is a side view of a wrench illustrating a modification of my invention. Fig. 5 is a back view of the same.

I will first describe the example of my invention shown in Figs. 1, 2, and 3. In these views, B is a bar constituting the principal part of the stock of the wrench and having permanently affixed to it the jaw A. To this bar the handle C forming the other portion of the stock is firmly attached by being fitted to a tapered portion of the said bar and secured by a nut *b* or a screw-thread *a* on the end thereof.

D is the loose jaw fitted to slide toward and from the fixed jaw upon the bar B. The said loose jaw is tapped to receive a screw E by which the said jaw is adjustable toward and from the fixed jaw A, but the said screw E instead of abutting against or being attached directly to the stock as is common, abuts against and is attached to a movable abutment F which is so fitted to the bar B as to be capable of a limited movement thereon lengthwise thereof along with the loose jaw D and screw E. The attachment of the screw to the movable abutment is represented in Fig. 3, as made by a pin *h* passing through the abutment and through a groove in the head of the screw.

G is a wedge which is mortised, as shown at *d*, for the bar B to pass through it and is

fitted between the back of the movable abutment F hereinbefore mentioned and the face of a shoulder or abutment *c* provided on the handle C which is virtually a part of the stock of the wrench. The face of the said abutment *c* and the back of the abutment F are sloped to correspond with the taper of the wedge. The wedge is loose upon but entirely surrounds the bar B of the stock and as it bears against the abutments *c* and F all around the stock, it has large bearing and wearing surface. On one side of the wedge there are provided, as shown in Fig. 2, tongues *e* which enter grooves in the abutments *c* and F respectively for the purpose of confining the said wedge to the abutment *c* and confining the abutment F to the wedge. These tongues and grooves have of course the same slope as the wedge and abutments. The portion of the handle which forms the abutment *c* is extended in the direction of the length of the wedge sufficiently to receive a lever H, the so extended part being mortised for the reception of the said lever which has its fulcrum on a pin *f* inserted across the said mortise. The end *i* of the shorter arm of this lever enters, as shown in Fig. 3, into a mortise in the wedge. The longer arm of the said lever projects downward in front of the handle C in a position to be grasped in the hand along with the handle. Between the lever H and the handle C, is applied a spring *g* which tends to press the lever outward from the handle. By grasping the handle C and the lever H together in the hand and so pressing the lever toward the handle, the wedge is forced inward between the two abutments F and *c*, and the loose jaw D is thus set up automatically toward the fixed jaw. This setting up is only intended to be sufficient to compensate for slight variations in the size of nuts or bolt-heads when the jaw is adjusted by the screw to the fullest sized heads and to tighten the wrench upon the nut or bolt-head. This may be understood by reference to Fig. 3 where the parts of the wrench are shown in bold outline in the position which they occupy when the lever is left free and in dotted outline in the position they occupy when the lever is pressed downward toward the handle. The spring *g* not only serves the purpose of drawing back the

wedge G but serves the purpose of drawing back the loose jaw to loosen the wrench upon the nut or bolt-head, the drawing back of the loose jaw being effected by the tongue *e* on the wedge operating in the grooves of the abutment.

In the example of my invention shown in Figs. 4 and 5, the loose jaw D to which the setting up movement is applied, is attached to the handle by means of a tongue and groove engagement *e*, as shown in Fig. 5, between the sides of the wedge G and the handle C and loose jaw D respectively. The adjustment of the wrench for different sizes of nuts is effected by the movement of the bar B and its permanently attached jaw A relatively to the handle by means of a screw E' fitted to turn but confined longitudinally in the butt of the handle and screwing in a screw-thread provided in the rear end of the bar B. In this example as in the first described example, the abutment *c* for the back of the wedge is on the handle C which in this case as in the other is a part of the stock, but the abutment F for the face of the wedge, instead of being in a separate abutment piece as in the first described example, is constituted by the back of the loose jaw D. In this example also as in that first described, the wedge is loose upon and surrounds the bar and has bearings between the abutments all around the stock.

It will be observed that in the example illustrated by Figs. 1, 2 and 3, the adjustment for different sizes of nuts and bolt-heads and the setting up or tightening movement are both made in the loose jaw D, but in the example illustrated by Figs. 4 and 5, the adjustment is made by means of the jaw A and the setting up or tightening movement is in the jaw D.

Wrenches constructed according to my invention, being capable of being tightened upon the nuts or bolt-heads as described, do not require to have the operating surfaces of their jaws toothed and are therefore well adapted for operating on plated or highly

finished nuts or bolt-heads without marring them.

It is obvious that the lever and wedge, operating in the same way for the adjustment of the loose jaw, might be applied to a wrench without a screw suitable only for one size of nut or bolt-head.

What I claim as my invention is—

1. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, a loose wedge surrounding the stock between said abutment and loose jaw, and a lever connected with the stock and engaging with said wedge, substantially as and for the purpose herein set forth.

2. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, a wedge applied between the said abutment and loose jaw, and a lever connected with the stock and engaging with the said wedge for setting up the loose jaw and a spring between said lever and stock for drawing back said wedge, substantially as herein set forth.

3. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, a screw for adjusting one jaw relatively to the other, a wedge applied between said abutment and the loose jaw, and a lever connected with the stock and engaging with the wedge for setting up the loose jaw, substantially as herein set forth.

4. The combination of a wrench stock having a permanently attached jaw and provided with an abutment, a loose jaw, and a loose wedge surrounding the stock between said abutment and loose jaw and connected with the said abutment and jaw outside thereof by tongues and grooves whereby the said wedge operates both to set up and loosen the loose jaw, substantially as herein set forth.

JAMES A. LOWE.

Witnesses:

FREDK. HAYNES,
GEORGE BARRY.