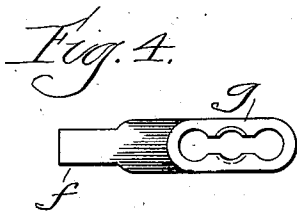
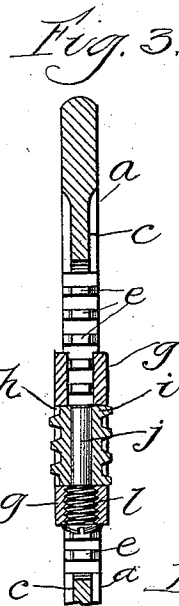
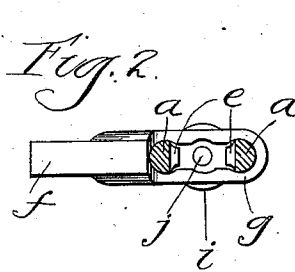
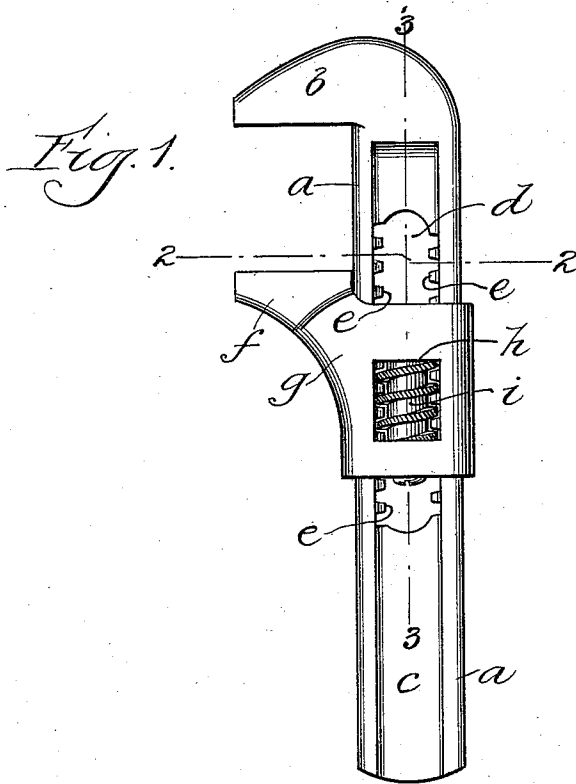


(No Model.)

H. J. MARTIN.
WRENCH.

No. 557,311

Patented Mar. 31, 1896.



Witnesses
Wm. J. Humming
Charles L. Stone

Inventor
Henry J. Martin,
By Albert H. Bates, Atty.

UNITED STATES PATENT OFFICE.

HENRY J. MARTIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WHITMAN & BARNES MANUFACTURING COMPANY, OF AKRON, OHIO.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 557,311, dated March 31, 1896.

Application filed December 20, 1895. Serial No. 572,734. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. MARTIN, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented a certain new and useful Improvement in Wrenches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of my invention is to provide a wrench of the monkey-wrench type which will be economical in construction and efficient in service, and, while having the adjusting parts so placed as not to be liable to be battered or disarranged, may be conveniently assembled and easily taken apart for cleaning or other purposes.

My invention contemplates making a wrench of unusual lightness and simplicity, while having all necessary strength.

It consists of a stationary jaw, from which extends a bar along which a movable jaw slides, there being formed internal teeth on the walls of a hole through said bar, and the movable jaw being provided with a revoluble worm engaging with these teeth, the teeth being so formed as not to prevent the free insertion and withdrawal of the worm, and the worm being held in a peculiar manner enabling its easy removal and allowing greater strength in the wrench.

My invention is more fully specified in the following description and is definitely pointed out in the claim.

The drawings show the best embodiment of my invention at present known to me.

Figure 1 is a side view of my improved wrench. Fig. 2 is a transverse section of the same, taken on the line 2 2 of Fig. 1. Fig. 3 is a longitudinal section taken on the line 3 3 of Fig. 1. Fig. 4 is an end view of the movable jaw with the other parts removed.

a is a bar which serves both as a handle of the wrench and as a guide-bar for the movable jaw. The stationary jaw b is attached to the end of this bar, the two being preferably made of one piece of metal. For convenience and lightness I make a groove c in each side of the bar a . If the bar, with its stationary jaw, is drop-forged, which I consider the preferable method of making it,

this groove is formed in the bar at the same time. Extending through this bar is the elongated hole d , on the longitudinal walls of which are formed the teeth e . The movable jaw f is made with a sleeve g , which closely surrounds the bar a and is slidable thereon. A hole h is formed through this movable jaw, and in it lies the worm i , revolving on the journal-pin j . The thread of this worm engages with the teeth e on the bar, and hence as the worm is revolved causes the movable jaw to approach or recede from the fixed jaw. The edge of the thread on this worm is milled, as shown, for convenient turning by the fingers. The journal-pin j , on which the worm revolves, has its shank enlarged near its head and a thread l turned thereon, which coöperates with a corresponding thread in the sleeve g . Thus the journal-pin is held in place by engagement with the end of the sleeve g which is opposite the jaws and need not extend in the direction of the jaws beyond the worm, thereby leaving an unobstructed recess in the sleeve g at the jaw end thereof, which, being able to pass over the whole cross-section of the bar a , does not require the hole in said bar to be cut near enough to the fixed jaw to weaken the wrench. The construction here shown also allows the sleeve of the movable jaw to be very conveniently formed by simply drilling three holes longitudinally through the same and cutting out the partitions between them.

In securing together the parts of the wrench the movable jaw is first placed upon the bar and allowed to assume a position against the fixed jaw. The worm is then slipped into the recess in the movable jaw and the pivot-pin screwed into place by means of a screw-driver engaging in the slot of the head thereof.

In operation of the wrench the worm is simply revolved by means of the fingers in the proper direction and the movable jaw is caused to approach or recede from the fixed jaw the required distance.

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

In a wrench, in combination, a stationary jaw, a bar extending therefrom and having an elongated hole through it, said hole not ap-

proaching the stationary jaw sufficiently to
weaken the wrench, teeth formed on the lon-
gitudinal walls of said hole, and a movable
jaw having a sleeve surrounding said bar,
5 there being formed a transverse hole through
said sleeve in which lies a worm the thread
of which engages the teeth on said bar, the
surfaces forming the tops and sides of said
teeth and the bottom of the spaces between
10 them being composed of substantially straight
lines running across the bar, whereby there
shall be no tendency of the teeth to bind or
prevent the free insertion and removal of the
worm, the said worm being held by a jour-
15 nal-pin screwed into said sleeve by means of

a thread formed on an enlarged shank at the
head end of said journal-pin, said journal-
pin not extending substantially beyond the
worm whereby the jaw end of the sleeve is
open and unobstructed and able to pass over 20
that portion of the bar through which there
is no hole as it approaches the fixed jaw, all
constructed and arranged substantially as
shown and described and operating as and
for the purpose specified.

HENRY J. MARTIN.

Witnesses:

CHARLES L. HINE,
ALBERT H. BATES.