M. MILLER & A. D. BURG.

WRENCH.

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1,302,197.

Patented Apr. 29, 1919.

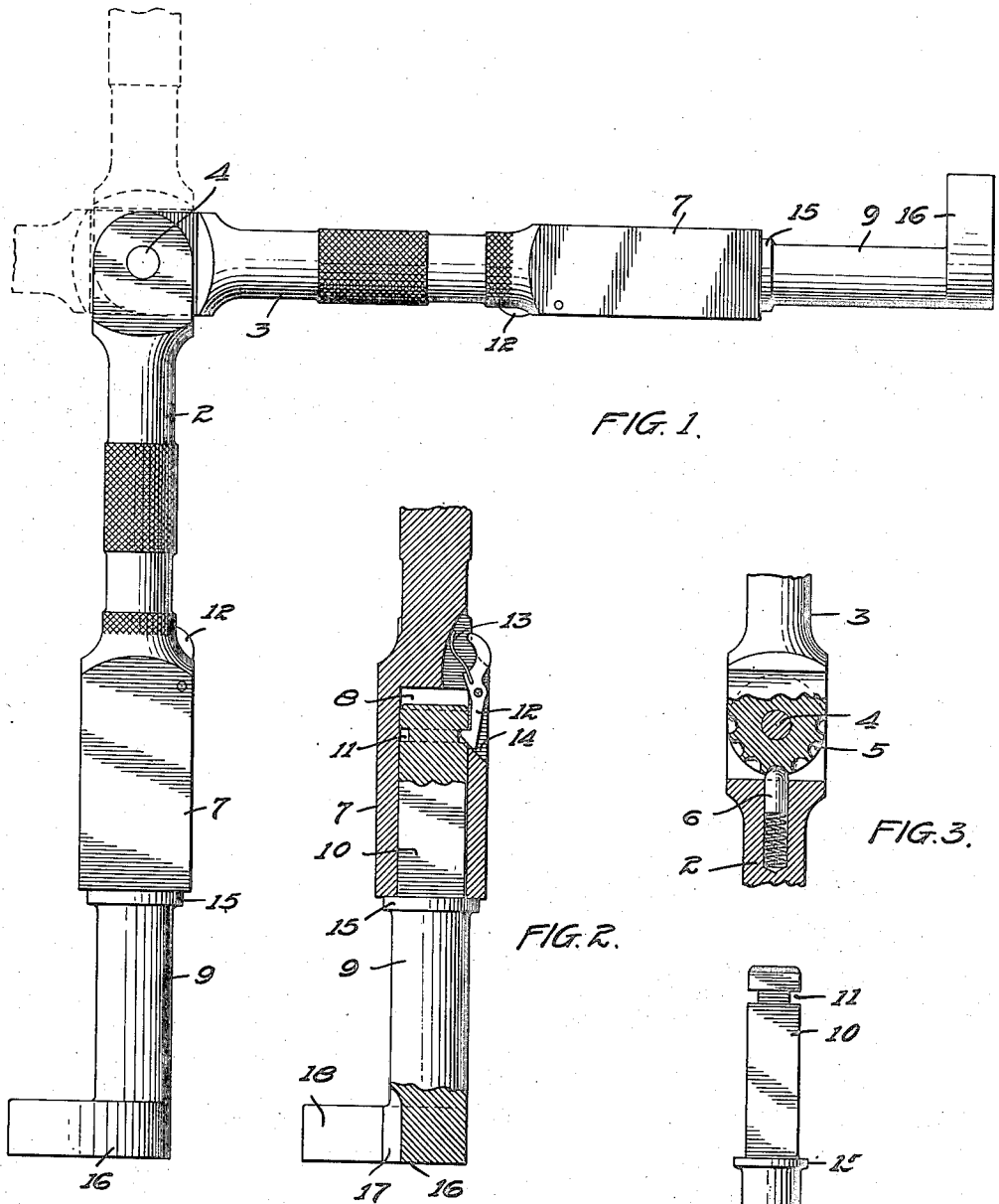


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 5.

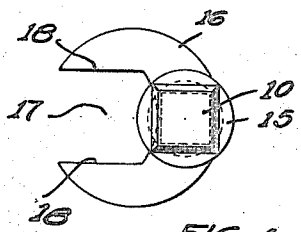


FIG. 4.

WITNESSES

M. R. Thomas

E. A. Paul

INVENTORS

MELCHIOR MILLER

ALFRED O. BURG

BY Paul & Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

MELCHIOR MILLER AND ALFRED D. BURG, OF LE MARS, IOWA; SAID ALFRED D. BURG ASSIGNOR TO L. J. BURG, OF ST. PAUL, MINNESOTA.

WRENCH.

1,302,197. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed March 16, 1916. Serial No. 84,529.

To all whom it may concern:

Be it known that we, MELCHIOR MILLER and ALFRED D. BURG, citizens of the United States, residents of Le Mars, county of Plymouth, State of Iowa, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The object of our invention is to improve the wrench shown and described in a pending application for Letters Patent of the United States, filed by us on the 2nd day of December, 1915, Serial No. 64,725, to the end that any desired number of wrench jaws adapted for nuts or bolts' heads of various shapes and sizes can be used with a single shank, thereby effecting a considerable saving in the cost and weight of a wrench equipment or set.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a view of a wrench embodying our invention,

Fig. 2 is a sectional view through the shank of the wrench, showing the manner of mounting a jaw thereon,

Fig. 3 is a detail sectional view of the joint between the two sections of the wrench,

Fig. 4 is an end view of one of the jaws removed from the wrench shank,

Fig. 5 is a side view of one of the jaw shanks and its head removed from the wrench shank.

In the drawing, 2 and 3 represent the shanks and hand grips of the wrench. The abutting ends of these shanks are pivotally connected to one another by a pivot pin 4 and one of the shanks has ratchet teeth 5 formed therein in position to be engaged by a spring-pressed pin 6 that is mounted in the other shank, thereby forming a ratchet connection between the two shanks for holding them in alinement with one another or in an angular relation, as may be desired. Each shank is provided with an end portion 7 having a longitudinal socket 8 formed therein, said socket being polygonal in cross section. 9 is a jaw shank having an end portion 10 adapted to fit into the socket 8 and provided with an annular groove 11. A latch 12 is mounted to enter said groove and is normally held therein by means of a spring 13 fitting within a recess 14 in the shank of the hand grip. The shank 9 preferably has a shoulder 15 formed thereon which contacts with the end 7 for limiting the insertion of the shank 9 into the socket 8 and insuring the proper register of the groove 11 with the locking latch.

At the outer end of the shank 9 we mount a jaw head, preferably in the form shown, consisting of a disk-like member 16 arranged in a plane at right angles substantially to the longitudinal axis of the shank 9 and mounted eccentrically with respect thereto. A recess 17 is provided in the head, extending inwardly, preferably to a point near the shank. This recess has opposing faces 18 in planes parallel with the longitudinal axis of the shank and adapted to bear on the nut or bolt-head that is inserted into the recess. This jaw head may be made in various sizes and its shape may be modified, if preferred, and it is preferably rigidly mounted or secured on the jaw shank, the recess 17 therein being adapted for different sizes and shapes of nuts or bolt heads.

The sockets 8 are of different sizes, and the shanks 9 fitting therein also vary in cross sectional area and have heads of different sizes thereon, so that with a single shank or handle the tool may be adapted for use as a large or a small wrench. Generally it is necessary to provide wrench shanks of different length and jaws of different strength and weight to adapt the wrench for use on large or small nuts or bolts, while our invention contemplates the combination of a large and a small wrench in one and a variety of jaws for both the large and the small wrench, to adapt the tool for all requirements of a tool of this kind.

We have designated the two sizes of shanks by the same reference numeral, as they are preferably formed in substantially the same way, the difference consisting generally in using a smaller gage of jaw shank and jaw head therefor at one end of the wrench than at the other.

By providing an annular groove 11 in the end 10 we are able to insert the shank 9 therein with the head projecting in either

direction, according to the convenience of the user of the tool, and as these shanks all correspond substantially in size, we may provide a series of the shanks 9 and the heads thereon with different sizes of sockets 17, so that the user of the wrench can have a sufficient number of jaws of different sizes to fit all the different sizes of nuts and bolts on which he may wish to use the tool.

It often happens that the user of this tool wishes to rotate it when the shank members are in line with each other and when one shank and the head thereon can be used as a hand grip for operating the other shank, as, for instance, when it is found necessary to operate the tool through the spokes of a wheel or in some position on the car where there is no room to move the tool with one shank member at an angle to the other.

Each wrench, when sold, will comprise the hand grip shanks, pivotally connected to one another, and a series of jaw shanks having claw shaped heads thereon adapted for engaging nuts and bolts of various shapes and sizes.

In various ways the details of construction herein shown and described may be modified and still be within the scope of our invention.

We claim as our invention:

A wrench comprising hand grip shanks having abutting ends hinged together, the opposite ends of said shanks having longitudinal sockets formed therein, jaw shanks fitting within said sockets and having means for holding them against rotary movement and having heads formed thereon and provided with jaws and gripping faces in planes parallel substantially with the axes of said jaw shanks and eccentric with respect thereto, the jaws of said shanks being of varying size to adapt the wrench for nut and bolt heads of different sizes, each hand grip shank being mounted for angular adjustment with respect to the other shank, or for alinement with each other, and either jaw shank and head thereon forming a hand grip for rotating the tool and the other jaw shank when said hand grip shanks are in line with each other.

In witness whereof, we have hereunto set our hands this 9th day of March 1916.

MELCHIOR MILLER.
ALFRED D. BURG.

Witnesses:
J. T. KEENAN,
K. STROUSE.