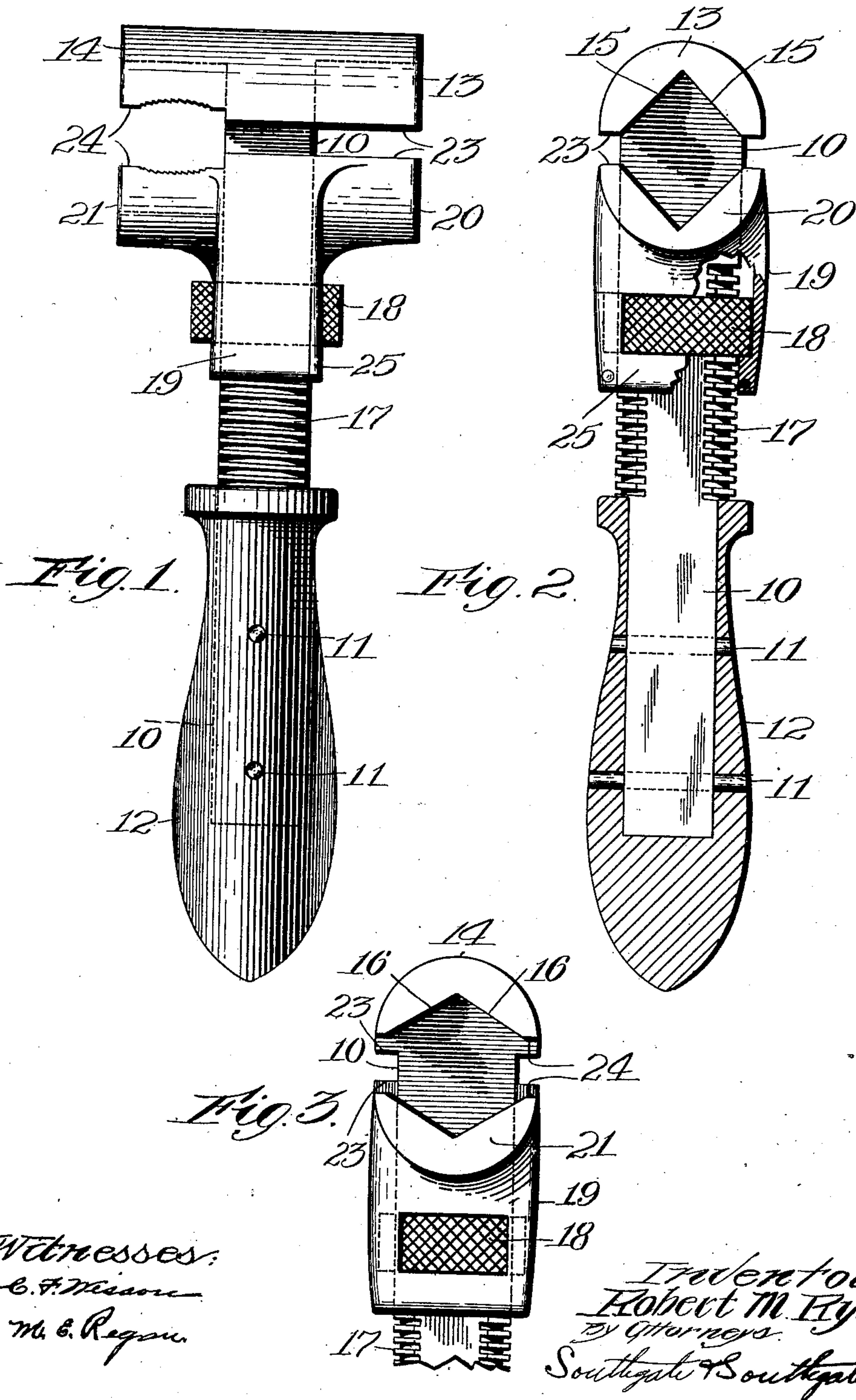


R. M. RYAN.
WRENCH.

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UNITED STATES PATENT OFFICE.

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WRENCH.

No. 925,513.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT M. RYAN, a citizen of the United States, residing at New York, borough of Manhattan, in the county of New York and State of New York, have
5 invented a new and useful Wrench, of which the following is a specification.

This invention relates to wrenches.

The principal objects of the invention are
10 to provide an improved and simplified construction of wrench which shall be capable of substantially universal adjustment so as to receive square and hexagonal nuts or bolt-heads of all sizes and to tighten and loosen
15 them without much danger of marring their edges; which shall also be capable of efficient use as a pipe wrench and as a tool for bending sheet metal and the like, which shall be of such form that it can readily be applied in places where the nuts or bolts are
20 close to a wall or other obstruction; and which will be especially applicable in places where they are located in depressions or sockets as is the case with carriage nuts;
25 which shall be of such form that for the ordinary sizes for which the wrench is made, the nuts or bolt-heads are gripped by the wrench in such position that the greatest leverage can be secured, and yet the wrench
30 can be turned in small compass; which shall be of exceedingly strong and durable but inexpensive construction, and which shall have an attractive and workmanlike appearance; also to provide a construction in which
35 the operation of the thumb of the user in turning up the jaws will be easier than is the case with ordinary monkey wrenches and the like; and in general to improve and simplify the construction of wrenches for general use.

40 Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which—

45 Figure 1 is an elevation of a preferred embodiment of the invention; Fig. 2 is a side view partly broken away to show interior construction and partly in section; and Fig. 3 is a view of the opposite side.

The wrench chosen for illustration is shown
50 as comprising a bar 10 which is provided with means in the form of rivets 11 by which it is secured to a handle 12 of metal, wood, or any other desired material. The bar is provided at its extreme end with an integral
55 double projection consisting of two parts 13 and 14. These two projections constitute

halves of wrench jaws. One of them is provided with a half socket formed by two surfaces 15 at substantially 90° to each other, and the other, by two surfaces 16 at substantially 120° to each other. On the outside
60 this double projection takes on the general form of a semi-cylinder with its axis at right angles to the longitudinal dimension of the bar. The bar is provided with a set of left-
65 handed screw-threads 17 on which is mounted a nut or wheel 18 for the purpose of reciprocating a block 19 which is mounted to slide on the bar. This nut or wheel is of
70 usual construction, except for the left-hand screw threads which are employed for the purpose of enabling the operator to turn the block up with greater facility than would be
75 the case with right-hand threads, as I find in practice that as a wrench handle is ordinarily gripped it is easier to turn the nut in this direction.

The block 19 is provided with opposite double projections 20 and 21 partaking on
80 the outside of the general shape of a semi-cylinder and having jaw surfaces on the inner side adapted to cooperate with the surfaces 15 and 16 respectively. The rotation of the nut will move the block toward and from the
85 double projection 13—14 and close and open the two pairs of jaws. On account of the left-handed screw-thread, the jaws will be closed more easily than opened, which facilitates the use of the device, and it will be
90 readily understood that the longitudinal edge surfaces 23 of the jaws 13 and 20 may be brought into contact with each other, but the surfaces 24 of the jaws 14 and 21 are cut
95 away to a slight extent and provided with a slightly curved form and with teeth so that they constitute a pipe wrench which will grip the pipe in two places at a distance from each
100 other so as to constitute a more efficient form of pipe wrench than that class of wrenches which depends upon a single jaw. It will be noted that the surfaces 23 on account of the
105 fact that they can be brought into contact, adapt the wrench for use on the smallest class of work even when the square and hexagonal jaws are made of a very large size. Consequently the wrench is capable of universal
110 adjustment from nothing up to the limit of the jaws as defined by the length of the bar between the handle and the fixed jaws. It will be observed also that the surfaces 23 and 24 are substantially parallel except for the slight curvature and teeth on the latter sur-

face, and that all of them can be used for the purpose of bending sheet metal, as they project outwardly in convenient position for this employment.

5 On account of the semi-cylindrical shape of the jaws it will be seen that the wrench is of particular utility where the nut or bolt is located near a wall or projection or in a socket. The wrench is of special value for carriage nuts on account of its construction. 10 The curved shape of the end and of the jaws on the block permit the wrench to be used in a socket and turned completely around at will, and the jaws are located in such a way as to greatly facilitate its use. Also the 15 faces 23 and 24 are conveniently adapted for use as wrench jaws for nut and pipe wrenches respectively and for bending purposes. When used for bending, the sheet metal or 20 the like is held between two pairs of parallel jaws a little distance from each other.

It will be understood of course that in assembling the parts the nut is placed on the screw-thread before the handle is applied, 25 and that the block which has been previously placed on the screw-thread is brought into proper relation with the nut, and a U-shaped piece or cap plate 25 is riveted in position. The handle is then finally secured in place. 30 Thus a construction is provided which is exceedingly simple to make and is of such form that even when made of light stock it will be of great strength and durability.

While I have illustrated and described a 35 preferred embodiment of the invention, I am aware that many modifications may be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do 40 not wish to be limited to all the details of construction shown and described, but

What I do claim is:—

1. In a wrench the combination of a bar having a metallic handle secured to the end 45 thereof, and having left-handed screw-threads extending from the end of the handle along the bar toward the opposite end thereof, and provided at its opposite end with stationary projections extending in opposite 50 directions from the bar and having a semi-cylindrical surface at the end of continuous uniform shape throughout, a nut on the screw-threaded portion of the bar movable along the same, a block mounted to slide

freely on the bar having an opening through 55 which the nut projects on both sides, and provided with opposite projections corresponding with the projections on the end of the bar, the two projections on one side of the bar having an expansible square socket for a 60 square nut and the two projections on the other side having an expansible hexagonal socket, said projections being provided with edge jaws extending from one end of both projections on one side in a straight line to 65 the opposite edge of the bar so as to receive nuts or bolt heads and the projections on the opposite side of the bar having edge jaws on both sides of the same recessed back from the first named edge jaws so as to constitute an 70 unclosable set of jaws for receiving nuts and for bending plates, and having pipe wrench teeth whereby two pairs of jaws are provided separated a distance apart for grasping a pipe or plate, and a U-shaped plate fixed to 75 said block movable with the nut, and in position to retain the nut in position.

2. In a wrench the combination of a bar 80 having a handle secured to the end thereof, and having screw-threads and stationary projections extending in opposite directions from the bar and having a semi-cylindrical surface at the end of continuous uniform 85 shape throughout, a nut on the screw-threaded portion of the bar and movable along the same, a block mounted to slide freely on the bar provided with opposite projections corresponding with the projections 90 on the end of the bar, the two projections on one side of the bar having an expansible socket, said projections being provided with edge jaws extending from one end of both projections on one side in a straight line to 95 the opposite edge of the bar so as to receive nut or bolt heads and the projections on the opposite side of the bar having edge jaws on both sides of the same recessed back from the first raised edge jaws so as to constitute an 100 unclosable set of jaws, and a plate fixed to said block movable with the nut, and in position to retain the nut in position.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

ROBERT M. RYAN.

Witnesses:

ALBERT E. FAY,
C. FORREST WESSON.