P. MUELLER.

BASIN COCK WRENCH.

APPLICATION FILED NOV. 23, 1921.

1,434,401. Patented Nov. 7, 1922.

Fig. 1.

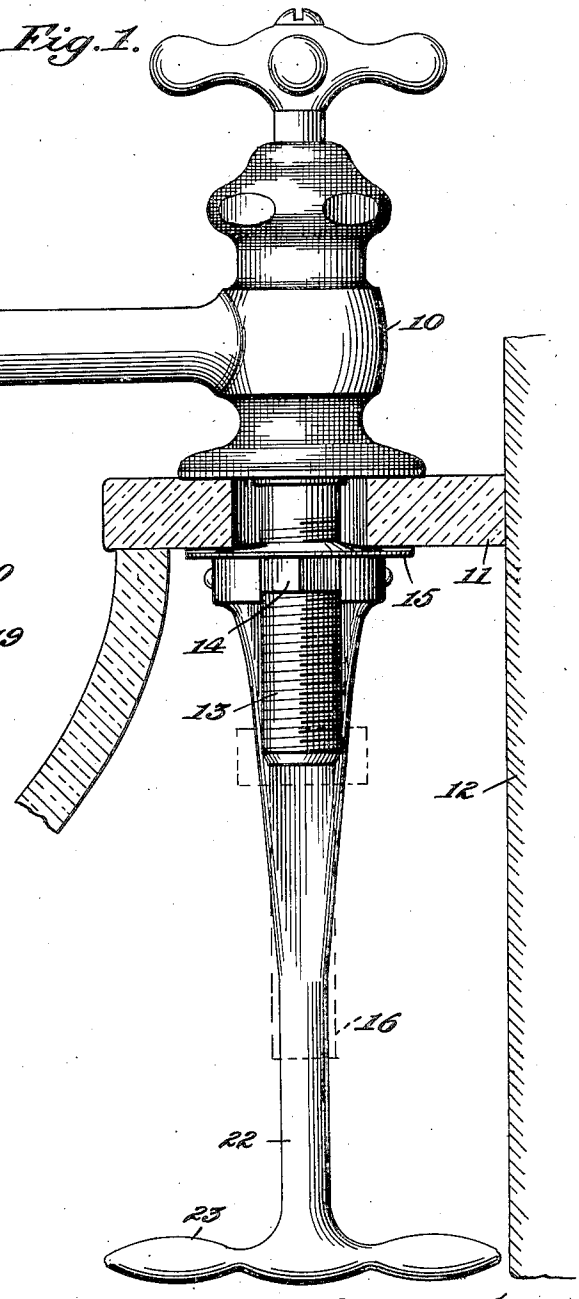


Fig. 3.

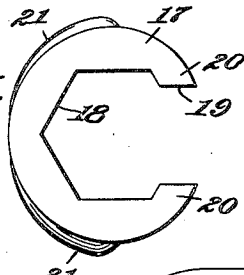
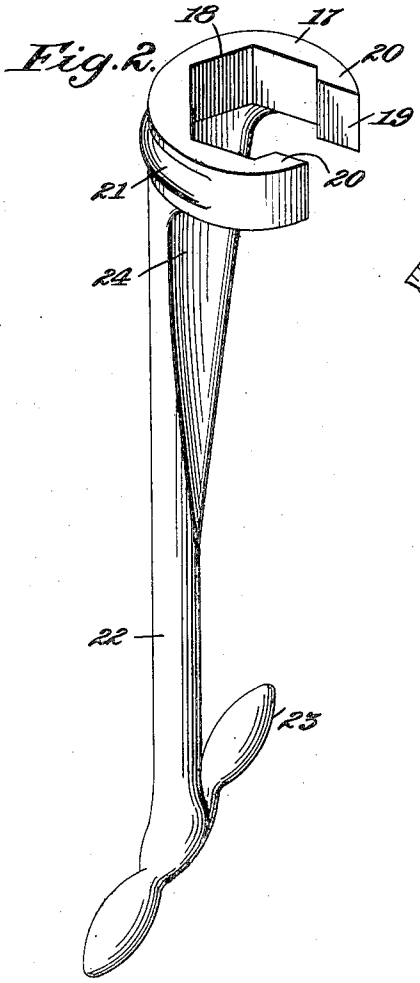


Fig. 2.



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UNITED STATES PATENT OFFICE.

PHILIP MUELLER, OF DECATUR, ILLINOIS, ASSIGNOR TO ADOLPH MUELLER, TRUSTEE, OF DECATUR, ILLINOIS.

BASIN-COCK WRENCH.

Application filed November 23, 1921. Serial No. 517,295.

To all whom it may concern:

Be it known that I, PHILIP MUELLER, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Basin-Cock Wrenches, of which the following is a specification.

The present invention relates to wrenches, and particularly to wrenches designed for the setting up or loosening of nuts in confined places inaccessible, or accessible with great difficulty, to the ordinary wrenches now in use.

It will be shown in connection with plumbing work as one example of its use, but it will be understood that it may be applied to work other than that with which it is specifically shown.

The invention has for its object to provide a wrench which may be readily engaged with a nut in a pipe line or on a fixture, where the nut, by reason of the confined space in which it is located, cannot be readily engaged by an ordinary wrench.

I accomplish this object by providing a wrench having a head with a nut-engaging socket, which socket has an entrance leading thereto so that the wrench may be engaged over the pipe in the line, and then moved along that line into engagement with the nut to be turned, there being provided an operating handle connected with the head and extending therefrom, preferably in a line at substantially right angles to the plane of the head and substantially parallel with the pipe line or fixture to which the nut is attached, so that the wrench may be manipulated to set up or loosen the nut, and there will be no interference with the turning of the wrench because of the fact that the nut may be located in a confined space.

In order that the invention may be clear to those skilled in the art, there is shown in the accompanying drawings one embodiment of my invention, but this is illustrative and not restrictive, as there may be mechanical variations in the make up of the wrench without departing from the range of my invention.

In the drawings:

Figure 1 is a view in elevation and in section showing so much of a conventional water fixture, or faucet, as is necessary to illustrate my invention, with the wrench in operative position on a nut;

Fig. 2 is a perspective view of the wrench shown in Fig. 1; and

Fig. 3 is a plan view of the wrench.

Referring to the drawings by numerals, like numbers indicating like parts in the several views, 10 indicates a fixture which, as here shown, is the conventional faucet or cock, but it will be understood that this is merely illustrative of one type of fixture with which my wrench may be used. 11 indicates a basin slab, and so much of the basin is shown in connection with that slab as is necessary to illustrate the invention. 12 indicates conventionally a back wall or partition against which these fixtures are usually mounted.

It will be observed that in installations of this kind the space beneath the slab and between the basin and the wall is very restricted, and the fixture, which is mounted upon the slab, is more or less inaccessible for setting up or taking down. In many instances, it is practically impossible to work in this confined space with the ordinary wrench.

In the example of a fixture herein shown, it will be observed that the faucet 10 has the usual shank 13 extending downwardly therefrom, passing through a suitable aperture in the slab 11, and this shank 13 is threaded in the usual manner for the reception of the nut 14 which is set up against a suitable washer 15 and clamps the faucet, or equivalent fixture, in place. Obviously, the difficulties of setting the nut 14 snugly in place in order to firmly clamp the fixture is a matter of considerable difficulty in view of the small working space afforded between the basin and the wall and below the slab, and notwithstanding the expedients which are resorted to, it not infrequently happens that proper installations are not secured because of the difficulties met in setting up these nuts.

The shank 13 of the faucet is connected in the usual manner with the supply pipe 16, coupled thereto in any suitable manner and descending to the floor or wall opening to connect with the service pipe.

In order that the nut 14 may be conveniently set up after the assembly has been made, I have provided the wrench shown in the drawings, which wrench comprises the head 17 having therein the socket for the nut, herein shown as hexagonal, although

it may be of other conformation suitable to the nut to be set up. The wall of the head 17 is cut away at a point in its periphery so as to provide an entrance to the socket 18, and, preferably, as will be apparent from Figs. 2 and 3, the said mouth or entrance 19 will be restricted and less in width than the maximum width of the socket 18, and, in the case of a hexagonal socket, as here shown, less than the combined length of two of the hexagonal faces, so that there will be projecting nut-engaging members 20 on either side of the entrance or mouth 19 into the socket. This will give substantially a complete area of engagement of the socket with the nut on all sides, the projections 20 engaging those portions of the nut on either side of the mouth or entrance 19.

The said head 17 will be of proper dimensions and strength to stand the strain imposed upon it when it is engaged with the socket and the nut is turned, and, if desired, it may be strengthened by circumferentially disposed enlargements or protuberances 21 located in the periphery of the head.

The head 17, as will be apparent from Fig. 1, may be engaged with the nut 14 by being slipped over the supply pipe 16 and then passed longitudinally up the pipe, and its socket 18 brought into engagement with the nut, the entrance or mouth 19 of the socket permitting this movement of the nut over the pipe, while, at the same time, the socket 18 affords a substantially complete embracing of and engagement with the nut when, by its longitudinal movement, the wrench is brought into nut engaging position.

Extending from the head 17, in a substantially right angular direction, is the handle 22 provided with a suitable turning grip 23 at its lower end, and, while this handle may take various forms, it is preferably in the form of an extended web 24 which is wider at its top, where it joins the head, and follows the circumference of that head through substantially half its distance in order to very effectively brace the open head against strain, the web 24 being preferably curved in cross-section to conform generally to the contour of the head. The wide section or web 24 will narrow down gradually to the body portion 22 and the grip 23 of the wrench, as clearly shown in Figs. 1 and 2.

In the construction above described, a wrench is provided by means of which nuts and coupling members disposed in restricted spaces, and, in some instances, mounted on or connected with a pipe line, may be very quickly, conveniently and securely set up, the socketed wrench having the side entrance permitting engagement with the pipe through its entrance or mouth, and then, by a longitudinal movement, engagement of the wrench socket with the nut or coupling to be set up.

Such variations in design and the proportions as amount to the skill of the mechanic may be made without departing from the range of my invention, the present disclosure being illustrative of one form and design.

I am aware that it has been heretofore proposed to provide a wrench, intended for use under conditions such as hereinbefore described, with adjustable jaws; and also that wrenches having an opening through a side wall of a nut engaging portion have been employed for various purposes. However, none of such prior devices have included the invention set forth in the following claims.

I claim:

1. A wrench of the class described having a head provided with a nut socket and a restricted side entrance in the wall of said socket, and an integral handle extending at substantially a right angle from said head with a widened and cross-sectionally curved web portion at the point of junction with said head.

2. A wrench of the class described having a head provided with a nut socket having a restricted side entrance in its wall and thickened portions to resist breaking strains on said socket, and an integral handle extending at substantially right angles from said head with a widened and cross-sectionally curved web portion at the point of junction with said head.

3. A tool of the class described having a head provided with a socket having nut-engaging faces and a side entrance in its wall of less length than the combined length of two of said faces, circumferentially disposed thickened portions to resist breaking strains on said socket, and an integral handle extending at substantially right angles from said head with a widened and cross-sectionally curved web portion at the point of junction with said web.

In testimony whereof I have hereunto set my hand.

PHILIP MUELLER.