

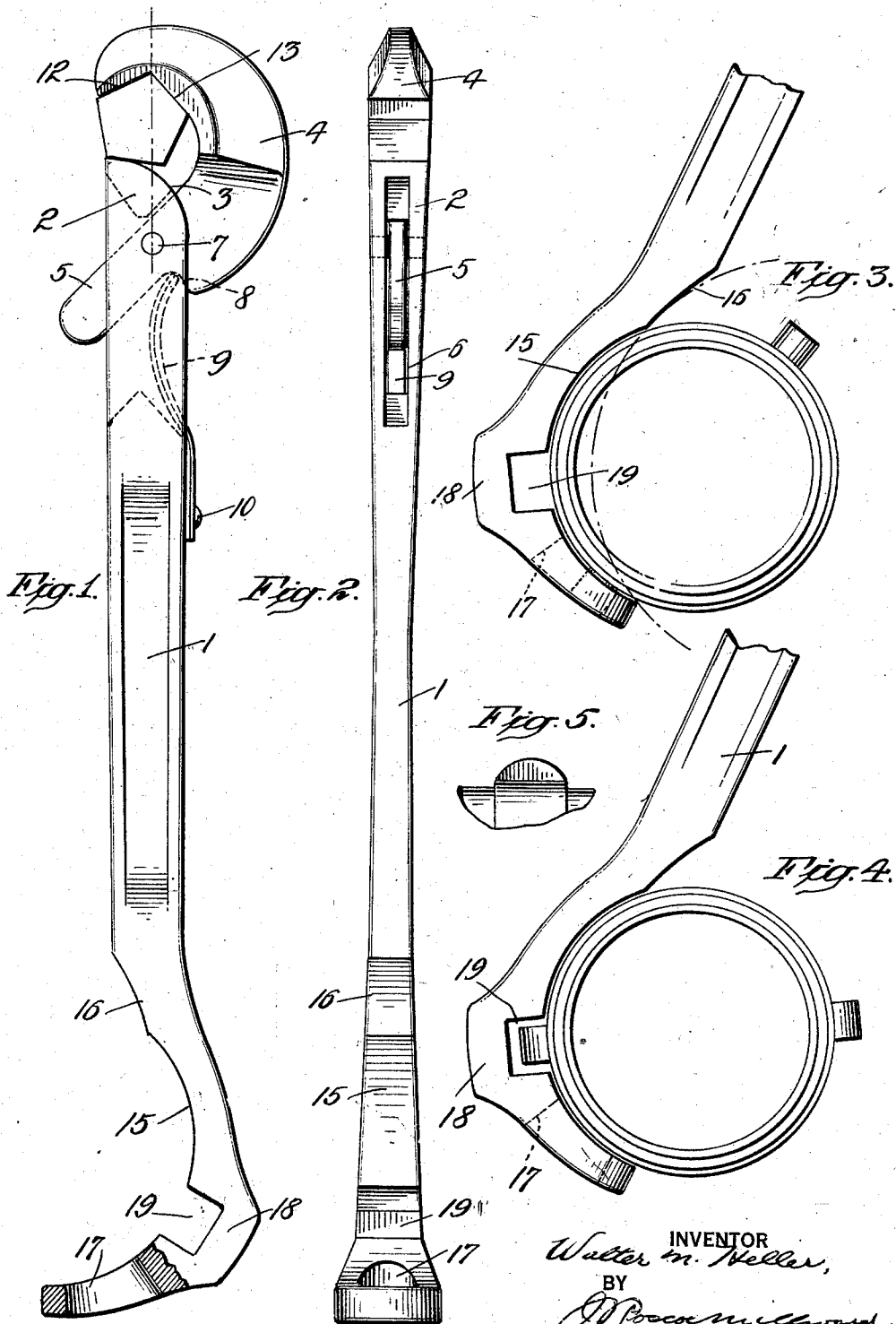
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WRENCH

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WRENCH

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This invention relates to improvements in wrenches and more particularly to a special service type of wrench of improved design and construction adapted for fire department use, to this end being designed for adjustably and automatically gripping the varied sizes of pentagonally headed valve stems of fire hydrants and in addition being formed to operatively engage with both the pin type and rocker lug type of hose couplings and likewise the suction coupling over a wide range of sizes as commonly used.

Important features of my improved wrench comprise a novel design and correlation of a fixed and spring actuated movable jaw adapted for successfully gripping pentagonal heads of valve stems or nuts of a wide range of sizes and to be operable with a ratchet action for the manipulation of the nuts as is highly desirable where rapid action is required; the provision of an additional gripping portion peculiarly designed for effectively engaging with the pin type or rocker type of hose couplings of the varied more universally used sizes and likewise having special provision for operatively engaging with the pin lugs of the relatively larger size suction couplings of fire apparatus.

The foregoing and other valuable features and advantages of my present invention will be more readily understood by reference to the accompanying drawing wherein like reference characters are applied to the corresponding parts in the several views.

Referring to the drawing:

Fig. 1 is a view of my improved wrench in side elevation.

Fig. 2 is a view thereof in end elevation, taken from the left of Fig. 1.

Fig. 3 is a detail view in side elevation showing the manner of engagement with the pin type of hose coupling.

Fig. 4 is a similar view showing the manner of engagement with the rocker type of hose coupling lug.

Fig. 5 is a detail view in side elevation of a rocker type lug of a hose coupling.

In the approved embodiment of the invention as here disclosed, 1 indicates the bar or handle portion of the wrench forming at one

end 2 a rigid jaw member having the rounded surface 3. To the rigid jaw portion of the wrench there is pivotally supported the swinging jaw 4 having a shank portion 5 fitted within the cross slot 6 in the rigid jaw portion and secured by the pivot pin 7. The shank portion 5 of the swinging jaw is formed with the shoulder 8 engaged by the ends of flat springs 9 secured at their opposite ends to the bar 1 by a rivet 10, the spring being operative to influence the movement of the shoulder portion 8 toward the right as shown in Fig. 1. As the center of the arc or arcs describing the curved face of the rigid jaw is to the left (in Fig. 1) of the pivot pin 7, such movement will tend to close the swinging jaw with relation to the rigid jaw as will be readily understood. The shank portion of the swinging jaw may desirably extend through the cross slot 6 as shown with a rounded projection adapted to be engaged by the thumb for manually opening of the jaw against the influence of the spring.

An important feature of the present invention consists in the specific relative form and arrangement of the rigid and swinging jaws as a result of which a successful and effective gripping of pentagonally formed nuts or heads is accomplished while allowing adjustability to a wide range of sizes and permitting of a ratchet action for renewing of the grip as the nut is tightened. In addition to the relative arrangement of the center of the arcs describing the surface 3 and the center of the pivot 7, further features contributing to the successful operation consists of the improved form of the jaw engaging surfaces including the arrangement of the swinging jaw straight surface 12 whereby it will have an angular relation of substantially seventy degrees with reference to a line passing through the pivot center and through the point of intersection between said surfaces as shown. As a result thereof, in the instance of pentagonally formed heads or nuts, a flattened surface of the nut will be opposed to and engaged by the curved surface of the rigid jaw at varied points thereon corresponding to the size of the nut engaged.

In further accordance with the present in-

vention, there is provided at the opposite end of the bar, means for engaging with hose couplings of both the pin type and rocker lug type over a wide range of sizes as commonly used and in addition the relatively larger size of pin coupling of the suction hose of fire apparatus. For this purpose I have formed the opposite end portion of the bar of generally curved form as shown having an arcuate inner surface 15 with a supplemental inner arcuate or cut-away surface 16. At its extremity the curved portion of the bar is provided with the aperture 17 and inward thereof is formed with the offset portion 18 formed with a socket 19 having flattened end walls or surfaces in a plane transverse of the bar. The aperture 17 provides for effective engagement with the pins of the standard types of hose couplings while the socket or notch 19 provides for effective engagement with the rocker type lug of hose coupling which has more recently come into general use in connection with fire apparatus. The latter type of lug is best shown in Figs. 4 and 5 and consists of a lug on the hose clamping ring having flattened side surfaces with its ends inclined or curved longitudinally of the axis of the hose so as to avoid catching upon projections as the hose is dragged along.

The curved surface 15 as shown may have a curvature adapted to receive for effective engagement hose couplings of a size range of from two to four inches and by the provision of the supplemental cut-away or curved surface 16 this wrench portion of the bar is adapted to receive for effective engagement coupling rings of greater size and particularly the commonly used suction couplings of from four to six inches diameter.

I have accordingly produced an improved wrench specially adapted for fire department use, combining in a single tool provision for manipulating the varied sizes of hydrant valve stems with a rapid ratchet action and provision for manipulating both types of hose couplings in general use over a size range taking in the standard sizes including the larger diameter suction hose couplings.

While I have shown and described an improved embodiment of the features of my invention, it will be understood that varied modifications may be made therein without departing from the scope of the invention as defined in the appended claims. It is accordingly intended that all matter herein shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, I claim:

1. A wrench comprising a bar formed at one end portion of curved contour and provided with an aperture adapted for engagement with the pins of the pin type hose coupling and formed with a laterally open socket inwardly of said curved portion and adapted for engagement with the lugs of the rocker

lug type hose coupling, substantially as described.

2. A wrench comprising a bar formed at one end portion of curved contour and provided with an aperture adapted for engagement with the pins of the pin type hose coupling and formed with a laterally open socket in the concave surface of said curved portion, said socket having plane, transversely disposed end walls adapted for engagement with the lugs of the rocker lug type of hose coupling.

3. A wrench comprising a bar formed at one end portion of curved contour and provided at its extremity with an aperture adapted for engagement with the pins of the pin type of hose coupling and formed inwardly thereof with a laterally open socket in the concave surface of said curved portion, said socket having plane, transversely disposed end walls adapted for engagement with the lugs of the rocker type of hose coupling and said bar being formed with a supplemental cut away portion converging with the concave surface of said curved portion to allow of engagement with couplings of increased diameter, substantially as described.

Signed at New York city, in the county of New York and State of New York this 5th day of June, A. D. 1929.

WALTER MILLWARD HELLER.