

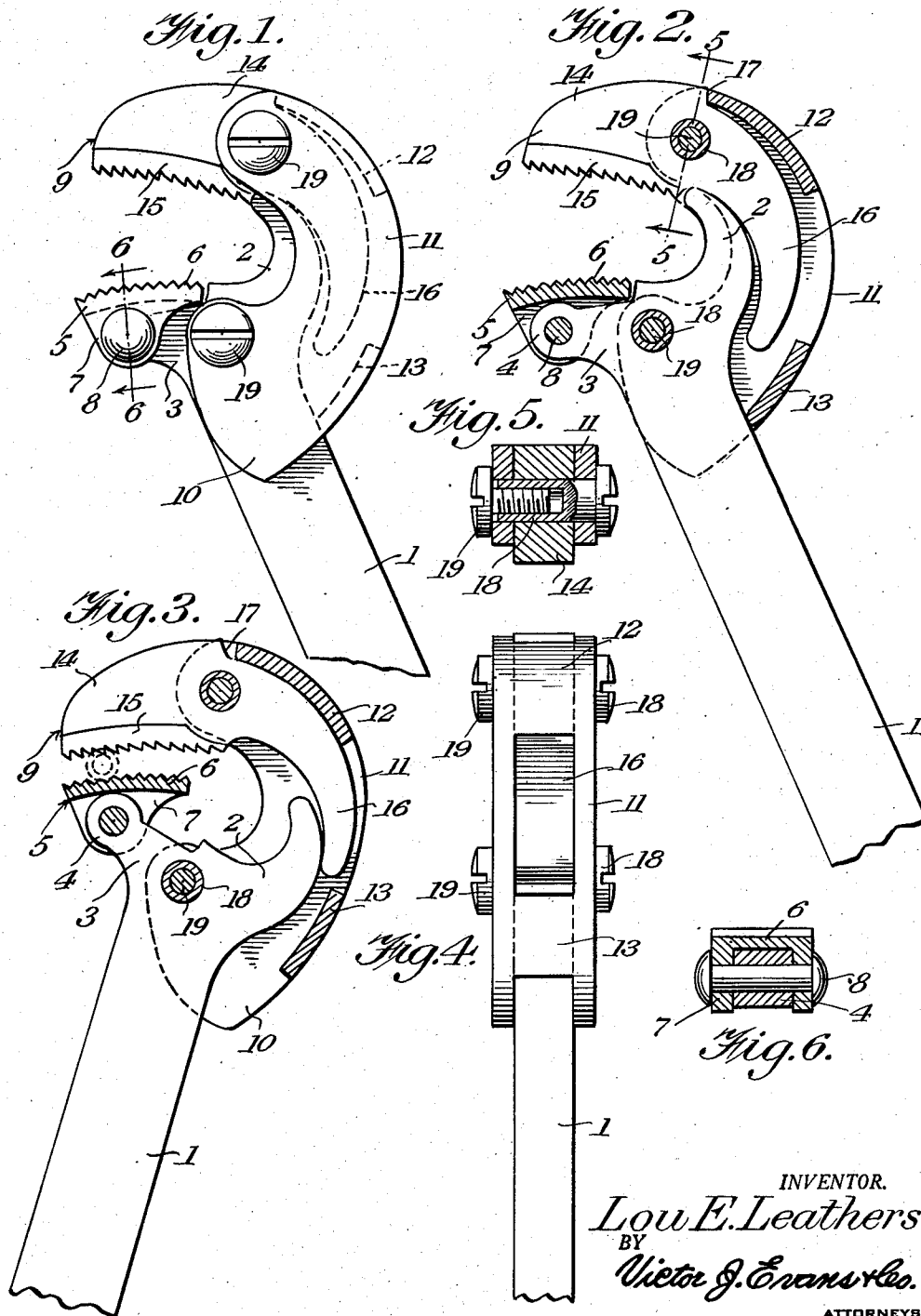
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WRENCH

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WRENCH

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2 Claims. (Cl. 81-91)

This invention relates to wrenches, and its general object is to provide a wrench that can be conveniently used with one hand, as the jaws thereof are automatically adjustable to open and closed position, merely by a swinging movement of the handle.

A further object is to provide a wrench that is primarily designed for use on pipes and the like, and is not only adjustable without the use of feed screws or springs, to fit pipes of various diameters, but the gripping action of the jaws against the work increases, as manual pressure is applied to the handle.

Another object is to provide a self adjusting non-slip pipe wrench that is simple in construction, inexpensive to manufacture, and extremely efficient in operation, use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a side elevation of my wrench, with the jaws in fully open position.

Figure 2 is a side view partially in section, with the jaws arranged as shown in Figure 1.

Figure 3 is a view similar to Figure 2, but with the jaws closed in gripping engagement with a pipe.

Figure 4 is a rear elevation.

Figure 5 is a sectional view taken approximately on line 5-5 of Figure 2, looking in the direction of the arrows.

Figure 6 is a sectional view on line 6-6 in Figure 1.

Referring to the drawing in detail, it will be noted that the handle 1 which is shown broken away, but may be of any length, is of the flat bar type, and that the jaw carried end thereof, is formed with a head which includes an arcuate projection 2 providing a cam, extending from the rear portion of said end, but is curved forwardly and tapers inwardly toward its free end, as best shown in Figure 3.

The head also includes a forwardly extending arm 3 that is formed with a bearing collar 4 at its outer end. Mounted on the collar is an inner jaw 5 that is provided with an arcuate plate like toothed portion 6 formed with spaced parallel

ears 7 disposed upon opposite sides of the collar and pivotally secured thereto by a headed pin 8 for rocking movement of the collar on the toothed portion 6, to bring about movement of the jaw 5 toward the outer or companion jaw 9, as will be apparent from Figures 2 and 3.

Mounted upon the opposite sides of the head for free sliding movement are the wide inner end portions 10 of arcuate plate like side walls of a frame 11 which also includes a pair of spaced webs 12 and 13 respectively, formed on and bridging the outer edges of the side walls adjacent to the ends thereof, and the inner end portions 10 are pivotally secured at their lower ends and adjacent to the inner edges thereof to the head substantially at the juncture of the arm 3 with the handle, for disposal of the walls upon opposite sides of the handle and the cam projection 2, as well as rearwardly thereof, and the walls are curved forwardly from their pivot.

The jaw 9 includes an elongated body 14 having a toothed inner faced portion 15 extending laterally of the body, so that the toothed portion is of the same length as that of the plate of the jaw 5 and formed on and extending rearwardly from the rear end of the body 14 is an arcuate cam tongue 16 that is engageable with the web 12 and the rear face of the cam projection 2 for slidable movement of the latter on the tongue, as will be apparent from Figures 2 and 3. The tongue is tapered inwardly toward its rear end, and the jaw 9 is pivotally secured to and between the outer ends of the side walls for limited movement of the jaw 9 relative to the frame and to be carried thereby for free movement toward and away from the jaw 5. The teeth of the jaw 9 are inclined rearwardly in the usual manner, and the teeth of the jaw 5 are directed toward the first teeth, for cooperation therewith, to set up a biting engagement with the work, as shown in Figure 3.

The jaw 9 is provided with a shoulder 17 at the juncture of the tongue 16 therewith, and the forward end of the web 12 is arranged in the path of the shoulder for cooperation with the engagement of the tongue with the inner face of the web 12 to limit the movement of the jaw 9 relative to the frame. The rearward movement of the frame and consequently the movement of the jaw 9 to open position, is limited by the engagement of the web 13 with the rear face of the handle, as best shown in Figure 2.

The pivots for the frame and the jaw 9 are identical and of the detachable type, in that each includes a kerfed headed interiorly threaded bear-

ing sleeve 18 to allow free rocking movement of the frame and jaw and the sleeves 18 are secured in place by kerfed headed screws 19, as will be apparent upon inspection of Figure 5, which illustrates the pivot for the jaw.

From the above description and disclosure in the drawing, it is believed that the operation of my wrench will be obvious, but it might be mentioned that the jaws are first mounted on the work, such as a pipe which automatically opens the jaws for fitting engagement therewith, thence the handle is moved forwardly as indicated in the drawing. Such movement causes the cam projection 2 to slide on the tongue 16 and the collar 4 to rock on the jaw 5, which results in the teeth of the jaws being disposed in biting engagement with the work, and as the forward pressure on the handle is increased, the gripping action of the jaws is increased accordingly, thus it will be seen that slippage of the teeth relative to the work is practically impossible.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. A wrench comprising a handle, an arm formed on and extending at a forward inclination from one end of the handle, a bearing collar formed on the outer end of the arm, a toothed jaw including spaced ears pivoted to the collar

for rocking movement of the latter on said jaw, an arcuate upwardly extending cam projection formed on the handle and having its outer end portion extending forwardly relative to the handle, a frame including arcuate side walls pivoted to and disposed upon opposite sides of the handle and the cam projection, a toothed jaw pivoted to and between the side walls for cooperation with the first jaw, an arcuate cam tongue formed on and extending rearwardly and downwardly from the second jaw and engaged with the outside curved face of the cam projection whereby upon swinging movement of the handle the jaws are moved toward and away from each other, and spaced webs formed on and bridging the side walls and being arranged relative to the handle and the second jaw to limit movement of the latter.

2. A wrench comprising a handle at one end of which is a lateral arm, and a laterally and upwardly curved cam opposed to said arm, a pivoted toothed jaw on the arm seatable in one position against the arm adjacent the inner face of the cam, an upwardly and forwardly curved frame pivoted at one end to the handle between the jaw and the cam and having side walls connected by relatively spaced apart webs, a jaw pivoted between the side walls at the opposite end of the frame and engaging the upper web to limit its movement, a backwardly and downwardly curved cam on said jaw positioned to engage the outer curved face of the first cam, the lower web portion of the frame engaging the handle to limit the open position of the wrench.

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