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A. SEPPOLA
ADJUSTABLE CLAMPING WRENCH

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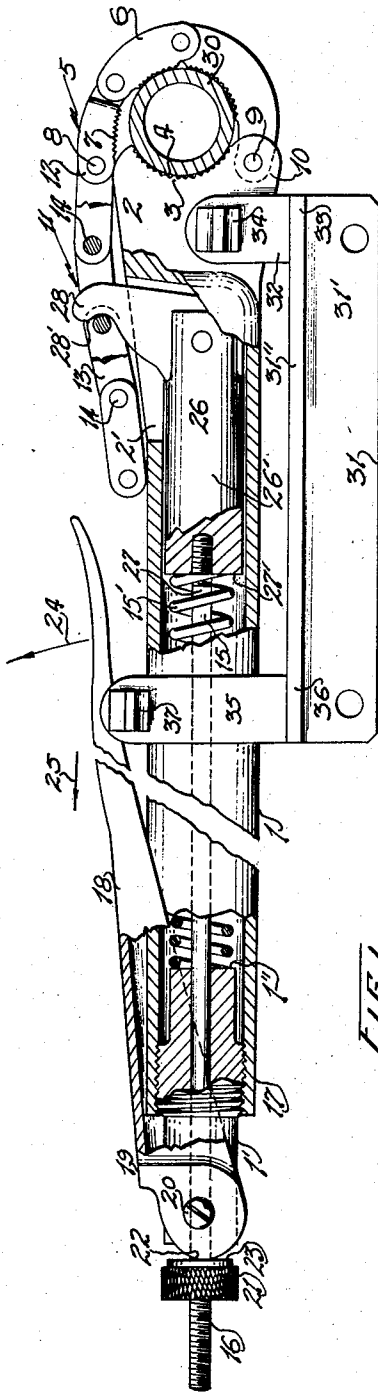


FIG. 1

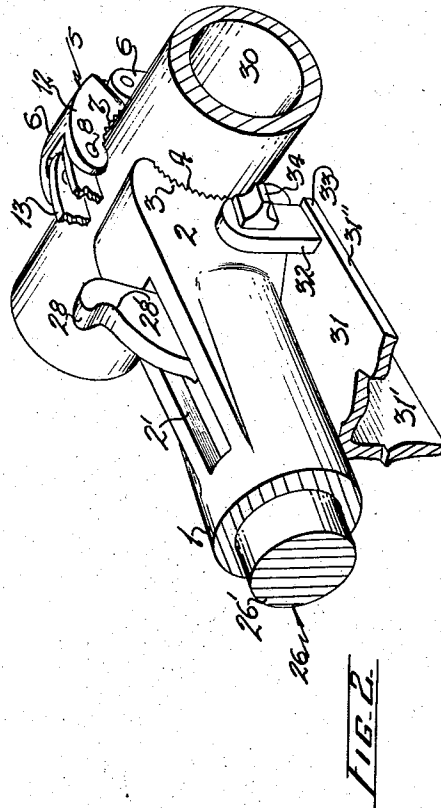


FIG. 2

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ADJUSTABLE CLAMPING WRENCH

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My invention relates to new and useful improvements in adjustable clamping wrenches, the principal object and essence of my invention being to provide a device wherein the jaws surround the main portion of the tube or pipe being engaged and which furthermore provides adjustment for varying diameters of pipes.

Yet another object of my invention is to provide a device of the character herewithin described which includes a mounting vice to which the pipe wrench can readily be affixed as desired.

A still further object of my invention is to provide a device of the character herewithin described which includes both coarse and fine adjustments.

Yet another object of my invention is to provide a device of the character herewithin described in which said adjustments can be made rapidly and easily.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

Figure 1 is a side elevation of my device sectioned in part to show the interior thereof.

Figure 2 is an enlarged fragmentary perspective view of the jaw portion of my device.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Existing pipe wrenches suffer from several disadvantages, the chief amongst which being the fact that they only engage the pipe to diametrically opposite points around the circumference thereof. Furthermore, it is often desirable to work upon one end of the pipe while it is being held within the pipe wrench or, alternatively, the pipe has to be disengaged from the wrench mounted within a vice.

I have overcome both of these disadvantages by providing a pipe wrench having readily adjustable jaws for varying diameters of pipes and by providing jaws which encircle the greater proportion of the circumference of the pipe thereby getting a better grip.

Furthermore, I provide a mounting plate or vice within which the pipe wrench may readily be mounted thus holding it firmly so that the pipe wrench can be used as a vice.

Proceeding therefore to describe my invention in detail, it will be seen upon reference to the accompanying drawings that I have provided an elongated hollow handle 1 having an arcuately concave jaw 2 formed upon the forward ends thereof. The concavity 3 of the jaw is toothed or serrated as at 4 as clearly shown.

An articulated jaw assembly collectively designated 5 consists of a plurality of segments 6 having arcuately concave and toothed inner surfaces 7 to complement the semi-jaw 3. These segments are pivotally connected together by means of pins 8 and the assembly 5 is pivot-

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ally connected by means of pin 9 to the lower side 10 of the semi-jaw 3.

Actuating linkage collectively designated 11 is pivotally connected by one end thereof to the opposite end 12 of the articulated jaw assembly 5, said linkage comprising a plurality of chain links 13 pivotally connected together by means of pins 14.

An actuating rod 15 extends through the hollow handle 1, the rear end 16 extending beyond the rear end 17 of the handle and being screw-threaded as illustrated. An actuating lever 18 having a substantially U-shaped cross-sectional configuration at the rear end 19 thereof is pivotally connected to the extending portion of a plug 1' (hereinafter described) by means of pivot pins 20 and it will be observed that this actuating lever extends forwardly along the handle and partially surrounds same when in the closed position shown in the drawings.

To facilitate assembly of the device, a centrally apertured plug or tube 1' is screw-threadably secured within the rear end 17 of the hollow handle 1, the aforementioned rear end 16 of the rod 15 passing therethrough as clearly illustrated.

An adjusting nut 21 is engaged upon the screw-threaded end 16 of the rod 15 and cams 22 are formed upon the rear end of the actuating lever 18 rearwardly of the pivot 20. These cams are adapted to engage the surface 23 of the nut 21.

From the foregoing, it will be seen that movement of the actuating lever 18 in the opposite direction of arrow 24 will cause the cams to engage the nut 21 thus moving the rod 15 endwise in the direction of arrow 25.

Means collectively designated 26 are screw-threadably secured upon the front end 27 of the rod 15 adapted to engage the actuating linkage 11, this means taking the form of a dog 28 secured upon the end of a dog block 26' and extending upwardly as shown. The dog block 26' is supported for limited endwise movement, within the front end 2 of the elongated handle 1 and the dog 28 extends upwardly through a slot 2' formed in the wall of this portion of the handle as clearly shown in Figure 2. The dog 28 is adapted to engage within any one of the chain links 13 of the linkage 11, the rear surface 28' of the dog being concave to engage around the associated pivot pin 14 of the linkage.

A spring 15' surrounds the rod 15 within the hollow handle 1 and reacts between the rear face 27' of the aforementioned dog block 26' and the front face 1'' of the aforementioned plug 1' and normally urges the dog block 26' together with the dog 28, forwardly.

In operation, the linkage can be lifted from the dog 28 and the articulated jaw assembly 5 engaged around the associated length of pipe 30. At this time the actuating lever 18 has been moved in the direction of arrow 24 and is extending substantially at right angles from the main handle 1. The chain and linkage 11 is pulled taut around the pipe and the nearest pin 14 engaged over the dog 28 whereupon fine adjustment is made by rotating nut 21 upon the screw-threaded end 16 of the rod 15. The lever 18 is then moved in the opposite direction to arrow 24 so that the cam action causes the rod 15 together with the dog block 26' and dog 28 to move in the direction of arrow 25 against the pressure of spring 15' thus clamping the pipe 30 firmly between the jaws.

I have provided a vice support attachment which consists of a length of angle iron 31 which may be secured to a convenient supporting surface (not illustrated) by the vertical flange 31' thereof. A pair of lugs 32 extend upwardly from the front end 33 of the horizontal plate or flange 31' and a bolt or pin 34 is adapted to pass through these lugs and through an aperture (not illustrated) adjacent the semi-jaw 4 on the handle 1.

A further pair of lugs 35 extend upwardly from the rear end 36 of the plate or flange 31" and are adapted to embrace the handle 1 so that a further bolt or pin 37 may be entered through the upper ends of lugs 35 and above the handle 1 thus clamping the wrench firmly into position so that it can be used as a vice.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

What I claim as my invention is:

1. An adjustable clamping wrench comprising in combination an elongated main hollow handle, an arcuately concave, toothed, semi-jaw formed on the front end of said handle, an articulated jaw assembly pivotally secured by one end thereof to the lower end of said semi-jaw, actuating linkage pivotally secured to the other end of said articulated jaw assembly, an endwise movement actuating rod extending through said hollow handle, means on the front end of said rod adapted to adjustably engage said actuating linkage, and actuating lever means pivoted to the rear of said handle for moving said rod and said means endwise.

2. The device according to claim 1 in which said articulated jaw assembly consists of a plurality of jaw segments pivotally connected together, the inner surface of said segments being arcuately curved and toothed.

3. The device according to claim 2 in which said actuating linkage consists of a plurality of chain links pivotally connected together, said means on the front end of said rod including a dog extending upwardly from the end of said rod, said dog adapted to engage between any one of the links of said chain.

4. The device according to claim 3 in which said actuating lever includes a lever pivoted by one end thereof adjacent the rear end of said handle, a cam on the rear end of said lever, and means on said actuating rod engageable by said cam.

5. The device according to claim 4 which includes means to adjust the relationship between said rod and said cam, and means comprising a screw-threaded end to

said rod and a nut engageable upon said end, said cam engaging one surface of said nut.

6. The device according to claim 3 which includes vice means for mounting said wrench, said vice means including an angle iron support, a pair of lugs extending upwardly from one end of said support, a bolt adapted to engage said lugs with said handle portion, a further pair of lugs extending upwardly from the other end of said support, said handle portion adapted to be engaged between said lugs and further bolt means adapted to pass through the upper ends of said lugs and over said handle portion.

7. The device according to claim 1 in which said actuating linkage consists of a plurality of chain links pivotally connected together, said means on the front end of said rod including a dog extending upwardly from the end of said rod, said dog adapted to engage between any one of the links of said chain.

8. The device according to claim 1 in which said actuating lever includes a lever pivoted by one end thereof adjacent the rear end of said handle, a cam on the rear end of said lever, and means on said actuating rod engageable by said cam.

9. The device according to claim 8 which includes means to adjust the relationship between said rod and said cam, said means comprising a screw-threaded end to said rod and a nut engageable upon said end, said cam engaging one surface of said nut.

10. The device according to claim 1 which includes vice means for mounting said wrench, said vice means including an angle iron support, a pair of lugs extending upwardly from one end of said support, a bolt adapted to engage said lugs with said handle portion, a further pair of lugs extending upwardly from the other end of said support, said handle portion adapted to be engaged between said lugs and further bolt means adapted to pass through the upper ends of said lugs and over said handle portion.

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