Z. C. RICHARDSON.

PIPE WRENCH.

APPLICATION FILED AUG. 2, 1921.

1,412,708. Patented Apr. 11, 1922.

Fig. 1.

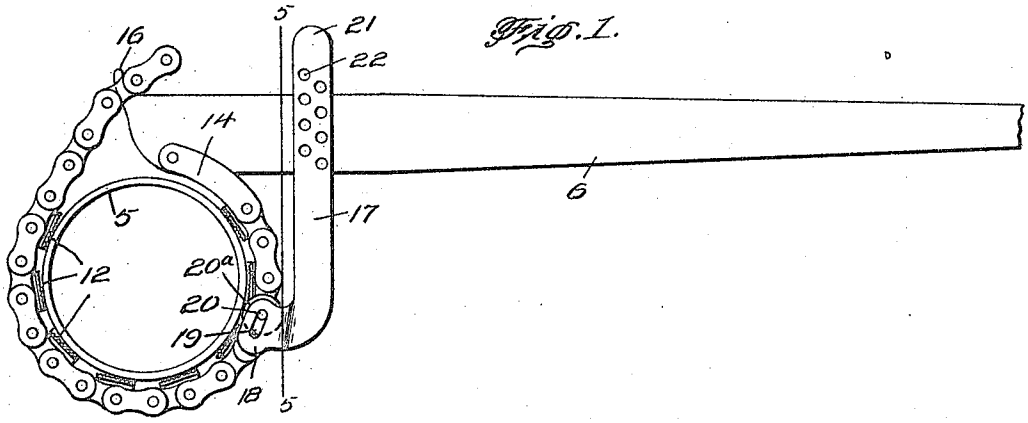


Fig. 2.

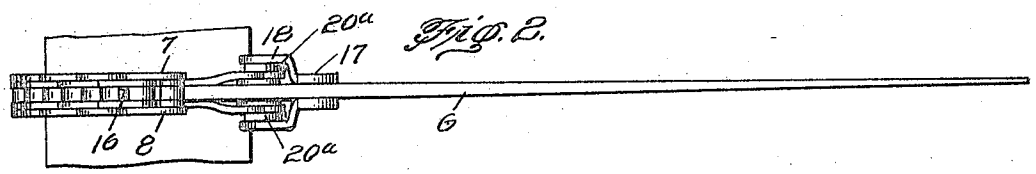


Fig. 3.

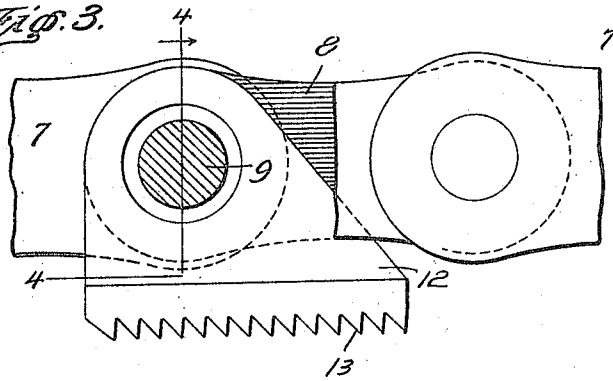


Fig. 4.

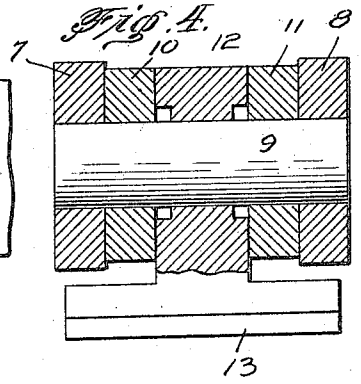


Fig. 5.

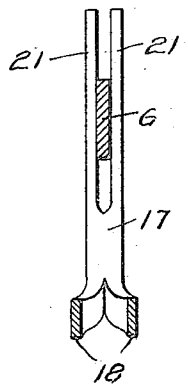
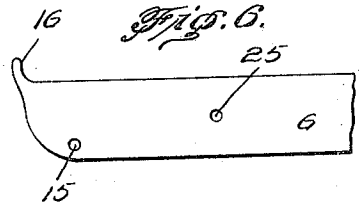


Fig. 6.



Z. C. Richardson INVENTOR.

BY

Geo. P. Kimmel. ATTORNEY.

UNITED STATES PATENT OFFICE.

ZACHARY C. RICHARDSON, OF BATON ROUGE, LOUISIANA.

PIPE WRENCH.

1,412,708. Specification of Letters Patent. Patented Apr. 11, 1922.

Application filed August 2, 1921. Serial No. 489,176.

To all whom it may concern:

Be it known that I, ZACHARY C. RICHARDSON, a citizen of the United States, residing at Baton Rouge, in the parish of East Baton Rouge and State of Louisiana, have invented certain new and useful Improvements in Pipe Wrenches, of which the following is a specification.

This invention relates to pipe tongs or chain wrenches and more particularly to an implement so constructed that in its use the pressure will be more equally divided at various points around a pipe thereby reducing the danger of crushing the same, yet allowing greater leverage.

One of the objects of the invention resides in the construction of a novel and improved pipe wrench wherein the links of the flexible chain are provided with a plurality of serrated or toothed gripping lugs which bite and prevent slipping of the chain about the same.

A still further object of the invention resides in a pipe wrench of the class above set forth wherein the end of the handle or operating lever is free to engage different links of the flexible chain, being pivotally connected to a supporting or compensating beam whereby the chain may be released and moved to another gripping position on the pipe.

Another and still very important object of the invention is the provision of a pipe or chain wrench designed for use in various arts and one in which the parts are extremely simple in construction, easily assembled, rigid and durable, highly efficient in operation, practical yet capable of being manufactured at a very low cost whereby its commercial possibilities are greatly enhanced.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing in the drawing, but may be changed and modified as long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the accompanying drawings:—

Figure 1 is a side view of the pipe wrench showing the same in gripping position about a pipe.

Figure 2 is a plan view.

Figure 3 is an enlarged detail partly in section showing the gripping lug.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a further detail taken on the line 5—5 of Figure 1; and

Figure 6 shows an end view of the operating lever or handle.

Referring now to the drawings wherein like numerals designate corresponding parts throughout the several views, 5 designates a pipe and 6 an operating handle or lever adapted to actuate a flexible member adapted to encircle the major portion of the pipe to be turned. In the present instance the flexible member above referred to comprises a plurality of links 7, 8, each of which is connected by a pin 9 which also passes through the inner connecting links 10, 11, said pin supporting a hingedly connected lug 12 disposed between the inner connecting links 10, 11, as clearly shown by Figure 3. Each of said lugs above referred to is provided with toothed or serrated gripping surfaces 13 which bite into the outer periphery of the pipe at various points substantially throughout the circumference thereof and thus prevent the chain from slipping about the pipe when it is being turned.

The end links 14 of the chain on each side of the handle or lever 6 are connected thereto by a pin passing through an aperture 15 in the end of the said arm, the rounded reduced extension 16 of which is adapted to engage between certain of the respective links of the flexible member, depending of course on the size of the pipe to be turned.

A supporting beam designated in its entirety by the numeral 17 is formed with upwardly curved arms 18 each of which is provided with a slot 19 therein to receive a pin 20 and two washers 20^a connecting certain of the links. The washers 20^a which are arranged between the outer faces of the link and the arms 18 of beam 17 operate as bearing rollers on the pipe (see Fig. 1). The supporting beam 17 is bifurcated to provide arms 21 having apertures 22 therein and adapted to receive the handle or lever 6, said lever being also provided with an aperture 25 so as to align with any one of the apertures 22 of the respective arms 21 and be se-

cured thereto by a suitable pin passing through the respective apertures to maintain the lever in the proper adjusted position.

By reason of the elliptical slots formed in the arms 18 of the supporting beam 17 it will be readily recognized that when the lever 6 is moved upwardly the supporting beam 17 will loosen the flexible chain and thus release the gripping lugs from the pipe permitting the chain to be moved to another position whereupon when the lever 6 is moved in the reverse direction the chain will tighten around the pipe and the gripping lugs bite into the same and permit the turning of the pipe as desired. In this manner it will be readily recognized that the pressure on the pipe is distributed at various points substantially throughout the circumference thereof as distinguished from those implements wherein a single gripping surface is provided in which instance the pressure is had at one point on the periphery of the pipe and frequently crushes the same. Of course since the leverage is equally distributed on the periphery of the pipe it will be readily seen that a greater leverage may be had with an implement of this character and hence a single workman can turn a pipe of large dimensions.

In the accompanying drawings, I have illustrated my invention embodied in one form by way of example, and which in practice has been found to be highly satisfactory in obtaining the desired results. It will be obvious however that other embodiments may be adopted, and that various changes in the details of construction may be resorted to by those skilled in the art without departing from the spirit and scope of the invention. It is furthermore understood that the invention is not necessarily limited or restricted to the precise elements shown except in so far as such limitations are specified in the subject matter being claimed.

Having shown and described my invention what I now claim as new and desire to secure by Letters Patent of the United States, is:—

1. A pipe wrench of the class described provided with a flexible chain capable of encircling the major portion of a pipe and composed of connected links, a plurality of gripping lugs freely carried by said links, a supporting member attached to the flexible chain and having a bearing roller for engaging the pipe to be gripped, and an operating handle or lever connected to the said chain and supporting member for moving said lugs into gripping engagement with the pipe to be turned.

2. A pipe wrench of the class described provided with a flexible chain capable of encircling the major portion of a pipe and composed of connected links, a plurality of pivoted lugs provided with serrated gripping faces carried by the links, a supporting member having bent arms and elliptical slots therein loosely attached to the flexible chain, the upper portion of said supporting member being bifurcated, an adjustable operating handle connected to and disposed between the arms of the bifurcated supporting member, said flexible chain being connected to the end of said operating handle whereby the lugs carried thereby may be moved into gripping engagement with and equally distribute the pressure on the pipe to be turned.

3. A pipe wrench of the class described provided with a flexible chain capable of encircling the major portion of a pipe, a plurality of pivoted lugs provided with serrated gripping faces carried by the links, a supporting member having laterally extending arms with slots therein loosely attached to the flexible chain, the upper portion of said supporting member being bifurcated, the arms of said bifurcated portion of the supporting member having a plurality of apertures therethrough, an operating handle adjustably connected with the bifurcated portions of the supporting member, the end of said handle being formed with a reduced extension for engagement between certain of the links of the chain whereby the lugs may be moved into gripping and non-gripping engagement with and equally distribute the pressure on the pipe to be turned.

In testimony whereof, I affix my signature hereto.

ZACHARY C. RICHARDSON.