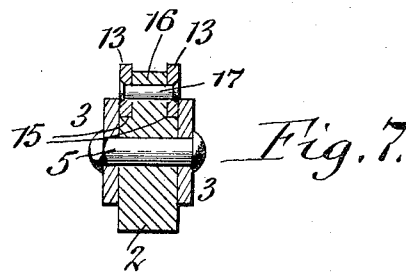
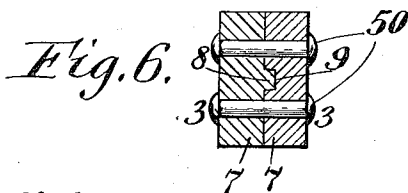
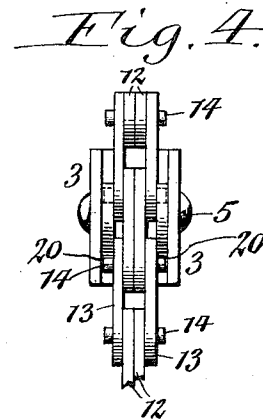
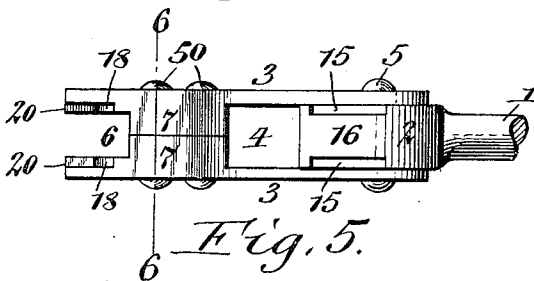
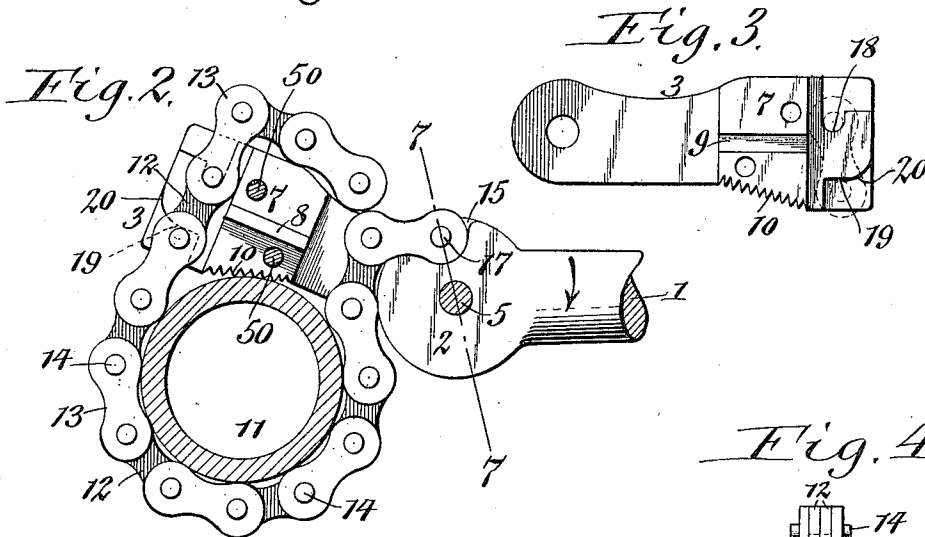
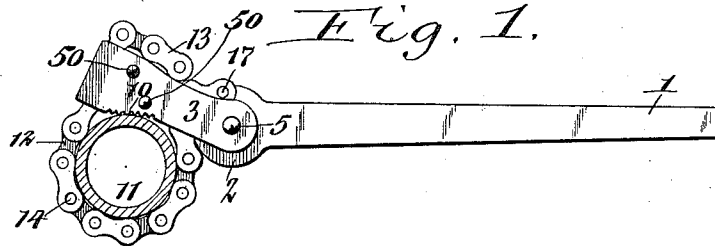


W. A. HYLE.  
PIPE WRENCH.

APPLICATION FILED MAR. 25, 1911.

1,016,997.

Patented Feb. 13, 1912.



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# UNITED STATES PATENT OFFICE.

WILLIAM ANDREW HYLE, OF BUFFALO, NEW YORK, ASSIGNOR TO PETER E. MACDONALD, OF TORONTO, CANADA.

## PIPE-WRENCH.

1,016,997.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed March 25, 1911. Serial No. 616,890.

*To all whom it may concern:*

Be it known that I, WILLIAM ANDREW HYLE, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to that class of pipe wrenches having a gripping jaw bearing against one part of the pipe to be turned or held, a handle pivotally connected with the jaw, and a chain wrapped around the opposite part of the pipe and adjustably and detachably connecting the handle with the jaw.

It is the object of this invention to produce a pipe wrench of this character in which the connection between the chain and the handle is strengthened and the cost of producing the handle is materially reduced; also to improve the construction of the jaw so as to permit of manufacturing the same at low cost without sacrificing any of its strength and also to improve the means for detachably connecting the chain with the jaw so as to permit of readily attaching the chain to or removing the same from the jaw but preventing accidental disengagement of the chain from the jaw when the wrench is in use.

In the accompanying drawings: Figure 1 is a side elevation of my improved wrench applied to a pipe. Fig. 2 is a vertical longitudinal section of the same, on an enlarged scale. Fig. 3 is a detached inside elevation of the left hand jaw section. Fig. 4 is a front elevation of the wrench with part of the chain broken away. Fig. 5 is a top plan view of the wrench with the chain omitted. Fig. 6 is a vertical transverse section in line 6—6, Fig. 5. Fig. 7 is a vertical transverse section in line 7—7, Fig. 2.

Similar letters of reference indicate corresponding parts throughout the several views.

1 represents the handle of the wrench which is provided at its inner or front end with a hub or drum 2 of circular or cylindrical form. Pivoted concentrically on this hub or drum is a gripping jaw which comprises two longitudinal parallel side bars or cheeks 3, 3 which are separated at their rear

ends by a space 4 which receives the hub of the handle. The pivotal connection between the handle and the jaw is preferably effected by a transverse rivet 5 passing concentrically through the hub and the rear ends of the jaw side bars. The front ends of the side bars are also separated by an intervening space 6 for a purpose which will presently appear. Between the front and rear ends of the side bars the same are provided on their inner sides with inwardly projecting lugs 7, 7 the faces at the inner sides of which engage each other.

For the purpose of holding the two side bars or sections of the jaw in alinement with each other their faces are provided with complementary interlocking parts consisting preferably of a longitudinal rib 8 formed on the face of one lug and engaging with a longitudinal groove 9 formed in the face of the other lug, as shown in Figs. 2, 3 and 6. By thus constructing the jaw in two pieces the same can be drop forged and produced at considerably less cost than when constructed in one piece, without, however, sacrificing any strength or reducing the efficiency of the tool.

The front parts of the sections of the jaw are relatively higher than the rear parts thereof and the undersides thereof at the lugs thereof are inclined relatively to the length of the jaw and provided with a longitudinal row of teeth 10 which are adapted to engage with one side of the pipe or rod 11 which is to be held or turned. The opposite side of the pipe is adapted to be gripped by a chain which detachably and adjustably connects the hub of the handle and the front end of the jaw. This chain preferably comprises a plurality of alternating pairs of contiguous links 12 and spaced links 13, the ends of adjacent pairs of links being connected by transverse pivot pins 14. The rear end of the chain passes through the space between the rear ends of the jaw side pieces and is adapted to be wound around the periphery of the hub of the handle upon turning the handle in the direction for tightening the chain and jaw on the pipe. The links of the rearmost pair are spaced apart and arranged at their rear ends in recesses

15 formed on opposite sides of the hub of the handle and extending to the periphery thereof. The rear ends of the rearmost links are pivoted to the web 16 between the recesses 15 by means of a transverse pin 17, and normally these links rest on one side against one side of the recesses 15, as shown in Figs. 1, 2 and 7. By this means part of the pull on the chain is taken up by the hub of the handle whereby the strain on the rivet 17 is reduced and the eye of the web 16 is not liable to be stretched as would be apt to occur if all the strain were directed against the web.

15 The pivotal connection between the chain and the handle produces a much stronger construction than when the chain is pivoted to a lug projecting laterally from the hub and it also reduces the amount of metal used in the tool and enables the handle to be forged at less expense and by simpler dies.

20 The pivot pin 17 is preferably flush with the sides of the rearmost pair of links so that the latter can pass through the space 4 at the rear end of the jaw but the other pivot pins 14 are of such a length that they project laterally beyond opposite sides of the chain links, as shown in Fig. 4.

30 On the inner longitudinal vertical side of the front end of each jaw the same is provided with a hook-shaped rib the mouth of which faces upwardly and forms a seat 18 while its lower side or back forms a straight longitudinal downwardly facing shoulder 19 which is connected with the front or outer side of the bill of the hook-shaped rib by a curved corner or shoulder 20.

35 In addition to the rivet 5 passing through the rear ends of the jaw sections the latter are preferably connected by a plurality of rivets 50 passing through the front ends of these sections within the spacing lugs 7, as shown in Figs. 1, 2, 3 and 6.

40 In using the wrench the handle is turned back so that the chain passes to its fullest extent downwardly in the space 4, then the chain is drawn closely around the pipe and the ends of its pin 17 nearest to the seats 18 are engaged therewith while the next rearward or lower pin moves with its ends underneath the straight shoulders 19 below the seats. Upon now turning the handle forwardly in the direction indicated by the arrow the chain will be tightened and the pipe gripped between the same and the jaw. Upon turning the handle backwardly slightly the chain may be loosened sufficiently to permit the wrench to be turned backwardly on the pipe for a new hold but during such backward movement the chain is not liable to jump off the jaw inasmuch as this is prevented by the ends of the pin 17 next below the straight shoulders 19 engaging with the same if the chain tends to rise

or move in a direction which would disengage from the seats the ends of the pin 17 which operate to couple the chain and the jaw.

Whenever it is desired to disconnect the chain from the jaw and detach the wrench from the pipe this can be readily done by swinging the links immediately below the seats 18 forwardly from underneath the straight lower shoulders 19 this being permissible by reason of the curved front shoulders 20 which are substantially concentric with the seats 18. After the link pivot below the seats 18 has been swung clear from the lower shoulder 19 the next upper pin may be lifted from the seats and the chain disengaged from the jaw preparatory to detaching the same from the pipe. By thus preventing the chain from jumping off the jaw the tool is more convenient in use and also enables a workman to operate the same more quickly and with greater ease, thereby facilitating the progress of the work.

I claim as my invention:

1. A pipe wrench comprising a jaw composed of two side bars or cheeks which have their rear ends separated while their front ends are provided with complementary interlocking faces, a handle to which the rear ends of said bars are pivoted, and a chain connected at one end with said handle and adapted to be connected with said jaw.

2. A pipe wrench comprising a jaw composed of two side bars or cheeks which have their rear ends separated while their front ends are provided with inwardly projecting cooperating lugs, one of said lugs being provided on its face with a longitudinal groove and the other lug with a longitudinal rib engaging with said groove, a handle to which said jaw is pivoted, and a chain adapted to detachably connect said handle with said jaw.

3. A pipe wrench comprising a jaw, a handle to which said jaw is pivoted and which is provided with a hub having recesses arranged on its opposite sides and extending to the periphery of the hub, a chain adapted to be connected at its front end with said jaw and provided at its rear end with a pair of links which are seated in said recesses and which normally rest on one side against one side of said recesses, and a transverse pivot connecting said hub and the links in the recesses thereof.

4. A pipe wrench comprising a jaw having two side bars or cheeks each of which is provided on its inner side with a hook-shaped rib the mouth of which forms a seat and opens upwardly toward the top of the jaw, while its back forms a longitudinal downwardly facing straight shoulder arranged below said seat and is connected at its outer end with the front side of the bill

of said hoop-shaped rib by a curved corner  
or shoulder, a handle pivotally connected  
with said jaw, and a chain connected with  
said handle and provided with laterally pro-  
5 jecting pins adapted to engage with said  
seats and to extend underneath said longi-  
tudinal shoulders.

Witness my hand this 21st day of March,  
1911.

WILLIAM ANDREW HYLE.

Witnesses:

A. E. BROWN,  
E. A. FITCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."