Feb. 10, 1931. S. SORENSEN ET AL 1,792,401

CHAIN TONGS

Filed Feb. 4, 1929

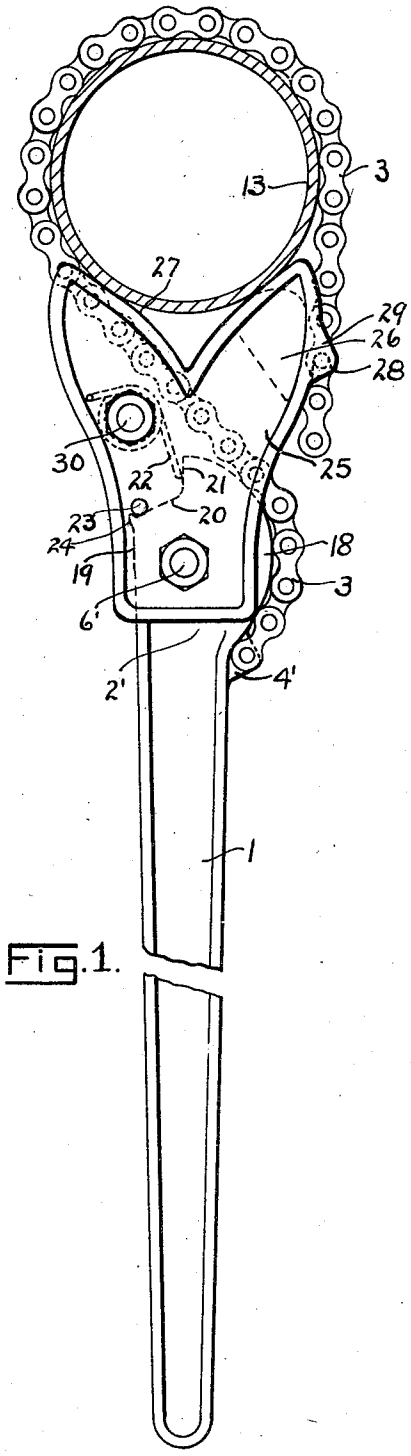



Fig. 1.

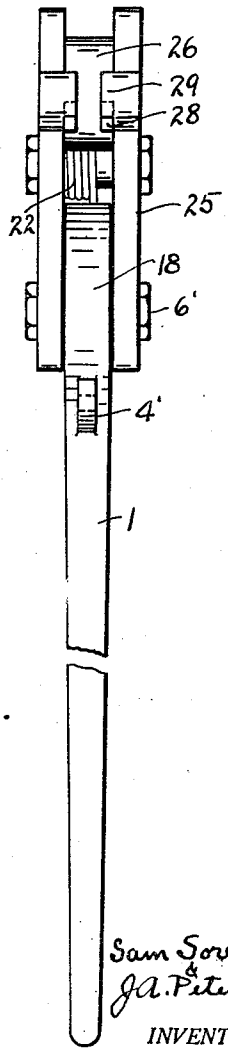



Fig. 2.

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Patented Feb. 10, 1931 1,792,401

# UNITED STATES PATENT OFFICE

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## CHAIN TONGS

Application filed February 4, 1929. Serial No. 337,183.

Our invention relates to pipe tongs or wrenches and pertains particularly to pipe tongs for use in handling heavy pipe in oil field work, although it is to be understood that this wrench is adapted for use on all sizes of pipe and may be used wherever pipe tongs are found necessary or desirable.

It is an object of the invention to provide a pipe wrench of the type employing a chain for gripping the pipe, in which an even and uniform grip is obtained upon the pipe on all sides thereof so that the pipe joints may be screwed up or unscrewed without danger of mutilation of said joints or of the pipe.

It is a further object to obtain a wrench in which the grip is obtained upon the pipe by a pull upon what is ordinarily the slack side of the chain as the wrench handle is moved.

It is an object to provide a simple and strong construction for a pipe wrench which will be easy and economical to manufacture and which will undergo the severe strains to which such a wrench is submitted without danger of breakage.

In the drawing we have illustrated a preferred form which the invention may take.

In the drawing, Fig. 1 is a side elevation of one form of pipe tongs embodying our invention, the same being shown as applied to the pipe which is shown in transverse section.

Fig. 2 is an edge elevation of the handle and the head with the chain thereon removed.

The head 2′ of the wrench handle is rounded on one side at 18 but is flattened at 19 on the opposite side. The round portion 18 is adapted to contact with the chain 3, which is secured to lugs 4′ of the head. The forward end of the head is formed with a recess at 20 providing a shoulder at 21 against which a spring 22 may bear, tending to hold the handle in such a position as to exert a pull upon the chain. A pin 23, extending through the head, is adapted to engage with a shoulder 24 on the jaw 25, thus limiting the relative movement of the handle and the jaw.

The jaw 25 is formed of two side plates spaced apart throughout their length but said plates are connected inwardly by a web 26 shown in dotted lines on Fig. 1. The space between the plates allows the insertion of the head 2′ between the same, and a pivot pin 6′ connects the jaws with the head of the handle. The jaw is forked at 27, at the forward end, to provide contact with the pipe, which will therefore be made at two points on the jaw, as will be obvious from Fig. 1.

The chain 3 is passed around the head and through, between the two side plates of the jaw, and then forwardly about the pipe 13, and the free end of the same may be latched within recesses 28 formed on the inner sides of the lugs 29 at the side of the head.

The spring 22 is mounted upon a pin 30 extending through the jaw 25 at one side thereof, the end of the spring projecting toward the head 2′ and bearing against the shoulder 21, as previously noted.

In the operation of the wrench it is secured to the pipe as before and the chain is tightened to grip the pipe by the movement of the handle to the left of the position shown in Fig. 1. There is a pull exerted on the end of the chain where it is attached to the head, due to the cam action of the portion 18. There is also a pull exerted upon the opposite end of the chain, due to the movement of the wrench as a whole relative to the pipe. The effect will be that a strong and even pull will be exerted to tighten the wrench uniformly upon the pipe from both ends thereof. It will also be noted that the chain contacts with the pipe throughout the greater portion of the periphery of the pipe. It will not be necessary with this type of wrench to form teeth upon the forward end of the head as is common with other types of chain tongs. The spring 22 exerts a tension upon the handle, tending to hold the chain tight upon the pipe, but when the handle is moved to the left of the Figure 1 position the chain will slacken relative to the pipe and allow the same to slip along the pipe so that the desired ratcheting action of the handle and the wrench relative to the pipe may be employed in screwing up joints. This is a desirable feature in tongs of this character and is an advantage obtained by the invention herein disclosed.

But one form of wrench illustrating the

invention has been disclosed. It is to be understood that the form of the device may be varied in many ways to obtain the application of our invention to pipe tongs of this character. This invention provides great flexibility in that various sizes of pipe may be gripped by this wrench and in each size a firm and uniform grip is obtained upon the pipe.

What we claim is new and desire to protect by Letters Patent is:

1. A chain tongs comprising a handle, a head thereon having a rounded portion on one side thereof, a chain attached to one side of said handle and engaging about said rounded head, a jaw pivoted upon said head, means on the side of said jaw adjacent said chain to detachably engage said chain after it is passed about the pipe, whereby the swinging of said handle in one direction will pull upon the end of the chain attached thereto, and a spring on said jaw bearing against said head to hold said chain against said pipe.

2. A chain tongs including a handle, a jaw on said handle, a plurality of rounded faces on said jaw adapted to contact the pipe, and a chain passing thru said jaw and encircling the pipe and adapted to co-act with said rounded faces whereby the chain converges from the pipe in a substantially V form.

3. A chain tongs including a handle, a head thereon, a rounded projection on one side, and a longitudinal shoulder on the other side, a jaw pivoted on said head forked symmetrically to engage the pipe, a chain secured to said handle adjacent said head and engaging about said projection, and means to attach the free end of said chain to said jaw after it has been passed about the pipe.

4. A chain tongs including a handle, a head thereon, a rounded projection on one side, and a longitudinal shoulder on the other side, a jaw pivoted on said head forked symmetrically to engage the pipe, a spring on said jaw engaging said shoulder on the handle, a chain secured to said handle adjacent said head and engaging about said projection, and means to attach the free end of said chain to said jaw after it has been passed about the pipe.

In testimony whereof, we have hereunto affixed our signatures, this the 11th day of January, A. D. 1929.

SAM SORENSEN.
JOSEPH ARVID PETERSON.