No. 876,927. PATENTED JAN. 21, 1908.

G. AMBORN.

CHAIN PIPE WRENCH.

APPLICATION FILED MAY 6, 1907.

2 SHEETS—SHEET 1.

FIG. 1.

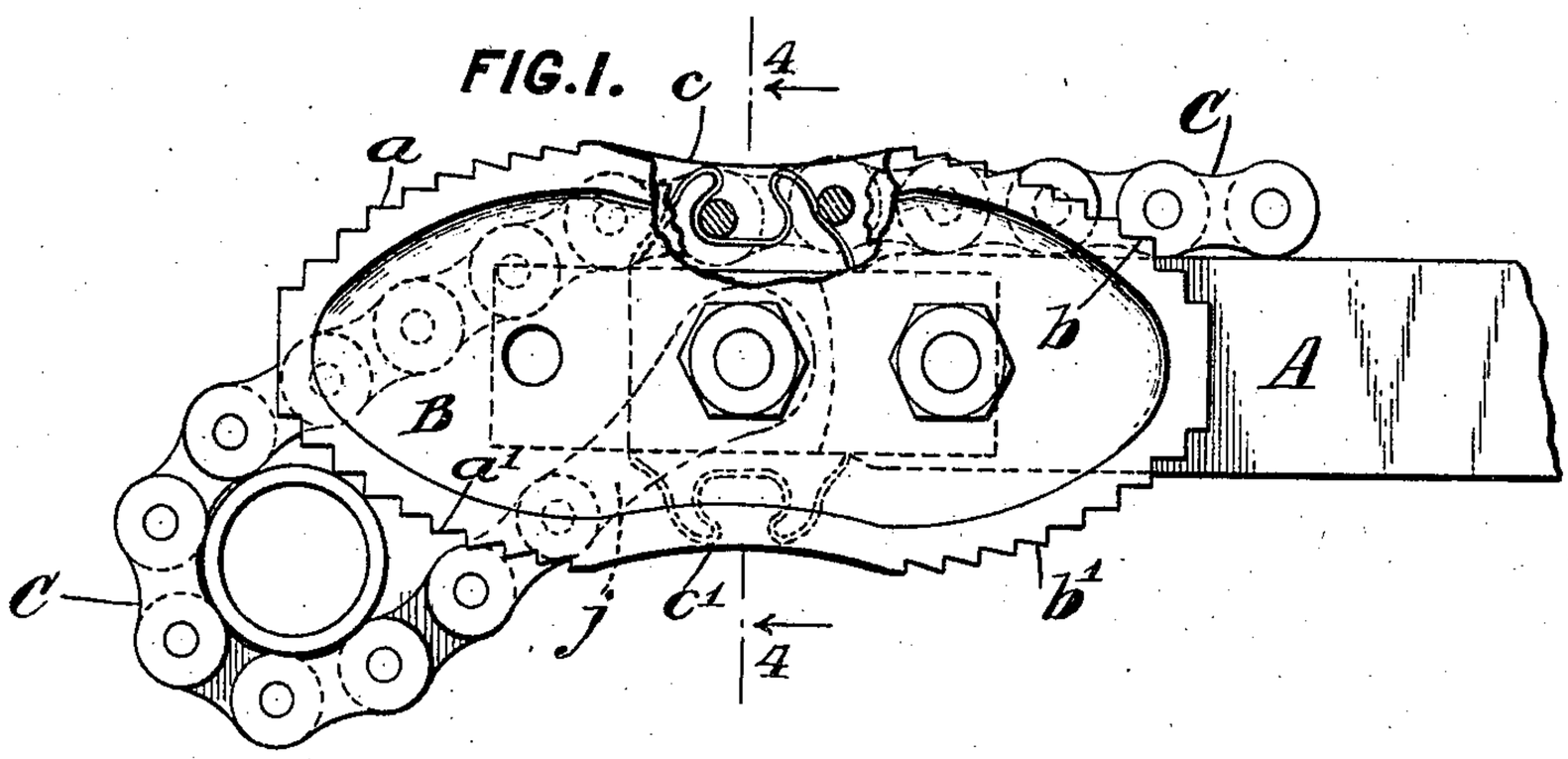


FIG. 2.

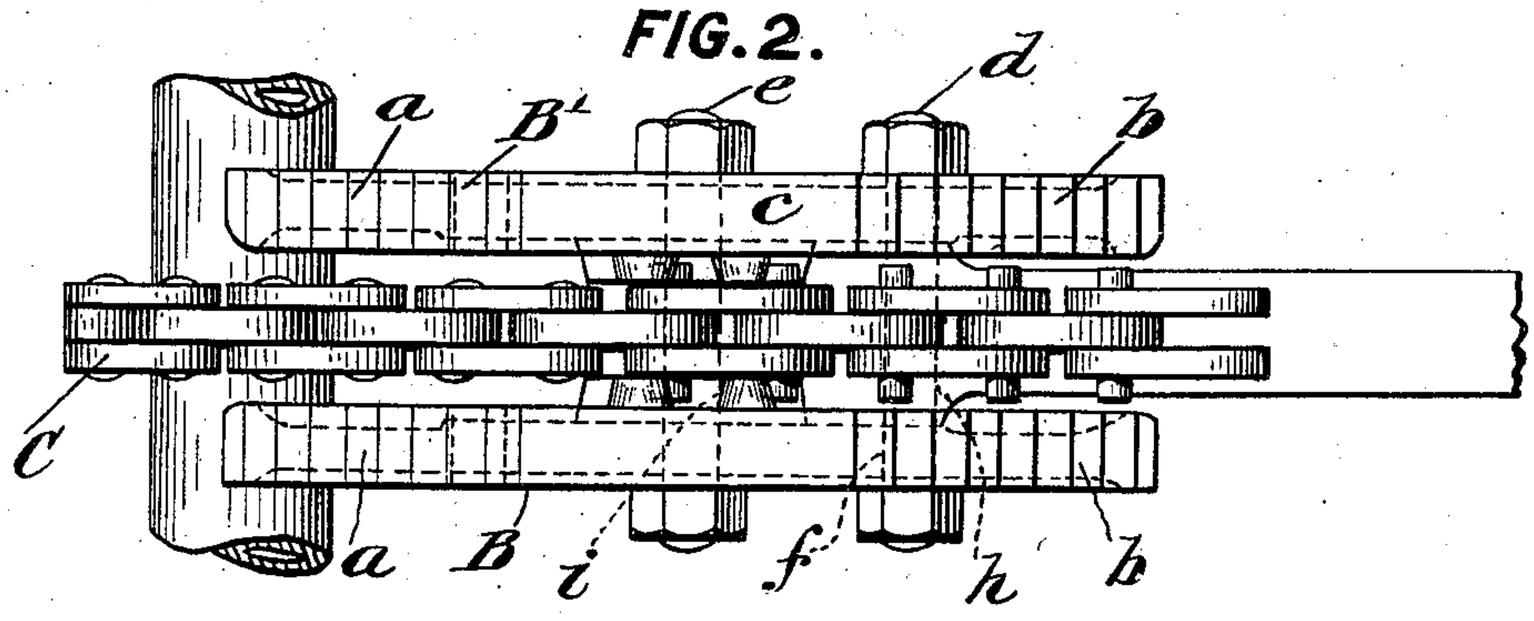
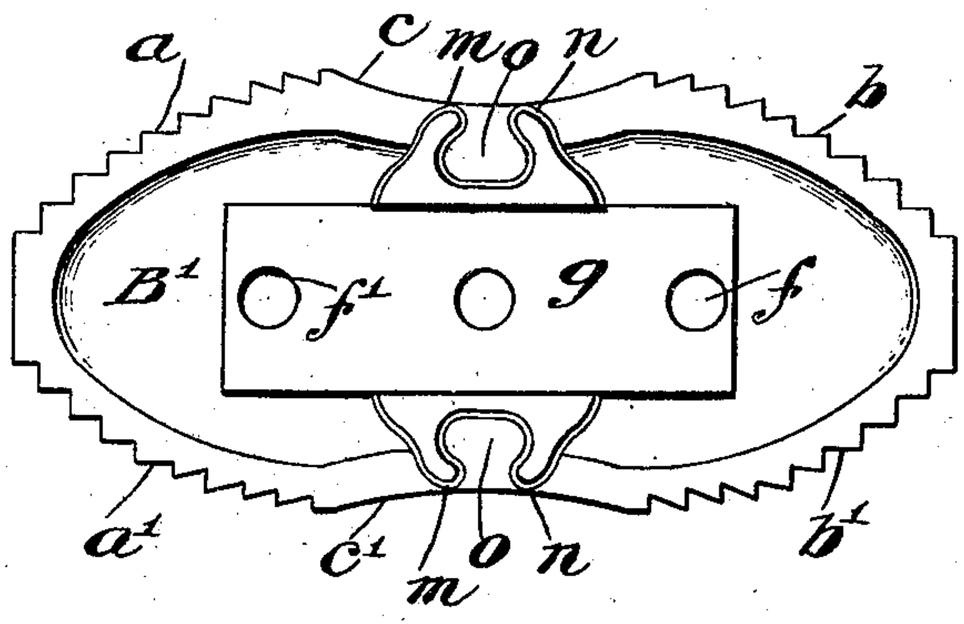


FIG. 3.



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2 SHEETS—SHEET 2.

FIG. 4.

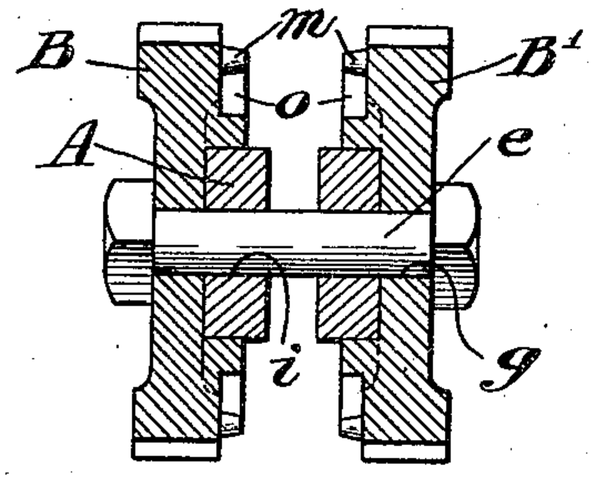


FIG. 5.

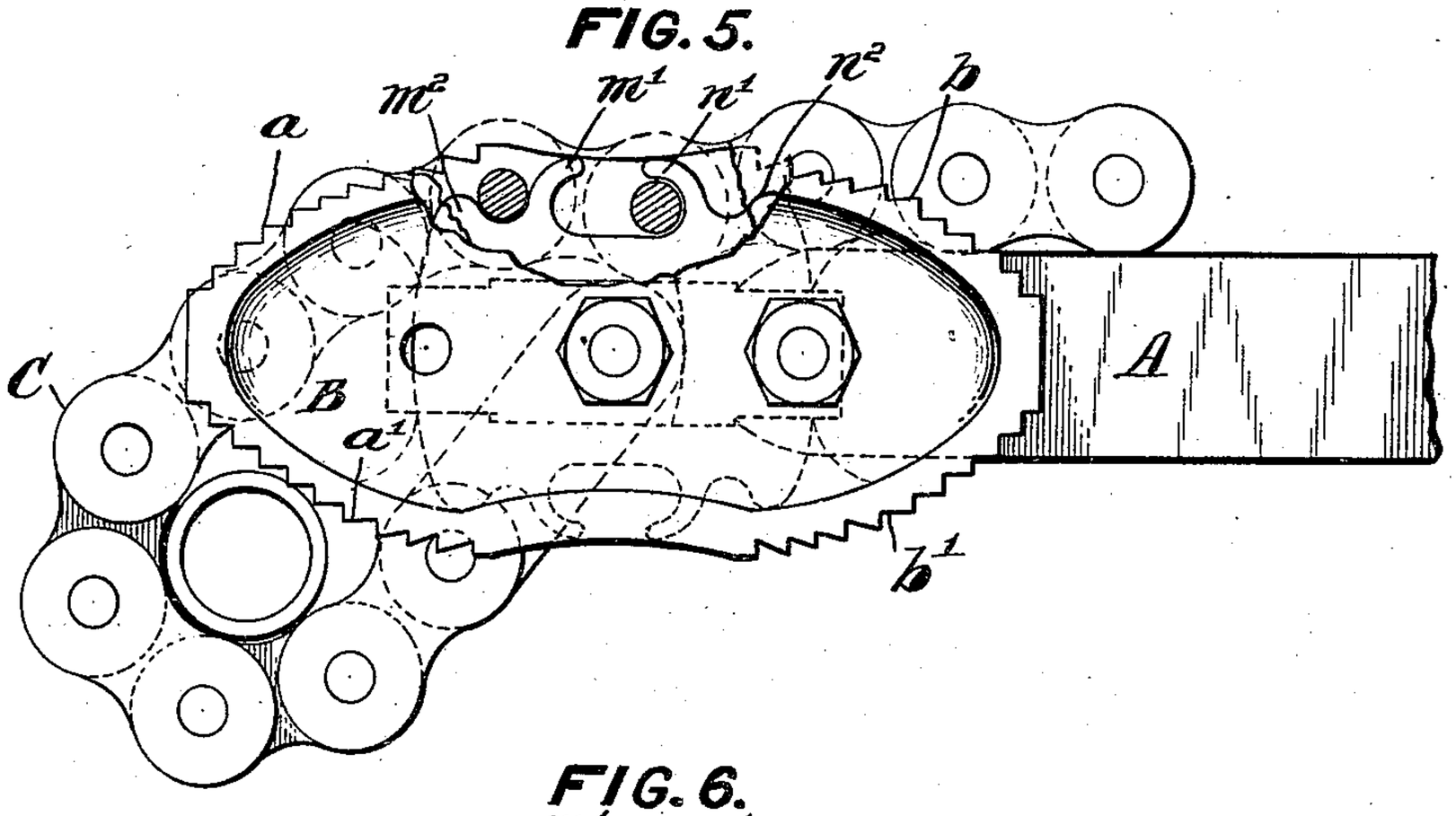
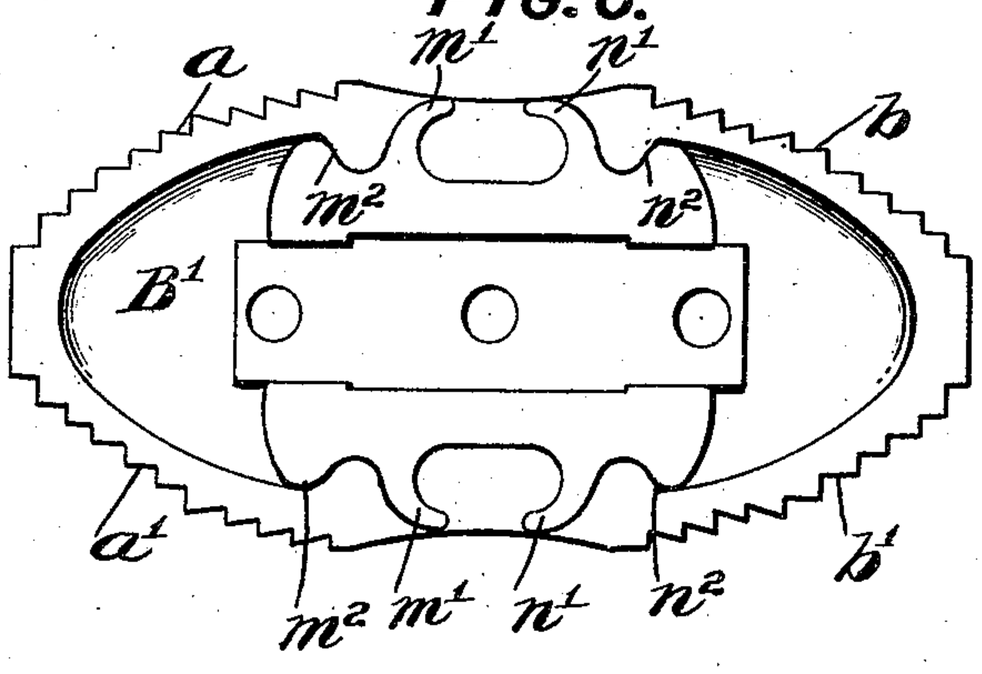


FIG. 6.



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CHAIN PIPE-WRENCH.

No. 876,927. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed May 6, 1907. Serial No. 372,038.

To all whom it may concern:

Be it known that I, GEORGE AMBORN, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Chain Pipe-Wrenches, of which the following is a specification.

This invention relates to chain pipe wrenches or the like, and aims to provide certain improvements therein.

The present invention relates particularly to that type of wrench in which laterally separated jaws are provided between which the chain is centrally pivoted so that it may swing to one side or the other and thus be adapted for operation in connection with either of the working faces of the jaws.

The principal object of the present invention is to provide a wrench of this type in which the jaws are double-ended, so that each is provided with two sets of working faces, such jaws being adapted to be reversed with relation to the handle, so that one or the other set of working faces may be brought into operative position.

In the preferred construction of my invention, the chain is pivoted in a fixed position centrally of the jaws; so that it is not necessary to detach it when the jaws are reversed.

Referring to the drawings, which illustrate several embodiments of my invention, Figure 1 is a side elevation of a wrench, showing the preferred construction. Fig. 2 is a top or plan view. Fig. 3 is an elevation showing the inner side of one of the jaws. Fig. 4 is a section on the line 4—4 in Fig. 1. Fig. 5 is an elevation showing a modified construction. Fig. 6 is an elevation showing the inside of one of the jaws of the wrench shown in Fig. 5.

Referring first to Figs. 1 to 4, let A indicate a suitable handle or shank which has fixed to its forward end two jaws B, B′ as shown. Each of the jaws B, B′ is double-ended, that is to say, instead of having only the working faces *a*, *a′* on its front end, these faces are duplicated, as shown at *b*, *b′*, at its rear end. Preferably the faces *a* and *b* and *a′* and *b′* are connected respectively by a curved portion *c* or *c′*, such portions in use serving as gages by which the necessary length of loop of the chain can be determined in a well known manner. In the present construction the portions *c*, *c′* are adapted for use either in the normal or reversed position of the jaws.

The jaws are preferably fixed to the handle by means of bolts *d* and *e*, the former of which passes through holes *f*, *f′* in the jaws and a hole *h* in the handle, and the latter of which passes through holes *g* in the jaws and *i* in the handle. Preferably the jaws are slotted to receive the sides of the handle. The bolt *e* also serves as a pivot pin for the eye *j* to which the chain is connected. It is important that the bolt *e* be centrally arranged, that is to say, that it shall be disposed in such a position that the chain C shall be capable of swinging to either the upper or under side of the wrench, so as to bring the upper or lower working face *a* or *a′* into operation. This arrangement of the pivot pin of the chain is also important in that it enables the chain to act from the same point when the jaws are reversed, so that it is not necessary to alter the position of the pin or other connection.

In the present construction, in order to reverse the jaws the bolt *d* is removed and the bolt *e* slackened sufficiently to permit the disengagement of the jaws from the handle, whereupon they may be turned around the bolt *e* to their reverse positions in which the holes *f′* in the jaws are brought into coincidence with the hole *h* of the handle, whereupon the bolt *d* is replaced and both bolts tightened.

My invention provides an improved form of locking means for the free end of the chain. When the latter is constructed with locking pintles, as shown in Figs. 1 and 2, I prefer to construct the lock as shown in Fig. 3. This figure illustrates one side of each of the upper and lower locks, these being duplicated on the opposite jaw. In the construction shown I provide two oppositely-arranged hook-like members *m* and *n* which are adapted to engage the pintles of the chain, the member *m* being adapted for use when the jaws are in the position shown in Figs. 1 and 2, and the member *n* being adapted for use when the jaws are reversed or turned end for end.

It will be observed that each of the locking members extends rearwardly when in its operative position. Preferably also the locking members are arranged so close together that the space between their ends is sufficient only to permit a pintle on the chain to pass easily between them. By this means the rear member constitutes a retaining de-

vice for the pintle which prevents its leaving the recess *o* formed between the two members except by a movement which is directly outward from the longitudinal axis of the wrench,—a movement which does not ordinarily occur in use. Should the pintle leave its locking seat in use, as, for instance, when the movement of the wrench is reversed to obtain a fresh grip upon the pipe, it will automatically reëngage with its lock when the chain is tightened, so long as it is retained in any position in the recess *o*. The locking members *m* and *n* preferably are arranged with their locking faces close together, so that when one of the locks is in engagement with a pintle the other lock lies between such pintle and the next rearward pintle.

In the modification illustrated in Figs. 5 and 6, I have shown a construction wherein the hook-shaped members m' n' perform the retaining function which they have in the construction just described, but the locking function is performed by separate abutments m^2 n^2 arranged between the respective hook-like members and the ends of the jaws. In this construction the forward abutment takes all of the strains of use while the rear retaining members engages the adjacent pintle and holds the same so that the chain cannot swing out of engagement therewith in use. The proportions are such that when the rear pintle is in engagement with the retaining member the forward pintle can automatically swing into place around the retained pintle as a center. To permit this movement the abutments m^2 n^2 are shaped so that a pintle may engage therewith by a lateral movement toward the longitudinal axis of the wrench.

In use the wrench is employed in the ordinary manner, the working faces *a* or a' being brought into operation as convenient. When these faces become worn or dull the jaws may be reversed and the working faces *b* b' brought to the front.

It will be seen that by my invention I provide a chain pipe wrench or analogous device in which the wrench has double the wearing capacity of the single-jawed wrenches now in use, and in which the jaws have but little greater length or weight than those having but two working faces. It will also be observed that I provide a construction in which the chain is connected to the wrench at a single fixed point from which it is capable of operation in all positions of the jaws. This is especially important in the type of wrench shown wherein the chain is locked upon the opposite side to the pipe.

It will be observed that I do not wish to be limited to the modifications of my invention herein shown, as many changes may be made therein without departing from the invention.

It is to be understood that my invention is applicable to other devices than chain wrenches, such, for instance, as chain pipe vises or the like.

What I claim is:—

1. In a chain pipe wrench, the combination of a handle, a double-ended reversible jaw connected therewith, a chain pivoted thereto, and two hook-like members reversible with the jaw and adapted to engage the chain in either position of said jaw.

2. In a chain pipe wrench, the combination of a handle, a double-ended reversible jaw connected therewith, a chain pivoted thereto, and two hook-like members arranged to form a recess between them, said members being adapted to engage the chain in either position of said jaw.

3. In a chain pipe wrench, the combination of a handle, a double-ended reversible jaw connected therewith, a chain pivoted thereto, and means for locking said chain in both positions of said jaw, said means comprising two hook-like members facing in opposite directions, and reversible with the jaw.

4. In a chain pipe wrench, the combination of a handle, a double-ended reversible jaw connected therewith, a chain pivoted thereto, and means for locking said chain in both positions of said jaw, said means comprising two hook-like members facing in opposite directions, said members being fixed to the jaw.

5. In a chain pipe wrench, the combination of a handle, a double-ended reversible jaw connected therewith, a chain pivoted thereto, and means for locking said chain in both positions of said jaw, said means comprising two hook-like members extending toward each other, each of which is adapted to act as a locking member in one position of said jaw, and as a retaining member in the other position of said jaw.

6. In a chain pipe wrench, the combination of a handle, a double-ended reversible jaw connected therewith, a chain pivoted thereto and having locking pintles, and means for locking said chain in both positions of said jaw, said means comprising two hook-like members extending toward each other and arranged close together so as to form a recess between them having a restricted opening adapted to receive a chain pintle.

7. In a chain pipe wrench, the combination of a handle, two double-ended reversible jaws connected therewith, a chain pivoted centrally between said jaws, whereby said chain acts from the same point when the jaws are reversed, and means for locking said chain in both positions of said jaws, said means comprising two hook-like members facing in opposite directions and formed upon said jaws.

8. In a chain pipe wrench, the combina-

tion of a handle, two double-ended reversible jaws connected therewith, a chain pivoted centrally between said jaws, whereby said chain acts from the same point when the jaws are reversed, and means for locking said chain in both positions of said jaws, said means comprising two sets of hook-like members each set comprising two members facing in opposite directions, one set being located at the upper sides of the jaws and the other at the under sides thereof.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE AMBORN.

Witnesses:
EUGENE V. MYERS,
THEODORE T. SNELL.