(No Model.)

G. M. MARSHALL.

CHAIN PIPE WRENCH.

No. 395,790. Patented Jan. 8, 1889.

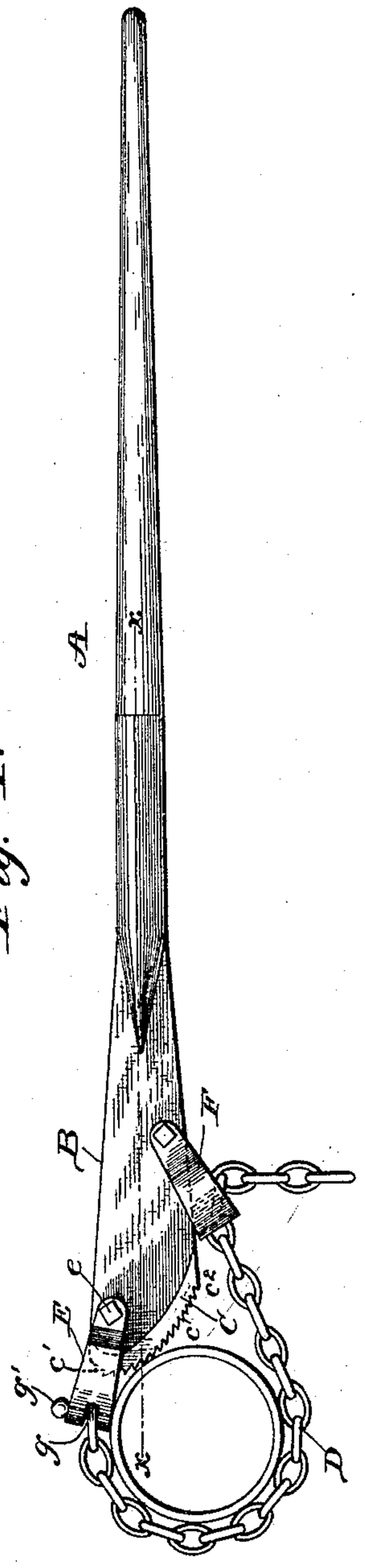

Fig. 1.

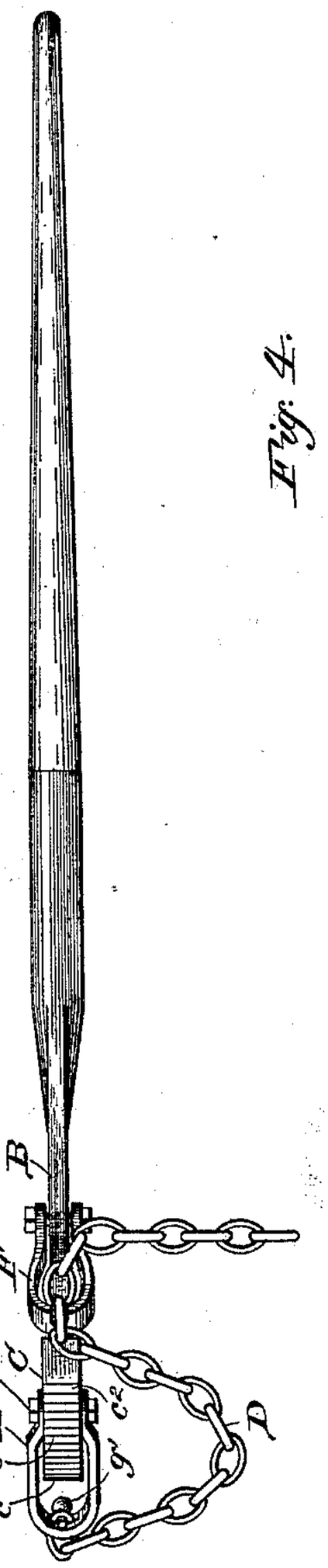

Fig. 2.

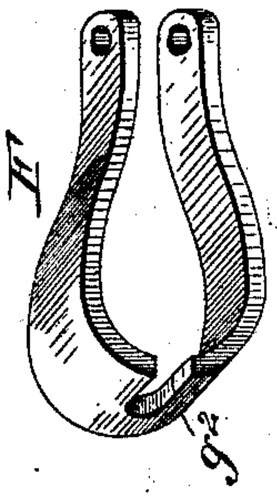

Fig. 4.

Fig. 3

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CHAIN PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 395,790, dated January 8, 1889.

Application filed August 13, 1888. Serial No. 282,580. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. MARSHALL, a citizen of the United States, of residing at Kilbourn City, in the county of Columbia and State of Wisconsin, have invented certain new and useful Improvements in Chain Pipe-Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to chain pipe-wrenches; and it consists of the peculiar construction and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

Heretofore pipe wrenches or tongs have been provided with a toothed or serrated head and an adjustable chain, between which parts the pipe is gripped, so that it can be turned or rotated axially; but in nearly all such prior devices known to me the toothed head of the wrench is divided or split longitudinally to permit the chain to pass between the divided members of the head. When thus constructed, the divided members of the head of the wrench do not grip or bite the pipe centrally in line with the chain on a narrow edge or ring, but on opposite sides of said chain, and the head of the wrench is made so wide or thick that it cannot be used to advantage in contracted or confined spaces, as is often required in the practical use of a wrench.

I am also aware of the pipe-wrench shown in United States Letters Patent No. 354,197, in which the serrated head of the wrench is elongated and curved laterally to a point out of line with the longitudinal axis of the lever, and a transverse dog is secured in the slotted end of the lever, to the ends of which dog a chain is connected that passes around a pipe, so as to grip the same between itself and the wrench. In this device the necessary close wrap of the chain around the pipe cannot be secured, owing to the peculiar curvature and the excessive length of the laterally-extended end or point of the toothed head, which is disposed in the path of the chain and which prevents the chain from gripping the pipe firmly to prevent it from slipping, especially when the tongs of this construction are applied to a galvanized or greasy pipe, as is often the case in plumbing.

The object of my invention is to provide an improved wrench in which the chain is connected to the head of the wrench in a peculiar manner to avoid interfering with the gripping action of the head, and so that the latter is left solid and acts centrally on the pipe in line with the chain. The chain when in use wraps or hugs very closely to the pipe, and the head acts or binds thereon with an increasing grip, similar to a cam, when the lever is turned, so that the chain and head grip the pipe with a firmer hold the farther the lever is turned and are very efficient in turning galvanized or greasy pipes. The chain and head of the wrench are very compact, and the tool can thus be advantageously employed on ring-like objects in confined narrow spaces and in close juxtaposition to projections and flanges.

I will now proceed to describe my invention in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of p'pe-wrench embodying my invention. Fig. 2 is a top plan view thereof, and Fig. 3 is a horizontal sectional view through the head of the wrench. Fig. 4 is a detail perspective view.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the lever of a pipe-wrench embodying my invention, which is contracted in thickness at one end to form a shank, B, that is made integral with the lever; or the lever may be made in a separate piece and hollow, and be firmly united in any suitable manner to said shank, as is obvious. I preferably taper this shank longitudinally from the point where it joins the lever to the extreme outer end thereof, and while the shank is of uniform thickness the outer end thereof is wider than the inner end, as shown in Figs. 1 and 3, so that an extended surface or large area is provided for the head of the wrench, which is sufficient to insure the necessary gripping-surface, without adding materially to the weight of the implement or giving the same a heavy cumbersome appearance.

A head, C, is formed integral with the shank D, at the extreme outer end thereof, which

head is slightly thicker than the shank and has a toothed or serrated curved face, as at *c*. The degree of convexity of this toothed face of the head varies throughout the length thereof, to give the same a greater range or scope of adaptation to pipes of varying diameters. Thus the upper portion, *c'*, of said convex surface conforms to an arc of a circle of a short radius, while the lower portion, c^2, of said surface lies on an arc of longer radius, the extreme point of said curved face of varying convexity lying at a point slightly to one side of the longitudinal axis of the shank and between the side marginal lines thereof.

D is the chain, which is connected in a peculiar manner to the shank B by means of two clevises, E F. To obviate the objection of having the chain interfere with the gripping action of the head and at the same time avoid dividing the head, to thereby leave the head solid and also adapt it to act on the pipe centrally and in line with the chain, I connect one end of said chain to the shank at a point beyond the extreme point of curvature of the toothed face *c* of the head. This I accomplish by pivoting one of the clevises, E, to the shank at a point just in rear of the head at one side of the longitudinal center thereof, as at *e*, and adjusting the free end of said clevis beyond the head, so that the point of connection of the free end of the clevis and one end of the chain is a short distance beyond the curved face of the head. The other clevis, F, is pivoted to the opposite side of the shank at any convenient point in rear of the pivot of the clevis E, and the other or free end of the chain D is detachably connected or shortened at pleasure to accommodate pipes of varying dimensions.

One end of the chain is permanently connected to one of the clevises, E, and the opposite end of said chain is detachably connected to the other clevis, F. The clevis E is provided with a longitudinal slot, *g*, which opens through the outer end of said clevis and receives one of the links of the chain, through which slot *g* and the link at one end of the chain is passed a pin, bolt, or rivet, *g'*, that permanently connects one end of the chain and the clevis E. The other clevis, F, is provided with a transverse slot, g^2, which opens through the lower edge of said clevis, and in this slot is fitted one of the series of links of the chain, which may be detachably connected to the clevis F by a removable bolt or by hooking said link over one edge of the slot, as is obvious.

The operation of my invention is obvious from the foregoing description, taken in connection with the drawings. To adjust the wrench to a pipe, the end of the chain connected to the clevis F is detached therefrom and the head applied to the pipe and the chain adjusted or wrapped close around the same and again connected to the clevis F. The lever can now be operated to cause the curved face of the head to bite on the pipe, which is gripped with greater firmness by the extreme point of the curved head and the chain the farther the lever is turned until the limit is reached.

It will be observed that the chain does not in the slightest manner interfere with the gripping action of the head, and that the chain can be wrapped more closely around the pipe without obstruction from the head.

By making the shank and head and arranging the chain in the manner described the width of the head in cross-section can be materially reduced as compared with prior devices, and the wrench can be used on small ring-like surfaces and close to flanges or projections. The chain and head act centrally on the pipe in line with each other and the axis of the lever, and the head can thus be made solid and of great strength. The wrench is simple, light, and durable in construction, exceedingly efficient and reliable in operation, and cheap of manufacture.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a chain pipe-wrench of the class described, the combination of a lever having a head, C, which is provided with a continuous curved serrated face, *c c'*, a clevis, E, pivoted directly to the head at a point on one side of the horizontal axis thereof and in rear of the convex face and having its free end extended beyond the extreme forward point of the convex face, another clevis, F, pivoted directly to the head on the opposite side of the axis thereof at a point in rear of the pivot of the clevis E and having its free end terminating in rear of the convex face of the head, and a chain connected to the free end of both clevises, substantially as and for the purpose described.

2. A chain pipe-wrench of the character described, consisting, essentially, of a lever, a contracted shank fixed thereto and having an enlarged head, C, at its free end, the face of the head being serrated and curved continuously from one side to the other at *c c'*, a U-shaped clevis, E, pivoted directly to the head at *e*, and having a horizontal slot, *g*, opening through its extreme forward end, another U-shaped clevis, F, pivoted to the opposite side of the head and having a slot, g^2, opening through one of the lateral edges thereof, and a chain having one end connected to the clevis E by a pin, *g'*, and detachably connected at its other end to the clevis F by fitting one of its links over one edge of the slot g^2 of said clevis, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE M. MARSHALL.

Witnesses:
H. H. BENNETT,
G. L. PIERCE.