

No. 621,293.

Patented Mar. 14, 1899.

G. F. CRASS.  
CHAIN PIPE WRENCH.  
(Application filed Sept. 9, 1898.)

(No Model.)

2 Sheets—Sheet 1.

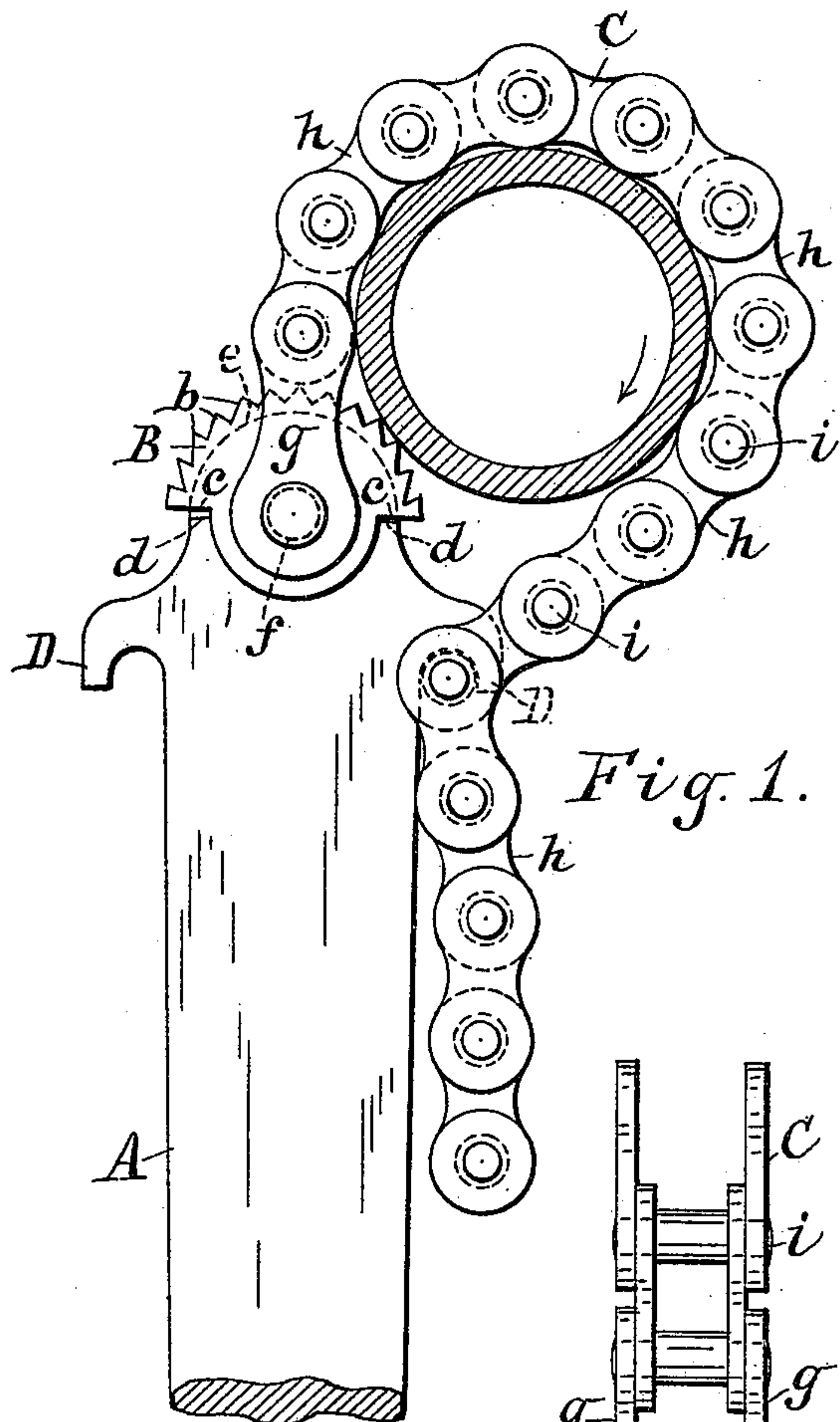


Fig. 1.

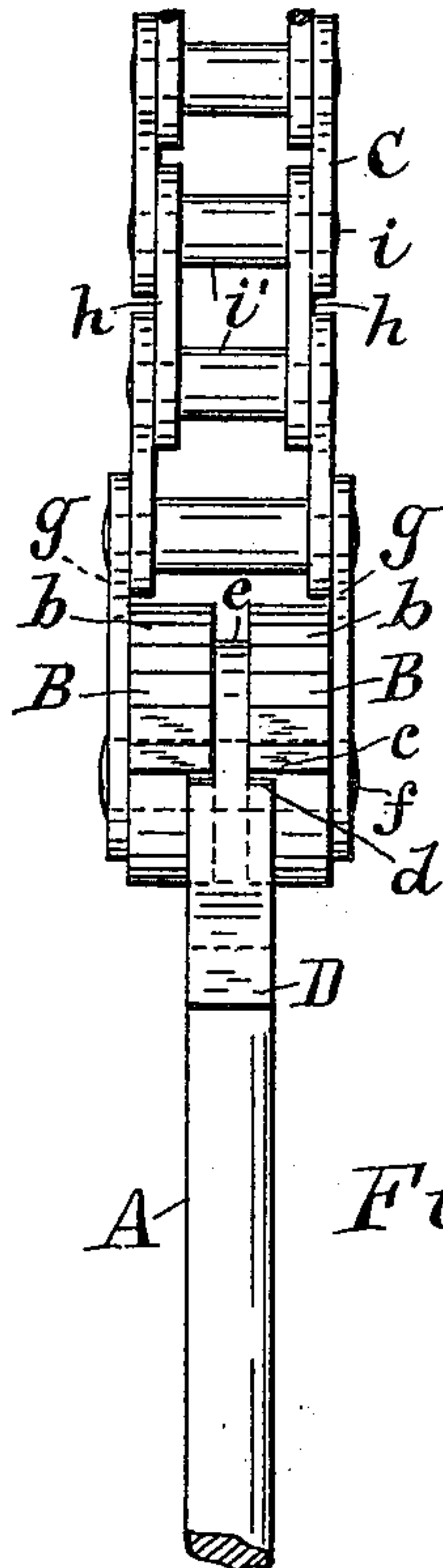


Fig. 2.

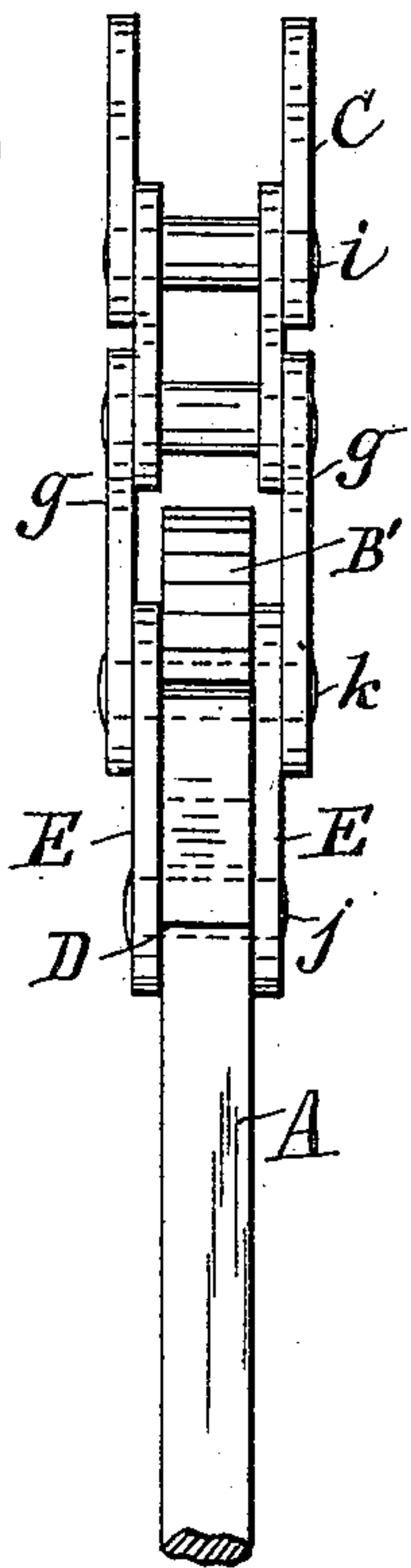


Fig. 3.

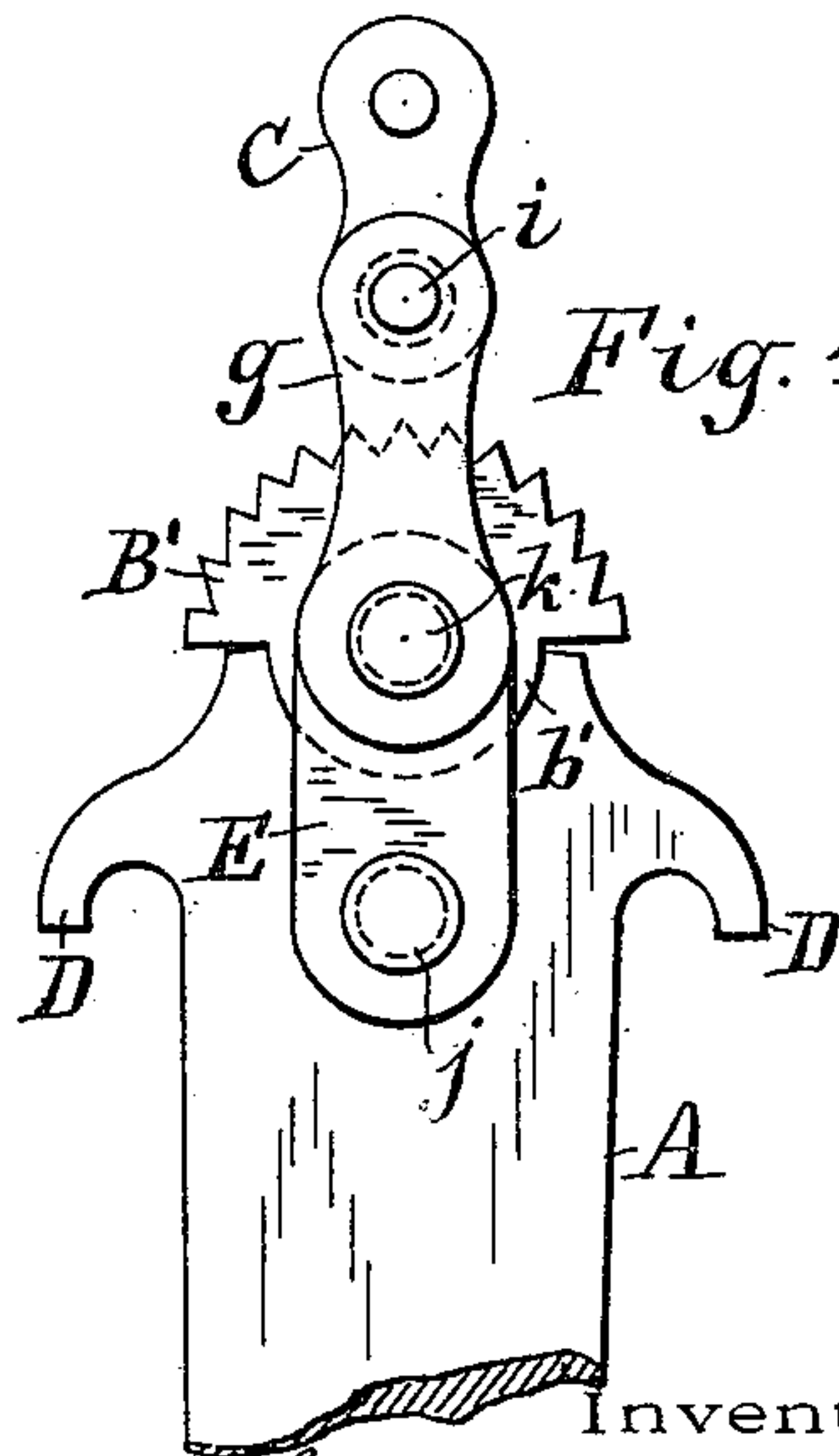


Fig. 4.

Witnesses.

A. D. Allen

H. M. Seaman

Inventor.

George F. Crass.

By Mark W. Dewey

his Attorney.

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2 Sheets—Sheet 2.

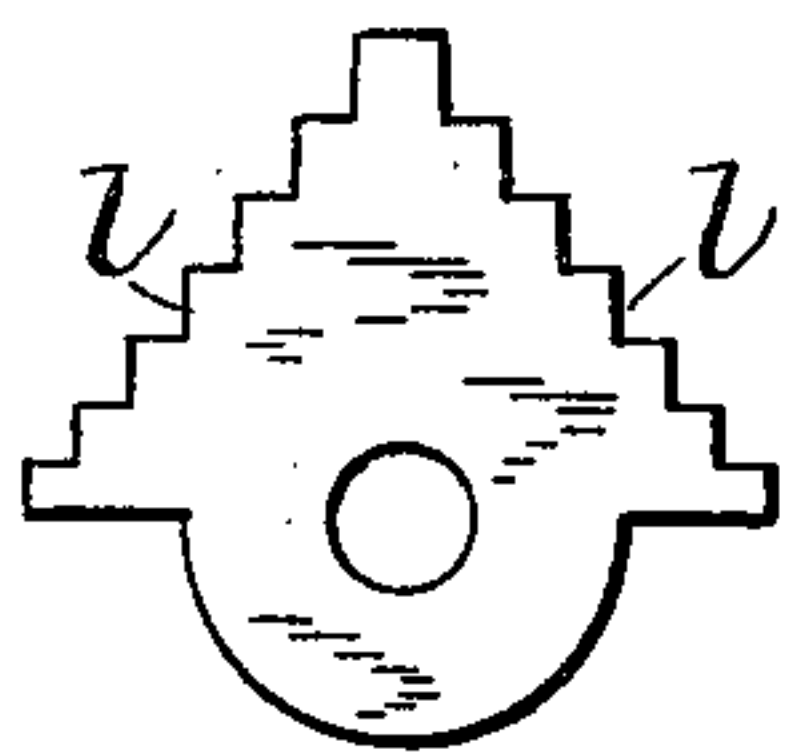


Fig. 5.

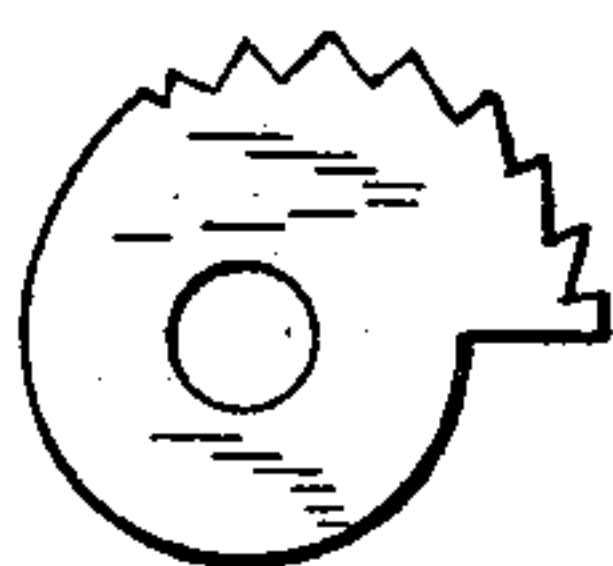


Fig. 6.

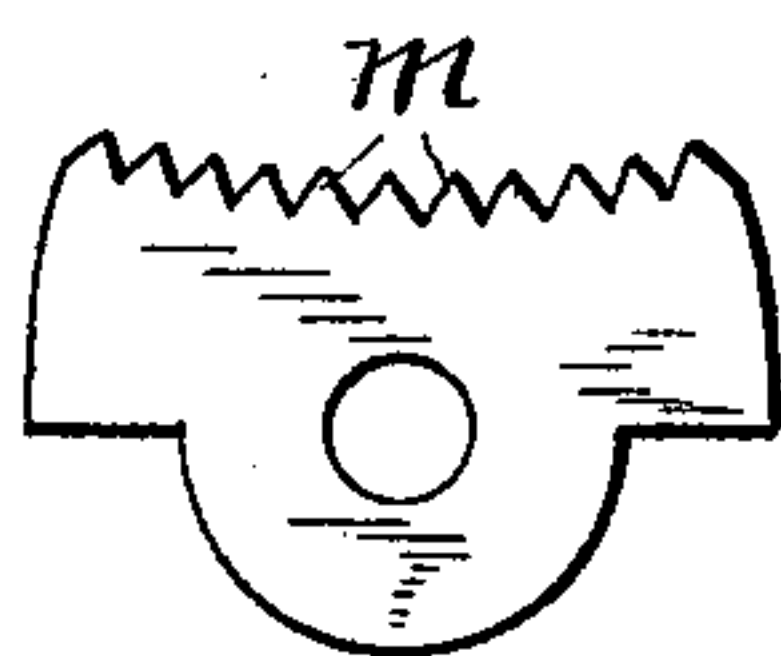


Fig. 7.

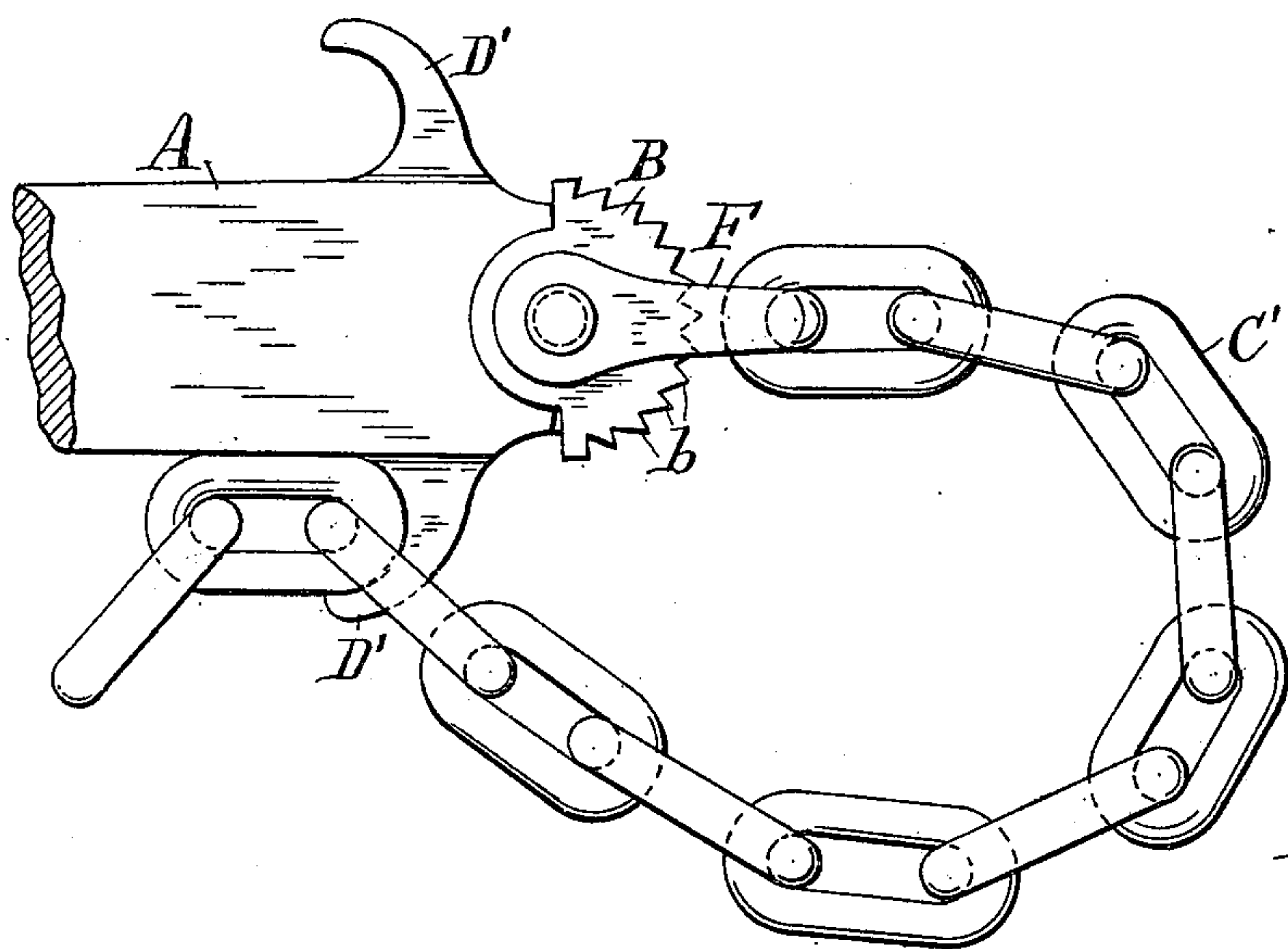


Fig. 8.

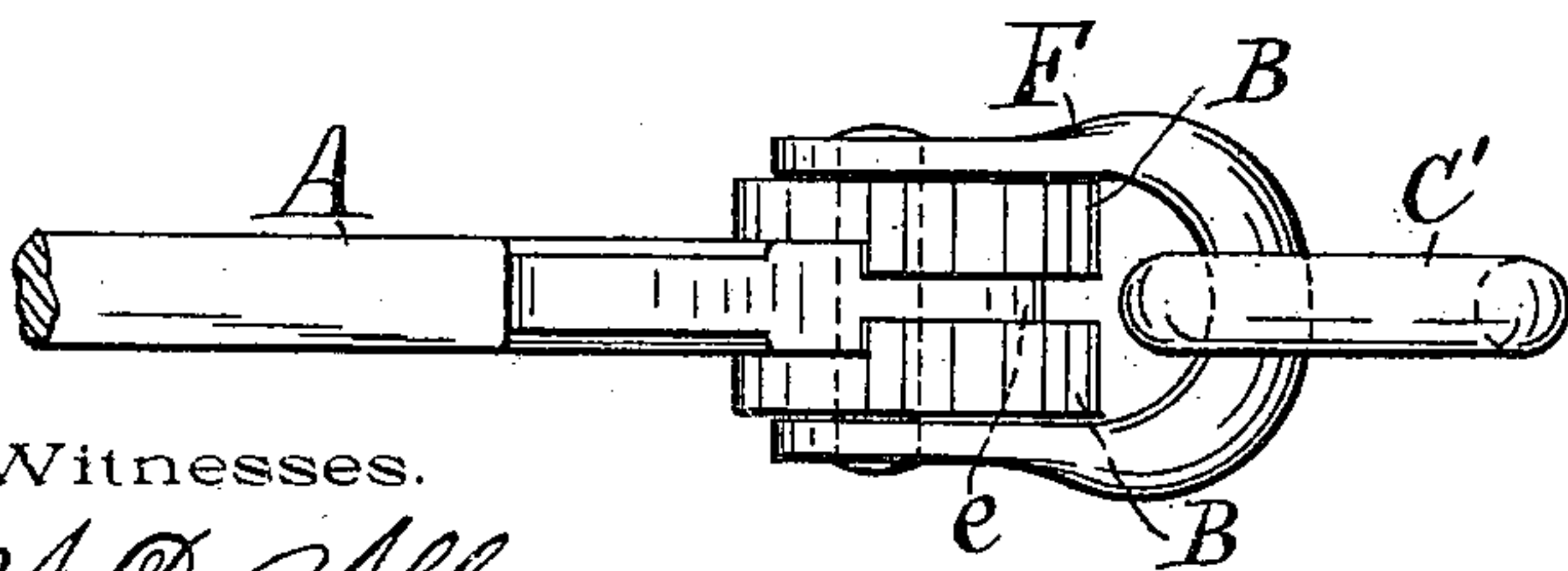


Fig. 9.

Witnesses.

A. D. Allen  
H. M. Seamans

Inventor.

George F. Crass  
By Mark W. Dewey  
his Attorney.



# UNITED STATES PATENT OFFICE.

GEORGE F. CRASS, OF ITHACA, NEW YORK, ASSIGNOR OF ONE-HALF TO  
GUY W. SLOCUM, OF SAME PLACE.

## CHAIN PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 621,293, dated March 14, 1899.

Application filed September 9, 1898. Serial No. 690,561. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE F. CRASS, of Ithaca, in the county of Tompkins, in the State of New York, have invented new and useful Improvements in Chain Pipe-Wrenches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to chain tongs or pipe-wrenches; and the object is to provide a simple, efficient, and positive-acting tool of this class.

My improved chain wrench consists of a handle, one or a pair of jaws pivoted yieldingly to one end of the handle, a chain having one end pivoted to the same end of the handle or one or both of the jaws, and one or a pair of hooks on and near the same end of the handle to engage the chain. The handle or shank may be of any suitable and well-known shape, but is preferably made of equal thickness throughout its length and with its edges somewhat tapered, as indicated in the drawings.

My invention consists in certain other combinations of parts hereinafter described, and specifically set forth in the claims.

In the drawings hereto annexed and forming a part of this specification, Figure 1 is a side elevation of my preferred form of pipe-wrench applied to a piece of pipe in position to turn the same. Fig. 2 is an edge view of a portion of the same wrench, showing the pair of jaws. Fig. 3 is an edge view of a portion of a wrench having a single pivoted jaw, and Fig. 4 is a side view of the same. Figs. 5, 6, and 7 are different forms or modifications of jaws that may be used in my improved wrench. Fig. 8 is a side elevation of my improved wrench provided with the common link or log chain, and Fig. 9 is an edge view of a portion of this wrench.

Referring specifically to the drawings, A indicates the handle or shank of the wrench, the greater portion of the handle being broken away because of its length.

Figs. 1 and 2 show a wrench having a pair of pivoted and yielding jaws B B. Each of

said jaws is formed of a flat piece of metal having a convexly-curved edge provided with teeth *b* to engage the pipe or rod to be turned. This curved edge extends between diametrically opposite sides of the jaw, said jaw being substantially a disk, one-half of which, or the side opposite the toothed side, being made smaller. The jaw is formed in this way to provide bearings or stops *c c* on diametrically opposite sides thereof to engage with shoulders *d d*, formed on the end of the handle. This end of the handle, called the "head," has a convexly-curved edge *e* and is recessed on opposite sides, corresponding to the shape and size of the jaws to receive them. The curved end of the handle lies between the jaws, but does not extend quite to the teeth thereon. A rivet *f* passes through the centers of the jaws and the end of the handle. The recesses are made of sufficient size to allow the jaws to rock slightly on the pivot or rivet *f*, and this allows them to yield when the wrench is applied to the pipe, so that more than a single tooth will engage the pipe during its operation. The shoulders *d d*, forming the stops or shoulders *d d* on the handle, are slightly beveled to form a good bearing-surface for the stops *c c* on the jaws, when the jaws are moved to one side or the other. On opposite sides of the pair of jaws and pivoted on the ends of the said rivet are a pair of long links *g g*, which extend beyond the toothed edge of the jaws, and to these links is connected by a rivet one end of the chain C, which passes around the pipe. The links of the chain are preferably formed of sheet metal, as usual, alternate pairs of these links lying between the other pairs of links. The links are pivoted together by rivets *i i*, which have a greater diameter intermediate their length and shoulders to separate the inner links and hold them apart. Instead of providing the rivets with enlarged central portions *i'* washers may be used to separate the links. The links of the chain are of sufficient length and the chain is otherwise constructed to allow spaces of equal size between the rivets to permit the hooks



D D, projecting from the side edges of the shank A, to enter and engage one of the rivets. Any rivet may be engaged by either of the hooks, depending upon the diameter of the pipe or rod around which the chain is passed. The tool is reversible and is operated in exactly the same way whichever side of the toothed jaws be applied to the pipe. The teeth on the jaws shown in Fig. 1 are shaped as ratchet-teeth and are pitched in opposite directions on opposite sides of the center to secure a positive grip upon the pipe and to insure against slipping.

Figs. 3 and 4 show my improved pipe-wrench with a single jaw B' of the same shape as those hereinbefore described. When a single jaw is used, the head or large end of the shank is recessed or concaved to correspond with the shape and size of and to receive the smaller hemispherical portion b' of the jaw, and the latter is secured to the head of the shank by a pair of links E E on opposite sides of the head and jaw, the latter parts being of equal thickness. A rivet j passes through one pair of ends of the links and the shank, and another rivet k passes through the opposite ends of the links and the center of the jaw. The latter rivet is of sufficient length to pass through another pair of links g g, which is secured to the end of the chain C. The wrench having a single jaw works substantially in the same manner as that having the pair of jaws; but the latter, having a pair of yielding jaws, which can move slightly relatively to each other, forms a more positive engagement with the pipe, which may have a slightly irregular surface.

Fig. 5 shows a triangular-shaped jaw, the two sides l l being straight and serrated and converging to form substantially an acute angle. The serrated sides of this jaw may, however, be slightly convexed or concaved, if desired.

Fig. 6 shows a cam-shaped form of jaw, which may be used on a non-reversible wrench or one having only a hook on one side for engagement with the chain.

Fig. 7 shows a jaw having a concaved toothed edge m to engage the pipe. Various forms of jaws may be used without departing from my invention, and therefore I do not desire to be limited to the forms of jaws herein shown and described.

Figs. 8 and 9 show a wrench substantially the same as that shown in Figs. 1 and 2, but having a different style of chain C' attached thereto by means of a clevis F. The hooks D' on the shank are made somewhat narrower than the shank to permit them to pass through the links. This form of chain is adapted for large and heavy work. It will be obvious that any suitable and well-known form of chain may be used.

It will be seen by the drawings that my improved chain wrench is applied in the usual

manner. The toothed jaws are placed in contact with the pipe, and the chain is passed around the pipe and fastened to one of the hooks.

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

1. In a chain wrench, the combination with a handle, of a jaw provided with teeth pivoted yieldingly upon the head of said handle, one end of a chain connected to the head of the handle, and means on the handle near the head to engage the chain, as and for the purpose set forth.

2. In a chain wrench, the combination with a handle, of a jaw having a convexly-curved edge provided with teeth, said jaw being pivoted to rock on the head of the handle, one end of a chain connected to the head of the handle, and means on the handle to engage the chain at different points along its length, substantially as described and shown.

3. In a chain wrench, the combination with a handle, of a jaw formed of a disk having a convexly-curved edge provided with teeth, a smooth curved edge on its opposite side nearer the center, and shoulders on diametrically opposite sides and between the two curved portions, a recess in the head of the handle to receive the smaller curved portion of the jaw, a pivot securing the jaw to the head, a chain connected to the pivot, and a hook on the handle to engage the chain, as and for the purpose set forth.

4. In a chain wrench, the combination with a handle, of a pair of jaws pivoted yieldingly upon opposite sides of the head of said handle, said jaws being provided with teeth, one end of a chain connected to the head of the handle, and means on the handle near the head to engage the chain, as set forth.

5. In a chain wrench, the combination with a handle having recesses on opposite sides of the head, a pair of jaws having curved toothed edges pivoted to the said head of the handle and adapted to rock in said recesses on the pivot, a pair of links connecting the ends of the rivet forming the pivot with one end of a chain, a chain having rivets therein equally spaced apart, and projections on the side edges of the handle to engage the rivets, as set forth.

6. In a chain wrench, the combination with a handle having recesses on opposite sides of the head, a pair of jaws having curved toothed edges pivoted to the said head of the handle and adapted to rock relatively to each other in said recesses on the pivot, a pair of links connecting the ends of the rivet forming the pivot with one end of a chain, a chain having rivets therein equally spaced apart, and projections on the side edges of the handle to engage the rivets, as set forth.

7. In a chain wrench, the combination with a handle having recesses in the flat sides of

the head thereof, jaws in the recesses and  
pivoted to the head, said jaws having con-  
vexly-curved edges provided with teeth and  
shoulders on opposite sides to engage shoul-  
5 ders on the said head, links connected to the  
ends of the rivet passing through the jaws,  
one end of a chain connected to the said links,  
and hooks on the opposite side edges of the

head of the handle to engage the chain, sub-  
stantially as described and shown. 10

In testimony whereof I have hereunto  
signed my name.

GEORGE F. CRASS. [L. S.]

Witnesses:

ROBERT REID,

W. G. SABIN.