

G. AMBORN.
CHAIN PIPE WRENCH.
APPLICATION FILED APR. 2, 1908.

952,860.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.

FIG. 1.

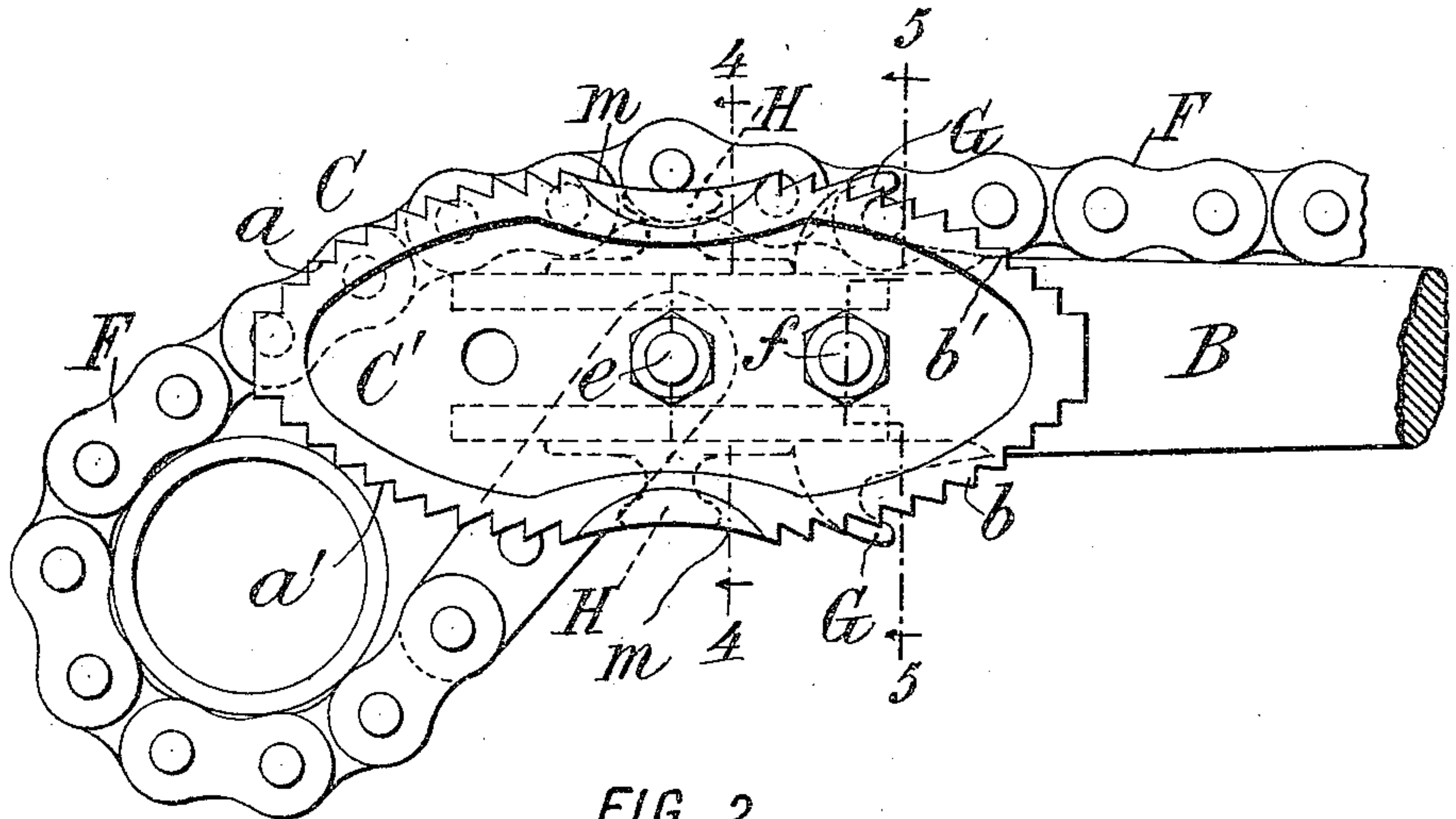


FIG. 2.

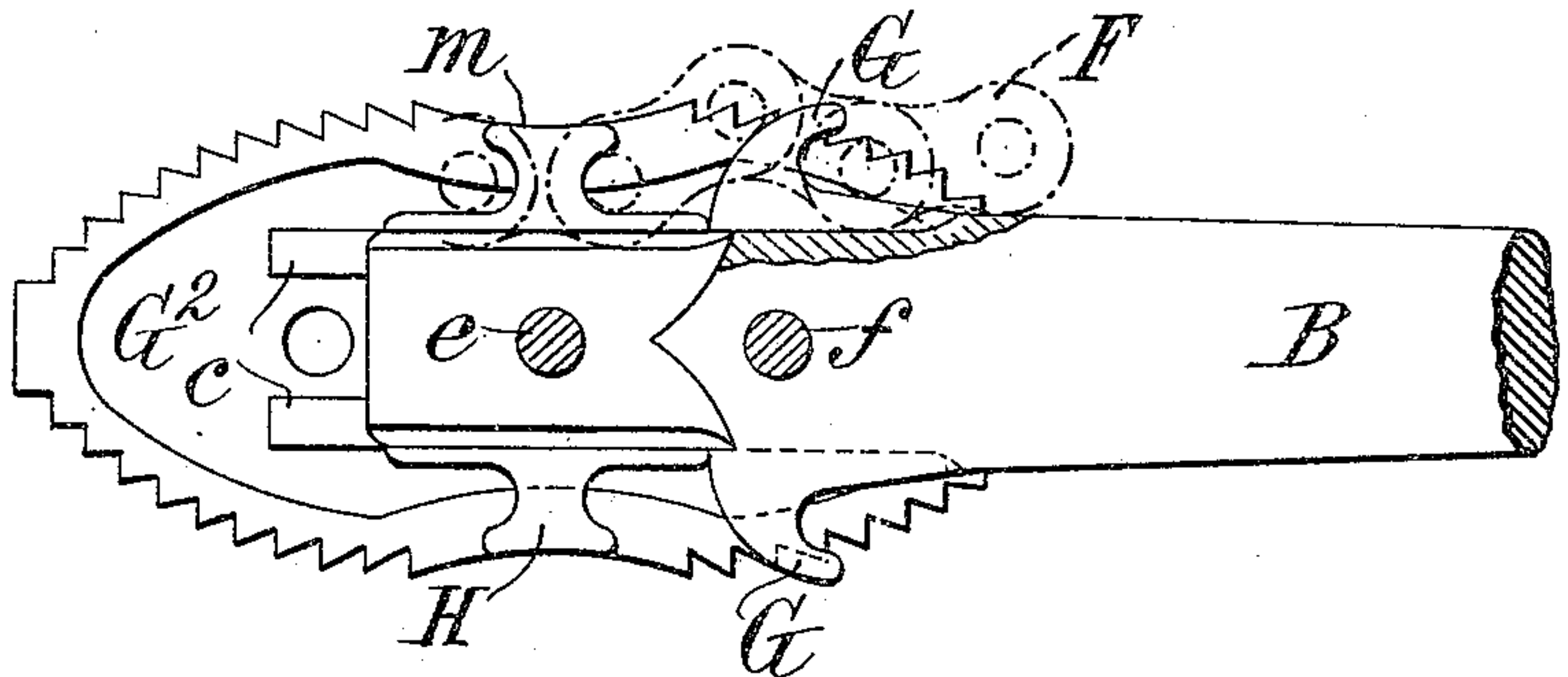
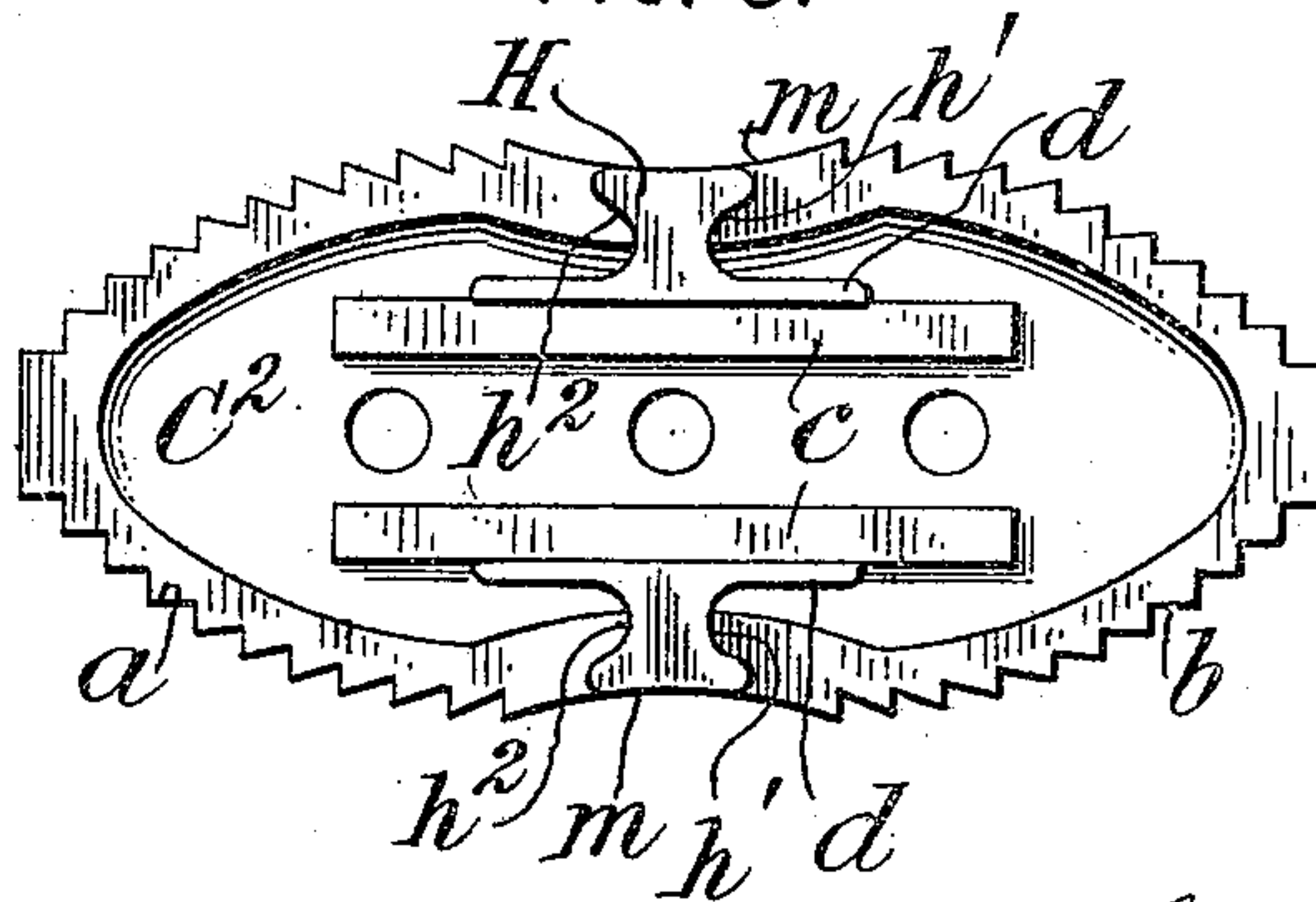


FIG. 3.



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2 SHEETS—SHEET 2.

FIG. 4.

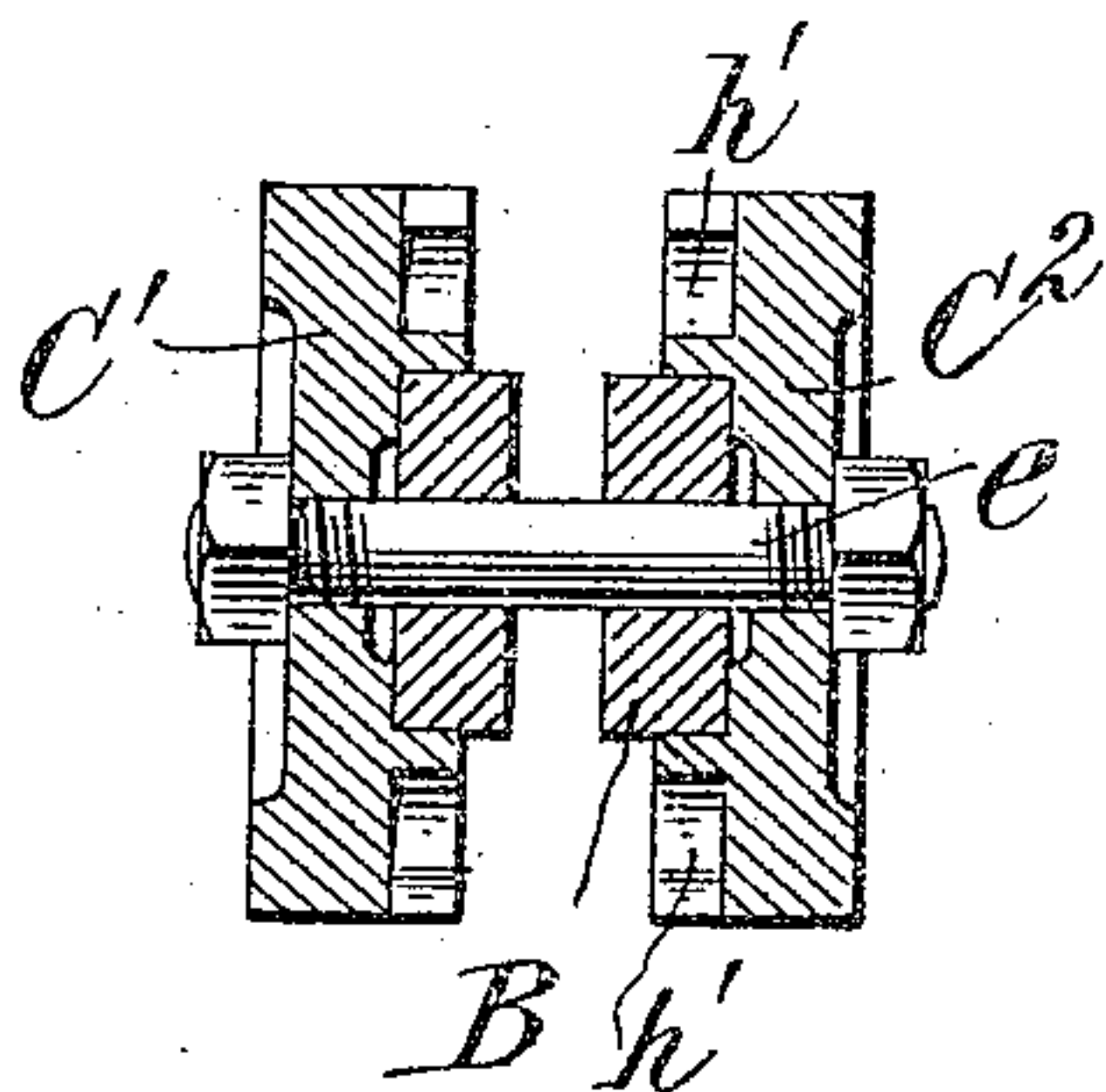


FIG. 5.

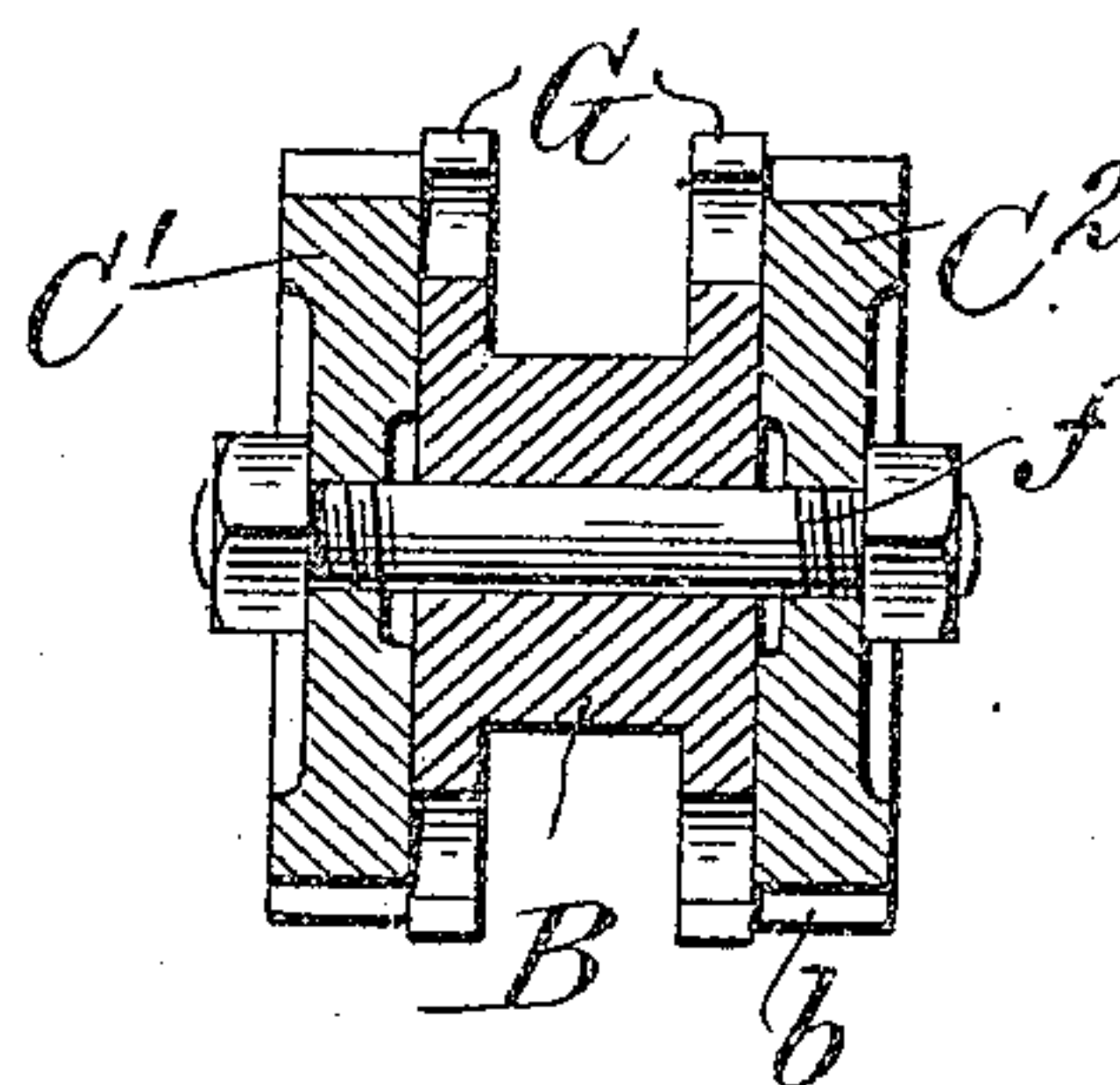


FIG. 6.

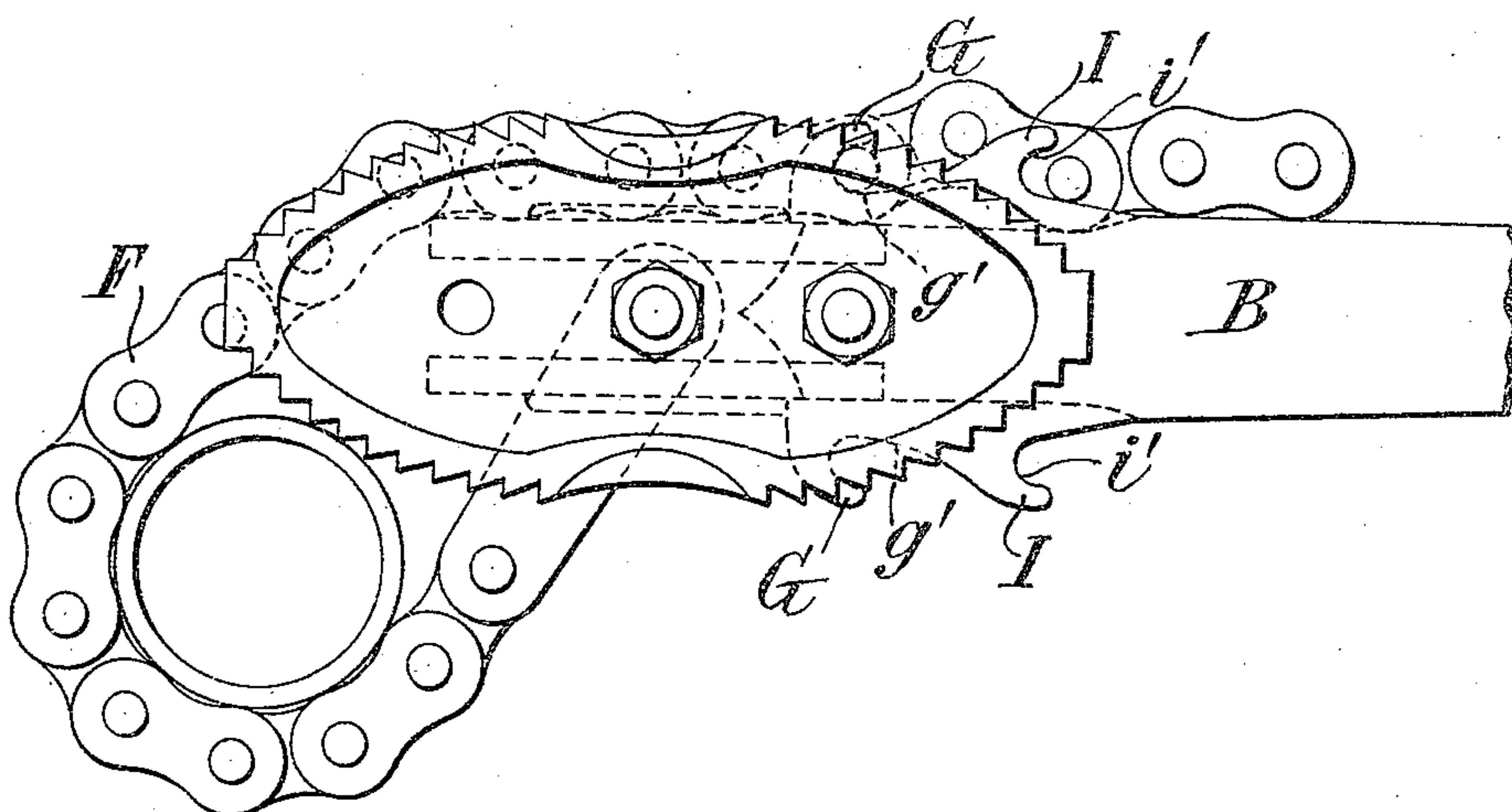
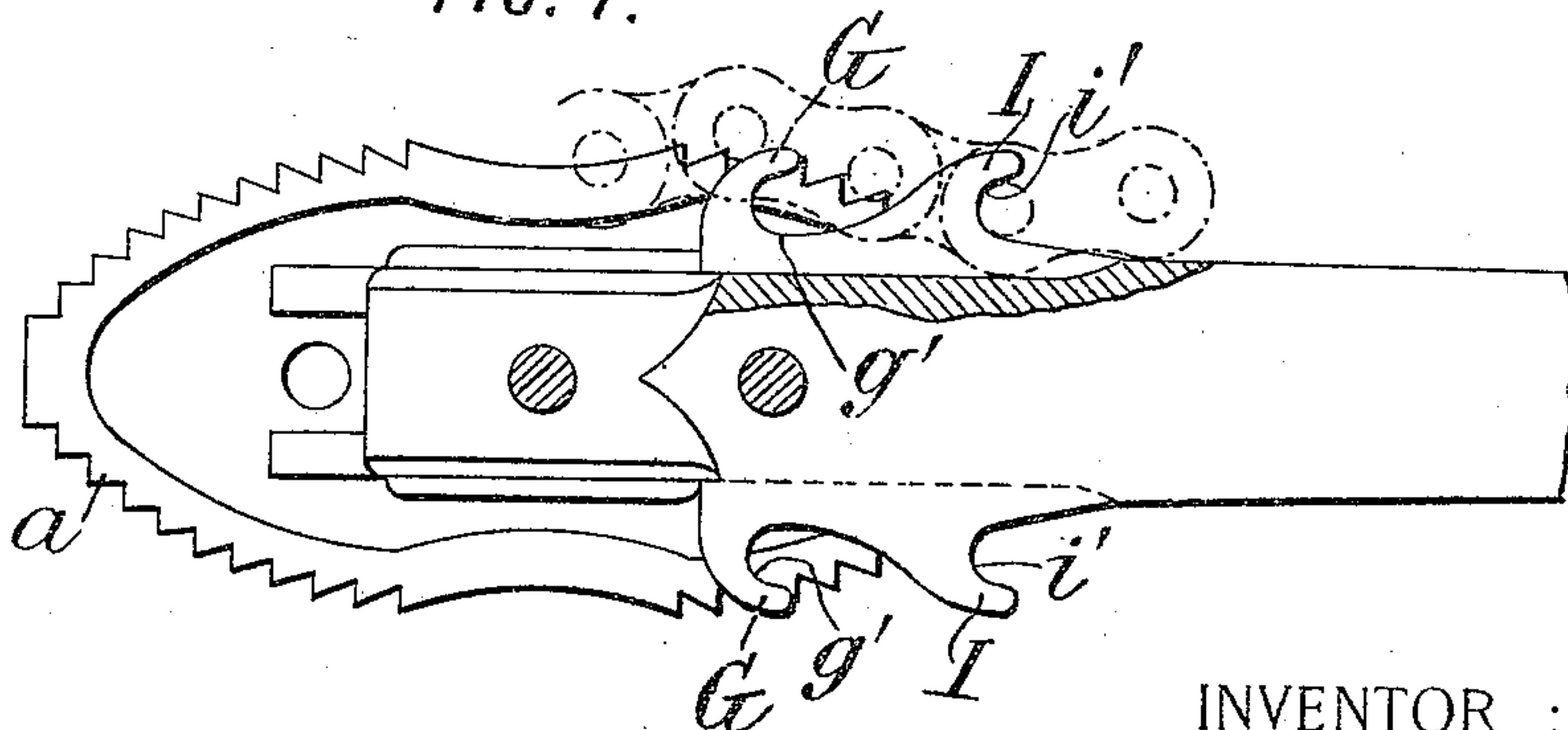


FIG. 7.



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CHAIN PIPE-WRENCH.

952,860.

Specification of Letters Patent.

Patented Mar. 22, 1910.

Application filed April 2, 1908. Serial No. 424,782.

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 analogous devices, and aims to provide certain improvements therein.

The invention is particularly directed to a chain pipe wrench having a double-ended reversible jaw, the principal object being to simplify and improve the locking means for the chain. In the preferred form of the invention the jaw of the wrench is formed in two parts and the chain is pivoted centrally between them so that it is capable of extending in an upward or downward direction to engage the work. Each of the jaw sections is double-ended, that is to say, it is formed with working faces at both ends, the object being to reverse the parts so as to bring into operation the reserve working faces when those first employed are worn or broken.

According to the present invention I provide locking means for the chain which are adapted to engage the latter in either the normal or reverse position of the jaw, such locking means being preferably formed wholly or partly upon the handle so that it is operated equally in either position of the jaw.

My invention also provides a means for permitting an adjustment of the chain at intervals which are smaller than the distance between two of its pintles or other locking faces, such adjusting means being particularly applicable to the double-ended type of wrench.

In the drawings wherein I have illustrated several forms of my invention,—Figure 1 is a side elevation of the preferred form of the invention. Fig. 2 is a side view of the handle and one section of the jaw, the other section being removed. Fig. 3 is an inner face view of one section of the jaw detached. Fig. 4 is a section on the line 4—4 in Fig. 1. Fig. 5 is a section on the line 5—5 in Fig. 1. Fig. 6 is an elevation of a modification. Fig. 7 is a side view of the handle and one section of the jaw of the construction shown in Fig. 6.

Referring first to Figs. 1 to 5 of the drawings, let A indicate the wrench as a whole having a handle B and a jaw C which is formed in two sections C' C². Each of the sections C' C² is formed with four working faces *a a'*, *b b'* two of which (*a a'*) are formed on the front end of the jaw and the remaining two on the rear end of the jaw. Each of the sections is formed on its inner side with rests or bearing faces *c c* (Figs. 3 and 4) for the handle B, and outwardly of such rests the jaw sections are formed with ribs or flanges *d* which are designed to engage the upper and lower edges of the handle. The jaw sections and handle are held together by bolts *e f* secured by suitable nuts. The provision of the ribs or flanges *d* is particularly important from the standpoint of construction, since if it were not for these ribs the entire strain between the jaw sections and handle would fall upon the bolts *e f* which are found in practice to be inefficient to properly hold the parts. When the working faces *a a'* become worn or broken, the jaw can be turned end for end by removing the bolt *f* and slackening off the end of the bolt *e* sufficiently to disengage the ribs *d d* from the handle, the bolt *f* being replaced and the bolt *e* tightening after the jaw is reversed.

In the construction of wrench shown the chain F is centrally pivoted to the belt *e* so that it not only operates with equal efficiency in connection with the working faces *a a'* but also with the working faces *b b'* when the latter are brought into use. A further important advantage of this construction is that it is not necessary to remove the chain when reversing the jaws.

My invention provides a locking means which is capable of use when the jaw is either in its normal or in its reverse position. I prefer to form such locking means as a hook-shaped member G formed directly upon and preferably integral with the handle. Two of such members are usually provided one on the upper and the other on the lower side of the handle. The intended manner of operation of the wrench is such that the chain will be engaged by the lock which is on the side of the wrench opposite to the work, as indicated in Fig. 1.

As the lock G is fixed to the handle, it, of course, is not reversed with the jaws and remains in proper position for use irrespective

of the position of the jaw. An important feature of the invention is the construction of the lock G directly upon the upper and lower faces of the handle (see Fig. 5). By this means, especially when the lock is formed integrally with the handle, the latter is not weakened in any way, while the total width from side to side of the wrench is not increased. The relative proportions of the wrench are those which give the best results in use, and any departure therefrom is disadvantageous. When constructed in this manner the locks G in fact strengthen the handle, since they provide additional metal at one of the weakest points of the connection between the jaw sections and the handle. It is particularly desirable that the locks G be placed well to the rear of the central bolt *e*. This permits me to retain the practically important ribs or flanges *d* without cutting into the metal of the lock and also permits me to properly proportion the lock without interfering in any way with the very desirable concave faces *m m* which are necessary in practice to determine the length of chain required for each operation as is well known.

My invention also includes the use of two locks arranged on one side of the device, by means of which relatively fine adjustments of the chain can be made. Preferably one of such locks is formed on the jaw itself. In the construction shown in Fig. 1 this lock, which is indicated at H, is formed in two parts which are designed to engage the opposite ends of the chain pintles. Each of the locks is formed with recesses *h'* *h*², (Fig. 3) which recesses open in opposite directions so that there are formed in effect two hook-shaped members designed to engage the chain pintles. When the parts are constructed as shown the bottom of the recess *h'* is spaced apart from the bottom of the recess *g'* of the lock G a distance which is greater than the distance between the engaging faces of two pintles, and preferably about one and one-half times such distance. The result of this construction is that the chain is capable of adjustment to a succession of points which are about one-half the distance between the engaging faces of its pintles. When one of the pintles is in engagement with the lock G, as shown in full lines in Fig. 1, the next succeeding pindle lies between the forward face of such lock and the rear face of the lock H, and the third pindle lies on the top of the lock H. If it is desired to make the chain somewhat slacker, the pindle engaged by the lock G is removed and the next succeeding pindle engaged by the lock H, as shown in dotted lines in Fig. 2. By this means relatively fine adjustments can be made. By forming the lock H with oppositely extended recesses the same lock suffices to lock the chain when the jaws are

reversed, so that such adjustments may be made irrespective of the position of the jaw, the only difference being that in the one case the pintles are engaged by the recess *h*² instead of the recess *h'*.

In Figs. 6 and 7 I have illustrated a modified form of the invention in which a second lock I is provided upon the handle at the rear of the lock G. The recess *i'* of this lock is spaced apart from the recess *g'* of the lock G approximately one and one-half times the distance between the engaging faces of two succeeding pintles of the chain. The operation is substantially the same as that just described with reference to Figs. 1 to 5. The full line position of the chain in Fig. 6 shows the condition of the parts when the lock I is engaged, while the dotted line position in Fig. 7 illustrates their condition when the lock G is engaged.

While I have shown in detail several modifications of my invention I do not wish to be limited thereto as considerable variation may be made therein without departing from the invention.

While I have illustrated the invention in connection with chain pipe wrenches it is also susceptible of use in connection with other devices of a like nature, such as chain pipe vises.

What I claim is:—

1. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means operative in one position of said jaw for locking said chain at points spaced apart a distance such that the successive adjustments of the chain are less in extent than the distance between successive engaging faces of the chain.
2. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means operative in one position of said jaw for locking said chain at points spaced apart a distance such that the successive adjustments of the chain are less in extent than the distance between successive engaging faces of the chain, said means being adapted to operate in either the normal or the reversed position of said jaw.
3. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and two successive locks adapted to operate in both the normal and the reverse position of said jaw, said locks being spaced apart a distance which is greater than the distance between successive engaging faces of the chain.
4. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means operative in one position of said jaw for locking said chain at points spaced

apart a distance such that the successive adjustments of the chain are less in extent than the distance between successive engaging faces of the chain, one of said means being located on the jaw.

5. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means operative in one position of said jaw for locking said chain at points spaced apart a distance such that the successive adjustments of the chain are less in extent than the distance between successive engaging faces of the chain, one of said means being located on the jaw, and comprising a single lock adapted to engage the chain either in the normal or in the reversed position of the jaw.

6. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means operative in one position of said jaw for locking said chain at points spaced apart a distance such that the successive adjustments of the chain are less in extent than the distance between successive engaging faces of the chain, one of said means being located on the jaw, and said last-named means having two locking recesses facing in opposite directions.

7. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means operative in one position of said jaw for locking said chain at points spaced apart a distance such that the successive adjustments of the chain are less in extent than the distance between successive engag-

ing faces of the chain, one of said means being located on the jaw, and said last named means comprising two hook-shaped members arranged back to back, one of said members being adapted to engage the chain in the normal position of the jaw and the other in its reversed position.

8. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, said handle and jaw having interengaging connecting means formed integrally therewith, a chain, and means for locking said chain in both the normal and reverse positions of the jaw, said means consisting of a lock fixed upon the upper or lower face of the handle.

9. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, a chain, and means for locking said chain in both the normal and reverse positions of the jaw, said means consisting of a lock formed integrally upon the upper or lower side of the handle.

10. In a chain wrench or the like, the combination of a handle, a double-ended reversible jaw connected therewith, said jaw comprising two jaw sections each having a rib on its inner face adapted to engage the end of the handle, and a lock formed upon the handle at the rear of said rib.

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

GEORGE AMBORN.

Witnesses:

JAMES H. SAN JULE,
HORACE A. BODGE.