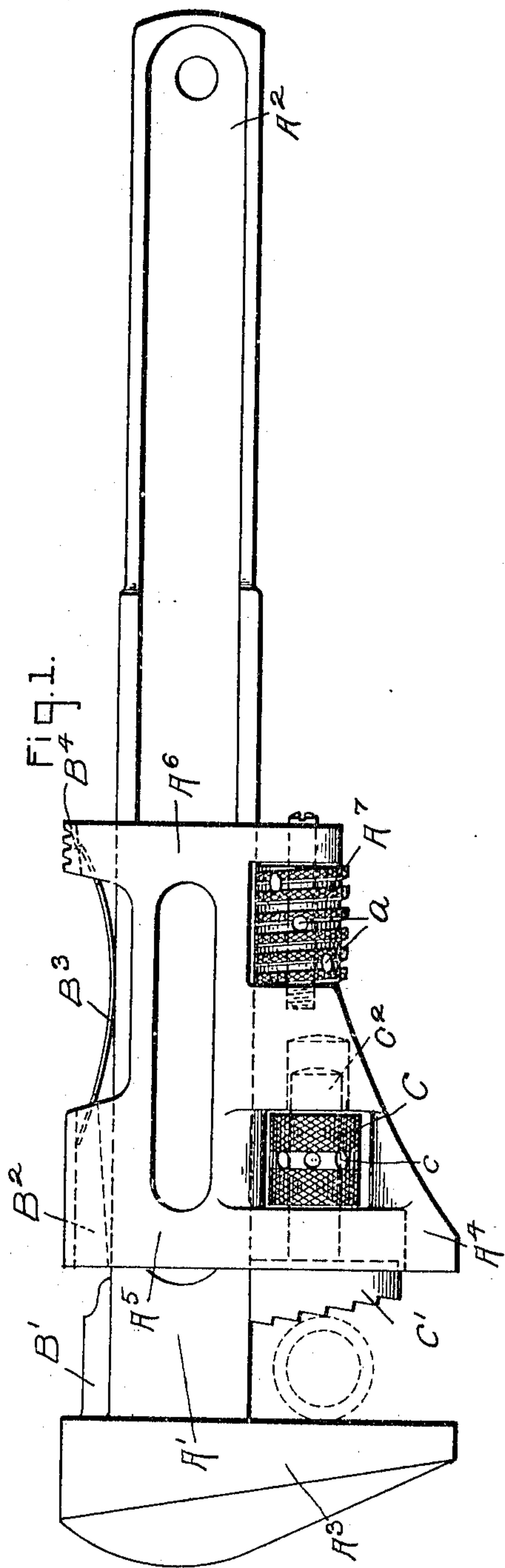


H. H. WARNER.
WRENCH.

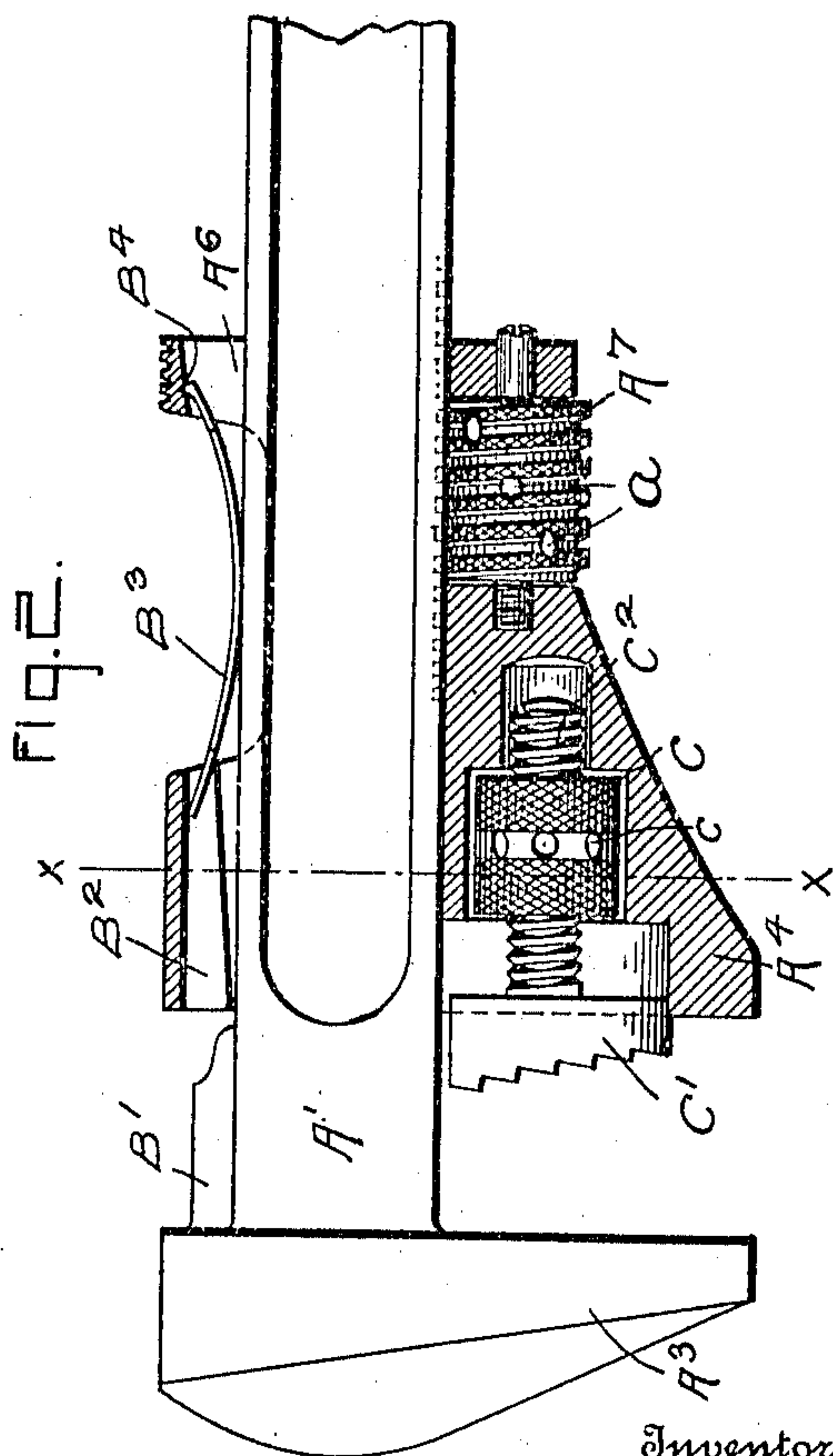
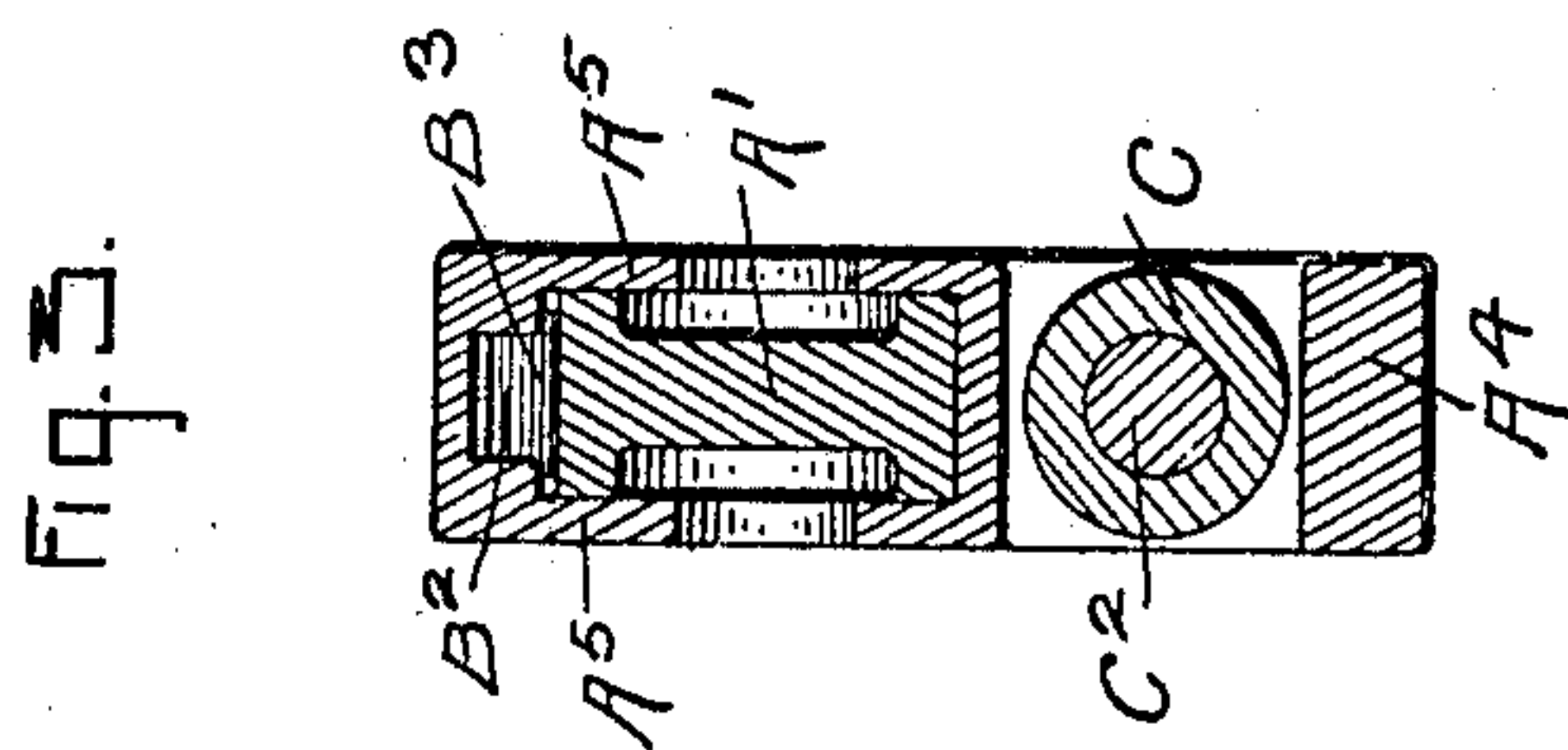
APPLICATION FILED NOV. 3, 1909.

950,585.

Patented Mar. 1, 1910.



Witnesses
W. Ray Taylor.
H. E. Stonebraker.



Inventor:
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UNITED STATES PATENT OFFICE.

HENRY H. WARNER, OF TACOMA, WASHINGTON, ASSIGNOR TO SAFETY INVESTMENT COMPANY, OF TACOMA, WASHINGTON, A CORPORATION OF WASHINGTON.

WRENCH.

950,585.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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To all whom it may concern:

Be it known that I, HENRY H. WARNER, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in 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 improvements in wrenches, and is designed particularly for the purpose of combining a rapidly adjusting screw vise wrench and a pipe wrench attachment into a single, easily manipulated device.

The object of my invention is to provide a rack jaw attachment for handling pipe, such that it may be withdrawn from operative position, and protected when it is desired to use the wrench on ordinary work, and may be quickly and easily adjusted to operative position.

An additional object is to provide a pipe attachment, having both longitudinal and lateral movement, in its bearings, so as to prevent jamming of the parts, and permit quick release of the pipe attachment, upon reverse movement thereof.

Various forms of attachments have been devised, which have to be secured to the wrench when it is to be used as a pipe wrench, and removed therefrom under other conditions, but these require time to adjust, and are frequently ineffective in operation. It is a purpose of my present improvement to provide a device of this character which is always available instantly, and can be used efficiently without loss of time.

A further object of the invention is to arrange the pipe attachment in such a manner relative to the remaining parts of the wrench, that the metal is so distributed as to strengthen the weaker parts, and result in a better proportioned and stronger tool than at present on the market.

With these several objects and advantages in view, my invention includes the novel construction and combination of parts hereinafter set forth in detail, and pointed out more particularly in the appended claims.

In the accompanying drawing, forming a part of this specification, and which is to be read in conjunction therewith, the same in-

cluding a preferred embodiment of my invention which may be equally well developed in other forms of construction, Figure I is a view in side elevation of a wrench provided with my improvements, and showing the pipe attachment in operative position; Fig. II is a partial longitudinal section, showing the pipe attachment in released position; and Fig. III is a transverse section on the line $x-x$ of Fig. II.

Referring more particularly to the drawings, in which like reference characters refer to corresponding parts in the several views, A^1 designates the stem, provided with a handle A^2 .

A^3 is the stationary jaw, mounted on the stem A^1 .

A^4 designates the movable jaw, arranged for adjustment upon the stem A^1 . The movable jaw A^4 is provided with collars A^5 and A^6 , which surround and engage the stem A^1 and permit swinging movement relative thereto. Journaled in a cut-away portion of the jaw A^4 , and at the rear thereof, is a screw-threaded operating-nut A^7 , cooperating with threads on the stem A^1 . The collar A^6 serves to inclose substantially the nut A^7 and protect the thread thereon against damage or destruction. Arranged at regular intervals around the nut A^7 , and diagonally thereon, are openings a , in which a punch or nail may be inserted to hold the nut tightly against movement, when it is desired to use the wrench as a screw vise.

Formed centrally, on the top of the stem A^1 , and adjacent the jaw A^3 , is a reinforcing block B^1 , which abuts the face of jaw A^3 and braces it so as to withstand greater strain, and thus add materially to the life of the wrench. The collar A^5 is cut away at B^2 to engage the sides of the block B^1 . A leaf-spring B^3 is provided, with a cut-away portion engaging in recesses formed in the collar A^5 . The other end of the spring B^3 is held in the notch B^4 in collar A^6 . The spring is seated on the upper face of the stem A^1 , and acts normally to raise the jaw A^4 , and hold the nut in engagement with the stem.

Loosely mounted in an opening in the forward part of the jaw A^4 , and confined within the outer surface thereof, is a sleeve C , which is screw-threaded interiorly, its outer surface being milled, and provided with a series of openings c . The opening in which

the sleeve C is positioned, is of sufficient width to allow a slight space on either side of the sleeve, and thereby permit lateral movement of the same, upon engaging and releasing movements of the pipe attachment.

C¹ is a rack jaw, which is carried by the screw-threaded stem C², adapted to engage the threaded sleeve C, and be operated thereby. The jaw A⁴ is provided with an opening to accommodate the end of the threaded stem C², said opening being somewhat larger than the stem, to permit a slight lateral play of the same, together with the operating sleeve C, thereby permitting the rack jaw to swing into engagement with the shank A¹ when power is applied to turn the object engaged thereby.

Under ordinary conditions, when the wrench is employed for turning nuts, or as a screw vise wrench, the rack jaw is withdrawn into the jaw A⁴, and is completely protected, and furthermore, is in such a position as not to hinder the proper manipulation of the wrench. When it is desired to apply the wrench to a pipe or circular object, the sleeve C is rotated, quickly moving the stem C² and the rack C¹ longitudinally of the jaw A⁴, and exposing the rack C¹ to contact with the work.

The several parts are so constructed and arranged, that the entire pipe attachment is normally confined within the surface of the movable jaw, and the only part to be exposed, is the rack jaw, which is projected from its receiving opening for operation.

What I desire to secure by Letters-Patent, and claim, is:

1. A wrench having a shank carrying a

stationary jaw, a jaw movable on the shank, a gripping member and supporting stem normally incased within the movable jaw and having both vibratory and longitudinal movement therein, whereby the gripping member may rest upon the shank while engaging an object grasped and be freely released therefrom on reverse movement of the wrench.

2. A wrench having a shank carrying a stationary jaw, a movable jaw yieldable laterally on said shank, and a gripping member fixed upon a threaded stem, said latter parts being normally incased in and having both longitudinal and vibratory movement in the movable jaw.

3. A wrench having a shank carrying a stationary jaw, a movable jaw yieldable laterally on said shank, and a gripping member fixed upon a threaded stem, said latter parts being normally incased in and having both longitudinal and vibratory movement in the movable jaw, and a threaded sleeve to operate the same.

4. A wrench having a shank carrying a stationary jaw, a jaw movable on the shank, a gripping member and its support normally incased within the latter jaw, said gripping member having both longitudinal and vibratory movement with respect thereto, as set forth.

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

HENRY H. WARNER.

Witnesses:

A. H. PUTNAM,
GEO. BATES.