

No. 814,575.

PATENTED MAR. 6, 1906.

J. F. TINER.
WRENCH.

APPLICATION FILED OCT. 24, 1905.

2 SHEETS—SHEET 1.

Fig. 1

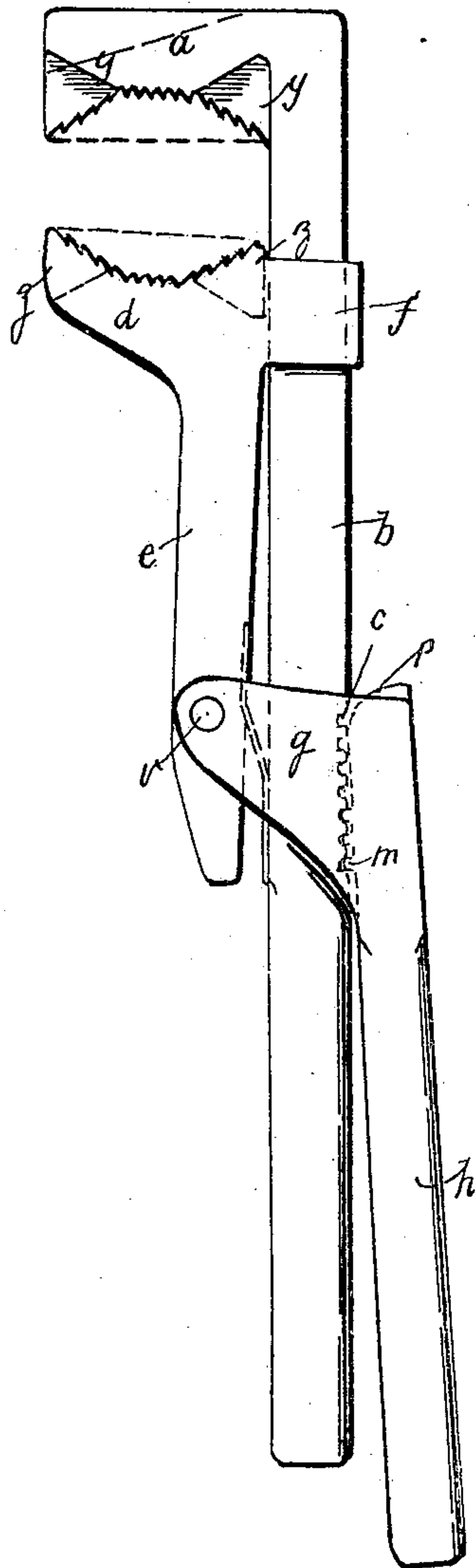


Fig. 2

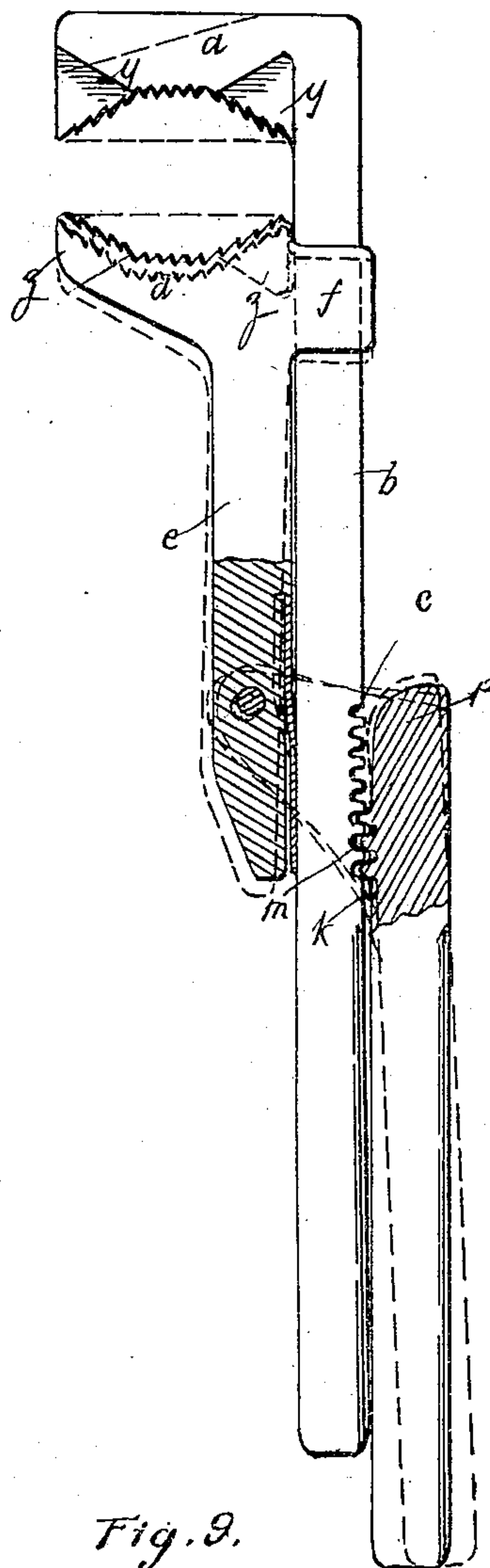


Fig. 7.

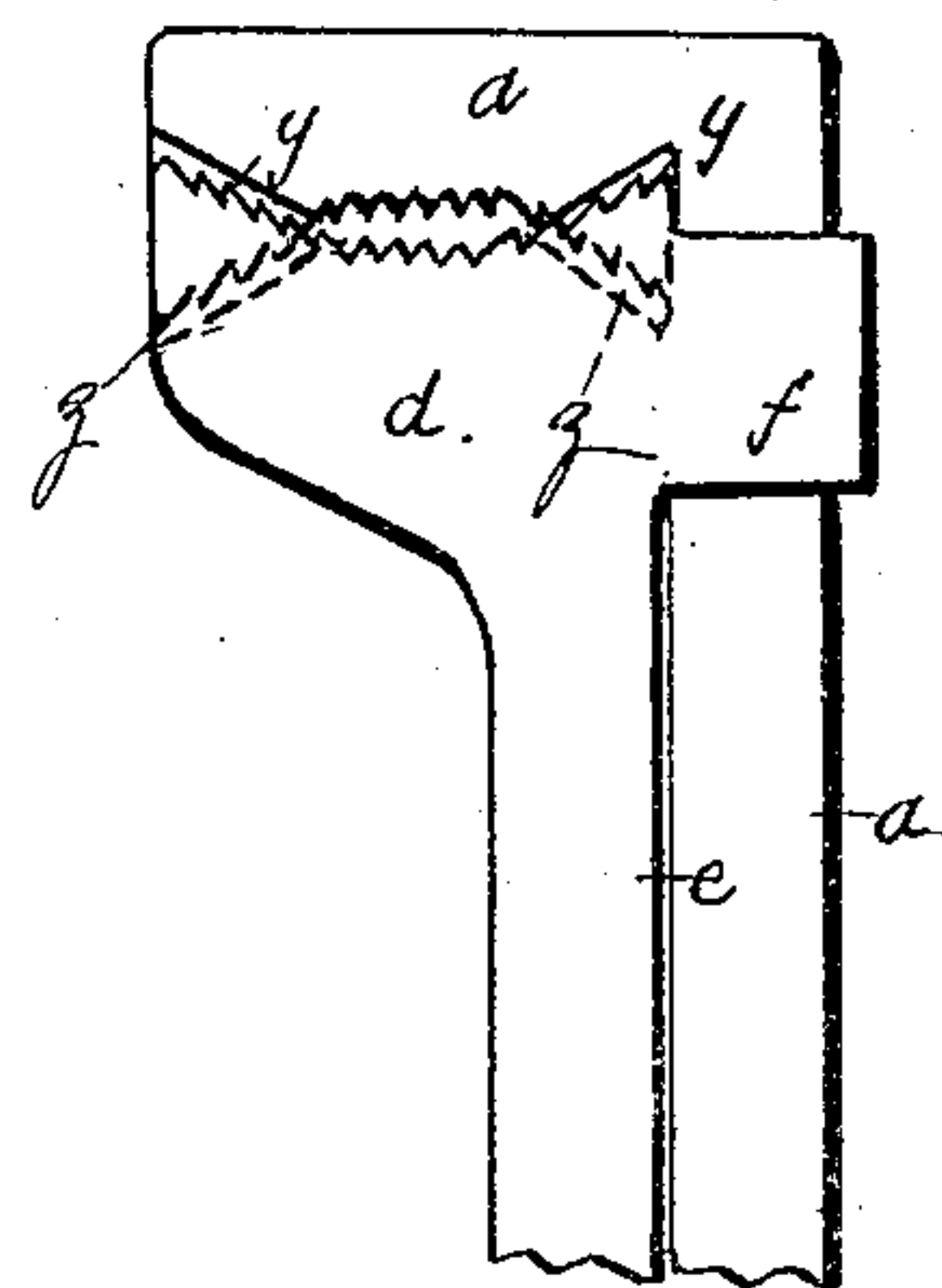


Fig. 8.

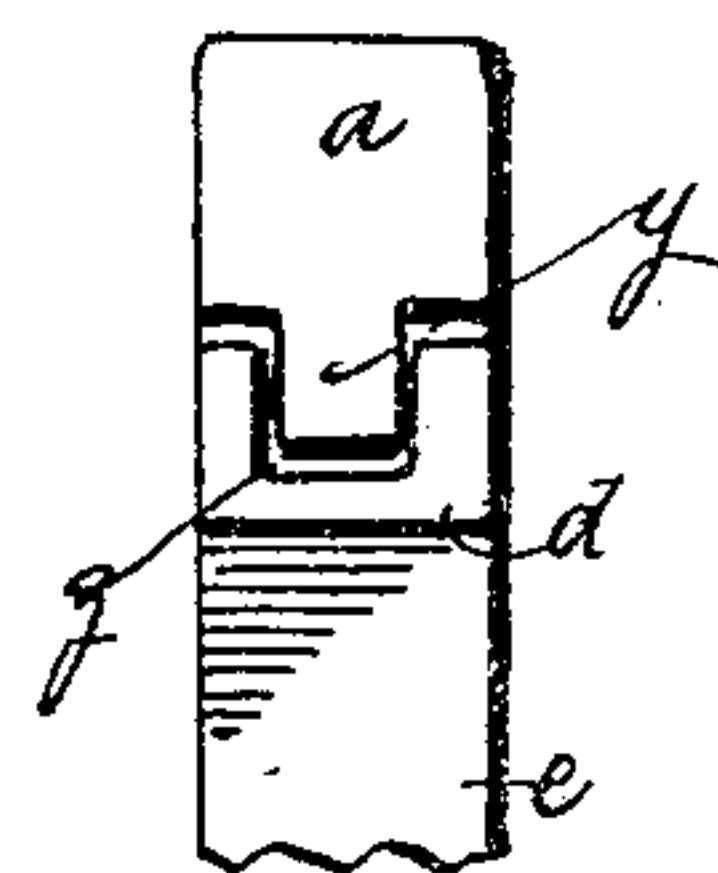
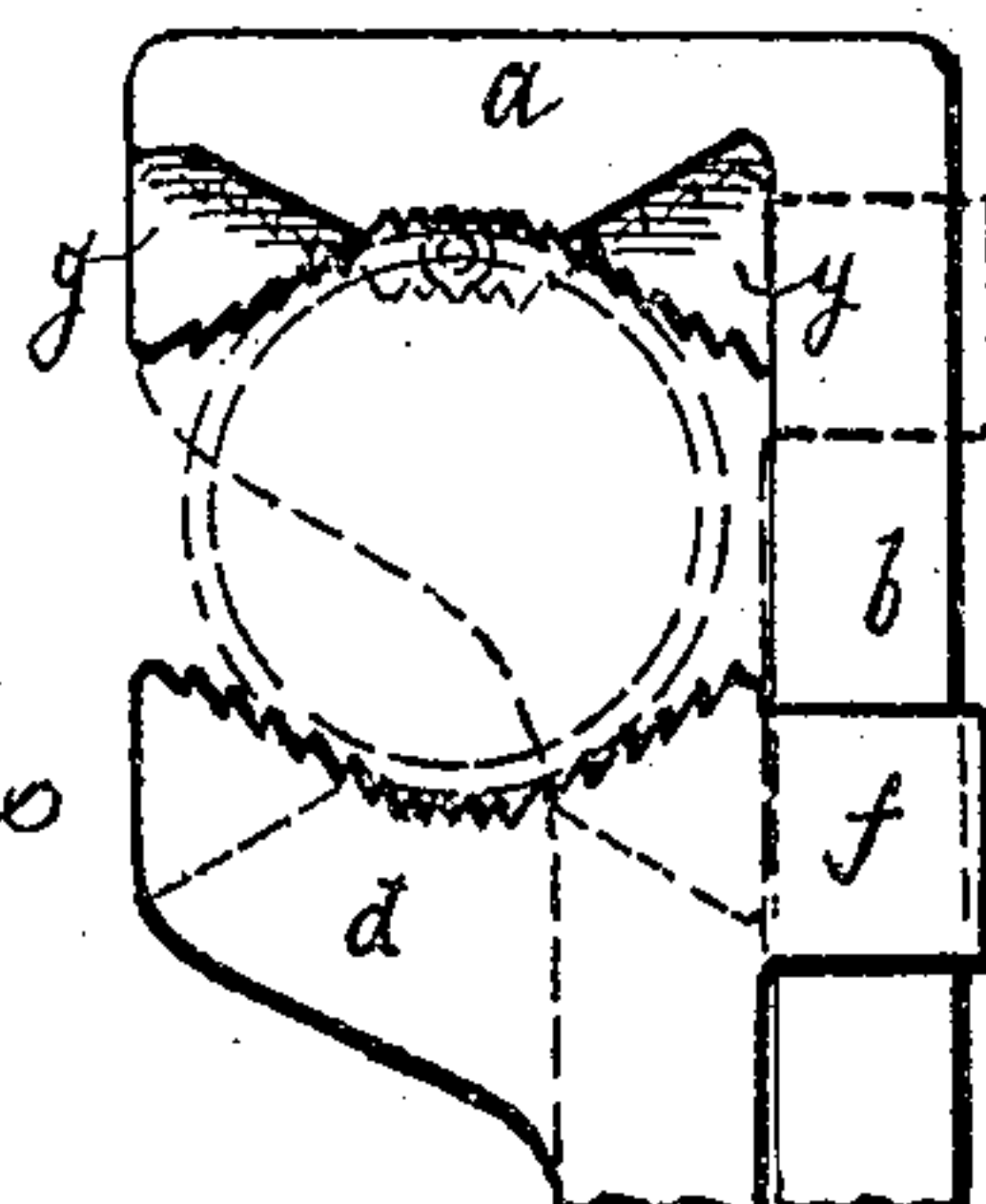


Fig. 9.



WITNESSES

Isabell F. Barnes
George M. Anderson.

INVENTOR

John F. Tiner
by C. W. Anderson
his Attorney

No. 814,575.

PATENTED MAR. 6, 1906.

J. F. TINER.
WRENCH.

APPLICATION FILED OCT. 24, 1905.

2 SHEETS—SHEET 2.

Fig. 3.

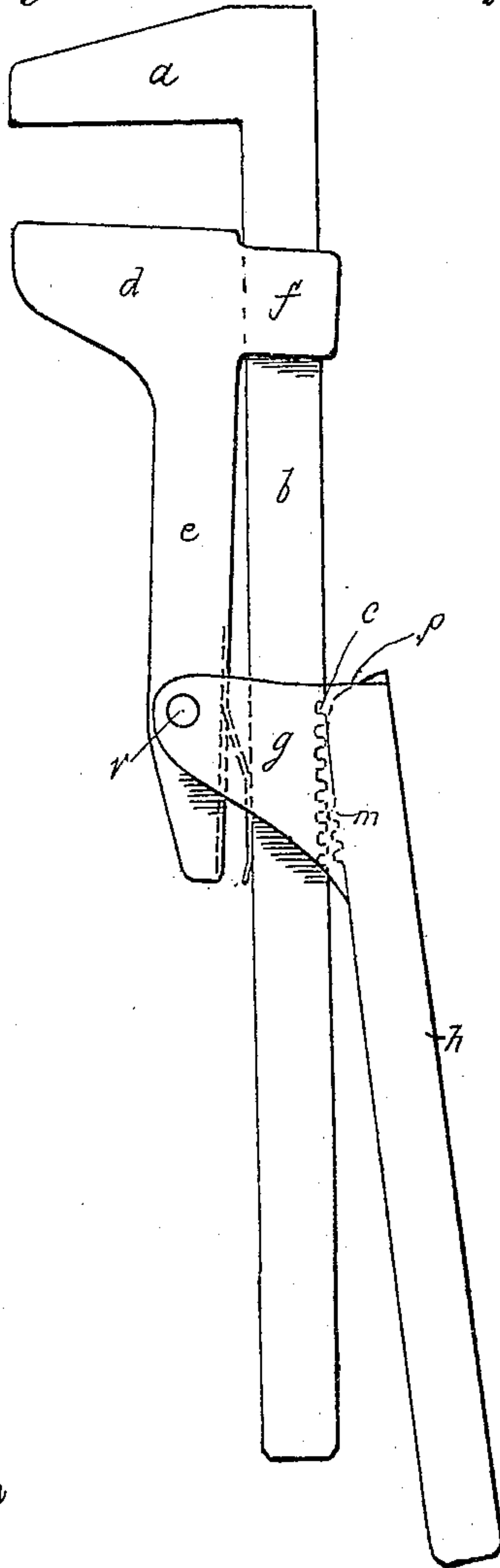


Fig. 6.

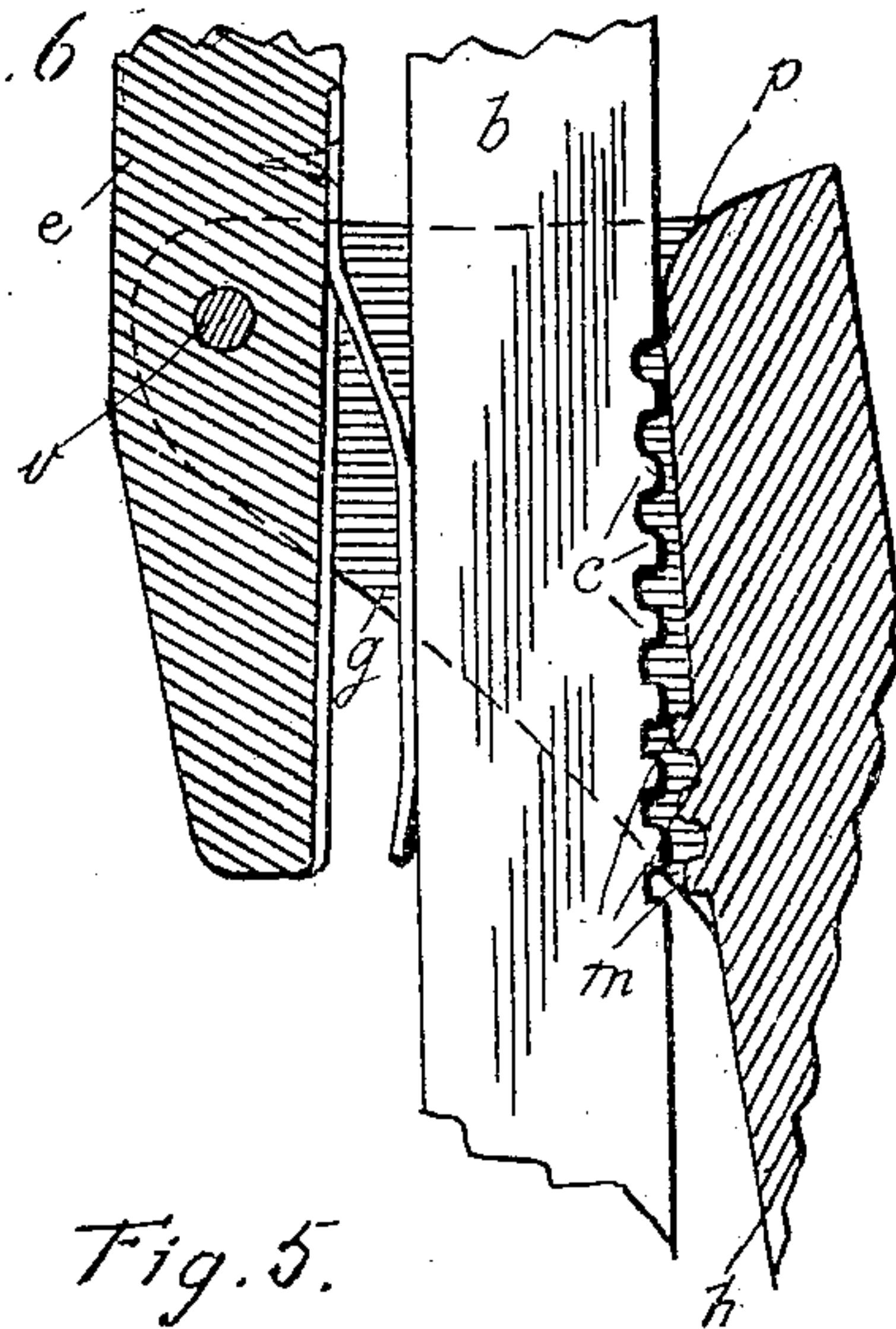


Fig. 4.

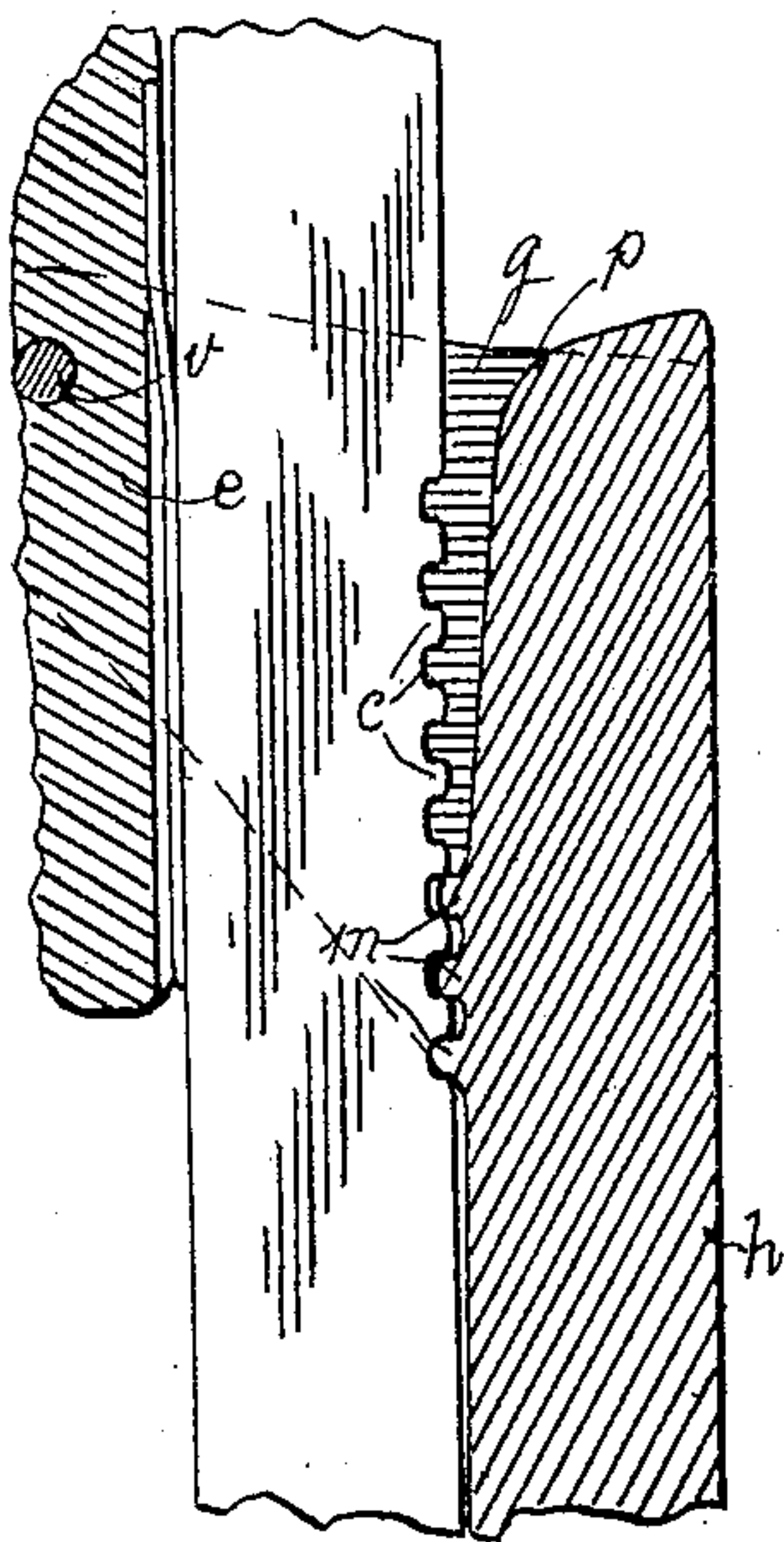
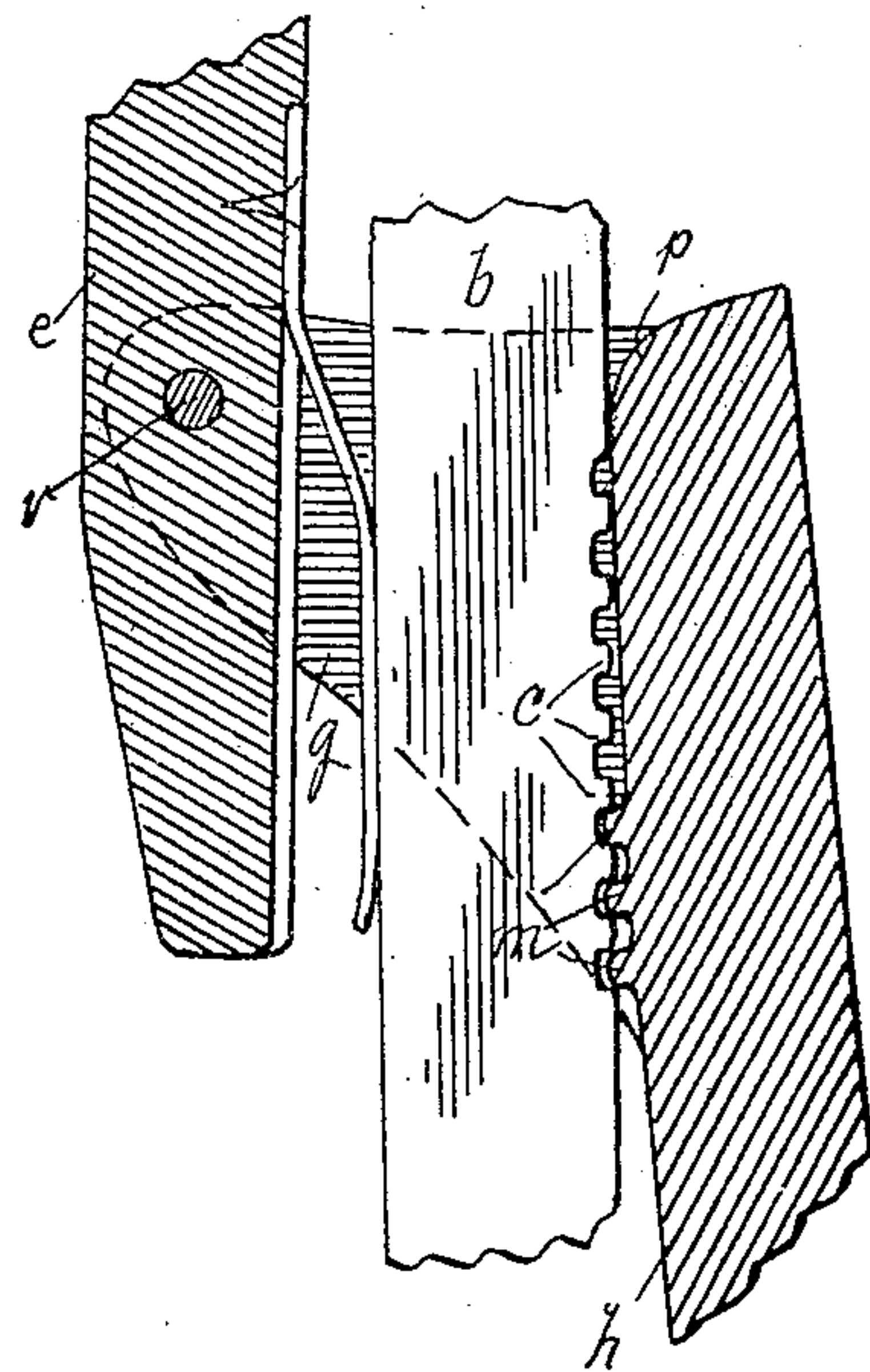


Fig. 5.



WITNESSES

Isabell T. Barnes
George M. Anderson.

INVENTOR

John F. Tiner
by E. W. Anderson
his Attorney

UNITED STATES PATENT OFFICE.

JOHN F. TINER, OF UVALDE, TEXAS.

WRENCH.

No. 814,575.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed October 24, 1905. Serial No. 284,176.

To all whom it may concern:

Be it known that I, JOHN F. TINER, a citizen of the United States, and a resident of Uvalde, in the county of Uvalde and State of Texas, have made a certain new and useful Invention in Wrenches; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side view of my wrench with the handle-lever released. Fig. 2 is a similar view, partly in section, with the handle-lever closed against the main jaw-shank, the released positions of the parts being shown in dotted lines. Fig. 3 is a side view of the wrench with the teeth of the handle-lever released from the teeth of the main jaw-shank. Figs. 4, 5, and 6 are detail views showing the teeth of the handle-lever respectively pressed into engagement, released, and swung out of engagement with the teeth of the main jaw-shank. Figs. 7, 8, and 9 are detail views showing different positions of the pipe-wrench jaws.

The invention has relation to wrenches of that type wherein the movable jaw and its operating-lever are on opposite sides of the shank of the main jaw; and it consists in the novel construction and combination of parts, as hereinafter set forth.

The object of the invention is to provide a powerful wrench of simple construction wherein the movement for the operation of the jaws is of slight degree, partially automatic, and easily effected.

In the accompanying drawings, the letter *a* designates the main jaw, and *b* its shank, which is straight, the jaw *a* extending from its end at right angles. The opposite side of the shank *b* from the jaw *a* is provided with a series of V-form angular teeth *c* at about its middle portion. These teeth are incut or set with their outer ends even with the plane of the side of the shank, so that the slide end of the lever of the movable jaw will readily pass over them when this jaw is being adjusted.

The movable jaw *d* is provided with a short shank *e*, extending along the main shank, and the adjacent sides of this short shank and the main shank are smooth. The jaw *d* extends at right angles to the short shank, parallel to the main jaw. The movable jaw is connected

to the shank of the main jaw by a broad loop *f*, which is sufficiently loose to allow the movable jaw to rock a little. The end of the short shank of the movable jaw is pivoted to cheek-lugs *g* of the lever-handle *h*, said lugs embracing the main shank. The handle *h* is an obtuse-angle lever provided with several fulcrum-teeth—usually three or four—on the side next the main shank at the angle of the lever. These teeth have parallel sides, are rounded at top and bottom, and project from the side surface *k* of the lever-handle, as indicated at *m*, said side surface being rounded outward to the upper end of the handle to provide a rounded extension or slide end *p* beyond said teeth *m*. Now while the extremity of this slide end is opposite or nearly opposite to the pivot *v* of the short shank *e* the teeth *m* stand in an oblique direction from said pivot at an angle of about forty-five degrees, more or less, according to the amount of rock which it is desired to give to the movable jaw. On account of the oblique position of the teeth *m* there is a greater distance between these teeth and said pivot than there is between the pivot and the slide end *p*. Therefore the handle *h* can readily be swung to oblique position, bringing the rounded slide end of said handle into contact with the main shank and freeing the teeth *m* of said handle from the ratchet or series of teeth of said main shank. This is the position of the parts for adjustment of the movable jaw, and it is normally maintained by a spring *s*, connected to the short shank and adapted to slide on the main shank; but after the movable jaw has been adjusted to the work the lever-handle is brought by the grasp against the main shank, this action engaging the fulcrum-teeth *m* with the teeth of the main shank and closing the short shank toward the opposite side of the main shank. In this manner a kind of rocking movement of the movable jaw is effected, forcing it toward the main jaw, so as to cause it to tighten on the work with great power. By loosening the grasp on the lever-handle the fulcrum-teeth will be caused by the spring to rock on the ratchet of the main shank, retracting the movable jaw, so that its engagement will be released sufficiently to allow the wrench to be turned on the work for a new purchase.

The wrench-jaws may be finished plane for nutwork or may have concave series of teeth for pipework, according to requirement.

The cheek-lugs *g* act as a work-arm for the handle-lever, the toothed engagement of the handle-lever with the fixed jaw acting as a fulcrum upon which this work-arm swings, the line joining the pivotal connection of lever and movable jaw with the fulcrum-point having an obtuse-angle relation to the handle end of the lever of about one hundred and thirty-five degrees. The slide end of the handle-lever acts as a stop to limit the automatic separation of the movable from the fixed jaw under the action of the spring and further acts as a fulcrum upon which the handle-lever may swing to entirely separate the teeth of the handle-lever from those of the fixed jaw when the movable jaw is to be moved for a considerable adjustment.

This wrench can be instantly adjusted, takes a perfect grip with a slight adjustment of the parts, slackens the grip automatically to take a new hold, will turn in either direction, and will not crush or deface the finest work.

In Figs. 1, 2, 7, 8, and 9 of the drawings the jaws of the wrench are shown as adapted for use with piping. In this case such jaws are provided with alined tongues and grooves *y* and *z*, which allow the jaws to approach more nearly together for use with small work. The teeth of the jaws are formed in converging lines at an angle of about thirty degrees to the horizontal when the wrench is in vertical position, these two lateral lines of teeth being connected by a line of teeth of substantially horizontal relation. In this way in using the wrench with larger work the lateral lines of teeth will bear upon the work at four points and at different angles, thereby securing a better grip.

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

1. In a wrench, the combination with a main jaw-shank having a series of teeth on the opposite side of the shank from the jaw, of a movable jaw having a short shank and spring on one side of the main jaw-shank and on the other side thereof an obtuse-angle lever pivoted to the shank of the movable jaw and having fulcrum-teeth in the angle, and beyond said teeth a slide end, substantially as specified.

2. In a wrench, the combination of a fixed jaw-shank, a movable jaw-shank having at one end thereof a loop connection with the fixed jaw-shank, a handle-lever having a pivotal connection with the other end of the movable jaw-shank and a movable fulcrum-toothed engagement with the fixed jaw-shank, said handle-lever having a work-arm having an obtuse-angle relation to the handle end of the lever, substantially as specified.

3. In a wrench, the combination of a fixed jaw-shank, a movable jaw-shank having at one end thereof a loop connection with the

fixed jaw-shank, a handle-lever having a pivotal connection with the other end of the movable jaw-shank and a movable fulcrum-toothed engagement with the fixed jaw-shank, said handle-lever having a work-arm having an obtuse-angle relation to the handle end of the lever of about one hundred and thirty-five degrees, and a spring between the fixed jaw and the movable jaw, substantially as specified.

4. In a wrench, the combination of a fixed jaw-shank, a movable jaw-shank having at one end thereof a loop connection with the fixed jaw-shank, a handle-lever having a pivotal connection with the other end of the movable jaw-shank and a movable fulcrum-toothed engagement with the fixed jaw-shank, said handle-lever having a work-arm having an obtuse-angle relation to the handle end of the lever, and having a rounded slide end, and a spring for separating the movable jaw from the fixed jaw, substantially as specified.

5. In a wrench, the combination of a fixed jaw-shank, a movable jaw-shank having at one end thereof a loop connection with the fixed jaw-shank, a handle-lever having a pivotal connection with the other end of the movable jaw-shank, and a movable fulcrum-toothed engagement with the fixed jaw-shank, said handle-lever having a work-arm having an obtuse-angle relation to the handle end of the lever and having a rounded slide and fulcrum end, and a spring between the movable jaw and the fixed jaw, substantially as specified.

6. In a wrench, the combination of a fixed jaw-shank a movable jaw-shank having at one end thereof, a loop connection with the fixed jaw-shank, a handle-lever having a pivotal connection with the other end of the movable jaw-shank and a movable fulcrum-toothed engagement with the fixed jaw-shank, said handle-lever having a work-arm having an obtuse-angle relation to the handle end of the lever, the jaws of the wrench having alined tongues and grooves adapted to engage for small work, substantially as specified.

7. In a wrench, a toothed fixed jaw and a toothed movable jaw, said jaws having alined tongues and grooves adapted to engage for small work, substantially as specified.

8. In a wrench a toothed fixed jaw and a toothed movable jaw, said jaws having alined tongues and grooves and having lateral converged lines of teeth of an angular relation to the horizontal of about thirty degrees, and connected by a substantially horizontal line of teeth, substantially as specified.

9. In a wrench, the combination of a fixed jaw-shank, a movable jaw-shank having at one end thereof a loop connection with the fixed jaw-shank, a handle-lever having a pivotal connection with the other end of the

movable jaw-shank, and a movable fulcrum-toothed engagement with the fixed jaw-shank, said handle-lever having a work-arm having an obtuse-angle relation to the handle end of the lever, the jaws of the wrench having aligned tongues and grooves, and being each provided with converging lines of teeth of an angular relation to the horizontal of about thirty degrees

connected by a substantially horizontal line of teeth, substantially as specified.

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

JOHN F. TINER.

Witnesses:

JESSE L. TINER,
B. M. HENRY.