

No. 678,960.

Patented July 23, 1901.

J. P. LAVIGNE & A. W. JOHNSON.  
PIPE WRENCH.

(No Model.)

(Application filed Jan. 19, 1901.)

FIG. 1.

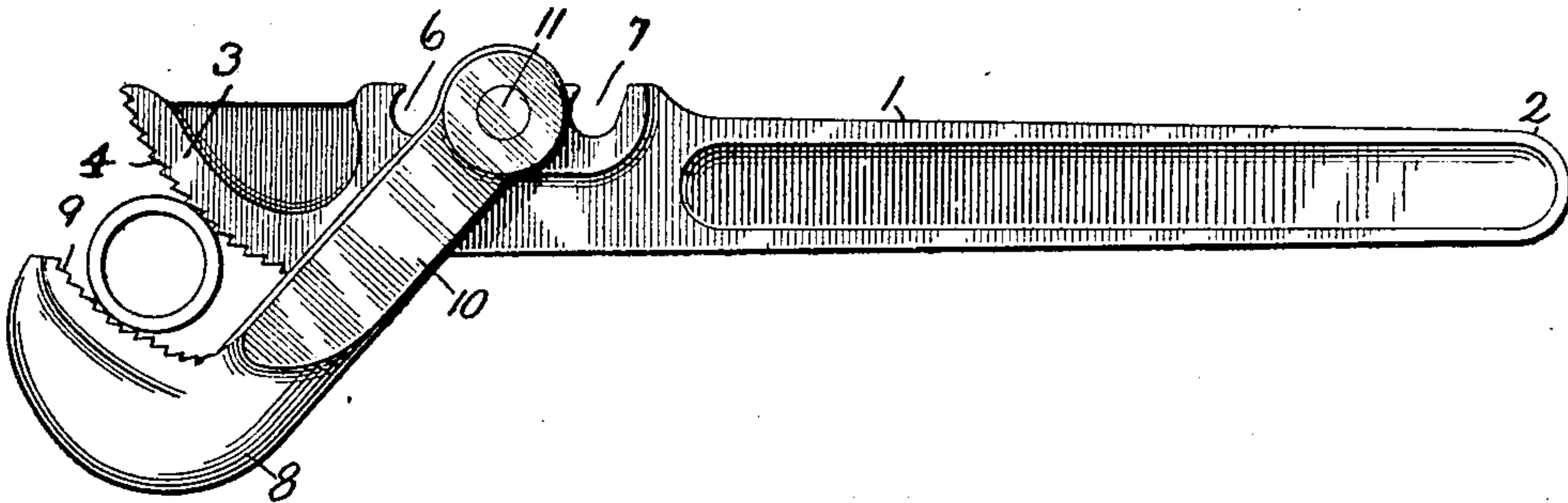


FIG. 2.

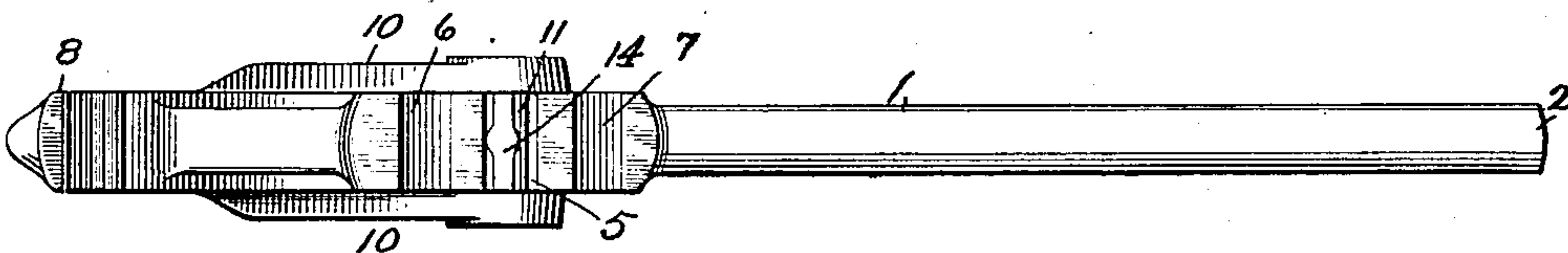


FIG. 3.

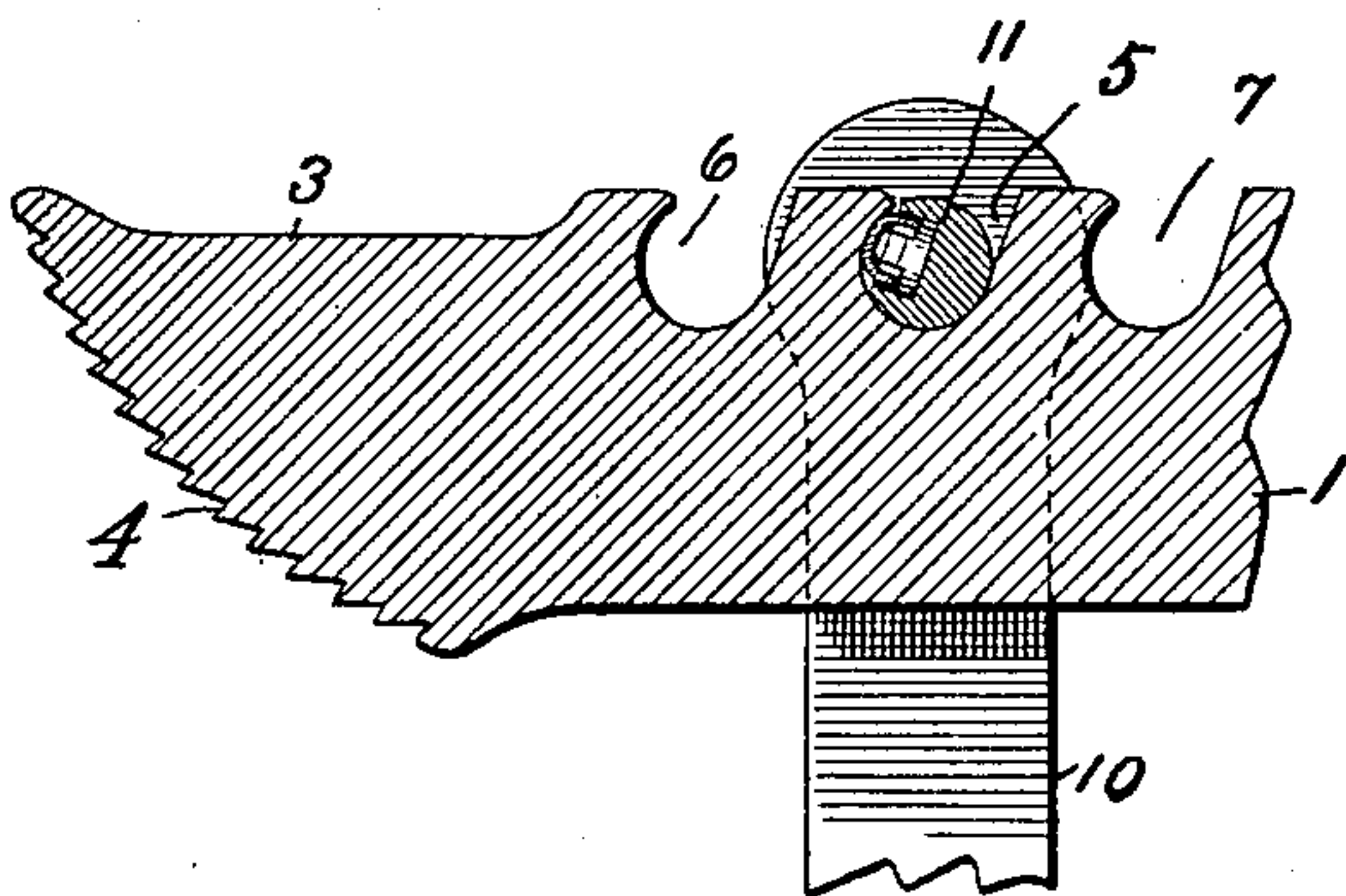


FIG. 5.

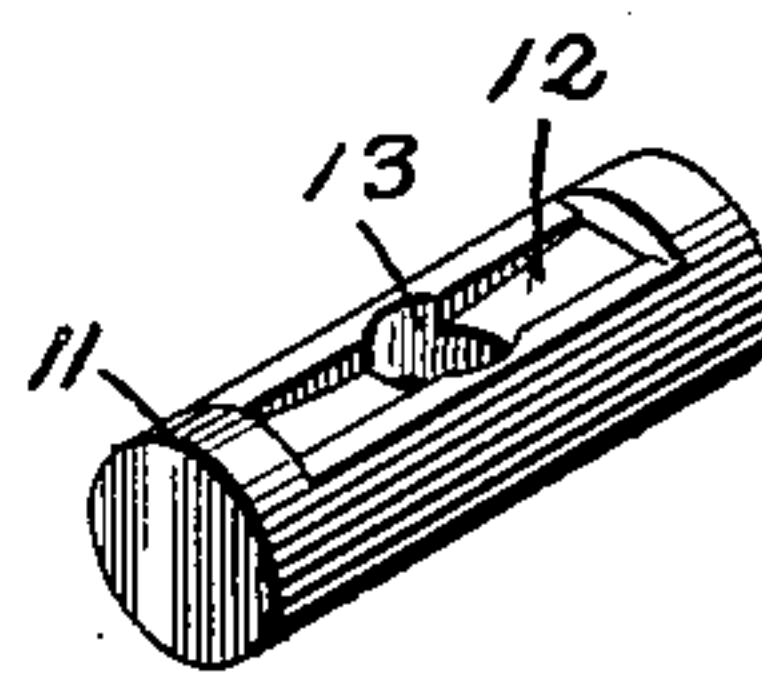


FIG. 6.



FIG. 4.

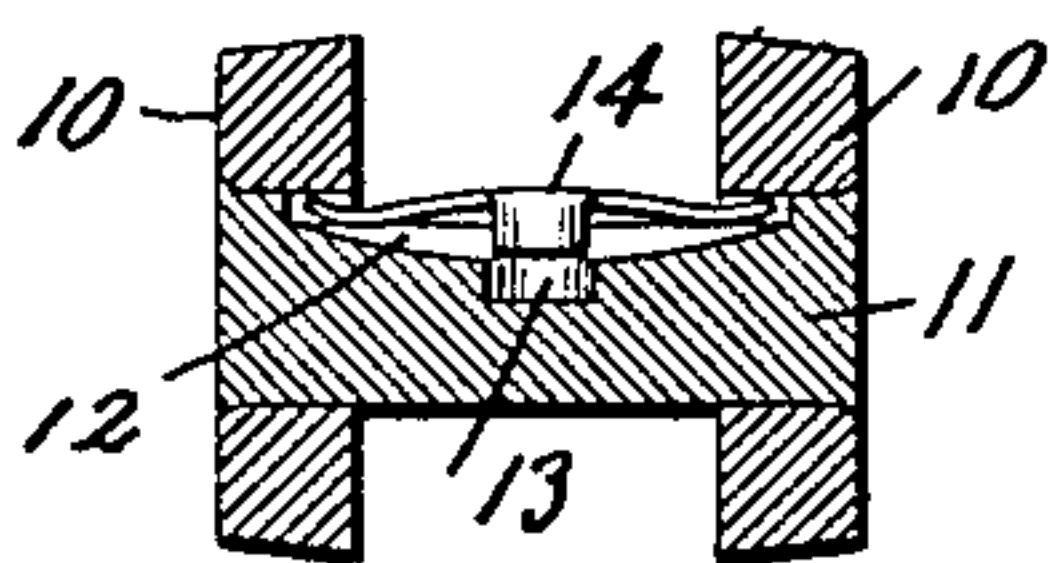
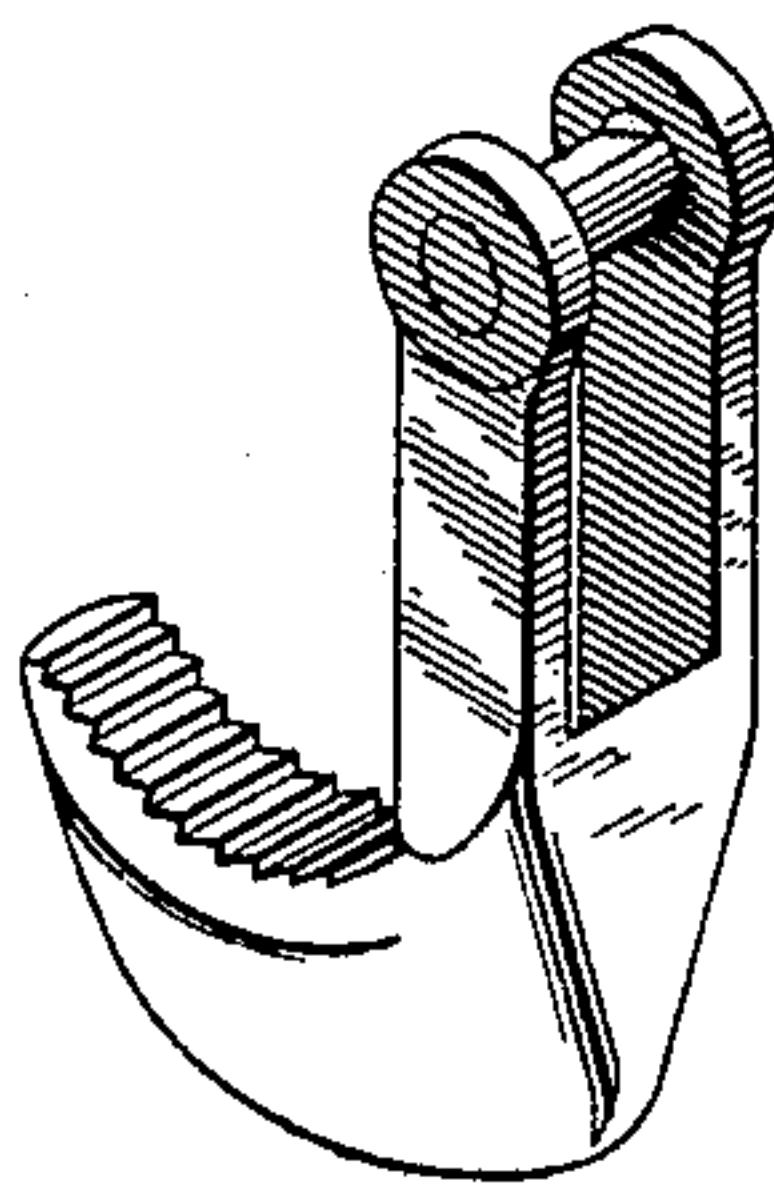


FIG. 7.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 678,960, dated July 23, 1901.

Application filed January 19, 1901. Serial No. 43,959. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH P. LAVIGNE and ALBERT W. JOHNSON, citizens of the United States, residing at New Haven, in the  
5 county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification, reference being had therein to the accompanying drawings.  
10

Our invention relates to improvements in pipe-wrenches of the swinging-jaw type; and the object of our invention is to provide a wrench of simple construction and of easy  
15 and quick adjustment.

To this end our invention consists in a pipe-wrench constructed and operating substantially as described, and more particularly pointed out in the claim.

20 Referring to the drawings, in which like numerals designate like parts in the several views, Figure 1 is a side view showing the jaws in position for engaging a pipe. Fig. 2 is a top or plan view of the same. Fig. 3 is  
25 a vertical longitudinal section taken through the center. Fig. 4 is a vertical cross-section through the center of the hinge-pin, showing the locking-spring and part of the swinging jaw. Fig. 5 shows the hinge-pin in perspective; Fig. 6, the locking-spring. Fig. 7 is a  
30 perspective view of the swinging jaw, showing a modified construction of the hinge-pin.

Numeral 1 designates the lever-bar, terminating at one end in a handle 2 and at the  
35 other end in a jaw 3, the face of which is curved outwardly or convex, being an arc of a circle the center of which is outside of and above the lever-bar, and is provided with teeth 4. At a little distance back from the face of  
40 this jaw in the top edge of the lever-bar is a notch 5, which is contracted at its mouth. In its contour it is an arc of a circle for a distance greater than one-half of its circumference, its rear part being completed on a line  
45 tangent to said circle and slanting slightly backward. 6 and 7 designates similar notches.

The swinging jaw 8 is formed with an inwardly-curved or concaved face provided with teeth 9 and has a bifurcated shank formed  
50 into two parallel arms 10, adapted to embrace the lever-bar. The outer ends of these arms

are of suitable shape to receive the hinge-pin 11, which extends through at right angles and is made fast to them. This hinge-pin is flattened on one side sufficiently to allow it to  
55 pass through the contracted mouth of the notch 5 in the lever-bar, in which it is adapted to rest and turn as the jaw 8 is moved forward or backward. The circumference of the hinge-pin is practically equal to the circle of which the curved portion of the notch  
60 is an arc.

In the flattened side of the hinge-pin 11 a shallow channel 12 is formed extending lengthwise of the pin, the bottom of which is  
65 curved longitudinally, being deeper in the center, where a circular recess 13 is carried to a still greater depth, the diameter of which is greater than the width of the channel. In this channel is a locking-spring 14, the central  
70 portion of which is curved outwardly with ears dependent therefrom and adapted to fit loosely in the circular recess 13, while the ends of the spring extend in the channel 12 to a little distance under the edges of the  
75 arms 10, (see Fig. 4,) by which means the spring is retained in position. Normally the central portion of this locking-spring is higher than its ends, standing fully up to the circle of the circumference of the hinge-pin.  
80

The hinge-pin 15 (shown in Fig. 7 as a modification of that above described) is similar to it in all respects, excepting the feature of the locking-spring, which is designed and operates solely to prevent the hinge-pin from ac-  
85 cidentally becoming disengaged from the notch.

The face of the jaw 3 being curved as an arc of a circle eccentric to that in which the swinging jaw moves, the space between the  
90 jaws is lessened as the swinging jaw is moved forward, thus rendering the wrench capable of operating on pipes of varying sizes while the hinge-pin remains in one notch, while its capacity is increased by changing the hinge-  
95 pin to the other notches.

The operation of the wrench is as follows: The jaws are opened to receive a pipe by moving the swinging jaw backward, and by moving the swinging jaw forward the jaws  
100 close upon the pipe to be operated on, which they grip firmly by pressing the handle of the



lever-bar forward and are instantly released therefrom by reversing the movement of the lever-bar. To remove the hinge-pin from the notch with which it may be engaged, it is necessary to move the swinging jaw backward out of its operative position until the flattened side of the hinge-pin is parallel with the rear wall of the notch, (see Fig. 3,) in which position only it may be passed through the contracted mouth of the notch, the locking-spring yielding and being forced back into its channel and recess in the hinge-pin under light pressure, but offering sufficient resistance to prevent accidental disengagement of the hinge-pin. To replace the hinge-pin in the notch, bring the flattened side and the rear wall again parallel, and the locking-spring again yielding will allow the hinge-pin to enter the notch.

We do not confine ourselves to the exact

form of the notches in the lever-bar nor to the exact form or style of locking-spring above described, but claim all that fairly falls within the spirit and scope of our invention.

What we claim as new, and desire to secure by Letters Patent, is—

In a pipe-wrench, a lever-bar with a notch having a contracted mouth in one edge and terminating in a toothed jaw at one end, a swinging jaw with a hinge-pin flattened on one side to adapt it to enter and engage with said notch, and a locking-spring arranged to operate in said hinge-pin, substantially as described.

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