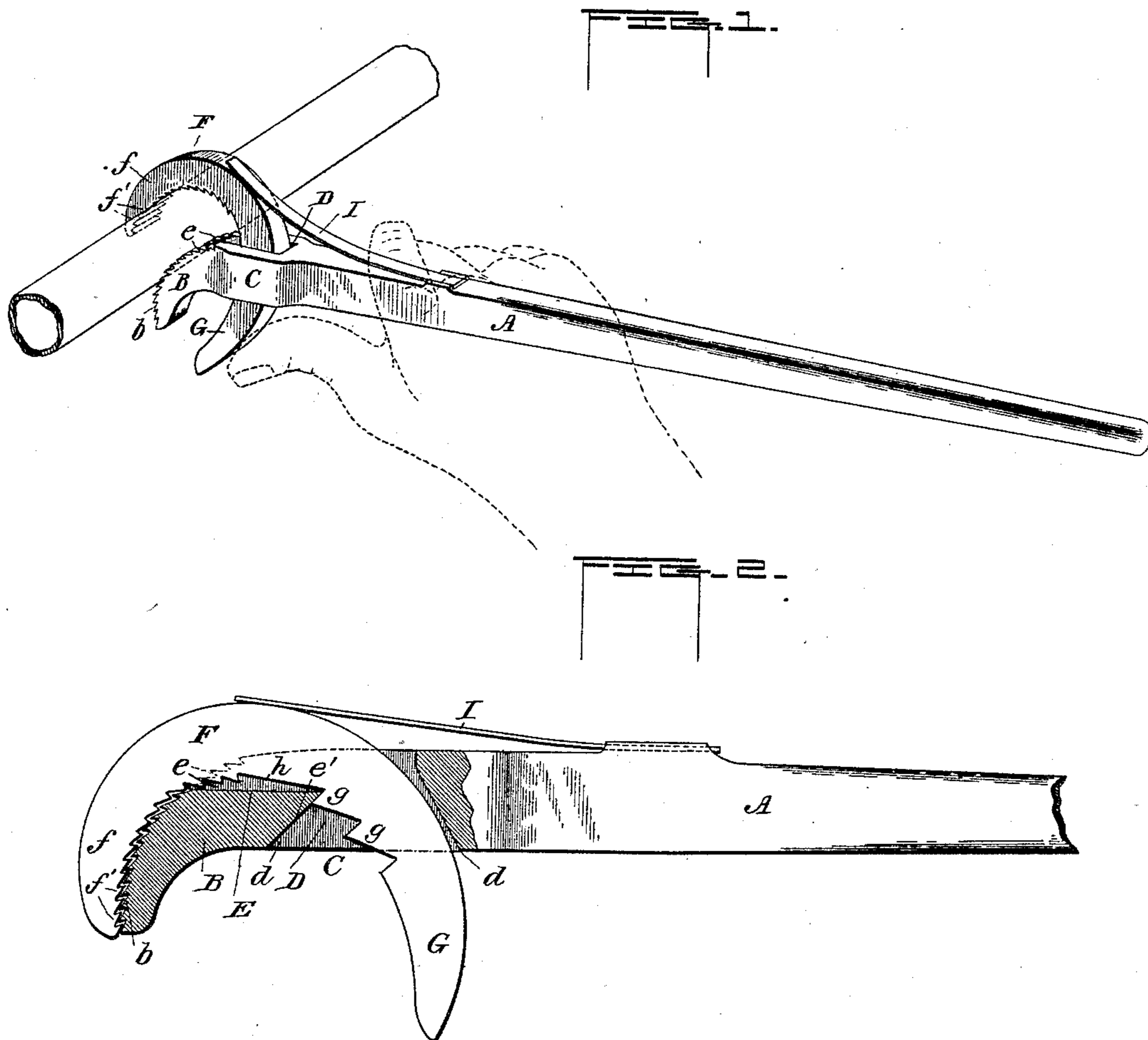


(No Model.)

D. E. VAN HORN.  
WRENCH.

No. 450,651.

Patented Apr. 21, 1891.



WITNESSES.

*Wm. C. Smith, Jr.*  
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per *Wm. C. Smith, Jr.*  
his Attorney.

# UNITED STATES PATENT OFFICE.

DAVID E. VAN HORN, OF ELKHART, INDIANA.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 450,651, dated April 21, 1891.

Application filed April 8, 1889. Serial No. 306,337. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID E. VAN HORN, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, 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 wrenches, and more particularly to the class known as "sliding jaw" wrenches.

My object is to produce a wrench in which rivets, nuts, bolts, and the like will be entirely dispensed with, and at the same time one which can be easily adjusted to any size of pipe, and which will be very strong, durable, and effective.

With these ends in view my invention consists in the peculiar features and combinations of parts more fully described hereinafter, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of my complete device, representing the wrench in operation upon a pipe; and Fig. 2, a side elevation in cross-section, showing the jaws in their normal position.

The reference-letter A indicates the handle of the wrench, by means of which it is manipulated. The outer extremity of this handle forms the lower stationary jaw of the wrench, and is curved downwardly, as shown at B, and provided on its upper surface with teeth or serrations *b*. These teeth are cut to slant away from the body of the wrench, in order to take a firmer and more secure hold upon the pipe, as will hereinafter appear. The body C of the wrench is recessed out at D, and this recess is made flaring out of the bottom of the wrench, as shown at *d d*, to allow sufficient rocking or pivotal motion to the sliding jaw. The upper part of the recess extends out of the lower jaw B parallel with the handle of the wrench, forming an elongated channel or groove E, having serrated side walls *e e*. This channel, together with the flaring side wall *d* of the main recess, forms an acute angle *e'*, which acts as a fulcrum for the sliding jaw F to rock upon. This jaw F is adapted to slide in the recess D, just described, and

consists of a substantially semicircular piece of metal, whose outer end *f* forms the upper movable jaw of the wrench. This jaw is provided with teeth or serrations *f'*, cut slanting, in an opposite direction to those of the lower jaw—i. e., in toward the body of the wrench—and this serrated portion is made with the same curve as the lower jaw, so as to bear closely against the same when in its normal closed position. The lower end G of this sliding jaw F forms a bearing for the thumb for opening the jaw to grasp the pipe. Intermediate of this lower end and the toothed portion of the jaw large teeth or ratchets *g* are formed, which are cut on an opposite slant to those on the outer end. Between the ratchet *g* and the serrations *f'* a smooth straight surface *h* is left to allow free play to the jaw. A spring-strip I is secured on the top of the wrench and bears upon the curved upper surface of the sliding jaw.

The construction of my device having been set forth, I will now proceed to describe its operation. The jaws are first adjusted to the size of pipe to be grasped by means of the ratchet *g*. The acute angle *e'* is made to engage an elbow of one of the ratchets, and thus forms a fulcrum for the jaw. It will thus be seen that the wrench can be easily adjusted to any size of pipe by very simple means. The jaw F is now opened by pressing against the thumb-bearing G and the jaws placed around the pipe. The handle A is now turned so as to press the lower jaw B against the pipe, and the teeth of this lower jaw being cut on an angle away from the body of the wrench it will readily be seen that they will take a firm hold on the pipe. Now, the upper jaw being pivoted or fulcrumed on the lower one, as described, as long as the lower jaw is pressed against the pipe the upper jaw will be drawn in upon the latter also, and, the teeth of this jaw being cut, as described, will have a tendency to dig into the pipe and firmly hold the same.

The spring-strip I serves the purpose of holding the upper jaw upon the fulcrum *e'* to prevent it from slipping out of the recess D. It will thus be seen that the more pressure brought to bear on the handle A to turn the same the tighter the jaws will grip the pipe.

Having thus described my invention, what

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

1. The herein-described wrench, consisting of a handle portion having its forward extremity curved downwardly to form the lower jaw of the wrench and provided with teeth cut on an outwardly-extending angle, said handle portion having a recess formed therein, the acute angle formed by the front walls thereof forming a fulcrum, a sliding jaw semicircular in general outline and arranged to operate in said recess, the outer end of said jaw being curved to conform with the curved portion of the lower jaw and having inwardly-cut teeth, while its inner portion is provided with a ratchet whose teeth are cut on an opposite angle to those on the outer end and by means of which the sliding jaw is fulcrumed on the lower jaw, and a flat spring secured at one end to said handle portion, its outer free end having frictional bearing upon the top surface of the sliding jaw to hold the latter against the fulcrum, all arranged and adapted to operate substantially as and for the purpose described.

2. The combination, in a wrench, of a handle portion A, provided with an internal recess and having its forward end B curved downwardly, teeth *b*, cut in the outer surface of the curved end and at an outward angle to the handle, a substantially semicircular sliding jaw passing through and operating within said internal recess, said sliding jaw being provided with a ratchet *g*, an angular projection *e'*, located within the handle portion, said sliding jaw being provided with internal teeth upon its outer end, which teeth slope in an opposite direction to those upon the handle portion, a flat spring secured to the exterior of the handle and with its free end bearing upon the sliding jaw to hold the ratchet in engagement with the angular projection, all arranged and adapted to operate as described.

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

DAVID E. VAN HORN.

Witnesses:

CHARLES S. HENDERSON,  
E. J. CRULL.