

(No Model.)

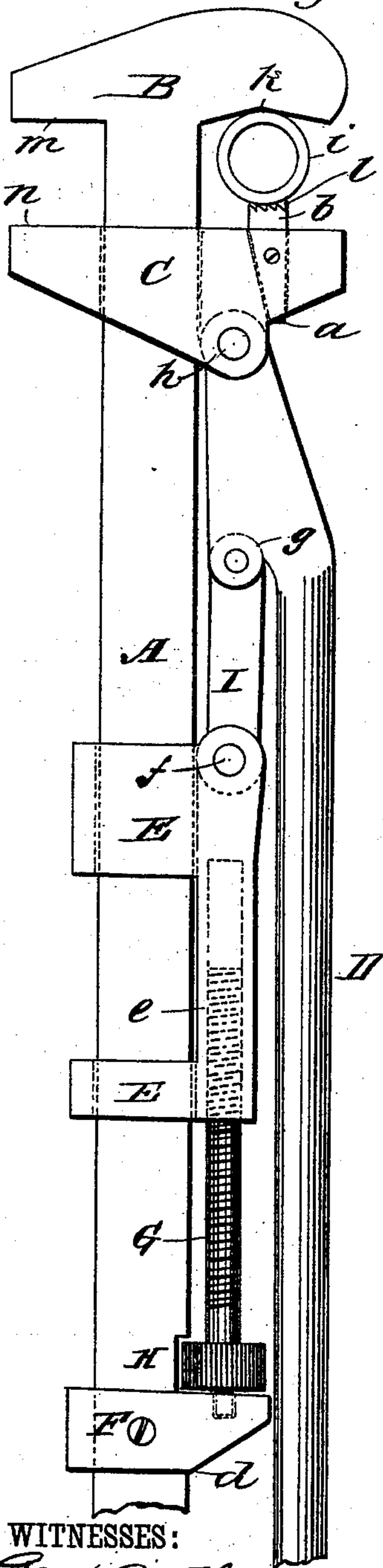
W. H. MITCHELL.

COMBINATION TOOL.

No. 372,080.

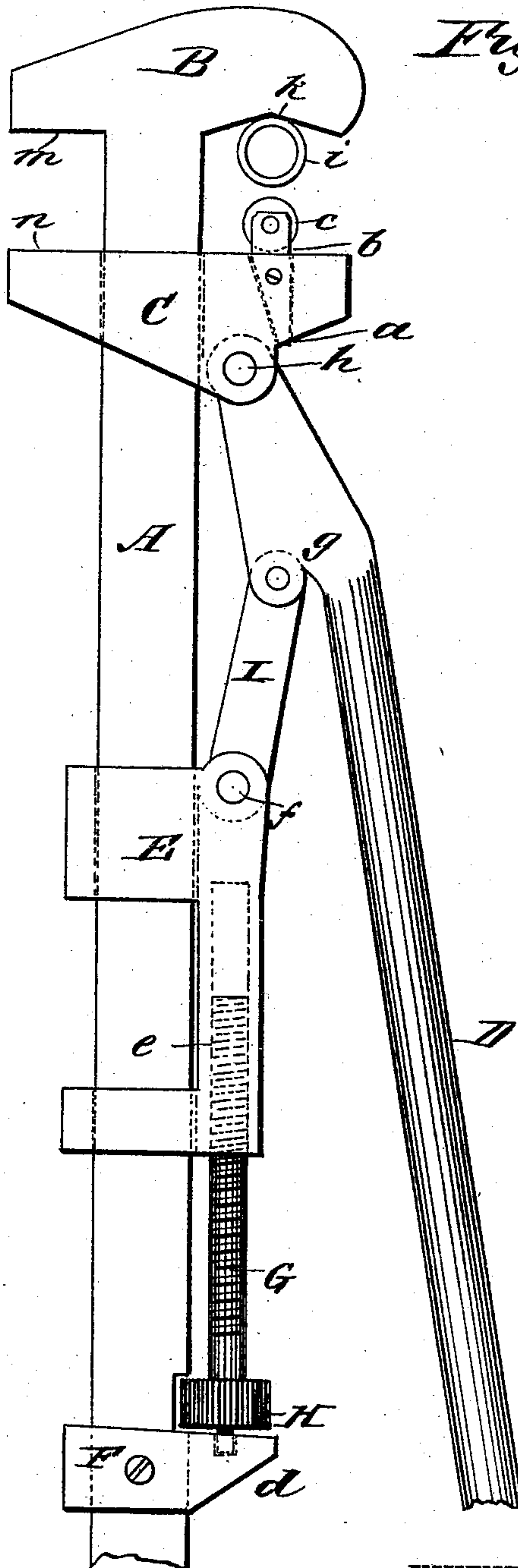
Patented Oct. 25, 1887.

Fig. 1.



WITNESSES:
J. M. Apple,
C. Sedgwick

Fig. 2.



INVENTOR:
W. H. Mitchell
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM H. MITCHELL, OF HORSE CAVE, KENTUCKY.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 372,080, dated October 25, 1887.

Application filed February 12, 1887. Serial No. 227,609. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MITCHELL, of Horse Cave, in the county of Hart and State of Kentucky, have invented a new and Improved Combination-Tool, of which the following is a full, clear, and exact description.

My invention relates to tools employed by machinists and gas-fitters; and its objects are to construct an implement which shall combine in itself a monkey-wrench, pipe-cutter, and pipe-tongs, be adapted for use upon varying sizes of pipe and fittings, and which may be changed from tongs to cutter or cutter to tongs, as necessity therefor may arise.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a perspective view of my improved combination-tool, showing its use as a wrench or pipe-tongs; and Fig. 2 is a similar view of the same, showing its use as a wrench or pipe-cutter, in the one case the tool being closed and in the other open.

Referring to the said drawings, A is the bar of the tool; B is its fixed jaw; C, its movable jaw, and D is a lever for operating the jaw C. The portion of the jaw B which is made use of when the tool is employed as a pipe cutter or pipe-tongs is constructed with an angular face, *k*.

m n are the inner faces of the jaws of the wrench proper.

E is a bearing which slides on the bar A, and F is a fixed bearing on said bar.

b is a removable tooth with a serrated face, *l*, and *c* a rotary cutter on the tooth *b'*, said teeth fitting in a recess, *a*, in the jaw C.

d is a socket in the fixed bearing F, in which the adjusting-screw G turns, and *e* a screw-threaded socket in the adjustable bearing E, to receive the body of said screw.

H is the head of said screw.

I is a toggle connected to the adjustable bearing E by the hinge-joint *f*, and to the lever D by the hinge-joint *g*, said lever being connected to the jaw C by the hinge-joint *h*.

i is the pipe to be gripped or cut.

When my improved tool is to be used as a wrench, the tooth *b* is removed from the jaw C, the lever D is raised, as shown in Fig. 2, caus-

ing the jaw C to recede from the jaw B and traverse the bar A in the direction of the adjustable bearing E. By turning the screw G in its sockets *d* and *e* the adjustable bearing is set at any requisite point on the bar A. The jaws B and C are then placed upon the nut or fitting which is to be turned and the lever D is pressed down, as shown in Fig. 1, causing the jaw C to traverse the bar A, move toward the jaw B, and grip the nut or fitting tightly between the faces *m* and *n* of said jaws. The nut or fitting is then loosened or unscrewed by simply turning the wrench. It is removed from the jaws of the wrench by raising the lever D, which causes the jaw C to recede from the jaw B on the arm A. When said tool is to be used as a pipe-tongs, the tooth *b* is inserted in the socket *a* of the jaw C and fastened therein by a pin or screw. The lever D is then raised, as shown in Fig. 2, causing the jaw C to withdraw from the jaw B. The pipe to be gripped is introduced between said jaws, and the lever being pressed down the jaw C is caused to traverse the arm A toward the jaw B and press the tooth *b* tightly against the pipe *i*, which is then turned by the tool to the extent desired.

The tool is used as a pipe-cutter by removing the tooth *b* (shown in Fig. 1) and substituting for it a tooth, *b'*, having a cutting-edge on its face, or provided with a rotary cutter, as shown in Fig. 2. The lever D is then raised, causing the jaw C to slide back along the arm A. The pipe *i* is then passed between the jaws B and C, and by pressing down the lever, as above described, the jaw C passes forward and sets the cutter *c* firmly against said pipe, which is then cut by turning the cutter *c* thereon.

The teeth *b b'* are made of steel, and may be constructed either with a smooth face or with serrations *l*, for use as a bit or grip when the tool is to be employed as a pipe-tongs, or with a cutting-edge or a rotary cutter, *c*, made of steel or black diamond and turning on an axis, as shown in Fig. 2, when the tool is to be employed as a pipe-cutter.

My improved combination-tool is no more bulky than any of the single implements it combines. It is as easily handled as any of them, the adjustment of its parts is simple, and it is at all times available and reliable for

all purposes of pipe-fitting which its elements will serve.

The jaw C is capable of ready adjustment to accommodate the tool to any size of pipe or fittings therefor, and the change of office of the jaws B and C is accomplished in a few moments. If the tooth *b* is dispensed with, the tool will still serve the purpose of pipe-tongs or wrench, the gripping being performed by the mouth of the socket *a* and the angular face *k* of the jaw B and the jaws *m* and *n*.

I deem it preferable to construct the fixed bearing F with a slightly tapering or sloping head, extended far enough beyond the head H of the screw G to prevent the lever D and toggle I from pressing closely against the arm A when the tool is closed and in operation, but instead to leave an opening between said lever, toggle, and arm. I also prefer to construct the lever D with a recess on the side toward the toggle and hinge-joint *g*, affording an opening between the lever and said toggle and joint when the tool is closed and in operation. These openings allow passage of the chips, cuttings, trash, and dirt resulting from the operations of gripping and cutting the pipe, and prevent the same from clogging the toggle and joints and lessening the efficiency of the action of the jaws B and C.

The bearing F may also be constructed to be

secured in place on the arm A by either a set-screw or a wedge, as preferred.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An improvement in wrenches, consisting of a main bar, a cross-head fixed thereon provided with a straight and an angular gripping-face, a jaw fitted to slide on said bar, provided with straight gripping-faces, and a socket to receive auxiliary cutting and gripping teeth, a bearing to slide on said bar, a bearing fixed on said bar below the sliding bearing, means, as shown, for adjusting the sliding bearing, and a lever hinge-jointed to the movable jaw and to a toggle hinge-jointed to the sliding bearing, substantially as shown and described, for the purposes set forth.

2. In a wrench, the combination, with the jaw C and bearing E, fitted to slide on the bar A, the screw G, for adjusting said bearing, and the bearing F, fixed to said bar, of the lever D, hinge-jointed to the said jaw, and the toggle I, hinge-jointed to said lever and sliding bearing, substantially as shown and described, for the purpose herein set forth.

WILLIAM H. MITCHELL.

Witnesses:

MCC. MUSTAIN,

CHAS. C. MUSTAIN.