C. H. Miller,

Wrench.

No. 105,827. Patented July 26, 1870.

Fig. I.

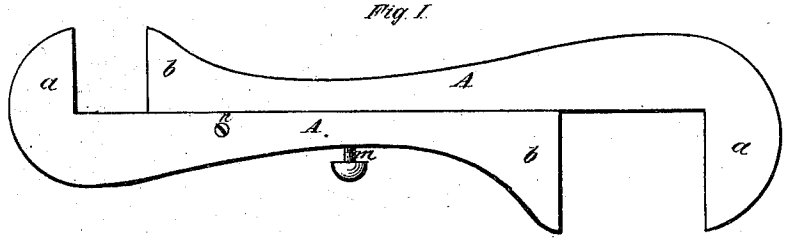


Fig. II.

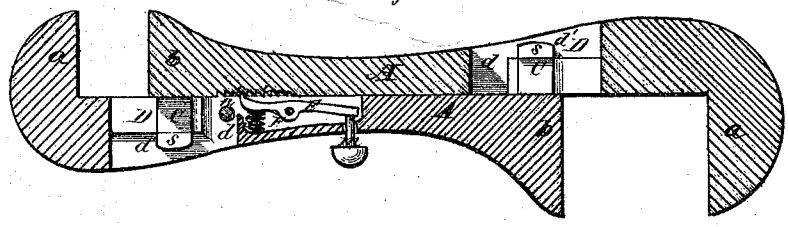
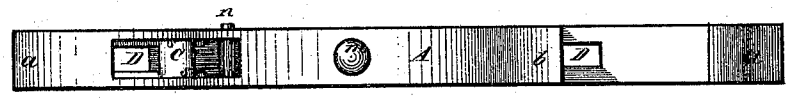


Fig. III.



Victor H. Becker
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Witnesses.

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CHARLES H. MILLER, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF AND MICHAEL DOLL, OF SAME PLACE.

Letters Patent No. 105,827, *dated July* 26, 1870.

IMPROVEMENT IN WRENCH.

The Schedule referred to in these Letters Patent and making part of the same.

I, CHARLES H. MILLER, of the city of Buffalo, in the county of Erie and State of New York, have invented an Improved Wrench, of which the following is a specification.

My improved wrench belongs to that class in which the instruments are made in halves, both ends of which terminate in jaws, so that when the halves or counterparts are put together a double wrench, or two sets of jaws, one at each end, will be formed, the jaws of the one-half adjusting longitudinally to or from those of the other.

My invention consists—

First, in uniting the two halves by means of a dovetail pin or guide, cast at the end of each half, which slides and adjusts in a slot formed in the contiguous portion, the slots being enlarged at one end, to permit the insertion of the head of the guides or dovetails, whereby a cheap and strong connection is provided, without the necessity of any of the parts projecting beyond the surface of the wrench.

Second, in the arrangement of a stop-pin or screw, which is passed through the side of one of the bars into the enlargement of one of the slots, after the two bars have been connected together, so as to prevent their accidental separation.

Third, in the arrangement with a wrench made in halves, so as to adjust, by sliding longitudinally, of teeth or ratchets formed on the inner and contiguous face of the one half, and a spring pawl, arranged and concealed in a recess cast in the inner contiguous face of the opposite half, whereby the adjustment of the jaws is most readily and conveniently effected by one hand by simply pressing with the thumb or finger on a projecting knob, the only part of the wrench which projects beyond its surface.

In the accompanying drawing—

Figure I is a side elevation;

Figure II is a longitudinal section; and

Figure III, an edge view of my improved wrench.

Like letters of reference designate like parts in each of the figures.

A A are the two halves of the wrench, each cast with a jaw, *a*, projecting at right angles from one end, which forms the outer jaw of each wrench, while the opposite end *b* of each half is widened and faced, so that when the parts are arranged together, it will form the inner jaw of each set, as clearly shown.

C is the dovetail or guide, projecting from the inner end of each portion A.

D is the corresponding slot formed in the opposite ends;

d, the enlargement at one end of the slot, to admit the head of the guide; and

d', the countersink or widening of the slot at the outer edge, to receive the flange projections *c* of the dovetail, which project outward, so as to be only flush with the edge of the wrench.

The parts are united by inserting the heads of the dovetails through the enlarged opening *d*, and then sliding the parts longitudinally, so as to engage the flanges *c* with the edges of the slots or shoulders formed by the countersink *d'*.

After the bars A A are connected together, as above described, I pass a screw or pin, *n*, through the sides of the slotted bar, so as to obstruct one of the enlargements *d* of the slots, and stop the movement of the dovetails before they sufficiently enter the enlargement to permit of their detachment therefrom.

E is a pawl-lever, pivoted in a recess, F, cast in the edge of one of the portions A of the wrench.

g is a spiral spring, arranged so as to press the pawl against the ratchets *i*, formed in the contiguous face of the opposite portion A; and

m is a pin, projecting outward from the end of the pawl-lever, and provided with a knob at its end, which, being pressed inward by the thumb or finger, releases the pawl from engagement with the ratchets opposite.

The construction of the teeth or ratchets *i* permit the pawl to slip over them, as the parts A A are slid in the direction for closing the jaws, while the pawl engages therewith, and prevents the separation of the jaws.

My improved wrench is easily handled and adjusted, possesses a smooth exterior, while the means for connecting the parts and locking them in place are arranged inside, so as to be protected from injury, thereby rendering the wrench more durable, smoother to handle, and neater in appearance.

What I claim as my invention is—

1. The combination and arrangement, with the wrench-bars A A, of the dovetail guides C and slots D, provided with enlargement *d*, for uniting the said bars, substantially as and for the purpose hereinbefore set forth.

2. The arrangement of the stop-pin or screw *n*, in the slotted bar A, and with the enlargement *d*, as and for the purpose hereinbefore set forth.

3. The arrangement, with the portions A A, of the teeth *i* and spring pawl E, concealed within the wrench, and operated substantially in the manner and for the purpose hereinbefore set forth.

CHARLES H. MILLER.

Witnesses:

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