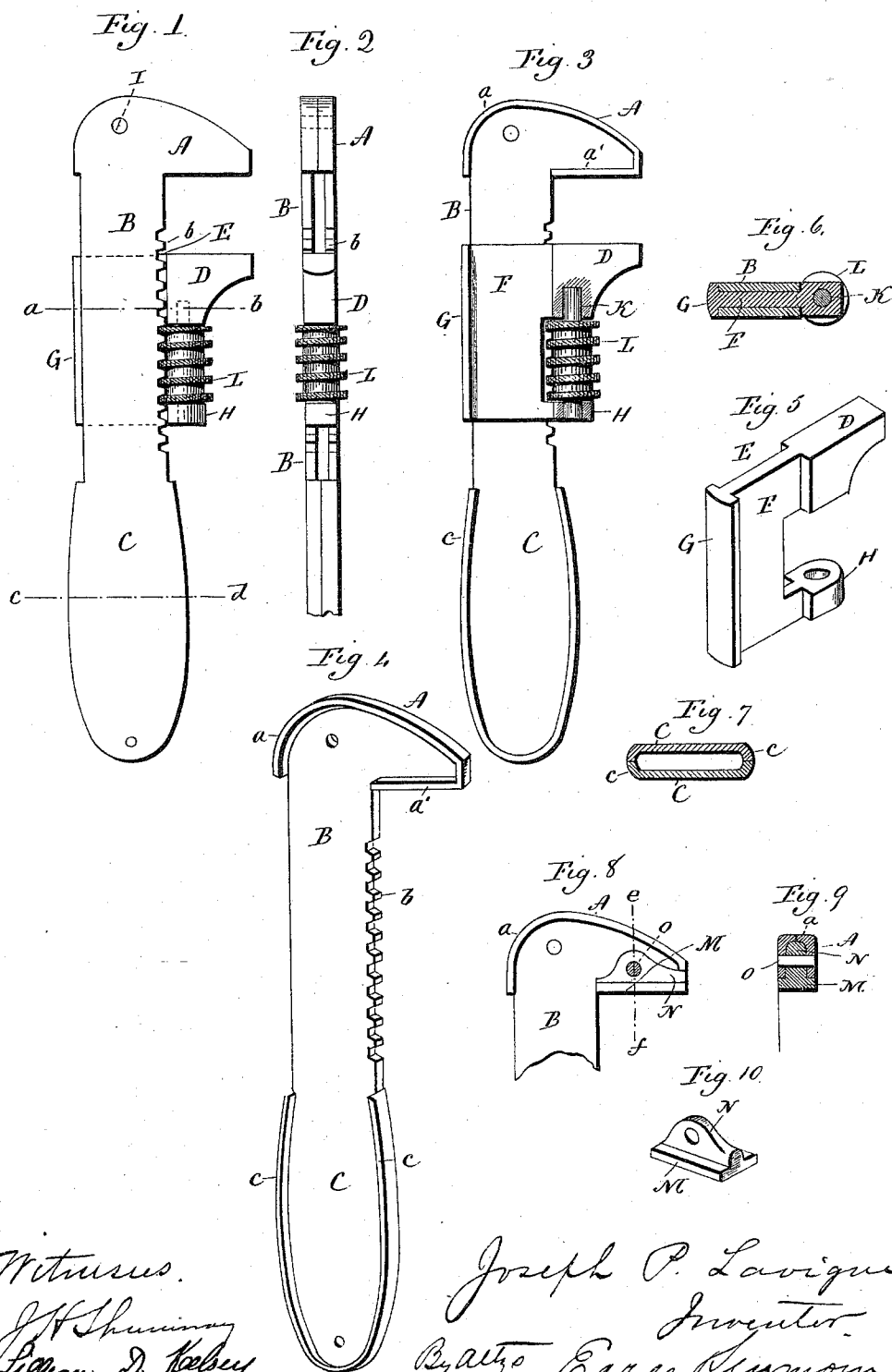


(No Model.)

J. P. LAVIGNE.
WRENCH.

No. 579,438.

Patented Mar. 23, 1897.



Witnesses.

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UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 579,438, dated March 23, 1897.

Application filed January 7, 1897. Serial No. 618,242. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. LAVIGNE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Wrenches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, an edge view of the same; Fig. 3, a sectional side view; Fig. 4, a perspective view of the combined jaw, shank, and handle detached; Fig. 5, a perspective view of the removable jaw detached; Fig. 6, a section on line *a b* of Fig. 1; Fig. 7, a section on line *c d* of Fig. 1; Fig. 8, a side view of the upper end of the shank and fixed jaw, illustrating another method of forming the wearing-surface of the jaw; Fig. 9, a section on line *e f* of Fig. 8, and Fig. 10 a perspective view of the wearing-block detached.

This invention relates to an improvement in wrenches, and particularly to small wrenches, such as are commonly used in connection with and known as "bicycle-wrenches," and more especially to wrenches in which a rack is formed in one edge of the shank to receive a worm-nut mounted in the movable jaw, by the rotation of which nut the movable jaw is moved toward and away from the fixed jaw, the object of the invention being to construct a wrench so that its several parts may be readily struck up from sheet metal or forged and require but little milling or other machine work to complete them, and at the same time obtain a construction which will withstand a considerable degree of strain; and the invention consists in the construction as hereinafter described, and particularly recited in the claims.

The fixed jaw A, shank B, and handle C are formed from two pieces of sheet metal, each formed with a flange *a* around the upper end or jaw portion and with a flange *c* around the lower end or handle portion, as shown in Fig. 4. The forward edge of the shank portion B of each part is formed with teeth *b*. The movable jaw D is formed with

a groove E on each side, corresponding in width to the width of the shanks B, which leaves a web F and rear flange G. Below the jaw proper and projecting forward from the web F is a nut-retaining arm H.

Mounted in the movable jaw D upon a pivot K is a worm-nut L.

In assembling the wrench the shanks of the two parts are placed on opposite sides of the movable jaw and so that they rest in the grooves E, so that the flanges *a c* of one part abut against the corresponding flanges *a c* of the other part, and when thus in place are secured together by rivets I J, more or less in number. The abutting flanges finish the edges of the jaw and handle and form the operating-face of the jaw and separate the shanks, so that the movable jaw is free to slide between them. The worm-nut L meshes with the teeth *b* in the shank B and so that by turning the nut L the jaw D is moved toward or away from the fixed jaw A in the usual manner, the said jaw being guided vertically by the flange G bearing against the rear edges of the shanks B.

Instead of carrying the flange *a* across the working face of the fixed jaw A, as shown in Fig. 4, the portion *a'* may be omitted and a shoe consisting of a plate M, with a centrally-arranged upwardly-extending web N, may be inserted between the sides of the jaw and secured there by a rivet O, extending through the jaws and the web N of the shoe, as shown in Fig. 8, and so as to provide the fixed jaw with an integral wearing-surface.

The flanges not only act to properly locate the sides of the wrench, but also serve to greatly strengthen the parts.

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

1. A wrench having its fixed jaw, shank and handle formed from two pieces of sheet metal, said jaw and handle portions formed with inwardly-projecting flanges, a movable jaw having a web extending between said shanks, and carrying an adjusting-nut which engages with teeth in the forward edges of said shanks, substantially as described.
2. A wrench having its fixed jaw, shank and handle formed from two pieces of sheet

metal, said jaw and handle portions formed with inwardly-projecting flanges, a movable jaw having a web extending between said shanks, and carrying an adjusting-nut which
5 engages with teeth in the forward edges of said shanks, and a wearing-block located between the sides of the fixed jaw, substantially as described.

3. A wrench having its upper jaw, shank
10 and handle formed from two pieces of metal, said jaw and handle portions each having inwardly-projecting abutting flanges, a mov-

able jaw arranged between the sides of the shank, between which it is guided, and a nut mounted in the said jaw for engagement with
15 teeth formed on the forward edges of said shank, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH P. LAVIGNE.

Witnesses:

FRED C. EARLE,
LILLIAN D. KELSEY.