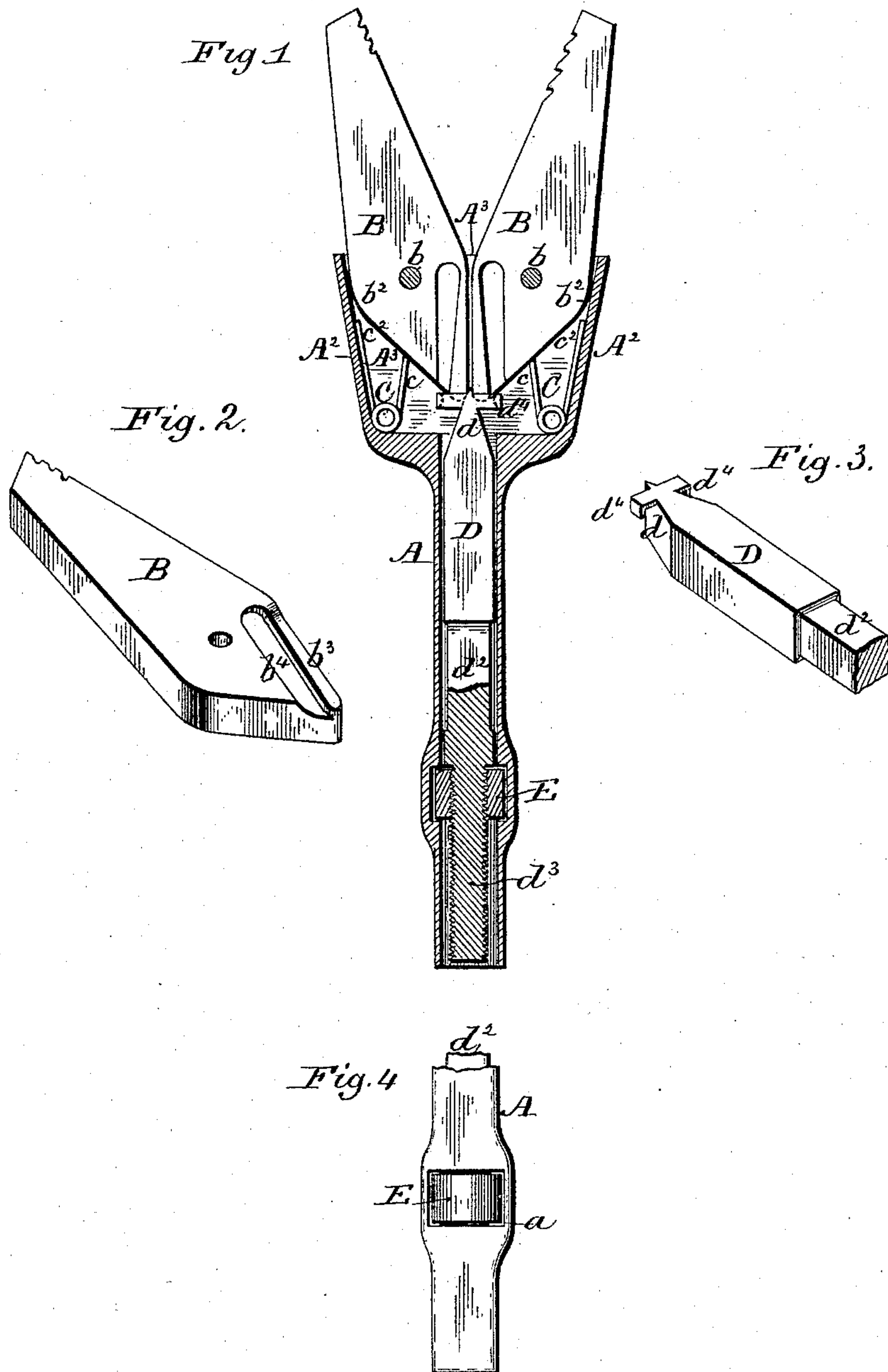


(No Model.)

S. B. RITTENHOUSE.
WRENCH.

No. 474,566.

Patented May 10, 1892.



Witnesses:
C. C. Schiller,
L. C. Mills.

Inventor:
Silas B. Rittenhouse
by E. E. Masson
att'y.

UNITED STATES PATENT OFFICE.

SILAS B. RITTENHOUSE, OF LIBERTY MILLS, INDIANA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 474,566, dated May 10, 1892.

Application filed September 22, 1891. Serial No. 406,461. (No model.)

To all whom it may concern:

Be it known that I, SILAS B. RITTENHOUSE, a citizen of the United States, residing at Liberty Mills, in the county of Wabash, State of Indiana, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to wrenches having pivoted jaws adapted to rotate either pipes or nuts, the form being known as "alligator-jaws;" and the objects of my improvements are to provide a simple and strong wrench having the inner ends of the jaws well supported and wholly inclosed, and also to provide it with means attached to the forcing-wedge to maintain the jaws normally open. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section through a wrench constructed in accordance with my invention. Fig. 2 is a perspective view of one of the jaws. Fig. 3 is a perspective view of a portion of the rod, having at one end the forcing-wedge and also the jaw-openers. Fig. 4 is a front view of the portion of the handle carrying the operating-nut.

In said drawings the frame of the wrench consists of a tubular handle A, preferably square or nearly square in cross-section, one end of which is enlarged on two sides thereof and forms a flat funnel, having slightly-flared sides A^2 , that are united the whole length thereof by the two parallel sides A^3 , that are thus of trapezoidal form. Within the funnel are placed the two jaws B, each one mounted upon a separate pivot-pin b , that passes through the parallel sides A^3 , and is preferably riveted to said sides A^3 . The jaws are nearly diamond shape, and in their widest portion they have their angles b^2 rounded in the form of a segment of a cylinder, having the pivot-pin b for an axis, and said rounded portion is made to slightly bear against the flaring sides A^2 , so that the latter will sustain the pressure brought upon the jaws when there is any looseness of the jaws upon their pivot-pins in using the

wrench forcibly to rotate pipes or nuts. The jaw-inclosing funnel is also made to receive in the inner angles thereof two springs C, that are preferably made of short length of spring-wire, having its middle portion coiled a few turns and having one end c bearing against the outer beveled edge of the inner end of the jaw, and the opposite end c^2 of the spring bearing against the inner surface of the flaring sides A^2 .

Within the handle A is placed a square rod D, having one end d wedge-shaped and adapted to enter between the inner ends of the jaws and force them apart. The rod D fits not tightly but closely within the handle, and to reduce the friction of the parts the middle portion d^2 is of reduced size, and the end opposite the wedge is cylindrical and screw-threaded at d^3 and is made to pass through a nut E, having either a polygonal or a milled cylindrical periphery to be easily rotated between the thumb and fingers of the operator. Said nut is introduced within the handle A through a rectangular perforation a therein.

To close the outer ends of the jaws or make their inner ends follow steadily the sides of the wedge d when the latter is being withdrawn from between them, one of the broad faces of the jaws is provided along one of its inner edges with a flange b^3 , forming one side of a groove b^4 , and the rod D has projecting from each beveled side of the wedge d a laterally-extended hooked finger d^4 , adapted to freely travel in the groove b^4 and against the side of the flange b^3 . The jaws are thus opened and kept open by means of the rod D and its nut E alone or in connection with the springs C.

Having now fully described my invention, I claim—

1. In a wrench, the combination of two jaws and independent pivot-pins therefor with a frame inclosing the flat sides and outer edges of the lower portion of said jaws, and springs C, having one end resting against said edges and the other end against said frame and a wedge adapted to enter between said jaws, substantially as described.

2. In a wrench, the combination of two jaws
and independent pivots therefor with a frame
inclosing the lower portions of said jaws and
a rod having a wedge at one end and hooked
5 fingers extending laterally from said wedge,
the lower portions of the jaws having flanges
b³ for engagement with the hooked fingers,
substantially as described.

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

SILAS B. RITTENHOUSE.

Witnesses:

E. E. MASSON,
C. C. SCHILLER.