(No Model.)

W. D. ARNOT.

COMBINATION TOOL.

No. 456,189. Patented July 21, 1891.

Fig. 1.

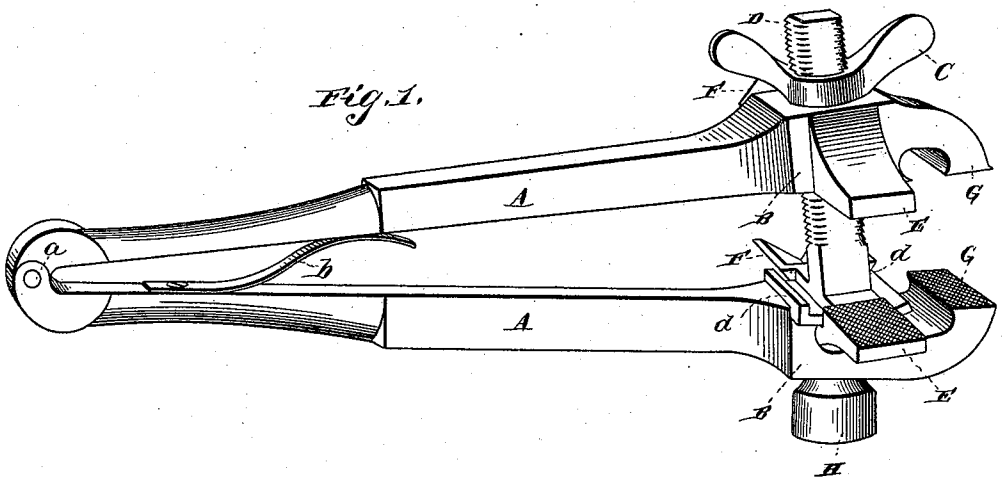
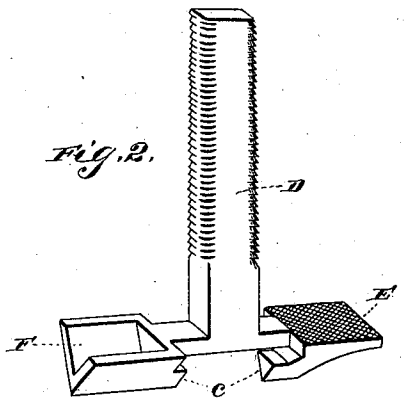


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM D. ARNOT, OF ATHOL, MASSACHUSETTS.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 456,189, dated July 21, 1891.

Application filed April 8, 1891. Serial No. 388,187. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. ARNOT, a citizen of the United States, residing at Athol, in the county of Worcester and State of Massachusetts, have invented a new and useful Combination-Tool, of which the following is a specification.

My invention relates, chiefly, to improvements in combination-wrenches, although it may be used as a hammer, pinchers, or vise, as the occasion may require.

The objects of my invention are, first, to afford facilities for the adjustment of the wrench to a nut of any size more readily and firmly than has been attained heretofore; second, to provide the wrench with triangular flanges peculiarly adapted for use upon carriage-nuts; third, to provide a hand-vise that may be used as pinchers or tongs or as a wrench in places where other wrenches could not be operated to advantage, and, fourth, to provide a wrench that may be used as a hammer in the ordinary way. I attain these objects in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of entire combination-tool. Fig. 2 is a view in perspective of square bolt and lower carriage and monkey-wrench jaw.

Similar letters refer to similar parts in each view.

The handles A A are connected at one end by means of a hinge-joint *a*, the other ends being rigidly attached to the wrench-heads B B. On the inner surface of the lower handle A is attached by means of a rivet a small piece of spring-steel *b*, so shaped as to press forcibly against the upper handle A, thus forcing the heads B B apart, when the thumb-nut C is turned toward the upper end of the square bolt D, hereinafter described. The spring *b* is so slight that when the heads B B are open the jaws E E, F F, or G G may be adjusted to a nut of any size by pressing the handles A A together and turning the thumb-nut C on the square bolt D, thereby providing a vise-pressure that prevents any objects held by the jaws slipping therefrom until released by the manipulation of the thumb-nut C on the square bolt D.

The right side of the heads B B are provided with horizontal flanges E E (see Fig. 1) to be used as monkey-wrench jaws. The lower flange or jaw E is movable, so that when the heads B B are spread or open it will attain its proper position directly opposite to and parallel with the upper jaw E, and keeping that position when the jaws are partially or wholly closed.

The left side of the heads B B are provided with triangular flanges F F, Fig. 1, to be used as carriage-wrench jaws. The lower jaw F is an extension of the bar forming the lower monkey-wrench jaw E, and is therefore adjustable in the same way. The jaws F F project far enough from the heads B B to assure their proper adjustment to carriage-nuts that do not project from the hub of the wheel.

When the carriage-jaws F F are adjusted firmly to a nut by means of the thumb-nut C, the nut may be turned off and on the axle-tree with but one adjustment of the jaws F F, the pressure attained by means of the thumb-nut C preventing the carriage-nut from leaving the jaws F F until the thumb-nut C is turned toward the upper end of the square bolt D, hereinafter described.

Rigidly attached to the lower jaws E and F and extending upward through a square cavity in the upper head B is a square bolt D, the corners of which are slightly rounded and have a heavy thread cut thereon.

The cavity in the upper head B is large enough to allow the easy passage of the upper head B over the smooth sides of the square bolt D. The bolt D, being square, also allows the upper head B to move upon it without the additional play necessary if the bolt D was round and a heavy thread cut thereon. Again, the bolt D, being square, prevents the jaws E E and F F springing from their proper position when adjusted to a nut. A thumb-nut C, the inner surface of which is supplied with a heavy thread corresponding to that upon the square bolt D, is turned upon the square bolt D and provides the pressure previously referred to.

On the under side of the lower adjustable jaws E and F are two small projections *c c*, (see Fig. 2,) which move upon narrow flanges or tracks *d d*, placed on each side of the lower head B, thus allowing the lower jaws E and

F to adjust themselves exactly opposite the upper jaws E and F, at the same time providing the connection between the square bolt D and the lower head B.

The heads B B terminate in vise-jaws or tongs G G, the inner surface of which are corrugated. These jaws or tongs will be used when the nut to be turned is in such a position that the jaws of the monkey-wrench E E cannot be adjusted properly. The jaws G G are adjusted to the nut and the handles A A turned, the motion given being similar to that applied to a hand screw-driver in turning a screw.

The jaws G G may be used as tongs or pinchers, or, when the pressure afforded by the manipulation of thumb-nut C on the square bolt D is applied, may be used as a hand-vise in the ordinary way.

On the under side of the lower head B a hammer-head is placed to be used for driving bolts, &c.

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

1. The combination, in a combination-wrench, of a carriage-wrench and monkey-wrench operated by means of a spring *b*, handles A A, square bolt D, and thumb-nut C, substantially as described.

2. In a combination-wrench, handles A A, terminating in vise-jaws G G, operated by means of spring *b*, square bolt D, and thumb-nut C, substantially as described.

3. The combination, in a combination-wrench, of a square bolt D with an adjustable jaw E and F, and a hammer-head H, with the lower head B, all substantially as described.

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