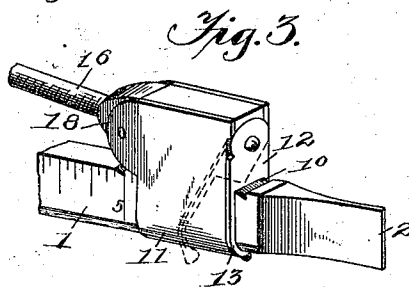
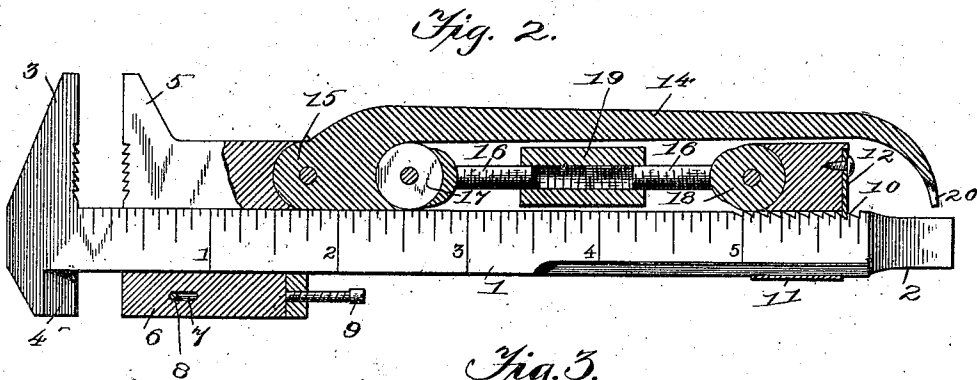
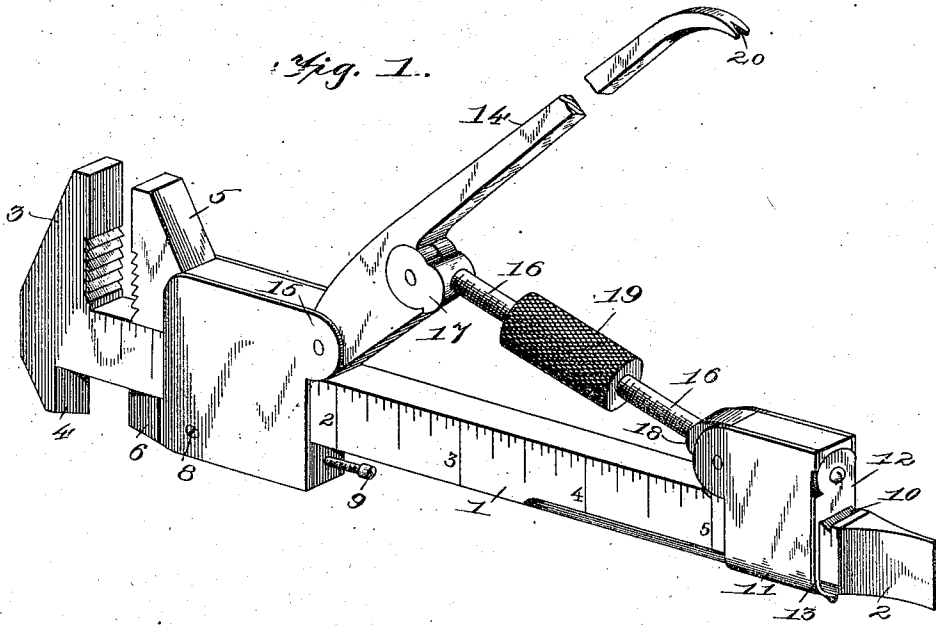


(No Model.)

M. D. LETTEER.
COMBINATION TOOL.

No. 578,249.

Patented Mar. 2, 1897.



Witnesses

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UNITED STATES PATENT OFFICE.

MELVIN DELOS LETTEER, OF DELAVAN, WISCONSIN.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 578,249, dated March 2, 1897.

Application filed May 13, 1896. Serial No. 591,410. (No model.)

To all whom it may concern:

Be it known that I, MELVIN DELOS LETTEER, a citizen of the United States, residing at Delavan, in the county of Walworth and State of Wisconsin, have invented a new and useful Combination-Tool, of which the following is a specification.

This invention relates to combination-tools; and the object in view is to provide a hand implement embodying a pipe and nut wrench, a pair of nippers, a screw-driver, a claw, and a rule, &c.

The principal aim of the invention is to provide a wrench having an operating-lever, and to employ in connection with the sliding jaw and operating-lever an extensible connection or link interposed between the operating-lever and the shank of the wrench, the said extensible connection providing for a fine and accurate adjustment of the wrench-jaws, such adjustment being independent of the movement imparted to the sliding jaw by the operating-lever.

Other objects and advantages of the invention will appear in the course of the ensuing description.

The invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally pointed out in the claims hereto appended.

In the accompanying drawings, Figure 1 is a perspective view of a combination-tool constructed in accordance with the present invention. Fig. 2 is a longitudinal section through the same. Fig. 3 is a detail perspective view of a portion of the main shank of the tool, showing the adjustable sleeve and the retaining-dog carried thereby and engaging the shank.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 designates the main stock or shank of the tool, which is provided at one end with a tapered extremity forming a screw-driver 2, and provided at its other end with a right-angular extension forming a fixed wrench-jaw 3. Opposite the jaw 3 is a cutting-jaw 4, forming one member of a pair of nippers. 5 represents a movable

jaw which straddles the stock 1 and is slidingly mounted thereon. Both the jaw 5 and the stationary jaw 3 are provided upon their meeting faces with a smooth portion near the outer end and a toothed inner portion, whereby the wrench is adapted for use either as a nut or pipe wrench.

The sliding-jaw 5 is provided upon one side of the stock 1 with a longitudinal recess, and in this recess is mounted a sliding nipper-jaw 6, adapted to meet at its cutting edge with the corresponding edge of the stationary nipper-jaw 4. The jaw 6 is provided with a longitudinal slot 7, and a screw 8 passes through said slot and also through the sliding jaw, said screw holding the jaw in place, but permitting a longitudinal movement of said jaw for the purpose of adjustment. A screw 9 passes through the rear end of the sliding jaw and bears against the corresponding end of the jaw 6, thus providing for the adjustment of said jaw when the same becomes worn at its cutting edge.

The stock or shank 1 is provided upon one side with a plurality of teeth 10, and a sleeve 11 surrounds the stop and is mounted to slide thereon. Pivotaly connected to said sleeve is a retaining-dog 12, adapted to hold the sleeve at any desired point on the stock. This dog is so arranged that it may be swung into and out of engagement with the teeth 10, and in order to facilitate this the dog is provided with an arm or extension 13, which partially embraces the stock 1 and has sufficient resiliency to enable the extremity thereof to clasp around the stock with a spring-pressure, thus holding the dog in engagement with the teeth 10. The sleeve 11 may thus be disengaged and moved to any point on the stock and there held, or, if desired, the sleeve may be entirely removed from the stock.

14 designates the operating-lever, which is connected at one end to the sliding jaw 5 by a knuckle-joint 15. Between this lever and the sleeve 11 is arranged an extensible connection, which consists, essentially, of two threaded rods or sections 16, respectively connected to the lever 14 and sleeve 11 by a knuckle-joint, as indicated at 17 and 18. The adjacent ends of these sections are provided, respectively, with right and left hand threads,

and they are connected by means of a turnbuckle 19, or nut having right and left hand threads, to correspond with the sections 16 of the extensible connection. By adjusting the turnbuckle it will be seen that the distance between the sliding jaw and sleeve may be readily and accurately adjusted. The extremity of the lever 14 is provided with a V-shaped notch 20, adapting said lever to be used as a claw.

In operation the sliding jaw may be advanced toward the fixed jaw by vibrating the lever 14 toward the stock or shank 1, the inward movement of the lever being limited by the claw end of said lever coming in contact with the stock. It is desirable for many reasons to provide for an accurate adjustment of the distance between the wrench-jaws, for instance, to enable the wrench to fit any particular nut exactly or to enable the jaws to be used as calipers. At the same time the sleeve 11, with its dog 12, provides for a greater amount of adjustment for accommodating nuts or pipes of widely-varying sizes. The several features and adjustments hereinabove described contribute to form a very useful and convenient combination-tool, and it will be noted that the several parts of the tool are so constructed and arranged as to afford the greatest possible strength. When the operating-lever is closed, the joints 15, 17, and 18 are brought into longitudinal alinement, so that the tendency of the jaws of the wrench to move apart is overcome, and in addition to this the greatest power is brought to bear upon the jaws as the operating-lever approaches the stock of the tool.

It will be understood that the combination-tool is susceptible of various changes in the form, proportion, and minor details of construction, which may accordingly be restored

to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. The combination with the stock provided with a fixed jaw, of a sliding jaw, an operating-lever having pivotal connection with the sliding jaw, a sleeve on said stock, and a connection interposed between said lever and sleeve and pivotally connected to said lever, said connection being made extensible in length whereby the distance between the lever and sleeve may be varied, substantially as described.

2. The combination with the stock provided with a fixed jaw, of a sliding jaw, an operating-lever having pivotal connection with the sliding jaw, and an extensible connection interposed between said lever and the stock and pivotally connected to the lever, intermediate the ends of the latter, said connection consisting of reversely-threaded sections and a connecting-turnbuckle, all arranged substantially and for the purpose described.

3. In a wrench having a fixed and sliding jaw, the combination with the sliding jaw, of an operating-lever, a sleeve embracing the stock and adapted to slide longitudinally thereon, a dog carried by said sleeve and adapted to be moved into and out of engagement with teeth on the stock, and a connection interposed between said sleeve and the operating-lever, substantially as described for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MELVIN DELOS LETTER.

Witnesses:

A. H. KENDRICK,
JAMES ARAM.