(No Model.)

W. J. HAMMER.

COMBINATION TOOL.

No. 363,331. Patented May 17, 1887.

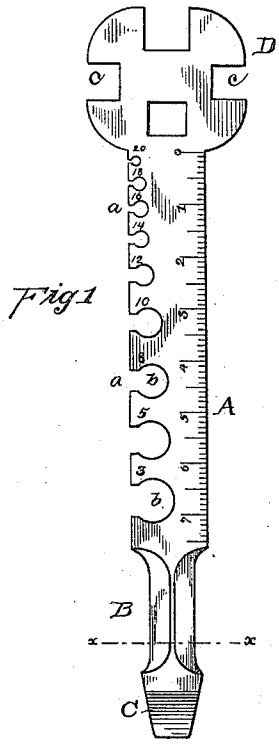


Fig. 1

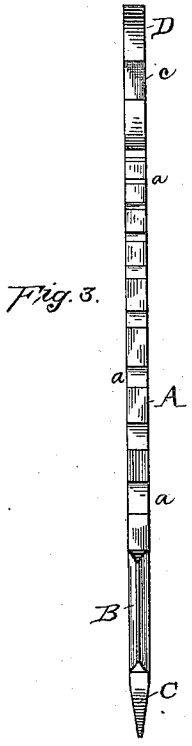


Fig. 3.

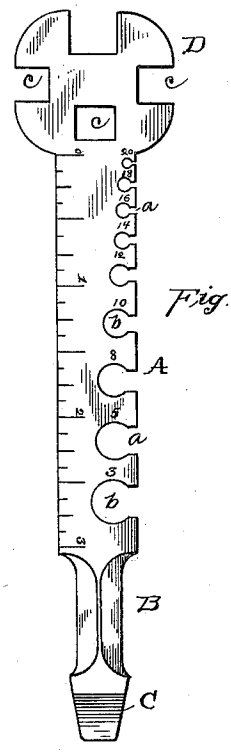


Fig. 2.

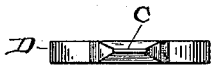


Fig. 4

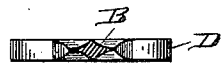


Fig. 5.

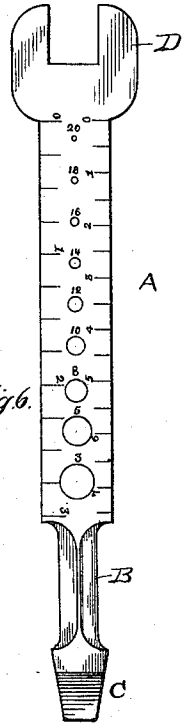


Fig. 6.

ATTEST:

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UNITED STATES PATENT OFFICE.

WILLIAM J. HAMMER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND FRANCIS R. UPTON, OF ORANGE, NEW JERSEY.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 363,331, dated May 17, 1887.

Application filed November 19, 1886. Serial No. 219,367. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. HAMMER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Combination-Tool, of which the following is a specification.

The object of my invention is to provide a combination-tool adapted for the use of those engaged in electrical work, and especially in wiring buildings for electrical purposes, in which those implements most frequently used in such operations are combined into one tool of a simple, effective, and convenient construction.

My invention consists in the novel devices and combinations of devices employed by me in accomplishing the above-named object, as hereinafter described and claimed.

My combination-tool, in its preferred form, comprises a screw-driver, wire-cleaner, Birmingham or other wire-gage, comparative measure of inches and millimeters, and combination-wrench.

The invention is illustrated in the accompanying drawings.

Figure 1 is a view in elevation of the preferred form thereof; Fig. 2, a similar view showing the opposite side from that seen in Fig. 1; Fig. 3, a side view of the same; Fig. 4, a bottom view; Fig. 5, a section on the line *x x* of Fig. 1, looking from below; and Fig. 6, a view of a modified form of my invention.

The instrument is made in one piece, of steel or other suitable metal.

The handle or body A of the tool is (in the preferred form) a flat strip having one straight edge, which on one side of the strip is graduated in inches, Fig. 3, and on the other side in millimeters, Fig. 1. In the opposite edge of the handle are a series of openings, *a a*, communicating with circular apertures *b b*, the diameters of the openings corresponding with the sizes of wires commonly in use, according preferably with the Birmingham wire-gage. The gage-numbers are marked upon the handle. The gage thus formed may be applied to a wire at any point thereof, the size of the wire being determined by passing it through the openings *a a*.

Below the handle the tool is contracted into the wire-cleaner B, the edges of which are ground sharp and the purpose of which is to scrape the insulation from wires for the purpose of making electrical connections. Beneath the wire-cleaner B the implement terminates in a screw-driver, C. At the other end of the instrument is a head, D, in which are formed squared openings *c c*, of different sizes, which form wrenches adapted for different sizes of nuts.

In the modified form of my invention illustrated in Fig. 6, the wire-gage is formed by apertures through the center of the handle or body A, through which the ends of wires may be passed. In this form the inch-scale and millimeter-scale are placed on opposite edges on the same side of the handle. The wire-cleaner and screw-driver are as already described. The head in this form is shown as a single wrench.

What I claim is—

1. A tool for electrical work, made of one piece of metal, and having as a handle a flat strip adapted to be used for measuring, and provided with openings forming a wire-gage, a head at one end of the handle, provided with one or more squared openings adapted to be used as wrenches, a screw-driver at the other end of the handle, and a portion between said handle and screw-driver, having sharpened edges and forming a wire-cleaner, substantially as set forth.

2. The combination-tool, made of one piece of metal, and comprising the flat body or handle A, having the graduated straight-edge, and the wire-gage openings in the other edge, the screw-driver C, the intermediate sharpened edges forming the wire-cleaner B, and the head D, provided with the wrench-openings *c*, all combined and arranged substantially as shown and described.

This specification signed and witnessed this 17th day of November, 1886.

WM. J. HAMMER.

Witnesses:
WM. F. SONN,
H. A. LAWTON.