H. G. WERNIMONT.

COMBINATION TOOL.

APPLICATION FILED DEC. 18, 1912.

1,079,997.

Patented Dec. 2, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

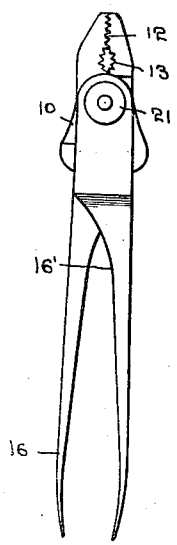


Fig. 4.

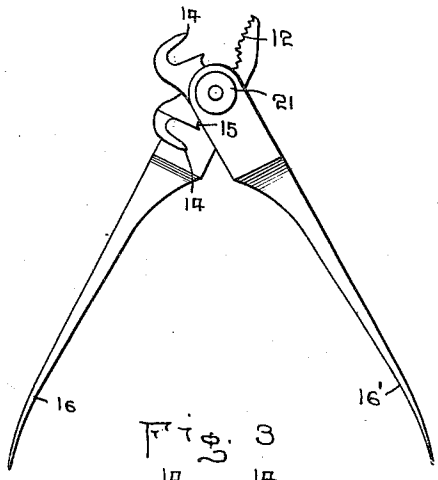


Fig. 2.

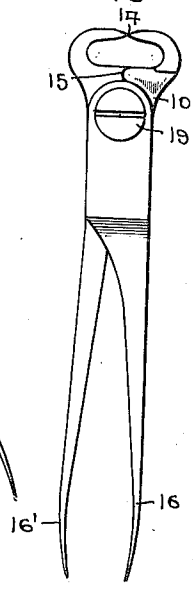


Fig. 3

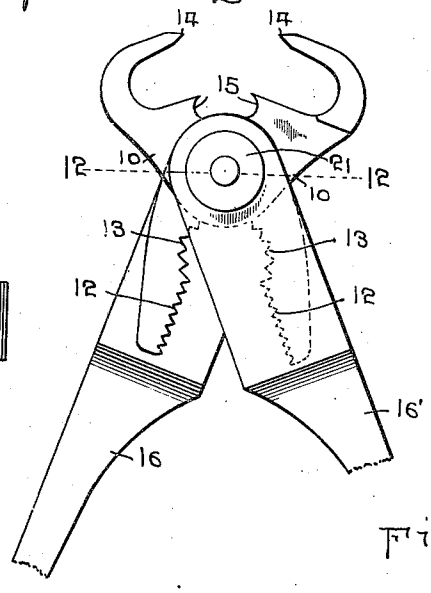


Fig. 12.

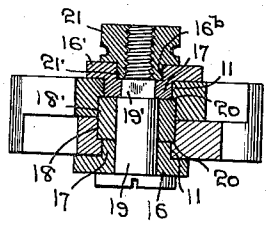


Fig. 13.

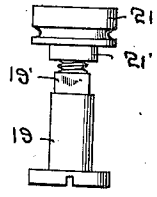


Fig. 14.

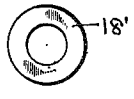


Fig. 15. Fig. 16.

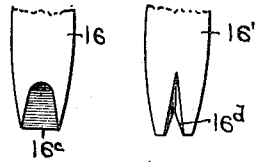
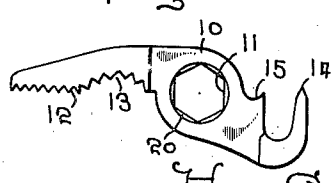


Fig. 11.



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Fig. 5

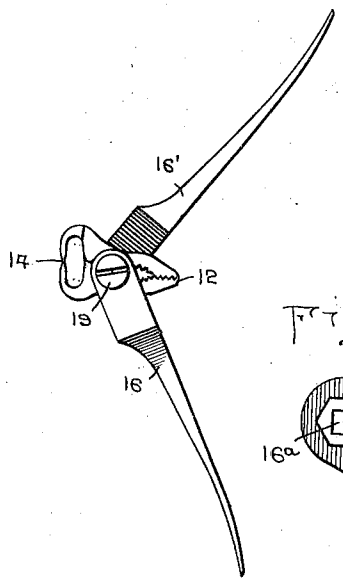


Fig. 6

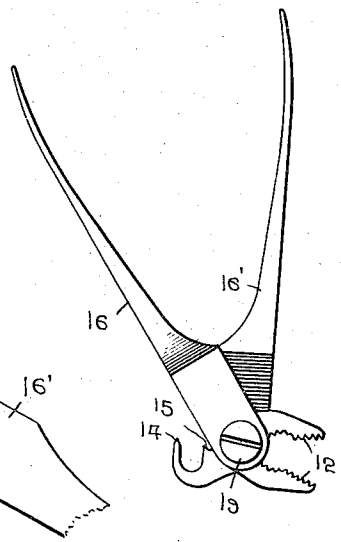


Fig. 8.

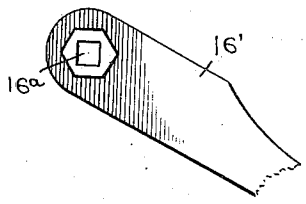


Fig. 9.

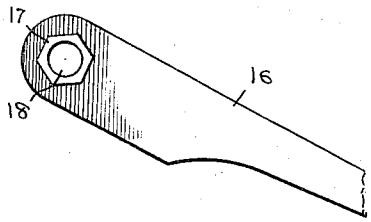


Fig. 7.

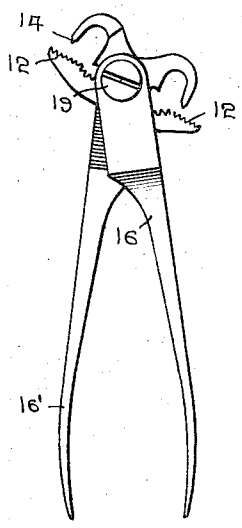
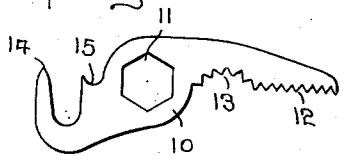


Fig. 10.



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HENRY G. WERNIMONT, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO ANNA M. WERNIMONT, OF WASHINGTON, DISTRICT OF COLUMBIA.

COMBINATION-TOOL.

1,079,997. Specification of Letters Patent. Patented Dec. 2, 1913.

Application filed December 18, 1912. Serial No. 737,449.

To all whom it may concern:

Be it known that I, HENRY G. WERNIMONT, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Combination-Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to compound tools of the plier type and its object is to provide an improved tool of this character having jaws with multiple working elements and means whereby said elements may be adjusted into various positions for the performance of various operations therewith.

With this object in view the invention consists of an improved construction, arrangement and combination of parts of a compound tool, which will be hereinafter fully described and afterward specifically claimed.

In the accompanying drawings, which form part of this specification, Figures 1 and 2 represent side elevation views of my improved combination tool, in closed and transposed positions, the jaws being exactly reversed in these two figures, Fig. 3 an enlarged fragmental view of my improved tool in open position, Figs. 4, 5, 6, and 7 illustrate my improved combination tool in different positions of adjustment, Figs. 8 and 9 enlarged fragmental views, illustrating the handle connection, Figs. 10 and 11 enlarged detail elevation views of the jaw members, Fig. 12 an enlarged sectional view, on the plane indicated by the broken line 12—12 of Fig. 3, Fig. 13 an enlarged elevation view of the screw-threaded elements which constitute the pivot and pivot retainer, Fig. 14 an enlarged detail view of the sleeve or bushing, and, Figs. 15 and 16 enlarged fragmental views of the ends of the respective handle members.

In these drawings, in which similar reference characters correspond with similar parts throughout the several views, the jaw members each comprise a hub 10 having a hexagonal aperture 11 therethrough and a toothed jaw 12 formed with an arcuate recess 13, the latter comprising a gripping element. Each jaw member also comprises a cutting blade 14 and a wire-cutting element 15 of arcuate form. The handle members each comprise a lever 16 having a hexagonal boss 17 formed thereon and adapted to fit within the hexagonal aperture 11 of either of the jaw members. The bosses 17 are centrally recessed at 18 for the reception of a sleeve or bushing 18′, and a screw or pivot 19 extends through the sleeve and through the handle members and both jaw members for securing them together. It will be seen that two opposite sides of the hexagonal aperture 11 are at right angles to the clamping surface 12, while two sides of the hexagonal boss 18 are at right angles to the length of the lever 16, and therefore, it is obvious that the jaws and handle members may be assembled so that the clamping surfaces 12 extend approximately in alinement with the handles 16, so as to simulate a pair of ordinary pliers, as in Fig. 1; while if the relative positions of the jaws and handles are reversed, the elements 12 will be located between the handle members, while the cutter blades will extend forwardly of the handle members, so as to simulate a pair of ordinary nippers or pincers, as in Figs. 2 and 3. It will also be seen that by shifting the handle members in opposite directions through an angle of 60 degrees, respectively, from the position last described, and reversing or inverting the handle members the tool may be assembled in the position shown in Fig. 5; but it is obvious that the tool may be similarly assembled without inverting or reversing the handles.

It is sometimes desirable to grasp a screw bolt or stud which is inaccessible with a pair of ordinary pliers, but which may be easily reached and grasped by a pair of laterally inclined jaws such as illustrated in Figs. 6 and 7, wherein the members 12 and 14 are turned at an angle of approximately 60 degrees to both handle members.

In Fig. 6, one of the handle members is shown at right angles to the clamping surface 12 of one of the jaw members; therefore, it is obvious that the other surface 12 and other handle member can be similarly disposed at right angles; and so the cutter blades 14 could be used as a hammer when in closed position. The jaws and cutter-blades may also be reversed, as in Fig. 7, so that a jaw and a cutter-blade may be used coöperatively with each other.

In order that the hexagonal recesses may be perfectly formed with the minimum

work and expense the recess 18 is made equal to the maximum diameter of the hexagonal aperture, so that the wall of the recess 18 will not interfere with a forming-tool which is inserted through the hexagonal aperture during the process of manufacture. This relation of the circular recess and hexagonal aperture in each jaw also provides a seat 20 for the bushing or sleeve 18′, and so, when the tool is assembled, the bushing is hidden by the other elements of the tool. Moreover, while the screw or pivot member 19 may be made of comparatively soft and tough material, the bushing 18′ may be made of tempered steel, so that the minimum wear takes place between the bushings and the jaw members; and furthermore, the bushing may be removed and replaced by a new one when worn.

The aperture through one of the handle members is preferably circular, as illustrated in Fig. 9, while the other jaw member, 16′, is provided with an angular aperture 16^a for the reception of a square section 19′ of the screw member 19. The handle member 16′ is also provided with a circular recess 16^b into which is seated an extension 21′ of the nut 21 which is in screw-threaded engagement with the screw member 19. Because of this angular section 19′, the screw 19 is held against rotation relative to the handle member 16′, and so, the nut 21 remains firmly seated in place as the manipulation of the tool does not cause relative movement of the members 16′, 19 and 21. The free ends of the handle members 16 and 16′ may be formed into any suitable tool element, such as a screw driver 16^c and a tack puller 16^b respectively.

I claim:

1. In an implement of the plier type a pair of handles provided with centrally recessed polygonal bosses on their inner sides, a pair of jaws formed with a plurality of tools and having polygonal recesses to fit over the bosses of the handles whereby they are capable of adjustment to various positions thereon said jaws having circular recesses in continuation of the polygonal recess, a centrally recessed circular washer seated in the circular recesses of the jaws and handles, a bolt passing through the recesses of the handles and the sleeve, and a nut on said bolt.

2. An implement of the plier type comprising a pair of handles provided with polygonal bosses on their inner sides, a pair of jaws inclosed by the handles said jaws carrying a plurality of tools and having polygonal recesses extending partway through them fitting over said polygonal bosses of the handles, and said recesses of the jaws merging into larger circular recesses in their meeting faces which register with each other forming a central cylindrical recess in the two jaws, a sleeve fitting in said recess, a securing pivotal bolt passing through the handles, their bosses, the jaws and the sleeve and a nut on said bolt.

3. An implement of the plier type comprising a pair of handles provided with polygonal bosses on their inner sides, a pair of jaws inclosed by the handles said jaws carrying a plurality of tools and having polygonal recesses extending partway through them fitting over said polygonal bosses of the handles, and said recesses of the jaws merging into larger circular recesses in their meeting faces which register with each other forming a central cylindrical recess in the two jaws, a sleeve fitting in said recess, one of the handles having a central cylindrical recess extending through it and its boss and registering with that of the sleeve and the other handle having an angular recess through its boss and a circular recess in continuation thereof through the handle proper, a bolt having a cylindrical body seated in the recess of the first named handle and of the washer, with an angular extension fitting in the angular recess of the second named handle and a threaded extension through the circular recess of said second handle, and a nut on said threaded extension.

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

HENRY G. WERNIMONT.

Witnesses:

C. A. NEALE,

W. T. FITZ GERALD.