

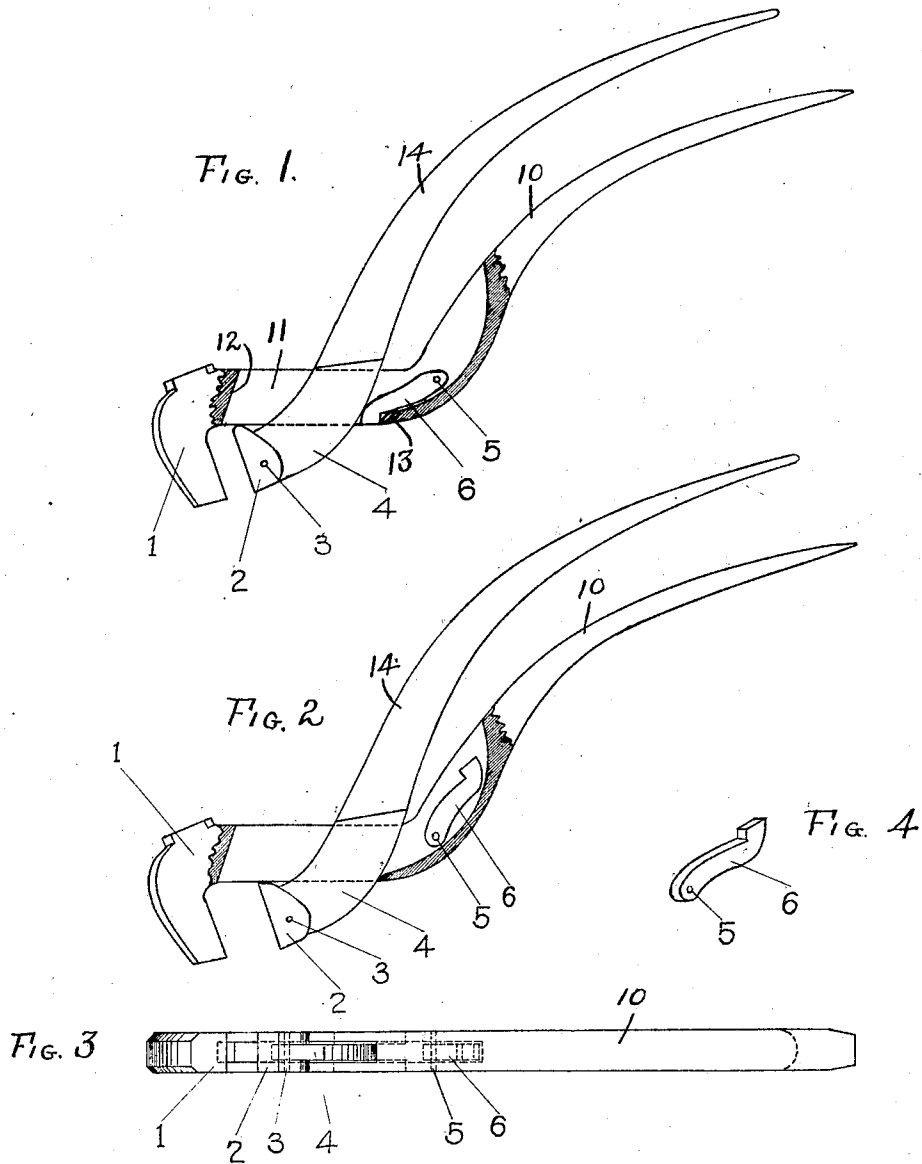
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A. C. ALLAN

PLIERS, WRENCH, AND THE LIKE

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INVENTOR.
Allen C. Allan
BY *Walter M. Fuller*

ATTORNEY.

UNITED STATES PATENT OFFICE.

ALLEN C. ALLAN, OF BARABOO, WISCONSIN.

PLIERS, WRENCH, AND THE LIKE.

Application filed April 18, 1922. Serial No. 555,329.

To all whom it may concern:

Be it known that I, ALLEN C. ALLAN, a citizen of the United States, residing at Baraboo, in the county of Sauk and State of Wisconsin, have invented certain new and useful Improvements in Pliers, Wrenches, and the like, of which the following is a specification.

My invention pertains to wrenches, pliers, and similar tools, and relates more particularly to their features and elements of construction concerning their fulcrum mountings with reference to one another and the means for controlling and governing the action of their work-gripping jaws.

The leading aim and purpose of the invention is the production of a tool of this general type which may be readily and accurately applied to the body to be operated upon which holds to such body firmly and securely, which is simple in construction, which is economical to manufacture, which is easily operated even by novices, and which is unlikely to become damaged or injured in service.

Stated differently, the invention pertains to new and improved styles of tools of the character specified adapted for use with articles of various sizes and shapes and particularly designed for quick and proper application thereto, the new devices being what might be termed semi-automatic in that their constructions greatly assist in their rapid and accurate association with the body to be grasped.

A further feature of the invention is the provision of an appliance of this type having special means to give it a large range or degree of opening between its jaws, thus adapting it to bodies of greatly differing dimensions without unduly changing the positions of the handle elements leaving them always in proper and suitable relation for grasping in the hand.

To enable those skilled in this art to fully understand the invention, both from functional and structural standpoints, in the accompanying drawing I have illustrated a desirable and preferred embodiment of the invention and throughout the several views of such drawing like reference characters have been employed to designate the same parts.

In these drawings:

Figure 1 illustrates partly in elevation and partly in section the improved tool with the auxiliary fulcrum member in operative position;

Figure 2 is a similar view with such supplemental fulcrum element in inoperative position;

Figure 3 is an edge view of the tool; and

Figure 4 is a perspective view of the fulcrum member referred to.

Referring to the several views of the drawing, it will be perceived that the tool comprises a suitable, curved handle element 10 equipped at one end with a laterally-extended work-engaging jaw 1, the intermediate portion of the part 10 being slotted or cut out to provide a transverse, more or less diagonally-disposed or oblique groove or recess 11 with end walls 12 and 13, the thickness of the walls of member 10 at its recessed portion being practically one-quarter that of the main body of the handle element.

Co-operating with such handle member is a second or complementary, curved, handle element 14 having at one end a jaw 2 fixed thereto by a pin 3 or in any other appropriate manner. This jaw is of the full thickness of the handle member but the later has an intervening or intermediate section 4 of substantially half thickness occupying and slidable in the groove of the other member.

In the hollow portion of element 10 a fulcrum member or dog 6 is hinged or pivoted on a pin 5 permitting such part to be rocked into the operative relation shown in Figure 1 or turned into the inoperative position depicted in Figure 2.

The parts of the tool are so shaped, formed, and combined, that, when the handle members 10 and 14 are squeezed or pressed together to grasp a body such as a nut or pipe between the adjacent faces of the two jaws 1 and 2 the edge of the section 4 of member 14 bears either on the fulcrum member 6 if it is in position for use as shown in Figure 1 or on the end wall 13 of the groove if the part 6 is swung back into inoperative position as illustrated in Figure 2, and at the same time the edge of jaw 2 presses against the adjacent edge face of the handle member 10.

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Because of the sliding connection between the two main elements of the tool, its jaws may be quickly adjusted to the body to be grasped thereby, and, because of the several sliding bearings between the two members positioned and related as shown, an effective and efficient lever and fulcrum arrangement is secured for holding the body between the jaws with the expenditure of a relatively small amount of effort on the part of the operator.

Also the wrench may be readily and quickly adjusted with one hand to different dimensions between the jaws ready for operation with nuts or other bodies of different sizes.

It will be seen from the drawing that the tool comprises as its principal elements two associated or crossed levers 10 and 14, the former being slotted for the extension of the latter therethrough, but withdrawal of the part 14 from the part 10 is prevented by reason of the fact that its jaw and the main body of the handle are thicker than the width of the slot 11 which accommodates its portion of reduced thickness.

In manufacturing the appliance the member 10 is drop forged with the side walls of the slot 11 separated sufficiently for the passage of the jaw 2 therethrough and after the assembly of the two parts these separated walls are flattened out preventing disconnection of the two elements.

Or, if preferred, the part 10 may be made originally as shown in the drawing and the jaw 2 affixed to the member 14 after it has been projected through the slot.

As will be perceived, the element 6 is used when bodies of small dimensions are to be grasped by the jaws and it is thrown out of the way into inoperative position when larger bodies are to be operated upon.

In all cases, however, the member 14 has two bearing points on the companion member thus producing adequate leverage for the accomplishment of all types of work and preventing the jaws from tending to separate from one another as the power is applied to the handle elements.

This invention is not limited and restricted to the precise and exact features of construction illustrated and described since these may be varied or changed within relatively wide limits without departure

from the substance of the invention and without sacrificing any of its substantial benefits and advantages.

I claim:

1. A tool of the character described, comprising in combination, two crossed handle elements provided at their corresponding ends with co-operating work-clamping jaws, one of said elements having a transverse cut-away portion providing a recess slidably accommodating an intermediate portion of the companion handle element, the latter having a curved edge forming a sliding adjustable fulcrum adapted to bear on the end wall of said recess remote from said clamping jaws and having a part adjacent to its jaw adapted to bear adjustably on the adjacent edge of the companion handle element, and a movable member adapted to be shifted into and out of operative position and when in operative position forming the end wall of said handle recess on which the other handle element bears, whereby when the jaws clamp a body between them both of said bearings of said handle element on the companion handle element will be operative.

2. A tool of the character described, comprising in combination, two crossed handle elements provided at their corresponding ends with co-operating work-clamping jaws, one of said elements having a transverse cut-away portion providing a recess slidably accommodating the other handle element, the latter having a curved edge forming a sliding adjustable fulcrum adapted to bear on the end wall of said recess remote from said clamping jaws and having a part adjacent to its jaw adapted to bear adjustably on an edge of said companion handle element, and a member hinged to said first handle element adapted to be rocked into and out of operative position and when in operative position forming the end wall of said handle recess on which the other handle element bears, whereby when the jaws clamp a body between them both of said bearings of said handle element on the companion handle element will be operative.

In witness whereof I have hereunto set my hand and seal.

ALLEN C. ALLAN. [L. s.]