

S. STEPANIAN.
COMPOUND TOOL.

APPLICATION FILED FEB. 24, 1919.

Patented Nov. 11, 1919.

2 SHEETS—SHEET 1.

1,321,777.

Fig. 1.

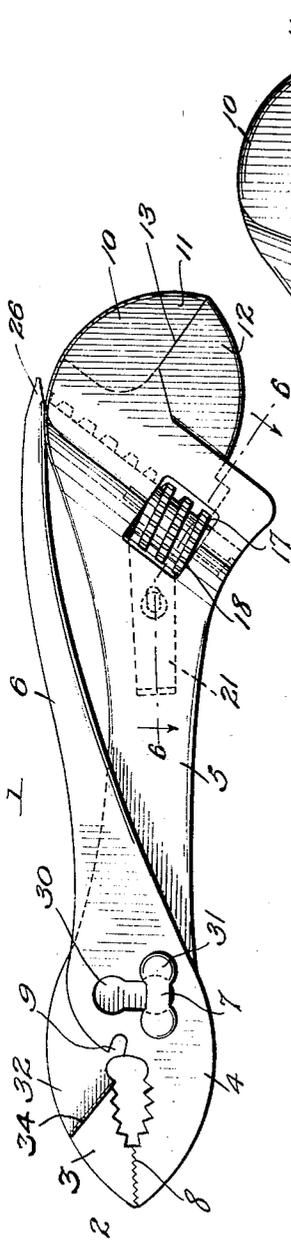


Fig. 2.

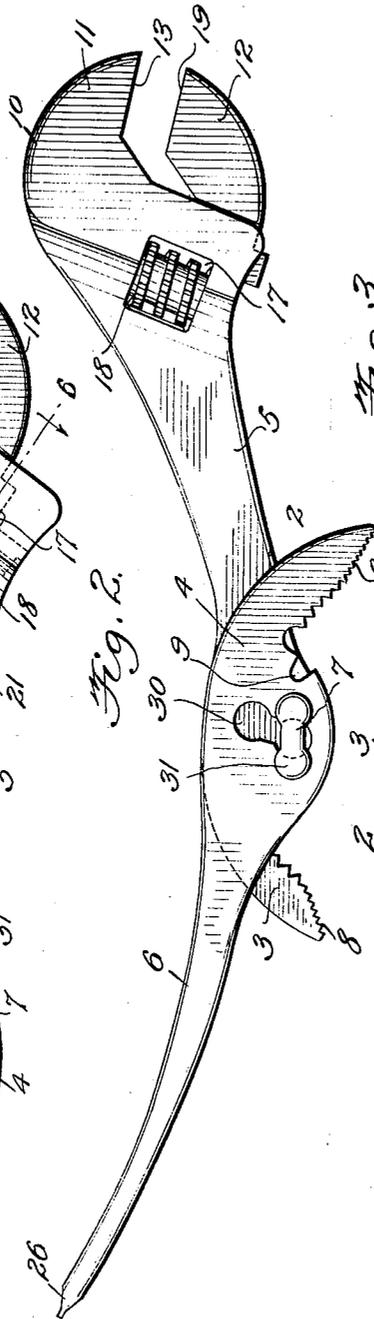
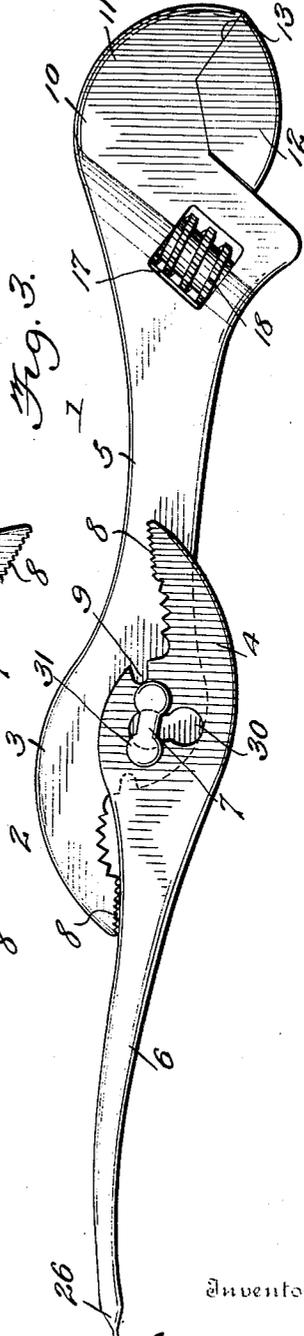


Fig. 3.



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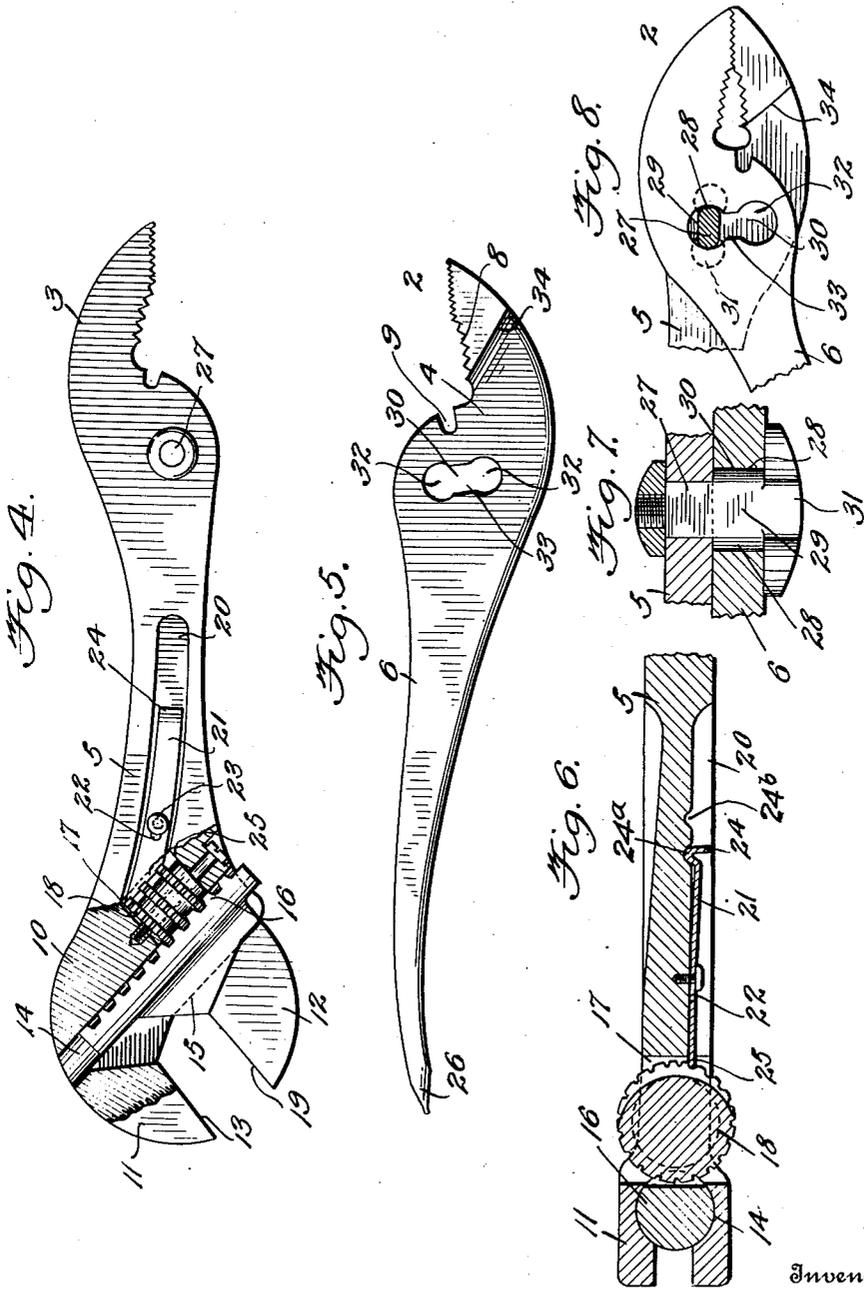
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UNITED STATES PATENT OFFICE.

STEPHEN STEPANIAN, OF COLUMBUS, OHIO.

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1,321,777.

Specification of Letters Patent.

Patented Nov. 11, 1919.

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To all whom it may concern:

Be it known that I, STEPHEN STEPANIAN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Compound Tools, of which the following is a specification.

This invention relates broadly to compound tools, and has particular reference to a tool wherein is cooperatively combined a pair of pliers, a wrench, a screw-driver, and a wire cutter, the object of the invention being to separably unite the several sections of the tool so that each element thereof may be independently used, and so that the handle of the tool may be manipulated and positioned to enable an operator to apply considerable leverage to the work at hand.

A still further object resides in equipping the wrench of the tool with a quickly operated catch member, which serves to lock the thumb screw, actuating the movable jaw of the wrench, in fixed positions, this construction serving to avoid undue rotation on the part of said screw and consequent loss of adjustment on the part of the movable jaw, said catch member being simply constructed so that the mere application of thumb pressure will be sufficient to effect its release from or engagement with the manipulating screw.

Other objects of the invention reside in a tool of the aforesaid character possessing considerable utility, a wide range of use, compactness in construction, easy to operate and adjust, and so proportioned and designed that it may be conveniently grasped and will possess the natural poise and balance necessary in making its operation convenient and natural.

The invention consists in the novel features of construction, combination of elements, and arrangement of parts hereinafter specifically described and having the scope thereof defined in the appended claim.

In the accompanying drawing:

Figure 1 is a side elevation of the combination tool comprising the present invention,

Fig. 2 is a similar view disclosing the positions of the tool sections when the same are employed in the capacity of a wrench,

Fig. 3 is a similar view showing the tool employed as a screw-driver,

Fig. 4 is a separate view of the wrench

section of the tool, parts being broken away and shown in section to disclose the movable jaw-controlling mechanism,

Fig. 5 is a view similar to Fig. 4 and showing the other section of the tool,

Fig. 6 is a detail sectional view of the thumb-screw locking means, taken on line 6-6 of Fig. 1,

Fig. 7 is an enlarged sectional view of the stud construction employed for pivoting the tool sections, and

Fig. 8 is a side elevation of the plier jaws of the tool and showing the latter in closed relationship, the pivoting stud for said jaws being shown in section.

Similar characters of reference denote like and corresponding parts throughout the several views of the drawings.

The tool 1 comprising the preferred form of this invention consists essentially of a pair of pliers 2, which are formed to embody a pair of jaw members 3 and 4, the latter being provided with integral handles 5 and 6 respectively which are pivotally united as at 7 to permit of relative movement between said jaws. The jaws, as shown, are provided with cooperating toothed and gripping surfaces 8, for the purpose of securely retaining a body therebetween, and said jaws are further provided with wire receiving openings 9, which, when a wire is inserted therein, are capable of severing the same into sections.

The handle 5 of the jaw member 3 terminates at its free end in a wrench 10, which is formed to embody a stationary head 11 and a cooperating movable jaw 12. The head 11 is formed to comprise an offset gripping surface 13, which inwardly communicates with an internal guide 14 formed in said head. Movable positioned within this guide is the reduced shank 15 of the jaw 12, which shank is provided with a toothed or rack edge 16. Rotatably journaled in an opening 17 formed in said head, and in communication with the guide opening 14, is a thumb-screw 18, which is situated to mesh with the rack 16 of the movable jaw 12, whereby upon the rotation of the thumb-screw said jaw 12 may have its gripping surface 19 moved relatively to the surface 13 of the head 11, as will be clearly understood.

In order to lock the jaw 12 in any of its adjusted positions, the handle 5 is provided with a longitudinally extending depression

or groove 20, in which is slidably positioned a bar or catch member 21. The latter is provided with an elongated slot 22, through which passes the shank of a headed pin 23, the head of the latter pressing upon the member 21 with sufficient friction to maintain the same in its several positions. It will be apparent that by simply pressing upon the offset end 24 of the catch member, its opposite end 25 will be forced into frictional engagement with the nurlled portions of the thumb screw 18, thus locking the latter against rotation, and thereby preventing undue movement of the movable jaw 12. This overcomes the necessity of continually adjusting the screw 18 to maintain a uniform distance between the surfaces 13 and 19. The manipulating portion or offset end 24 of the catch member is provided with a hump 24^a, which is arranged to engage with any one of a pair of notches 24^b formed in the vertical wall of the depression 20. By use of this construction it will be manifest that owing to the resiliency of the manipulating extremity of the catch member or bar 21, said hump 24^a will be maintained in either one or the other of the depressions 24^b, and in this manner a positive positioning of the bar 21 either in or out of engagement with the screw 18 may be conveniently effected and retained.

The other handle 6 is preferably provided at its free end with a beveled portion 26, forming a screw-driver. This handle 6 is arranged so that its end 26 will contact with the head 11 when the jaws 3 and 4 are together. This affords a very compact and space-economizing structure.

In order to pivotally unite the handle sections 5 and 6 of the tool so that greater leverage may be obtained for each of the tools thereof, or to permit each of the latter to be separately used, the pivot 7 consists of a stud 27, which is rigidly carried by the handle section 5. This stud consists of a shank which is formed to include rounded edge portions 28 and connecting flat portions 29, all of which being received in a similarly shaped slot 30 formed in the section 6, and a head 31 is formed upon the stud and is of substantially the same configuration as the slot 30. The latter as shown is provided with circular portions 32 and an intervening and restricted straight portion 33.

By virtue of this construction, it will be seen that the sections 5 and 6 may be assembled by alining the section 6 so that its slot 30 will register or coincide with the stud 27, so that the section 6 may be slipped over said head and into contact with the section 5. The next step is to position one of the circular portions 32 of the slot around the shank of the stud 27, so that free pivotal movement of the sections 5 and 6 may

be afforded. It will be observed that owing to the peculiar configuration of the stud shank, slipping on part of the stud from one of the circular portions 32 to the other will be avoided. This is caused by the straight portion 33 of the slot 30, which cooperates with the rounded edge 28 of the stud shank to prevent movement of the stud during the normal operation of the plier jaws. But it will be seen that if it is desired to slip the pivot 7 so as to afford greater separation and range of pivotal movement between the members 3 and 4, it is simply necessary to swing the latter to their widest point of separation. Thus causing the straight portion 33 to aline with the corresponding portion 29 of the stud shank, this enables the shank to be positioned in either one or the other of the circular portions 32 of the slot 30. In other words, it is impossible to shift the pivotal relation between the members 3 and 4 except when the same are separated to their maximum extent. Under normal conditions of operation the members move as if about a fixed pivot.

An important feature of the invention resides in constructing the head 31 so that the same will be substantially the same in contour as the slot 30. By this construction, it will be evident that by opening the jaw members 3 and 4, the head 31 will be brought into registering relation with the slot 30, and in view of the fact that said head is slightly smaller than the slot, it is possible to disconnect the sections by merely passing said head through the slot. This permits either the wrench 10 or the screw driver 26 to be separately employed, if desired, so that facility in operation will be afforded. Again, it will be seen upon reference to Fig. 2, that the handle section 6 may be swung until it contacts with the shoulder 34 formed on the jaw 3. This considerably lengthens the working handle of the wrench and permits greater leverage to be exercised upon the work at hand. This shoulder 34 may be formed or omitted on either side of either jaw, as desired. In further carrying out this idea, it will be seen, as shown in Fig. 3, that the handle of the screw-driver 26 may also be substantially increased. This is accomplished by reversing the normal relation that exists between the jaw members 3 and 4, so that the handle 6 will contact with the jaw member 3 to limit the swinging movement of said section 6, and so that its jaw 4 or its working surface 8 will be positioned to be readily gripped by the tool user and held in abutting relation with the jaw 3. This alines the handle 6 with the handle 5 and enables the screw-driver, under certain conditions, to be employed to a better advantage.

What I claim is:

A wrench comprising a stationary and a 130

movable jaw, said stationary jaw terminating in an integral handle having a depression formed therein, a guide member for said movable jaw slidably positioned within a recess formed in said stationary jaw, said guide member being provided with a toothed edge, a nurling screw engaging with the edge of said guide member to permit of the adjustment of said movable jaw with respect to said stationary jaw, a slidable bar positioned within the depression of said handle and arranged to be manually moved so that one of its extremities may be forced into or out of engagement with the nurling portions of said screw in order to retain the adjustments of the latter, and a resilient manipulating extremity formed upon one end of said bar, said extremity being disposed for engagement with a pair of notches formed in the depression of said handle, whereby said bar may be maintained in or out of engagement with said screw.

In testimony whereof I affix my signature.

STEPHEN STEPANIAN.