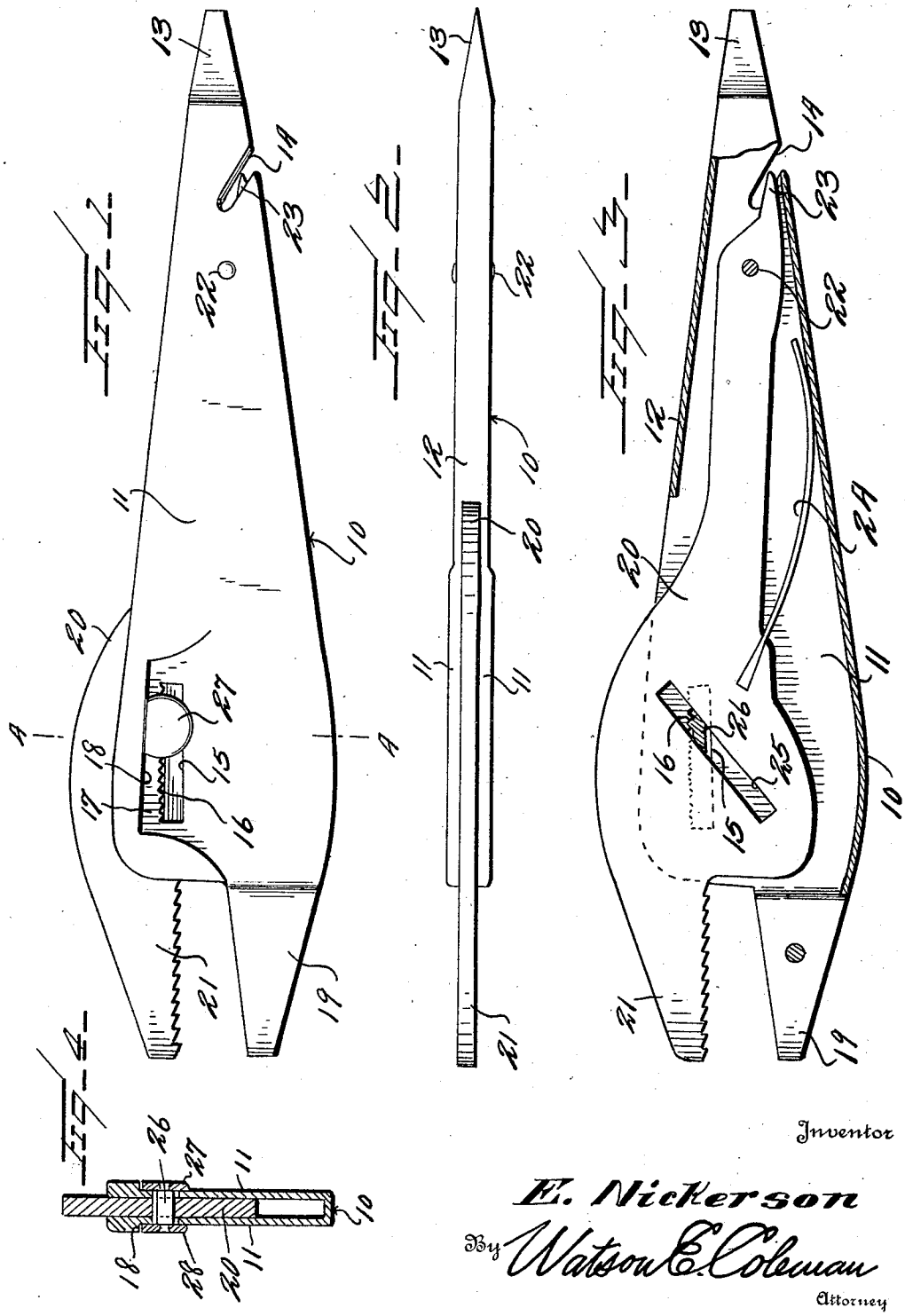
June 11, 1929. E. NICKERSON 1,716,382

WRENCH

Filed March 1, 1927



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Patented June 11, 1929. 1,716,382

UNITED STATES PATENT OFFICE.

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WRENCH.

Application filed March 1, 1927. Serial No. 171,835.

This invention relates to wrenches and particularly to wrenches having opposed jaws and a handle, the jaws being movable toward or from each other.

The general object of the invention is to provide a wrench of this character comprising two members pivotally engaged with each other and having jaws at their free ends and provide very simple and easily operated means permitting the jaws to be freely shifted towards each other but locking the jaws against outward movement when the jaws are under strain, said locking means being readily releasable, however, to permit the jaws to be opened.

A further object is to provide a wrench of this character in which the two members are each slotted, the slot of one member extending diagonally to the slot of the other and provide a pin passing through the slots, the slot in one jaw or member being serrated and the pin being forced into locked engagement in said serrations by the action of the diagonally disposed slot of the other member when the jaws are under strain, tending to force them apart.

A further object is to provide a structure of this character so formed that the rear extremity of one of the members constitutes a screw driver and the rear extremities of said members being so formed as to provide a wire cutter.

Other objects will appear more fully in the course of the following description.

My invention is illustrated in the accompanying drawings wherein—

Figure 1 is a side elevation of a wrench constructed in accordance with my invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a vertical sectional view thereof;

Fig. 4 is a section on the line 4—4 of Figure 1.

Referring to these drawings it will be seen that my improved wrench consists of two opposed members. The member 10, as shown in Figure 4, is formed of a piece of metal which is folded, cast or otherwise constructed to provide two opposed thicknesses 11 joined along one edge. The member is preferably tapered toward its rear end and the two thicknesses are connected by a web 12 adjacent the rear end. The extremity of the member 10 is formed to provide a screw driver blade 13. Inward of this blade 13 the member 10 is diagonally slotted, as at 14.

The opposite faces of the member 10 are each formed with a longitudinally extending slot 15, one longitudinal or edge of which is serrated, as at 16. The outer face of each portion 11 is depressed around the slot 15, as at 17, so as to provide a longitudinally extending shoulder 18. The forward end of the member 10 is formed to provide the jaw 19, the inner face of which may be serrated or smooth as desired.

Operating between the thicknesses 11 of member 10 is the member 20, at its forward end provided with the jaw 21 confronting the jaw 19. This member 20 extends rearward within the member 10 and is pivoted at 22 to the member 10. The tail of member 20 is formed to provide a cutting edge 23 operating across the slot 14, the walls of which are beveled to constitute a cutting edge or edges. The forward or free end of the member 20 is urged away from the forward end of the member 10 by means of the spring 24 which is carried in the member 20 and bears against the inner face of the wall connecting the thicknesses 11. The member 20 is provided with a diagonally extending slot 25 which intersects the slot 15, and passing through these slots is a pin 26 smaller in width than the width of the slots and formed to engage in the serrations 16 when forced toward the member 20, this pin carrying the exterior buttons 27 and 28 which slide within the depressed portion 17, each of these buttons having a straight edge face which bears against and slides on the corresponding shoulder 18. The slot 15 has a greater width than the width of the pin 26 so that the pin has a slight movement within the slot 15 at right angles to the length of the slot.

In the use of this device as a screw driver, the jaws are closed and grasped by the operator's hand. In cutting wire the jaws are opened to their full extent by shifting the pin 26 forward in the slots 15 and 25, the wire is then inserted through the slot 14, and the jaws are closed, the cutting edges on the walls of slots 14 acting to snip off the wire.

In the use of this device as a wrench, if it be desired to open the jaws, one or the other

of the buttons is pressed forward. The forward pressure on the pin 26 against the diagonal slot acts to force the pin against the straight wall of the slot 15 and, therefore, away from the serrations 16. This permits the pin to move freely to the forward end of the slots 15 and 25. When the wrench has been opened to the proper extent, it is inserted over the nut or other part to be turned, and then the wrench may be manipulated in either direction. The strain on the jaw 21 tending to move it away from the jaw 19 will cause the outer wall of the diagonal slot 25 to bear against the pin 26 and force it into engagement with the serrations 16, locking the wrench against any further opening movement of the jaws. The wrench will remain locked until the jaws are manually closed. When the handle of the wrench is grasped and pressure is applied to the member 20, the member 20 will be forced toward the member 10 and the diagonal slot 25 will shift the pin 26 and its buttons rearward. If it be desired to open the wrench, one of the buttons is pushed forward, as by the thumb, and the wrench may be opened to any extent required by this movement and then upon strain being applied to the jaws, the wrench will be locked as heretofore described.

While I have illustrated the inner faces of the jaws 19 and 21 as being at a slight angle to each other and as being serrated, I do not wish to be limited to this as the jaws may be disposed in other than an angular relation and may be entirely smooth. Neither do I wish to be limited to the exact form of the wrench as it is obvious that the principles of the invention may be applied in many different forms.

It will be seen from Figure 3 that the pin 26 has a sliding fit within the slot 25 and is formed with a tooth fitting the teeth 16 of the slot 15. It is also to be noted that the slot 15 is disposed at a slight angle to the shoulder immediately above. This is so that the adjusting pin shall not slide over the notches too readily. I do not wish to be limited to one tooth as illustrated as one or more teeth may be used. The shoulders 18 act to reinforce the wrench at the point where the heaviest strain comes and also forms a shield for the buttons 27 and 28 so that these buttons are not so liable to be moved when the side of the wrench comes in contact with other objects or when laid down.

I claim:—

1. A wrench comprising two members pivoted to each other adjacent one end and formed to provide jaws at the opposite end, one of said members having a longitudinally extending slot and the other having a diagonal slot intersecting the longitudinal slot, the longitudinal slot having one longitudinal edge serrated, and a pin extending through the slots and having operating buttons at its outer ends, the pin being forced into said serrations by one wall of the diagonal slot when the jaws are strained open.

2. A wrench comprising two members pivoted to each other adjacent one end and formed to provide jaws at the opposite end, one of said members having a longitudinally extending slot and the other having a diagonal slot intersecting the longitudinal slot, the longitudinal slot having one longitudinal edge serrated, and a pin extending through the slots and having operating buttons at its outer ends, the pin being freely movable rearward in the slots as the jaws are moved towards each other but being automatically locked in engagement with said serrations and against longitudinal movement by the wall of the diagonal slot when the jaws are strained towards open position.

3. A wrench comprising two members pivoted to each other adjacent their rear ends and the opposite ends of the members being formed to provide opposed jaws, one of said members being formed with a longitudinally extending slot having a serrated longitudinal edge, the other member having a diagonally disposed slot intersecting the first named slot, a pin passing through the slots and having buttons upon its outer ends, the pin having a width less than the width of the first named slot and being formed to engage in said serrations when forced against the serrations by pressure exerted by a wall of the diagonal slot when the jaws are strained towards open position.

4. A wrench comprising two members, one of said members being formed to embrace a portion of the other member, the members being pivoted to each other adjacent their rear ends and at their opposite ends being formed with two opposed jaws, the opposed walls of the first named member being longitudinally slotted and the slots each having one of its longitudinal edges serrated, the second named member having a diagonal slot intersecting said first named slots, the outer faces of the walls of the first named member being depressed to one side of the longitudinal slots to form longitudinally extending shoulders, each extending substantially parallel to the serrated edge of the corresponding slot, a pin passing through the slots of the two members and sliding longitudinally therein and having buttons on its extremities, each button having a straight face slidably engaging said shoulders.

5. A wrench comprising two members, one of said members being formed to embrace a portion of the other member, the members being pivoted to each other adjacent their rear ends and at their opposite ends being formed with two opposed jaws, the opposed walls of the first named member being longitudinally slotted, one longitudinal wall of each slot having its edge serrated, the second named

member having a diagonal slot intersecting said first named slots, the outer faces of the walls of the first named member being depressed along one side of each of the longitudinal slots to form a longitudinally extending shoulder on the outer face of each wall of the first named member extending approximately parallel to the serrated edges of the slots, a pin passing through and sliding in the slots of the two members and having buttons on its extremities, each button having a straight face slidably engaging said corresponding shoulder, and a spring urging the jaw ends of the members from each other.

In testimony whereof I hereunto affix my signature.

ELMER NICKERSON.