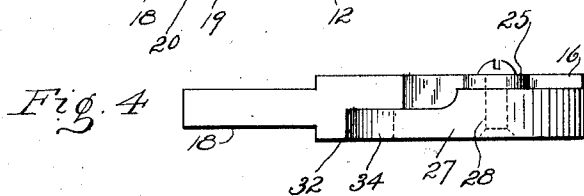
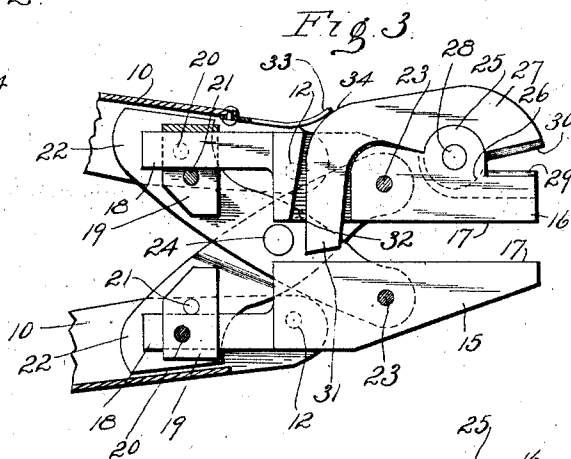
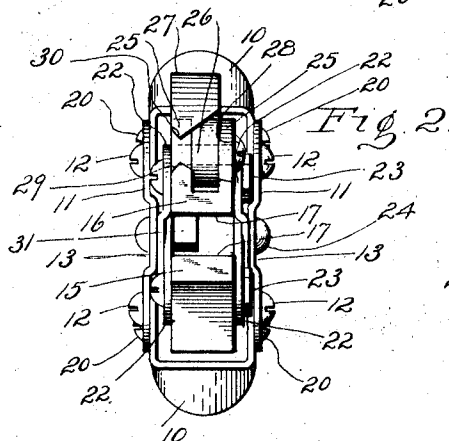
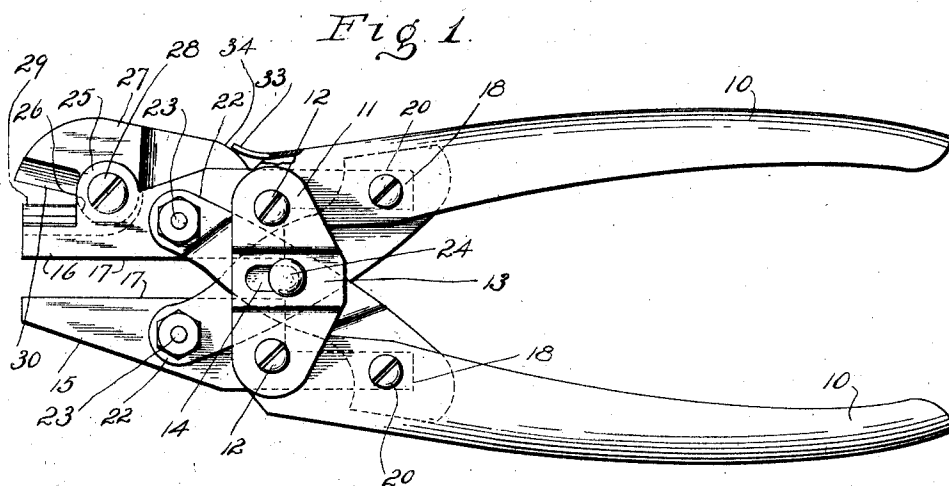


A. MAE.
PLIERS.

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PLIERS.

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To all whom it may concern:

Be it known that I, ANTON MAE, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Pliers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and improved pliers of the type having parallel jaws. It is the object of this invention, among other things, to produce pliers of this general character wherein the handles, instead of being pivotally connected together as is the practice, are connected with an independent element and thereby have only an indirect connection with the jaws, to provide independent jaw plates, an alligator shear operated by the jaws, and in other ways to produce pliers that will have the maximum efficiency, be powerful in operation, and which may be constructed at the minimum cost and assembled with little labor.

To these and other ends, my invention consists in the pliers having certain details of construction and combinations of parts as will be hereinafter described and more particularly pointed out in the claims.

In the drawings which accompany this specification, wherein like reference characters designate like parts in the several figures:

Figure 1 is an elevation of my improved pliers complete;

Fig. 2 is a front end view thereof;

Fig. 3 is a fragmentary detail view of the forward end of the pliers showing the handles broken off and partly in section and the jaws and adjacent mechanism in full lines; and

Fig. 4 is an elevation of the jaw having the alligator shear connected therewith.

In the practice of my invention, I provide the handles 10 which are curved both in cross-section and longitudinally for strength and convenience in manipulation. These handles are pivotally connected at one end to fulcrum plates 11 by the screws 12, one of these plates being provided upon each of the opposite sides of the handles and each being provided with an inwardly projecting depression or recess 13, within which is a slot 14.

The numeral 15 designates one of the jaws and the numeral 16 the other jaw, these having oppositely disposed flat faces 17 and

rearwardly projecting tangs 18 that slide through the cradles 19, secured to the handles 10 by the screws or rivets 20. A pin 21 that extends across said cradle bears against one side of the tang 18 while the other side rests against the inner face of one wall of the cradle, as shown in Fig. 3, and this assures proper alinement of the tang within the cradle.

Upon each side of the jaws are two jaw plates 22 that diagonally cross each other and are then pivotally connected by a pin, rivet or screw 24 that also projects through the slot 14 in the adjacent fulcrum plate. Each of the jaw plates is pivotally connected with one of the jaws at its outer end by the pin 23, preferably passing entirely through the jaw and also forming a pivot connection for one of the jaw plates upon the opposite side thereof. The opposite end of each of these jaw plates is pivotally connected with one of the handles 10 by the pin, screw or rivet 20.

The handles 10 when moved toward each other swing upon the pivots 12. This moves the inner ends of the jaw plates together, each of which swings upon the pin 20 and both rock upon the pin 24 causing the outer ends thereof to move toward each other and carry with them the jaws 15 and 16. This relative rocking movement of the jaw plates imparts a limited forward movement to each of the pins 24 that is accommodated by the slots 14 in the fulcrum plates. The tangs 18 and cradles 19 cooperate in holding the jaws so that they move in parallel lines.

The jaw 16 is provided with upwardly projecting ears 25 between which projects a lug 26 integral with the alligator jaw 27 and through which ears and lug projects the pintle 28 to support the supplemental or alligator jaw 27 in relation to the jaw 16. The fixed jaw 16 is provided with a cutting edge 29 and the alligator jaw 27 with a similar cutting edge 30 which are opposite each other and contact with each other when the alligator jaw is closed. This alligator jaw is closed through the contact of the arm 31 thereon that passes through the recess 32 in the jaw 16 and contacts with the face 17 of the jaw 15 when the said jaws are moving toward each other; and is opened by the finger 33 that projects over the recess 32 and contacts with the rounded back 34 of the alligator jaw 27 when the jaws 15 and 16 are being moved away from each other through

the manipulation of the handles 10. This finger 33 may be integral with the handle 10 as shown in Fig. 1 or separate and secured thereto by any convenient means as shown in Fig. 3.

While I have shown the pivots 12, 28, 20, and 23, as screws with projecting heads, rivets may be used if desired, and the heads thereof may be flush or projecting as herein shown, and the rivets 24 may be similarly constructed. In any case two pivots 24 are used, one for each of the fulcrum plates 11, so that the space between the jaw plates 22 is open and unobstructed for the passage of an article of considerable length between the jaws and the handles 10.

Minor changes and alterations may be made within my invention, aside from those herein suggested; and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. Pliers composed of a pair of handles, a pair of fulcrum plates to each of which said handles are pivotally connected at opposite ends thereof, jaws slidably movable in relation to said handles, a pair of jaw plates upon each side of the jaws and pivotally connected with each other, with said jaws, and with said handles, one of said pivotal connections having a slidable engagement with said fulcrum plates.

2. Pliers composed of a pair of handles, a pair of fulcrum plates to each of which said handles are connected at opposite ends thereof, one of said plates being upon each side of said handles, a pair of jaws slidably movable in relation to said handles, a pair of jaw plates, one of said plates being upon each side of said jaws and diagonally crossing each other and at opposite ends pivotally connected to said jaws and to said handles, each of these pairs of jaw plates having a hinged pin connection at their crossing point, which pin has a sliding engagement with one

of said fulcrum plates, whereby movement of said handles will cause said jaw plates to rock upon their hinged and pivot connections and move forwardly and toward each other at their outer ends, and said jaws to move in parallel lines, during which movement the said hinged pins slide within the fulcrum plates.

3. In pliers, the combination with a pair of handles, of fulcrum plates connected therewith, jaws, means for operating said jaws from said handles, a supplemental jaw connected with one of said jaws and operated in one direction by the other of said jaws, and means independent of said jaws for actuating said supplemental jaw in one direction.

4. In pliers, the combination with a pair of handles, of fulcrum plates connected therewith, jaws, means for operating said jaws from said handles, a supplemental jaw connected with one of said jaws and operated in one direction by the other of said jaws, and means independent of said jaws for actuating said supplemental jaw in one direction, said means being connected with one of said handles.

5. Pliers composed of a pair of handles, a pair of slotted fulcrum plates to each of which said handles are pivotally connected at opposite ends thereof, jaws slidably movable in relation to said handles, and a pair of jaw plates upon each side of the jaws and pivotally connected with each other, with said jaws, and with said handles, the pivot pin of the pivot connection between each pair of said jaw plates projecting through the slot in the adjacent fulcrum plate.

6. In pliers, the combination with a pair of handles, one of which is provided with a finger, a fulcrum plate connected therewith, jaws, means for operating said jaws from said handles, and a supplemental jaw connected with one of said jaws and operated in one direction by the other of said jaws and in the opposite direction by said finger.

In testimony whereof, I have hereunto affixed my signature.

ANTON MAE.