Aug. 27, 1940. L. SUNSHINE ET AL 2,212,888

COMBINED WIRE CUTTER AND BENDER

Filed June 30, 1939

Fig. 1.

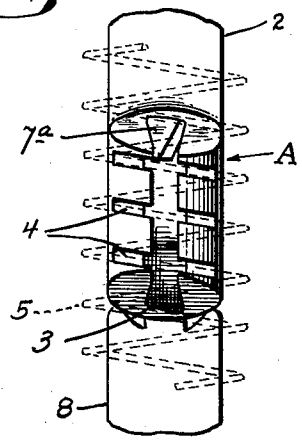


Fig. 2.

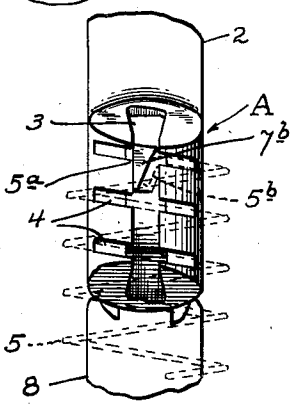


Fig. 3.

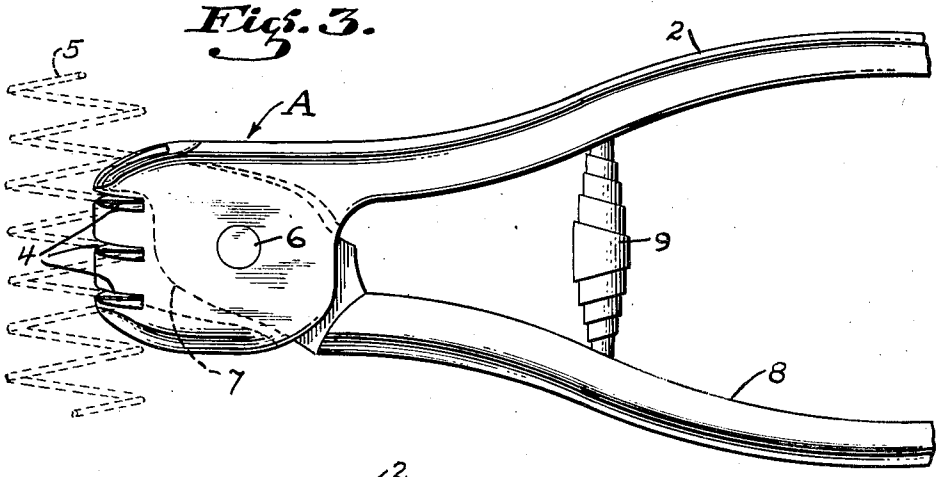


Fig. 4.

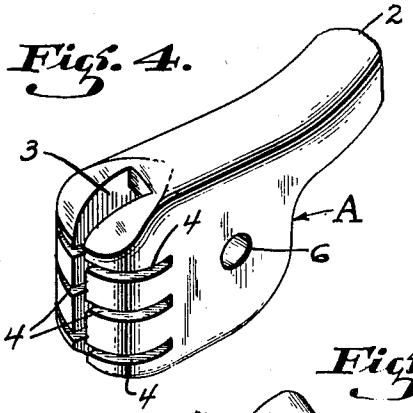


Fig. 6.

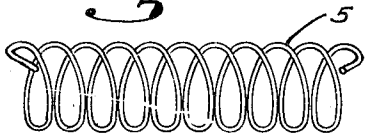
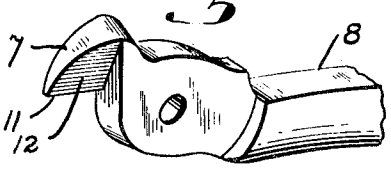


Fig. 5.



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COMBINED WIRE CUTTER AND BENDER

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Application June 30, 1939, Serial No. 282,045

5 Claims. (Cl. 140—123)

This invention relates to a combination wire cutter and bender which is particularly intended for cutting the opposite ends of a helically wound wire coil and for bending the cut ends so that they will project inwardly into the coil.

A type of binder which has lately come into general use for binding together sheets of paper, forming shorthand notebooks, tablets, and the like, is known as a helical binder. The sheets of paper and the front and back cover of such a book are perforated along one end and a helically wound coil of wire is screwed or threaded through the perforations, after which the ends of the coil are cut off and each end of the wire forming the coil is bent inwardly to secure the helical coil against removal. An ordinary wire cutting plier is employed to cut the ends of the coil after insertion of the wire, and bending pliers are then required to bend the cut ends. This use of two sets of pliers, one to cut and another to bend, requires two separate operations. It is time consuming and costly, as hand labor is employed.

The object of the present invention is to generally improve and simplify the construction and operation of pliers of the character described, and particularly to provide a plier whereby the end of a helically wound wire coil can be cut and the cut end bent inwardly into the coil in a single operation.

The construction of a plier of this character and the manner in which it is employed is shown by way of illustration in the accompanying drawing, in which—

Fig. 1 is a front view of the combination wire cutter and bender;

Fig. 2 is a similar view showing the coil cut and the free end of the wire bent;

Fig. 3 is a side elevation of the combination wire cutter and bender;

Fig. 4 is a perspective view of the head member of the pliers;

Fig. 5 is a perspective view of the cutting and bending jaw of the pliers; and

Fig. 6 is a side elevation of a helically wound wire coil showing the ends thereof cut and bent.

Referring to the drawing in detail, and particularly to Figs. 3, 4 and 5, A indicates in general a head member integral with which is formed a handle 2. The front face of the head member is centrally slotted as shown at 3 to provide space for a cutting and bending jaw hereinafter to be described. The side of the head, or the portion of the same arranged on each side of the central vertical slot 3, form cheeks which are transversely slotted as indicated at 4, and these slots are provided for the reception of the individual coils of a helically wound wire coil such as indicated at 5 (see Figs. 1 to 3 respectively). A coil of this character usually has a certain specified number of coils to the inch, and the angle which each coil presents with relation to the head A of the pliers will depend upon the number of coils to the inch. For instance, if there are eight coils to the inch, the angle will be less than if there are five coils to the inch. In view of the angular position assumed by the individual turns of the coil, the slots 4 must not only be transversely arranged with relation to the slot 3, but also on an angle with relation thereto so as to conform to the angles presented by the individual turns of the coil to be cut and bent.

Pivotally mounted in the head member A, as at 6, is a combination cutting and bending jaw 7 (see Figs. 1, 2 and 5), and formed integrally therewith is a handle 8. The jaw 7 projects into the vertical central slot 3 of the head member A and normally assumes an upper position, or that indicated at 7a (see Fig. 1), the jaw being held in this position by a spring 9 interposed between the handles 2 and 8. The jaw 7 is provided with a cutting edge 11, and one side face of the jaw is indicated at 12 to bend the cut end of the wire as will hereinafter be described.

In actual practice, the plier is applied to the coil to be cut and bent as shown in Fig. 3. By grasping the handles 2 and 8 in the hand and forcing them together, the jaw 7 will move from the position shown at 7a in Fig. 1 to the depressed position shown at 7b in Fig. 2. In doing so it first cuts the coil at the point indicated at 5a, and the moment the wire is cut the free end thereof, or that indicated at 5b, will engage the inclined face 12 of the jaw and it will be bent downwardy and inwardly into the coil, the position assumed by the cut end of the wire after it is bent being clearly shown in Fig. 6.

It has previously been stated that the pliers are particularly intended for cutting and bending the ends of helical coils such as used for helical binders on notebooks and the like. A plier constructed in the manner described is a great time saver as the operator will only require one plier when working. That is, after the coil has been inserted in the book, the plier shown in Fig. 3 is merely applied to one end of the coil and the handles pressed together. In so doing, the wire is cut and the cut end is bent inwardly. The cutting and bending, in other words, take place in one operation. This obviously saves a great deal

of time when comparison is made with the old method of cutting with one set of pliers and then bending with another set of pliers.

The pliers may also be said to be ambidextrous, as they are used by the right hand of the operator in cutting off the right end of the coil, and they are then reversed and used by the left hand of the operator to cut the left end of the coil. This is also an advantage, as it avoids change from one plier to the other when cutting and bending the opposite ends of a coil.

While these features of the invention have been more or less specifically described for purposes of illustration, it is to be understood that the invention is not limited by this description but is limited only by the scope of the appended claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent is—

1. A combination wire cutter and bender for cutting and bending the cut end of a helically wound wire coil comprising an elongated head member, said head member being transversely slotted to receive one or more coils of a helically wound coil, and a combination cutting and bending jaw mounted in the head member and movable in a direction substantially at right angles to the transverse coil receiving slot to first cut the coil in the slot and then to bend the cut end.

2. A combination wire cutter and bender for cutting and bending the cut end of a helically wound wire coil comprising an elongated head member, said head member being transversely slotted to receive one or more coils of a helically wound coil, a jaw pivotally mounted in the head member, said jaw when swung upon its pivot moving substantially at right angles to the transverse coil receiving slot, a cutting edge on said jaw to cut the coil, and other means on the jaw for bending the cut end of the coil.

3. A combination wire cutter and bender for cutting and bending the cut end of a helically wound wire coil comprising an elongated head member, said head member being transversely slotted to receive one or more coils of a helically wound coil, a jaw pivotally mounted in the head member, said jaw when swung upon its pivot moving substantially at right angles to the transverse coil receiving slot, a cutting edge on said jaw to cut the coil, and an inclined face formed on one side of the jaw and engageable with the cut end of the coil to bend the same.

4. A combination wire cutter and bender for cutting and bending the cut end of a helically wound wire coil comprising an elongated head member, said member having a slot formed in its front face and extending in the direction of the length of the head, a cheek formed on the head on each side of the slot, said cheeks being transversely slotted to receive one or more coils of a helically wound coil, a jaw pivotally mounted in the head and movable in the first named slot in a direction substantially at right angles to the transverse slots, a cutting edge on the jaw to cut the coil disposed in the transverse slot, and an inclined face on one side of the jaw engageable with the cut end of the coil to bend the same.

5. A combination wire cutter and bender for cutting and bending the cut end of a helically wound wire coil comprising an elongated head member, said member having a slot formed in its front face and extending in the direction of the length of the head, a cheek formed on the head on each side of the slot, said cheeks being transversely slotted to receive one or more coils of a helically wound coil, a jaw pivotally mounted in the head and movable in the first named slot in a direction substantially at right angles to the transverse slots, a cutting edge on the jaw to cut the coil disposed in the transverse slot, an inclined face on one side of the jaw engageable with the cut end of the coil to bend the same, a handle on the jaw and a cooperating handle on the head member to impart relative movement to the jaw and head in one direction, and a spring for imparting movement to said jaw and head in the opposite direction.

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