March 25, 1958 W. SMOYAK 2,827,815

SPRING URGED CROSSED-ARM PLIERS

Filed Aug. 22, 1956

Fig. 1

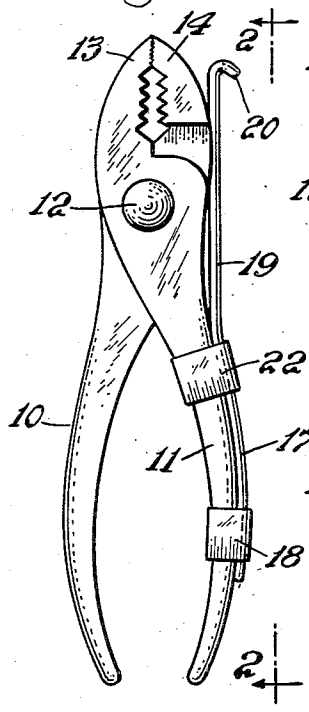


Fig. 2

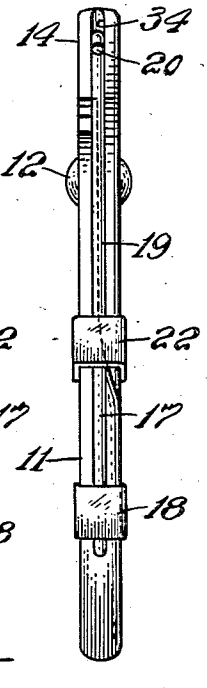


Fig. 3

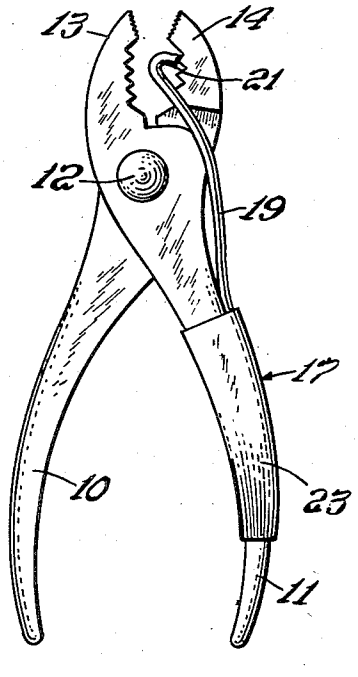
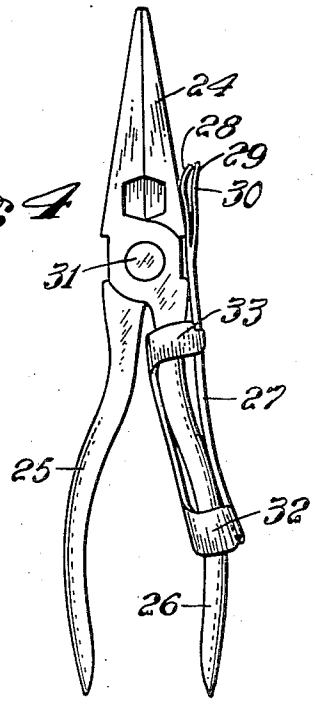


Fig. 4



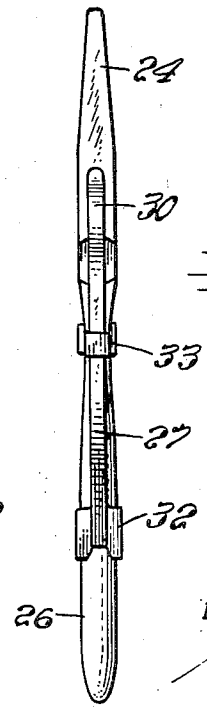


Fig. 5

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SPRING URGED CROSSED-ARM PLIERS

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5 Claims. (Cl. 81—417)

This invention relates to pliers and more particularly directed to the provision of the novel means for normally urging the jaw ends of the plier arms to a given position (either closed or open) under spring tension so that they may be moved in the opposite direction only by overcoming that force and will return to their tensioned position upon release. In the preferred form of invention, the pliers are provided with an elongated spring member having a depending loop portion adapted to have one of the plier arms passed therethrough the free end of said spring member being extended beyond the pivot point of the jaws for engagement with the jaw end of the other plier arm.

These and other advantageous objects, which will appear from the drawings and from the description hereinafter, are accomplished by the structure of my invention, of which an embodiment is illustrated in the drawings. It will be apparent, from a consideration of said drawings and the following description, that the invention may be embodied in other forms suggested thereby, and such other forms as come within the scope of the appended claims are to be considered within the scope and purview of the instant invention.

In the drawings:

Fig. 1 is a top plan view of a pair of pliers to which one form of the device of this invention is shown applied,

Fig. 2 is an end elevational view thereof, taken on line 2—2 of Fig. 1,

Fig. 3 is a view similar to Fig. 1 but showing the free end portion of the spring member extended beyond the pivot point of the jaws engaging the same to hold the pliers normally open as distinguished from the Fig. 1 arrangement wherein the spring member is utilized to normally close the pliers, and

Figs. 4 and 5 are respectively top plan and side elevational views of a further form of the invention applied to a pair of pliers.

As shown in the drawings, the invention is designed for use with pliers of any design or form; the drawings illustrate two of an infinite variety of forms of pliers to which the invention may be applied. The pliers, in the Fig. 1 form, comprise a pair of crossed arms **10**, **11** pivotally connected as at **12** and formed at one end as jaws **13**, **14**. An elongated spring member **17** is provided having a depending arm engaging member, such as a loop **18**, adapted to be positioned on one arm, such as **11**, a portion **19** of the spring member being extended beyond the pivot point **12** of the jaws so that the free end of said spring member may engage the jaw end **14** of the other arm **10** of the pliers. Thus, the jaw members **13**, **14** are normally urged together in the form of invention shown in Fig. 1. The free end **20** of the extended portion **19** of the spring member may be upturned, as shown in Figs. 1–3 so that, when positioned in engagement with the inner face of the jaw **14** as in the Fig. 3, the spring will normally hold the arms **10**, **11** apart, with the jaw ends **13**, **14** thereof open. When the free end **20** of the spring member is disposed on the outer face of the jaw member **14** (Fig. 1) it may be used as a prying tool.

In the Fig. 1 form of the invention, the spring member is provided with a second loop **22** spaced from the first mentioned loop **18** to further secure the spring member to the arm **11**. If desired, the loop portion **18** may be formed to be coextensive with the spring member **17** for a good portion of the length of the arm **11** as shown in Fig. 3.

In the Fig. 4 form of the invention which is shown applied to a pair of pliers having arms **25**, **26**, the spring member **27** is of rectangular cross-section and may comprise a pair of leaves (**28**, **29**) the free end of which may be positioned against the jaw end **24** of the arm **25**. The pliers, in the Fig. 4 form, are provided with a pivot point **31** beyond which the free end of the spring extends. The spring arm **27**, in this case, is provided with one or more depending engagement members such as the spaced loops **32**, **33** to receive the arm **26** to secure the spring member thereto.

The pliers may be provided with registration means for alignment of the portion of the spring member extended beyond the pivot point of the jaws therewith. Such registration means may comprise, for example, the provision of a recess **34** on the jaw member **14** (Fig. 2) for reception of the extended portion **19** of the spring.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a pair of pliers comprising a pair of crossed arms pivotally connected together and having jaws at one end of said arms adapted to be moved into substantial contacting relation on pivotal movement of the arms, an elongated spring member with a depending loop having one arm passed therethrough to position the spring member on said one arm, and a portion of said spring member extended beyond the pivot point of the jaws for engagement with the jaw end of the other arm.

2. In a pair of pliers as set forth in claim 1, a second loop on said spring member spaced from the first-mentioned loop and also having said one arm passed therethrough to further secure the spring member thereto.

3. In a pair of pliers as set forth in claim 1, the free end of said extended portion of the spring member being turned-out.

4. In a pair of pliers as set forth in claim 1, said spring member comprising a pair of spring leaves.

5. In a pair of pliers as set forth in claim 1, said pliers having registration means for alignment of the portion of the spring member so extended beyond the pivot point of the jaws.

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