March 12, 1946. K. H. LENK ET AL 2,396,583

PRUNER OR LIKE TOOL

Original Filed May 17, 1944

Fig. 1.

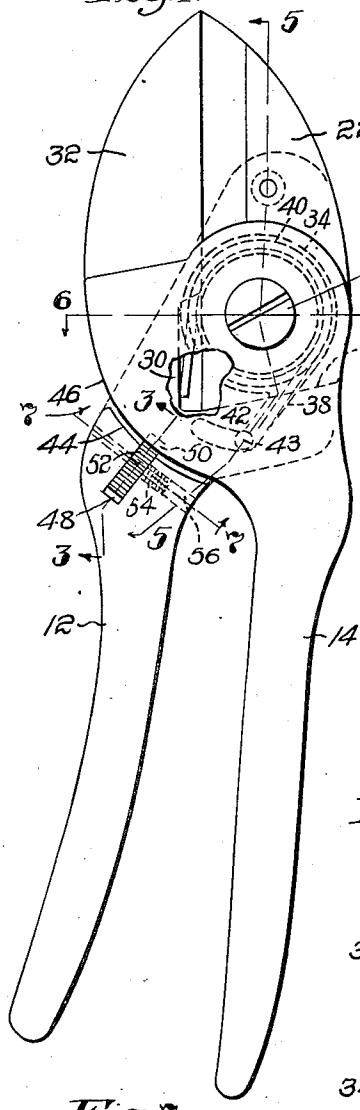


Fig. 2.

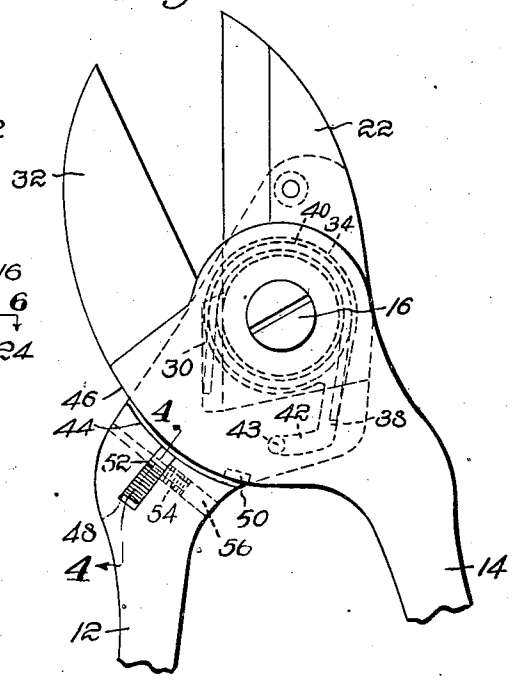


Fig. 3.

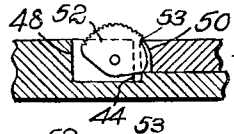


Fig. 4.

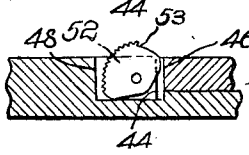


Fig. 5.

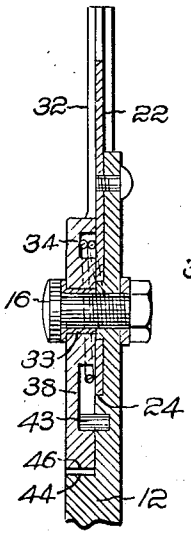


Fig. 6.

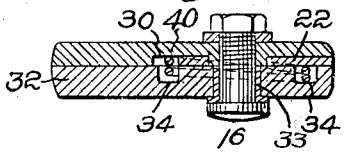
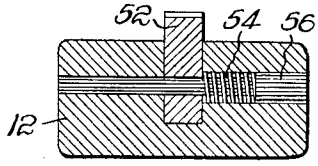


Fig. 7.



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PRUNER OR LIKE TOOL

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Original application May 17, 1944, Serial No. 535,942. Divided and this application April 10, 1945, Serial No. 587,572

4 Claims. (Cl. 30—262)

This invention relates to pruning shears and like hand tools comprising crossed pivoted levers, and the object is to provide an improved latching arrangement for holding the levers in closed position (ordinarily against the action of a spring which tends to open them as herein illustrated) with the end of providing a neat and sturdy tool, easy of operation and free of projecting parts which might possibly hurt the hand or be fouled by exterior objects, as, for example, when working a pruner among thickly set twigs.

This application is a division of our application Serial No. 535,942, filed May 17, 1944, wherein other features, herein more or less incompletely disclosed, are more fully described and claimed.

Our invention will be well understood by reference to the following description taken in connection with the accompanying drawing, wherein:

Fig. 1 is a side elevation of a pruner illustrative of the invention;

Fig. 2 is a similar view with parts broken away showing the pruner open;

Figs. 3 and 4 are sections on an enlarged scale on the correspondingly numbered lines of Figs. 1 and 2 respectively;

Figs. 5 and 6 are sections on the correspondingly numbered lines of Fig. 1; and

Fig. 7 is a section on the line 7—7 of Fig. 1 on an enlarged scale.

In the drawing we disclose as an example of a crossed-lever tool to which our improvements are applicable a pair of pruning "shears" of the anvil type and in particular one using a separate steel blade. The details of construction are more fully disclosed in our parent application of which this is a division, and for the present purposes it is sufficient to state that the tool shown comprises two levers 12 and 14, which may conveniently be die castings of soft but strong material, such as a suitable alloy of aluminum or magnesium, crossed and joined by a pivot pin 16. The lever 12 is formed with a depressed seat to receive the steel blade 22 which is supported substantially in the plane of the joint between the levers. The levers 12 and 14 are spring pressed to open position, herein by means of a coiled torsion spring 40 which has convolutions received in an annular chamber 34 organized around the pivot pin 16 and formed by suitable depressions in the opposed faces of the tool levers at the location of the joint, the spring having tangential ends which project beyond the plane of the helical body due to the pitch of the widening and which lie neatly in extensions 38 and 30 from said chamber in the inner faces of the levers respectively. The spring is tensioned in the closed position of the tool illustrated in Fig. 1 and tends to open the levers to the position of Fig. 2.

The subject matter of the present application is more particularly an improved device for holding the levers closed against the action of the spring. Referring particularly to Figs. 1 to 4, it will be seen that the lever 12 has a shoulder portion 44 which opposes an edge portion 46 of the lever 14 to provide a joint concentric with the pivotal axis of the tool. The circular edge portion 46 is formed with an undercut recess 50 which opens to the joint but does not intersect the face of the lever and, with the tool in the substantially closed position of Fig. 1, it aligns with a recess or groove 48 in the shoulder 44 in which is housed a catch 52 which may be projected therefrom across the joint to engage recess 50. The catch 52 is pivoted eccentrically near the outer end of recess 48 and in the retracted position of Fig. 6 clears the joint with its left-hand side viewing Fig. 4 resting on the bottom thereof. The right-hand portion of this catch is shaped to enter the recess 50 when the catch is rocked to the position of Fig. 3 and may terminate in a short shoulder 53 which engages the upper edge of shoulder 46 where the latter forms the boundary of the recess. To the left of this shoulder is a roughened thumb-engaging portion providing a shallow, generally lenticular projection beyond the face of the tool and which is desirably of such length that in either position (Fig. 3 or Fig. 4) it substantially fills the top of groove 48. Means may be provided for exerting a spring tension on the catch to prevent accidental movement. We have here shown (see Fig. 7) a helical spring 54 engaging the side of the catch, the spring 54 conveniently encircling the pivot pin and being received in the relatively large hole from one side of the recess 48 in which opening it is retained by the enlarged head 56 of the pin which fits the opening. The parts can thus be readily assembled by inserting the spring and pin from the right in the figure.

With the parts in the position shown in Fig. 1 and the hand grasping the handle levers in the usual manner, the thumb of the grasping hand can be extended to engage the exposed portion of the catch 52 which is preferably knurled as indicated and, the tension of the spring being somewhat relaxed by slight grasping pressure of the hand, a downward wiping movement of the thumb will rock the catch to the inactive position of Figs. 2 and 4, placing the tool in con-

dition for use. When it is desired to lock the parts, the tool is closed and an outward wiping motion of the thumb will return the catch to the position of Figs. 1 and 3. Release of the grasp of the hand causes the spring to tend to rotate lever **14** counterclockwise so that the left-hand end of the recess **50**, viewing Fig. 1, binds against the side of the catch **52**, holding it firmly in the engaged position. The catch seats in groove **48** in the open position of Fig. 4 without tendency to swing therefrom until it is again engaged by the operator and it is effectually shielded by the operator's hand from contacts with exterior objects tending to displace it upwardly and to locking position from the position of Fig. 2. The construction is sightly as the recess **50** is concealed and the recess **48** substantially dissimulated at all times by the catch received therein. There are no openings to pinch the fingers or to catch twigs or the like.

We are aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and we therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, as is in fact clear in several matters from the description itself. Reference is to be had to the appended claims to indicate those principles of the invention exemplified by the particular embodiment described and which we desire to secure by Letters Patent.

We claim:

1. In a tool of the pivoted, crossed lever type which is normally biassed to open position, one lever having a shoulder portion which opposes an edge portion of the other to provide a joint, a recess in the shoulder opening to the joint, a recess in the edge portion aligning with the first in a substantially closed position of the tool, one of said recesses being undercut, a catch pivoted near the outer end of the other recess and having a nose portion which swings across the joint and enters the undercut recess and a rounded projecting thumb-engaging portion rearwardly therefrom exposed at the face of the tool.

2. In a tool of the pivoted, crossed lever type which is normally biassed to open position, one lever having a shoulder portion which opposes an edge portion of the other to provide a joint, a recess in the shoulder opening to the joint, a recess in the edge portion aligning with the first in a substantially closed position of the tool, one of said recesses being undercut, a catch pivoted near the outer end of the other recess and having a nose portion which swings across the joint and enters the undercut recess and a rounded projecting thumb-engaging portion rearwardly therefrom exposed at the face of the tool and of such length as substantially to fill the top of said other recess in all positions of the catch.

3. In a tool of the pivoted, crossed lever type which is normally biassed to open position, one lever having a shoulder portion which opposes an edge portion of the other to provide a joint, a recess in the shoulder opening to the joint, a recess in the edge portion aligning with the first in a substantially closed position of the tool, one of said recesses being undercut, and a catch in the other recess capable of being housed therein or projected across the joint to engage in the undercut recess.

4. In a tool of the pivoted, crossed lever type which is normally biassed to open position, one lever having a shoulder portion which opposes an edge portion of the other to provide a joint, a recess in the shoulder opening to the joint, a recess in the edge portion aligning with the first in a substantially closed position of the tool, a catch adapted alternatively to lie retracted in one recess or to be projected across the joint to engage in the other, holes of different diameters intersecting the walls of the first recess, a spring received in the larger hole to bear on the catch, and a retaining pin in said holes traversing the catch to retain it movably in its recess, the pin having a head fitting the larger hole and retaining the spring therein.

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