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LATCHING MEANS FOR TOOLS HAVING PIVOTED MEMBERS

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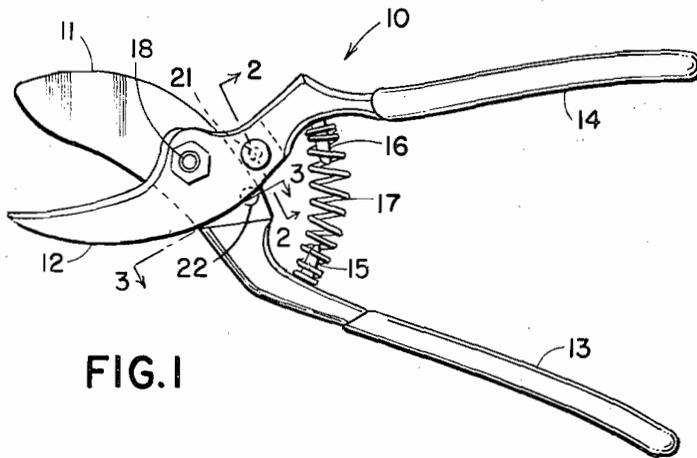


FIG. 1

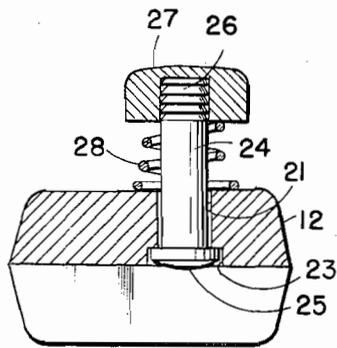


FIG. 2

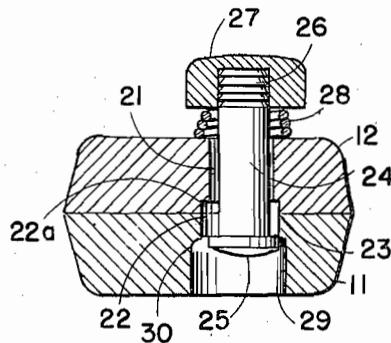


FIG. 4

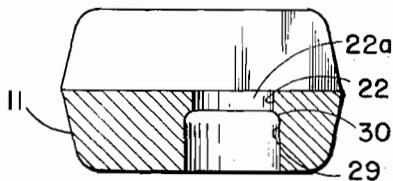


FIG. 3

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## LATCHING MEANS FOR TOOLS HAVING PIVOTED MEMBERS

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### ABSTRACT OF THE DISCLOSURE

A button operated, spring-loaded latch for a tool with pivoted blades, such as scissors, pliers or the like, which holds the blades of the tool in closed position, when not in use. A head is disposed on the latch bolt which engages a shoulder in a hole in one of the blades for a positive locking action.

This invention relates generally to a button operated device for locking pivoted blades, jaws or similar members of tools, and more particularly to latches for tools such as scissors, clippers, shears, snips, pliers, wrenches and the like, locking the blades or jaws in closed position when not in use.

Locking devices for the above-mentioned tools are known, but these devices either consist of hooks or like-latching means, or of pins or stops which rely upon friction or spring tension. This invention consists in such novel features, construction arrangements, combinations of parts and improvements as may be shown and described in connection with the apparatus herein disclosed by way of example only and as illustrative of a preferred embodiment. Objects and advantages of the invention will be set forth in part hereafter and in part will be obvious herefrom or may be learned by practicing the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

It is an object of the present invention to provide a new and useful mechanism for locking the pivoted blades, jaws or like members of tools in the closed position.

It is a further object of the present invention to provide a locking device for the pivoted blades or jaws of tools which can be easily operated by one hand.

Another object of the present invention is to provide locking means for pivoted blade- or jaw-type tools which do not rely upon frictional engagement or upon the pressure of the spring which may be provided for opening the blades or jaws of such tools.

Yet another object of the present invention is to provide locking means which are of very simple structure, yet constitute a safe lock of the blades or jaws.

A still further object of the present invention is to provide a locking device which is efficient, which consists of very few parts, and which can be manufactured easily and economically.

Various further and more specific purposes, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawings which form part of this specification and illustrate merely by way of example one embodiment of the device of the invention.

In the following description and the claims, parts will be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit. Like reference characters denote like parts in the several figures of the drawing, in which:

FIG. 1 shows typical shears having a button-type blade locking mechanism, according to the invention;

FIG. 2 is a cross-section of the upper blade, taken along

the line 2—2 in FIG. 1, showing the locking mechanism in an enlarged scale;

FIG. 3 is a cross-section of the lower blade, taken along the line 3—3 in FIG. 1, showing the recipient hole for the locking mechanism in an enlarged scale; and

FIG. 4 is a cross-section of the latching mechanism in locking engagement.

Referring now in more detail to the drawing illustrating a preferred embodiment by which the invention may be realized, but not in limitation of the invention, there is shown in FIG. 1 shears designated generally by the numeral 10. The shears are composed of a lower blade 11 and an upper blade 12. Blade 11 is connected to a handle 13 and blade 12 connected to a handle 14. Pins 15 and 16 keep a compression spring 17 in place between handles 13 and 14. Spring 17 urges handles 13 and 14 apart and thus always tends to open the shears. Blades 11 and 12 are rotatably held together by a pivot screw 18.

On the lower portion of blade 12, there is a hole 21 and on the upper portion of blade 11 is a corresponding hole 22. Holes 21 and 22 are in register when blades 11 and 12 are in closed position. Hole 21 is counterbored at 23. A pin 24 having a head 25 slidably fits into hole 21 and counterbore 23, respectively. The upper end 26 of pin 24 may be serrated so that a knob 27, preferably made of a suitable plastic material, is firmly attached to upper end 26 of pin 24. One end of a compression spring 28 abuts against the upper portion of blade 12 and the other end abuts against the underside of knob 27. Hole 22 has a counterbored portion 29, thus forming a shoulder 30 in hole 22 between its portions 22a and 29. Portion 22a of hole 22 is made slightly larger in diameter than head 25 of pin 24, so that the latter may be easily pushed into the former when knob 27 is depressed.

The device is operated as follows. After the tool has been used, and is ready for storage, it is preferred to have the blades closed. When the blades are closed, pin 24, with its head 25, is in alignment with hole 22. Knob 27 is pushed, depressing pin 24 against the force of spring 28 into hole 22 where it locks the tool in the closed position. This can be done with the thumb of the hand which is holding the tool. By releasing the grip on handles 13 and 14, head 25 locks itself on shoulder 30, due to the force of spring 28, and thus pin 24 cannot spring back, keeping the tool closed and locked. Spring 17, by urging blades 11 and 12 apart, provides the slight movement necessary to cause abutment of head 25 against shoulder 30. This movement may be provided manually in the case of pivoted tools not having spring 17.

The unlocking operation is extremely simple. By gripping handles 13 and 14, and pressing them slightly together, head 25 of pin 24 is disengaged from shoulder 30 and will spring back out of hole 22 into counterbore 23 by virtue of spring 28, permitting separation of the blades. The tool is ready for use.

From the foregoing, it is apparent that according to the invention there is provided latching mechanism for a tool having a pair of pivoted blades 11 and 12 having a knob 27 comprising a pin, one of the blades having a hole 21, pin 24 being slidable in counterbore hole 21, an enlargement 25 at one end of pin 24, the other blade having a hole 22 positioned to register with hole 21 when the blades are in a closed position, hole 22 being adapted to slidably receive enlargement 25 when holes 21, 22 are in register and pin 24 is pushed in the direction of hole 22, a shoulder 30 being provided in hole 22, enlargement 25 being adapted to abut against shoulder 30 when in hole 22 and the blades are slightly swung in opposite directions about their pivot 18, and spring means, such as compression spring 28 interposed between knob 27 and a face of blade 12 for retracting pin 24 for disengaging enlargement 25

from shoulder 30 when the blades are swung towards each other about pivot 18.

It is to be understood that the invention is applicable not only to cutting tools but also other tools having pivoted blades or jaws.

While the invention has been described and illustrated with respect to a certain preferred example which gives satisfactory results, it will be understood by those skilled in the art after understanding the principle of the invention, that various other changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended therefore in the appended claims to cover all such changes and modifications.

I claim:

1. Latching mechanism for a tool having a pair of pivotal members comprising a pin, one of said members having a hole, said pin being slidable in said hole, an enlargement at one end of said pin, the other of said members having a hole positioned to register with said first-mentioned hole when said members are in a closed position, said second-mentioned hole being adapted to slidably receive said enlargement when said holes are in register and said pin is pushed in the direction of said second-mentioned hole, a shoulder in said second-mentioned hole, said enlargement being adapted to abut against said shoulder when in said second hole and said members are slightly swung in opposite directions about their pivot, and spring means for retracting said pin for disengaging said enlargement from said shoulder when said members are swung towards each other about said pivot.

2. Latching mechanism according to claim 1, wherein

the hole in said one of said members is counterbored in a face of said one of said members providing a seat for said enlargement and said pin is provided with a knob at its other end for pushing said pin.

3. Latching mechanism according to claim 2, wherein said spring means is located between said knob and the opposite face of said one of said members.

4. Latching mechanism according to claim 1, wherein said pin is provided with a knob at its other end, and said spring means comprises a compression spring interposed between said knob and a face of said one of said members.

5. Latching mechanism according to claim 1, wherein said hole in said one of said members is counterbored at the underface thereof providing a seat for said enlargement and a knob is provided at the other end of said pin, said knob and said enlargement limiting the slidable movement of said pin in opposite directions, respectively, with respect to said one of said members.

6. Latching means according to claim 5, and a compression spring surrounding said pin and located below said knob.

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