Dec. 22, 1970 R. W. VAN HOOK 3,548,496

FILAMENT CLIP SCISSORS

Filed July 15, 1968

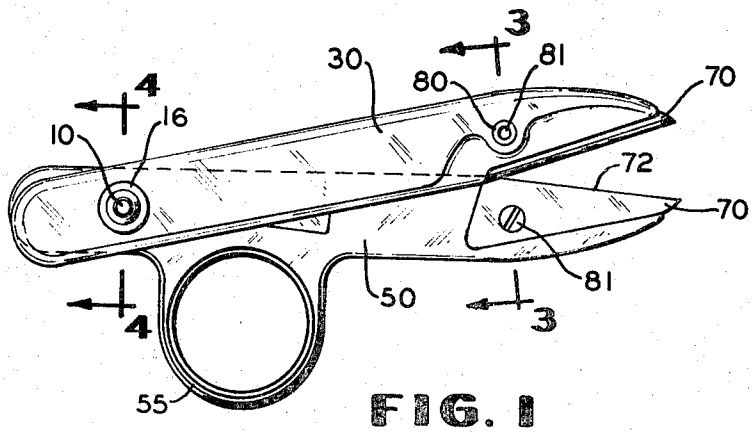


FIG. 1

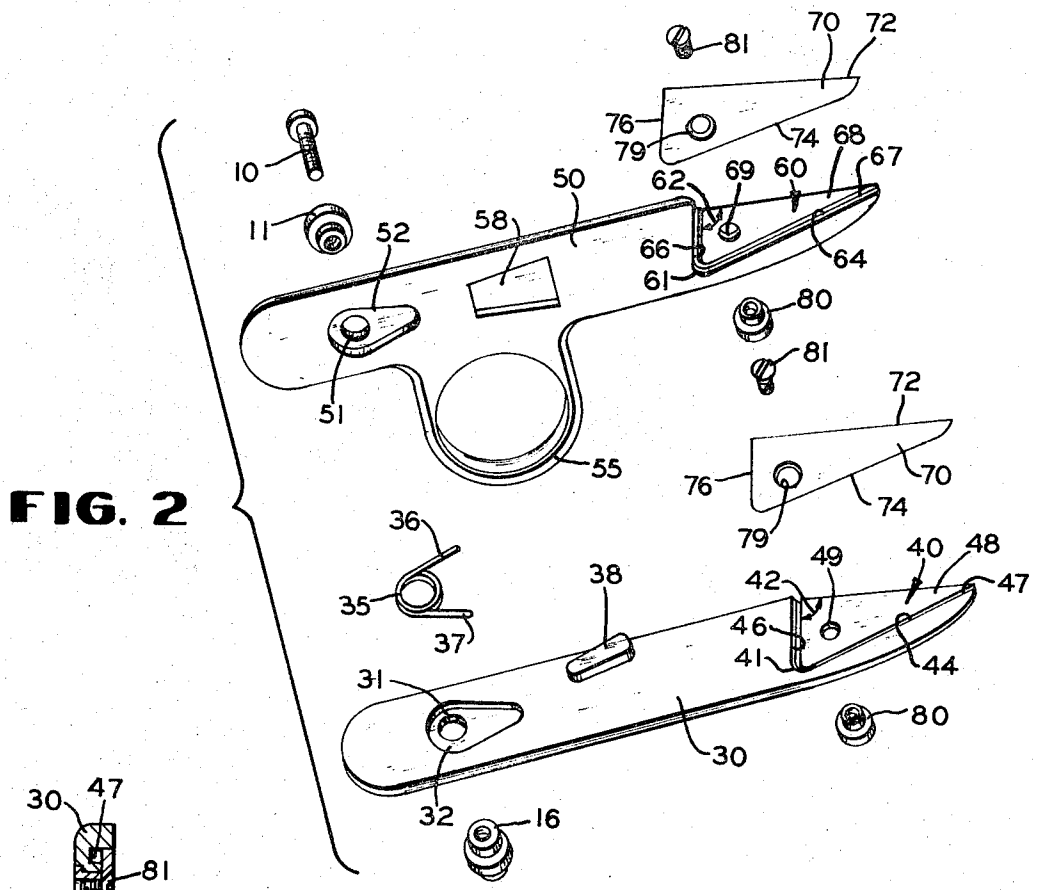


FIG. 2

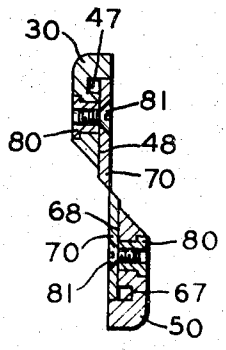


FIG. 3

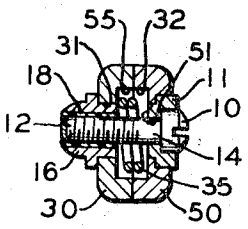


FIG. 4

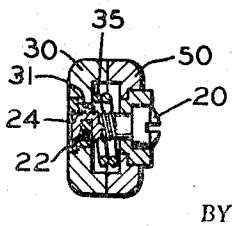


FIG. 5

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FILAMENT CLIP SCISSORS

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U.S. Cl. 30—253 5 Claims

ABSTRACT OF THE DISCLOSURE

An end pivoted, spring biased, light weight, clip scissors comprising a pair of blade holding members including stop limit means, and a substantially triangularly interiorly edge grooved recessed seat at its free end for a similar triangularly shaped detachable and replaceable blade held in the seat by a single screw.

SUMMARY OF THE INVENTION

This invention deals with a filament such as a thread or a wire, clip scissors having a pair of end pivoted blade holding members or levers and a pivot means which may be a self locking screw. These blade holding levers may be plastic coated for ease of operation and may be die cast of a light material such as aluminum. A resilient means in the form of a helical spring having outwardly extending arms surrounds the pivot means and urges the blade holding members in an open position. Stops means associated with each blade member and located intermediate the ends thereof limit the extent of both the open and closed positions of the blade holding members relative to each other. Each blade holding member at its end opposite the pivoted end and on their surfaces and edges facing each other is provided with a triangularly shaped recess having an acute angle inwardly from its open side along the edge of the blade holding member and having a groove along its two inner sides so that its triangular central portion forms a raised seat. Each recess is provided with a similarly substantially triangularly shaped, detachable, flat, hard cutting blade which is held therein by a single holding or fastening means, such as a countersunk screw near the apex of its inner acute angle and through the raised portion of the seat. This single screw attached blade is prevented from angular movement by its flush engagement with the acute angled side walls of the recess provided by the groove along these walls so that no uncut-out corner between the walls and seats will prevent the edge of the blade from completely contacting and wedging against these two walls.

BRIEF DESCRIPTION OF THE VIEWS

The above mentioned and other features, objects and advantages and the manner of attaining them are described more specifically below by reference to embodiments of this invention shown in the accompanying drawings, wherein:

FIG. 1 is a side view of a clip scissors constructed in accordance with one embodiment of this invention;

FIG. 2 is an exploded perspective view showing the blade holding members, pivot screw means, spring, stop means, the detachable cutting blades and their holding screw means;

FIG. 3 is an enlarged transverse sectional view, taken substantially along line 3—3 of FIG. 1, showing the details of the cutting blade and the peripheral groove around the recessed portion of the blade holding members;

FIG. 4 is an enlarged transverse sectional view, taken substantially along line 4—4 of FIG. 1, showing one form of a pivot means having a self-locking nut; and

FIG. 5 is similar to FIG. 4 but showing a modified pivot means having a self-locking pivot screw.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Generally speaking the clip scissors of this invention comprises a pair of end pivotally-connected **10** or **20**, hand manipulated blade holding levers **30** and **50**, each mounting an identical removable cutting blade **70** at its free end. In a structural form of this kind, these levers **30** and **50** preferably are die cast from a light metal so as to make them lighter in weight than conventional steel scissors, easier to manufacture, and at the same time sufficiently strong. These levers **30** and **50** may be plastic coated thus rustproofing them and also making them self lubricating for easier operation.

Referring to FIGS. 1 and 2 of the drawings, a first blade holding member or lever **30** and second blade holding member or lever **50** having an outwardly projecting finger loop **55** intermediate its ends, are pivotally connected together adjacent one of their ends by a pivot means or screw **10**. The outer or free ends of these levers **30** and **50** are arced to a point on one side and bevelled and slightly angled to that point on the other side.

The head of the pivot screw **10** fits in a stepped recessed ferrule **11**, see FIG. 4, which acts as a harder bearing for the oscillations of the pivot than the die cast pivot hole **51** in the member **50**. The pivot screw **10** is provided with an outer threaded end portion **12** and an intermediate plain pivot portion **14** which is journalled in the ferrule **11**. The threaded portion **12** of the screw **10** is secured to a threaded locking ferrule **16** disposed in and secured to the pivot hole **31** in the member **30**. This locking ferrule **16** is internally threaded to receive the portion **12** of the screw **10** and has at its outer end a plastic insert **18** for frictionally holding the screw **10** in its adjusted position. Instead of a self-locking ferrule or nut **16** for the screw **10**, there may be used a self-locking pivot screw **20** as shown in FIG. 5 which has near its outer threaded end a plastic insert or radial plug **22** which frictionally engages an internally threaded ferrule **24** secured in the pivot hole **31** of the member **30**.

As shown more particularly in FIG. 2, the inside of the pivot hole **31** in the lever **30** is formed with a tear drop shaped socket **32** pointing toward the free end of the lever or member **30**. This socket **32** is adapted to overlie and complement a similar tear drop shaped socket **52** in the companion lever or member **50**.

A helical spring **35** having at least one convolution, is positioned in the tear drop shaped sockets **32** and **52** (see FIGS. 4 and 5) and around the shank of the pivot screw **10** or **20**. Spring arms **36** and **37** project tangentially from the convolution; one at each end thereof, starting substantially diametrically opposite one another, and preferably also diverging relatively outwardly with respect to each other both axially and from the plane of the spring convolution, so that these arms **36** and **37** positively engage one of the straight sides of each tear drop socket **32** and **52**. This helical spring **35** is wholly concealed and protected by the levers **30** and **50**. The energy of this spring **35** is such that it will inherently seek to move the levers **30** and **50** to an angularly outstretched position as shown in FIG. 1. Also, this particular arrangement requires that the spring arms **36** and **37** be moved angularly together to bring them in alignment when the levers **30** and **50** are moved to their closed position.

A relatively narrow elongated tapered or segment shaped projection or abutment **38** may be carried by one of the levers, for instance the first lever **30**, in a posi-

tion to occupy a wider elongated tapered or segment shaped stop socket **58** provided in the inner face of the companion lever **50**; the width of the socket **58** being substantially greater than the width of the abutment **38** by an amount preselected to limit the relative angular movement of the levers **30** and **50** in both opening and closing movements.

The free end of each lever **30** and **50** is provided with a triangular shaped cut-out or recessed portion **40** and **60**, respectively, in its inner face adjacent its longitudinal bevelled edge opposite the arced portion, and which forms a cutting blade recess, seat, or pocket. Each recess **40** and **60** extends from the forward tip of the free end of each lever **30** and **50** respectively, to a point rearwardly at about where the straight edges of the two levers meet and the bevel starts, when they are in their open assembled position as shown in FIG. 1. As shown in FIGS. 1 and 2 each triangular recess **40** and **60** has an acute angle apex **41** and **61** spaced toward the pivot from both the pointed end and the start of the bevel on each lever **30** and **50**. Thus the angle **42** and **62** of the triangular recesses **40** and **60** at the start of the bevel is greater than 90° or is an obtuse angle. The two inner converging side walls **44** and **46** and **64** and **66** of the recesses **40** and **60** which meet at the apieces **41** and **61** are provided with inner or deeper grooves **47** and **67** respectively, to form a raised central triangular seat portion **48** and **58** in each recess **40** and **60** (see also FIG. 3).

Cutting blades **70**, as most clearly shown in FIG. 2, are triangularly shaped to conform with the cut-out or recess portions **40** and **60** at the free ends of the levers **30** and **50**, and provide bevelled or cutting edges **72** extending a slight distance beyond the open side of the cut-out portions, so that the blades **70** can overlap, as is required for effective cutting. The two acute angled sides **74** and **76** of each blade abut and wedge closely arcuately into the sides **44** and **46** and **64** and **66** of the recesses **40** and **60**, and the thickness of these blades is substantially the same as the depth of these recesses to their raised central portions **48** and **68**.

Each blade **70** is formed with a small countersunk aperture **79** registering with similar apertures **49** and **69** in the central raised portions **48** and **68** adjacent the apices **41** and **61**. These apertures **49** and **69** may be provided with internally threaded and securely attached ferrules **80** into which flat headed screws or fasteners **81** may be threaded to removably affix the blades **70** in their seats **40** and **60**.

While there is described above the principles of this invention in connection with specific apparatus, it is to be understood that these descriptions are made by way of examples and not as a limitation to the scope of the invention.

I claim:

1. In a clip scissors comprising:

(a) a pair of end pivoted blade holding members, each member having a triangular recessed seat at its free end; each of said triangular recessed seats having its inner two sides converging to an acute angle opposite its open side along the adjacent edges of said members, and having a raised central portion spaced from said two sides,

(b) a detachable complementary triangular blade supported by the raised central portion of each said seat and bearing against said two sides; and

(c) a single fastening pin means in each said raised central portion for detachably securing each said blade in its respective seat.

2. A clip scissors according to claim **1** wherein one of said holding members has a finger loop intermediate its ends.

3. A clip scissors according to claim **1** wherein said pivoted holding members have a resilient means for urging said members apart about their pivot.

4. A clip scissors according to claim **1** wherein said pivoted holding members have a stop means between them for limiting their angular spread.

5. A pair of clippers comprising:

(a) a first lever member,

(b) a second lever member having a finger loop intermediate its ends,

(c) a pivot means connecting said lever members adjacent one end of each member,

(d) resilient means between said members adjacent said pivot means for urging said lever members apart angularly about said pivot,

(e) stop means between said lever member intermediate their ends for limiting the angular spread apart of said lever members,

(f) acute angled substantially triangularly shaped recessed portions at the free ends and adjacent edges of each lever member, said portions facing each other between said members, and having grooves around their acute angled edges interiorly of the outside peripheral edge of said members,

(g) replaceable triangularly shaped blades seated in said recessed portions and having cutting edges exposed along the open side of said recessed portions, and

(h) separate single screws for holding each blade in its recessed portion.

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