SCISSORS, SHEARS AND LIKE IMPLEMENTS

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Filed June 23, 1961, Ser. No. 119,159
Claims priority, application Great Britain Sept. 29, 1960
11 Claims. (Cl. 30—220)

This invention relates to scissors, shears and like implements (hereinafter referred to as scissors) of the kind having cutting blades pivoted together and having manipulating members on the opposite side of the pivot axis from the blades.

An object of the present invention is to provide means for maintaining the intersecting cutting edges of the blades pressed together under substantially uniform pressure throughout the pivotal movement of the blades.

According to this invention, scissors of the kind referred to are characterised in that resilient means are provided between the pivoted parts on that side of the pivot axis adjacent the manipulating members or handles urging them apart on that side and urging the cutting edges together at their points of intersection on the other side of the pivot axis.

At least one of the pivoted parts has said resilient means secured thereto.

The resilient means may comprise a part of the blade extending cantilever fashion in a direction away from the pivot axis towards the manipulating member so that said part is displaced a small distance at its free extremity out of the general plane of the blade and so as to engage the other blade at a distance away from the pivot axis.

The part of the blade in the neighbourhood of the pivot axis may be longitudinally slit and a portion thereof on one or on both sides of the slit may be bent so as to be engageable with the other blade. A portion of the blade on the other side of the slit may be bent in the opposite direction to the other portion.

Preferably said part of the blade is formed with two longitudinal slits spaced apart and the two resulting marginal portions are bent in one direction and the other portion between them is bent in the opposite direction.

A pivot hole may be arranged to extend through the part of the blade disposed between the two slits.

In an alternative arrangement a part of the blade in the neighbourhood of the pivot hole is formed with a single slit intersecting said hole and the parts of the blade on opposite sides of the slit are bent in opposite directions out of the plane of the blade.

In any of the arrangements referred to above the longitudinal slit or slits may extend on both sides of the pivot axis in the direction of the length of the blade.

Preferably a headed pivot pin, in the form of a clamping screw, is arranged to extend through said pivot hole in each blade and is engaged by a nut whereby the pressure between the intersecting cutting edges of the blades may be adjusted by rotation of the nut.

The invention is particularly applicable to scissors of the kind in which comparatively thin steel cutting blades are secured to backing members formed from less hard material and formed with said manipulating members.

Each said thin blade may be riveted to its backing member by rivets spaced apart along the length of the blade and in the case of the blade which is provided with said cantilever like resilient means, a considerable space is left between the pivot pin and the nearest rivet so that the resilient cantilever effect is enhanced.

Preferably the cutting edge of each blade is substantially straight along the operative portion of the blade and is so formed as to provide a twist confined to the locality near the pivot axis whereby the necessary backing off of the blade is provided.

The extremity of each blade clear of the pivot axis may be flat and the flat portion is provided with a hole for the pivot pin and is longitudinally slit on either side of the hole, leaving two narrow marginal portions which are bent into engagement with the backing member and the part between the slits is bent so as to engage the other blade.

The bent portion of a blade between the slits may be arranged to engage a shallow projection pressed out of the other blade. Alternatively, where both blades are provided with slilt portions the part between the slits on one blade may engage the part between the slits on the other blade.

The following is a description of various alternative forms of scissors constructed according to the invention reference being made to the accompanying drawings in which:

FIGURE 1 is a face view of a cutter portion and handle portion of one part of a pair of scissors;
FIGURE 2 is a section on the line 2—2 of FIGURE 1 looking in the direction of the arrows;
FIGURE 3 is a section on the line 3—3 of FIGURE 1 looking in the direction of the arrows;
FIGURE 4 is an edge-on view of the cutter blade;
FIGURE 5 is an enlarged view of the left hand end of the cutter blade;
FIGURE 6 is a face view of a cutter blade and handle portion of a pair of scissors;
FIGURE 7 is a section on the line 7—7 of FIGURE 6 looking in the direction of the arrows;
FIGURE 8 is a section on the line 8—8 of FIGURE 6 looking in the direction of the arrows;
FIGURE 9 is an edge-on view of the cutter blade;
FIGURE 10 is a face view of an alternative form of cutter blade which can be used with a handle assemblage similar to that of FIGURES 1 to 4; and
FIGURE 11 is an edge-on view of the cutter blade shown in FIGURE 10.

Referring to the construction shown in FIGURES 1 to 5 a cutter blade indicated generally at 10 is stamped and pressed from a comparatively thin sheet of steel so as to form a cutting edge 11 extending along one side thereof. The blade is pointed at 12 at one end and is reduced in width at the other end so as to provide a recess 13 at that end of the cutting edge remote from the pointed end 12. The back edge of the blade is recessed, the recess 14 extending from adjacent the pointed end 12 to a location 15 at the other end of the blade 10.

The blade is provided with a pivot hole 16 in a part 18 opposite the recessed portion 13 and beyond the end 15 of the other recessed portion.

The part of the blade adjacent the pivot hole 16 is provided with a slight twist 17 so that when the two blades are pivoted together they engage one another only where their cutting edges intersect one another. That part 18 of the blade 10 in which the pivot hole 16 is formed is comparatively flat and is formed with two slits 19 on either side of the pivot hole so as to provide comparatively narrow marginal portions 20.

The portion between the slits is bent upwardly in a direction out of the plane of the paper in FIGURE 1 whereas the marginal portions 20 are bent in the opposite direction.

The blade is mounted against a backing portion 21 moulded from comparatively soft material such as aluminium alloy which backing portion is provided with an upstanding ridge 22 which is located in the recess 14, 15 on the back edge of the blade. The backing 21 is also provided with a depression in which is accommodated the parts 18, 19 and 20 of the blade, the side
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edges 23 of the depression flanking the marginal portion 20 of the blade.

A hole is formed in the backing member to register with pivot hole 16.

A continuation of the backing member is shaped to form the handle portion 24.

The backing portion 21 has formed integrally therewith two rivets 25 which extend through holes 26 in the blade 10, and at least the one further from the pivot pin is riveted over to secure the blade in position. If desired the rivet in the rivet hole 26 nearer the pivot hole 16 need not be riveted over so as to enable the blade to be pressed away from the backing by the marginal portions 29.

Two such assemblages of cutter blade and handle portions may be mounted face to face so that the portions 15 abut one another and a screw is arranged to extend through the registering holes in the backing members 21 so that its head engages one of the members and its threaded end is engaged with a threaded hole 25 in the other backing member. Thus, by appropriately tightening the screw, the blades 10 are drawn together and the resilience of the parts 18 and 20 maintain the cutting edges of the two blades in contact with one another throughout the cutting movement of the blades. The end of the screw may be riveted over.

The part of the cutting edge of each blade adjacent the recessed portion 13 is chamfered as indicated at 29.

Instead of the cutter blade and handle assemblage shown in FIGURES 1 to 5 being used with a like assemblage it may be used with an assemblage such as is shown in FIGURES 6 to 9. In this case the cutting blade and handle portion are formed in a similar manner with the exception that the part of the blade adjacent the pivot hole 16 is not slit, but is provided with an arcuate shallow projection 30 which is arranged to engage with the part 18 between the slits 19 of the other blade. The camming effect of this shallow projection 30 and the resilient nature of the parts 20 and 19 of the other blade maintain the cutting edges of the two blades in engagement with one another throughout their pivotal movement.

Instead of the end of the blade being formed with two slits in the manner described with reference to FIGURES 1 to 5 it may be provided with a single slit 31 as shown in FIGURES 10 and 11. Slit 31 intersects the pivot hole 16 and thus two resilient parts 32, 33 are provided which are bent out of the general plane of the blade in opposite directions.

Two blade and handle assemblages of this kind may be employed together, in which case the resilient portions 32 will abut one another, but preferably one such assemblage is used in conjunction with an assemblage of the kind shown in FIGURES 6 to 9.

In any of the arrangements referred to above instead of the parts of the blade on opposite sides of a slit being bent in opposite directions, one part may be left in the same general plane as the blade whereas the metal on the other side of the slit is bent out of the plane so as to be engageable with the other part of the scissors.

I claim:

1. Scissors comprising two co-operating cutting blades each of which is attached to a backing having a handle portion, a pivot pin passing through the backing and blades so that a part of each blade extends on the side of the pivot opposite from a cutting edge of the blade, said extending part of at least one blade being slit along the length thereof and having at least one of the slit parts bent out of the general plane of the blade so as to provide a resilient tongue engageable with the other blade.

2. Scissors according to claim 1 wherein a portion of the blade on one side of a slit is bent in the opposite direction to the other portion.

3. Scissors according to claim 1 wherein said extending part of the blade is formed with two longitudinally extending slits spaced apart and the two resulting marginal portions are bent in one direction and the other portion between them is bent in the opposite direction.

4. Scissors according to claim 3 wherein a pivot hole is arranged to extend through the part of the blade disposed between the two slits.

5. Scissors according to claim 1 wherein the part of the blade in the neighbourhood of the pivot hole is formed with a single slit intersecting said hole and the parts of the blade on opposite sides of the slit are bent in opposite directions out of the plane of the blade.

6. Scissors according to claim 1 wherein the longitudinal slit extends on both sides of the pivot axis in the direction of the length of the blade.

7. Scissors according to claim 1 wherein each cutting blade is riveted to its backing by rivets spaced apart along the length of the blade on the same side of the pivot as the cutting edge leaving a substantial space between the pivot pin and the nearest rivet.

8. Scissors according to claim 1 wherein the cutting edge of each blade is substantially straight along the operative portion of the blade and is so formed as to provide a twist confined to the locality near the pivot axis whereby the necessary backing off of the blade is provided.

9. Scissors according to claim 1 wherein the extremity of a blade clear of the pivot axis is flat and the flat portion is provided with a hole for the pivot pin and is longitudinally slit on either side of the hole leaving two narrower marginal portions which are bent into engagement with the backing member and the part between the slits is bent so as to engage the other blade.

10. Scissors according to claim 9 wherein the bent portion of the blade between the slits is arranged to engage a shallow projection pressed out of the other blade.

11. Scissors according to claim 9 in which each blade is slit on both sides of the pivot hole and wherein the part between the slits on one blade engages the part between the slits on the other blade.

References Cited in the file of this patent

FOREIGN PATENTS

202,272 Good Britain ------------ July 28, 1924
326,750 Good Britain ------------ Mar. 20, 1930
970,971 France --------------- June 28, 1940