

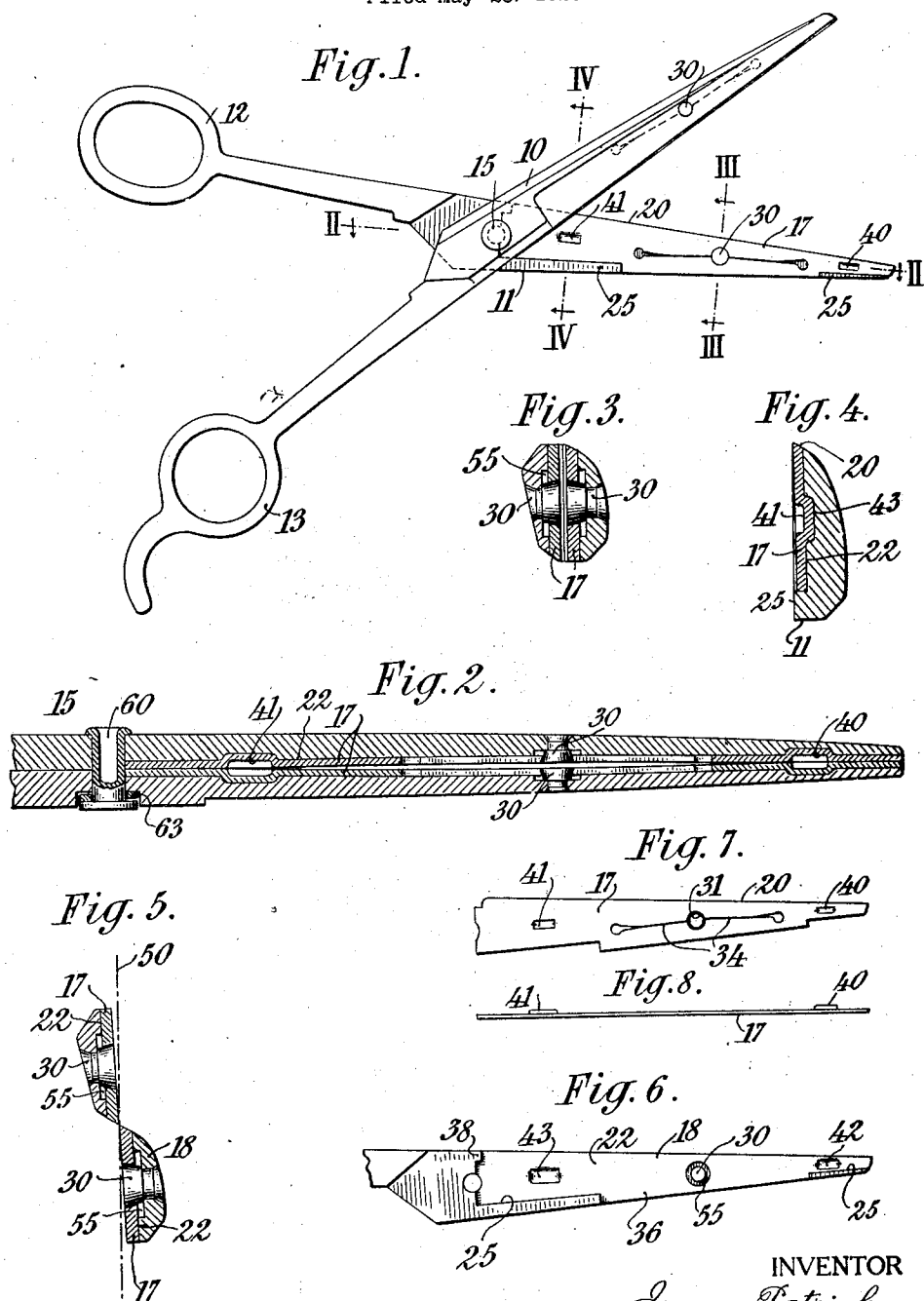
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COMPOSITE BLADE FOR SCISSORS, SHEARS, ETC., AND CUTTERS THEREFOR

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COMPOSITE BLADE FOR SCISSORS, SHEARS, ETC., AND CUTTERS THEREFOR.

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This invention relates to composite blades for scissors, shears and the like, one part of which is a detachable cutter and is replaceable by another when the edge thereof becomes dull; and also relates to a cutter; and aims to provide improvements therein.

The invention provides composite blades for scissors or shears of an improved construction whereby an improved cutting action is secured, and a simple and secure connection between the parts of said blade is obtained. The improved construction is simple and well suited for large scale manufacture.

15 The invention provides a cutter or cutting part which, with the parts of the fastening means formed thereon, is readily made from a flat strip of metal.

20 An embodiment of the invention is illustrated in the accompanying drawing, wherein

Figure 1 is a side view of a pair of scissors embodying the composite blades.

25 Fig. 2 is a longitudinal sectional view through a pair of blades.

Fig. 3 is a cross-sectional view on the line III—III, Figure 1, through a pair of blades.

Fig. 4 is a cross-sectional view (enlarged) on the line IV—IV, Figure 1.

30 Fig. 5 is a cross-sectional view on the line III—III, Figure 1, showing the position of the blades with respect to the plane passing through the edges of a pair of blades at their point of meeting.

35 Fig. 6 is a side view of the part of the composite blade which supports the cutter.

Figs. 7 and 8 are respectively side and edge views of a cutter.

Referring to said drawing, numerals 10, 40 11 indicate a pair of blades having handles 12, 13 forming a scissors, the blades of which are pivoted, as indicated at 15, said blades being adapted to be opened and closed by a separation and bringing together of the handles 12, 13 in the usual and well understood manner. One or both of the blades, 45 10, 11 is a composite blade, and as herein shown, both of said blades are of this type. The composite blade comprises a cutter or cutting portion 17, and a supporting portion 18.

50 The cutter 17 is preferably in the form of a thin flexible flat strip of metal having a sharpened edge 20 thereon constituting a cutting edge. The supporting portion 18, 55 on its inner face, is provided with a shallow

recess 22, in which the cutter 17 is adapted to fit or lie, and be fastened. The said supporting portion 18 at the lower part of the recess 22, opposite the cutting edge 20 (when 60 said cutter is in said recess) is preferably provided with a shoulder 25 adapted to firmly support the said cutter 17 and to sustain the strain exerted on the said cutting edge 20 in the act of cutting. 65

Means are provided for fastening the cutter 17 and the supporting portion 18 together. These means are of such a character that the cutter 17 is substantially flat and very well suited to manufacture, pack- 70 aging and use.

The fastening means comprise a pin 30 and the corresponding slot or socket 31, the pin 30 being preferably provided upon the supporting portion 18, and the slot 31 in 75 the blade 17. The pin 30 is preferably formed with a inward taper, as shown, and a part of the blade adjacent said slot or socket 31 is preferably made resilient, so as to spring over and hug or engage the said pin 30, the said portion of the blade adjacent said slot 31, being split, as indicated 80 by the slits 34. The slits 34 preferably run longitudinally of the cutter 17, and preferably the shoulder 25 opposite the slit portion of the cutter, as indicated at 36, is 85 omitted, so that the resiliency of said part of the cutter is not prevented by said shoulder 25. At the same time the shoulder 25, as heretofore stated, bears the strains on 90 said cutter due to cutting, and relieves the fastening means from the duty of bearing such strains. The fastening means, however, could be arranged to bear part or all 95 of the strains. One or more fastening means similar to the parts 30, 31 could be employed, but in practice one such means in the midportion of the cutter is found to be sufficient. The inner end of the cutter is 100 preferably shaped to fit beneath a shoulder 38 on the supporting part 18, opposite the shoulder 25, and these two shoulders 38 and 25 serve to limit the edgewise movement of said cutter, and the opposite blade serves 105 to hold the inner end of the cutter against lateral displacement in said recess 22.

As a means of steadying and resisting the tendency of the cutter to cant or twist in the recess 22, the said cutter may be provided with one or more ribs or projections 40, 41 adapted to closely fit in corresponding 110 recesses, 42, 43 in the supporting part 18.

The ribs or projections 40, 41 are conveniently formed by punching the metal of the cutter, and grinding if necessary, to provide a close fit with the walls of the recesses 42, 43.

The supporting portions 18 of the blade are preferably bowed from their pivotal connection toward their outer ends, the tips of the two blades, when the scissors are open, being slightly crossed, and when the tips are together, the said blades are under tension due to the forcing apart of one blade by the other as the edges of the cutters cross progressively lengthwise of the blades.

The cutters 17 are preferably thin and somewhat flexible, and the fastening means 30, 31 are such as to hold the cutter flexed in the recess 28 in substantial conformity with the bowed contour of the said supporting portion 18. As heretofore stated, the slotted portion of the cutter engages the pin 31, and this engagement is improved by the tapered construction of the said pin 31.

The back or broad faces of the recesses 22 of a pair of blades, and the substantially flat cutters 17 lying in said recesses, are preferably slightly inclined with relation to a plane 50 passing between the said blades at the point of the meeting edges of the said cutters, as illustrated in Fig. 5. This arrangement insures the cutting edges passing one another in contact successively the length of the cutters, as the blades are opened and closed.

The cutter 17 may be formed of flat sheet metal, and may be given a very hard temper, which enables a cutting edge to be provided which is more durable than that of the ordinary one-piece blades. Moreover, with the type of scissors herein described, adjustment of the cutting blades does not get out of order, due to sharpening, as in the ordinary one-piece blades, since the two cutting edges of the composite blades, even when one cutter 17 is substituted for another, always maintain their proper relation or tension.

When a cutter becomes dull, it may be replaced by another, the pin and slotted portion of the blade being forced or sprung apart, by separating the cutter and supporting part at one end, and inserting and sliding toward the pin a narrow prying instrument such as a knife blade, and thereby forcing the blade off of the pin. A new cutter 17 is replaced by placing the cutter in the recess, forcing the resilient portion around the slot 31 to yield to allow the pin 30 to pass into said slot 31, and the cutter is thereupon pressed flat against the back side of the recess 22.

The supporting portion 18 of the blade may be formed of aluminum or other light metal such as now known possessing a hardness and strength similar to steel, by die

shaping or casting. By this method, close uniformity in the size and shape of the supporting portions 18 of the blades may be obtained, which would thus render the substitution or renewal of cutters 17 being made without difficulty. A uniform fit between the supporting part 18 and cutter 17 used to replace other cutters, is thus obtained. The pin 30 is preferably a hardened steel pin fitted onto the said portion 18 of the blade. The portion of the part 18 immediately adjacent the pin 30 may be milled out, as indicated at 55, to insure the cutter lying flat in the recess 22.

The two blades 10, 11 are preferably resiliently drawn together at the pivotal connection, and, to this end, said connection is conveniently in the form of an eyelet or hollow stud 60 passing through the blades, turned over at one or both ends, and confining a resilient washer 63 between the end or ends of the stud and the blade or blades, as illustrated herein and in my applications Serial No. 742,829, filed October 10, 1924, and Serial Nos. 23,505 and 23,506, filed April 16, 1925.

The invention may receive other embodiments than that herein specifically illustrated and described, and may be applied to other types of scissors and shears than that herein illustrated.

What is claimed is:

1. A composite blade comprising a cutter and a supporting part, and means for removably fastening said parts together, said means comprising a pin and slot connection between said cutter and supporting part, said connection being resilient whereby said parts may be resiliently held together.

2. A composite blade comprising a cutter and a supporting part, and means for removably fastening said parts together, said means comprising a pin and slot connection between said cutter and supporting part, said cutter having the slot formed therein and being split adjacent said slot to make said cutter resilient adjacent said slot.

3. A composite blade comprising a cutter and a supporting part, and means for removably fastening said parts together, said means comprising a pin and slot connection between said cutter and supporting part, said cutter having the slot formed therein and being split adjacent said slot to make said cutter resilient adjacent said slot, said supporting part having means for supporting the edge of said cutter opposite its cutting edge, said supporting means, however, beneath said split part of said blade being omitted.

4. A composite blade comprising a cutter and a supporting part, and means for removably fastening said parts together, said means comprising a pin and slot connection between the ends of the cutter, and shoulders

at the inner end of the cutter retaining said end against edgewise displacement, the opposite blade retaining said cutter on said support against lateral displacement.

5 5. A composite blade comprising a cutter and a supporting part supporting the cutter throughout its length, and means for removably fastening said parts together, said supporting part being bowed longitudinally, 10 said cutter being flexible, and said fastening means holding said cutter in flexed condition substantially conforming to the bow of said supporting part.

6. A composite blade comprising a cutter 15 and a supporting part supporting the cutter throughout its length, and means for removably fastening said parts together, said supporting part being bowed longitudinally, said cutter being flexible, and said fastening 20 means holding said cutter in flexed condition substantially conforming to the bow of said supporting part, said fastening means comprising a pin and slot connection between the ends of the cutter.

25 7. A composite blade comprising a cutter and a supporting part, and means for removably fastening said parts together, said supporting part being bowed longitudinally, said cutter being flexible, and said fastening 30 means holding said cutter in flexed condition substantially conforming to the bow of said supporting part, said fastening means comprising a pin and slot connection between the ends of the cutter, said pin being tapered, 35 and said slotted part resiliently engaging said tapered pin.

8. A composite blade comprising a cutter and a supporting part, and means for removably fastening said parts together, said 40 cutter having its outer face inclined to a plane passing through the cutting edges of two cutters at their point of meeting.

9. A cutter for a composite blade having part of a fastening means thereon, said part 45 comprising a slot adapted to fit a pin, said cutter being slit adjacent said slot to render the slotted portion resilient.

10. A cutter for a composite blade having part of a fastening means thereon, said part 50 comprising a slot adapted to fit a pin, said cutter being slit longitudinally adjacent said slot to render the slotted portion resilient.

11. A cutter for a composite blade having 55 part of a fastening means thereon, said part comprising a slot intermediate the ends of

the cutter adapted to fit a pin, and said cutter having projections thereon for engaging slots in the part of the blade to which the cutter is fitted, for preventing canting or twisting of the cutter with respect to said 60 last-named part of the blade.

12. A cutter for a composite blade having part of a fastening means thereon, said part comprising a slot adapted to fit a pin, said 65 cutter being notched at its inner end to engage a shoulder on the part of the blade to which the cutter is fitted.

13. A cutter for a composite blade having part of a fastening means thereon, said 70 part comprising a slot adapted to fit a pin, said cutter being slit adjacent said slot to render the slotted portion resilient, said cutter being notched at its inner end to engage a shoulder on the part of the blade to which 75 the cutter is fitted.

14. A cutter for a composite blade having part of a fastening means thereon, said 80 part comprising a slot adapted to fit a pin, said cutter being slit adjacent said slot to render the slotted portion resilient, said cutter having projections thereon for engaging 85 slots in the part of the blade to which the cutter is fitted.

15. A composite blade comprising a cutter and a supporting part, and means for fastening 85 said parts together, said cutter being a flat plate, said fastening means comprising parts on said cutter lying in the planes of the faces of said plate, and said supporting part having a longitudinal recess in its 90 inner face into which said cutter is adapted to fit, said recess having a shoulder at its lower side for supporting said cutter opposite its cutting edge, said recess extending 95 to near the pivotal point of the scissors, at a part of the blade which is partly covered by the opposite blade during the normal use of the blades in cutting, said supporting part having means near said pivotal point adapted to hold the adjacent end of 100 said cutter from displacement from said shoulder, and said cutter having a portion extending into the part of said recess near the pivot, so as to be held in its recess by 105 the opposite blade during normal use of the scissors.

In witness whereof, I have hereunto signed my name.

ISAAC PATRICK.