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- (21) Application No. 5028/77
- (22) Filed 8 Feb. 1977
- (23) Complete Specification Filed 7 Feb. 1978
- (44) Complete Specification Published 19 Mar. 1980
- (51) INT. CL.³ B26B 13/06 // 13/20
- (52) Index at Acceptance
B4B 80E1 80E2 80F3 80K 80M2 80X



(54) IMPROVEMENTS IN OR RELATING TO SCISSORS

(71) I, RICHARD NIGEL HAWKINS, a British subject, of Rose Cottage, Preston, Woodleigh, Kingsbridge, Devon, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed to be particularly described in and by the following statement:-

The present invention relates to scissors, and particularly, but not exclusively, to scissors for use as nail scissors. Small scissors of this type are used for cutting, for example, finger nails, and for this purpose must be used first in one hand and then in the other.

Now although most scissors appear to be symmetrical in that they comprise two substantially identical arms pivoted about a central point, they are in fact not symmetrical and cannot readily be used in the left hand if designed for right handed use. This is due to the fact that effective shearing action usually relies on some lateral pressure being exerted by the user to press the blade portion of each arm towards the blade portion of the other as it is closed. This can easily be done with the right hand (in the case of right handed scissors, which are in the majority) but can only with difficulty be done with the left hand, and it certainly makes the use of scissors in the left hand both cumbersome and uncomfortable since pressure must be exerted by the thumb and forefinger in a way which is not at all natural. In the case of nail scissors, however, the use of scissors in the left hand is unavoidable, but in these circumstances the appropriate pressure cannot readily be applied since the finger and thumb of the left hand naturally tend to apply force to the handles which causes the blades to separate rather than to be urged towards one another. Moreover, with the scissors in the left hand the blades are naturally positioned in a way in which the blade nearest the finger applies a downward pressure (with the right hand palm downwards) and the other blade applies an upward pressure. This tends to bend the nail backward, particularly since a good shearing action is not obtained in these circumstances, and this leads to discomfort for the user. This problem could, of course, be overcome by providing left hand and right hand scissors, but this solution is not practicable as it would lead to added expense, the added trouble of having two pairs of scissors to keep, with the possibility of one pair being mislaid or not being kept with the other. Also, there would be the problem of identifying which are the left hand scissors and which the right hand scissors.

According to the present invention a pair of scissors comprises two arms pivotally attached together at a point intermediate their ends and formed with a blade portion on one side of the pivot and with a handle portion on the other side of the pivot, each blade portion having a shearing edge for cooperation with a corresponding shearing edge on the other blade on each side of a major face thereof, and the pivot being such that either arm can be swung through an angle in excess of 180° with respect to the other between a first position where the blades are set for left handed use and a second position where the blades are set for right handed use.

Embodiments of the present invention can be used either in the left or the right hand equally easily, and can be adapted to work efficiently with the natural pressures applied by the finger and thumb of either hand.

When used as nail scissors, embodiments of the present invention also have the advantage that they can be adapted for use in either hand in such a way that the shearing action tends to bend the nail down towards the finger rather than up away from the

finger in both cases as opposed to the situation described above in relation to the nails of the right hand.

5 As usual with scissors, it is preferred that embodiments of the present invention are constructed with the handle portion of each arm formed with a loop or bow to receive a finger or thumb of the hand of a user.

10 In order to ensure that the handles of the shears can be arranged, in a conventional manner, such that the blades complete their shearing action before the handle portions of the arms are parallel to one another, in order to permit the loops at the ends of the handle portions to abut one another lying in generally the same plane, it is preferred that the blade portion of one of the arms is tapered such that the shearing edges diverge away from the pivot. Alternatively, however, two identical blades which diverge away from the pivot may be provided.

15 In either case it is preferred that the handle portion of each arm is shaped to provide an abutment against which a cooperating part of the handle portion of the other arm abuts when the adjacent shearing edges of the blade portions have just passed one another over the full length of each edge in shearing relation to one another as the blade portions are closed by pivotal movement of the arms about the said pivot.

20 In order to obtain an improved shearing action the blade portion of each arm may be curved along its length about a centre displaced from the blade in a direction substantially perpendicular to the plane of the major face of the blade portion. The handle portions would in this case need to be recessed to accept the curvature of the blades as the arms are being turned from a left handed to a right handed position, or vice versa.

25 Likewise, it is preferred that the blade portion of each arm is curved across its width about a centre perpendicular to the plane of the major face of the blade portion. This facilitates sharpening of the shearing edge of each blade or portion by providing a "hollow ground" effect.

30 The abutment stops mentioned above are preferably formed by the said finger loops or bows of the handle portions of each arm which are, preferably, twice the thickness of each handle portion of the arm, there being a tapered portion of the handle linking the loop to the main part of the handle portion of the arm.

35 In one embodiment of the invention the finger loops or bows are integrally formed with the handle portions of the arms. In another embodiment the finger loops or bows are formed as separate elements and mounted fixedly on respective handle portions of the arms. In this second embodi-

ment it is convenient if the finger loops of bows are made of plastics material. In either case it is particularly convenient if the inner walls of each finger loop or bow is a partial cylindrical surface the axis of which cylinder is inclined with respect to the normal to the general plane of the finger loop or bow. The advantage of such a feature is that by making finger bows or loops in such a way that the axis of the cylinder of which the inner surface of the finger loop or bow of each handle portion forms part lies substantially in a plane defined by the normal to the finger loop or bow and the axis of the handle portion of the arm, and also by providing that the axes of the two partial cylindrical surfaces forming the interior of the finger loops or bows are inclined on opposite sides of the normal to the general plane of the finger loops, the "handedness" of the scissors in any given orientation is automatically defined by the way in which the hand of a user fits into the finger bows or loops. This is because, as will be appreciated, the thumb and finger of a hand holding a pair of scissors are inclined to one another by an angle of between about 48° and about 90°.

40 Various embodiments of the present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

45 *Figure 1* is a plan view of the embodiment of the present invention illustrating the arms of the shears crosses in a left-handed configuration;

50 *Figure 2* is a side view of the shears illustrated in *Figure 1*, taken in the direction of the arrow Z of *Figure 1*;

55 *Figure 3* is a plan view of the shears of *Figure 1* in their opposite or right-handed configuration;

60 *Figure 4* is a front view of a further embodiment shown in a first position;

65 *Figure 5* is a front view of the embodiment of *Figure 4* in a second position;

70 *Figure 6* is a rear view of the embodiment of *Figure 4* shown in the said first position, and

75 *Figure 7* is a side view of the embodiment of *Figure 4*.

Referring now to the drawings there is shown a pair of shears, generally indicated 11 and comprising two arms, generally indicated 12, 13. The two arms 12, 13 are pivoted together at a point intermediate the length by means of a pivot 14 which separates each arm into a blade portion 12a, 13a and a handle portion 12b, 13b respectively.

80 At the end of the handle portions 12b, 13b remote from the pivot 14, there are formed respective loops 15, 16 for receiving the finger or thumb of an operator. As can be seen in *Figure 2* the finger loops 15, 16 are twice as thick as the remainder of the handle portion 12b, 13b of the arms 12, 13

and are joined thereto by a tapering portion 17, 18 respectively.

5 The two blade portions 12a, 13a are not identical with one another since, in order to permit the shears to be fully shut with the loops, 15, 16 abutting one another, the blade portion 12a is formed in such a way that its side edges converge away from the pivot 14 to a point dead end 19, whereas the blade portion 13a is terminated by an arcuate edge 20.

10 The lateral edges of the blade 12a which are formed as the shearing edges thereof, are indicated by the reference numerals 21, 22 and the lateral edges of the blade 13a, which are the shearing edges thereof are indicated by the reference numerals 23, 24. In the configuration shown in Figure 1 the handle portion 12b and blade portion 12a of the arm 12 overlie the handle portion 13b and blade 13a in such a way that, with respect to the arm 13, the arm 12 crosses from right to left. This is a convenient orientation for using the shears in the left hand, and in this orientation the shearing edge 21 of the blade portion 12a cooperates with the shearing edge 24 of the blade portion 13a to provide the shearing effect. Since shearing edges require only to be a well defined edge and are not "sharp" in the sense that a knife edge is sharp the exposed shearing edges 23 and 22 do not present a safety risk.

20 In order to arrange the shears for operation in the right hand the arm 12 is swung clockwise about the pivot 14, as shown by the arrow A of Figure 1 through very nearly 360° to the position shown in Figure 3 where the shearing edge 22 of the blade portion 12a cooperates with the shearing edge 23 of the blade portion 13a of the arm 13 to provide the cutting effect. In this configuration the shears are comfortably arranged for operation in the right hand.

25 Although it is not apparent from the drawings, the blade portions 12a, 13a are curved both longitudinally and transversely in a known manner to enhance the shearing effect by forcing a reaction against the pivot 14 as the blades are closed upon approaching movement of the loops 15, 16.

30 Referring now to the embodiment illustrated in Figures 4, 5, 6 and 7, in which like components are identified with the same reference numerals, it will be seen that the scissors comprise two arms 12, 13 having respective blade portions 12a, 13a and respective handle portions 12b, 13b.

35 Unlike the embodiment of Figures 1 to 3, however, the handle portions 12b, 13b are not formed with integral loops, but are provided with separate plastics finger bows 25, 26. These are substantially thicker than the thickness of the arms 11, 12 as can be seen in Figure 7 and the openings there through

are inclined with respect to a normal to the plane generally defined by the finger bows 25, 26 at an angle in the region of 45° to a plane including the said normal and the arm itself. The opening 25a in the finger loop 25 is inclined in one direction, and the opening 26a in the finger bow 26 is inclined in the opposite direction, these inclinations being such that a digit inserted into the opening of the finger bow 25 from the same side as the arm 12b can only comfortably be affected with the hand nearer to the pivot 14, whereas if the same digit is inserted into the opening 25a in the same bow 25 from the opposite side the hand is naturally displaced further from the pivot 14 than the finger bow itself. The opening 26a in the finger bow 26 is formed in exactly the same way and this then naturally defines the "handedness" of the scissors since, in use, it is usual to insert the thumb into the loop or bow in such a way that the hand is displaced further from the pivot 14 than the loop or bow itself.

40 In the position shown in Figures 4 and 6, therefore, the only comfortable position of use is with the thumb of the right hand inserted into the finger loop 26a (with the hand above the plane of the paper) or with the thumb of the same hand inserted into the finger loop 25 from the opposite side (that is with the hand beneath the plane of the paper). An attempt to insert the finger and thumb of the left hand would be unsuccessful because the sides of the openings 25a, 26a would cause the finger and thumb to adopt unnatural (if not impossible) positions if they are to lie snugly against the inner surfaces of the loops, or to be pressed against the fairly sharp edges 25b, 26b which would be sufficiently uncomfortable to indicate to the user that the scissors are in the wrong orientation.

45 It will be appreciated, by reference to Figures 4 and 6, that the shears in this orientation can only be used in the right hand whether the hand is inserted from one side or the other. In the position shown in Figure 5, however, where one of the arms has been swung through approximately 360° with respect to the other, the insertion of the finger and thumb of the right hand would be uncomfortable, whereas the finger and thumb of the left hand would naturally fall against the inner surfaces of the openings 25a, 26a. In this respect it will be appreciated that the finger and thumb of the operating hand are approximately at right angles to one another when using scissors if the appropriate shearing pressure is to be applied and therefore inclination of the surfaces of the openings in the finger loops at 45° to the plane defined by the loops themselves will allow the finger and thumb naturally to adopt this position comfortably.

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- In this way simple identification of the relative orientation of the two arms 12, 13 of the scissors for left and right handed use is obtained since the finger and thumb of the wrong hand cannot easily or comfortably be inserted into the finger loops whereas, from either side, the finger and thumb of the correct/appropriate hand fit conveniently and comfortably into the scissors.
- 5
- 10 **WHAT I CLAIM IS:-**
1. A pair of scissors comprising two arms pivotally attached together at a point intermediate their ends and formed with a blade portion on one side of the pivot and with a handle portion on the other side of the pivot, each blade portion having a shearing edge for cooperation with a corresponding shearing edge on the other blade on each side of a major face thereof, and the pivot being such that either arm can be swung through an angle in excess of 180° with respect to the other between a first position where the blades are set for left handed use and a second position where the blades are set for right handed use.
- 15
2. A pair of scissors as claimed in Claim 1, in which the handle portion of each arm is provided with a finger loop or bow to receive a finger or thumb of a user.
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3. A pair of scissors as claimed in Claim 1 or Claim 2, in which the blade portion of one of the arms is shaped such that the shearing edges thereof converge away from the pivot, and the blade portion of the other of the arms is shaped such that the shearing edges diverge away from the pivot.
- 25
4. A pair of scissors as claimed in Claim 1 or Claim 2, in which the shearing edges of the blade portion of each arm diverge away from the pivot.
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5. A pair of scissors as claimed in any of Claims 1 to 4, in which the handle portion of each arm is shaped to provide an abutment against which a cooperating part of the handle portion of the other arm abuts when adjacent shearing edges of the blade portions have just passed one another over the full length of each edge in shearing relation to one another as the blade portions are closed by pivotal movement of the arms about the said pivot.
- 35
6. A pair of scissors as claimed in any preceding claim, in which the blade portion of each arm is curved along its length in a direction parallel to the length of the major face of the blade portion about a centre displaced substantially perpendicular to the general plane of this major face.
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7. A pair of scissors as claimed in any preceding claim, in which the blade portion of each arm is curved across its width in a direction transverse the length of the major face of the blade portion about a centre displaced substantially perpendicular to the general plane of the said major face.
- 45
8. A pair of scissors as claimed in any of claims 5, 6 or 7, in which the said abutment stops are formed by the said finger loops or bows.
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9. A pair of scissors as claimed in any of claims 2 to 8, in which the finger loops or bows are integrally formed with the handle portions of the arms.
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10. A pair of scissors as claimed in any of claims 2 to 8, in which the finger loops or bows are formed as separate elements and mounted fixedly on respective handle portions of the arms.
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11. A pair of scissors as claimed in Claim 10 in which the finger loops or bows are formed of plastics material.
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12. A pair of scissors as claimed in any of claims 2 to 11, in which the inner walls of each finger loop or bow is a partial cylindrical surface the axis of which cylinder is inclined with respect to the normal to the general plane of the finger loop or bow.
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13. A pair of scissors as claimed in claim 12, in which the axis of the cylinder of which the inner surface of the finger loop or bow of each handle portion forms part lies substantially in a plane defined by the normal to the finger loop or bow and the axis of the handle portion of the arm.
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14. A pair of scissors as claimed in Claim 12 or claim 13, in which the axes of the two partial cylindrical surfaces forming the interior of the finger loops or bows are inclined on opposite sides of the normal to the general plane of the finger loops.
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15. A pair of scissors substantially as hereinbefore described with reference to, and as shown in, Figures 1, 2 and 3 or Figures 4, 5, 6 and 7 of the accompanying drawings.
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- M.J. STEPHENS & CO.,**
Chartered Patent Agents,
Royal Building,
11, St. Andrew's Cross,
Plymouth PL1 2DS.
-
- Printed for Her Majesty's Stationery Office,
by Croydon Printing Company Limited, Croydon, Surrey, 1980.
Published by The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.



