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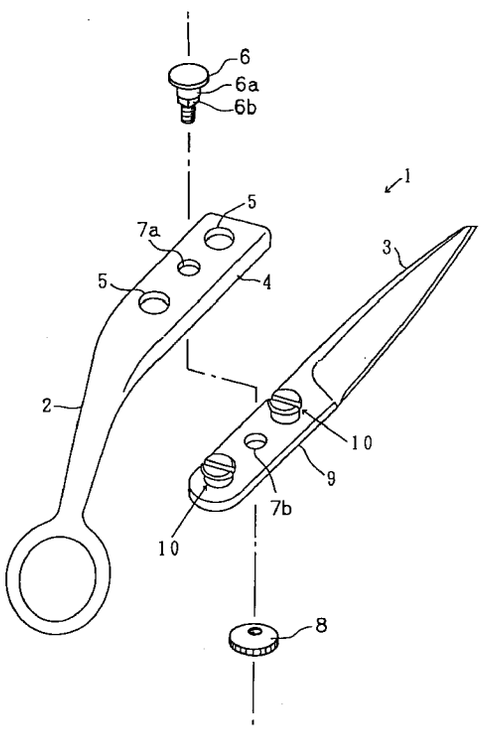
(54) REPLACEABLE BLADE TYPE SCISSORS

(57) In a pair of replaceable blade type scissors having a handle portion (2) and a blade portion (3) which are freely connectable and disconnectable, a plurality of fitting apertures (5) are provided in one of overlapping portions (4) (9) of the handle portion (2) and the blade portion (3), a plurality of protruding members (10) are provided to the other overlapping portion (9), and the plurality of the fitting apertures (5) and the plurality of the protruding members (10) are fitted, respectively, so that the handle portion (2) and the blade portion (3) are coupled to each other. Since the fitting apertures (5) and the elastically deformable protruding members (10) are fitted at a plurality of separate positions, unsteadiness between the handle portion (2) and the blade portion (3) is positively prevented. At this time, since tolerances in the positions and dimensions of the fitting apertures (5) and the protruding portions (10) are absorbed by the elastic deformation of the protruding members (10), machining accuracy of these parts is not necessarily increased so much.

FIG. 2



EP 0 765 717 A1

Description

TECHNICAL FIELD

The present invention relates to a pair of scissors of a replaceable blade type in which a blade portion is replaceable with respect to a handle portion.

BACKGROUND ART

A pair of conventional, general scissors is shown in FIG.1 which is used by a hairdresser or beautician. The pair of scissors 1' comprises a movable blade 2' and a stable blade 3', the movable blade 2' having a circular aperture 4', the stable blade 3' having a square aperture 5'. The movable blade 2' and the stable blade 3' are pivotally coupled to each other by using an adjust screw 6' and a nut 7'. The adjust screw 6' comprises a cylindrical portion 8' and a prismatic portion 9', the cylindrical portion 8' being inserted into the circular aperture 4' of the movable blade 2', the prismatic portion 9' being inserted into the square aperture 5' of the stable blade 3'.

When the pair of scissors 1' is used, the stable blade 3' is placed on the hair and the movable blade 2' is pivoted about the adjust screw 6' while contact area 10' works as a fulcrum of leverage; the hair is cut by continuously clenching the blades 11' and 11" from a root of the blade without an opening.

Since the work of a hairdresser or beautician requires hard use of brain with respect to the finish of a cut, care for the customer and sharpness of scissors, etc., considerable fatigue to the hairdresser or beautician is generated which may cause the scissors to sometimes be dropped unintentionally. In such a case, the blade may be nicked or dulled, and thus it is required to resharpen the blade. However, it requires 7 to 10 days for resharpening the blades of a pair of scissors due to a lack of resharpening technicians, and this causes a problem for the work of the hairdresser or beautician.

Thus, as disclosed in United State Patent No.5,086,563 or German Patent 2827679, a pair of scissors is suggested in which each of the movable blade and the stable blade is separable into a handle portion and a blade portion, merely the blade portion being replaced with a new one when the blade is nicked or dull. Such a pair of scissors has a good reputation among hairdressers or beauticians since it can be returned to an original sharpened condition in a short time.

An important factor to determine the quality of the replaceable blade type scissors is a fitting condition of a overlapping portion between a handle portion and a blade portion. If the fitting is loose, sharp cutting cannot be expected since the blade portion is unsteady with respect to the handle portion. The above-mentioned prior art attempts to prevent the unsteadiness of the blade portion with respect to the handle portion by increasing contact area of a fitting portion by using a pressing plate or a groove.

However, since such measures for preventing the unsteadiness requires a very high accuracy in machining the fitting portion of the blade portion and the handle portion, there is a problem in that manufacturing cost of the scissors is greatly increased. Particularly, the scissors for hairdressers or beauticians is originally expensive, and a further increase in the price of the scissors is not preferable.

Accordingly, it is an object of the present invention to provide a pair of replaceable blade type scissors in which the above mentioned problem is eliminated and in which a blade portion can be surely coupled to a handle portion without a need of high accuracy of machining and the replacement work can be easily performed.

DISCLOSURE OF INVENTION

The present invention is characterized in that, in a pair of replaceable blade type scissors in which a handle portion and a blade portion are freely connectable and disconnectable, a plurality of fitting apertures are provided in one of the overlapping portions of the handle portion and the blade portion, a plurality of protruding members are provided to the other overlapping portion, and the plurality of the fitting apertures and the plurality of the protruding members are fitted, respectively, so that the handle portion and the blade portion are coupled to each other. Since the fitting apertures and the elastically deformable protruding members are tightly fitted at a plurality of separate positions, unsteadiness between the handle portion and the blade portion is positively prevented. At this time, since tolerances in the positions and dimensions of the fitting apertures and the protruding portions are absorbed by the elastic deformation of the protruding members, machining accuracy of these parts is not necessarily increased so much. Additionally, since the fitting apertures and protruding members are merely pressed against each other when the blade portion is replaced relative to the handle portion, the replacing operation is very easy.

In the above-mentioned case, if pairs are formed by the fitting apertures and protruding members, respectively, and when the shaft insertion apertures are positioned between both the fitting apertures and both the protruding members, the centers of these parts are aligned in a straight line, the centering of the handle portion and blade portion becomes easy. Additionally, a force exerted on a portion between the handle portion and the blade portion due to the pivot action of the movable blade is dispersed evenly to the fitting apertures and the protruding members positioned on either side of the pivot support shaft, and this is also preferable with respect to the dynamic balance. Further, if the protruding member comprises a small diameter cylindrical portion with a flange and a large diameter cylindrical portion with a flange, the large diameter being press fitted into the overlapping portion, the large diameter cylindrical portion being press fit in the fitting aperture,

both a removal of the protruding member from the overlapping portion and a removal of the fitting aperture from the protruding member can be positively prevented. Further, when a slit groove or a cavity opening is provided to the large diameter cylindrical portion of the protruding member, an elastic deformation of the large diameter cylindrical portion is easier, and the fitting to the fitting aperture becomes easier.

Additionally, the present invention is characterized in that, in a pair of replaceable blade type scissors in which a handle and a blade portion are freely connectable and disconnectable, a groove portion is provided to one of the overlapping portions of the handle portion and the blade portion, a protruding portion is provided to the other overlapping portion which is fitted in the groove portion, an elastic member is provided between one side of the protruding portion and one side of the groove portion, and the other side of the protruding portion and the other side of the other overlapping portion are pressed against the other side of the groove portion so that the handle portion and the blade portion are coupled to each other.

In the present invention, since the other side of the protruding portion and the other side of the overlapping portion are pressed against the other side of the groove portion by a spring member, a deflection between the handle portion and the blade portion can be surely prevented. Since the other side becomes a reference for positioning due to the pressing of the elastic member, machining accuracy for the protruding portion, the overlapping portion and the groove portion is not necessarily increased so much. Additionally, when the blade portion is replaced relative to the handle portion, the protruding portion on one of the overlapping portions is inserted into the groove portion in the other one of overlapping portions and the elastic member is inserted therebetween, and thus the replacing operation is very easy.

In the above-mentioned case, if the protruding portion has a stepwise shape, and if an engaging portion, which is engaged with an end portion of the elastic member, is provided to one of the groove portion and the protruding portion, the elastic member can be surely and easily mounted in a predetermined position.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.1 is an exploded perspective view of a pair of conventional scissors.

FIG.2 is an exploded perspective view of a movable blade of a pair of replaceable blade type scissors according to a first embodiment of the present invention.

FIG.3 is a perspective view of a protruding member in the first embodiment.

FIG.4 is a perspective view of the protruding member in a variation.

FIG.5 is a cross-sectional view of a coupling portion between a blade portion and a handle portion in the first embodiment.

FIG.6 is an exploded perspective view of a movable blade of a pair of replaceable blade type scissors according to a second embodiment of the present invention.

FIG.7 is a plan view of the movable blade in the second embodiment.

FIG.8 is a plan view of the movable blade in a variation.

BEST MODE OF REDUCTION INTO PRACTICE

A description will now be given, with reference to FIGS.2-8, of an embodiment of a pair of replaceable blade type scissors according to the present invention.

FIG.2 shows a movable blade 1 of the pair of replaceable blade type scissors according to a first embodiment. It should be noted that the movable blade 1 and a stable blade has substantially the same configuration except for the configuration (refer to FIG.1) of apertures into which an adjust screw is inserted, and thus illustrations and descriptions of the stable blade is omitted.

In the movable blade 1, a handle portion 2 and a blade portion 3 are freely connectable and disconnectable, and an overlapping portion 4 of the handle portion 2 and an overlapping portion 9 of the blade portion 3 are coupled to each other.

The overlapping portion 4 of the handle portion 2 is provided with a pair of spaced fitting apertures 5 having a circular shape. In the center position between the pair of fitting apertures 5, there is provided a circular aperture 7a as a shaft insertion aperture into which a cylindrical portion 6a of the adjust screw 6, which is a pivot shaft, is fitted. That is, the center of each of the fitting apertures 5 and the center of the circular aperture 7a are arranged on a straight line, and distances between the circular aperture 7a and each of the pair of the fitting apertures 5 are the same.

In the overlapping portion 9 of the blade portion 3, there is provided a pair of spaced protruding members 10 corresponding to the above-mentioned fitting apertures 5. In the center position between the protruding members 10, there is provided a circular aperture 7b corresponding to the above-mentioned circular aperture 7a, into which a cylindrical portion 6a of the adjust screw 6 is inserted. That is, the center of each of the pair of protruding members 10 and the center of the circular aperture 7b are arranged on a straight line, and distances between the circular aperture 7b and each of the pair of the protruding members 10 are the same.

As shown in FIG.3, the protruding member 10 comprises a small diameter cylindrical portion 12 having a flange 11 and a large diameter cylindrical portion 14 having a flange 13, the large diameter cylindrical portion 14 being provided with the a slit groove 15 extending in a diametral direction. The protruding member 10 is integrally formed of an elastically deformable material such as, for example, synthetic resin, and especially the elastic deformation of the large diameter cylindrical portion

14 is facilitated by the slit groove 15.

A protruding member 10' shown in FIG.4 is provided with a cavity 15' formed in the large diameter cylindrical portion 14 instead of the slit groove 15 of the large diameter cylindrical portion 14. Since the large diameter cylindrical portion 14 has a ring shape due to the cavity 15', the elastic deformation is facilitated. It should be noted that other structures are substantially the same as that of the example shown in FIG.3.

As shown in FIG.5, the small diameter cylindrical portion 12 of the protruding member 10 is press fitted into a circular aperture 9a provided in the overlapping portion 9 of the blade portion 3, and is prevented from being removed due to the flange 11 and the large diameter cylindrical portion 14. Since the protruding members 10 are elastically deformable, the fixed state of the protruding member 10 against the overlapping portion 9 is very reliable due to a tight contact by the press fitting. It should be noted that the protruding members 10 may be previously press fit to the overlapping portion 9, or may be press fit at the time of use.

In the movable blade 1 configured as mentioned above, as shown in FIG.2, the overlapping portion 4 is forcibly pressed against the overlapping portion 9 while both the fitting apertures 5 of the handle portion in the handle portion 2 are opposed to both the protruding members 10 of the overlapping portion 9 in the blade portion 3. Thereby, as shown in FIG.5, both the fitting apertures 5 are fitted to the large diameter cylindrical portions 14 of both the protruding members 10, and the overlapping portion 4 of the handle portion 2 and the overlapping portion 9 of the blade portion are tightly coupled.

Since the large diameter cylindrical portion 14 of the protruding member 10 is elastically deformable due to the slit groove 15, the fitting of the large diameter cylindrical portion 14 to the fitting aperture 5 is easy, and after the fitting, removal from the fitting aperture 5 is prevented by the elastic restoration of the large diameter cylindrical portion 14 and the flange 13.

As mentioned above, the movable blade 1, in which the handle portion 2 and the blade portion 3 are coupled, is pivotally coupled with the stable blade, in which a handle portion and a blade portion are coupled in a similar manner but not shown in the figures, by using the adjust screw 6 and the nut 8, and the assembly of the replaceable blade type scissors is completed. At this time, a cylindrical portion 6a of the adjust screw 6 is inserted into the circular apertures 7a and 7b of the movable blade 1, and a prismatic portion 6b is inserted into the square aperture of the stable blade.

According to the above-mentioned replaceable blade type scissors, a deflection between the handle portion 2 and the blade portion 3 is positively prevented since both of the fitting apertures 5 are tightly fitted to both the elastically deformable protruding members 10 at two separate positions. Additionally, since tolerances in the positions and dimensions of both the fitting apertures 5 and both the protruding portions 10 are absorbed by the elastic deformation of both the protruding members 10, machining accuracy of these parts is not necessarily increased so much.

It should be noted that the connection between the handle portion 2 and the blade portion 3 is possible by rendering the number of fitting apertures 5 and the protruding members 10 to be more than three or rendering the circular apertures 7a and 7b to be offset from both the fitting apertures 5 and both the protruding members 10. When pairs are formed by the fitting apertures 5 and protruding members 10, and when the circular apertures 7a and 7b are positioned between both the fitting apertures 15 and both the protruding members 10 as is in the present embodiment, the centers of these parts are aligned in a straight line, and thus the centering of the handle portion 2 and blade portion 3 becomes easy. When the centering is performed, accuracy of the pivot action of the movable blade 1 is increased, particularly in the present embodiment, by forming the circular aperture 7b of the blade portion 3 slightly smaller than the circular aperture 7a of the handle portion 2 as shown in FIG.5 and by achieving the pivot action of the movable blade 1 about the adjust screw 6 with respect to the circular aperture 7b, that is, the blade portion 3. Additionally, when pairs are formed by the fitting apertures 5 and the protruding members 10, respectively, and the circular apertures 7a and 7b are positioned in the center thereof, a force exerted on a portion between the handle portion 2 and the blade portion 3 is dispersed evenly to the fitting apertures 5 and the protruding members 10 positioned on either side with the circular apertures 7a and 7b as a center due to the pivot action of the movable blade 1, and this is preferable with respect to the dynamic balance.

When the blade portion 3 is replaced, since a new blade portion 3, to which both the protruding members 10 are fitted, is merely coupled to the handle 2 at portions of both the fitting apertures 5, the replacing operation is safe.

FIG.6 shows a movable blade 20 of a pair of replaceable blade type scissors according to a second embodiment. It should be noted that illustrations and descriptions of a stable blade are omitted for the same reason mentioned above.

In the movable blade 20, a handle portion 21 and a blade portion 22 are freely connectable and disconnectable, and an overlapping portion 23 of the handle portion 21 and an overlapping portion 27 of blade portion 22 are coupled to each other.

A groove portion 24 is formed in the overlapping portion 23 of the handle portion 21. A circular aperture 25 for the adjust screw is provided in the groove portion 24, and an engaging portion 26 having a generally circular and recessed shape is provided at an inner end of the groove portion 24.

A stepwise protruding portion 28 is integrally formed with the overlapping portion 27 of the blade portion 22 which is fitted into the above-mentioned groove portion 24. A width of the overlapping portion 27 is

smaller than a width of the groove portion 24, and a width of the protruding portion 28 is further smaller than the with of the overlapping portion 27. It should be noted that the reference numeral 25 indicates a circular aperture for the adjust screw, and 30 indicates a contact area.

As shown in FIG.7, the overlapping portion 27 and the protruding portion 28 are fitted into the groove portion 24; a generally S-shaped plate spring which is an elastic member, that is, an end portion 29a of a spring 29 is engaged within an engaging portion 26; a bent portion 29b of the spring 29 contacts one of the sides of the protruding portion 28 and an opposite end portion 29c contacts one of the sides of the groove portion 24. The other side of the protruding member 28 and the overlapping portion 27 is pressed against the other side of the groove portion 24.

As a result, a gap is formed between the one of the sides of the overlapping portion 27 and the one of the sides of the groove portion 24 but the other side of the overlapping portion 27 and the protruding portion 28 makes a surface contact with the other side of the groove portion 24, and deflection of the blade portion 22 with respect to the handle portion 21 is positively prevented. Since there is the gap on the one side but the other side becomes a reference for the positioning due to the pressing of the spring 29, there is no need to substantially increase machining accuracy of the widths of the overlapping portion 27 and the protruding portion 28 with respect to the groove portion 24.

It should be noted that since the protruding portion 28 has the stepwise shape and the end portion 29a of the spring 29 is engaged with the engaging portion 26 provided to the groove portion 24, the spring 29 can be surely and easily mounted in a predetermined position.

In an example shown in FIG.8, an engaging portion 26', to which the end portion 29a of the spring 29 is engaged, is provided to the protruding portion 28, and the bent potion 29b of the spring 29 contacts a side of the groove portion 24. In such an arrangement of the spring 29, pressing action similar to the above-mentioned arrangement can be achieved. It should be noted that other structures are substantially the same as that shown in FIGS.6 and 7.

INDUSTRIAL APPLICABILITY

As described above, according to the present invention, since the blade portion is very surely coupled to the handle portion without unsteadiness, sharpness can be maintained by replacing the blade portion, and a pair of replaceable blade type scissors can be provided which has a sufficient performance particularly for professional use by a hairdresser or beautician.

Additionally, according to the present invention, there is no need to increase machining accuracy for the overlapping portions of the handle portion and the blade portion when the handle portion and the blade portion are coupled without unsteadiness, manufacturing cost is greatly decreased, and cost reduction is attained for the pair of replaceable blade type scissors which is otherwise generally expensive.

Further, according to the present invention, since the replacing operation of the blade portion is very easy, anyone can surely and easily perform the replacing operation of the blade portion, and use is not limited to a hairdresser or beautician but is a replaceable blade type scissors for a wide range of users and purposes.

Claims

1. A pair of replaceable blade type scissors in which a handle portion (2) and a blade portion (3) are freely connectable and disconnectable, characterized in that a plurality of fitting apertures (5) are provided in one of overlapping portions (4) (9) of said handle portion (2) and said blade portion (3), a plurality of protruding members (10) are provided to the other overlapping portion (9), and the plurality of said fitting apertures (5) and the plurality of said protruding members (10) are fitted, respectively, so that said handle portion (2) and said blade portion (3) are coupled to each other.

2. The pair of replaceable blade type scissors as claimed in claim 1, characterized in that the scissors comprises a pair of said fitting apertures (5) and a pair of said protruding members (10), and further comprises shaft insertion apertures (7a) (7b) into which a pivot support shaft (6) of the scissors is inserted, at center positions between the pair of the fitting apertures (5) and the pair of protruding members (10).

3. The pair of replaceable blade type scissors as claimed in claim 1, characterized in that said protruding members (10) comprises a small diameter cylindrical portion (12) with a flange (11) and a large diameter cylindrical portion (14) with a flange (13), said small diameter cylindrical portion (12) being press fit into said the other overlapping portion (9), said large diameter cylindrical portion (14) being fitted in said fitting aperture (5).

4. The pair of replaceable blade type scissors as claimed in claim 3, characterized in that one of a diametral direction slit groove (15) and a recessed cavity (15') is provided to the large diameter cylindrical portion (14) of said protruding member (10).

5. A pair of replaceable blade type scissors in which a handle (21) and a blade portion (22) are freely connectable and disconnectable, characterized in that a groove portion (24) is provided to one of overlapping portions (23) (27) of said handle portion (21) and said blade portion (22), a protruding portion (28) is provided to the other overlapping portion (27) which is fitted in the groove portion (24), an

elastic member (29) is provided between one side of said protruding portion (28) and one side of said groove portion (24), and the other side of said protruding portion (28) and the other side of said the other overlapping portion (27) are pressed against the other side of said groove portion (24) so that said handle portion (21) and said blade portion (22) are coupled to each other.

6. The pair of replaceable blade type scissors as claimed in claim 5, characterized in that said protruding portion (28) has a stepwise shape, and an engaging portion (26), which is engaged with an end portion (29a) of said elastic member (29), is provided to one of said groove portion (24) and said protruding portion (28).

FIG. 1

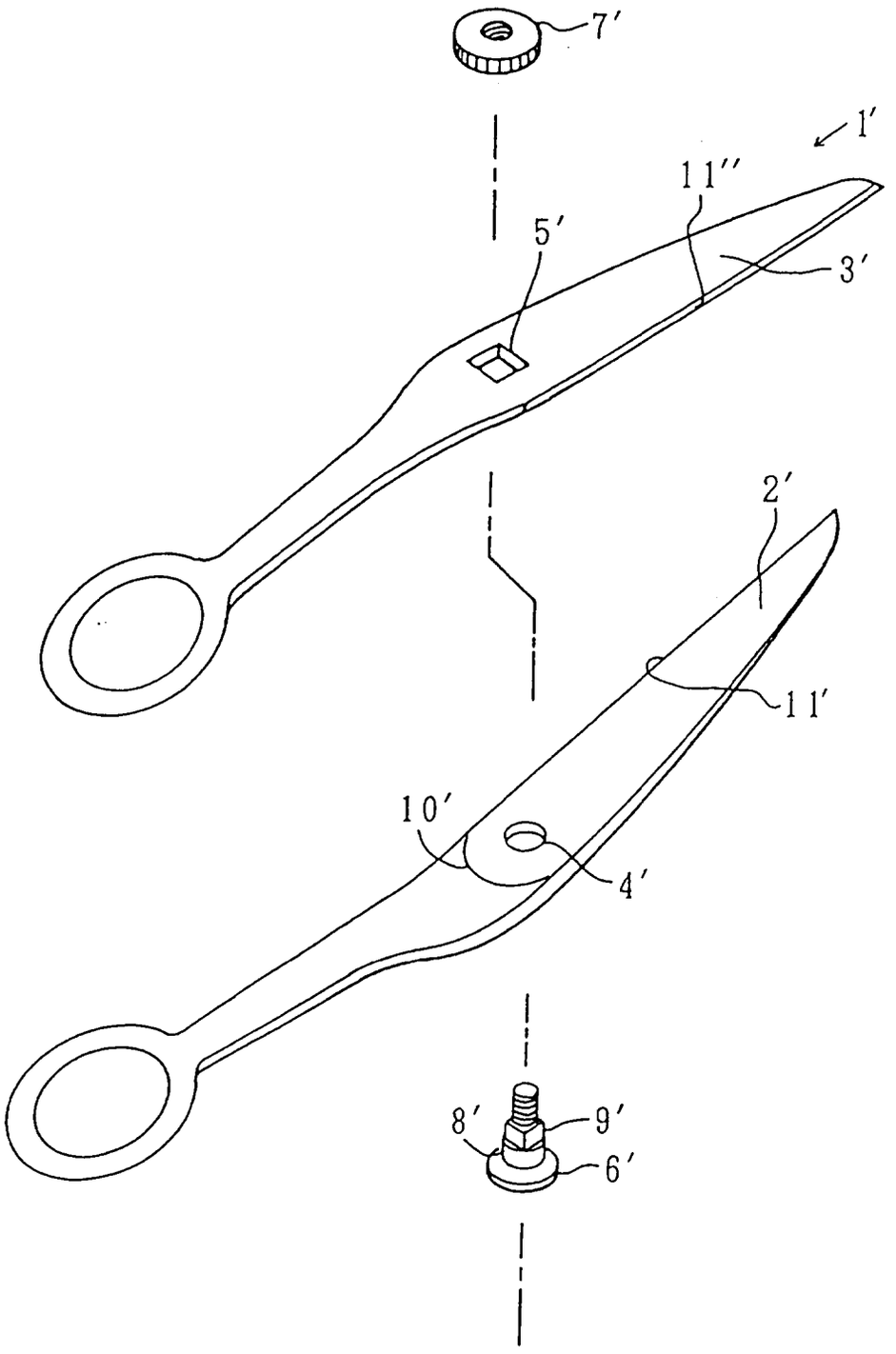


FIG. 2

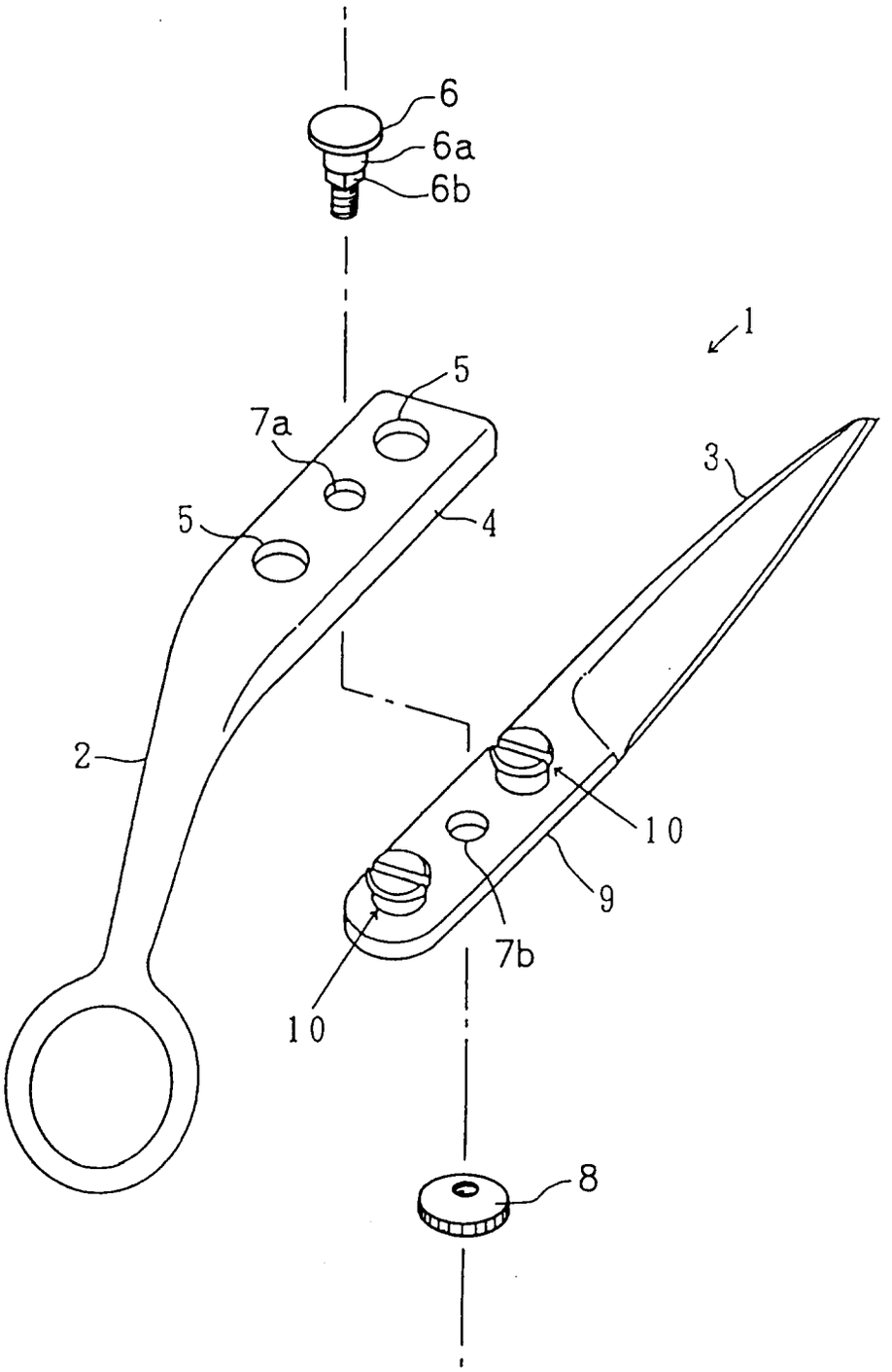


FIG. 3

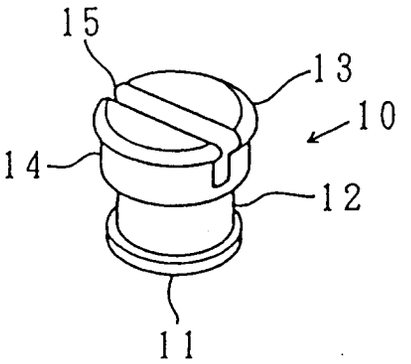


FIG. 4

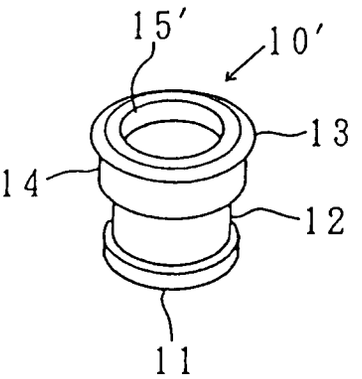


FIG. 5

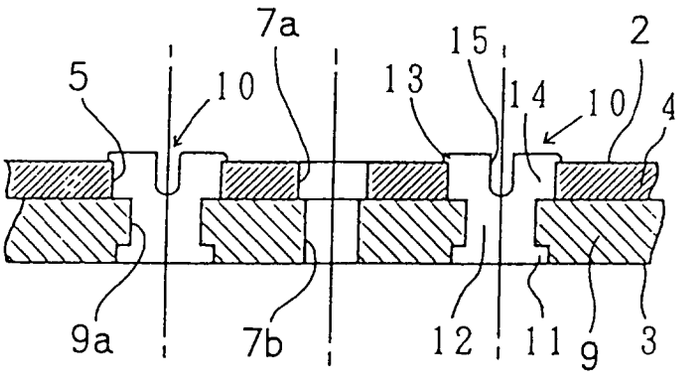


FIG. 6

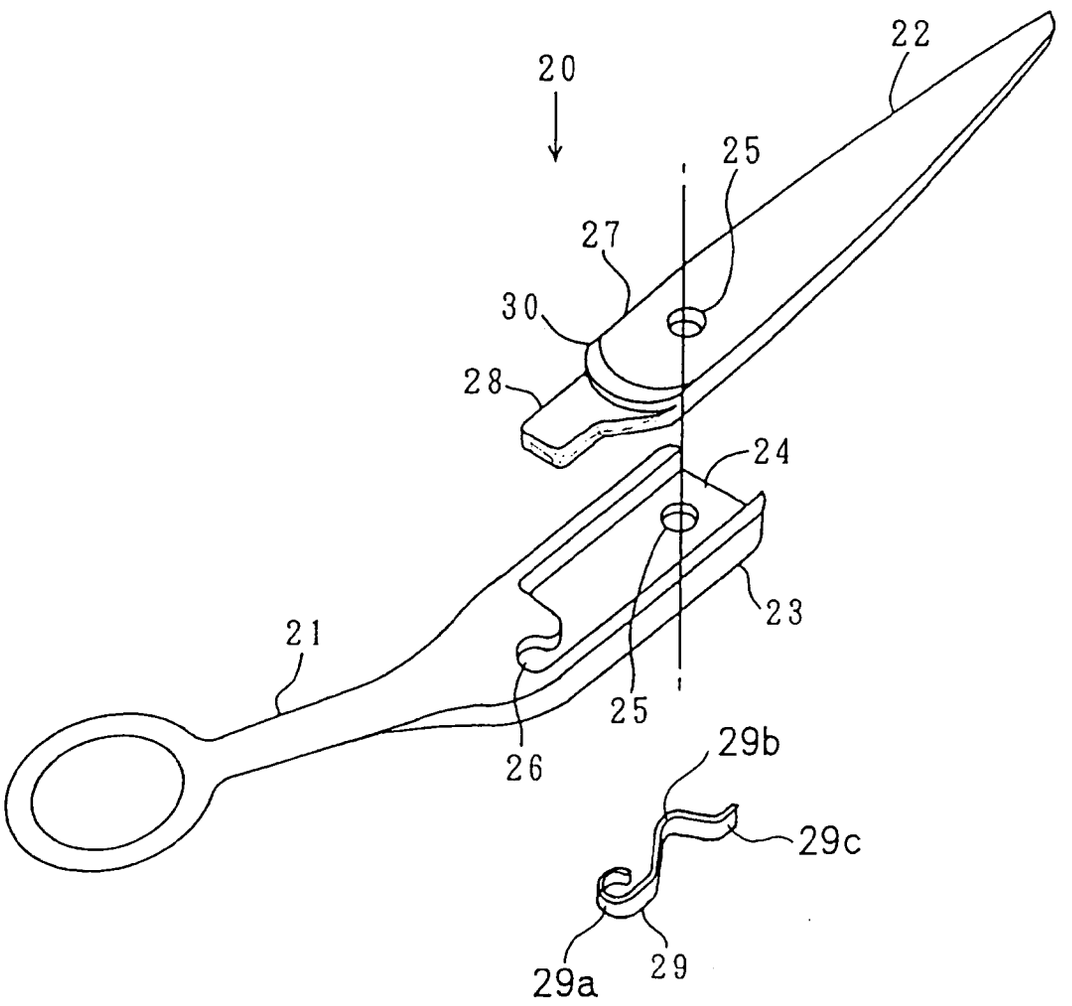


FIG. 7

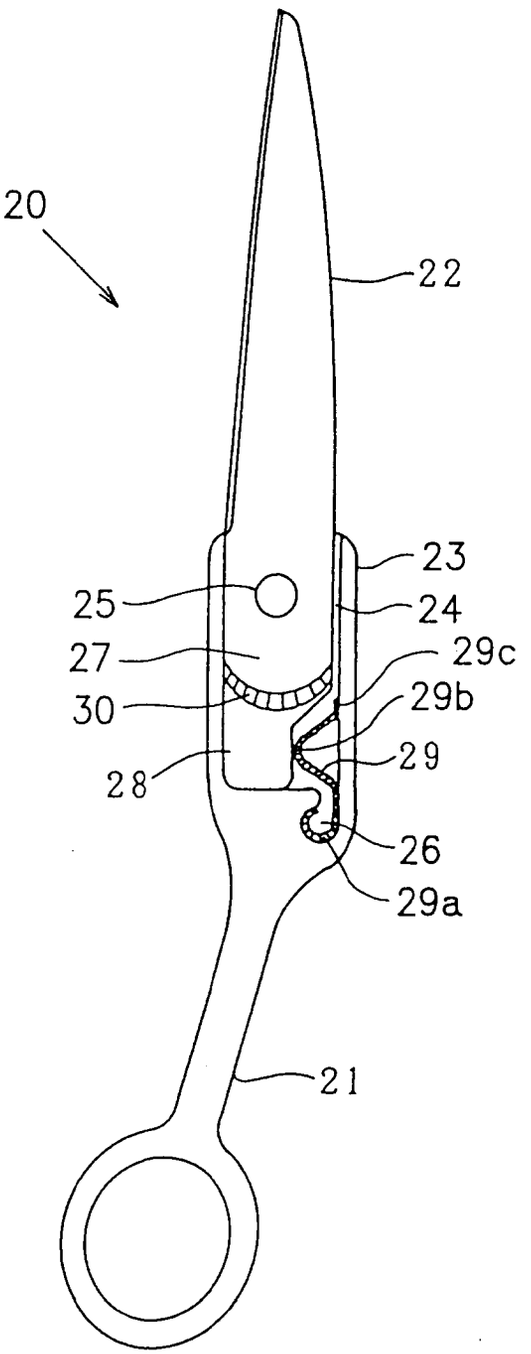
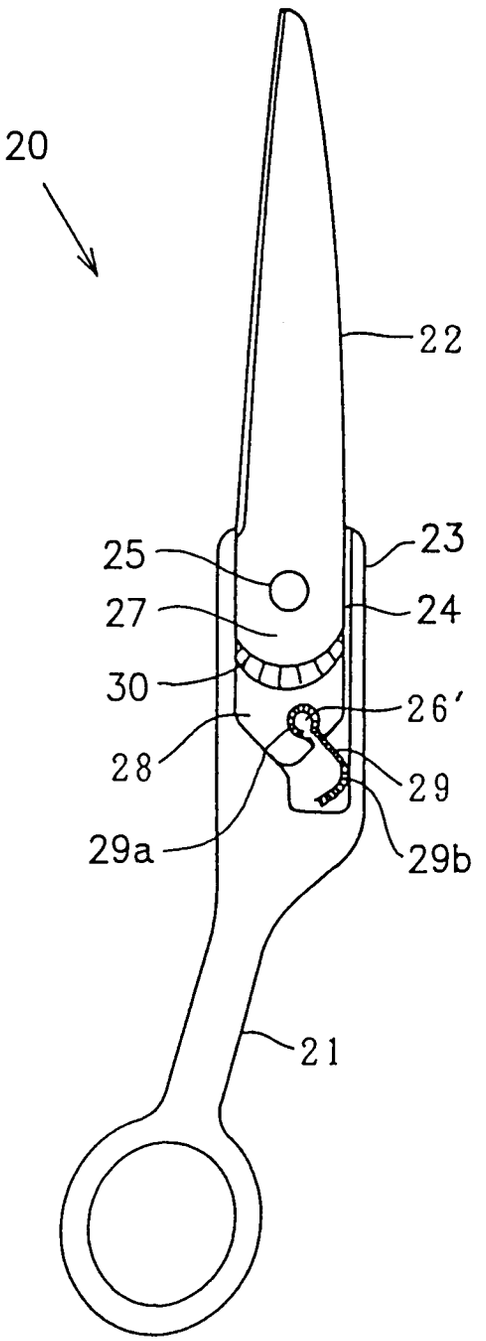


FIG. 8



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP96/00930

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl^6 B26B13/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl^6 B26B13/04, B26B13/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1926 - 1996
Kokai Jitsuyo Shinan Koho 1971 - 1996

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP, 56-106674, A (Wilkinson Sword Ltd.), August 25, 1981 (25. 08. 81), Figs. 1, 3, 6, 7 (Family: none)	1 - 4
PY	JP, 7-155480, A (Kanematsu Corp.), June 20, 1995 (20. 06. 95), Fig. 1 (Family: none)	1 - 4
Y	JP, 54-24196, U (Green Bell K.K.), February 16, 1972 (16. 02. 72), Claim, Fig. 2 (Family: none)	3
X ✓ Y	JP, 07-12071, U (Sangi K.K.), February 28, 1995 (28. 02. 95), Claim, Fig. 3 (Family: none)	5 6

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
May 13, 1996 (13. 05. 96)	May 21, 1996 (21. 05. 96)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

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