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(54) **Scissors**

Schere

Ciseaux

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Description

[0001] The present invention refers to a pair of scissors commonly used for cutting various types of materials and objects in general.

[0002] As is known, a pair of scissors comprises two levers pivoted to each other in an intermediate point. In this manner each lever defines a power arm and a resistance arm. The two power arms are shaped as opposite handles to be gripped in one hand of the user and the two resistance arms are shaped as opposed blades to make the cut.

[0003] The two levers of the scissors are pivoted to each other by means of a screw. The first lever has a threaded hole in an intermediate position and the second lever has a through hole. The threaded shank of the screw passes through the through hole of the second lever and engages in a screwing relationship in the threaded hole of the first lever. As a result, the second lever can rotate around the shank of the screw which remains integral with first lever.

[0004] Said type of conventional scissors has various drawbacks due to the screw closing system of the two levers.

[0005] In fact, the screwing of the screw cannot be controlled and does not ensure an adequate homogeneity of closing of the two levers. Consequently, during cutting the user cannot obtain a perfect synchronism of operation of the two levers, which results in a greater difficulty in cutting.

[0006] Furthermore, the prolonged use of the scissors causes a gradual unscrewing of the screw, which loosens the closure of the two levers. Consequently, the user must exert a greater force on the handles of the scissors during cutting, which results both in a greater cutting difficulty and in a further stripping of the thread of the screw and of the threaded hole of the lever of the scissors.

[0007] Furthermore, it must be considered that rust formation occurs along the thread of the screw and of the threaded hole of the lever, which causes a rapid wear on the screw and on the scissors, resulting in a short average life.

[0008] FR-A-2 605.545 describes a pair of scissors wherein a screw or solid rivet is provided for joining the two levers of the scissor. According to one embodiment, the solid rivet is in direct contact with holes provided into the levers, which therefore rotate around the rivet. According to another embodiment, at least a ceramic ring is interposed between the rivet and the holes of the levers in such a way that the rotation takes place between the rivet and the ring.

[0009] The object of the present invention is to overcome the drawbacks of the prior art by providing scissors that are efficient, effective, long-lasting, cheap and simple to produce.

[0010] This object is achieved in accordance with the invention with the characteristics listed in the appended independent claim 1.

[0011] Advantageous embodiments of the invention are apparent from the dependent claims.

[0012] The scissors according to the invention comprise two levers provided with respective coaxial holes in their central portions. A bush is rotatably mounted in the holes of the central portions of the levers, so that the levers can rotate around the bush and a rivet is coupled inside the bush to block the bush and prevent the axial movement of the central portions of the levers.

[0013] Such scissors according to the invention present various advantages with respect to scissors of the prior art.

[0014] The provision of the bush and of the rivet allows the pivoting screw, with all the drawbacks related thereto, to be eliminated.

[0015] The outside diameter of the bush is greater than the diameter of the pivoting screw, with the result of a greater contact and sliding surface during the rotation of the levers.

[0016] The riveting pressure of the rivet can be set in the riveting machine to obtain a constant and precise closure of the blades of the scissors during the rotation of the levers.

[0017] It must also be considered that the rivet has a central through hole that can be engaged by a support pin. In this manner the scissors according to the invention can be placed rapidly and safely in a case or in a counter display unit provided with suitable scissor support pins.

[0018] Further characteristics of the invention will be made clearer by the detailed description that follows, referring to a purely exemplary and therefore non-limiting embodiment thereof, illustrated in the appended drawings, in which:

- Figure 1 is a top plan view of a pair of scissors according to the invention;
- Figure 2 is an enlarged sectional view, partially broken off, taken along the section plane II-II of Figure 1; and
- Figure 3 is an exploded, sectional view illustrating the elements of Figure 2 before assembly.

[0019] The scissors according to the invention, denoted as a whole with reference numeral 1, are described with the aid of the figures.

[0020] The scissors 1 comprise a first lever 2 and a second lever 2', substantially identical. For ease of description, considering the scissors 1 of Figure 1 resting on the plane of the sheet, the first lever 2 and the second lever 2' will henceforth be called bottom lever 2 and top lever 2'.

[0021] Each lever (2, 2') comprises a central portion (20, 20'), a cutting portion (21, 21') and a gripping portion (22, 22'). The central portion (20, 20') has a greater thickness than the cutting portion (21, 21'). The cutting portion (21, 21') has the shape of a cutting blade and the gripping portion (22, 22') is shaped so as to be able to be gripped easily by the user. For example, an open or closed ring

able to allow a user's finger to be inserted therein can be provided at the end of the handle portion (22, 22').

[0022] As shown in Figure 3, two through holes (25, 25') having the same diameter are provided in the central portions (20, 20') of each lever. The central part 20' of the top lever 2' is disposed on the central part 20 of the bottom lever 2 so that the two holes (25, 25') are disposed coaxially in register.

[0023] A bush 3 is disposed inside the two holes (25, 25'), in a rotating coupling relationship, so that the two levers (2, 2') can rotate with respect to the bush 3. The bush 3 is shaped as a cylinder hollow on the inside and having an axial through hole 30. The thickness of the bush 3 is extremely small and can vary in the range of 0.5 mm to 4 mm, preferably about 1 mm.

[0024] The outside diameter of the bush 3 is equal to or slightly smaller than the outside diameter of the holes (25, 25') in the central parts of the levers, so as to ensure an adequate surface contact of the outer surface of the bush 3 with the inner surface of the central parts (20, 20') around the holes (25, 25') during the rotation of the levers. For this purpose both the outer surface of the bush 3 and the inner surfaces of the central parts (20, 20') of the levers which define the holes (25, 25') must be suitably smooth and must have a low coefficient of friction related to the reciprocal sliding.

[0025] Since the levers (2, 2') of the scissors are generally made of steel for scissors to have a low coefficient of friction, the bush 3 can made of light alloy materials, such as aluminium and brass, and/or of composite materials such as Nylon and Teflon.

[0026] The outside diameter of the bush 3 must be large enough to ensure the largest possible contact surface in the rotating coupling between the levers 2 and the bush 3. For this purpose, the bush 3 can preferably have an outside diameter greater than 2 mm, preferably 6 mm.

[0027] The height of the bush 3 is equal to the sum of the thicknesses of the central parts (20, 20') of the levers. In this manner, as shown in Figure 2, the end edges of the bush 3 are level with the outer surfaces of the central parts (20, 20') of the levers.

[0028] A rivet 4 shaped as a cylinder, hollow on the inside and having an axial through hole 40, is inserted into the hole 30 in the bush 3. The rivet 4 has an outside diameter equal to or slightly smaller than the inside diameter of the bush 3.

[0029] The height of the rivet 4 is greater than the height of the bush 3. The rivet has an edge, for example the top edge 41', folded outwards so as to form a collar with a larger diameter than the inside diameter of the bush 2.

[0030] In this manner, when the rivet 4 is disposed in the bush 3, the top edge 41' of the rivet abuts against the bush 3 and the surface of the central part 20' of the top lever 2' and the bottom edge 41 of the rivet protrudes downward from the bush 3.

[0031] A washer 5 having a hole 50 with a slightly larger diameter than the outside diameter of the rivet 4 is also provided. The washer 5 is disposed beneath the central part 20 of the bottom lever 2 around the bottom edge 41 of the rivet. The washer 5 can be made in a single body with the bush 3. In this case the washer 5 forms a collar that protrudes radially outward from the bottom edge of the bush 3.

[0032] At this point the scissors 1 are disposed in a riveting machine for riveting of the bottom edge 41 of the rivet 4. The riveting machine has a special tool which is inserted in the hole 40 of the rivet. This tool, with an eccentric rotation, expands the material of the rivet 4 from the inside outwards.

[0033] As a result, the bottom edge 41 of the rivet 4 is bent outwards, disposing itself on the washer 5. In this manner the central part 20' of the top lever 2', the central part 20 of the bottom lever 2 and the washer 5 are sandwiched between the top collar 41' of the rivet and the folded bottom edge 41 of the rivet. In this manner the bush 3 is locked integrally to the rivet 4 and axial movement of the two central portions 20, 20' of the levers with respect to the rivet 4 is prevented, allowing rotation thereof with respect to the bush 3.

[0034] The riveting pressure is set in the riveting machine so as to have a constant closing precision of the blades (21, 21') during the rotation of the two levers (2, 2').

[0035] Even if not shown in the figures, two cuts can be provided in the edges (41, 41') of the rivet to facilitate outward bending thereof.

[0036] The rivet 4 is preferably made of metal material such as steel or light alloys and has a slightly greater thickness than the thickness of the bush 3.

[0037] Numerous variations and modifications of detail within the scope of a person skilled in the art can be made to the present embodiment of the invention without departing from the scope of the invention, as set forth in the appended claims.

Claims

1. Scissors (1) comprising a bottom lever (2) and a top lever (2') provided with respective coaxial holes (25, 25') in their central portions (20, 20'),

- a bush (3), mounted inside said holes (25, 25') in the central portions (20, 20') of the levers, and
- a rivet (4), inserted inside said bush (3),

characterized in that a washer (5) is disposed around said rivet (4) beneath the central part (20) of the bottom lever (2) and **in that** said rivet (4) is shaped as an internally hollow cylinder comprising a top collar (41') with a greater diameter than the inside diameter of the bush (3) so as to abut against the bush (3) and the surface of the central part (20') of the top lever (2') and a bottom edge (41) folded outwards on said washer (5) so as to block the bush

(3) and to prevent the axial movement of the central portions (20, 20') of the levers allowing rotation thereof around said bush (3).

2. Scissors (1) according to claim 1, **characterised in that** the outer surface of said bush (3) is smooth and is made of a material having a low coefficient of friction with respect to the material of the inner surfaces of the central portions (20, 20') of the levers that define the holes (25, 25').

3. Scissors (1) according to any one of the preceding claims, **characterised in that** said bush (3) is made of light alloy materials, such as aluminium and brass, and/or of composite materials such as Nylon and Teflon.

4. Scissors (1) according to any one of the preceding claims, **characterised in that** said bush (3) has an outside diameter greater than 2 mm.

5. Scissors (1) according to any one of the preceding claims, **characterised in that** said bush (3) has a thickness between 0.5 and 4 mm.

6. Scissors (1) according to any one of the preceding claims, **characterised in that** at least one of the end edges (41, 41') of said rivet (4) has cuts.

7. Scissors (1) according to any one of the preceding claims, **characterised in that** said rivet (4) is made of steel or of light alloys.

8. Scissors (1) according to any one of the preceding claims, **characterised in that** said bottom edge (41) of said rivet (4) is riveted with a controlled pressure to obtain a constant closing precision of the blades of the scissors.

9. Scissors (1) according to claim 1, **characterised in that** said washer (5) is made in a single piece with said bush (3).

Patentansprüche

1. Schere (1), umfassend einen unteren Hebel (2) und einen oberen Hebel (2'), welche mit jeweiligen koaxialen Löchern (25, 25') in ihren mittleren Abschnitten (20, 20') versehen sind,

- eine Buchse (3) welche innerhalb der Löcher (25, 25') in den mittleren Abschnitten (20, 20') der Hebel befestigt ist, und
- einen Niet (4), welcher in die Buchse (3) eingefügt ist,

dadurch gekennzeichnet, dass eine Ringscheibe (5) rund um den Niet (4) unterhalb des mittleren Teils (20) des unteren Hebels (2) angebracht ist, und **dadurch**, dass der Niet (4) als ein im Inneren hohler Zylinder ausgeformt ist, welcher einen oberen Bund (41') mit einem Durchmesser, der größer ist als der Innendurchmesser der Buchse (3), umfasst, sodass er gegen die Buchse (3) und die Fläche des mittleren Teiles (20') des oberen Hebels (2') stößt, und einen unteren Rand (41) welcher an der Ringscheibe (5) nach außen gebogen ist, sodass er die Buchse (3) festmacht und das axiale Bewegen der mittleren Teile (20, 20') der Hebel verhindert, wobei er Drehbewegen derselben rund um die Buchse (3) zulässt.

2. Schere (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die äußere Fläche der Buchse (3) glatt ist und aus einem Material hergestellt ist, welches einen niedrigen Reibungskoeffizienten aufweist, bezogen auf das Material der inneren Flächen der mittleren Abschnitte (20, 20') der Hebel, welche die Löcher (25, 25') definieren.

3. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Buchse (3) aus Leichtmetallwerkstoffen, wie etwa Aluminium und Messing, hergestellt ist, und/oder aus Verbundmaterialien, wie etwa Nylon und Teflon.

4. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Buchse (3) einen Außendurchmesser aufweist, welcher größer als 2 mm ist.

5. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Buchse (3) eine Dicke zwischen 0,5 und 4 mm aufweist.

6. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** wenigstens einer der Endränder (41, 41') des Niets (4) Schnitte aufweist.

7. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Niet (4) aus Stahl oder Leichtmetall hergestellt ist.

8. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der untere Rand (41) des Niets (4) mit einem kontrollierten Druck genietet ist, um eine konstante Schließpräzision der Klingen der Schere zu erhalten.

9. Schere (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Ringscheibe (5) in einem Stück mit der Buchse (3) hergestellt ist.

Revendications

1. Ciseaux (1) comprenant un levier inférieur (2) et un levier supérieur (2') présentant des orifices coaxiaux respectifs (25, 25') dans leurs portions centrales (20, 20'),

- une bague (3) installée à l'intérieur desdits orifices (25, 25') dans les portions centrales (20, 20') des leviers, et
- un rivet (4) inséré dans ladite bague (3),

caractérisés par une rondelle (5) disposée autour dudit rivet (4), en-dessous de la partie centrale (20) du levier inférieur (2), et en ce que ledit rivet (4) est formé comme un cylindre creux à l'intérieur, comprenant une embase supérieure (41') possédant un diamètre supérieur au diamètre intérieur de la bague (3), de façon à buter contre la bague (3) et la surface de la partie centrale (20') du levier supérieur (2'), un bord inférieur (41) étant plié vers l'extérieur par-dessus ladite rondelle (5) de façon à bloquer la bague (3) et à empêcher le mouvement axial des portions centrales (20, 20') des levier, tout en leur permettant d'effectuer une rotation autour de ladite bague (3).

2. Ciseaux (1) selon la revendication 1, **caractérisés en ce que** la surface extérieure de ladite bague (3) est lisse et constituée d'un matériau présentant un faible coefficient de friction par rapport au matériau des surfaces intérieures des portions centrales (20, 20') des leviers, qui définissent les orifices (25, 25').

3. Ciseaux (1) selon l'une quelconque des précédentes revendications, **caractérisés en ce que** ladite bague (3) est constituée d'un alliage léger, tel que l'aluminium et le laiton, et/ou de matériaux composites tels que le nylon et le téflon.

4. Ciseaux (1) selon l'une quelconque des précédentes revendications, **caractérisés en ce que** ladite bague (3) possède un diamètre extérieur supérieur à 2 mm.

5. Ciseaux (1) selon l'une quelconque des précédentes revendications, **caractérisés en ce que** ladite bague (3) possède une épaisseur située entre 0,5 et 0,4 mm.

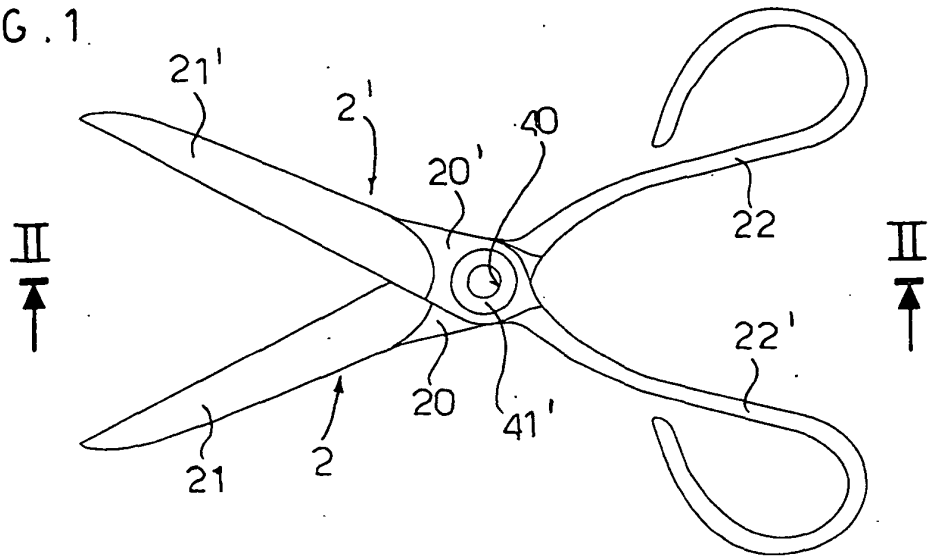
6. Ciseaux (1) selon l'une quelconque des précédentes revendications, **caractérisés en ce qu'**au moins l'un des bords (41, 41') à l'extrémité dudit rivet (4) possède des fentes.

7. Ciseaux (1) selon l'une quelconque des précédentes revendications, **caractérisés en ce que** ledit rivet (4) est constitué d'acier ou d'alliages légers.

8. Ciseaux (1) selon l'une quelconque des précédentes revendications, **caractérisés en ce que** ledit bord inférieur (41) dudit rivet (4) est riveté sous contrôle de la pression, afin d'obtenir une précision de fermeture constante des lames de ciseaux.

9. Ciseaux (1) selon la revendication 1, **caractérisés en ce que** ladite rondelle (5) forme une seule pièce avec ladite bague (3).

FIG. 1



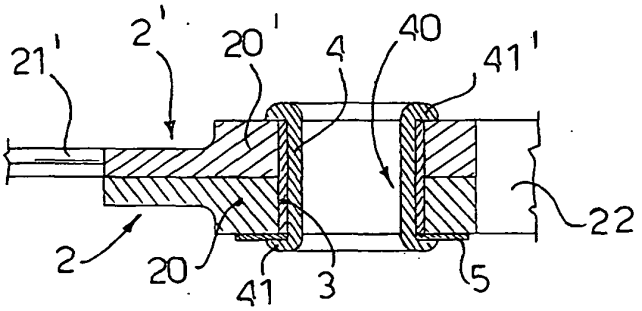
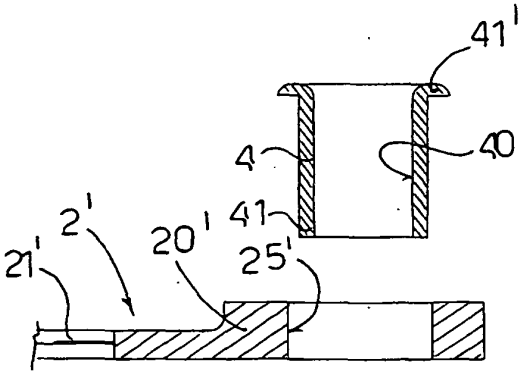


FIG. 2



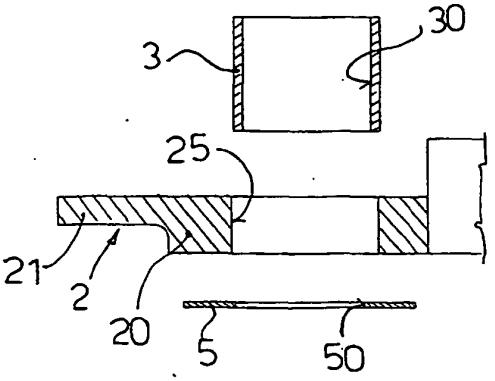


FIG. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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