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(54) **Connector closing and reopening device for hair extensions**

(57) The description outlines a connector closing and reopening device for extensions and relative system of use of the type substantially comprising an instrument composed of two jaws (2 and 20) joined by means of a hinge (5) in which there is a first flat portion and a second saddle portion present. The device is devised to operate, moving from a resting condition in which it is inactive, is not used, to a first operative condition, in which a con-

connector (10) is inserted into the flat portion of the instrument and flattened following pressing action, performed by a user, exerted on the instrument's handgrip, and to a second operative condition in which the connector (10), after being positioned in a specific seat (11) present in the saddle portion of the instrument, is brought back to the initial configuration, causing the said connector to spread open in a controlled manner, once again, following a pressing action performed by the user.

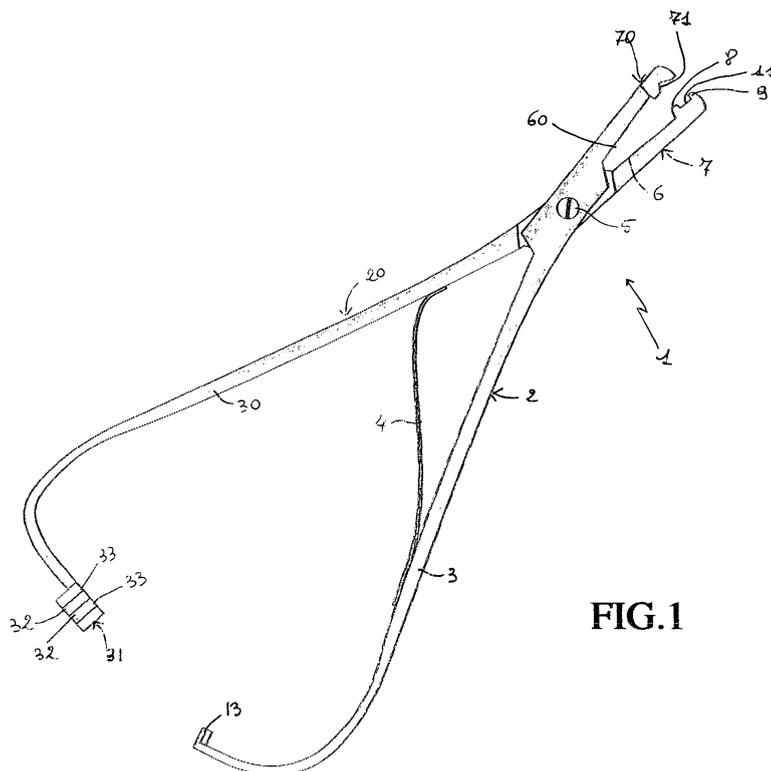


FIG. 1

Description

[0001] This invention relates to a connector closing and reopening device for extensions and relative system of use, particularly suitable for applying and removing hair extensions, the said extensions being utilised to increase the amount of the user's hair or its length.

[0002] As it is known, at present, it is fashionable to change one's appearance for a short period of time or simply for a particular occasion, an evening, etc. and this also applies to hair. As a matter of fact, apart from the possibility of changing hair colour for a limited amount of time, such as an evening, there are currently hair lengthening systems available on the market which allow short-haired users to have long hair in just a few hours or allow users to change their appearance by changing their hairstyle with hair extensions, which lengthen and modify the user's natural hair.

[0003] In fact, hair extensions are a natural way of acquiring longer hair, of the desired length, requiring only a single session for their application.

[0004] There are substantially two types of the said lengthening systems: hot systems and cold systems.

[0005] The first system is the traditional system, in which the extension is joined to the natural hair by means of a "knot" of glue melted by means of a source of heat.

[0006] Although the hot system outlined previously works extremely well, it has revealed a plurality of drawbacks.

[0007] A first drawback stems from the fact that, during the application stages, the person who applies the extensions gets their fingers dirty using substances containing glue and, similarly, the hair gets dirty and is often left sticky and consequently necessitates the use of solvents to remove the gluey residues, with the result that both the hair in the extensions and the natural hair are damaged.

[0008] A further drawback encountered emerged from the fact that the strands used to create the extensions can no longer be reused once they have been removed as they are ruined and scatter during the removal stages.

[0009] Furthermore, the hot system requires an initial investment for the equipment which produces the source of heat, in addition to the fact that the said equipment must be used by a skilled person to prevent risking ruining the hair of the person to whom the extensions are applied.

[0010] The second system mentioned is a cold system, in which the natural hair is inserted into a connector to which a second element is fixed, into which, in turn, the additional hair of the extension is engaged.

[0011] The system just outlined has revealed drawbacks, such as the complexity of the two elements or reciprocal joints which are not always practical and easy to use, but above all difficulty in removing and separating the said elements from each other, with the risk of tearing out the natural hair and damaging the hair in the extensions.

[0012] At present, a further cold system envisages the

presence of a connector constituted substantially of a small pipe into which a thin strand of natural hair is slid, by means of a small hook. Once the hair is inserted, the connector is slid along the hair until it reaches approximately one centimetre from the user's scalp and the extension, whose hair is bound together with keratin wax, is inserted. At this point, the connector must be closed by pressing it together by means of tweezers so that the natural hair and the hair in the extension is bound together and cannot slide out of the connector.

[0013] The removal of this type of extension is enabled by using a special instrument which consist of tweezers with a couple of convergent, symmetrical tips with a substantially semicircular configuration so that one tip can enter one end of the connector and the other tip the other end. Once the tips have entered, a certain amount of pressure must be applied to force open the edges and spread open the connector so that both the extension and the natural hair can be slid out.

[0014] Although the system just outlined has proved to be much more practical than the existing systems, as it does not dirty anything, does not require particular equipment, as was the case for the hot systems, and does not have complicated coupling elements that are difficult to make use of, as in the cold systems mentioned previously, it does present some drawbacks.

[0015] A first drawback stems from the fact that, in addition to the small hook, a further two different instruments are necessary to close and to reopen the connector.

[0016] In particular, as regards the second instrument, the one used to reopen the connectors, it has been found that, very often, the double tips crop off the end of the extension, compromising its reuse.

[0017] A further drawback stems from the fact that the natural hair of the person to whom the extensions are applied often breaks during the connector reopening stage.

[0018] A still further drawback which emerges stems from the fact that the users of the instrument for reopening risks pricking themselves with the tips if they should happen to loose their grip on the connector, a rather probable situation since the person with the extensions may move during the various stages required to detach the said extensions. In addition, the person with the extensions might also be slightly injured by the tips of the connector reopening instrument.

[0019] A further but not final drawback is the presence of two separate instruments necessary for carrying out the two connector closing and reopening operations for the removal of the extensions, with consequent equipping costs and hindrances.

[0020] The aim of this invention is substantially to solve the problems of the commonly known technique by overcoming the difficulties outlined above by means of a connector closing and reopening device for extensions able to permit the connectors used to apply the hair extensions to be closed and reopened with a single instrument.

[0021] A second aim of this invention is to make avail-

able a connector closing and reopening device for extensions able to prevent both the hair of the person using the extensions and that of the extensions being cut off.

[0022] A further aim of this invention is to have a connector closing and reopening device for extensions able to be used perfectly with any connector of any type and form and with any diameter without losing its solidity and practicality.

[0023] A further aim of this invention is to have a connector closing and reopening device for extensions which enables the user to close the connectors quickly and easily and reopen them without damaging them so that they can be reused.

[0024] A further aim of this invention stems from the fact that the connector closing and reopening device for extensions has limited production costs.

[0025] A further but not final aim of this invention is to make available a connector closing and reopening device for extensions which is simple to produce and works well.

[0026] These and further aims, which will better emerge in the course of this description, are substantially achieved by a connector closing and reopening device for extensions and relative system of use compliant with the claims that follow.

[0027] Further characteristics and advantages will better emerge from the detailed description that follows of a connector closing and reopening device for extensions and relative system of use, according to this invention, provided in the form of a non-limiting example, with reference to the accompanying drawings, in which:

- figure 1 shows a schematic view, in perspective, of a connector closing and reopening device for extensions as per this invention;
- figure 2 shows a particular of the connector closing and reopening device for extensions in figure 1;
- figure 3 shows a schematic view of a particular of the device in question in the operative condition;
- figure 4 shows the device in figure 1 in the stages of use.

[0028] With reference to the said figures, and in particular to figure 1, 1 refers to the connector closing and reopening device for extensions and relative system of use, according to this invention, as a whole.

[0029] The connector closing and reopening device for extensions 1 is substantially constituted of an instrument composed of two jaws joined with a hinge in which there is a first flat portion and a second saddle portion present.

[0030] In particular, the first jaw 20 comprises a handgrip 30, of a substantially known type, endowed, at its free end, with a portion 31 having a plurality of projections 32 and grooves 33 whose function will be outlined in detail below.

[0031] The first jaw 20 has, on the side opposite the hinge 5, a first flat section 6 (the first portion), designed to clasp and flatten a connector 10 resting on the said flat section, and a second section 7 (the second portion),

positioned at the free end of the jaw 2, having a first couple of lugs 8 and a second couple of lugs 9, arranged mutually parallel, as shown clearly in figure 2.

[0032] In more detail, between the two couples 8 and 9 of lugs there is a seat 11 present, arranged to house the flattened connector 10 which has to be reopened. In addition, orthogonally to the seat 11, the second section 7 is endowed with channelling 12 which separates the lugs in each couple.

[0033] Similarly, the second jaw 2 has a handgrip 3, also of a substantially known type, fitted with a resisting element 4 designed to exert a thrusting action against the corresponding handgrip 30 present on the first jaw 20.

[0034] According to this embodiment, the handgrip 3 has, at the free end, a small tooth 13.

[0035] In particular, each groove 33 is envisaged to house and engage the small tooth 13 on the second handgrip 3 depending on the force the user has to exert to either close a connector or reopen it.

[0036] In this embodiment, the second jaw 2 also has, on the side opposite the hinge 5, a first flat section 60 (the first portion), designed to come into contact with the corresponding first section 6 to clasp and flatten the connector 10, and a second section 70, positioned at the free end of the jaw 2 (the second portion), having an element 71 designed to enter the channelling 12 of the second section 7.

[0037] In more detail, the element 71 has a saddle configuration designed to house a flattened connector for its reopening, as shown in figures 3 and 4.

[0038] In addition to the description above, the element 71 can have an arched or rectangular or V-shaped saddle configuration, all of said forms being designed to constrain the connector to be reopened.

[0039] In agreement with this invention, in a different embodiment, the first sections 6 and 60 may be excluded from the device if one wishes to produce solely a connector reopening device and use the closing devices presently available in the market.

[0040] In this embodiment, the device 1 is produced in metal, in particular steel, which confers it considerable resistance to wear and allows the possibility of sterilisation given the type of use, but it could also be produced in any further materials, no matter which, as long as they are sufficiently resistant, or even, at an extremely reasonable cost, in a disposable form.

[0041] The device 1 in question is devised to operate, moving from a resting condition, in which it is inactive, is not used, to a first operative condition, in which a connector is inserted into the flat part of the instrument and flattened following pressing action, performed by a user, exerted on the instrument's handgrip, and to a second operative condition in which the connector, after being positioned in a specific seat present in the saddle portion of the instrument, is brought back to the initial configuration, causing the said connector to spread open in a controlled manner, once again, following a pressing action performed by the user.

[0042] After the predominantly structural description above, the operation of the invention in question will now be outlined.

[0043] When a user wishes to apply extensions to their own hair to lengthen it or thicken it, creating a new hairstyle, all they have to do is take a connector and, by means of a special small hook, slide a strand of hair into the connector. At this point, they must simply slide the connector down the hair until it is near the roots and insert the hair extension into the connector, ensuring the end of the extension protrudes slightly from the side facing towards the roots of the hair, and fasten the extension by pressing the connector with the flat portion composed of the sections 6 and 60 of the device 1 in order to flatten it.

[0044] When, later, the user wishes to remove the extension, they must simply reopen the connector and slide the extension and the hair out of the said connector.

[0045] To reopen the connector, simply position the flattened connector in the special seat 11 present in the saddle portion of the device and, exerting a pressing action on the handgrip present on the device, spread open the connector and bring it back into the substantially cylindrical configuration.

[0046] In this way, the invention in question achieves the aims set.

[0047] In fact, the device in question is able to enable a simple and quick application of extensions, with a cold method, without ruining the hair either by the heat or through the use of glues, as happened in the commonly known technique.

[0048] What's more, the device according to this invention allows the user to both close and reopen the connectors with a single instrument in an extremely simple and safe way. In addition to the above, the extensions can be reused without requiring replacement, a practically impossible situation with the systems presently in use.

[0049] Advantageously, with the device in question the difficulty of having to fit the convergent tips of the tweezers into the edges of the connector no longer exists.

[0050] Furthermore, with the device in question the person who applies the extensions does not risk pricking themselves and hurting their fingers during the reopening of the connectors, as happened often in the use of the convergent-tipped tweezers.

[0051] In addition, with the device according to this invention, breakage of the connectors no longer occurs, likewise there is no splitting of the hair of the person to whom the extensions are applied or ruining of the hair in the extension.

[0052] What is more, the device according to this invention allows the use of connectors of various types and with various dimensions.

[0053] In addition to the above, the closing and reopening device of the connectors has proved extremely versatile and easy to use, even for someone who is not particularly skilled.

[0054] A further advantage of this device stems from

the fact that it has limited production costs.

[0055] A further but not final advantage of this invention is that it has proved remarkably easy to use, simple to produce and works well.

5 **[0056]** Naturally, variants and modifications can be applied to this device while still remaining within the scope of the invention as claimed herein.

10 Claims

1. A connector closing and reopening device for extensions and relative system of use **characterised by** the fact that the said connector substantially comprises a instrument composed of two jaws (2 and 20) joined by means of a hinge (5), containing a first flat portion and a second saddle portion, said device being devised to operate, moving from a resting condition in which it is inactive, is not used, to a first operative condition, in which a connector (10) is inserted into the flat portion of the instrument and flattened following pressing action, performed by a user, exerted on the instrument's handgrip, and to a second operative condition in which the connector (10), after being positioned in a specific seat (11) present in the saddle portion of the instrument, is brought back to the initial configuration, causing the said connector to spread open in a controlled manner, once again, following a pressing action performed by the user.
2. A connector closing and reopening device for extensions according to claim 1, **characterised by** the fact that the said first jaw (20) comprises a handgrip (30) endowed, at the free end, with a portion (31) having a plurality of projections (32) and grooves (33).
3. A connector closing and reopening device for extensions according to claim 1, **characterised by** the fact that the said first jaw (20) has, on the side opposite the hinge (5), a first flat section (6) (the said first portion), designed to clasp and flatten the said connector (10), resting on the said section and a second section (7) (the second portion), positioned at the free end of the jaw (2), having a first couple of lugs (8) and a second couple of lugs (9) arranged mutually parallel.
4. A connector closing and reopening device for extensions according to claim 3, **characterised by** the fact that between the two couples (8 and 9) of lugs there is a seat (11) present arranged to house the flattened connector (10) which has to be reopened.
5. A connector closing and reopening device for extensions according to claim 4, **characterised by** the fact that, orthogonally to the seat (11), the second

section (7) is endowed with a channelling (12) which separates the lugs in each couple.

6. A connector closing and reopening device for extensions according to claim 1, **characterised by** the fact that the said second jaw (2) also presents, on the side opposite the hinge (5), a first flat section (60) (the first portion), designed to come into contact with the corresponding first section (6) to clasp and flatten the connector (10), and a second section (70), positioned at the free end of the jaw (20) (the second portion), having an element (71) designed to enter the channelling (12) on the second section (7). 5
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7. A connector closing and reopening device for extensions according to claim 6, **characterised by** the fact that the said element (71) has a saddle configuration arranged to house a flattened connector for its reopening. 15
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8. A connector closing and reopening device for extensions according to claim 6, **characterised by** the fact that the said element (71) has an arched or rectangular or V-shaped "saddle" configuration, all of said forms being designed to constrain the connector to be reopened. 25
9. A connector closing and reopening device for extensions according to claim 1, **characterised by** the fact that the said second jaw (2) has a handgrip (3) endowed with a resisting element (4) designed to exert a thrusting action against the corresponding handgrip 30 present on the first jaw (20) and fitted, at the free end, with a small tooth (13). 30
35
10. A connector closing and reopening device for extensions according to claim 2, **characterised by** the fact that each groove (33) on the first jaw (20) is envisaged to house and engage the small tooth (13) on the second handgrip (3) depending on the force that a user has to exert to close a connector or to reopen it. 40
11. A connector closing and reopening device for extensions according to claim 1, **characterised by** the fact that it has solely the said saddle portion. 45
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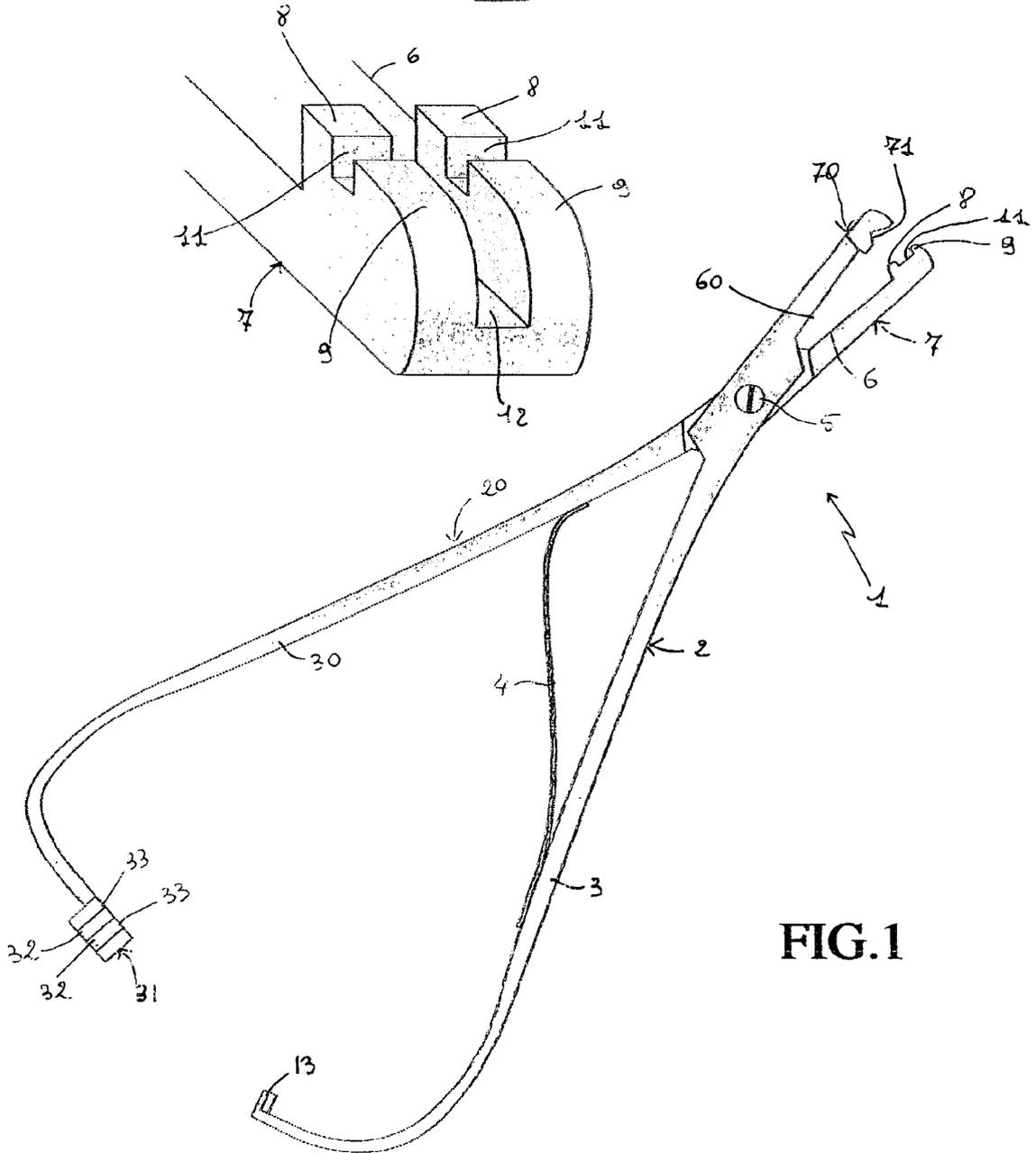
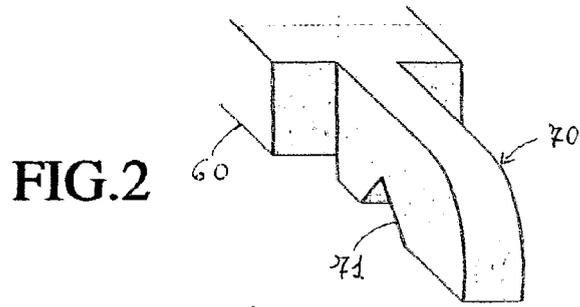


FIG.1

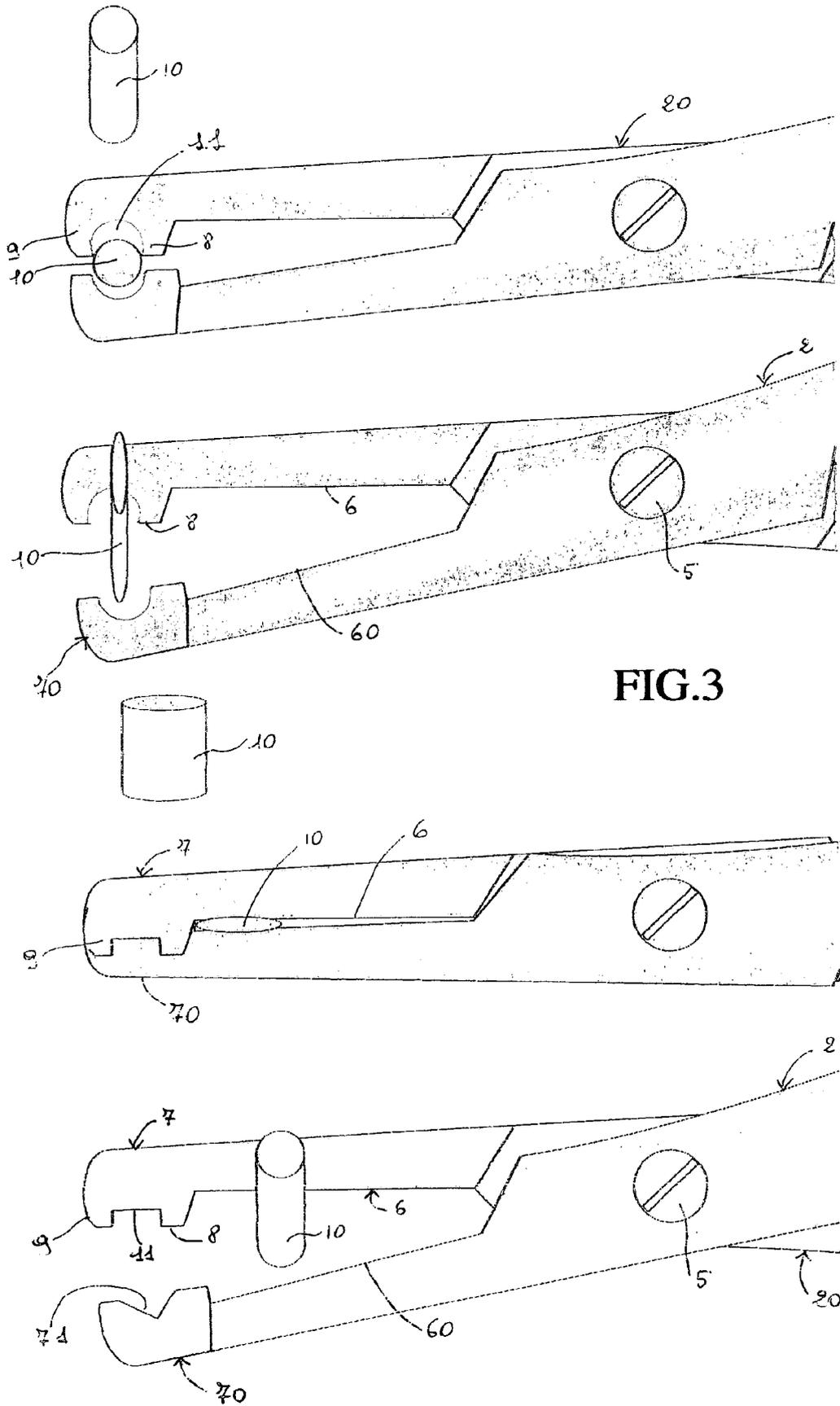
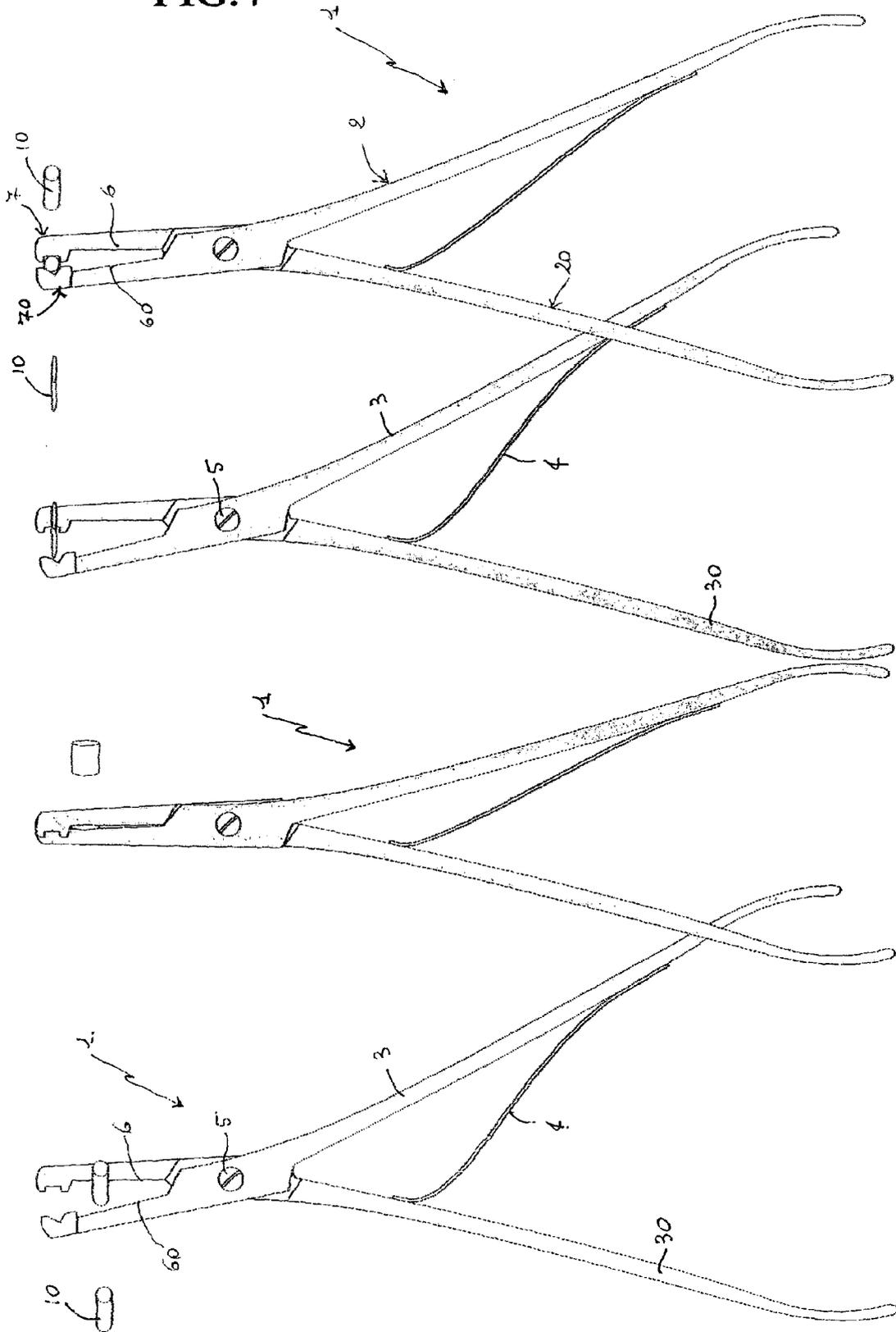


FIG.3

FIG.4





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 12, 5 December 2003 (2003-12-05) & JP 2004 156157 A (INOUE AKIRA), 3 June 2004 (2004-06-03) * abstract; figure h *	1	B25B7/02 A41G3/00
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A	US 2004/173233 A1 (TOKKO RYAN) 9 September 2004 (2004-09-09) * paragraphs [0044] - [0058] *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45D A41G B25B B29C H01R
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 14 February 2006	Examiner Koob, M
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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EPO FORM 1503 03.82 (P04/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 42 5697

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82