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

Gerät zum Schließen und Öffnen von Verbindungsstücken für Haarverlängerungen

Dispositif pour fermer et ouvrir des raccords pour des extensions de cheveux

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(73) Proprietor: **Zeropiù S.r.l.**  
**46100 Mantova (IT)**

(72) Inventor: **Soragna, Gianluca**  
**46100 Mantova (IT)**

(74) Representative: **Petazzi, Guido**  
**c/o Malgarini Lucia**  
**Via Divisione Acqui, 8/H**  
**46044 Goito (MN) (IT)**

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## Description

**[0001]** This invention relates to a connector closing and reopening device for hair extensions and relative system of use, particularly suitable for applying and removing hair extensions, the said hair 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 hair 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 hair extensions can no longer be reused once they have been removed as they are ruined and scatter during the removal stages. 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 hair extensions are applied.

**[0009]** 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.

**[0010]** 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.

sions.

**[0011]** 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.

**[0012]** The applicant is aware of the abstract of a Japanese patent (n. JP 2004 156157), which illustrates a system to attach hair extensions.

**[0013]** The application of the hair extensions is performed using a tool equipped with a hook to thread a small lock of hair through a ring. The tool is then reinserted into the ring to hook up an extension and pull it through the ring. At this point, pliers are used to crush and close the ring in order to secure the extension to the hair. As described in the patent, the pliers used to seal the extension crush the ring, changing its shape from cylindrical to flat.

**[0014]** To remove the ring the cylindrical shape is restored.

**[0015]** The removal of this type of hair extension is enabled by using a special instrument which consists 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 hair extension and the natural hair can be slid out.

**[0016]** 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.

**[0017]** 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.

**[0018]** 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.

**[0019]** A further drawback stems from the fact that the natural hair of the person to whom the hair extensions are applied often breaks during the connector reopening stage.

**[0020]** 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 lose their grip on the connector, a rather probable situation since the person with the hair extensions may

move during the various stages required to detach the said hair extensions. In addition, the person with the hair extensions might also be slightly injured by the tips of the connector reopening instrument.

**[0021]** 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 hair extensions, with consequent equipping costs and hindrances.

**[0022]** 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 hair extensions able to permit the connectors used to apply the hair extensions to be closed and reopened with a single instrument.

**[0023]** A second aim of this invention is to make available a connector closing and reopening device for hair extensions able to prevent both the hair of the person using the hair extensions and that of the hair extensions being cut off.

**[0024]** A further aim of this invention is to have a connector closing and reopening device for hair extensions able to be used perfectly with any connector of any type and form and with any diameter without losing its solidity and practicality.

**[0025]** A further aim of this invention is to have a connector closing and reopening device for hair extensions which enables the user to close the connectors quickly and easily and reopen them without damaging them so that they can be reused.

**[0026]** A further aim of this invention stems from the fact that the connector closing and reopening device for hair extensions has limited production costs.

**[0027]** A further but not final aim of this invention is to make available a connector closing and reopening device for hair extensions which is simple to produce and works well.

**[0028]** 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 hair extensions and relative system of use compliant with the claims that follow.

**[0029]** Further characteristics and advantages will better emerge from the detailed description that follows of a connector closing and reopening device for hair 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 hair extensions as per this invention;
- figure 2 shows a particular of the connector closing and reopening device for hair 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.

**[0030]** With reference to the said figures, and in particular to figure 1, 1 refers to the connector closing and reopening device for hair extensions and relative system of use, according to this invention, as a whole.

**[0031]** The connector closing and reopening device for hair extensions 1 is substantially constituted of a two jaws joined with a hinge in which there is a first flat portion and a second saddle portion present.

**[0032]** 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.

**[0033]** The first jaw 20 has, on the side opposite the handgrip 30, a first part 6 of the first flat portion, designed to clasp and flatten a connector 10 resting on the said flat portion, and a second part 7 of the second saddle portion, positioned at the free end of the jaw 20, having a first couple of lugs 8 and a second couple of lugs 9, arranged mutually parallel, as shown clearly in figure 2.

**[0034]** 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 channel 12 which separates the lugs in each couple.

**[0035]** 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.

**[0036]** According to this embodiment, the handgrip 3 has, at the free end, a small tooth 13.

**[0037]** 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.

**[0038]** In this embodiment, the second jaw 2 also has, on the side opposite the handgrip 30, a first part 60 of the first flat portion), designed to come into contact with the corresponding first part 6 to clasp and flatten the connector 10, and a second part 70, positioned at the free end of the jaw 2 of the second saddle portion, having an element 71 designed to enter the channel 12 of the second part 7.

**[0039]** 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.

**[0040]** 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.

**[0041]** 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.

**[0042]** The device 1 in question is movable from a resting condition, in which it is inactive, is not used, to a first operative condition, in which a connector is insertable into the flat part of the device and flattenable following pressing action, performed by a user, exerted on the device'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 device, can be 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.

**[0043]** After the predominantly structural description above, the operation of the invention in question will now be outlined.

**[0044]** When a user wishes to apply hair 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 hair extension protrudes slightly from the side facing towards the roots of the hair, and fasten the hair 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.

**[0045]** When, later, the user wishes to remove the hair extension, they must simply reopen the connector and slide the hair extension and the hair out of the said connector.

**[0046]** 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.

**[0047]** In this way, the invention in question achieves the aims set.

**[0048]** In fact, the device in question is able to enable a simple and quick application of hair 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.

**[0049]** 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 hair extensions can be reused without requiring replacement, a practically impossible situation with the systems presently in use.

**[0050]** 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.

**[0051]** Furthermore, with the device in question the person who applies the hair extensions does not risk pricking themselves and hurting their fingers during the re-

opening of the connectors, as happened often in the use of the convergent-tipped tweezers.

**[0052]** 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 hair extensions are applied or ruining of the hair in the hair extension.

**[0053]** What is more, the device according to this invention allows the use of connectors of various types and with various dimensions.

**[0054]** 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.

**[0055]** A further advantage of this device stems from the fact that it has limited production costs.

**[0056]** A further but not final advantage of this invention is that it has proved remarkably easy to use, simple to produce and works well.

## Claims

1. A connector closing and reopening device for hair extensions and relative system of use of the type comprising two jaws (2 and 20) joined by means of a hinge (5) and endowed respectively with a handgrip (3 and 30), said device being movable from a resting condition in which it is inactive, is not used, to a first operative condition, in which the connector (10) is insertable into the flat portion of the device and flattenable following pressing action, performed by a user, exerted on the device's handgrip, and to a second operative condition in which the connector (10), after being positioned in the specific seat (11) present in the saddle portion of the device, can be 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. **characterised in that** the said device has the two jaws (2 and 20) containing a first flat portion and a second saddle portion, in which the said first jaw (20) has, on the side opposite the handgrip (30), a part (6) of the said first flat portion designed to clasp and flatten a connector (10), resting on the said portion and a part (7) of the second saddle portion, positioned at the free end of the jaw (20), having a first couple of lugs (8) and a second couple of lugs (9) arranged mutually parallel where 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 and the said second jaw (2) also presents, on the side opposite the handgrip (3), a part (60) of the said first flat portion, designed to come into contact with the corresponding part (6) to clasp and flatten the connector (10), and a part (70) of the said second saddle portion, positioned at the free end of the jaw (2), having an ele-

ment (71) designed to enter in a channel (12) on the part (7).

2. A connector closing and reopening device for hair extensions according to claim 1, **characterised by** the fact that the said first jaw (20) comprises the handgrip (30) endowed, at the free end, with a portion (31) having a plurality of projections (32) and grooves (33). 5
3. A connector closing and reopening device for hair extensions according to claim 1, **characterised by** the fact that, orthogonally to the seat (11), the second section (7) is endowed with a channel (12) which separates the lugs in each couple. 10
4. A connector closing and reopening device for hair extensions according to claim 1, **characterised by** the fact that the said element (71) has a saddle configuration arranged to house a flattened connector for its reopening. 15
5. A connector closing and reopening device for hair extensions according to claim 1, **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
6. A connector closing and reopening device for hair extensions according to claim 1, **characterised by** the fact that the said second jaw (2) has the 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
7. A connector closing and reopening device for hair 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. 35

#### Patentansprüche

1. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen sowie entsprechendes Anwendungssystem, bestehend aus zwei Spannbacken (2 und 20), die mit einem Gelenk (5) miteinander verbunden und jeweils mit einem Handgriff (3 und 30) ausgestattet sind, wobei die besagte Vorrichtung aus einer Ruhebedingung, in der sie nicht aktiv ist und nicht benutzt wird, in eine erste Betriebsbedingung bewegt werden kann, in der der Anschluss (10) in den flachen Teil der Vorrichtung 50

eingesetzt und vom Benutzer durch Druck auf den Handgriff der Vorrichtung flach gedrückt werden kann, sowie in eine zweite Betriebsbedingung, in der der Anschluss (10) zurück in die Ausgangskonfiguration gebracht werden kann, nachdem er im spezifischen Sitz (11) im Sattelbereich der Vorrichtungen gebracht wurde, wodurch sich der besagte Anschluss durch vom Benutzer ausgeübten Druck in kontrollierter Weise öffnet, **gekennzeichnet durch** die Tatsache, dass die besagte Vorrichtung zwei Spannbacken (2 und 20) aufweist, die einen ersten flachen Teil und einen zweiten Sattelbereich umfassen, wobei die besagte erste Spannbacke (20) auf der Gegenseite des Handgriffes (30) einen Teil (6) des besagten flachen Teils aufweist, der zum Klemmen und Flachdrücken des Anschlusses (10) geeignet ist, der auf dem besagten Bereich bleibt, sowie einen Teil (7) des zweiten Sattelbereiches, der sich am freien Ende der Spannbacke (20) befindet und ein erstes Paar Nasen (8) und ein zweites Paar Nasen (9) aufweist, die parallel zueinander angeordnet sind, wobei sich zwischen den beiden Paaren (8 und 9) von Nasen ein Sitz (11) befindet, um den flachgedrückten Anschluss (10) aufzunehmen, der wieder geöffnet werden muss, und wobei die besagte zweite Spannbacke (2) auf der Gegenseite des Handgriffes (3) ebenfalls einen Teil (60) des besagten flachen Bereiches aufweist, der mit dem entsprechenden Teil (6) in Kontakt kommt, um den Anschluss (10) zuzuklemmen und flachzudrücken, sowie einen Teil (70) des besagten zweiten Sattelbereiches am freien Ende der Spannbacke (2), der ein Element (71) aufweist, dass in einen Kanal (12) im Teil (7) eintritt.

2. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die besagte erste Spannbacke (20) den Handgriff (30) aufweist, der am freien Ende mit einem Teil (31) ausgestattet ist, der eine Vielzahl von Vorsprüngen (32) und Kehlen (33) aufweist. 40
3. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der zweite Bereich (7) rechtwinklig zum Sitz (11) einen Kanal (7) aufweist, der mit einem Kanal (12) ausgestattet ist, der die Nasen der einzelnen Paare voneinander trennt. 45
4. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen gemäß Anspruch 1, **dadurch gekennzeichnet, dass** das besagte Element (71) eine Sattelkonfiguration aufweist, um den flachgedrückten Anschluss für das Wiederöffnen aufzunehmen. 55

5. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen gemäß Anspruch 1, **dadurch gekennzeichnet, dass** das besagte Element (71) eine gebogene, rechtwinklige oder V-förmige "Sattellkonfigurierung" aufweist, wobei alle besagte Formen zum Wiederöffnen des Anschlusses dienen.
6. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die besagte zweite Spannbacke (2) den Handgriff (3) aufweist, der mit einem widerstehenden Element (4) ausgestattet ist, das eine Schubwirkung auf den entsprechenden Handgriff 30 an der ersten Spannbacke (20) ausübt und am freien Ende einen kleinen Zahn (13) aufweist.
7. Eine Vorrichtung zum Schließen und Wiederöffnen von Anschlüssen für Haarverlängerungen gemäß Anspruch 2, **dadurch gekennzeichnet, dass** alle Kehlen (33) an der ersten Spannbacke (20) zur Aufnahme und zum Eingreifen in den kleinen Zahn (13) am zweiten Handgriff (3) geeignet ist, in Abhängigkeit von der Kraft, die der Benutzer zum Schließen oder zum Wiederöffnen des Anschlusses ausüben muss.

## Revendications

1. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux et système d'utilisation correspondant du type comprenant deux mâchoires (2 et 20) unies par une charnière (5) et équipées respectivement d'une poignée (3 et 30), ledit dispositif étant mobile d'une condition de repos à laquelle il est inactif, pas utilisé, à une première condition opérationnelle, dans laquelle un connecteur (10) est insérable dans la portion plate du dispositif et écrasable suite à une action de pression de la part d'un utilisateur, à une deuxième condition opérationnelle dans laquelle le connecteur (10), après avoir été positionné dans un logement spécifique (11) présent dans la portion en selle du dispositif peut être replacé dans la configuration initiale en en déterminant un élargissement contrôlé, de nouveau, à la suite d'une action de pression de la part de l'utilisateur, **caractérisé par le fait que** ledit dispositif présente les deux dites mâchoires (2 et 20) munies d'une première portion plate et une deuxième portion en selle où ladite première mâchoire (20) présente, à partir de la partie opposée à la poignée (30), un segment (6) de ladite première portion plate destiné à serrer et à écraser un connecteur (10) posé contre ledit segment et un segment (7) de ladite deuxième portion en selle situé à l'extrémité libre de la mâchoire (20) ayant une première paire de crans (8) et une deuxième paire de crans (9) disposés parallèlement les uns par aux autres où, entre les deux paires (8 et 9) de crans, se trouve le logement (11) disposé à accueillir le connecteur (10) écrasé qui doit être rouvert et ladite deuxième mâchoire (2) présente elle aussi, du côté opposé à la poignée (3), un segment (60) de ladite première portion plate destiné à se mettre au contact du segment (6) correspondant pour serrer et écraser le connecteur (10) et un segment (70) de ladite deuxième portion en selle situé à l'extrémité libre de la mâchoire (2) ayant un élément (71) destiné à entrer dans la rainure (12) du segment (7).
2. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux selon la revendication 1, **caractérisé par le fait que** ladite première mâchoire (20) comprend une poignée (30) munie à l'extrémité libre d'une portion (31) ayant une pluralité de becs (32) et de gorges (33).
3. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux selon la revendication 1, **caractérisé par le fait qu'**orthogonalement par rapport au logement (11), le deuxième segment (7) est muni d'une rainure (12) qui sépare les crans de chaque paire.
4. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux selon la revendication 1, **caractérisé par le fait que** ledit élément (71) présente une configuration « en selle » disposée pour accueillir le connecteur écrasé pour sa réouverture.
5. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux selon la revendication 1, **caractérisé par le fait que** ledit élément (71) présente une configuration de la « selle » recourbée et rectangulaire ou en V, toutes destinées à contraindre un connecteur à se rouvrir.
6. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux selon la revendication 1, **caractérisé par le fait que** ladite deuxième mâchoire (2) présente une poignée (3) munie d'un élément de résistance (4) destiné à exercer une action de poussée sur la poignée 30 correspondante présente sur la première mâchoire (20) et munie, à l'extrémité libre, d'une dent (13).
7. Dispositif de fermeture et réouverture de connecteurs pour les extensions de cheveux selon la revendication 2, **caractérisé par le fait que** chaque gorge (33) de la première mâchoire (20) est prévue pour accueillir et engager la dent (13) de la deuxième poignée (3) en fonction de la force qu'un utilisateur doit exercer soit pour fermer un connecteur soit pour le rouvrir.

FIG.2

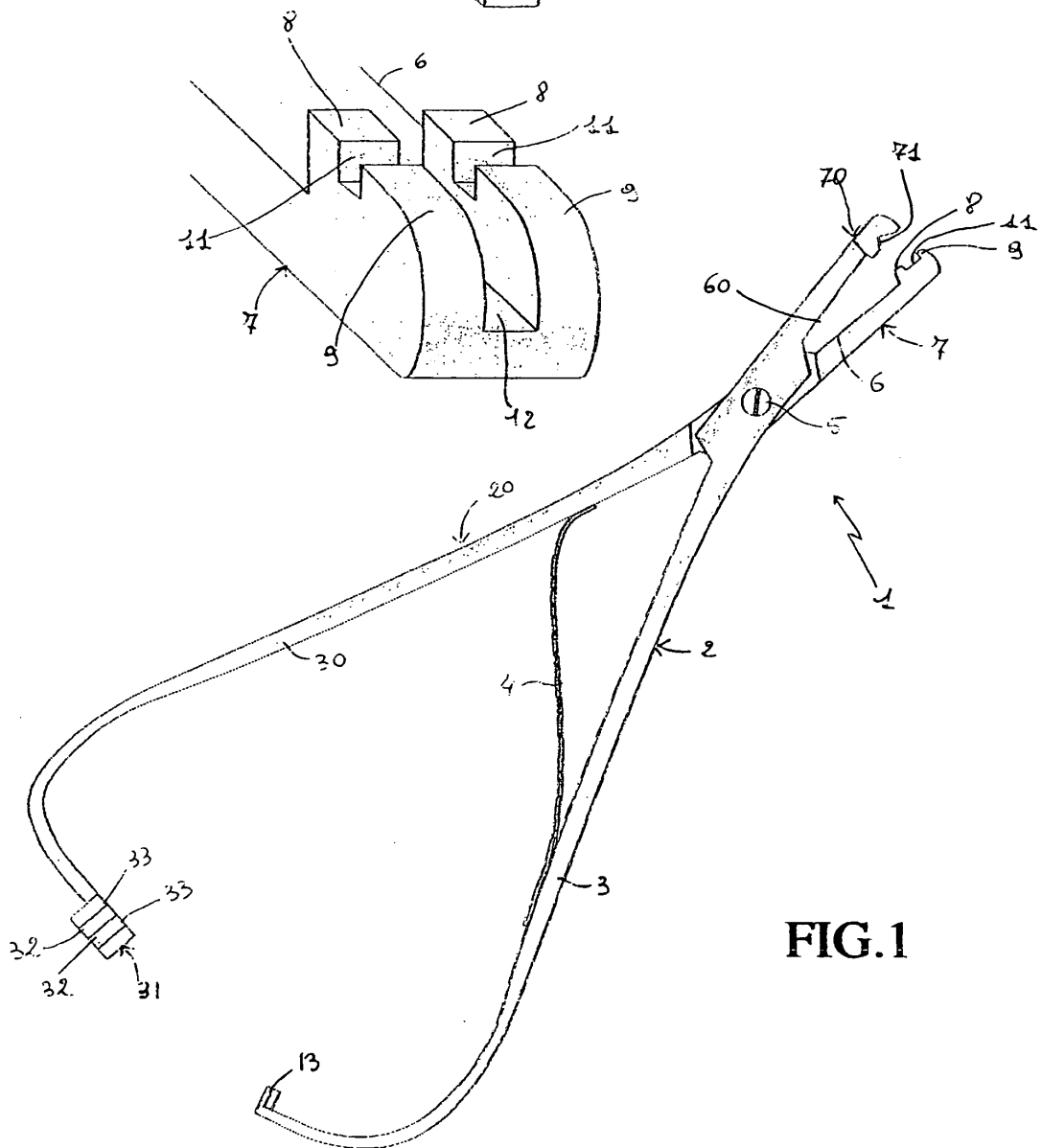
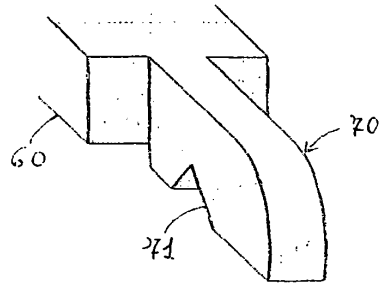


FIG.1

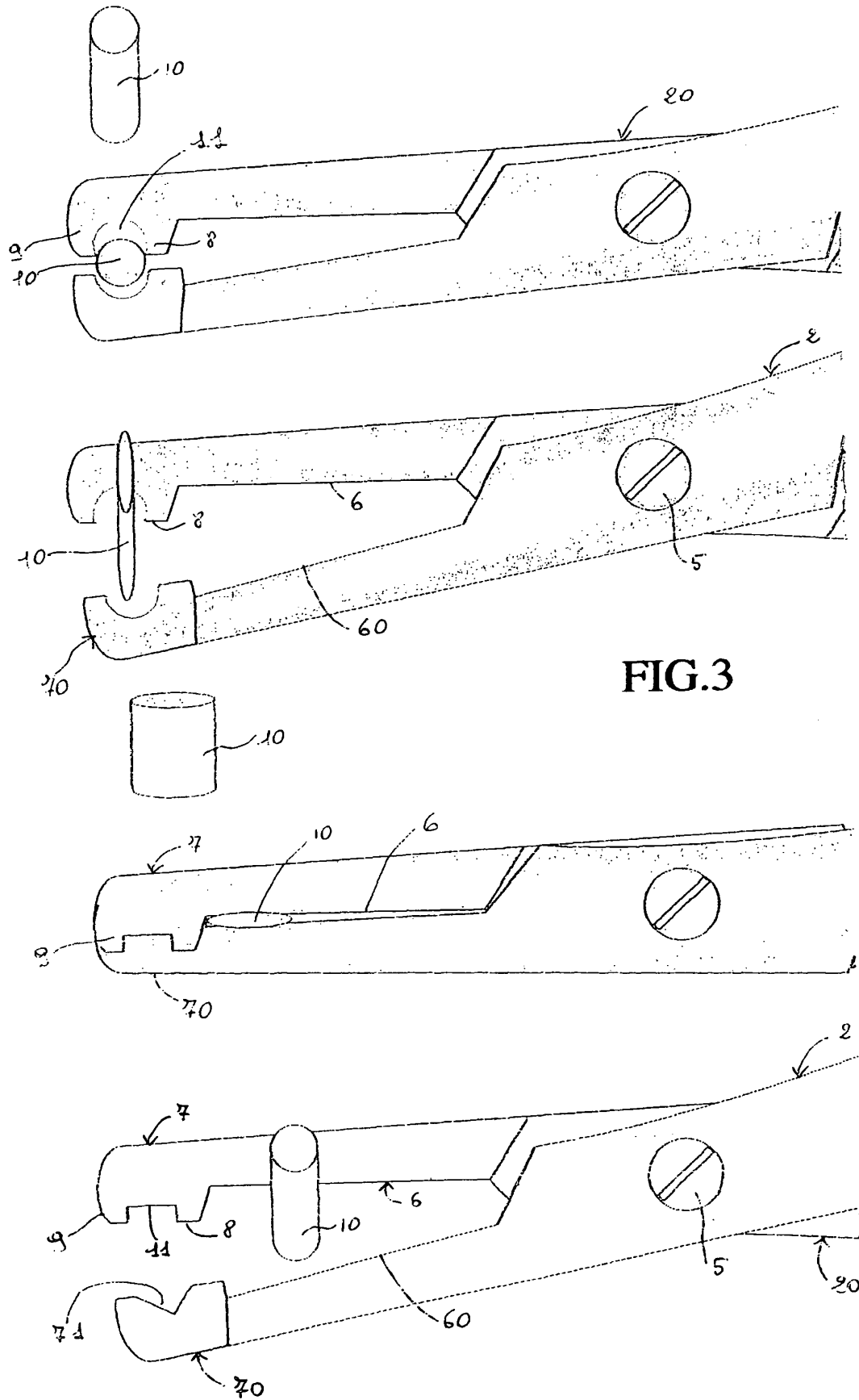
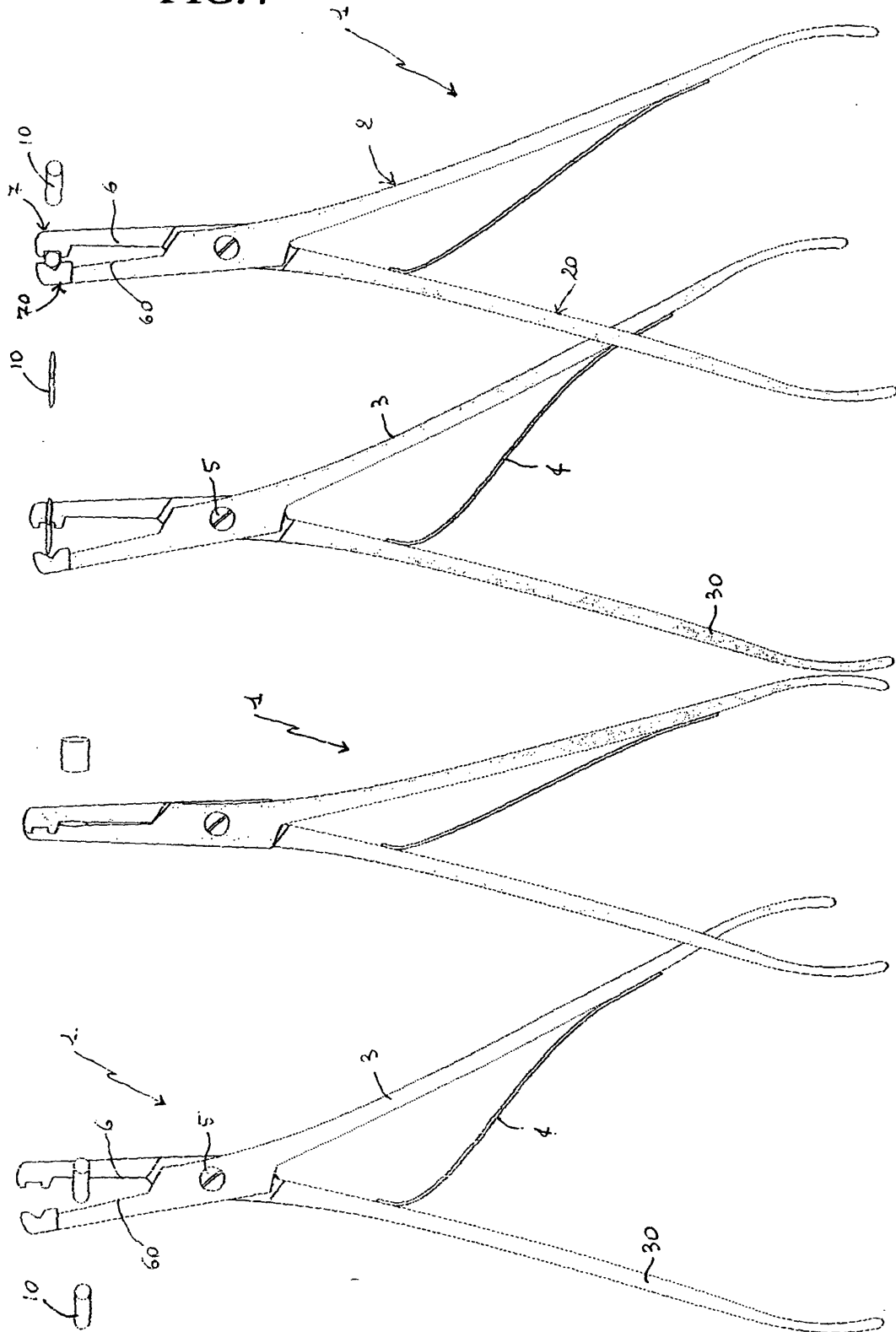


FIG.3

**FIG.4**



**REFERENCES CITED IN THE DESCRIPTION**

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