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(54) **APPLICATOR INSTRUMENT ASSEMBLY AND APPLICATOR INSTRUMENT SUITABLE FOR SAME**

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Description

[0001] The invention concerns a writing instrument assembly as set forth in claim 1.

[0002] US 2006/0239756 A1 discloses a travelling crayon holder including a three dimensional plush body. A plurality of arms extend from the body, the arms each further comprising a length of a flexible line material. A plurality of crayons are secured in individual fashion to respective ends of each of the lengths of flexible line material. An engagement portion extends from a further location of the plush body and provides for securing the body to a fixed location.

[0003] US 1,537,192 A discloses a pencil holder that is attached to a key ring by passing the key ring through an aperture of the holder. The pencil holder allows holding either an ordinary wooden pencil or a mechanical pencil.

[0004] US 6,000,103 A discloses a portable pencil pocket having one or more compartments for holding pencils. The pocket is made of plastic webbing that is folded at one end to form a pocket and at the other end to form a loop. A shower clip holds the pocket to an article of clothing such as a belt loop or button hole.

[0005] Writing instruments are known for example in the form of writing pens or drawing pens or crayons and the like. They are usually of an elongate extent and are of round, oval or polygonal cross-section. When using known writing instruments they are often laid down on a support surface, for example a desk, between individual uses, and are later gripped to pick them up therefrom again for the next use. It is known in respect of writing instruments of an almost round cross-section that, when there is no clip they have a tendency to roll uncontrolledly away when laid down on an inclined surface. Therefore on many writing implements there is a special roll stopping element to prevent the instrument from rolling away. Writing instruments remain at the location at which they were laid down, by means of a clip or roll stopping element. Such means for preventing the instrument from rolling away however involve an increased complication and expenditure in manufacture of the writing instrument, in particular when an additional element which is only intended for that purpose, such as the above-mentioned roll stopping element, is used.

[0006] A further disadvantage with the known writing instruments is when users who require a number of different writing instruments or drawing crayons in a working procedure do not close the individual writing instruments each time between individual uses, with a cap provided to protect the writing instrument to prevent it from drying out. Such closure caps are usually fitted on to or also screwed on to the active end, that is to say the end with a member for applying or transferring a writing substance of the writing instrument, in order to air-tightly cover over the writing member and/or protect it from mechanical influences. To use the writing instrument the closure cap is pulled off and put to one side; if provided the cap can

also be fitted on to a passive end opposite to the active end, if the cap and/or the passive end are adapted to that. If a male or female user should once like to quickly change the place where he or she is working it can happen that an open writing instrument and/or the cap thereof is inadvertently left behind. That gives rise to the risk that the writing instrument dries up or dries out. In addition quickly picking up loose writing instruments and taking them along involves an effort.

[0007] Furthermore known writing instruments are often difficult to lift up because of their geometry. Writing instruments are frequently of a very narrow or small cross-section so that picking up a writing instrument which has been laid down is admittedly not generally impossible but it is also not especially easy, in particular as the height, measured from the surface on which the instrument was laid down, of the surface of the writing instrument which is afforded to the gripping balls of the fingers of a human being, that is to say the grippable surface of the writing instrument, is mostly smaller than the average height of the ball of the finger. Here the term height of the balls of the fingers is used in this context to denote the spacing of the centre for the terminal sensing ball at the end of the inside of each finger with respect to the finger tip or with respect to the surface on which the instrument was laid and against which the finger tip of the same finger bears. In the above-described use scenario involving a plurality of writing instruments, for example in the form of writing pens and/or coloured pencils or pens, they are frequently laid down in the open condition, that is to say without the protective cap. In the above-described movement for lifting one of the pens from the surface on which it has been placed, it can therefore happen that the unclosed writing tip comes into contact with that surface. In that case on the one hand the surface on which the instrument was laid can be fouled by the pen or pencil and on the other hand, particularly in the case of delicate writing or drawing tips, such as for example those of retractable lead pencils or fibre tip drawing pencils or crayons with a fine fibre stick, the writing or drawing tip can be damaged or destroyed by contact with the surface on which it was placed.

[0008] In connection with the above-mentioned closure caps it should also be mentioned that they should usually have at least one small through opening in the longitudinal direction to continue to permit respiratory air exchange in the event of such a cap being inhaled by mistake; the position and size of such an opening is the subject of the ISO standard 11540 concerning: 'Caps for writing and marking instruments intended for use by children up to 14 years of age; Safety requirements'. The provision of a through opening may reduce the risks in connection with inhalation of a cap, but nonetheless there is in that case still a remaining risk that such a through opening becomes blocked and therefore fails.

[0009] Therefore an object of the present invention is to remedy or at least reduce at least one of the above-discussed disadvantages. In particular an object of the

present invention is to provide a possible way in which a plurality of writing instruments can be quickly, easily and securely held together and can thus be quickly taken away or cleared away at any time.

[0010] A solution according to the invention provides a writing instrument assembly having the features of claim 1.

[0011] A first aspect of the invention concerns a writing instrument assembly comprising a collecting element and at least two writing instruments. A writing instrument is characterised by a main axis substantially determined by the longitudinal extent of the writing instrument, and at least one active end with a closure cap for being fitted on to or screwed on to the active end and at least one passive end. At the closure cap, a writing instrument according to the invention has at least one connecting element. The collecting element is connected to each writing instrument by way of the respective connecting element, wherein the collecting element is so dimensioned that it tears at a predefined tensile loading by the provision of a predefined weakening as a desired tear-away location.

[0012] A plurality of writing instruments can be easily and securely held together by a writing instrument assembly according to the invention. Particularly, as the connecting element is at the cap of the writing instrument, the danger of losing a cap or leaving it behind at a place where it was put down is markedly reduced. In addition inhalation of a cap secured to an adequately sized collecting element can be almost entirely excluded.

[0013] A collecting element for a writing instrument assembly according to the invention is substantially an extensive structure having a collecting through opening. The structure preferably comprises a collecting edge, which is substantially closed in itself, of the collecting through opening. Particularly preferably the collecting edge is of a predetermined collecting edge cross-section which is preferably predominantly substantially the same on the entire collecting element. In certain examples the collecting element can be an element in the manner of a carabiner hook, in which respect it is particularly preferably designed in the manner of a circular ring or the like.

[0014] In particular configurations the respective connecting element or the collecting element are of such a configuration that the respective writing instrument is reversibly releasably connected to the collecting element. That makes it possible for a user - besides other conceivable advantages - to individually assemble the writing instruments which are carried along together on a writing instrument assembly according to the invention.

[0015] To reversibly releasably connect the respective writing instrument to the collecting element, the edge of the collecting element can have a collecting opening therethrough which is intended and suitable for same. For example the ends of the edge can overlap at the collecting opening, in particular in the manner of a key ring.

[0016] In the region of the collecting opening the col-

lecting element can have a closure, by means of which the collecting edge can be reversibly closed at the collecting opening and the collecting element can be closed. When the closure is opened the writing instruments disposed on the collecting element can be removed and/or can be added to the collecting element and/or arranged in some other fashion on the collecting element.

[0017] The closure can comprise respectively corresponding closure elements provided at both sides. Thus a first closure element can comprise for example a hollow shape extending round in a closed configuration in the manner of a loop and a second closure element in the form of a plug element which is to be suitably passed through the hollow shape when closing the closure. In that respect it is further advantageous if the plug element is narrower or thinner in at least a first orientation than an inside dimension of the hollow shape and is thicker or larger in at least one second orientation of the plug element, than the aforementioned inside dimension of the hollow shape. In that way the respective orientation of the closure elements relative to each other is decisive in determining whether a small amount of force or a large amount of force is necessary for opening or closing the closure in the respective orientation or whether opening of the closure is at all possible in a destruction-free manner in the respective orientation of the closure elements relative to each other.

[0018] In order to avoid unintentional opening of the closure under a tensile loading, for example when the writing instrument assembly is gripped at a position away from the closure and then picked up or hung on a hook or through an eye, for example the hollow shape can be a loop, having preferably a contour, in particular an inner contour, in the shape of a quadrilateral, a trapezium, a rhombus, a parallelogram, or a kite, while the plug element is in the configuration of an arrowhead. The plug element can be in the form of a winged or flighted arrowhead insofar as it substantially terminates in a point in the form of a triangle, wherein edges of the triangle, that terminate in the point, at the outsides, are referred to as wings. In that case the cross-section of the arrowhead is substantially flat. Alternatively it is also possible to use a non-winged arrowhead which then terminates in a rotationally symmetrical configuration as a cone towards the tip, the cross-sections thereof being substantially circles. It will be appreciated that with the non-winged arrowhead shape, other cross-sectional shapes are basically also conceivable, such as for example that of a regular polygon. The region of the closure element that is opposite to the arrowhead, that is to say the base of the cone in the non-winged configuration or the base line of the triangle in the case of the winged configuration, functions as a barb in the hollow element insofar as in most arrangements of the closure elements relative to each other, particularly when a tensile loading is involved, at least a part of the edge of the hollow shape undercuts the arrowhead and thus prevents unintentional opening of the closure.

[0019] So that the closure remains closed even without a tensile loading, that is to say so that the plug element does not slip out of the hollow shape, possible dimensioning of the closure elements, the plug element and the hollow shape, provides that the longest inside dimension of the hollow shape is selected to be less than the length of the arrowhead from the barb to the arrowhead. In that way the arrowhead (as the plug element) cannot rotate in the hollow shape, preferably having the inner contour in the shape of a quadrilateral, a trapezium, a rhombus, or parallelogram, most preferably with the inner contour in the shape of a kite (deltoid), about the point at which the barb of the arrowhead engages into the hollow shape, further than until the arrowhead butts against the opposite end of the hollow shape. Thus the arrowhead cannot leave the hollow shape in a 'transversely oriented' relationship, but only in a given relative longitudinal orientation with respect to the hollow shape. A kite (deltoid) is a flat quadrilateral one of its diagonals being an axis of symmetry, i.e. having two pairs of adjacent sides of equal length; an equilateral kite is a rhombus.

[0020] Preferably the hollow shape is elastic in respect of shape so that the hollow shape has to be elastically deformed when threading on or removing a writing instrument, for passing the connecting element. That ensures that a writing instrument does not unintentionally slip off the collecting element like beads off a string, but a predefined force has to be overcome to remove a writing instrument from the collecting element.

[0021] The collecting element has a predefined maximum resistance to tensile force, which is established in the form of a weak location. The weak location is so dimensioned that the collecting element tears away at a predefined tensile force and thus necessarily opens. Such a protection function is advantageous in particular if children do not use the writing instrument assembly according to the invention in the appropriate properly defined manner. Preferably in that respect the material from which the collecting element is made is so selected that it does not experience any increase in strength and rigidity under the action of a tensile force or such an increase in strength and rigidity of the material is already taken into consideration when dimensioning the weak location.

[0022] In addition the collecting element can have at least one gripping element. In the most general form the gripping element can be interpreted as an increase in cross-section along the collecting edge of the collecting element. It serves inter alia to give the user a haptic and optical orientation aid along the collecting edge.

[0023] A further advantage of the gripping element is that it can also be used as a handling aid, insofar as, in embodiments of the collecting element of small cross-sectional area or of small material diameter, it offers the user a simple possible way of exerting a torque in the longitudinal direction of the collecting element to position the closure elements of the closure in the desired or re-

quired fashion relative to each other. The closure can be more easily and more accurately operated by means of the gripping element. In addition the gripping element can be substantially in the configuration of a coin and can present selectively a logo of the manufacturer or another identification.

[0024] To reversibly releasably connect the respective writing instrument to the collecting element, alternatively or also additionally the connecting element can be in the form of a connecting opening, for example a through hole, with a closed peripheral edge. In certain configurations, to simplify connecting a writing instrument to the collecting element and/or to facilitate detachment of a writing instrument from the collecting element, the connecting element can have at least at one location in the peripheral edge of the connecting opening, a material weakening which extends substantially radially over the edge in relation to a longitudinal axis of the opening, wherein the width of the material weakening approximately corresponds to the diameter of the collecting edge cross-section and is preferably somewhat wider.

[0025] To reversibly releasably connect the respective writing instrument to the collecting element alternatively or also additionally the connecting element can be in the form of an opening with an aperture in the peripherally extending edge portion, that is to say in the edge of the opening. The aperture preferably has at least one constriction of a width less than the diameter of the collecting edge cross-section. To release or fit the connecting element from or to the collecting element the collecting edge has to pass that constriction. Unintended detachment of the connecting element from the collecting element is thus almost out of the question.

[0026] In certain configurations, to simplify connecting a connecting element to the collecting element and/or to facilitate detachment of a connecting element from the collecting element, the connecting element may have corresponding guide surfaces, in particular flat guide surfaces, for the collecting element. Preferably two respective guide surfaces for the collecting element are arranged at the aperture of the opening at an angle relative to each other in such a way that when connecting and/or detaching the connecting element, it is easier for the collecting element to elastically expand and thus pass the constriction.

[0027] In a particular development the aperture in the case of the connecting element with an aperture in the peripherally extending edge portion, has in relation to a longitudinal axis of the opening, a radial actuating direction which forms a safety angle, in particular between 30° and 150°, with the main axis of the writing instrument. In that way the direction of the flow of force which occurs when pulling a writing instrument off the cap is decoupled from the direction of the flow of force and the actuating direction when detaching or connecting a connecting element from or to the collecting element, and that prevents unintentional detachment of a writing instrument from the collecting element.

[0028] A releasable connection between the cap and the writing instrument can be such that a predetermined closing force has to be overcome to release the writing instrument from the cap. The predetermined closing force is preferably substantially greater than the force due to the weight of the overall writing instrument assembly, less one writing instrument. In that way a writing instrument assembly can be held and carried along at a writing instrument without the assembly coming apart by release of the connection between the cap and the writing instrument, and falling to the ground.

[0029] Preferably the material for the collecting element and/or the connecting element are so selected that the elements each have a predetermined elasticity or stiffness by virtue of their geometry and material properties.

[0030] The length of the cap can be substantially less than the smallest width of the opening through the collecting element. A cap from which the writing instrument has been detached can thus rotate about the collecting edge of the collecting element. Thus in a particular development the collecting opening in the collecting element and the connecting elements at the respective caps for the respective active end of the respective writing instrument can be so matched to each other that a cap can only be detached radially outwardly, without a writing instrument, in a radial direction, from the interior of the collecting element.

[0031] That can be achieved for example if the connecting element, with reference to a longitudinal axis of the opening, has a first radial actuating direction which preferably coincides with the main axis of the writing instrument and extends in the direction of the cap, and adjoining the first actuating direction is a second actuating direction which differs from the first actuating direction and in particular extends perpendicularly to the first actuating direction.

[0032] In other words the writing instrument assembly according to the invention is particularly advantageous if a plurality of writing instruments are arranged in a row on a collecting element, in particular when the individual writing instruments differ in a predetermined feature in respect of order, for example due to the colour and/or shade of a given row of colours, and/or different writing widths. In this connection it is advantageous if the cap of each writing instrument has a geometrical and/or colour cap coding so that the respective writing instrument is optically and/or mechanically associated with a given cap. In that way it is easily possible to maintain a desired or appropriate sequence in which the writing instruments are arranged on the assembly.

[0033] In accordance with a second aspect of the invention provided at a writing instrument at the passive end and/or a cap is at least one hand-actuable lifting-up aid for lifting up the respective other end of the writing instrument. Such a lifting-up aid can be in the form of at least one substantially inclined plane relative to the main axis of the writing instrument, in particular being formed

by two substantially oppositely disposed substantially inclined planes relative to the main axis of the writing instrument, at the passive end and/or the cap. The lifting-up aid is of such a configuration that upon actuation of the lifting-up aid the other end of the writing instrument can be lifted lever-like at least to a predetermined lifting height with respect to a surface on which the instrument is placed. The lifting height is preferably greater than or equal to a finger ball height defined by the average height of the ball of a human finger, in particular being greater than 10 mm. The provision of a hand-actuable lifting-up aid means that the user is enabled to pick up the device using the hand-actuable lifting aid, easily, simply and quickly. If the lifting-up aid is provided at the passive end of a writing instrument then it is advantageously possible to avoid adversely affecting the writing tip at the active end or fouling of a surface on which the instrument was placed, by the writing tip.

[0034] The inclined plane of the lifting-up aid functions as a lever which, by way of a contact point of the writing instrument with the surface on which it was placed, the contact point being predetermined by the end of the inclined plane, that is remote from the respective end of the writing instrument, acting as a lever support, that is to say as a pivot point or bearing point, lifts the respective other end of the writing instrument upon being actuated. In other words the lifting-up movement takes place substantially by using the law of levers, wherein the pivot point is provided in the region between the lifting-up aid at the passive end and the active end so that a movement of the lifting-up aid produces a corresponding movement of the active end. The lifting-up height can be defined or adjusted by way of the ratio of the lever arm lengths or the position of the pivot point. With lever arms of the same length the lifting-up height is identical to the travel distance covered by the lifting-up aid. To produce a fast lifting-up movement or to afford fast gripping of the instrument, in particular lever ratios are advantageous, with which the travel distance of the lifting-up aid is less or markedly less than the lifting-up height. In that way a sufficient lifting-up height can be quickly achieved by way of a short travel movement on the part of the lifting-up aid. In particular lever ratios of 1:5 and more, that is to say for example 1 cm of lever arm at the end with the lifting-up aid and 5 cm of lever arm at the active end, are advantageous. It should be noted that at least the end of the writing instrument with the lifting-up aid, in particular the lifting-up aid arranged there, should be of such a flexurally stiff configuration as to permit the desired lever function on the part of the lifting-up aid.

[0035] In the lifting-up operation a user of a writing instrument according to the invention actuates the lifting-up aid by pressing with one or more fingers on the lifting-up aid and thus transfers the inclined plane into an end position in relation to the surface on which it was placed. In that case the writing instrument tilts about the contact point thereof with that surface. That contact point is predetermined by the end of the inclined plane, that is to-

wards the writing instrument or that is the inner end in relation to the instrument. The tilting motion is a rotational movement about the contact point, in which the active end is lifted in a manner corresponding to the ratio of the lever arm lengths; the lifting-up height can be calculated as the sine of the change in angle times the spacing from the contact point to the respective other end of the writing instrument. Thus at the end of the lifting-up movement, the active end of the writing instrument is at a predetermined spacing from its support surface in the air, that is to say it is spaced from the support surface, and can be markedly more easily gripped or picked up by the male or female user of the writing instrument according to the invention, than would be the case in the condition of the instrument of being laid down on the surface on which it was placed. In the example involving a lever arm ratio of 1:5 therefore the travel distance covered by the lifting-up aid of for example 1 cm would correspond to a lifting-up height of 5 cm.

[0036] In a particular configuration a writing instrument has two oppositely disposed substantially inclined planes relative to the main axis of the writing instrument, for implementation of a lifting-up aid. For that purpose the end of the writing instrument, at which the lifting-up aid is provided, is for example of a configuration substantially similar to the end of a tube. Tube-shaped configurations are known for example from DE 1 938 045 U or DE 79 11 160 U, in which case however the entire body is in the form of a tube. The geometry of a tube-shaped passive end has two oppositely disposed substantially inclined planes relative to the main axis of the writing instrument.

[0037] A lifting-up aid having two inclined planes has the further advantage that, when laying down or picking up the writing instrument according to the invention, there is no need to take care to rotate the lifting-up aid into a position which is particularly favourable for lifting it up. When such a lifting-up aid is provided, that affords two particularly favourable laying-down options. As those two laying-down options are displaced relative to each other through 180° with respect to the longitudinal axis of the substantially elongate writing instrument and as the respective lifting-up processes are also possible in situations where the instrument has been laid down in not a completely exactly oriented relationship, a configuration as described hereinbefore for the writing instrument has the advantage that the writing instrument can be lifted and gripped by the lifting-up aid in a manner according to the invention practically irrespective of the situation in which it was laid down on the support surface.

[0038] The tube-shaped configuration of an end can also be used to provide a rolling stop if the respective 'tube bottom fold ends' project beyond the normal width of the writing instrument. The rolling stop is then integrated into the lifting-up aid in the form of the portion projecting beyond the periphery of the writing instrument. The configuration with a rolling stop integrated into the lifting-up aid has the additional advantage that, by virtue of the rolling stop, a lifting-up aid at the tube end of a handling

instrument which has been laid down is thus always optimally positioned relative to the surface on which it is placed, for use thereof.

[0039] A writing instrument according to the invention can be of such a configuration that the active end of the instrument is lifted at least to a predetermined lifting-up height upon actuation of the lifting-up aid, in which respect the lifting-up height achieved is preferably greater than or equal to a finger ball height formed by the average height of the ball of a human finger. Here the term height of the balls of the fingers is used to denote the spacing of the centre for the terminal sensing ball at the end of the inside of each finger with respect to the finger tip or with respect to the surface on which the instrument was laid and against which the finger tip of the same finger bears when picking up the instrument. Particularly preferably the lifting-up aid according to the invention is so adjusted that upon actuation the lifting-up height is greater than 10 mm.

[0040] It is possible in the above-described manner to define a minimum height by which the active end of the writing instrument has to be lifted so as to ensure that the instrument can be easily gripped in the lifted condition. In other words an advantageous configuration provides that the lifting-up height achieved upon actuation of the lifting-up aid is designed directly for the average height of the ball of the finger of an average user. In that way the procedure involved in gripping a writing instrument which has been laid down becomes particularly simple and secure as in that way the fingers used for gripping the instrument can be supported with the finger tips on the surface on which the instrument was laid and in the tongs-like gripping movement the balls of the fingers can automatically come into optimum contact with the writing instrument. It is further ensured that the lifting-up height is sufficient to be able to correctly grip the writing instrument at all as that is markedly more difficult when involving a lifting-up height that is less than the height of the balls of the fingers. In such a case upon being gripped the writing instrument would have a tendency to slip out of the fingers back to the surface on which it had been placed. When selecting an exact value for the lifting-up height which can be predetermined in that way, that can be adapted in particular to the skill of the intended users, for example trained graphic designers, in contrast to small children, and also to the average height of the balls of the fingers of the respective user group. A writing instrument according to the invention can in that way be still better individualised, in relation to the planned user group.

[0041] A writing instrument according to the invention or at least the lifting-up aid according to the invention is preferably made from a substantially flexurally stiff material, in particular plastic, wood, metal or a metal alloy. In particular production from plastic affords great advantages in regard to cost efficiency in the production of a writing instrument according to the invention. The preferably flexurally stiff configuration further allows the lifting

movement and the structural configuration of the lifting-up aid to be simplified insofar as, having regard to the desired lifting-up height of the active end of the writing instrument, there is no need to take account of or compensate for an elasticity of the writing instrument. Rather, with the writing instrument being of a flexurally stiff nature, that affords a substantially perfect lever system as between the lifting-up aid and the active end of the writing instrument.

[0042] In accordance with a third aspect of the invention the cap, particularly preferably in the embodiments in which the cap is not permanently connected to the collecting element, besides at least one receiving opening for receiving the active end, that is to be closed, of a writing instrument, and a closure axis which is substantially perpendicular to the cross-sectional area of the receiving opening, has at least one air passage. The closure axis is at least partially substantially perpendicular to the air passage cross-section. For that purpose the closure cap can have an outer portion and an inner portion so that the at least one air passage can be formed between the outer and inner portions. The additional provision of an air passage is advantageous if the caps are releasable from the collecting element, that is to say not permanently connected thereto.

[0043] In a preferred configuration the at least one air passage can at least partially end in the connecting element which in embodiments of the cap can be intended for connection to the collecting element. In that way the air passage opening which is otherwise accessible from the exterior can advantageously be screened by the connecting element. If the connecting element is for example in the form of a through opening, the at least one air passage can open into the through opening, preferably within that opening.

[0044] The closure cap can for example further be of such a design configuration that the outer portion is connected to the inner portion by means of at least one leg. The at least one air passage can be formed between that at least one leg, the inner portion and the outer portion. When a plurality of legs are used a corresponding plurality of air passages may be formed. That embodiment has inter alia the advantage that it can be relatively easily produced using injection moulding procedures. The fact that the air passage is provided between the inner and outer portions means that the inner portion can be in the form of a cap which is virtually disposed in the interior, for example to provide for hermetically sealing relationship for a writing instrument tip. In that way a completely sealed-off separate space can be provided and nonetheless the desired air permeability through the air passage remains in relation to the overall closure cap. Particularly preferably the other end of the at least one air passage is in the region of the receiving opening, particularly preferably in the interior of the cap.

[0045] If the at least one air passage at least partially ends in the opening as the connecting element, the opening divides the upper end of the air passage into mutually

opposite ends of the opening. In that way - as already mentioned - on the one hand the air passage opening is screened but, by virtue of the division of the air guide means prolonging the air passage, the connecting element performs so-to-speak the function of a 'diffuser', whereby blockage or obstruction of one of the oppositely disposed ends of the opening does not completely prevent a flow of air through the air passage. A blockage or fouling matter which has penetrated into the opening can be very easily detected, in particular when viewed against the light, and removed. In addition any fouling matter or blockage in such an arrangement can be easily removed by a suitable tool from the opening acting as the connecting element by the tool being inserted into one of the ends and by the fouling matter or blockage being pushed out on the other side. If in spite of the ease with which fouling matter or blockages can be detected, they should once be overlooked, then at the latest when trying to connect or collect the writing instruments on the collecting edge of the collecting element, such a blockage will be detected and/or upon being successfully fitted even automatically removed, thus eliminating the adverse effect on the air passage.

[0046] The arrangement of the at least one air passage preferably between the outer and inner portions means that the air passage is on the one hand concealed and on the other hand is also at a secure spacing from the outer gripping surfaces of the outer portion of the closure cap. That arrangement affords an additional safeguard in regard to blockage of the air passage, that is to be avoided. The concealed arrangement is advantageous as in that way blockage of the passage can be still better prevented. The probability of fouling matter which could block the passage passing into the region between the inner and outer portions is markedly less than if the passage were to be substantially free. In the embodiment in which the at least one air passage opens into the connecting element, that end of the air passage is even better protected from blockage. It will be appreciated that it is also possible to provide further passages for example in the protected region between the inner and outer portions or other separately protected regions.

[0047] Further advantageous configurations of the invention and a number of embodiments by way of example in respect thereof are described in greater detail hereinafter with reference to the accompanying Figures. The terms 'left', 'right', 'top' and 'bottom' used in the description of the specific embodiments relate to the Figures in an orientation with the references and Figure identifications being normally readable.

[0048] In the drawing:

Figure 1 shows an isometric view of a first example of a writing instrument assembly,

Figure 2a shows a side view of a particular embodiment of a writing instrument in the laid-down condition to describe a lifting-up aid,

Figure 2b shows the writing instrument of Figure 2a

in the lifted-up condition,

Figure 3 shows a side view of a second example of a writing instrument assembly with three writing instruments,

Figure 4 shows a side view of a first example of a connecting element on a cap for a writing instrument in the form of an opening with an aperture in the edge of the opening,

Figure 5a shows a side view of a second example of a connecting element on a cap for a writing instrument in the form of an opening with a closed edge, Figure 5b shows a sectional view of the cap of Figure 5a together with a collecting element to describe the production of a connection between the cap and the collecting element,

Figure 6a shows a side view of a third example of a connecting element on a cap in the condition of connection to a collecting element,

Figure 6b shows a sectional view of the cap in Figure 6a to describe the production of a connection between cap and collecting element, which is safeguarded against unintentional detachment,

Figure 7 shows a side view of a writing instrument assembly with four writing instruments, wherein the assembly is held at one of the writing instruments for transport thereof,

Figure 8a shows a detail view of a collecting element for a writing instrument assembly according to the invention, and

Figure 8b shows a sectional view through a desired tear-away location of a collecting element according to the invention.

[0049] Figure 1 shows a writing instrument assembly 1 having a ring 11 as the collecting element 10 and a writing instrument 20a-1 connected thereto by way of a through opening 62 in the form of a through hole as a connecting element 60 on a cap 30a-1, as well as a cap 30a-2 connected thereto in the same way (without a writing instrument), as an isometric view.

[0050] The writing instrument 20a-1 of the Figure 1 example has a main axis H substantially determined by the elongate extent of the writing instrument 20a-1. At its bottom left side it also has a passive end 40 while at its top right side it has an active end concealed by the cap 30a-1. The cap 30a-1 is reversibly releasably connected to the writing instrument at a releasable connection 32.

[0051] The writing instrument has a writing member having a writing tip at the active end of the writing instrument 20a-1.

[0052] Provided at the end of the cap 30a-1, remote from the writing instrument 20a-1, is a connecting element 60 in accordance with the first aspect of the present invention in the form of the opening 62 having a closed edge. The collecting element 10 is in the form of an extensive structure in the form of a ring 11 having a collecting opening 14 therethrough. The ring 11 comprises a collecting edge 12, that is substantially closed in itself,

of the collecting opening 14. The collecting edge 12 is of a predetermined collecting edge cross-section 13 which here is circular. Alternatively the collecting element 10 can also be designed in the manner of a carabiner hook, in which respect it is to be observed that, when understanding the principle involved, any other shapes which are directed to the purpose in question are also suitable. To connect the collecting element 10 to a connecting element 60 on the cap 30a-1 or to detach the cap, a collecting opening or break 16 is provided in the collecting element 10.

[0053] Reference is now made to Figures 2a and 2b to describe an advantageous alternative configuration or development of the passive end 40 of the writing instrument 20a in Figure 1 having a lifting-up aid 70. For that purpose provided at the passive end 40 of the writing instrument 20b-1 are two planes 72, 74 which respectively extend inclinedly substantially relative to the longitudinal axis H of the writing instrument 20b-1, that is to say being inclined planes, to act as a lifting-up aid 70. It should be noted that alternatively or additionally the lifting-up aid 70 and a connecting element 60 shown in Figure 1 in accordance with the first aspect of the invention can also be provided integrally on or integrated into the cap and/or also at the passive end 40; the connecting element 60 shown in Figure 1 would then be integrated into the lifting-up aid 70 (see for example Figure 3). In the Figures 2a and 2b configuration the lifting-up aid 70 can also be provided as a separately produced attachment portion at the passive end 40, in particular therefore it is possible to use different materials for a gripping portion 22 (of the writing instrument 20b) of the length L, and the lifting-up aid 70.

[0054] Figures 2a and 2b show two conditions in the lifting movement of a writing instrument 20b-1. Figure 2a shows the writing instrument 20b-1 in the laid-down condition while Figure 2b shows the writing instrument 20b-1 illustrated in Figure 2a in the lifted-up condition. The writing instrument 20b-1 is for example a fine liner, which at the active end 50 has a front portion 52 consisting of a writing insert having a writing tip 54 in the form of a capillary-active fibre stick. The front portion is connected to the gripping portion 22 and terminally closes it.

[0055] The gripping portion 22 has a cavity (not shown) in which there is a writing fluid storage member from which writing fluid passes to the writing tip 54 by way of the capillary-active fibre stick, in the writing operation. The writing tips 54 of such fibre tip pens are particularly delicate in particular in regard to mechanical factors acting thereon.

[0056] The writing instrument 20b-1 shown in Figures 2a and 2b is disposed on a support surface F on which it has been laid down and at its passive end 40 has a lifting-up aid 70 according to the invention which is of a substantially tube-shaped configuration. That lifting-up aid 70 in the form of a tube end has two substantially inclined planes 72, 74 which are displaced through 180° relative to each other with respect to the longitudinal axis

of the writing instrument 20b-1. In this case one of the two inclined planes 74 is towards the surface F.

[0057] If a male or female user wishes to move the laid-down writing instrument 20b-1 out of its position in Figure 2a into the lifted position in Figure 2b, he presses with at least one finger on the upper inclined plane 72 of the lifting-up aid 70, that is to say the inclined plane facing away from the surface F, and thus moves the passive end 40 of the writing instrument 20b-1 in the direction of the surface F. In that situation the writing instrument 20b-1 tilts about the virtual pivot axis D (see Figure 2b) at the location at which the lower inclined plane 74 goes into the gripping portion 22 of the writing instrument 20b-1. That operation ends as soon as the lower inclined plane 74, that is to say the one that faces towards the surface F, butts with its most exposed location, in the case of the writing instrument 20b-1 shown in Figure 2b, with the tube bottom fold-like end of the lifting-up aid 20, against the surface F. In that situation the active end 50 of the writing instrument 20b-1 is lifted completely or to its maximum. In the lifted condition the active end 50 of the writing instrument 20b-1 is lifted from the surface F by a predetermined height A. The lifting height can be calculated by means of the changes in angle α as the sine of the change in angle times the spacing from the contact point to the active end, that is to say $A = \sin \alpha \cdot L$.

[0058] The two inclined planes 72, 74 of the lifting-up aid of the writing instrument 20b-1 in Figures 2a and 2b are substantially mutually symmetrical. This means that both inclined planes 72, 74 can produce an identical lifting movement and thus give an identical lifting height A. The functionality of the lifting aid 70 in Figures 2a and 2b is thus independent of the exact position of the writing instrument 20b on the surface F on which it was laid down. A laid-down situation which is rotated about the longitudinal axis of the writing instrument 20b-1 also leads to a perfect lifting movement result when pressure is applied by means of at least one finger to the exposed inclined plane 72 of the lifting-up aid 70 as the writing instrument 20b-1 is automatically oriented at the latest upon contact being made between the lower inclined plane 74 and the surface F, and it is turned into a position as shown in Figure 2b about the longitudinal axis of the writing instrument 20b-1.

[0059] The lifting-up height A is about 18 mm high in Figure 2b as at that height it is easily possible to grip around the writing instrument 20b-1 in the proximity of the active end 50 with typical finger sizes on the part of a user. It will be appreciated that a higher lifting height is also possible, in particular in use according to the requirements involved of the writing instrument 20b-1, by children.

[0060] It is particularly advantageous if the writing instrument 20b-1 is wider in the region of the tube end fold than the rest of the diameter of the gripping portion 22. Then the tube end fold performs a rolling stop function which is particularly advantageous here as in that way the writing instrument is automatically always in a posi-

tion that is optimum for actuation of the lifting-up aid. In addition it is possible to dispense with further measures to prevent unwanted rolling capability on the part of the writing instrument.

[0061] Reference will now be made to Figures 2a and 2b to briefly describe the point that lifting of the writing instrument 20b-1 shown therein can not only be quickly and easily implemented, but is even possible with one hand. Thus when the writing instrument 20b-1 is in the condition of having been laid down, pressure can be applied with the little finger, for example of the right hand, to the upper inclined plane 72 of the lifting-up aid 70 and thus the passive end 40 of the writing instrument 20b-1 can be pressed in the direction of the surface F on which the instrument was laid. In the completely lifted condition in Figure 2b the little finger remains on the lifting-up aid 70 and the upper inclined plane 72 while the thumb and index finger of the same hand can embrace the writing instrument 20b-1 in the proximity of the active end thereof. After the fingers have been placed around the instrument the writing instrument 20b-1 is lifted in the proximity of the active end 50 while at the same time the little finger can relieve the pressure loading on the upper inclined plane 72 of the lifting-up aid 70 and can move away. In that way it is even possible for a writing instrument 20b-1 according to the invention to be lifted up with one hand.

[0062] Figure 3 shows a side view of a second example of a writing instrument assembly 1a having three writing instruments 20c-1 to 20c-3. For the avoidance of repetition hereinafter only the differences in relation to the example of Figure 1 will be described.

[0063] For the sake of better illustration the writing instruments 20c-1 to 20c-3 in Figure 3, as in Figures 2a and 2b, are fine liners, that is to say writing instruments each having a writing tip 54 at the front portion 52 of the active end 50. Once again the writing tip 54 is protected by the provision of caps 30b-1 and 30b-2 which are also provided with a lifting-up aid 20b as described with reference to Figures 2a and 2b. Also disposed at the passive end 40 of the writing instruments 20c-1 to 20c-3 is a lifting-up aid 70a as described with reference to Figures 2a and 2b. In addition a connecting element 60a according to the invention is also provided at the passive end 40, that is to say in the lifting-up aid 70a, for connection to the ring 11 with a collecting opening 16, as the collecting element. In other words the functionalities of the lifting-up aid 70a and the connecting element 60a are jointly integrated into the passive end 40 of the writing instrument 20c-1 to 20c-3.

[0064] Figure 4 shows a side view of a first example of a connecting element 60b on a cap 30c for a writing instrument (not shown) in the form of an opening having an aperture 66 in the edge 64 for connection to a collecting element 10. Once again a ring 11 is assumed to be the example of the collecting element 10, being shown in a sectional view in Figure 4. The closure cap 30c can be made from a thermoplastic material, preferably bioinert polypropylene (PP).

[0065] The connecting element 60b is in the form of an opening 62 having an aperture 66 in the peripheral edge portion 64, wherein the aperture 66 has at least one constriction 65 of a width W less than the diameter DM of the collecting edge cross-section 13. For simplification of the production of a connection for the connecting element 60b to the collecting element 10 and/or to facilitate detachment of a connecting element 60b from the collecting element 10 the connecting element 60b is provided with respective oppositely disposed flat-surfaced guide surfaces 67a', 67a" and 67b', 67b" respectively for the collecting element 10. Each two guide surfaces 67a', 67a" and 67b', 67b" for the collecting element 10 are arranged at the aperture 66 of the opening 62 at an angle relative to each other in such a way that the guide surfaces make it easier for the constriction 65 to be elastically opened up or expanded when the connecting element 60b is connected to or detached from the collecting element 10.

[0066] It should also be mentioned as advantageous that the aperture 66 of the connecting element 60b with the open edge portion has with respect to a longitudinal axis of the opening 62 a radial actuating direction which forms a safety angle against unintentional detachment of about 90° with the main axis H of the writing instrument. It should be pointed out that the security angle can preferably also be selected to be in the range of between 30° and 150°.

[0067] Figure 5a shows a side view of a second example of a connecting element 60 on a closure cap 30a for a writing instrument in the form of an opening 62 having a closed edge 64. The closure cap 30a can be made from a thermoplastic material, preferably bioinert polypropylene (PP). The opening 62 for the connecting element 60 can be added after an injection moulding operation, for example by boring. The required mechanical load-bearing capability can be adjusted in dependence on the material involved by way of the thicknesses of the edge 64. Alternatively the opening 62 can also be already produced during manufacture by means of a lateral pull.

[0068] Figure 5b shows a cross-sectional view of the closure cap 30a in Figure 5a together with a ring 11 as the collecting element 10 to describe the production of a connection between the closure cap 30a and the collecting element. The closure cap 30a has an outer portion 33a and an inner portion 33b. The inner portion 33b extends in this case approximately over half the axial length along the closure axis H of the closure cap 30a, the axis H being identical to the main axis H of the writing instrument; it should be noted that the inner portion 33b can also be almost as long as the axial length of the cap and in particular configurations even longer. In the region of the inner portion 33b the closure cap 30a is designed to receive an active end of the writing instrument. The inner portion 33b and the outer portion 33a are connected together by means of legs 37. Air passages 39 are provided between those legs 37. The legs 37 are arranged substantially in a star configuration around the closure axis

H of the closure cap 30a so that this results in a substantially symmetrical distribution of the air passages 39 about the closure axis H. In this case the cross-section of the legs 37 is smaller than the cross-section of the air passages 39 so that on the one hand there is a sufficient area for air exchange while on the other hand the connection between the outer portion 33a and the inner portion 33b is sufficiently mechanically stable. It will be appreciated that any other arrangement of the legs 37, than in a star configuration, is also conceivable.

[0069] When a pen as the writing instrument, in particular the writing tip thereof, is closed with a closure cap 30a, the writing tip is introduced into the opening 38 of the closure cap 30a until the writing tip comes to lie in the interior 31 of the inner portion 33b of the closure cap 30a. An inner portion sealing means can be provided for example in the form of a ridge 36 to seal off the interior 31 of the inner portion 33b when the writing tip is in the inserted condition. It will be seen from the cross-section in Figure 5b that the region in which the writing tip of the pen comes to lie in the closed condition, namely the inner region of the inner portion 33b, is completely sealed off. The inner portion 33b can however also be sealed off by a suitable fit between the surface 35b of the inner portion and the surface of the writing tip, that is in contact therewith in the inserted condition. The air passages 39 between the legs 37 are disposed outside that sealed-off region and therefore do not interfere with that sealing integrity. It is therefore not possible for the writing tip to dry out in the condition of being received in the inner region 31 of the inner portion 33b. The inner surface 35a represents a guide for the active end of the writing instrument and with suitable dimensioning can involve a closure force for a holding function for holding the writing instrument in the cap 30a. Alternatively or additionally a latching means can also be provided in the form of a peripherally extending ridge 34 at the inside surface 35a of the outer portion in the proximity of the opening 38 intended for receiving the writing tip, for mechanically and releasably connecting the closure cap 30a to a pen.

[0070] Figure 6a shows a side view of a third example of a connecting element 60c on a cap 30d in the condition of being connected to a collecting element 10. Once again a ring 11 having a collecting opening 16 is shown as an example of the collecting element. The two ends 11a, 11b of the ring 11 at the collecting opening 16 are of such a configuration that there is a preferential direction VR for detachment or fitting of a connecting element 60c. For that purpose the cross-sectional surfaces of the ends 11a, 11b are rounded off or inclined relative to the interior of the ring 11 so that the ring can be easily bent open from the interior or the collecting opening 16 can be expanded to detach a cap 30d. So that a cap 30d can be released from the ring from the inside the diameter D1 of the ring is somewhat larger than the relevant length D2 of the cap 30d. Thus a cap 30d, without a writing instrument, can be turned about the collecting edge 12 of the ring 11 into the interior of the ring in an inward

direction in order to remove the cap 30d from the inside outwardly. That particularly advantageously counteracts unintentional detachment of a cap, particularly when a writing instrument is connected to the cap.

[0071] Figure 6b shows a sectional view of the cap 30d in Figure 6 to describe the production of a connection, safeguarded against unintentional detachment, between the cap 30d and the collecting element 10. The connecting element 60c of the cap 30d in Figure 6b is so adapted that the cap 30d can be detached from the ring 11 essentially only as described hereinbefore. The opening 62 in the form of a connecting opening is formed with a closed peripheral edge portion 64. To simplify making the connection of the connecting element 60c to the collecting element 10 and/or to facilitate detachment of the connecting element 60c from the collecting element 10 a material weakening 66b is provided at a location on the edge portion 64 of the connecting break or opening 62. The material weakening 66b extends substantially radially over the edge portion 64 with respect to the longitudinal axis of the opening 62. The width of the material weakening 66b approximately corresponds to the diameter of the collecting edge cross-section of the ring 11.

[0072] As described with reference to Figure 6a the collecting opening 16 in the collecting element 10 and the connecting element 60c on the cap 30d for an active end of a writing instrument are so matched to each other that the cap 30d can be detached radially outwardly from the interior of the collecting element 10, only without a writing instrument. For that purpose the connecting element 60c, in relation to the longitudinal axis of the opening 62, has a first radial actuating direction R1 which substantially coincides with the main axis H of the writing instrument. The first actuating direction R1 is adjoined by a second actuating direction R2 extending substantially perpendicularly to the first actuating direction R1.

[0073] In other words, to detach the cap 30d it has to be turned inwardly and then pressed in opposite relationship to the direction of the arrow R1 (Figure 6b) outwardly in the direction of the arrow VR (Figure 6a). In that case the material weakening 66b passes the collecting opening 16. The cap 30d can then be unhooked from the collecting edge in opposite relationship to the direction of the arrow R2. In other words the collecting edge 12 of the collecting element 10 follows the arrows R1 and R2 (Figure 6b) in the detachment procedure. An operation of connecting the cap 30d can be effected both with the cap alone but in particular also with the cap and the writing instrument as a unit.

[0074] In order to connect the cap 30d to the collecting edge again the orifice in the connecting element 60c is pushed in opposite relationship to the direction of the arrow R2 on to the collecting edge. Before or afterwards the cap 30d is oriented outwardly in the radial direction of the collecting edge 12 so that the material weakening 66b can urge the bevelled ends 11a, 11b of the collecting edge 12 apart. The collecting opening 16 and the collecting edge 12 are then oriented in aligned relationship with

the material weakening 66b and the collecting edge 12 is pulled in opposite relationship to the direction of the arrow R1 into the opening 62, in which case the material weakening 66b passes the collecting opening 16 in the collecting edge 12.

[0075] Figure 7 shows a side view of a writing instrument assembly 1* with four writing instruments 20a-1 to 20a-4, wherein for transport purposes the assembly is held at the writing instrument 20a-1 by means of a hand 80, between the index finger 82 and the thumb 84 thereof.

[0076] Figure 7 is intended to illustrate advantages which are achieved with the writing instrument assembly. A plurality of writing instruments can be stored and transported in the form of an assembly - if desired - in a predetermined sequence. That is particularly advantageous if the individual writing instruments 20a-1 to 20a-4 differ in respect of a predetermined feature in relation to the order thereof, for example in colour and/or colour shade of a given row of colours and/or by virtue of different writing widths. To permanently ensure the desired ordered arrangement, it is particularly advantageous if the cap of each writing instrument involves a geometrical cross-section in respect of the active end of the writing instrument and the associated cap, such cross-sections being matched to each other for example in accordance with the key-lock principle. A coloured cap coding can also be used as a simpler alternative. In that way the respective writing instrument can be optically and/or mechanically associated with a given cap and thus the correct sequence in which the instruments are arranged in order can be observed.

[0077] In Figure 7 the respective connecting element 60d is disposed on the respective cap 30d-1 to 30d-4 for the active end of the respective writing instrument 20a-1 to 20a-4. A respective releasable connection between a respective one of the caps 30d-1 to 30d-4 and the respective writing instrument 20a-1 to 20a-4 is of such dimensions that, to release the writing instrument 20a-1 to 20a-4 from the cap 30d-1 to 30d-4, a closing force VK has to be overcome, which is greater than the force G due to the weight of the overall writing instrument assembly 1*, reduced by the force exerted by the weight of one writing instrument. It will be appreciated that other ways in which the force relationships are matched to each other are also possible. On the connecting element 60d, like the caps shown for example in Figure 3, the caps 30d-1 to 30d-4 have a receiving aid 70c, that is to say a respective connecting element is integrated into the receiving aid 70c, on the respective cap.

[0078] Figure 8a shows a preferred embodiment for a collecting element 10 for writing instruments. At its ends the collecting element has corresponding closure elements 81, 86 of a closure for reversibly opening and closing the collecting edge 12. In the view the winged arrowhead 81 corresponds to the plug element which can be brought into engagement with the hollow element, an outer contour and an inner contour of which being shaped in the form of a flat quadrilateral or a kite (deltoid) 86, in

the manner of a loop.

[0079] To close the closure the arrowhead 81 is to be fitted through the kite 86, whereupon at least one of the barbs 83a, 83b cuts behind the kite 86 or the hollow element cuts behind the plug element so that the arrowhead 81 is secured to prevent it from being released from the kite 86. To open the closure the arrowhead 81 is oriented perpendicularly to the area defined by the opening in the kite 86 and the two barbs 83a, 83b are oriented to correspond to the widest inside dimension 87 of the kite. It is precisely in that position that opening of the closure or reverse movement of the arrowhead 81 through the kite 86 is possible.

[0080] In order in contrast to substantially prevent unintentional opening of the closure under a tensile loading, the length 88 of the arrowhead 81 is greater than the inside dimension 87 of the kite 86. In that way the arrowhead 81 cannot rotate in the kite 86 about the point at which one of the barbs 83a, 83b of the arrowhead 81 is in hooking engagement into the kite 86, further than until the front end 82 of the arrowhead 81 comes to bear against the opposite end of the kite 86. As a result the arrowhead 81 cannot leave the kite 86 in a 'transversely oriented' relationship, but only in the above-described perpendicular orientation as between the arrowhead 81 and the area of the opening in the kite 86.

[0081] The kite 86 is adapted to be elastic in shape so that when a writing instrument is fitted on and removed, the rhombus is elastically deformed that is to say compressed by the writing instrument connecting element. That ensures that a predefined force has to be overcome to remove the writing instruments from the collecting element.

[0082] Depending on the produced length of the collecting element 10 the illustrated closure elements consisting of the arrowhead 81 and the kite 86 can also be used to link or join together a plurality of writing instrument assemblies according to the invention, or collecting elements. It will be appreciated that on the one hand the user is free to arrange for a further collecting edge to pass through the collecting opening of the one collecting element 10, and thus to bring the two collecting elements themselves into engagement with each other, similarly to a chain. It is however also possible to use the closure elements for connecting the collecting elements together, that is to say it is possible to connect the arrowhead 81 of a first collecting element to the kite 86 of a second collecting element, and vice-versa.

[0083] A gripping element 84 in the form of a coin is provided on the collecting element at a short distance in relation to the arrowhead 81. It bears an indication of origin 85 which is rendered visible either in the form of a structure and/or as a multi-coloured combination of materials and/or by an ink or colour application. The proximity of the gripping element 84 to the arrowhead 81 represents a comparatively stiff connection and therefore permits convenient, comfortable and deliberate handling of the arrowhead 81 when opening and closing the col-

lecting element.

[0084] In the situation where the closure elements of two similar collecting edges are connected together, the gripping elements 85 additionally perform the function of separating the collecting edges of the first and second collecting elements from each other so that two separate collecting edge regions are available to be able to arrange the pens on a (two-part) collecting edge which is closed in itself, on a certain periphery.

[0085] In addition the collecting element 10 has a predefined weak location or desired tear-away location 91. This involves a predefined material weakening shown in greater detail in Figure 8b, in the form of a blind hole or a recess 89. That recess 89 can be provided for example by a suitable structure in the injection moulding mould used or (depending on the respective material used) it can be subsequently produced by cutting machining or heat treatment of the collecting element. In that respect the remaining cross-sectional area 90 is so dimensioned that it tears at a predefined tensile force acting thereon, preferably in the range between 15 N and 40 N, particularly preferably in the range between 23 N and 27 N, and the collecting element thus opens.

[0086] According to another aspect of the invention, a collecting element according to the invention for a writing instrument assembly together with a plurality of writing instruments may form a kit of parts, in particular a sales unit. A writing instrument assembly of the invention may be formed with the parts of such a kit of parts or such a sales unit.

[0087] To conclude it should also be noted that even if this description substantially only ever focused on the writing instrument assembly together with at least two writing instruments, it will be appreciated that writing instruments having the features of the above-described writing instruments, which are thus suitable for use on a writing instrument assembly according to the invention, are to be deemed to be subject-matter of the invention.

Claims

1. A writing instrument assembly (1, 1a, 1*) comprising a collecting element (10),
at least two writing instruments (20a-1; 20b-1; 20c-1, 20c-2, 20c-3; 20a-1, 20a-2, 20a-3, 20a-4),
wherein each of the writing instruments has a main axis (H) determined substantially by the elongate extent of the writing instrument, at least one active end (50) with a writing member for applying or transferring a writing substance of the writing instrument and with a closure cap (30a-1, 30a-2; 30a; 30d-1, 30d-2, 30d-3, 30d-4) for being fitted on to or screwed on to the active end (50), and at least one passive end (40) and **characterised in that** there is provided, at the closure cap, at least one connecting element (60; 60a; 60b; 60c), and
wherein moreover the collecting element (10) is con-

- connected to each writing instrument by way of the respective connecting element (60; 60a; 60b; 60c), wherein the collecting element (10) is so dimensioned that it tears at a predefined tensile loading by the provision of a predefined weakening as a desired tear-away location (91).
2. A writing instrument assembly (1, 1a, 1*) according to claim 1 wherein the respective connecting element (60; 60a; 60b; 60c) or the collecting element (10) is of such a configuration that the respective writing instrument (20a-1; 20b-1; 20c-1, 20c-2, 20c-3; 20a-1, 20a-2, 20a-3, 20a-4) is reversibly releasably connected to the collecting element.
 3. A writing instrument assembly according to claim 1 or 2 wherein the collecting element (10) is provided with a closure for reversibly closing the collecting element (10), and the closure comprises corresponding closure elements (81, 86), wherein as corresponding closure elements (81, 86) there are provided a first closure element (86) in the configuration of a hollow shape, in particular with the contour in the shape of a quadrilateral, a trapezium, a rhombus, a parallelogram, or a kite, and a second closure element (81) in the configuration of a plug element lockable to the first closure element (86), in particular in the configuration of a triangle, in particular a winged or non-winged arrowhead, wherein particularly preferably a largest inside dimension (87) of the first closure element (86) is slightly smaller than the largest outside dimension of the second closure element (81) perpendicularly to the collecting edge (12) or to the plugging direction.
 4. A writing instrument assembly according to claim 3 wherein a plurality of collecting elements (10) are chain-linkable to afford a larger collecting element and in particular two collecting elements (10) are chain-linkable to afford a larger collecting element by the closure elements (81, 86) being of such a configuration that they also correspond to closure elements (81, 86) of further collecting elements.
 5. A writing instrument assembly according to one of preceding claims 3 and 4 wherein the hollow shape and the connecting element (60) are so dimensioned relative to each other that the hollow shape is to be elastically deformed for or when passing through the connecting element (60), with a predetermined force.
 6. A writing instrument assembly according to one of preceding claims 3 to 5 wherein provided on the collecting element (10) is at least one gripping element (84), preferably as a handling aid, in the proximity of a closure element (81, 86), particularly preferably adjacent to the plug element.
 7. A writing instrument assembly (1, 1a, 1*) according to one of the preceding claims wherein the material for the collecting element and/or the connecting element is so selected that by virtue of their geometry and material property the elements respectively have a predetermined elasticity or rigidity, and in particular the material is not increased in strength and rigidity by plastic deformation.
 8. A writing instrument assembly (1, 1a, 1*) according to one of the preceding claims wherein the individual writing instruments (20a-1; 20b-1; 20c-1, 20c-2, 20c-3; 20a-1, 20a-2, 20a-3, 20a-4) differ in a predetermined feature in respect of order, in particular by virtue of the colour and/or shades of a given row of colours, and/or different writing widths, and wherein the closure cap (30a-1, 30a-2; 30a; 30b-1, 30b-2, 30d; 30d-1, 30d-2, 30d-3, 30d-4) of each writing instrument preferably has a geometrical and/or colour cap coding so that the respective writing instrument is optically and/or mechanically associated with a given closure cap.

Patentansprüche

1. Schreibgerätebund (1, 1a, 1*) umfassend ein Sammelement (10), wenigstens zwei Schreibgeräte (20a-1; 20b-1; 20c-1, 20c-2, 20c-3; 20a-1, 20a-2, 20a-3, 20a-4), wobei jedes der Schreibgeräte eine Hauptachse (H), die im Wesentlichen durch die längliche Ausprägung des Schreibgeräts bestimmt ist, mindestens ein aktives Ende (50) mit einem Schreiborgan zum Schreiben oder Übertragen einer Schreibsubstanz des Schreibgeräts und mit einer Verschlusskappe (30a-1, 30a-2; 30a; 30d-1, 30d-2, 30d-3, 30d-4) zum Aufbringen oder Aufschrauben auf das aktive Ende (50), und mindestens ein passives Ende (40) aufweist, und **dadurch gekennzeichnet, dass**, an der Verschlusskappe, wenigstens ein Verbindungselement (60; 60a; 60b; 60c) bereitgestellt ist, und wobei weiter das Sammelement (10) mit jedem Schreibgerät über das jeweilige Verbindungselement (60; 60a; 60b; 60c) verbunden ist, wobei das Sammelement (10) so dimensioniert ist, dass es, durch die Bereitstellung einer vordefinierten Schwächung als Sollabreißstelle (91), bei einer vordefinierten Zugbeanspruchung reißt.
2. Schreibgerätebund (1, 1a, 1*) nach Anspruch 1, wobei das jeweilige Verbindungselement (60; 60a; 60b; 60c) oder das Sammelement (10) derart ausgestaltet ist, dass das jeweilige Schreibgerät (20a-1; 20b-1; 20c-1, 20c-2, 20c-3; 20a-1, 20a-2, 20a-3,

20a-4) mit dem Sammelement reversibel lösbar verbunden ist.

3. Schreibgerätebund nach Anspruch 1 oder 2, wobei das Sammelement (10) mit einem Verschluss zum reversiblen Verschließen des Sammelements (10) versehen ist, und der Verschluss korrespondierende Verschlusselemente (81, 86) enthält, wobei als korrespondierende Verschlusselemente (81, 86) ein erstes Verschlusselement (86) in Gestalt einer Hohlform, insbesondere mit der Kontur in Form eines Vierecks, eines Trapezes, einer Raute, eines Parallelogramms oder eines Drachenvierecks, und ein zweites Verschlusselement (81) in Gestalt eines mit dem ersten Verschlusselement (86) verriegelbaren Steckelements, insbesondere in der Gestalt eines Dreiecks, insbesondere einer geflügelten oder ungeflügelten Pfeilspitze, vorgesehen sind, wobei besonders bevorzugt ein größtes Innenmaß (87) des ersten Verschlusselements (86) geringfügig kleiner als das größte Aussenmaß des zweiten Verschlusselements (81) senkrecht zum Sammelrand (12) oder zur Steckrichtung ist.
4. Schreibgerätebund nach Anspruch 3, wobei mehrere Sammelemente (10) zu einem größeren Sammelement verkettbar sind, und insbesondere zwei Sammelemente (10) zu einem größeren Sammelement verkettbar sind, indem die Verschlusselemente (81, 86) so ausgeführt sind, dass sie auch mit Verschlusselementen (81, 86) weiterer Sammelemente korrespondieren.
5. Schreibgerätebund nach einem der vorangegangenen Ansprüche 3 und 4, wobei die Hohlform und das Verbindungselement (60) relativ zueinander derartig dimensioniert sind, dass die Hohlform zum oder beim Durchführen durch das Verbindungselement (60) mit einer vorbestimmten Kraft elastisch zu verformen ist.
6. Schreibgerätebund nach einem der vorangegangenen Ansprüche 3 bis 5, wobei am Sammelement (10) wenigstens ein Griffelement (84), bevorzugt als Handhabungshilfe, in der Nähe eines Verschlusselements (81, 86), besonders bevorzugt benachbart zum Steckelement, vorgesehen ist.
7. Schreibgerätebund (1, 1a, 1*) nach einem der vorangegangenen Ansprüche, wobei das Material für das Sammelement und/oder das Verbindungselement derart gewählt ist, dass die Elemente aufgrund ihrer Geometrie und Materialeigenschaft jeweils eine vorbestimmte Elastizität oder Festigkeit besitzen, und insbesondere dass das Material durch plastische Deformation nicht verstärkt und verfestigt wird.
8. Schreibgerätebund (1, 1a, 1*) nach einem der vor-

angegangenen Ansprüche, wobei die einzelnen Schreibgeräte (20a-1; 20b-1; 20c-1, 20c-2, 20c-3; 20a-1, 20a-2, 20a-3, 20a-4) sich in einem vorbestimmten Ordnungsmerkmal, insbesondere durch die Farbe und/oder Farbtöne einer bestimmten Farbreihe und/oder unterschiedliche Schreibbreiten unterscheiden, und wobei die Verschlusskappe (30a-1, 30a-2; 30a; 30b-1, 30b-2; 30d; 30d-1, 30d-2, 30d-3, 30d-4) jedes Schreibgeräts bevorzugt eine geometrische und/oder farbliche Kappenkodierung besitzt, sodass das jeweilige Schreibgerät optisch und/oder mechanisch einer bestimmten Verschlusskappe zugeordnet ist.

Revendications

1. Ensemble d'instrument d'écriture (1, 1a, 1*), comprenant un élément de collecte (10), au moins deux instruments d'écriture (20a-1 ; 20b-1 ; 20c-1, 20c-2, 20c-3 ; 20a-1, 20a-2, 20a-3, 20a-4), chacun des instruments d'écriture possédant un axe principal (H) en grande partie par l'étendue de l'allongement de l'instrument d'écriture, au moins une extrémité active (50) pourvue d'un élément d'écriture destiné à appliquer ou à transférer une substance d'écriture de l'instrument d'écriture et pourvue d'un capuchon de fermeture (30a-1, 30a-2 ; 30a ; 30d-1, 30d-2, 30d-3, 30d-4) destiné à être ajusté ou vissé sur l'extrémité active (50), et au moins une extrémité passive (40) et **caractérisé en ce qu'**au moins un élément de liaison (60 ; 60a ; 60b ; 60c) se trouve au niveau du bouchon de fermeture, et l'élément de collecte (10) étant en outre relié à chaque instrument d'écriture par le biais de l'élément de liaison (60 ; 60a ; 60b ; 60c) respectif, l'élément de collecte (10) étant dimensionné de telle sorte qu'il se déchire à une charge de traction prédéfinie par la production d'un affaiblissement prédéfini sous la forme d'un emplacement de déchirement (91) voulu.
2. Ensemble d'instrument d'écriture (1, 1a, 1*) selon la revendication 1, l'élément de liaison (60 ; 60a ; 60b ; 60c) respectif ou l'élément de collecte (10) étant configuré de telle sorte que l'instrument d'écriture (20a-1 ; 20b-1 ; 20c-1, 20c-2, 20c-3 ; 20a-1, 20a-2, 20a-3, 20a-4) correspondant est relié à l'élément de collecte de manière réversible et amovible.
3. Ensemble d'instrument d'écriture selon la revendication 1 ou 2, l'élément de collecte (10) étant pourvu d'une fermeture servant à la fermeture réversible de l'élément de collecte (10), et la fermeture comprenant des éléments de fermeture (81, 86) correspondants, les éléments de fermeture (81, 86) correspondants présents étant un premier élément de ferme-

- ture (86) ayant la configuration d'une forme creuse, notamment avec un profil sous la forme d'un quadrilatère, d'un trapèze, d'un losange, d'un parallélogramme ou d'un triangle, et un deuxième élément de fermeture (81) ayant la configuration d'un élément à enficher qui est verrouillable au premier élément de fermeture (86), notamment dans la configuration d'un triangle, en particulier une pointe de flèche avec ou sans ailettes, une dimension intérieure la plus grande (87) de l'élément du premier élément de fermeture (86) étant notamment de préférence légèrement plus petite que la plus grande dimension extérieure du deuxième élément de fermeture (81) perpendiculairement au bord de collecte (12) ou au sens de l'enfichage.
4. Ensemble d'instrument d'écriture selon la revendication 3, une pluralité d'éléments de collecte (10) pouvant être liés à la manière d'une chaîne afin d'offrir un élément de collecte plus grand et notamment deux éléments de collecte (10) pouvant être liés à la manière d'une chaîne afin d'offrir un élément de collecte plus grand en ce que les éléments de fermeture (81, 86) sont d'une configuration telle qu'ils correspondent également aux éléments de fermeture (81, 86) d'autres éléments de collecte.
5. Ensemble d'instrument d'écriture selon l'une des revendications précédentes 3 et 4, la forme creuse et l'élément de liaison (60) étant dimensionnés de telle sorte l'un par rapport à l'autre que la forme creuse peut se déformer élastiquement en vue ou lors du passage à travers l'élément de liaison (60) avec une force prédéterminée.
6. Ensemble d'instrument d'écriture selon l'une des revendications précédentes 3 à 5, au moins un élément de préhension (84), de préférence sous la forme d'une aide à la manipulation, se trouvant sur l'élément de collecte (10) à proximité d'un élément de fermeture (81, 86), notamment de préférence voisin de l'élément à enficher.
7. Ensemble d'instrument d'écriture (1, 1a, 1*) selon l'une des revendications précédentes, le matériau de l'élément de collecte et/ou de l'élément de liaison étant choisi de telle sorte que grâce à leurs formes géométriques et aux propriétés de leur matériau, les éléments possèdent respectivement une élasticité ou une rigidité prédéterminée, et en particulier la résistance et la rigidité du matériau n'augmentent pas sous l'effet de la déformation plastique.
8. Ensemble d'instrument d'écriture (1, 1a, 1*) selon l'une des revendications précédentes, les instruments d'écriture (20a-1 ; 20b-1 ; 20c-1, 20c-2, 20c-3 ; 20a-1, 20a-2, 20a-3, 20a-4) individuels se distinguant par une fonctionnalité prédéterminée concernant l'ordre, en particulier du fait de la couleur et/ou des nuances d'une ligne de couleurs donnée, ou par des largeurs d'écriture différentes, et le capuchon de fermeture (30a-1, 30a-2 ; 30a ; 30b-1, 30b-2, 30d ; 30d-1, 30d-2, 30d-3, 30d-4) de chaque instrument d'écriture possédant de préférence un codage géométrique et/ou en couleur de capuchon, de sorte que l'instrument d'écriture respectif soit visuellement et/ou mécaniquement associé à un capuchon de fermeture donné.

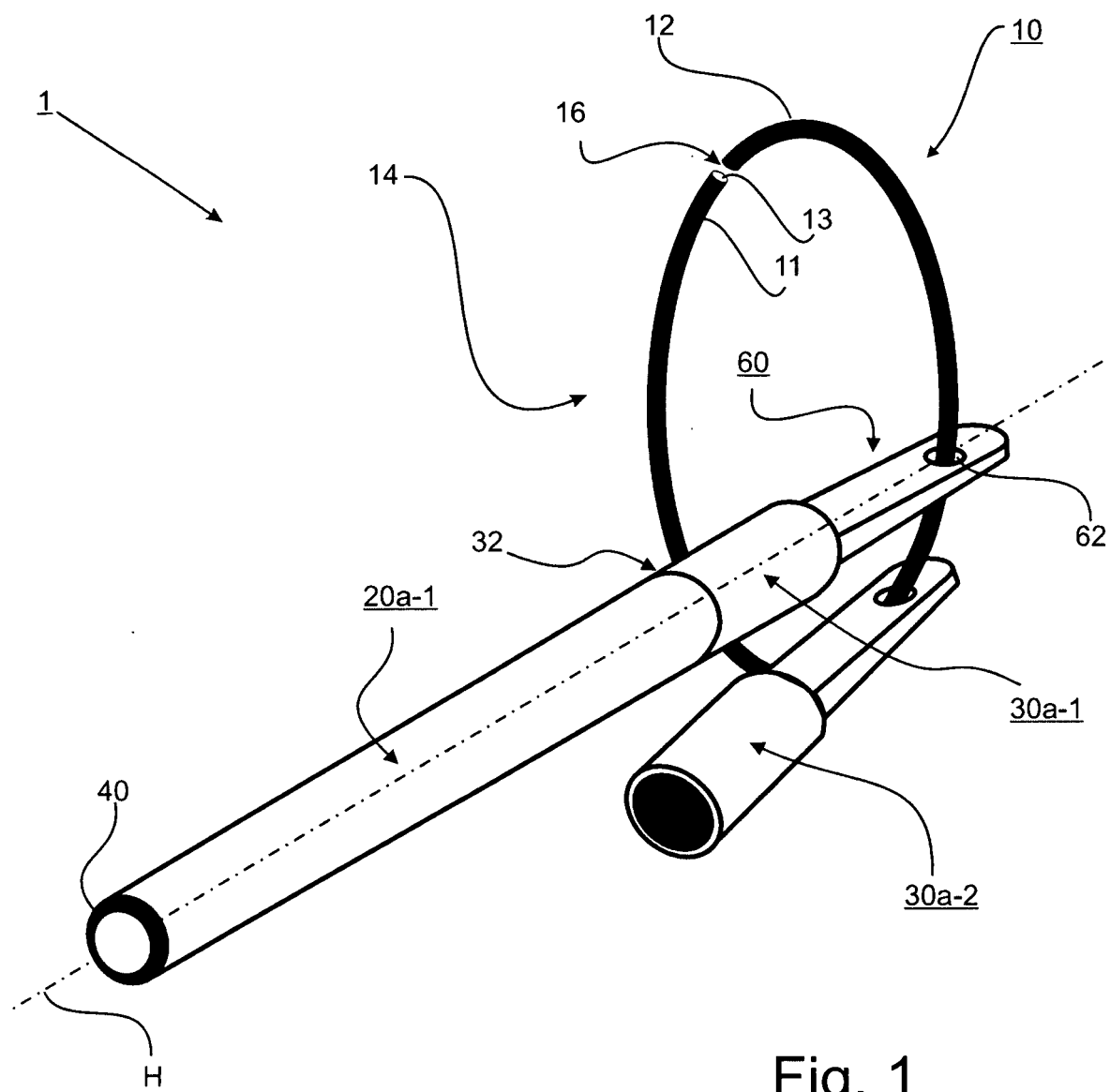


Fig. 1

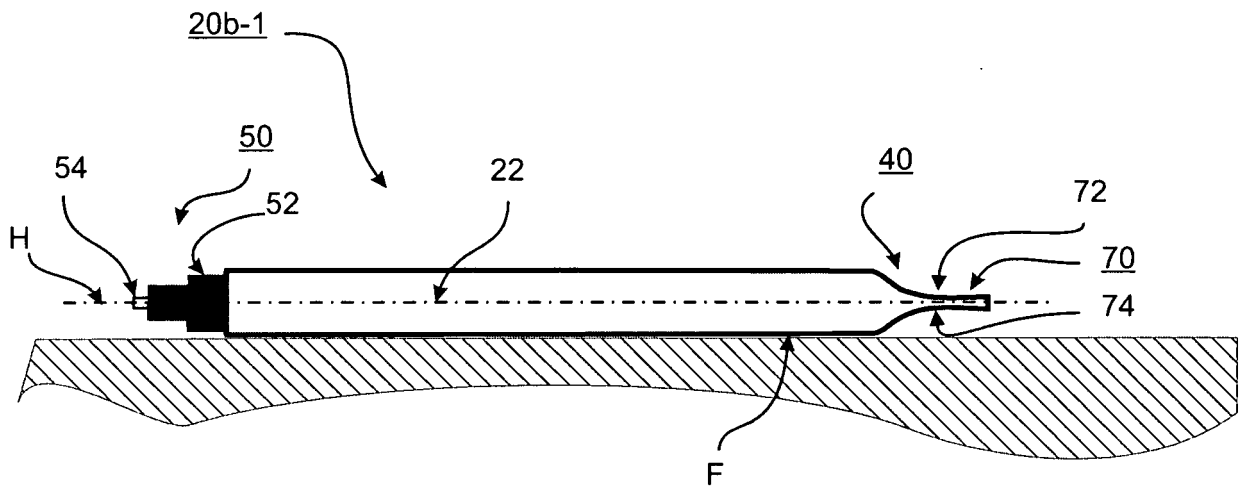


Fig. 2a

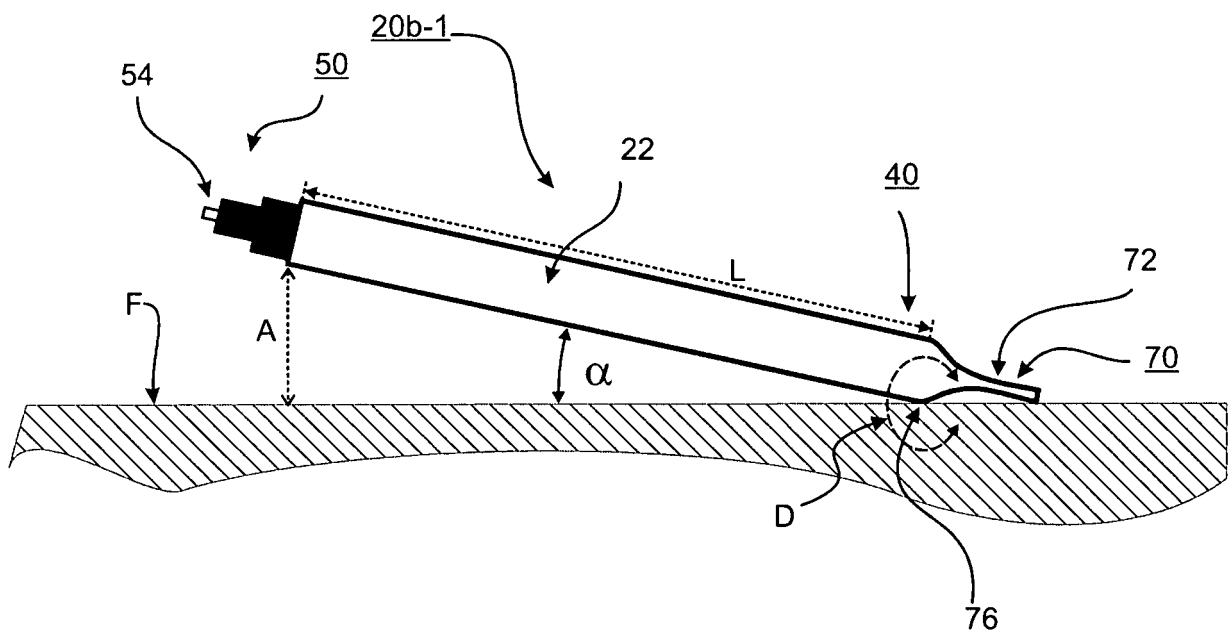


Fig. 2b

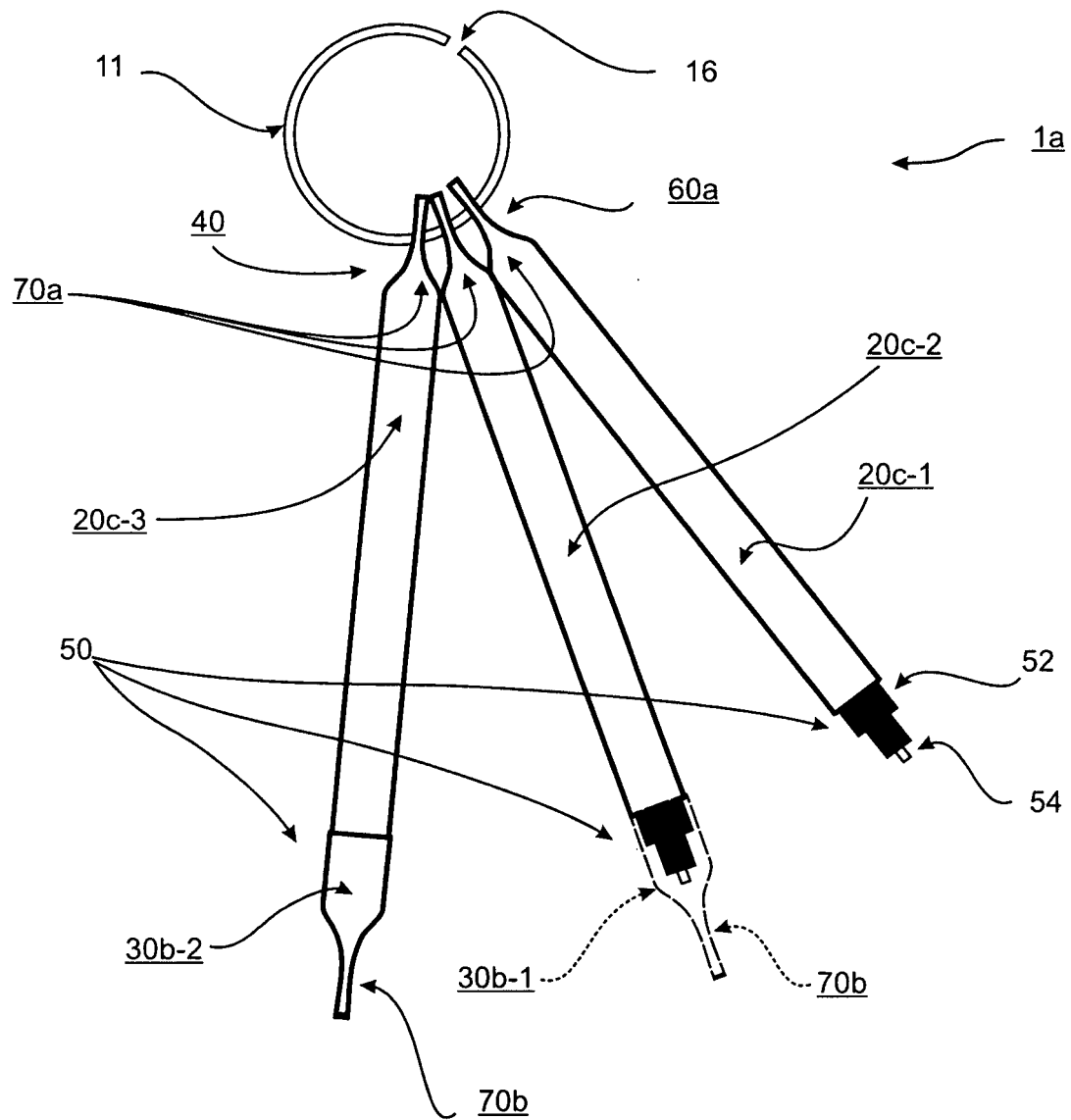


Fig. 3

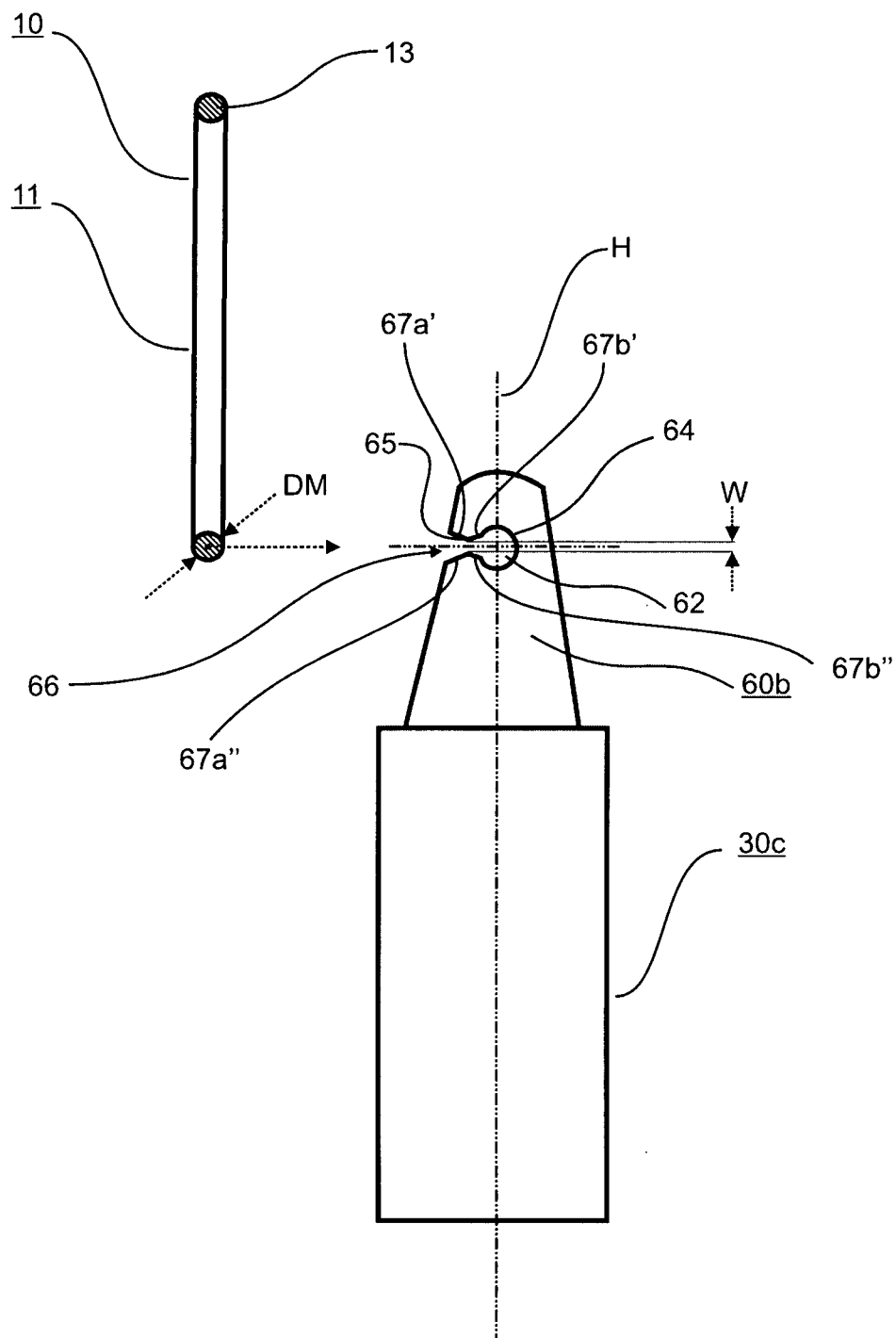
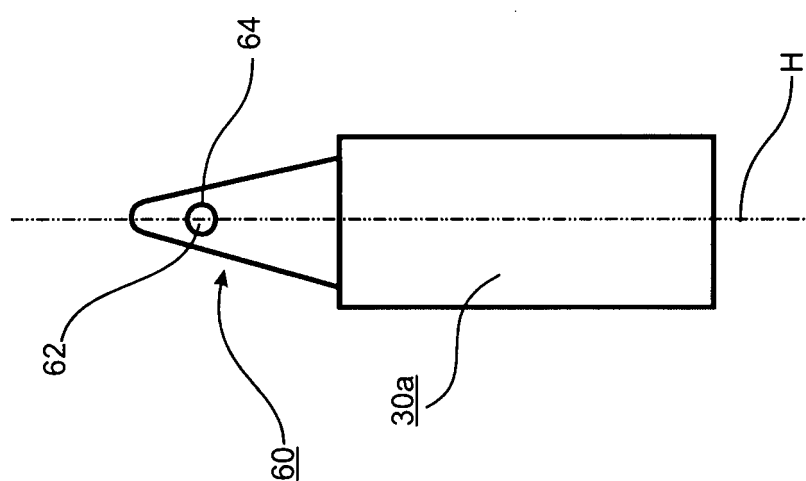
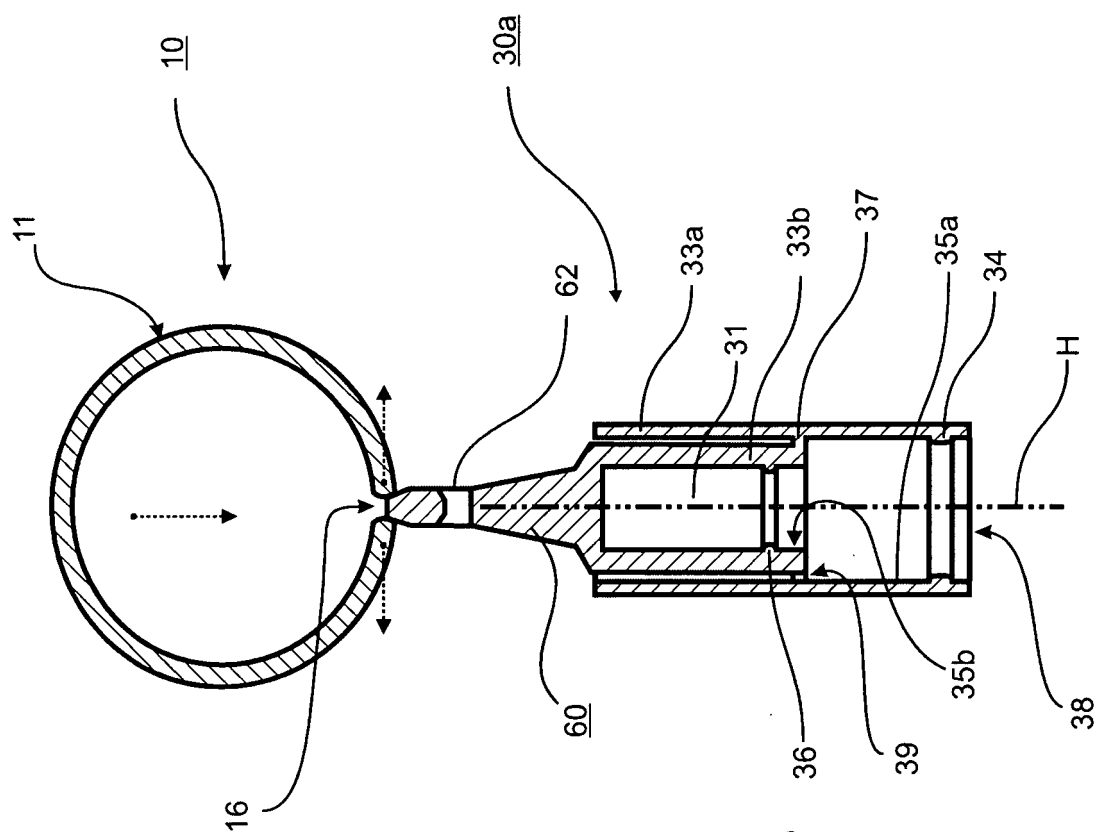


Fig. 4



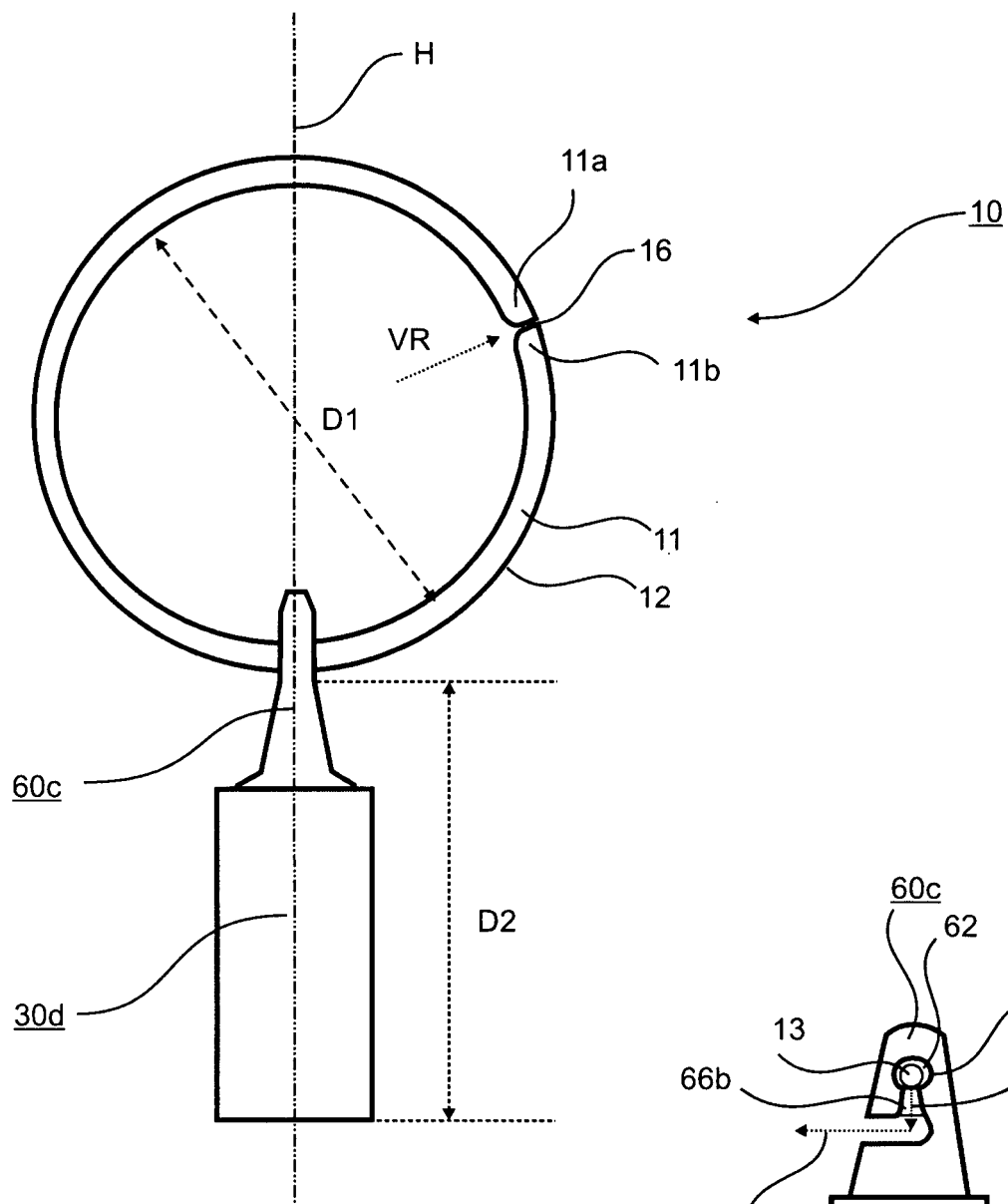


Fig. 6a

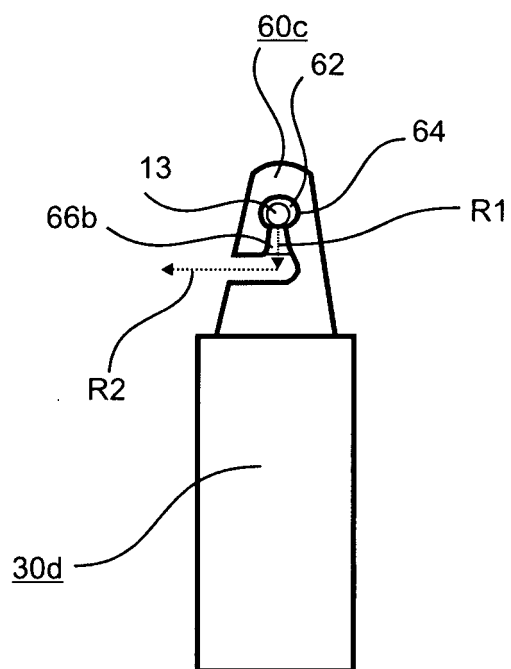


Fig. 6b

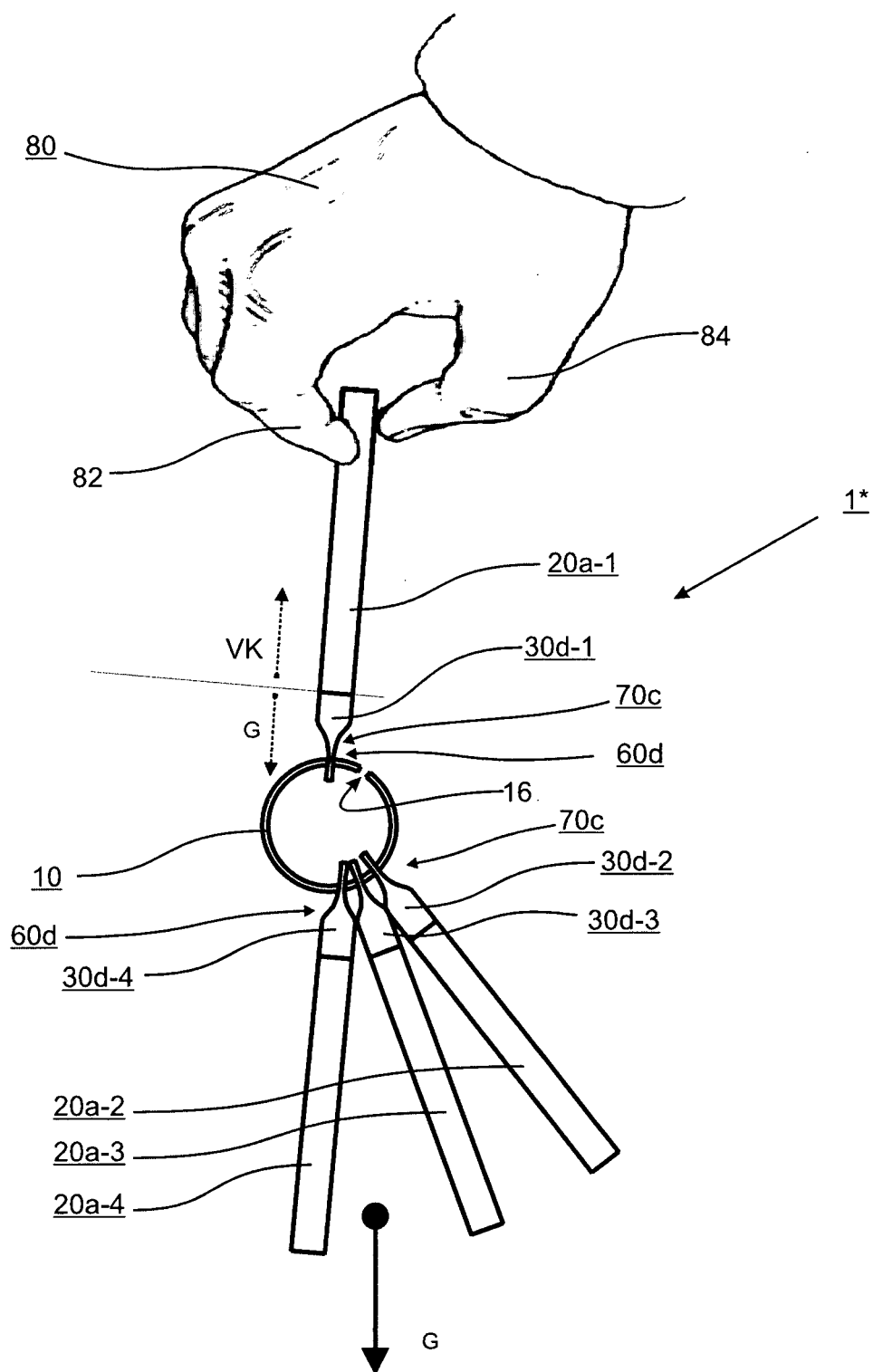


Fig. 7

Fig. 8a

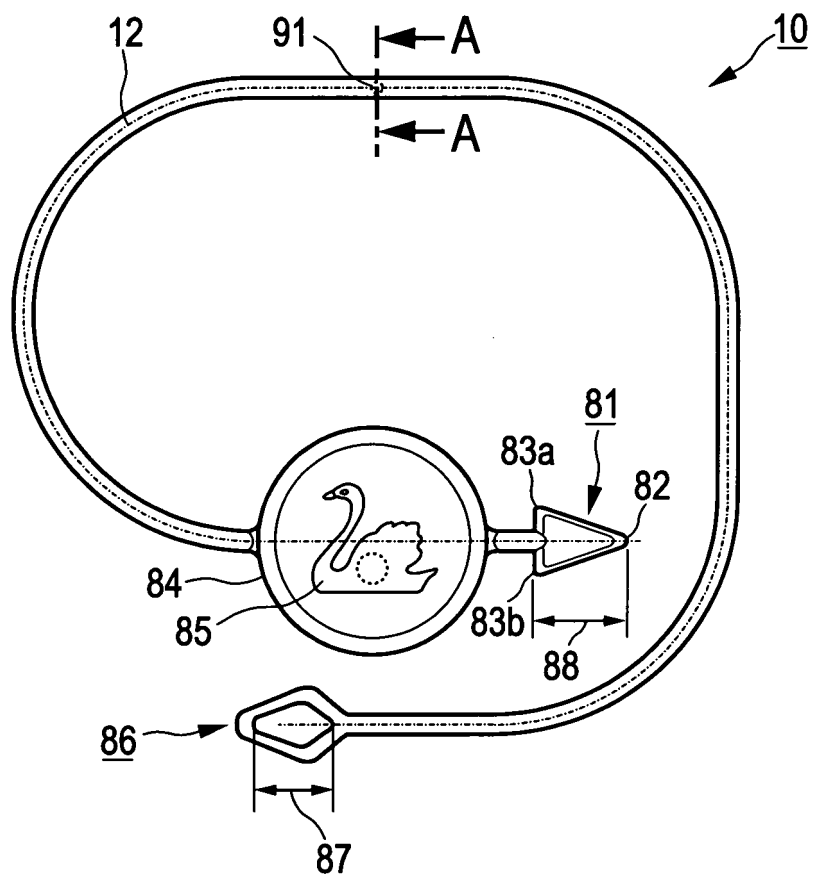
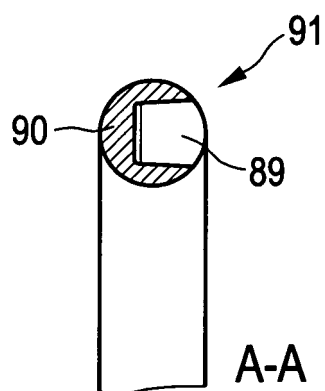


Fig. 8b



REFERENCES CITED IN THE DESCRIPTION

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