(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 3 068 629 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
20.12.2017 Bulletin 2017/51

(21) Application number: **14731767.1**

(22) Date of filing: **22.04.2014**

(51) Int Cl.:
B43K 19/02 *(2006.01)* ***B43K 21/00*** *(2006.01)*
B43K 29/00 *(2006.01)*

(86) International application number:
PCT/IB2014/000627

(87) International publication number:
WO 2015/071710 (21.05.2015 Gazette 2015/20)

(54) **WRITING DEVICE, PARTICULARLY CAPACITIVE PENCIL, FOR AFFIXING GRAPHIC SIGNS SUCH AS DRAWINGS AND WRITINGS OF VARIOUS KIND WITH VARIABLE INCLINATIONS ON TO TACTILE SCREENS OR TOUCH SCREENS**

SCHREIBVORRICHTUNG, INSBESONDERE KAPAZITIVER STIFT, ZUR BEFESTIGUNG GRAFISCHER ZEICHEN WIE ZEICHNUNGEN UND SCHRIFTEN VERSCHIEDENER ART MIT VARIABLER NEIGUNG AUF TAKTILEN BILDSCHIRMEN ODER TOUCHSCREENS

DISPOSITIF D'ÉCRITURE, EN PARTICULIER STYLET CAPACITIF, PERMETTANT DE FIXER DES SIGNES GRAPHIQUES TELS QUE DES DESSINS ET DES ÉCRITURES DE DIVERS TYPES, AVEC DES INCLINAISONS VARIABLES SUR DES ÉCRANS TACTILES

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **14.11.2013 IT PN20130036**

(43) Date of publication of application:
21.09.2016 Bulletin 2016/38

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EP 3 068 629 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The invention relates to a writing device, in particular capacitive pencil, adapted to affix graphic signs such as drawings and writings of various kind with variable inclinations on to tactile screens or touch screens.

[0002] From DE19731978A1 it is known a quill which includes an elongated element which ranges between far and near ends. Said element has a surface which tapers between the two ends and forms a peak at the far end, furthermore, such an element has an inner volume in which the end of a tracer pin is securely and detachably held using a near opening. The diameter of the inner volume of said element is smaller than the diameter of the tracer pin. Said opening expands laterally due to the diameter differences.

[0003] The elongated element consists at least partly of an elastomer material with a hardness which is less than the hardness of the monitor.

[0004] From US2012194484A1 it is known a stylus comprising a tip and a body, which stylus may be configured to attach to a writing utensil and may be a capacitive stylus for use with a capacitive touch screen. Said tip may be removably attached to said body.

[0005] The object of the present invention is to realize a writing device for affixing graphic signs such as drawings and writings of various kind, with different characters and signs and more or less marked lines and with variable inclinations thereof, on to tactile screens or touch screens, which is made in a manner different than that disclosed by the state of the art represented by the above references.

[0006] The invention will be better understood from the following description, given by way of a not limitative example only, and with reference to the accompanying drawings in which :

- Fig. 1 shows a perspective front view of a pencil, constituting the writing device according to the invention, and an accessory element separated from the same, in a first embodiment thereof, which is shaped for being applied on to the pencil for obtaining the writings and the graphic signs on to the outer surface of a tactile screen ;
- Fig. 2 shows a front view of the pencil and the accessory element of Fig. 1 ;
- Fig. 3 shows a side view of the pencil and the accessory element of Fig. 1 ;
- Fig. 4 shows a view from below of the accessory element of the preceding Figures ;
- Fig. 5 shows a perspective front view of the developed accessory element;
- Fig. 6 shows a perspective front view of the accessory element, which has been prepared and is ready for being applied on to the pencil ;
- Fig. 7 shows a plan view of the developed accessory element of Fig. 5 ;
- Fig. 8 shows a view from below and symmetrical of the developed accessory element of Fig. 5 ;
- Figs. 9 and 10 show a perspective front view of two subsequent steps for forming the accessory element according to the invention, starting from its developed shape of Fig. 5 ;
- Figs. 11 and 12 show a perspective front view of a pencil in two subsequent application steps on to the accessory element;
- Fig. 13 show a perspective front view of a pencil acting as writing device, without the applied accessory element, and with two different tactile screens for affixing the writings and the graphic signs ;
- Fig. 14 shows a perspective front view of the present pencil with the accessory element applied thereon, which is employed for affixing the writings and the graphic signs on to a tactile screen ;
- Fig. 15 shows a perspective front view of the writing device and the tactile screen of Fig. 14, with the writing device arranged inclined with different inclinations with respect to such screen, in order to attain some writings and graphic signs with different inclinations and/or shadings ;
- Fig. 16 shows with perspective front views a set of writing devices according to the present invention, with different embodiments thereof.

[0007] In the above Figures, it is schematically illustrated a writing device for affixing graphic signs such as drawings and writings of various kind, having different characters and signs and lines more or less marked and with variable inclinations thereof, on to tactile screens or touch screens of per se known capacitive type, which are utilized alone or combined with informatics appliances such as computers or informatics plants of various kind.

[0008] In particular, such writing device allows to realize and to display on to the tactile screen some graphic signs such as alphabetical letters, technical drawings, designs of furnishings products, various hand made drawings, drawings of cartoons and the like, with more or less marked and shaded signs, which graphic signs may then be memorized into storages included into the same tactile screen, or portable storages such as USB devices and the like, and/or they may be transmitted and made recognizable even on to the screen of other informatics appliances or plants in case utilized.

[0009] In the present description no reference is made to the operation and the construction of the tactile screens or touch screens utilized for affixing and displaying the graphic signs, as they are well known for long time from the art, but it is described exclusively and in detail the writing device of new type according to the invention, and its interaction with the tactile screens for attaining the above mentioned purpose.

[0010] The writing device 5 according to the invention is substantially constituted (see Fig. 1) by at least a pencil 6 acting as capacitive element, and interacting with the capacitors distributed on to the screen outer surface, in order to determine the desired graphic signs by means

of instantaneous changes of the capacities of these capacitors, in the areas of the screen which are from time to time contacted by the tip 7 of the pencil, which is constituted by graphite or by charcoal 8, namely by electric conductor material forming the inner core of the pencil, which is enclosed by the lengthened and rectilinear body 9 of the same pencil, and is made of wood, plastic or other electric insulating material, which is grasped by the user and displaced with different movements on to the outer surface of the same screen. The present writing device 5 is also constituted by at least an accessory element 10, which is made separately and is shaped as it will be described, and thereafter is applied removably in correspondence of the tip 7 of the pencil 6, for co-operating with the pencil when the latter is used for writing on to the outer surface of the tactile screen or touch screen 11 (see Figs. 13-15). In the Figs. 1-12 it is shown the configuration of the accessory element 10 in a preferred first embodiment thereof. As visible particularly from the Figs. 1-10, the accessory element 10 is formed by an electric insulating paper element, which is porous, and is constituted substantially by a first widened part 12 having rectangular form and by a second lengthened part 13 having a size smaller than the preceding part, in which the first widened part 12 has a development (see Fig. 5) with the longitudinal sides 14 and lateral sides 15 of a determinate extent, such that they can be wound on itself for forming a cylinder 16 with a length sufficient for being inserted on to the terminal portion of the pencil body 9, upstream the pencil tip 7, and cannot be moved from this position, and that such cylinder 16 has such a diameter that to be able to be at first inserted with a light pressure on to the pencil body 9 and then in case adequately secured on to the same pencil body, for example by a light layer of adhesive. In turn, the second lengthened part 13 is shaped as a narrow rectangular strip 17, an end portion of which is joined integrally with or adequately secured near one of the lateral sides 15 of the first widened part 12, and is extended orthogonally from this latter with a determinate extension, and the other end portion of which is moved away in the longitudinal direction from the first widened part 12 for a determinate length, so as to be able to fold the extended strip 17 many times, in the manner and for the scope which will be described later on. The two longitudinal sides 14 of the so obtained cylinder then are at first slightly overlapped to each other and thereafter suitably joined to each other, preferably by means of an adhesive zone 18 which, as visible from the Fig. 8, is applied along the one of the longitudinal sides 14, in such a way that such longitudinal sides 14 cannot be detached from each other, thereby obtaining a stable cylinder, wherein in the Figs. 9 and 10 there are shown the subsequent steps of sticking such sides of the cylinder. In turn, in the so obtained cylinder the strip 17 is arranged in the central zone thereof, and is projected outward from the lateral side 15 turned toward the tip 7 of the pencil 6. Then, the strip 17 is folded (see Figs. 6, 9 and 10) a first time downward along a first right line 19 in correspondence of said lateral side 15, in a manner to obtain an inclined strip portion 20, and thereafter it is again folded a second time upward along a second right line 21, which is parallel to the first right line 19, in a way to obtain a strip portion 22 slightly raised again, which is shorter than said inclined strip portion 20 and has a relatively wide surface, adapted to come into contact with both the tip 7 of the pencil 6 and the outer surface of the tactile screen or touch screen 11. On to the outer surface of the short strip portion 22 which, as already specified is made of paper material relatively porous, it is applied at least a layer 23 of graphite, charcoal or the like, namely an electric conductor material, on a position turned toward the pencil tip 7, in a manner that when the accessory element 10 is applied on to the free end portion of the pencil 6, by introducing such end portion through the central cavity of the cylinder 16, and by securing adequately this latter (for example by means of adhesive) on to the body 9 of the same pencil (see Fig. 11), by folding suitably the projected and flexible strip 17, such tip 7 may be pushed toward the opposite strip portion 22 and comes into contact of the layer of graphite or charcoal 23 (see Fig. 12), thereby establishing an electric conductor contact between the core of the graphite 8 of the pencil and the layer 23 of electric conductor material.

[0011] In this way, for affixing some graphic signs of various kind (drawings, alphabetical letters, etc..) on to the tactile screen or touch screen 11 it is sufficient (see Fig. 14) at first to bring into contact the core of graphite or charcoal 8 against the conductor layer 23 of the strip portion 22, and thereafter to arrange the opposite surface of this latter into contact against the outer surface of the tactile screen or touch screen 11, and under this condition the graphite or charcoal passes through the pores of the paper material of the strip portion 22, which determines a wide electric conductor contact surface between the graphite or the charcoal and the capacitive areas of the outer surface of the same screen, on to which during the displacements of the tip of the pencil 6 and the strip portion 22 there are produced instantaneous changes of the capacities of the surface areas from time to time interested, with consequent reproduction of the desired graphic signs on to such outer surface. This reproduction effect of the graphic signs with a common pencil, instead of writing devices of traditional type, is made possible thanks to the presence of the present writing device, which allows on the one hand the passage and the contact of the conductor material such as the graphite or the charcoal on to the outer surface of the tactile screen or touch screen 11 and on the other hand a relatively wide contact surface with the tactile screen or touch screen 11, which is greater than that of a pencil tip, which allows to obtain the writing on to the same screen, since in the contrary case the use of the pencil tip only having an extremely reduced contact surface with such screen would not permit to attain such result. Therefore, it appears evident the constructive simplicity of the writing device according to the invention, which is constituted

by paper material with a part contacting the screen 11 (strip portion 22), ensuring the continuity of the electric conduction, with an articulation (joining zone of the strip 17 with the cylinder 16) making resilient the same strip and permitting to fold it at will, and with the connection of the accessory element 10 to the pencil body 9, and this writing device operates in an optimum manner and allows to affix on to the screen 11 some graphic signs of any kind, with different markings and shadings, thereby eliminating the need to utilize the complex and expensive writing devices used hitherto for performing the same functions.

[0012] Of course, the present writing device may be realized also with different variants, for example by shaping the accessory element 10 with a profile different than that cylindrical described by way of example only, or by making the accessory element integral with the pencil terminal portion, or with more separated parts which are joined to each other, or by applying in the pencil a suitable anchorage element for the accessory element (by anchoring such accessory element for example by insertion, rolling, fixed joint, sticking, screwing, magnetic attraction, or other suitable systems), and in case by substituting the paper material of the accessory element with another material permeable to the passage of the graphite or charcoal, etc..., thus without departing from the protection sphere of the present invention. The Fig. 13 shows a pencil 6 to be utilized together with the above described accessory element (not visible in the Figure), together with two tactile screens or touch screens 11 with different dimensions, while in the Fig. 14 it is shown the writing device according to the invention in which the pencil 6 is grasped and displaced by the fingers 24 of the hand 25 of a draftsman and/or writer, while the accessory element 10 is put into contact of the screen 11 and is displaced with a determinate inclination on to the same screen, and in the Fig. 15 it is shown the writing device with three different inclinations with respect to the screen 11, for obtaining the graphic signs with the desired markings and shadings. Finally, in the Fig. 16 there are shown some examples of further possible embodiments of the present writing device, in which the accessory element 10 is always constituted by a flexible strip 17 identical to the above one and anchored in different manners to the relative pencil 6. In the Figs. 16a, b, c, d, e, f, g, h there are noted eight different modes of anchorage of the widened part 12 of the accessory element to the pencil 6, and in particular in the Fig. 16 a it is noted that the strip 17 is fixed to the widened part 12, which is shaped as a sleeve formed by two frustums of cone symmetrical and converging to each other with their smaller diameter, into which a through slot 26 is provided for the passage of the opposite end portion of the strip 17, which is adequately fixed to the outer surface of the two frustums of cone referred to.

[0013] In the Fig. 16b it is noted that the strip is fixed with its opposite end portion to a thin circular ring 27, applied to and adequately fixed around the pencil 6. In the Fig. 16c it is noted that the strip 17 is inserted with its opposite end portion through a through slot 28 provided on a clamp 29 wound around the pencil 6, and such end portion is suitably fixed in position. In the Fig. 16d it is noted that the strip 17 is fixed with its opposite end portion, by means of a nail, screw, rivet 30 etc.. on to the pencil body 6.

[0014] In the Fig. 16e it is noted that the strip 17 is joined with its opposite end portion with an indented collar 31, suitably wound and fixed around the pencil 6.

[0015] In the Fig. 16f it is noted that the strip 17 is stuck with its opposite end portion on to the pencil 6. In the Fig. 16g it is noted that the strip 17 is joined with its opposite end portion with a frusto-conical sleeve 32, which is inserted into and adequately secured to the pencil 6. In the Fig. 16h it is noted that the strip 17 is joined integrally with its opposite end portion to the pencil body 6.

Claims

1. Writing device for affixing graphic signs such as drawings and writings of various kind, having different characters and signs and lines with variable inclinations thereof, on to tactile screens or touch screens (10) of capacitive type, which are utilized alone or combined with informatics appliances such as computers or informatics plants of various kind, said screens (11) being respectively provided with an outer surface with materials forming electrical capacitors, the electric capacities of the different surface areas thereof which are contacted from time to time by the tip of the writing device are changed instantaneously and converted electronically into correspondent graphic signs such as alphabetical letters, technical drawings, designs of furnishings products, hand made drawings, drawings of cartoons, with marked and shaded signs, which graphic signs are then displayed on to said screen (11) and may be memorized into storages included into the same tactile screen, or into portable storages, and/or they may be transmitted and made recognizable even on to the screen of other informatics appliances or plants in case utilized, wherein it further comprises at least a pencil (6) acting as capacitive element interacting with the capacitors distributed on to the outer surface of the screen (11), in order to determine the desired graphic signs in the screen areas contacted from time to time by the tip (7) of the pencil, which is constituted by graphite or by charcoal (8), namely by electric conductor material forming the inner core of the pencil,
which is enclosed by the lengthened and rectilinear body (9) of the same pencil, made of wood, plastic or other electric insulating material, the writing device being also constituted by at least an accessory element (10), which is made separately and then is applied removably in correspondence of the tip (7) of

the pencil (6), for co-operating with the pencil when the same is used for writing on to the outer surface of said tactile screen or touch screen (11) **characterised in that** said accessory element (10) being formed by an electric insulating flexible material, which is porous and formed of paper and being constituted by at least a flexible lengthened strip (17), applicable to the terminal portion of the pencil (6), near its tip (7), and foldable in a manner to obtain a terminal strip portion (22) with a relatively wide surface, in relation to the tip (7), adapted to be put into contact with both said tip (7) and the outer surface of said screen (11), and on to outer surface of said terminal strip portion (22) at least a layer (23) of graphite, charcoal or similar electric conductor material being applied, on a position turned toward said tip (7), in a way that said terminal strip portion (22) may be pushed from the tip (7) into contact against the outer surface of said screen (11), under the condition in which the graphite or the charcoal passes through the pores of the paper material of said strip portion (22) and establishes an electric contact between the graphite or the charcoal and the capacitive areas on to the outer surface of said screen (11), so that during the displacement of the writing device the graphic signs are determined on to the same outer surface.

2. Writing device according to claim 1, **characterized in that** said accessory element (10) is constituted substantially by a first widened part (12) and by a second lengthened part (13) having a size smaller than the preceding part, in which the first widened part (12) has a development with the longitudinal sides (14) and the lateral sides (15) of a determinate extent, such that they can be wound on itself for forming a cylinder (16) with a length sufficient for being inserted on to the terminal portion of the pencil body (9), upstream the pencil tip (7) and cannot be moved from this position, and that said second lengthened part (13) is formed by said narrow lengthened strip (17), an end portion of which is joined integrally with or adequately secured near one of the lateral sides (15) of the first widened part (12), and is extended orthogonally from this latter with a determinate extension, and the other end portion of which is moved away in the longitudinal direction from the first widened part (12) for a determinate length, so as to be able to fold the extended strip (17) many times, the two longitudinal sides (14) of said cylinder (16) being at first slightly overlapped to each other and thereafter suitably joined to each other, preferably by means of an adhesive zone (18) which is applied along the one of the longitudinal sides (14), in such a way that such longitudinal sides (14) cannot be detached from each other, thereby obtaining a stable cylinder, said extended strip (17) being arranged in the central zone of the cylinder (16), and projected outward from the lateral side (15) turned toward the tip (7).

3. Writing device according to the preceding claims, **characterized in that** said strip (17) is fixed to said widened part (12), which is shaped as a sleeve formed by two frustums of cone symmetrical and converging to each other with their smaller diameter, into which a through slot (26) is provided for the passage of the opposite end portion of the strip (17), which is adequately fixed to the outer surface of said two frustums of cone.

4. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is fixed with its opposite end portion to a thin circular ring (27) applied to and adequately fixed around the pencil (6).

5. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is inserted with its opposite end portion through a through slot (28) provided on a clamp (29) wound around the pencil (6), and such end portion is suitably fixed in position.

6. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is fixed with its opposite end portion by fixing means such as a nail, screw or rivet (39) on to the pencil body (6).

7. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is joined with its opposite end portion with an indented collar (31), suitably wound and fixed around the pencil (6).

8. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is stuck with its opposite end portion on to the pencil (6).

9. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is joined with its opposite end portion with a frusto-conical sleeve (32), which is inserted into and adequately secured to the pencil (6).

10. Writing device according to claims 1 and 2, **characterized in that** said strip (17) is joined integrally with its opposite end portion to the pencil body (6).

Patentansprüche

1. Schreibvorrichtung zur Befestigung grafischer Zeichen wie Zeichnungen und Schriften verschiedener Art, die unterschiedliche Schriftzeichen und Zeichen und Linien haben, mit variablen Neigungen auf taktilen Bildschirmen oder Touchscreens (10) der kapazitiven Art, die allein oder in Kombination mit Informatikanwendungen wie Computern oder Infor-

matikanlagen verschiedener Art verwendet werden, wobei die Bildschirme (11) mit einer äußeren Fläche mit Materialien versehen sind, die elektrische Kondensatoren bilden, wobei die elektrischen Kapazitäten der verschiedenen Oberflächenbereiche, die von Zeit zu Zeit durch die Spitze der Schreibvorrichtung berührt werden, sofort geändert und elektronisch in entsprechende grafische Zeichen wie alphabetische Buchstaben, technische Zeichnungen, Designs von Möbelprodukten, Handzeichnungen, Zeichnungen von Cartoons mit markierten und schattierten Zeichen umgewandelt werden, wobei die grafischen Zeichen dann auf dem Bildschirm (11) angezeigt und in Speichern gespeichert werden können, die in dem taktilen Bildschirm oder in tragbaren Speichern enthalten sind, und/oder sie können übertragen und erkennbar selbst auf dem Bildschirm anderer Informatikanwendungen oder Anlagen werden, wenn diese verwendet werden,
wobei sie außerdem wenigstens einen Schreibstift (6) enthält, der als kapazitives Element mit den Kondensatoren zusammenwirkt, die auf der äußeren Fläche des Bildschirms verteilt sind, um die gewünschten grafischen Zeichen in den Bildschirmbereichen zu bestimmen, die von Zeit zu Zeit von der Spitze (7) des Schreibstifts berührt werden, der durch Graphit oder durch Holzkohle (8), nämlich durch elektrisches Leitermaterial gebildet ist, das den inneren Kern des Schreibstiftes bildet, der durch den lang gestreckten und geradlinigen Körper (9) des Schreibstiftes umschlossen ist, der aus Holz, Kunststoff oder einem anderen elektrisch isolierenden Material besteht, wobei die Schreibvorrichtung außerdem durch wenigstens ein Zubehör-element (10) gebildet ist, das getrennt gemacht ist und dann abnehmbar in Übereinstimmung mit der Spitze (7) des Schreibstifts (6) angebracht wird, zum Zusammenwirken mit dem Schreibstift, wenn dieser verwendet wird, um auf der äußeren Fläche des taktilen Bildschirms oder Touchscreens (11) zu schreiben,
dadurch gekennzeichnet,
dass das Zubehörelement (10) durch ein elektrisch isolierendes, flexibles Material gebildet ist, das porös ist und aus Papier besteht und durch wenigstens einen flexiblen, länglichen Streifen (17) gebildet ist, der auf den Endabschnitt des Schreibstiftes nahe der Spitze (7) aufsetzbar ist und in einer Weise faltbar ist, um einen Endstreifenabschnitt (22) mit einer relativ breiten Fläche im Verhältnis zu der Spitze (7) zu erhalten, und geeignet ist, in Kontakt sowohl mit der Spitze (7) als auch der äußeren Fläche des Bildschirms (11) gebracht zu werden, wobei auf der äußeren Fläche des Endstreifenabschnitts (22) wenigstens eine Schicht (23) aus Graphit, Holzkohle oder einem ähnlichen elektrischen Leitermaterial aufgebracht ist, an einer Stelle, die der Spitze (7) auf eine Weise zugewandt ist, dass der Endstreifenabschnitt (22) von der Spitze (7) in Berührung mit der äußeren Fläche des Bildschirms (11) unter dem Zustand gedrückt werden kann, in dem das Graphit oder die Holzkohle durch die Poren des Papiermaterials des Streifenabschnitts (22) hindurchgeht und einen elektrischen Kontakt zwischen dem Graphit oder der Holzkohle und den kapazitiven Flächen auf der äußeren Fläche des Bildschirms (11) herzustellen, so dass während der Verschiebung der Schreibvorrichtung die grafischen Zeichen auf der äußeren Fläche bestimmt werden.

2. Schreibvorrichtung nach Anspruch 1,
dadurch gekennzeichnet,
dass das Zubehörelement (10) im wesentlichen durch einen ersten breiten Teil (12) und einen zweiten länglichen Teil (13) gebildet ist, dessen Größe kleiner ist als diejenige des vorhergehenden Teils, wobei der erste breitere Teil (12) eine Entwicklung mit den longitudinalen Seiten (14) und den lateralen Seiten (15) einer bestimmten Erstreckung hat, derart, dass sie auf sich selbst gewickelt werden können, um einen Zylinder (16) mit einer Länge zu bilden, die ausreichend ist, um auf dem Endabschnitt des Schreibstiftkörpers (9) aufgesetzt zu werden, stromaufwärts der Schreibstiftspitze (7), wobei er aus dieser Position nicht bewegt werden kann, und wobei der zweite längliche Teil (13) durch den schmalen länglichen Streifen (17) gebildet ist, von dem ein Endabschnitt integral nahe einer der lateralen Seiten (15) des ersten breiteren Teil (12) ausgebildet oder adäquat daran befestigt ist, und sich orthogonal von dem letzteren mit einer bestimmten Ausdehnung erstreckt, und wobei der andere Endabschnitt in der Längsrichtung von dem ersten breiteren Teil (12) über eine bestimmte Länge entfernt ist, so dass der verlängerte Streifen (17) mehrere Male gefaltet werden kann, wobei die zwei longitudinalen Seiten (14) des Zylinders (16) zunächst leicht miteinander überlappt und danach auf geeignete Weise miteinander verbunden sind, vorzugsweise mittels einer Klebezone (18), die entlang einer der longitudinalen Seiten (14) auf solche Weise aufgebracht wird, dass die longitudinalen Seiten (14) nicht voneinander gelöst werden können, wodurch ein stabiler Zylinder erhalten wird, und der lang gestreckte Streifen (17) in der mittigen Zone des Zylinders (16) ange-ordnet ist und von der lateralen Seite (15) nach außen vorsteht, zu der Spitze (7) gewendet.

3. Schreibvorrichtung nach den vorhergehenden Ansprüchen,
dadurch gekennzeichnet,
dass der Streifen (17) an dem breiteren Teil (12) befestigt ist, das als eine Hülse durch zwei Kegelstümpfe eines Kegels symmetrisch und aufeinander zulaufend mit ihrem kleineren Durchmessern geformt ist, wobei ein Durchgangsschlitz (26) ausge-

bildet ist für den Durchgang des gegenüber liegenden Endabschnitts des Streifens (17), der an der Außenfläche der zwei Kegelstümpfe des Kegels adäquat befestigt ist.

4. Schreibvorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) mit seinem gegenüber liegenden Endabschnitt an einem dünnen Kreisring (27) befestigt ist, der um den Schreibstift (16) aufgebracht und an diesem adäquat befestigt ist.

5. Schreibvorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) mit seinem gegenüber liegenden Endabschnitt durch einen Durchgangsschlitz (28) an einer Klemme (29) eingesetzt ist, die um den Schreibstift (6) gewickelt ist, so dass der Endabschnitt auf geeignete Weise in der Position fixiert ist.

6. Schreibvorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) mit seinem gegenüber liegenden Endabschnitt durch Befestigungsmittel wie einen Nagel, Schraube oder Niet (39) an dem Schreibstiftkörper (6) befestigt ist.

7. Schreibvorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) mit seinem gegenüber liegenden Endabschnitt mit einem gezahnten Ring (31) verbunden ist, der geeignet um den Schreibstift (6) gewickelt und daran fixiert ist.

8. Schreibvorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) mit seinem gegenüber liegenden Endabschnitt an dem Schreibstift (6) angeklebt ist.

9. Schreibvorrichtung nach den Ansprüche 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) mit seinem gegenüber liegenden Endabschnitt mit einer kegelstumpfförmigen Hülse (32) verbunden ist, die in den Schreibstift (6) eingesetzt und adäquat befestigt ist.

10. Schreibvorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet,**
dass der Streifen (17) integral mit seinem gegenüber liegenden Endabschnitt an dem Schreibstiftkörper (6) befestigt ist.

Revendications

1. Dispositif d'écriture destiné à apposer des signes graphiques tels que des dessins et des écritures de divers styles, qui présentent différents caractères, signes et lignes avec des inclinations variables, sur des écrans tactiles (10) de type capacitif, qui sont utilisés seuls ou associés à des appareils informatiques tels que des ordinateurs ou des implantations informatiques de diverses sortes, lesdits écrans (11) étant respectivement dotés d'une surface extérieure avec des matériaux qui forment des condensateurs électriques, les capacités électriques des différentes zones de ceux-ci qui sont mis de temps en temps en contact avec le bout du dispositif d'écriture, sont modifiées de manière instantanée, et converties de manière électronique en signes graphiques correspondants tels que des lettres alphabétiques, des dessins techniques, des conceptions de produits d'ameublement, des dessins réalisés à la main, des dessins de dessins animés, avec des signes marqués et ombrés, lesquels signes graphiques sont ensuite affichés sur ledit écran (11) et peuvent être mémorisés dans des mémoires incluses dans le même écran tactile, ou dans des mémoires portables, et / ou ils peuvent être transmis et rendus reconnaissable même sur l'écran d'autres appareils ou implantations informatiques en cas de besoin ;
dans lequel il comprend en outre au moins un crayon (6) qui agit en tant qu'élément capacitif qui interagit avec les condensateurs répartis sur la surface extérieure de l'écran (11), de façon à déterminer les signes graphiques souhaités dans les zones de l'écran mises de temps en temps en contact par le bout (7) du crayon, qui est constitué de graphite ou de charbon de bois (8), à savoir par un matériau conducteur électrique qui forme le noyau intérieur du crayon, qui est entouré par le corps rallongé et rectiligne (9) du même crayon, réalisé en bois, en matière plastique ou dans tout autre matériau isolant de manière électrique, le dispositif d'écriture étant également constitué par au moins un élément annexe (10), qui est réalisé de manière séparée, et qui est ensuite appliqué de manière amovible par rapport au bout (7) du crayon (6), et qui est destiné à coopérer avec le crayon lorsque celui-ci est utilisé pour écrire sur la surface extérieure dudit écran tactile (11) ;
caractérisé en ce que élément annexe (10) est réalisé dans un matériau flexible isolant de manière électrique, qui est poreux et constitué de papier et par au moins une bande allongée flexible (17), qu'il est possible d'appliquer sur la partie extrémité du crayon (6), à proximité de son bout (7), et qu'il est possible de plier de façon à obtenir une partie bande d'extrémité (22) avec une surface relativement large, par rapport au bout (7), adaptée à une mise en contact avec ledit bout (7) et la surface extérieure dudit écran (11), et sur la surface extérieure de ladite partie bande d'extrémité (22), au moins une couche (23) de graphite, de charbon de bois ou de matériau conducteur électrique similaire est appliquée, sur une

position tournée vers ledit bout (7), de telle sorte que ladite partie bande d'extrémité (22) puisse être poussée à partir du bout (7) en contact contre la surface extérieure dudit écran (11), condition dans laquelle le graphite ou le charbon de bois passe à travers les pores du matériau de papier de ladite partie bande (22), et établisse un contact électrique entre le graphite ou le charbon de bois et les zones capacitives sur la surface extérieure dudit écran (11), de telle sorte que, au cours du déplacement du dispositif d'écriture, les signes graphiques soient déterminés sur la même surface extérieure.

2. Dispositif d'écriture selon la revendication 1, **caractérisé en ce que** ledit élément annexe (10) est constitué sensiblement par une première partie élargie (12) et par une seconde partie allongée (13) qui présente une taille plus petite que celle de la partie précédente, dans lequel la première partie élargie (12) présente un développement avec des côtés longitudinaux (14) et des côtés latéraux (15) d'une grandeur déterminée, de telle sorte qu'ils puissent être enroulés sur eux-mêmes de façon à former un cylindre (16) avec une longueur suffisante pour être inséré sur la partie extrémité du corps de crayon (9), en amont du bout de crayon (7), et sans pouvoir se déplacer à partir de cette position, et ladite seconde partie allongée (13) est formée par ladite bande allongée étroite (17), dont une partie extrémité est jointe d'une pièce avec l'un des côtés latéraux (15) de la première partie élargie (12), ou fixée de manière appropriée à proximité de celui-ci, et s'étend de manière orthogonale à partir de cette dernière avec une extension déterminée, et dont l'autre partie extrémité est déplacée dans la direction longitudinale à partir de la première partie élargie (12) sur une longueur déterminée, de façon à pouvoir plier la bande étendue (17) de nombreuses fois, les deux côtés longitudinaux (14) dudit cylindre (16) se chevauchant d'abord légèrement l'un l'autre et se joignant ensuite l'un l'autre de manière appropriée, de préférence au moyen d'une zone adhésive (18) qui est appliquée le long de l'un des côtés longitudinaux (14), de telle manière que de tels côtés longitudinaux (14) ne puissent pas se séparer l'un de l'autre, en obtenant de ce fait un cylindre stable, ladite bande étendue (17) étant agencée dans la zone centrale du cylindre (16), et faisant saillie vers l'extérieur à partir du côté latéral (15) tourné vers le bout (7).

3. Dispositif d'écriture selon les revendications précédentes, **caractérisé en ce que** ladite bande (17) est fixée sur ladite partie élargie (12), qui est mise en forme comme un manchon constitué par deux troncs de cône symétriques qui convergent l'un vers l'autre par leur petit diamètre, dans lequel une fente traversante (26) est prévue pour le passage de la partie extrémité opposée de la bande (17), qui est fixée de manière appropriée sur la surface extérieure desdits deux troncs de cône.

4. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est fixée par sa partie extrémité opposée sur une bague circulaire mince (27) appliquée sur celle-ci et fixée de manière appropriée autour du crayon (6).

5. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est insérée par sa partie extrémité opposée à travers une fente traversante (28) prévue sur une bride (29) enroulée autour du crayon (6), et une telle partie extrémité est fixée en position.

6. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est fixée par sa partie extrémité opposée sur le corps de crayon (6), par des moyens de fixation tels qu'un clou, une vis ou un rivet (39).

7. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est jointe par sa partie extrémité opposée avec un collier dentelé (31), enroulé de manière appropriée et fixé autour du crayon (6).

8. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est fixée avec sa partie extrémité opposée sur le crayon (6).

9. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est jointe par sa partie extrémité opposée avec un manchon tronconique (32), qui est inséré dedans, et fixée de manière appropriée sur le crayon (6).

10. Dispositif d'écriture selon la revendication 1 et la revendication 2, **caractérisé en ce que** ladite bande (17) est jointe d'une pièce avec sa partie extrémité opposée sur le corps du crayon (6).

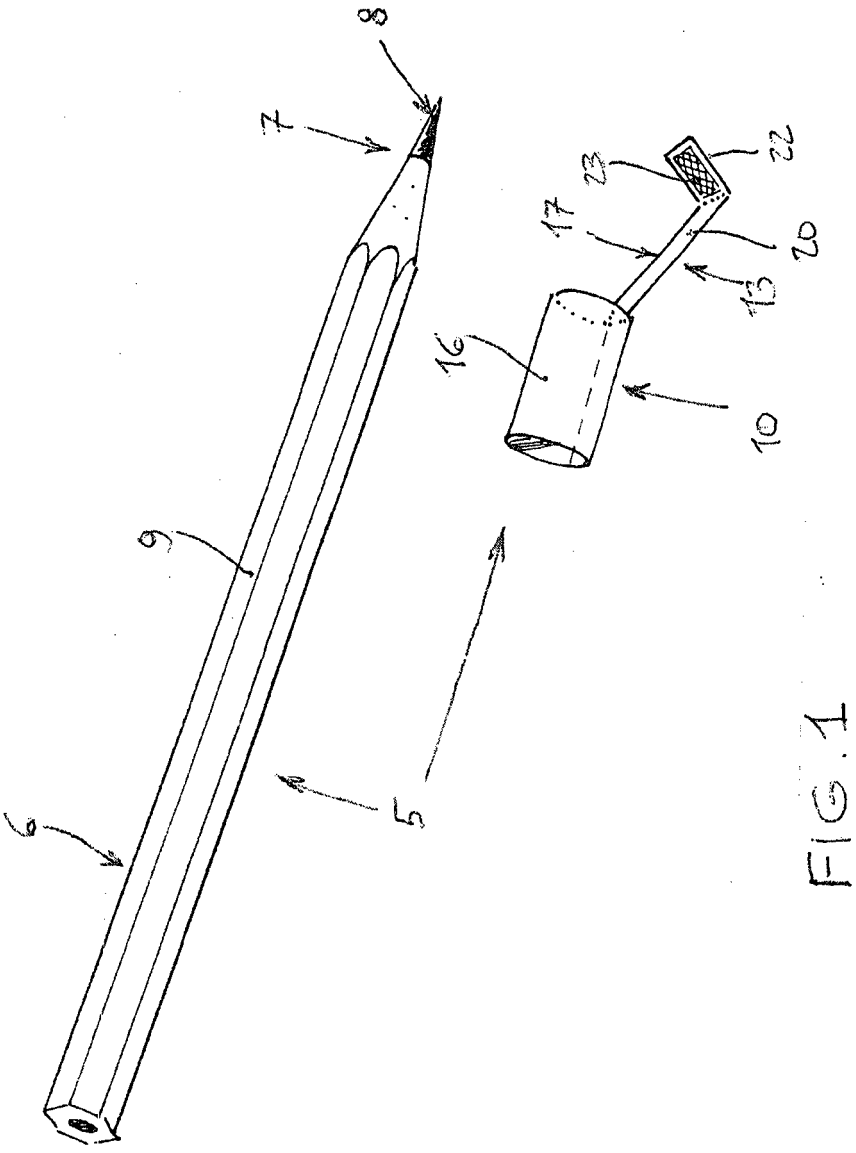


FIG. 1

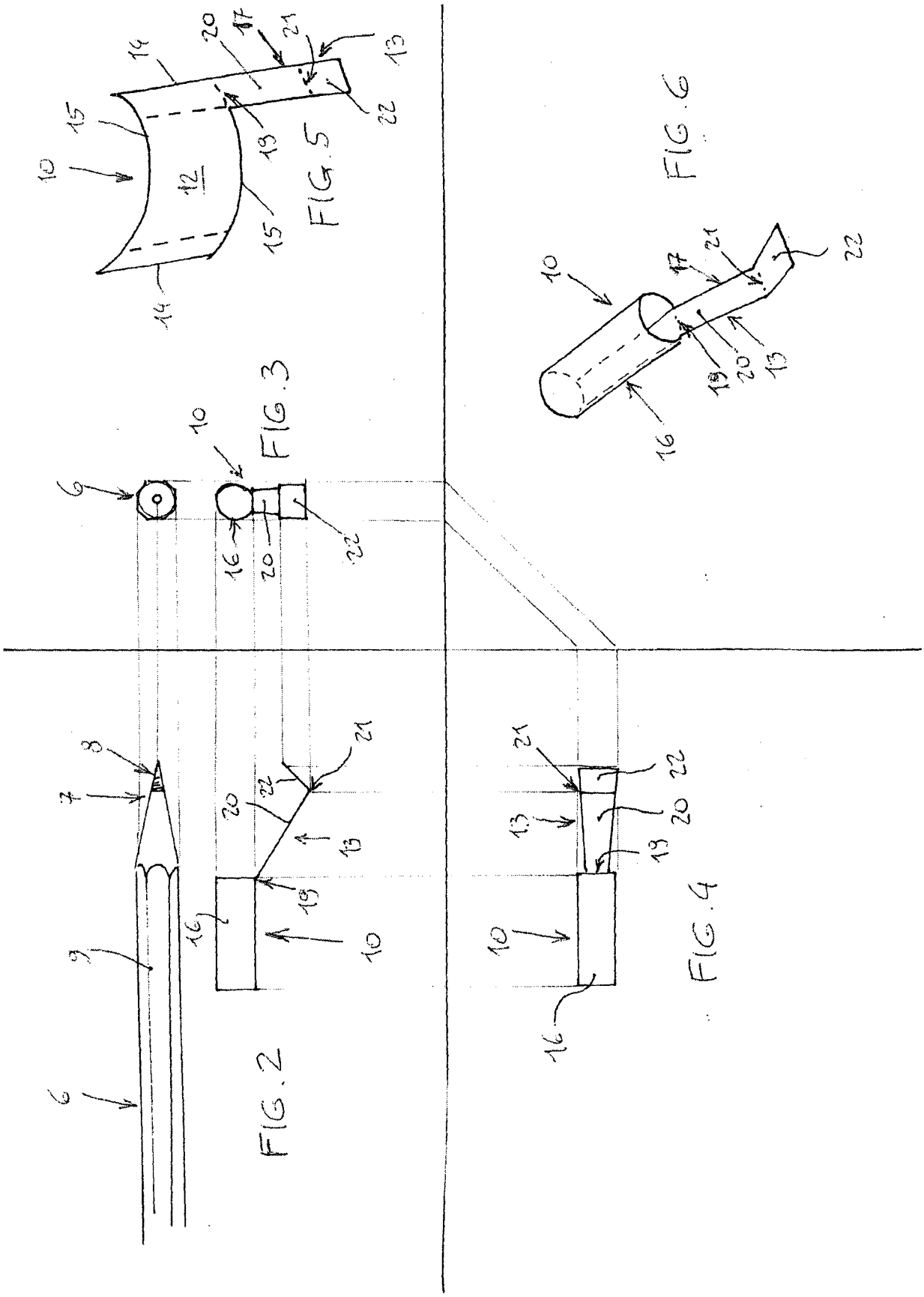

FIG. 5
FIG. 6
FIG. 3
FIG. 4
FIG. 2

FIG. 8

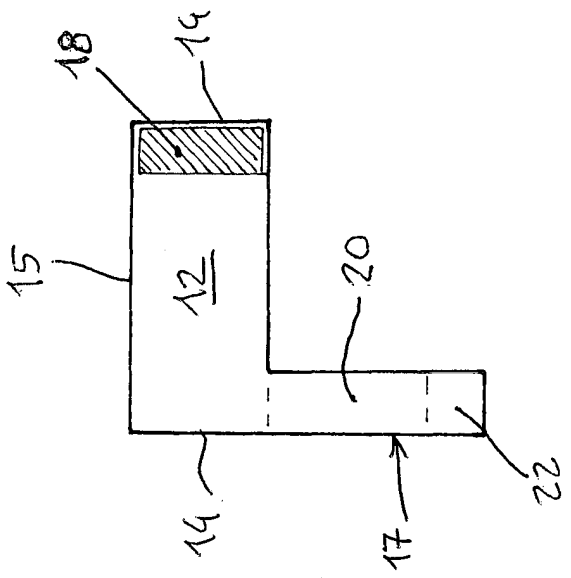
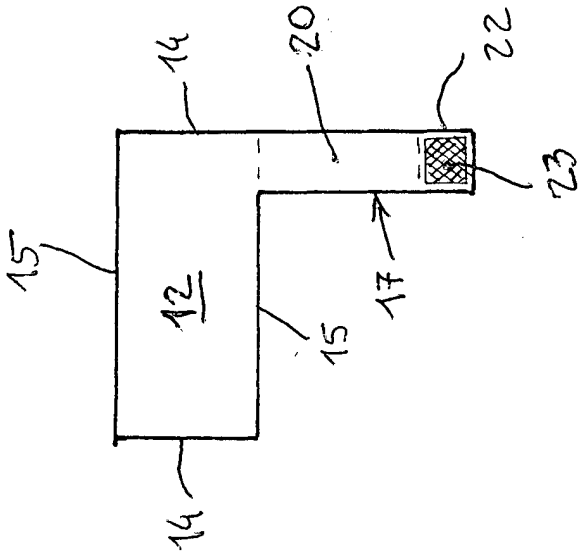


FIG. 7



GRAPHITE

ADHESIVE

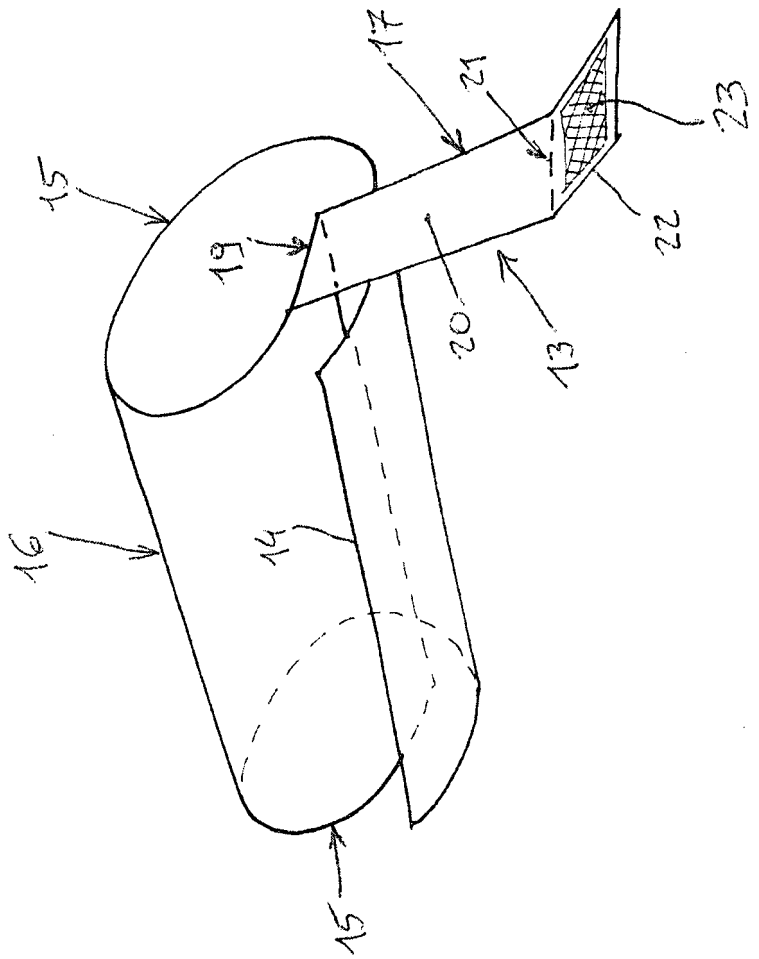


FIG. 9

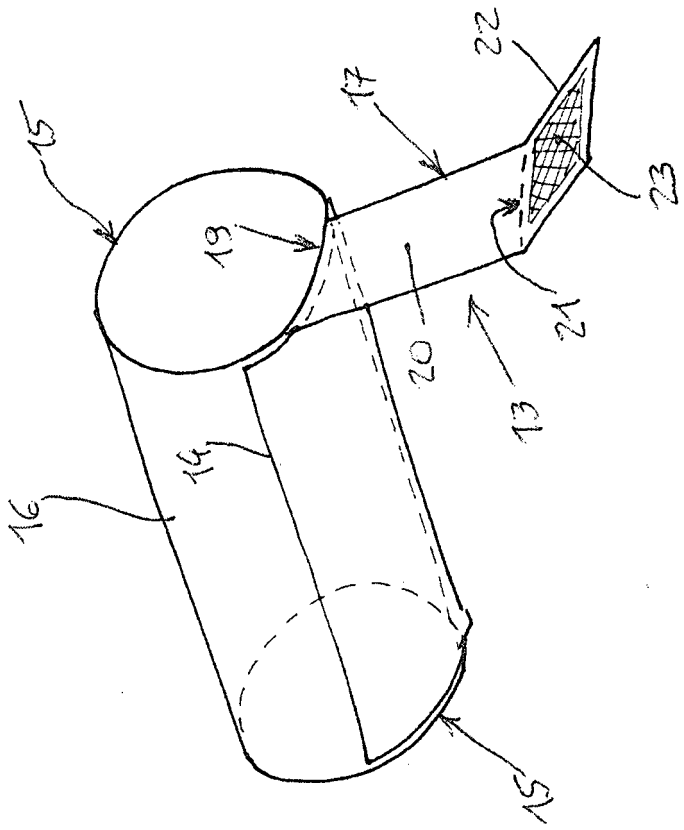


FIG. 10

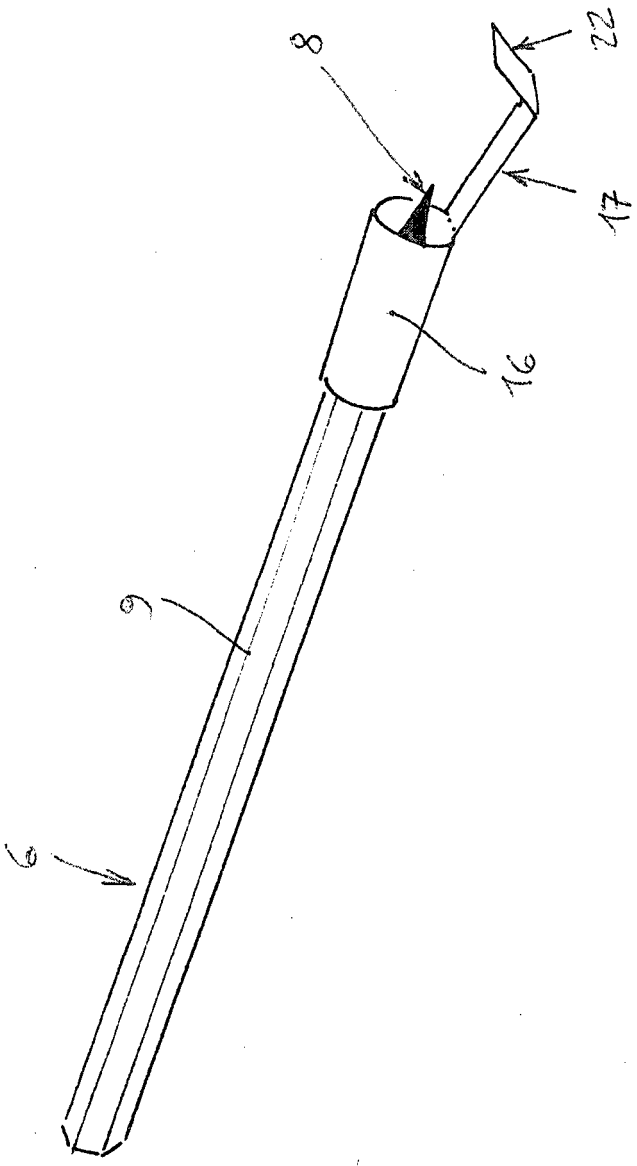


FIG. 11

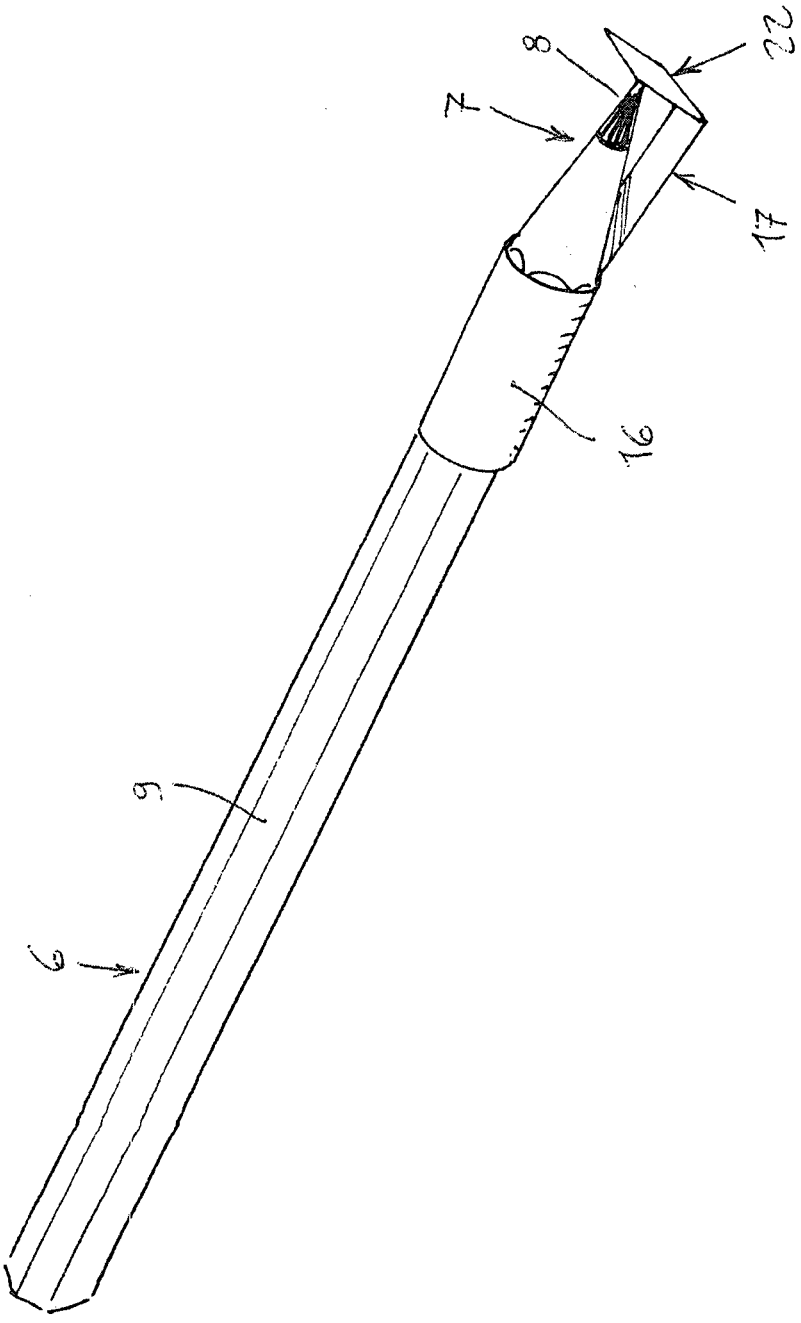


FIG. 12

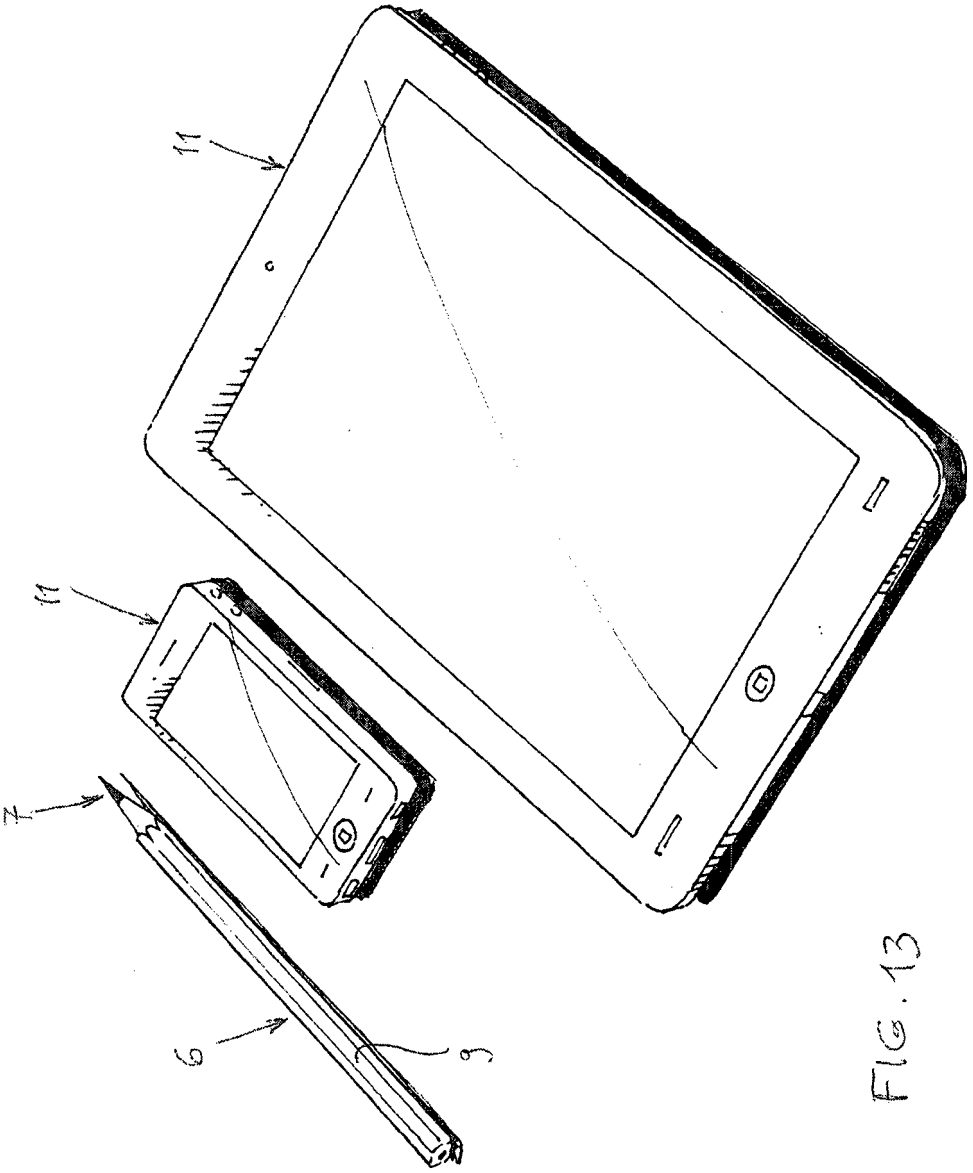
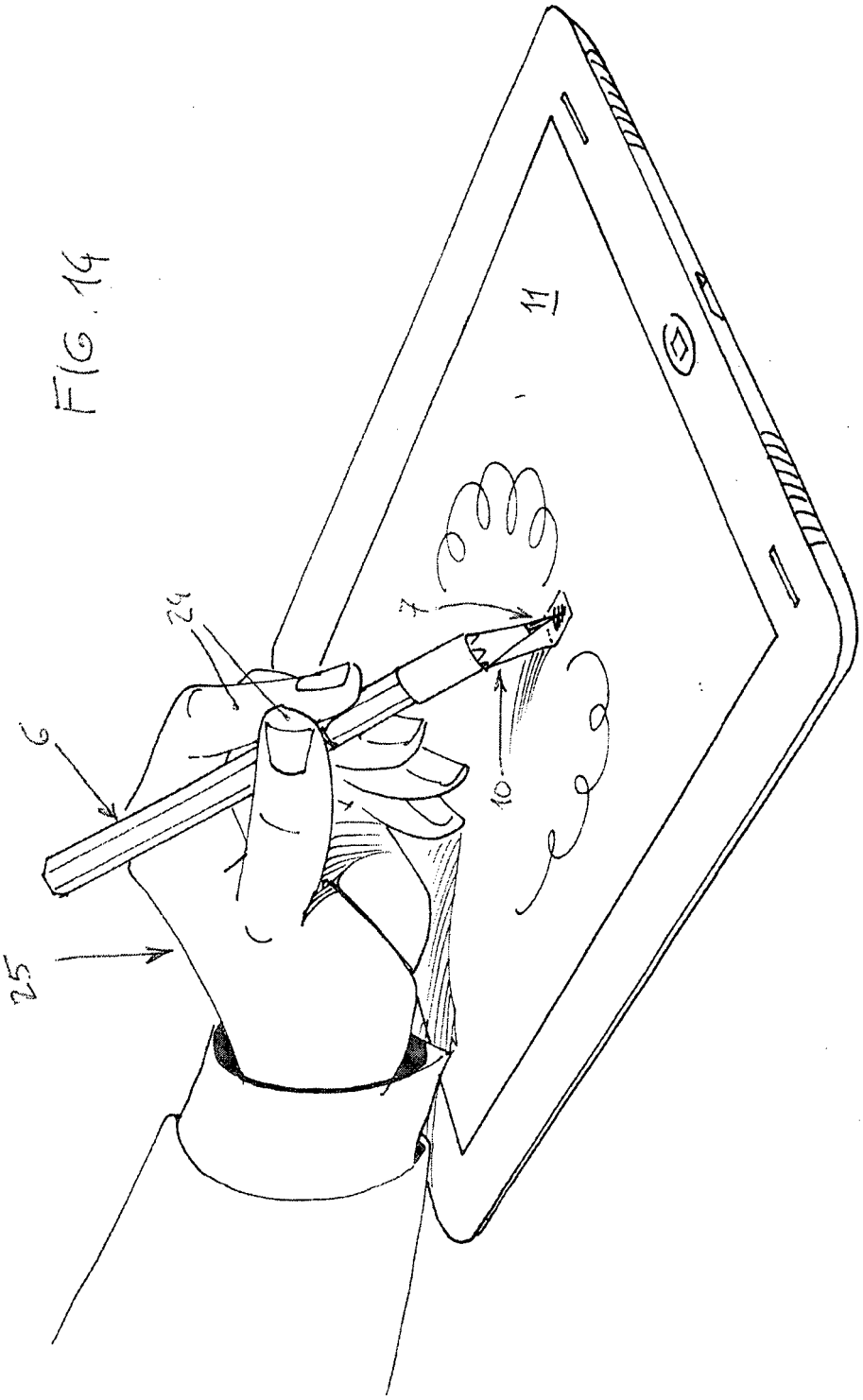


FIG. 13

FIG. 14



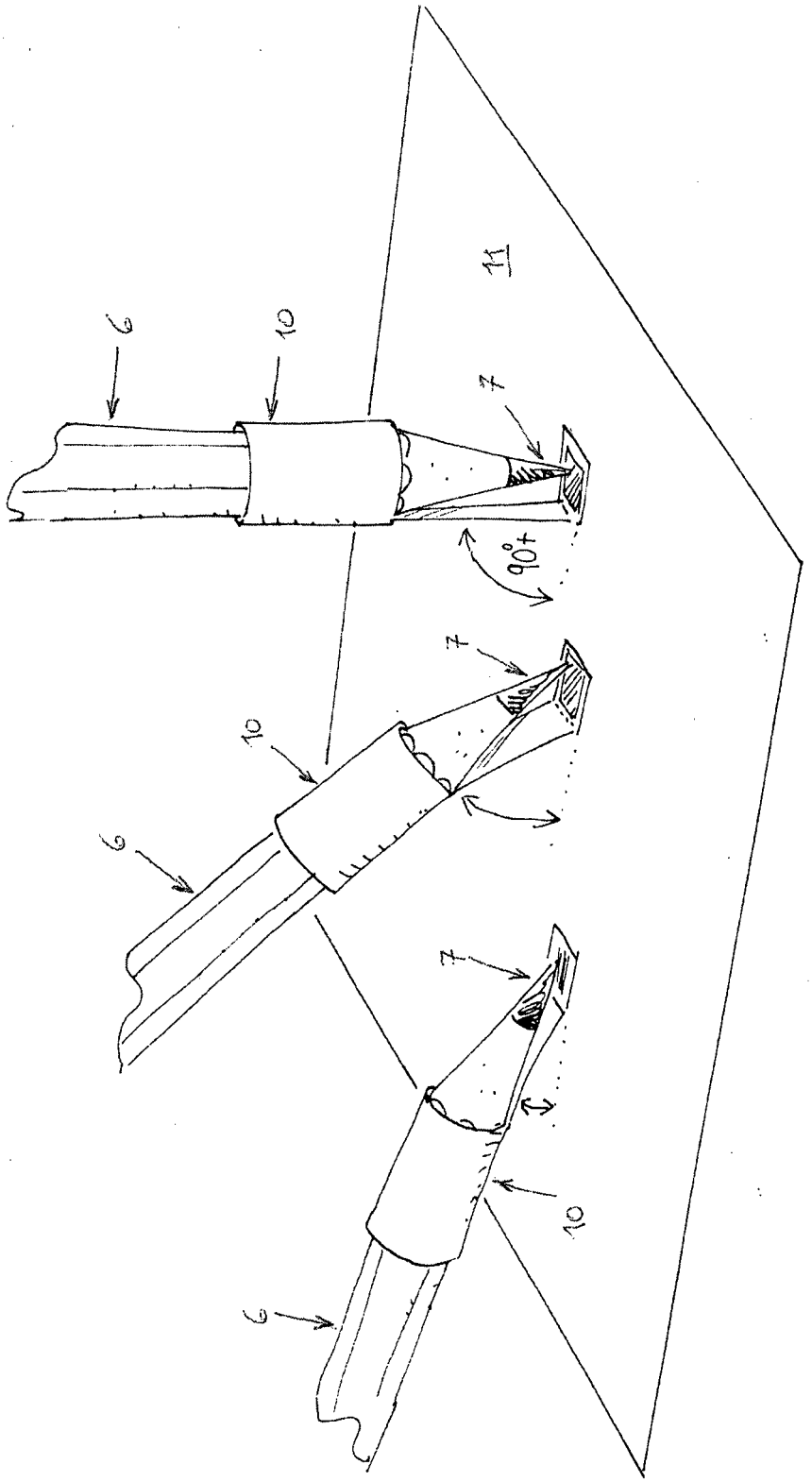


FIG 15

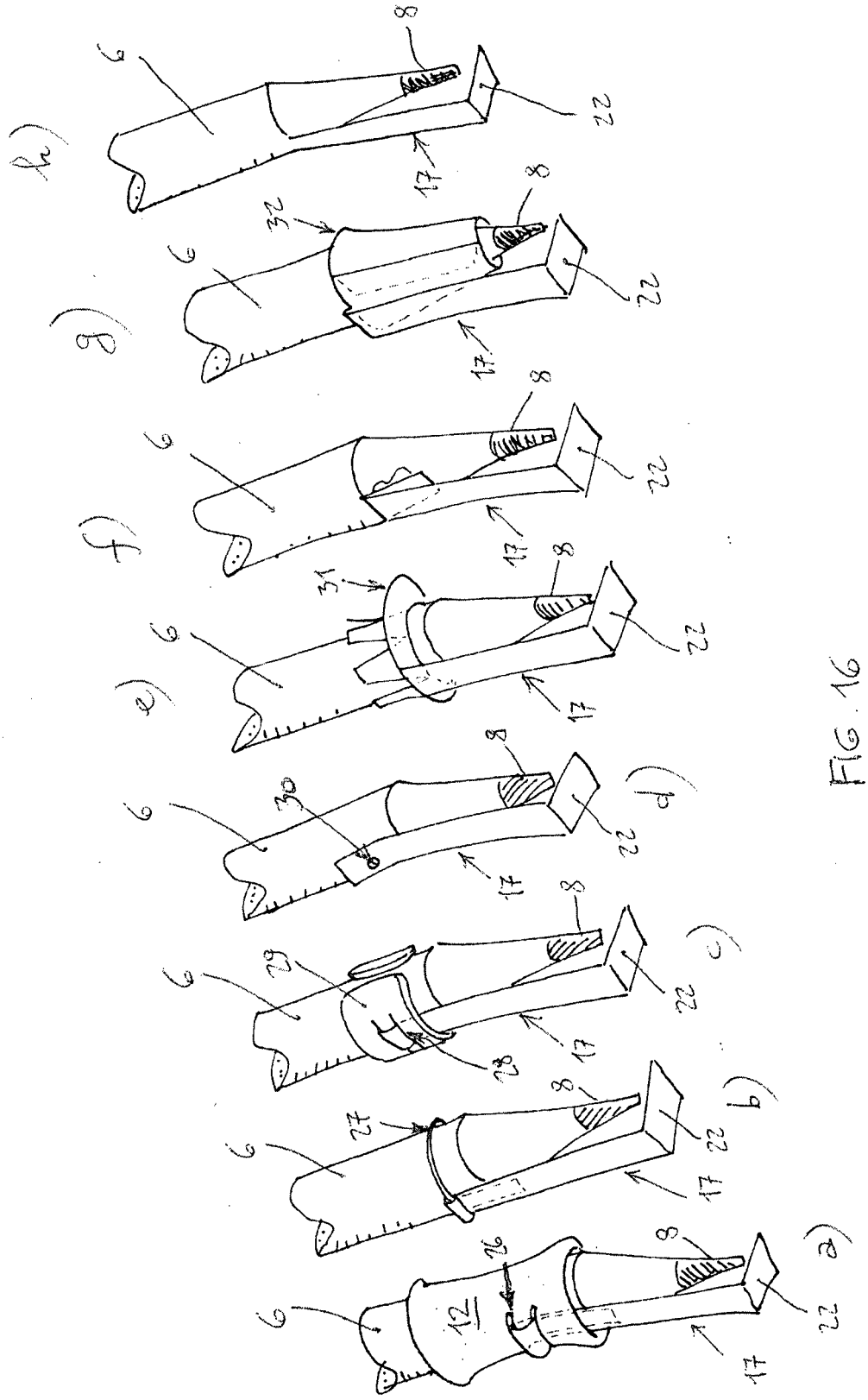

h)
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g)
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f)
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e)
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c)
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28
17
b)
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a)
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8
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12
22
17

FIG. 16

REFERENCES CITED IN THE DESCRIPTION

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- US 2012194484 A1 **[0004]**