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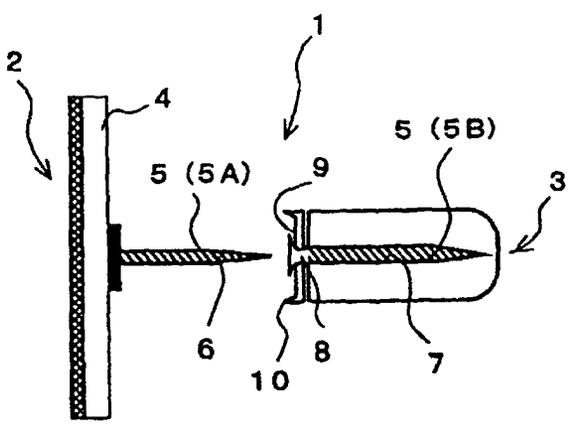
(54) MECHANISM FOR LOCKING PIN FOR PERSONAL ORNAMENTS

(57) The invention relates to a mechanism for locking a pin for a personal ornament, wherein is capable of safely and reliably locking an ornament to a target such as clothing fabric. A mechanism for locking a pin for a personal ornament is characterized by including a personal ornament main body including a single pin member having a proximal portion extending rearward from the back surface of a base member of a personal ornament main body and a distal portion bent from the proximal portion and extending along the back surface of the base member, a groove opening to the surface for allowing the proximal portion of the pin member to pass therethrough, and a retaining member formed in the direction intersecting with respect to the groove for tightly accommodating the distal portion of the pin member without clearance.

Fig.1



EP 1 498 043 A1

Description

Technical Field

[0001] The present invention relates to a mechanism for locking a pin for personal ornaments used for badges, broaches, tiepins, piercing jewelries.

Background Art

[0002] As one of mechanisms for locking personal ornaments such as badges, broaches, tiepins, or cuff buttons to a target such as jackets, ties, or dress shirts, or mechanisms for locking piercing jewelries (hereinafter, referred simply to as "a locking mechanism for a pin for a personal ornament") includes a mechanism having a single pin member projecting on the back surface of a base member of a personal ornament main body which is provided with decoration on the front surface thereof, and a pin catch as a receiving body of the pin member engaged with the pin member for locking the personal ornament on the target and preventing the pin body from being exposed.

[0003] In the mechanism for locking pin for personal ornaments, there is a case in which some problems occur in a locking state between the pin member and the pin catch due to an external force or the like applied in use or lowering of engaging force of the pin catch with respect to the pin member, and hence the pin body comes off the pin catch, whereby the ornament comes apart from the target.

[0004] There is also a locking mechanism having a mechanism for locking a personal ornament on the target by screwing a metallic fixture having a screw portion in a through-hole formed at the center onto a stud disposed on the back surface of the personal ornament main body.

[0005] In this type of locking mechanism for personal ornaments, since the fixture is formed of metal, there are cases where the fixture damages a clothing fabric of the target that comes in contact with the fixture when it is forcibly screwed or after long term use, or where a tip point of the stud on the personal ornament main body projecting through the through-hole formed at the center of the fixture damages the clothing fabric or gives uncomfortable feeling to a wearer's when it is in use.

[0006] Accordingly, it is an object of the present invention to provide a mechanism for locking a pin for a personal ornament which can lock the personal ornament safely and reliably with respect to the target and has less possibility to damage the target.

Disclosure of Invention

[0007] The invention is characterized by a main body of a personal ornament including: a single pin member on the back surface of a base member, the pin member being formed with a screw portion on the outer periphery thereof; and a tab member having a screw hole formed so as to be capable of engaging the screw portion and accommodating the pin member and a supporting sleeve projecting from the opening edge of the screw hole coaxially with the screw hole, the supporting sleeve including a stopper having a claw-shaped projection opposing to the personal ornament main body, and the stopper being fitted on the supporting sleeve so as to be capable of independent rotation.

[0008] In this arrangement, since the personal ornament main body and the tab member are screwed with respect to each other, the main body of the ornament can stably be retained.

[0009] Also, the invention is characterized by including a personal ornament main body having a pin member secured thereon, the pin member including a base portion extending rearward from the back surface of the base member and a distal portion bent from the base portion; and a retaining member having a pin member storage for storing the distal portion of the pin member substantially without clearance.

[0010] The retaining member may include a groove opening to the surface of the retaining member opposing to the personal ornament main body for hooking the proximal portion of the pin member, and the pin member storage formed in the direction intersecting the groove.

[0011] In this arrangement, by accommodating the distal portion of the pin member of the personal ornament main body tightly in the pin member storage of the retaining member, the personal ornament main body can stably be retained in conjunction with that the pin member itself is formed of resilient material.

Brief Description of the Drawings

[0012] Fig. 1 is a cross-sectional view of a mechanism for locking a pin for a personal ornament according to a first embodiment of the invention. Fig. 2 is a cross-sectional view illustrating a state of usage of the mechanism for locking a pin for a personal ornament shown in Fig. 1. Fig. 3 is a cross-sectional view illustrating the mechanism for locking a pin for a personal ornament according to a second embodiment of the invention. Fig. 4 is an explanatory drawing illustrating an example of a securing position of a pin member with respect to a base member. Fig. 5 is a front view of the retaining member shown in Fig. 3. Fig. 6 is a cross-sectional view showing a modification of the mechanism for locking a pin for a personal ornament according to the second embodiment. Fig. 7 is a front view showing a modification of the retaining member. Fig. 8 is a cross-sectional view showing a modification of the retaining member. Fig. 9 is a front view showing an improved example of the retaining member. Fig. 10 is a cross-sectional view of a principal portion of the retaining member shown in Fig. 9. Fig. 11 is a cross-sectional view illustrating a state of usage of the mechanism for locking a pin for a personal ornament shown in Fig. 3. Fig. 12 is a cross-sectional explanatory

drawing showing an example of the shape of the pin member when the mechanism for locking a pin for a personal ornament of the invention is applied to a piercing jewelry. Fig. 13 shows another embodiment of the personal ornament, in which Fig. 13(a) is a cross-sectional view and Fig. 13(b) is a front view. Fig. 14 is the retaining member according to another embodiment, in which Fig. 14(a) is a cross-sectional view, and Fig. 14(b) is a front view. Fig. 15 shows another embodiment of a different personal ornament, in which Fig. 15(a) is a side view of the personal ornament main body, and Fig. 15 (b) is a cross-sectional view showing a state in which the retaining member is locked to the personal ornament main body.

Best Mode for Carrying Out the Invention

[0013] Referring now to the drawings, preferred embodiments of a mechanism for locking a pin for a personal ornament according to the present invention will be described.

[0014] First, a mechanism for locking a pin for a personal ornament according to a first embodiment of the invention will be described.

[0015] The mechanism for locking a pin for a personal ornament according to the first embodiment of the invention includes a main body of the personal ornament 2 and a tab member 3, as shown in Fig. 1 and Fig. 2.

[0016] The personal ornament main body 2 includes a base member 4 in the shape of a small flat plate strip, and the front surface of the base member 4 is provided with a desired decoration (hatched portion in the drawing) as the personal ornament 1. The back surface of the base member 4 is secured with a single pin member 6 formed with a screw portion 5 (male screw 5A) on the outer periphery thereof.

[0017] On the other hand, the tab member 3 is formed into substantially cylindrical shape having a screw hole 7 at the center thereof, the screw hole 7 being formed with a screw portion 5 (female screw 5B) so as to be capable of storing the pin member 6 by engaging with the screw portion 5 of the personal ornament main body 2, and a supporting sleeve 8 formed so as to project from the opening edge of the screw hole 7 coaxially with the screw hole 7 includes a stopper 9 loosely fitted thereon so as to be capable of rotating independently by caulking the distal end of the supporting sleeve 8. In the present embodiment, the stopper 9 is formed into a disk shape which is substantially the same as the cross section of the cylindrical tab member 3 orthogonal to the axis thereof, and is formed with a plurality of claw-shaped projections 10 on the outer periphery of the surface opposing to the personal ornament main body 2 in use. These projections 10 may be a single projection formed along the outer periphery into an annular shape.

[0018] With the mechanism for locking the pin for the personal ornament having such a structure, as shown in Fig. 2, the pin member 6 of the personal ornament main body 2 is pierced through a target T from the front side thereof, and the pin for the personal ornament is locked to the target T by screwing the male screw 5A formed on the pin member 6 and the female screw 5B formed in the screw hole 7 of the tab member 3 to store the pin member 6 into the screw hole 7 on the back surface of the target T. With the structure in which the personal ornament main body 2 and the tab member 3 are screwed with each other as described above, the personal ornament can be locked with respect to the target T reliably, and such inconvenience that the tab member 3 comes apart from the personal ornament main body 2 may be prevented. In addition, since the pin member 6 is stored in the screw hole 7 of the tab member 3, safety is enhanced.

[0019] Since the stopper 9 loosely fitted to the supporting sleeve 8 of the tab member 3 causes the claw-shaped projections 10 to be abutted against or bitten by the target T, when screwing the personal ornament main body 2 and the tab member 3 with respect to each other for securely locking the same with respect to the target T, the stopper serves to alleviate pressure or frictional force. Therefore, the clothing fabric of the target T is prevented from becoming damaged more than necessary by locking the pin for the personal ornament.

[0020] Materials of the personal ornament main body 2 and the tab member 3 are not specifically limited. For example, materials such as plastic, metal, wood, rubber may be used.

[0021] Subsequently, the mechanism for locking the pin for the personal ornament according to a second embodiment will be described.

[0022] The mechanism for locking the pin for the personal ornament according to the second embodiment includes a personal ornament main body 12 and a retaining member 13.

[0023] The personal ornament main body 12 includes a base member 14 in the shape of a flat small strip, and the front surface of the base member 14 is provided with a decoration (hatched portion in the drawing) desired as the personal ornament 11. The back surface of the base member 14 is provided with a pin member 16 formed, for example, of metallic material such as gold or silver into a hook shape. The base portion 16A of the pin member 16 extends perpendicularly with respect to the base member 14, and the distal portion 16B extends in substantially parallel with the wide surface of the base member 14.

[0024] In this embodiment, the distal portion 16B of the pin member 16 is bent by substantially a right angle so as to extend upward from the base portion 16A.

[0025] In this case, the pin member 16 may be the one in which the base portion 16A is fixed to the personal ornament main body 12, or the one in which a proximal portion 16A is rotatably journaled by and rotatably attached to the personal ornament main body 12 so that the distal portion 16B rotates about the proximal portion 16A.

[0026] The pin member 16 is not necessary to be disposed at the center of the base member 14. For example, the pin member 16 may be disposed in the vicinity of one end of the base member 14 as shown in Fig. 4 so that the point end of the pin member 16 does not project from the outer periphery of the base member 14.

[0027] On the other hand, the retaining member 13 is a member having a substantially rectangular parallelepiped shape as shown in Fig. 3 and Fig. 5 as an example, and the retaining member 13 is formed with a groove 17 which communicates with an opening 17A on the surface opposing to the base member 14 and allow the distal portion 16B of the pin member 16 to be fitted so as to be slidable in the fore-and-aft direction.

[0028] The retaining member 13 is formed with a pin member storage 18 extending continuously upward from the inner most portion 17B of the groove 17 and being formed like a vertical bore which can tightly accommodate the distal portion 16B of the pin member 16. The groove 17 may also be opened toward the lower end of the retaining member 13.

[0029] Furthermore, in this embodiment, the surface of the retaining member 13 is formed obliquely with respect to the direction of extension of the groove 17 so that the thickness of the groove 17 on the side of the open end is smaller than the thickness thereof on the side of the other end, and the surface is provided with an antiskid member formed of resilient material such as hard rubber or soft plastic into a serrated projections 19 in cross section. The projections 19 may be formed integrally with the retaining member 13, for example, by molding.

[0030] As described above, the retaining member 13 may not be formed obliquely in the direction of extension of the groove so that the thickness of the groove 17 on the side of the opened end becomes smaller than the thickness thereof on the side of the other end, but may be formed to have a uniform thickness as shown in Fig. 6, or may be formed obliquely with respect to the direction of extension of the groove 17 so as to increase the thickness of the groove 17 on the side of the other end as shown in Fig. 7.

[0031] In addition, the shape of the retaining member 13 in plan view is not limited to the rectangular parallel piped shape, but may be substantially the same shape as the base member 14 of the personal ornament, or may be a circular shape shown in Fig. 8 or other given shape.

[0032] Furthermore, the retaining member 13 may be adapted to prevent the pin member 16 from dropping off the retaining member 13 by forming a plurality of engaging grooves 20 having a circular cross-section extending in the direction of the depth of the groove 17 at predetermined intervals in the direction of extension of the groove 17 and engaging the proximal portion 16A of the pin member 16 with the engaging groove 20 as shown in Fig 9 and Fig 10.

[0033] In the present embodiment, as shown in Fig. 11, the pin member 16 of the personal ornament main body 12 is pierced into the target T from the front side thereof, and the distal portion 16B of the pin member 16 is brought into position from the opening of the groove 17 formed on the retaining member 13 into the groove 17 located on the back side of the target T.

[0034] In this case, the distal end of the distal portion 16B of the pin member 16 is positioned on the extension of the pin member storage 18 formed continuously with the groove 17, and in this state, the retaining member 13 is slid so that the distal portion 16B of the pin member moves along the bottom of the groove 17, and then the distal portion 16B of the pin member 16 is inserted into the pin member storage 18.

[0035] By storing the distal portion 16B of the pin member 16 into the pin member storage 18 in this manner, the personal ornament main body 12 is engaged with the retaining member, and hence the personal ornament 11 is locked to the target T.

[0036] In this embodiment, as shown in Fig. 11, when the distal portion 16B of the pin member 16 is stored in the pin member storage 18, at least part of the surface of the retaining member 13 abuts against the back surface of the base member 14 of the personal ornament main body 12 via the target T.

[0037] Therefore, the personal ornament 11 clamps the target T at the abutment section between the back surface of the base member 14 and the front surface of the retaining member 13, and hence is locked thereto.

[0038] With the structure in which the personal ornament main body 12 and the retaining member 13 are engaged with each other, the personal ornament 11 can reliably be locked with respect to the target T.

[0039] Also, since the pin member 16 is formed into a hook shape, such inconvenience that the retaining member 13, which is engaged with the pin member 16, comes apart from the personal ornament main body 12 owing to the distal portion 16B of the pin member 16 directed upward when in use.

[0040] Furthermore, since the pin member 16 is stored in the pin member storage 18 of the retaining member 13, safety is enhanced. In addition, even though the pin member 16 is deflected when a large force is applied from the outside, the pin member 16 can hardly come apart from the inside of the pin member storage 18 owing to its resiliently restoring force.

[0041] Also, as shown in this embodiment, by forming the antiskid member including serrated projection 19 of resilient material such as hard rubber or soft plastic on the surface of the retaining member 13, and bringing at least part of the surface into abutment with the back surface of the base member 4 of the personal ornament main body 12 via the target T, the personal ornament 11 can reliably be locked with respect to the target T, and possibility of damaging the target T at the abutment section may be reduced.

[0042] The invention is not limited to the above-described embodiment, and may be variously modified as

needed.

[0043] For example, in the description of the state of usage of the mechanism for locking the pin for the personal ornament according to the second embodiment, the pin member is pierced into the target with the pin member directed upward. However, as long as it is configured in such a manner that the target is clamped by bringing at least part of the surface of the retaining member into abutment with the back side of the main body of the pin via the target when the distal portion of the pin member is stored in the pin member storage, even though the pin member when in use is directed in any direction, the mechanism for locking the pin for the personal ornament can achieve such effects that the personal ornament can be locked with respect to the target safely and reliably, and that possibility to damage the target T may be reduced.

[0044] Also, as regards the antiskid member, in addition to the projections formed of resilient material as described above, it may be formed by coating a rubber film which has a high frictional coefficient.

[0045] In addition, the mechanism for locking the pin for the personal ornament according to the present invention is a technology that can be applied to piercing jewelries. In such a case, the pin member of the piercing jewelry may be machined for easier wearing and safety so that the connecting portion between the base portion 16A and the distal portion 16B is curved into an arcuate shape as shown in Fig. 12.

[0046] The personal ornament 11 shown in Fig. 13 is an embodiment in which the retaining member 13 is different.

[0047] The retaining member 13 includes a groove 17 opening to the surface of the retaining member opposing to the personal ornament main body 12 and opened at the bottom for allowing the base portion of the pin member 16 to be retained by the side surface and the upper surface, and a pin member storage 18 formed in the direction intersecting with respect to the groove 17.

[0048] The groove 17 does not have the groove portion which can fit the distal portion 16B of the pin member 16 so as to be capable of moving in the fore-and-aft direction in the embodiment shown in Fig. 6, and only has a groove structure in which the proximal portion 16A can be retained when pin member 16 is attached.

[0049] Therefore, the size of the retaining member 13 may be about half the same in the embodiment shown in Fig. 6.

[0050] Also, the retaining member 13 shown in Fig. 14 has a tapered groove 17a which is widened downward formed at the bottom of the groove 17 of the retaining member 13 in the embodiment shown in Fig. 3 so as to continue therefrom.

[0051] Accordingly, when the pin member 16 is attached, the proximal portion 16A can be easily inserted into the groove 17 of the retaining member 13 by the tapered groove 17a (see Fig. 14(b)).

[0052] In the embodiment described above, the structure in which the groove 17 is provided on the retaining member 13 is shown. However, the invention also includes a structure in which the groove 17 is not provided, and only the pin member storage 18 is provided.

[0053] In the embodiment shown in Fig. 15, only the pin member storage 18 formed of a vertical groove is provided on the retaining member 13.

[0054] Also, as shown in Fig. 15(a), the pin member 16 of the personal ornament main body 12 is inclined so that the distal portion 16B gradually approaches the base member 14 as it approaches the upper end, while the pin member storage 18 of the retaining member 13 is disposed so that the bore is oriented upright (see Fig. 15(b)).

[0055] Therefore, when storing the distal portion 16B of the pin member 16 in the pin member storage 18, the distal portion of the pin member 16 is inserted into the pin member storage 18 while being bent in the upright direction against the resilient force thereof. Therefore, the personal ornament main body 12 is urged toward the retaining member 13 by the resiliently restoring force of the pin member 16 and retained.

[0056] Although an embodiment in which the groove portion is not provided on the retaining member 13 is shown in this embodiment, the structures of the pin member 16 and the pin member storage 18 for locking the same by its resiliency may be applied to all other embodiments of the invention, and hence it may be the case in which the groove 17 is formed on the retaining member 13.

[0057] Also, the pin member 16 and the pin member storage 18 must simply be configured in such a manner that the pin member 16 can be inserted into the pin member storage 18 while bending the distal portion 16B, and hence the invention is not limited to the combination shown in the above-described embodiments, and what is necessary is just to differentiate the extending angles of the distal portion 16B and that of the pin member storage 18 so that a resilient force acts when the distal portion 16B is inserted into the pin member storage 18.

[0058] As described above, according to the present invention, such effects that the personal ornament can be locked with respect to the target safely and reliably, and possibility of damaging the target may be reduced are achieved.

Claims

1. A mechanism for locking a pin for a personal ornament comprising:

   a personal ornament main body including a single resilient hook-shaped pin member having a proximal side extending vertically with respect to the surface of the base member and a distal side extending substantially parallel to the surface of the base member, the pin member being

secured to the back surface of the base member; and

a retaining member including a pin member storage having a groove communicating with the opening on the surface opposing to the base member for fitting the proximal portion of the pin member, the pin member storage being formed so as to extend in one direction from the inner most portion of the groove continuously therefrom, the pin member storage being capable of tightly accommodating the distal portion of the pin member, and the retaining member having a surface inclined so as to vary the thickness thereof in the direction of extension of the groove.

2. A mechanism for locking a pin for a personal ornament as claimed in Claim 1, wherein the retaining member comprises a groove opening to the surface of the retaining member opposing to the personal ornament main body for retaining the proximal portion of the pin member and a pin member storage formed in the direction intersecting with respect to the groove.

3. A mechanism for locking a pin for a personal ornament as claimed in Claim 1, wherein the groove includes a groove portion opening to the surface of the retaining member and being capable of allowing the distal portion of the pin member to be fitted so as to move in the fore-and-aft direction, and wherein the pin member storage is formed continuously from the inner most portion of the groove in one direction so as to be capable of tightly accommodating the distal portion of the pin member.

4. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein the pin member is formed of resilient material.

5. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein an antiskid member is provided on the surface of the retaining member.

6. A mechanism for locking a pin for a personal ornament as claimed in Claim 5, wherein the antiskid member is a serrated projection in cross-section.

7. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein the surface of the retaining member is inclined so as to gradually increase the thickness of the retaining member in the direction of extension of the groove.

8. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein the distal portion of the pin member extends upwardly with respect to the personal ornament main body.

9. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein the pin member storage is disposed so that the distal portion of the pin member is bent against the resilient force thereof when storing the distal portion of the pin member, and the personal ornament main body is urged by the resiliently restoring force of the pin member toward the retaining member.

10. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein the personal ornament main body is any one of a badge, a broach, a tiepin, a cuff button, and a piercing jewelry.

11. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein a bent portion between the proximal portion and the distal portion of the pin member is curved.

12. A mechanism for locking a pin for a personal ornament as claimed in any preceding claim, wherein the pin member is attached to a personal ornament main body so that the distal portion is capable of rotating about the proximal portion.

13. A mechanism for locking a pin for a personal ornament as claimed in any preceding, wherein the surface of the retaining member is inclined so as to reduce the thickness of the retaining member gradually in the direction of extension of the groove.

14. A mechanism for locking a pin for a personal ornament comprising:

a personal ornament main body including a single resilient hook-shaped pin member secured to the back surface of a base member, the pin member having a proximal side extending vertically with respect to the surface of the base member and a distal side extending substantially in parallel with the surface of the base member; and

a retaining member comprising a pin member storage opening to a bottom surface of the retaining

member and extending in the upright direction so as to be capable of tightly accommodating the distal portion of the pin member, the retaining member having a surface on the side opposing the base member inclined in such a manner that the thickness varies in the direction orthogonal to the direction of extension of the pin storage.

Fig.1

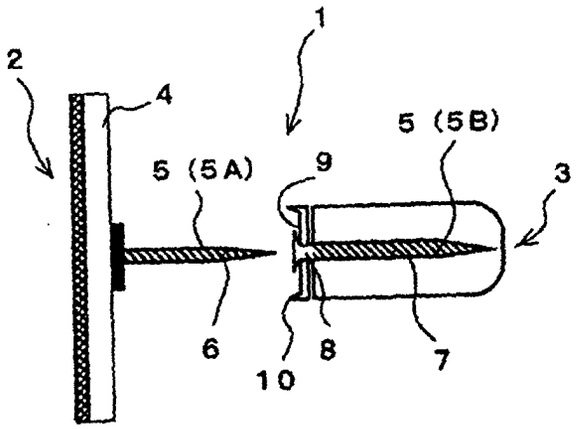


Fig.2

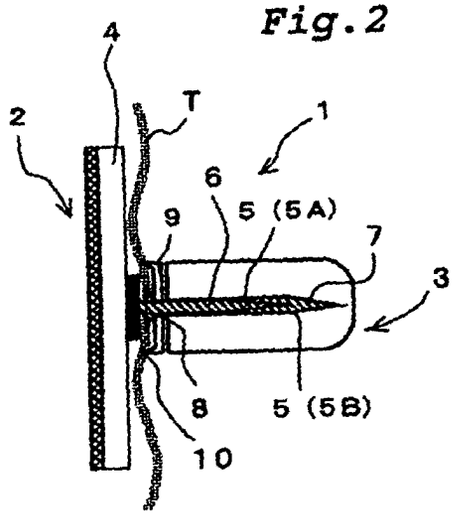


Fig.3

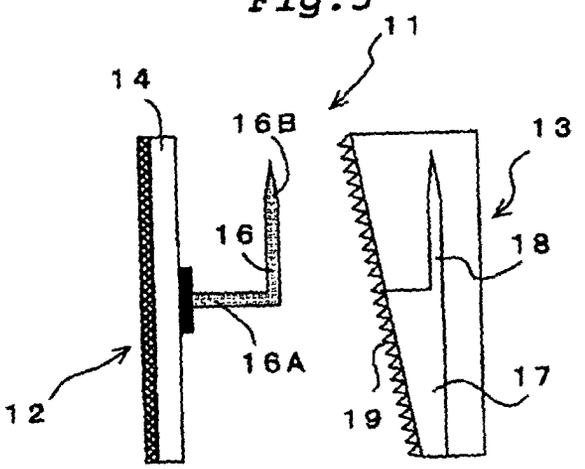


Fig.4

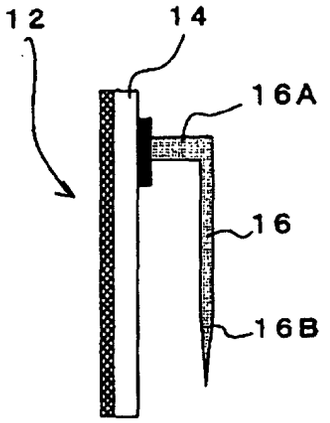


Fig.5

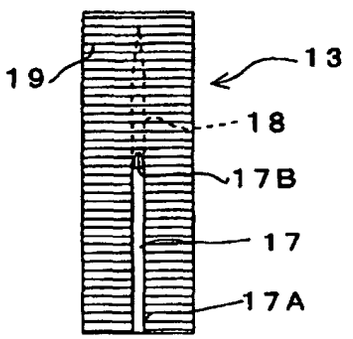


Fig.6

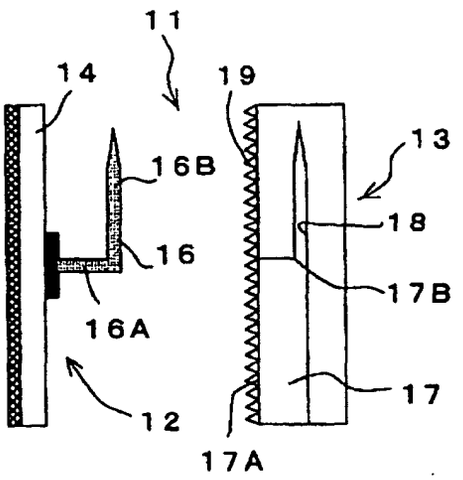


Fig.7

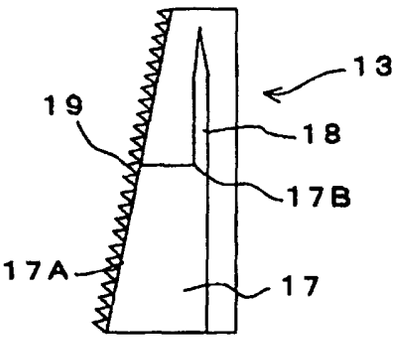


Fig.8

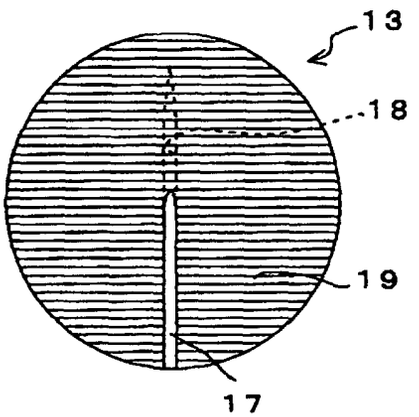


Fig.9

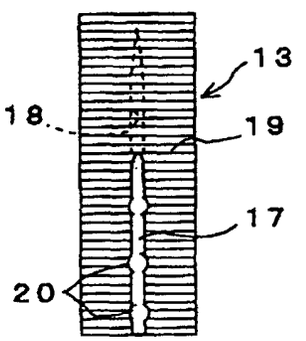


Fig.10

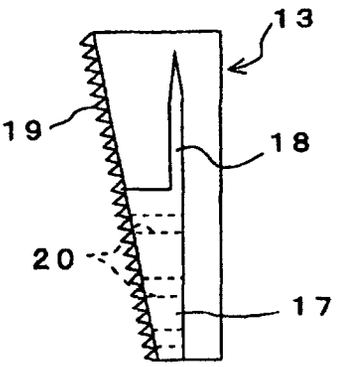


Fig.11

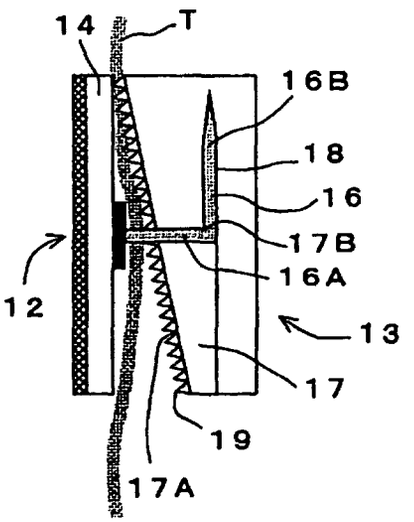


Fig.12

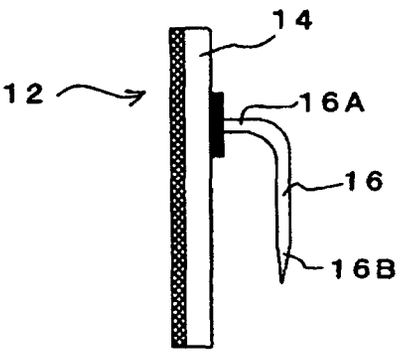
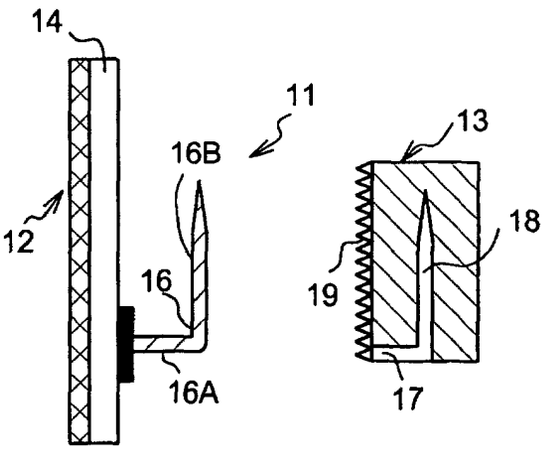


Fig. 13

(a)



(b)

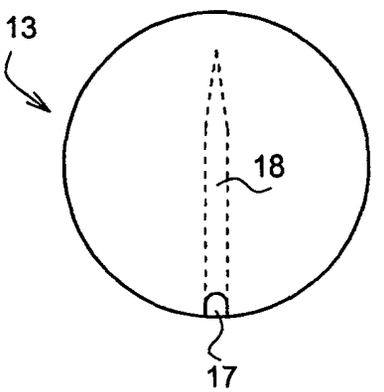


Fig. 14

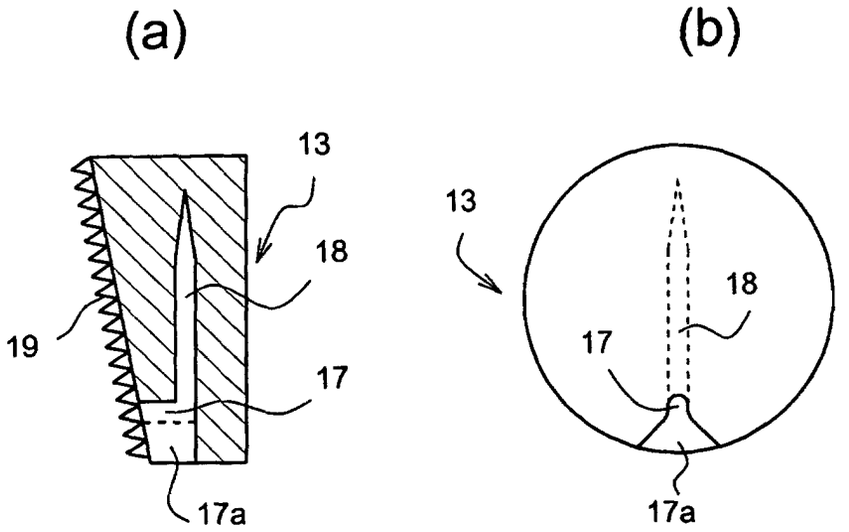
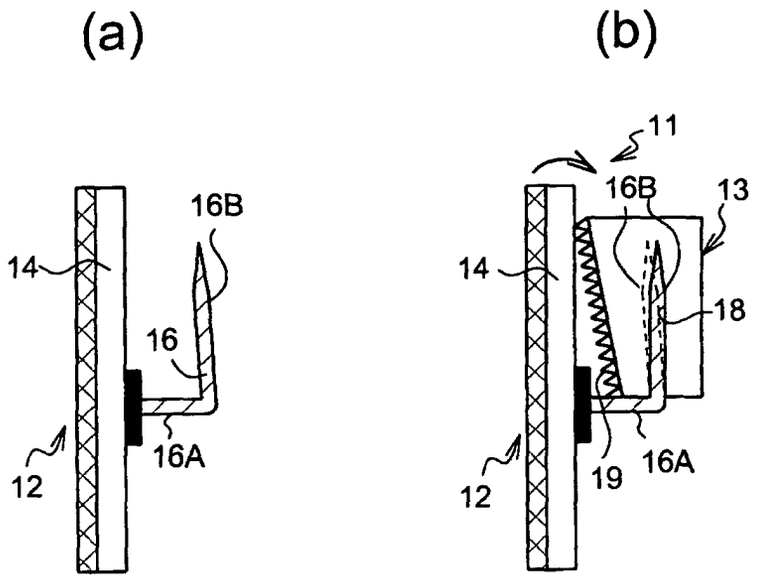

(a)
(b)
13
18
19
17
17a
13
18
17
17a

Fig. 15


(a)
(b)
16B
14
16
12
16A
11
16B
13
14
18
12
19
16A

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/01709

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] A44C1/00, A44C3/00, A44C7/00, A44B9/08, A44B5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] A44C1/00, A44C3/00, A44C7/00, A44B9/08, A44B5/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Toroku Jitsuyo Shinan Koho	1994-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 13-18706 Y1 (Jiro KURIHARA), 08 December, 1938 (08.12.38), Full text; all drawings (Family: none)	1
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 113767/1984 (Laid-open No. 28419/1986) (Hiroshi MUTA), 20 February, 1986 (20.02.86), Figs. 1, 4 (Family: none)	1
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 45047/1975 (Laid-open No. 128690/1976) (Toa Kinzoku Kogyo Kabushiki Kaisha), 18 October, 1976 (18.10.76), Full text; all drawings (Family: none)	2-13

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search 21 May, 2003 (21.05.03)	Date of mailing of the international search report 10 June, 2003 (10.06.03)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/01709

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model Application No. 7084/1992 (Laid-open No. 65209/1993) (Junjiro SUZUKI), 31 August, 1993 (31.08.93), Full text; all drawings (Family: none)	2-13
Y	JP 7-289319 A (Kabushiki Kaisha Roran), 07 November, 1995 (07.11.95), Par. No. [0014] (Family: none)	2-13
Y	JP 3020025 Y1 (Kabushiki Kaisha Sakuseshia), 25 October, 1995 (25.10.95), Full text; all drawings (Family: none)	2-13
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 30297/1986 (Laid-open No. 141315/1987) (Kabushiki Kaisha Redaato), 07 September, 1987 (07.09.87), Full text; all drawings (Family: none)	2-13

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