



(11)

EP 4 287 169 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 153(4) EPC

(43) Date of publication:
06.12.2023 Bulletin 2023/49

(21) Application number: **21923256.8**

(22) Date of filing: **23.12.2021**

(51) International Patent Classification (IPC):
G09F 3/03 ^(2006.01) **G09F 3/10** ^(2006.01)
A41D 20/00 ^(2006.01)

(52) Cooperative Patent Classification (CPC):
A41D 20/00; G09F 3/03; G09F 3/10

(86) International application number:
PCT/JP2021/048056

(87) International publication number:
WO 2022/163253 (04.08.2022 Gazette 2022/31)

(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
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **29.01.2021 JP 2021013387**

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(54) **WRISTBAND**

(57) A wristband including a belt-shaped band portion and an adhesive portion formed by laminating an adhesive on one end of the band portion, the wristband being formed in a ring shape by attaching the adhesive portion to a part of the band portion, wherein a plurality of first breaking slits are formed in a radial shape at the end, and each of the first breaking slits includes two parallel first line segments and a second line segment that connects one end of each of the first line segments and is longer than each of the first line segments, and is formed such that an opening formed by the first line segments and the second line segment is directed toward a radial center.

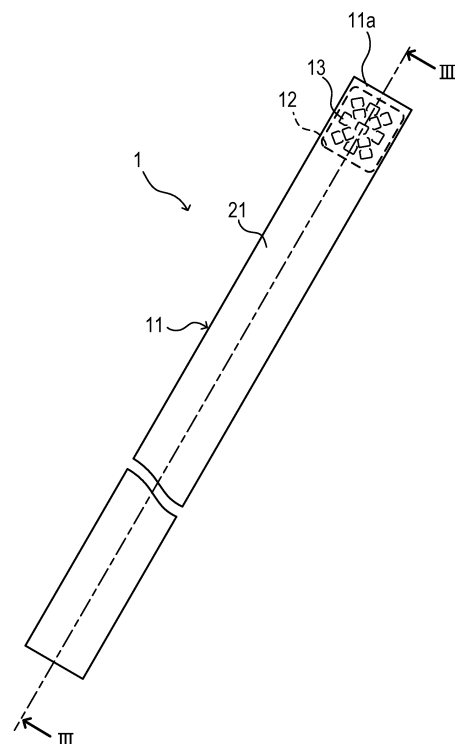


FIG. 1

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Description

TECHNICAL FIELD

[0001] The present invention relates to a wristband.

BACKGROUND ART

[0002] A wristband is used instead of an admission ticket at an event site or a concert. JP 2020-38386 A discloses a wristband used for identifying a patient or an examinee in a medical institution or the like.

SUMMARY OF INVENTION

[0003] In the wristband described in JP 2020-38386 A, a breaking slit is formed such that a band portion is broken when an attached portion is about to be peeled off in order to prevent unauthorized use between users.

[0004] However, with the breaking slit of the related art, depending on a peeling direction, the attached portion can be peeled off without breaking, and there is room for improvement.

[0005] Therefore, an object of the present invention is to provide a wristband that is formed in a ring shape by attaching an end, which is an attached portion, of the wristband to a part of a band portion. When the end is peeled off from the band portion, the end is reliably broken and cannot be used again as the wristband.

[0006] According to an aspect of the present invention, there is provided a wristband including a belt-shaped band portion and an adhesive portion formed by laminating an adhesive on one end of the band portion, the wristband being formed in a ring shape by attaching the adhesive portion to a part of the band portion. A plurality of first breaking slits are formed in a radial shape at the end, and each of the first breaking slits includes two parallel first line segments and a second line segment that connects one end of each of the first line segments and is longer than each of the first line segments, and is formed such that an opening formed by the first line segments and the second line segment is directed toward a radial center.

[0007] According to the above aspect of the present invention, the first breaking slits are formed in a radial shape at the end of the belt-shaped band portion, each of the first breaking slits including two parallel first line segments and a second line segment that connects one end of each of the first line segments and is longer than each of the first line segments, and being formed such that an opening formed by the first line segments and the second line segment is directed toward a radial center. Therefore, when the end is peeled off from the band portion from the outer edge side toward the inner side of the end, the end cleaves along the second line segment of the first breaking slit, the tear spreads along a pair of first line segments, and the end is broken first from end portions of the first line segments. The first breaking slits are

formed in a radial shape, and thus the end cannot maintain a state before being attached and cannot be formed in a ring shape again when the end of the wristband is about to be peeled off from the band portion.

BRIEF DESCRIPTION OF DRAWINGS

[0008]

[FIG. 1] FIG. 1 is a plan view of a wristband according to an embodiment of the present invention as viewed from a front surface side.

[FIG. 2] FIG. 2 is a plan view of the wristband according to the embodiment as viewed from a back surface side.

[FIG. 3] FIG. 3 is a cross-sectional view taken along a line III-III of FIG. 1.

[FIG. 4] FIG. 4 is a perspective view for explaining the wristband according to the embodiment.

[FIG. 5] FIG. 5 shows a shape of a slit element of a breaking slit.

[FIG. 6] FIG. 6 shows a plurality of breaking slits formed at an end.

[FIG. 7] FIG. 7 is a perspective view for explaining a continuous body of the wristband according to the embodiment.

[FIG. 8] FIG. 8 is a plan view of a label to which the breaking slit according to the embodiment is applied.

DESCRIPTION OF EMBODIMENTS

[Wristband]

[0009] FIG. 1 is a plan view of a wristband 1 according to an embodiment of the present invention as viewed from a front surface side. FIG. 2 is a plan view of the wristband 1 as viewed from a back surface side. FIG. 3 is a cross-sectional view taken along a line III-III of FIG. 1.

[0010] In the embodiment, a front surface of the wristband 1 is a surface on which predetermined designs and characters are printed in advance. A back surface of the wristband 1 is a surface opposite to the front surface and in contact with human skin.

[0011] The wristband 1 includes a belt-shaped band portion 11 and an adhesive portion 12 formed on the back surface of one end 11a of the band portion 11.

[0012] As shown in FIG. 3, in the band portion 11, a thermal substrate 21 and a back surface substrate 22 are laminated on a laminate layer 23. A separator S is temporarily attached to the adhesive portion 12 formed on the back surface of the end 11a. For the sake of clarity of the drawings, the separator S is not shown in FIG. 1.

[0013] As shown in FIG. 3, the thermal substrate 21 is provided with a thermosensitive coloring layer 21b on a surface substrate 21a. Therefore, the thermal substrate 21 on which the thermosensitive coloring layer 21b is arranged constitutes the front surface of the wristband 1.

[0014] As a material applicable to the surface substrate

21a, a single resin film such as polyvinyl chloride, polyethylene terephthalate, polypropylene, polyethylene, or polyethylene naphthalate, or a multilayer film obtained by laminating a plurality of these resin films may be used.

[0015] In addition to the resin film substrate, a paper substrate such as cardboard, high-quality paper, medium-quality paper, or coated paper obtained by appropriately forming a coating layer on the paper can be used.

[0016] In the embodiment, a thickness of the surface substrate 21a may be 10 µm or more and 300 µm or less. When paper is used as the surface substrate 21a, in the above range, the paper having a thickness of 50 µm or more and 260 µm or less can be used, and the thickness is preferably 80 µm in general.

[0017] When a resin film is used as the surface substrate 21a, in the above range, a resin film having a thickness of 25 µm or more and 200 µm or less, particularly 10 µm or more and 200 µm or less, preferably may be used. These can be appropriately selected depending on the intended use.

[0018] The thermosensitive coloring layer 21b is made of a material that develops color by thermal scanning of a thermal head of a printer (not shown).

[0019] The back surface substrate 22 constitutes the back surface of the wristband 1. The back surface substrate 22 is embossed. Accordingly, it is possible to ensure air permeability between the wristband and the human skin. The embossing imparts a cushioning property to the back surface substrate 22 and makes the wristband soft to touch the skin.

[0020] In the embodiment, the laminate layer 23 is a polyethylene resin. The thermal substrate 21 and the back surface substrate 22 are heat-sealed with a molten polyethylene resin. In the laminate layer 23, any material that is generally used as an adhesive for lamination can be appropriately used. As an example, an adhesive or a bonding agent of acrylic system, urethane system, silicone system, rubber system, or the like can be used.

[0021] Examples of an adhesive for forming the adhesive portion 12 include an adhesive or a bonding agent of acrylic system, urethane system, silicone system, rubber system, or the like.

[0022] As shown in FIGS. 1 and 2, in the wristband 1, a breaking slit 13 is formed at the end 11a of the band portion 11 at which the adhesive portion 12 is formed.

[0023] As shown in FIG. 3, the breaking slit 13 is a slit that penetrates the band portion 11, and is formed at a position of the adhesive portion 12 arranged at the end 11a.

[0024] FIG. 4 is a perspective view of the wristband 1 according to the embodiment. The wristband 1 is used in a ring shape by being wound around a wrist and attaching the adhesive portion 12 formed on the back surface of the end 11a to a part of the front surface of the band portion 11. Since the adhesive portion 12 can be attached to any position on the front surface of the band portion 11, a ring diameter is adjustable.

[0025] An arrow P shown in FIG. 4 is for explaining a

direction in which the end 11a is peeled off. A direction of the arrow P shown in FIG. 4 corresponds to a direction of an arrow P shown in FIG. 6 to be described later.

[0026] Subsequently, the breaking slit 13 will be described. FIG. 5 shows one slit element 30 of the breaking slit 13.

[0027] The slit element 30 is formed by connecting two parallel first line segments 31 and 32 and a second line segment 33. The second line segment 33 connects one end 31a and one end 32a of the first line segments 31 and 32, and the second line segment 33 is longer than the first line segments 31 and 32.

[0028] In the first line segments 31 and 32, ends 31b and 32b opposite to the ends 31a and 32a connected by the second line segment 33 are bent toward an inside of an opening 34 to form bent portions 35 and 36.

[0029] In the embodiment, connecting portions between the bent portions 35 and 36 and the first line segments 31 and 32 and the second line segment 33 are formed by curved lines. Therefore, tear of the slit element 30 is likely to expand for the peeling of the end 11a.

[0030] In the embodiment, the slit element 30 has a shape of an alphabet "C" of an Agency-FB font.

[0031] In the embodiment, a plurality of the slit elements 30 are formed in a radial shape at the end 11a. The slit element 30 is formed such that the opening 34 formed by the first line segments 31 and 32 and the second line segment 33 is directed toward a radial center.

[0032] FIG. 6 shows a plurality of breaking slits 13 formed at the end 11a.

[0033] The breaking slit 13 includes a plurality of first breaking slits 131 (hereinafter referred to as first slits 131), a plurality of second breaking slits 133 (hereinafter referred to as second slits 133), and a plurality of third breaking slits 135 (hereinafter referred to as third slits 135). In the embodiment, the first slits 131, the second slits 133, and the third slits 135 correspond to the slit elements 30.

[0034] In the embodiment, there are first slits 131a, 131b, 131c, and 131d. Further, there are second slits 133a, 133b, 133c, and 133d. Further, there are third slits 135a, 135b, 135c, and 135d.

[0035] When the first slits 131a to 131d are not distinguished from each other, the first slits 131a to 131d are referred to as the first slits 131 without using alphabetic branch numbers. The same applies to the following description of a configuration including the second slit to be described later.

[0036] The first slits 131a, 131b, 131c, and 131d are arranged radially, respectively. The adjacent first slits 131 are formed discontinuously to each other. The second slits 133 each being discontinuous with a corresponding one of the first slits 131 and each having the same shape as the first slit 131 are formed outside the first slit 131 in a radial direction.

[0037] That is, the second slit 133a is formed outside the first slit 131a in the radial direction. The second slit 133b is formed outside the first slit 131b in the radial

direction. The second slit 133c is formed outside the first slit 131c in the radial direction. The second slit 133d is formed outside the first slit 131d in the radial direction.

[0038] The third slits 135 each being discontinuous with a corresponding one of the first slits 131 and a corresponding one of the second slits 133 are formed outside discontinuous portions 132 between adjacent ones of the first slits 131 in the radial direction.

[0039] That is, the third slit 135a is formed outside a discontinuous portion 132a in the radial direction. The third slit 135b is formed outside a discontinuous portion 132b in the radial direction. The third slit 135c is formed outside a discontinuous portion 132c in the radial direction. The third slit 135d is formed outside a discontinuous portion 132d in the radial direction.

[0040] In the embodiment, a central slit 136 is formed at the radial center of the breaking slit 13. An opening direction of the central slit 136 is any direction. The opening direction of the central slit 136 may be the same as an opening direction of any of the first slit 131, the second slit 133, and the third slit 135, or may not coincide with the opening direction of any of the slits.

[0041] The wristband 1 according to the embodiment has a ring shape in a state in which the breaking slit 13 is formed at the end 11a, and has a mechanism in which the breaking slit 13 cleaves and the end 11a breaks when the end 11a attached to a part of the front surface of the band portion 11 is peeled off from the band portion 11.

[0042] As an example, a case of peeling off the end 11a along the direction of the arrow P shown in FIGS. 4 and 6 will be described.

[0043] In this case, the second slit 133a cleaves along the radial direction, and a periphery of a region A defined by the second slit 133a is peeled off while the region A remains on the front surface of the band portion 11.

[0044] In the embodiment, as shown in FIG. 5, the bent portions 35 and 36 are formed in the first slit 131 and the second slit 133 (slit elements 30). Therefore, since a width of a portion remaining on the front surface of the band portion 11 is narrowed, the wristband is likely to break at the bent portions 35 and 36.

[0045] After the tear of the second slit 133a reaches end portions (bent portions 35 and 36) of the second slit 133a, when the second slit 133a is further peeled off, the peeling stress concentrates on the discontinuous portion between the first slit 131a and the second slit 133a, and the discontinuous portion is broken.

[0046] Along with the breakage of the discontinuous portion, the tear expands along the first slit 131a, and thus a periphery of a region B defined by the first slit 131a is peeled off while the region B remains on the front surface of the band portion 11. Accordingly, the breakage of the end 11a in the discontinuous portion expands.

[0047] As described above, in the wristband 1 according to the embodiment, at this time, the history of peeling off the end 11a of the band portion 11 formed in a ring shape becomes visually clear. After being peeled off, the end 11a is not in a state before being attached to the

band portion 11, and thus the ring shape cannot be formed again. Therefore, the wristband 1 cannot be re-used.

[0048] Therefore, the wristband 1 according to the embodiment can be suitably used instead of an admission ticket in an event site or a concert.

[0049] FIG. 7 is a perspective view for explaining a continuous body of the wristband 1 according to the embodiment. The wristband 1 is provided in a form of a roll-shaped continuous body R as an example. In the continuous body R, tear-off perforation 40 is performed on a boundary between the wristband 1 and a wristband 2.

[0050] The continuous body R is set in a printer (not shown), and printing is performed on the thermal substrate 21 of the band portion 11 while the continuous body R is fed out in a direction of an arrow F of FIG. 7.

[0051] In the embodiment, the continuous body R is formed such that the breaking slit 13 is located on the rear side in the feeding direction F of the continuous body R, that is, upstream in a conveying direction.

[0052] For example, when a thermal printer is used, the continuous body R is fed out while sliding with a thermal head during printing. In the embodiment, the first slit 131, the second slit 133, and the third slit 135 are formed to have curved portions, and thus when the thermal head slides and moves on the front surface of the band portion 11, the thermal head and the breaking slit 13 are hardly caught, and the periphery of the breaking slit 13 is not rolled up during printing.

[Other Embodiments]

[0053] Although the embodiment of the present invention has been described above, the above embodiment is merely a part of application examples of the present invention, and is not intended to limit the technical scope of the present invention to the specific configurations of the above embodiment.

[0054] In the embodiment, since the wristband 1 shown in FIG. 1 is described as being torn off from the roll-shaped continuous body R as shown in FIG. 7, four corners of the band portion 11 are shown as substantially right angles.

[0055] In contrast, the four corners of the band portion 11 may be formed in an arc shape. This case can be realized by forming perforations for cutting out the four corners of the wristband 1 in an arc shape. Since the four corners of the wristband 1 are arc-shaped, it is possible to reduce stimulation when the wristband 1 touches the human skin.

[0056] The wristband 1 according to the embodiment may be compatible with RFID. That is, the wristband 1 may include an RFID inlay in which an IC chip with RFID specifications is connected to an antenna pattern. The RFID inlay may be laminated between the band substrate and the surface substrate of the wristband 1 or may be laminated outside the surface substrate.

[0057] In the embodiment, the wristband 1 in which the

thermal substrate 21 and the back surface substrate 22 are laminated as the band portion 11 is described, but a substrate for heat transfer printing or a substrate for inkjet may be used instead of the thermal substrate 21. The band portion 11 may be a laminate of a plurality of substrates, or may be a single substrate.

[0058] FIG. 8 is a plan view of a label 100 to which the breaking slit 13 according to the embodiment is applied. The breaking slit described in the embodiment and the modification can also be applied to a label that is used by being attached to an adherend.

[0059] The present application claims priority under Japanese Patent Application No. 2021-013387 filed to the Japan Patent Office on January 29, 2021, and the entire content of this application is incorporated herein by reference.

Claims

1. A wristband including a belt-shaped band portion and an adhesive portion formed by laminating an adhesive on one end of the band portion, the wristband being formed in a ring shape by attaching the adhesive portion to a part of the band portion, wherein

a plurality of first breaking slits are formed in a radial shape at the end, and each of the first breaking slits includes two parallel first line segments and a second line segment that connects one ends of the first line segments and is longer than each of the first line segments, and is formed such that an opening formed by the first line segments and the second line segment is directed toward a radial center.

2. The wristband according to claim 1, wherein second breaking slits each being discontinuous with a corresponding one of the first breaking slits and each having the same shape as the first breaking slit are formed outside the first breaking slits in a radial direction.

3. The wristband according to claim 2, wherein adjacent ones of the first breaking slits are discontinuous to each other, and third breaking slits each being discontinuous to a corresponding one of the first breaking slits and a corresponding one of the second breaking slits and each having the same shape as the first breaking slit are formed outside discontinuous portions in the radial direction.

4. The wristband according to any one of claims 1 to 3, wherein ends of the first line segments opposite to the ends connected by the second line segment are bent toward an inside of the opening.

5. The wristband according to any one of claims 1 to 4, wherein a surface of the band portion on which the adhesive portion is formed is embossed.

6. The wristband according to any one of claims 1 to 5, wherein a thermosensitive coloring layer is formed on a surface of the band portion opposite to a surface of the band portion on which the adhesive portion is formed.

7. The wristband according to any one of claims 1 to 6, wherein the first breaking slit has a shape of an alphabet C of an Agency-FB font.

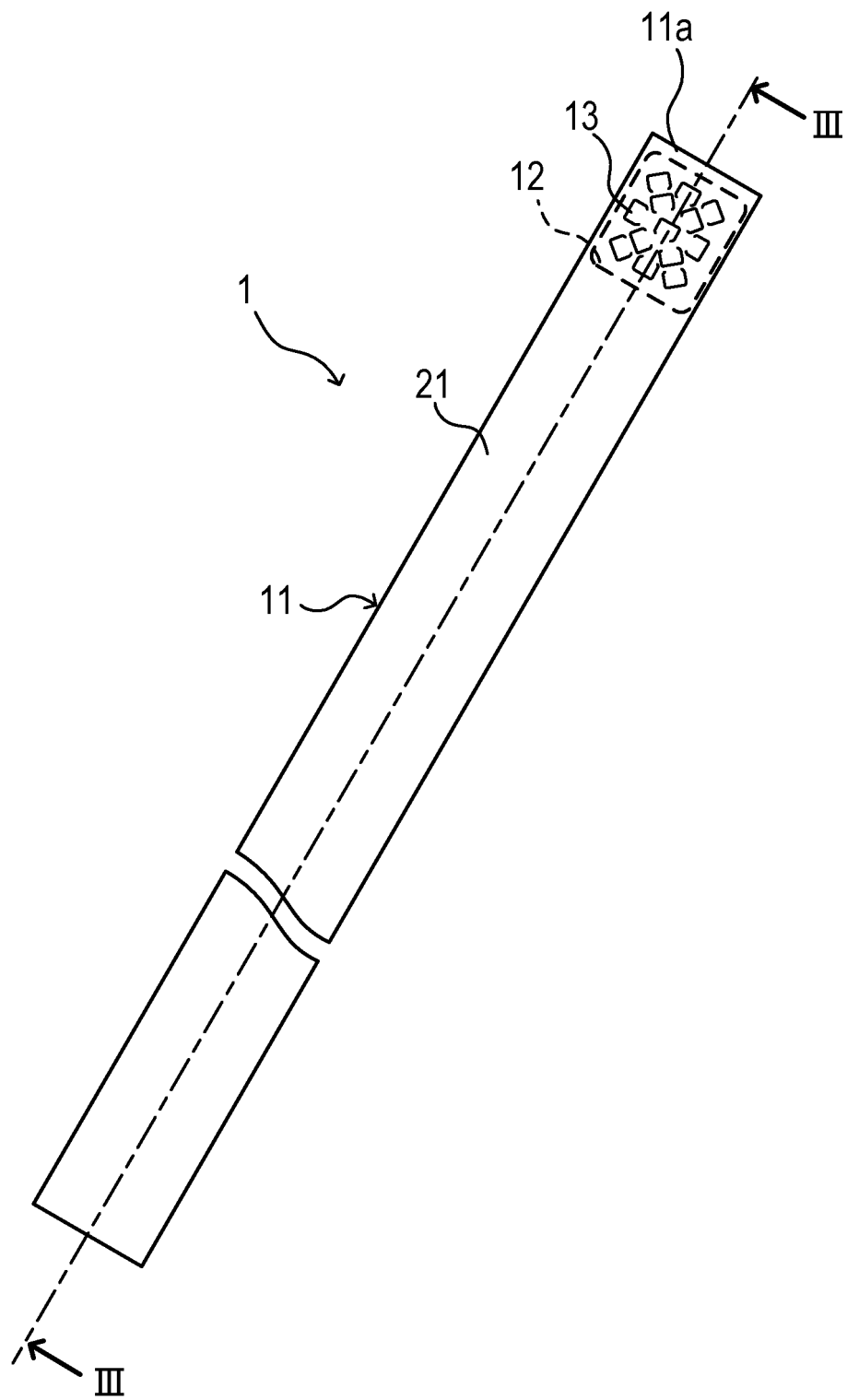


FIG. 1

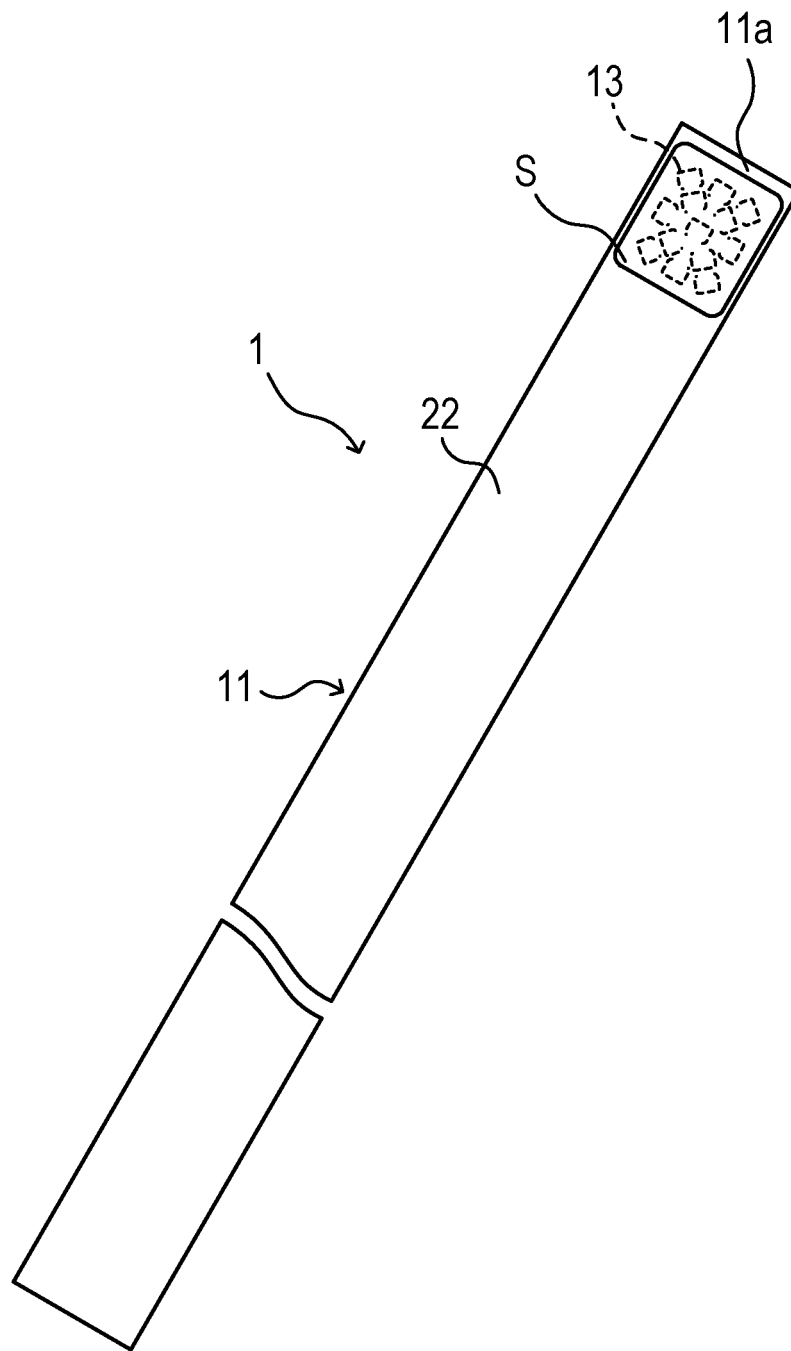


FIG. 2

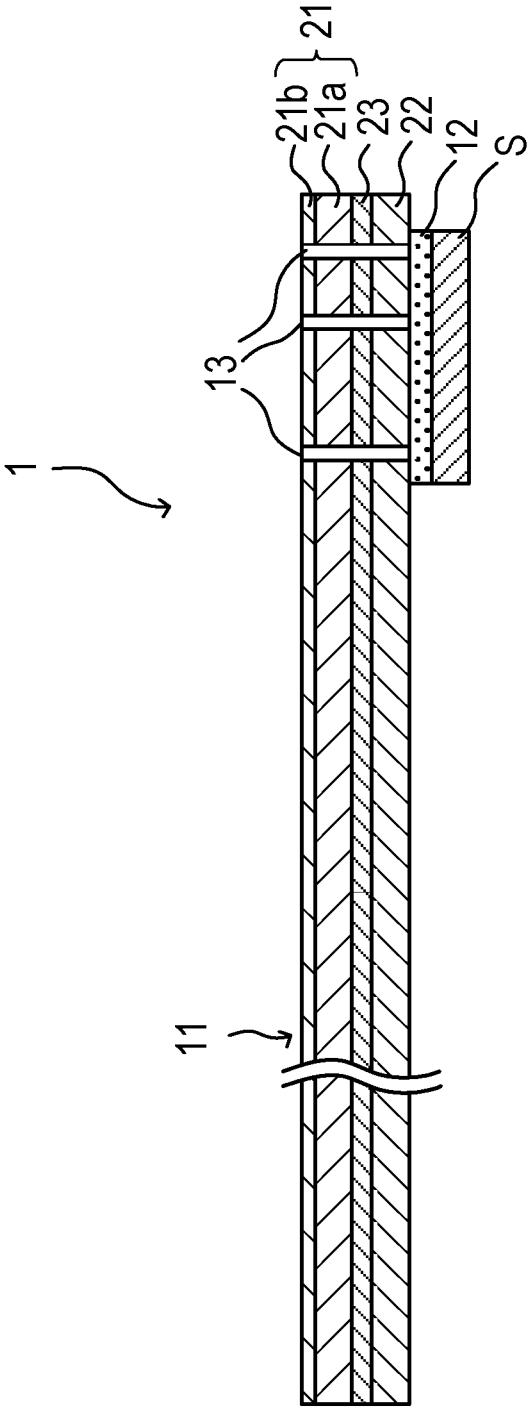


FIG. 3

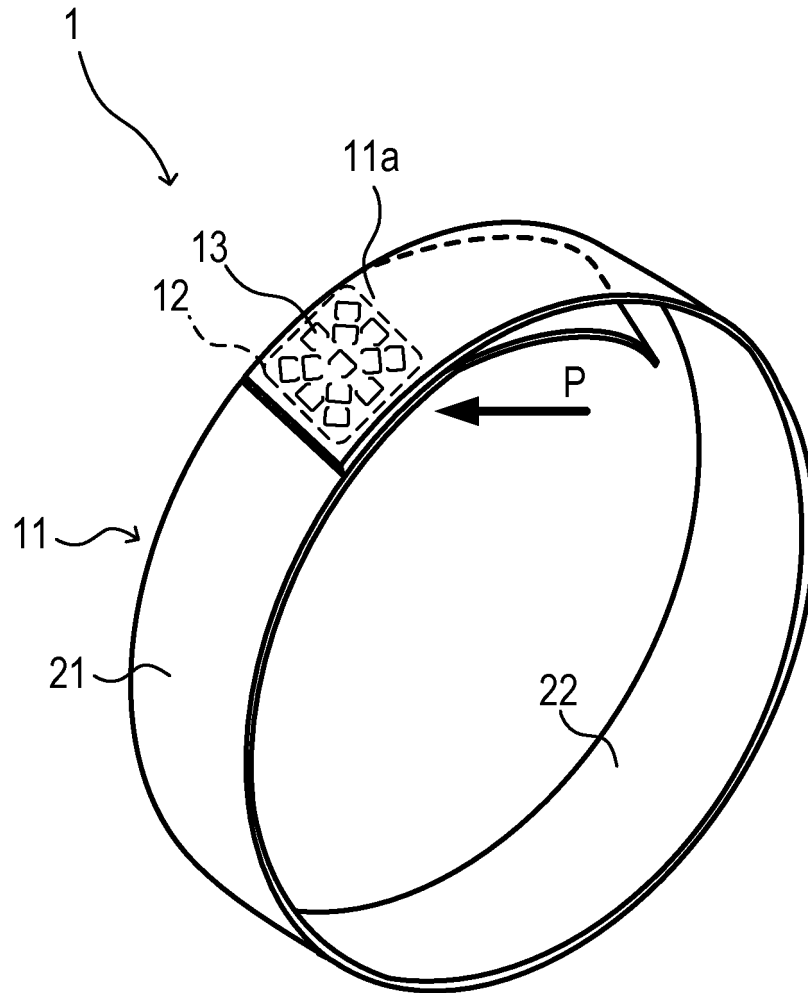


FIG. 4

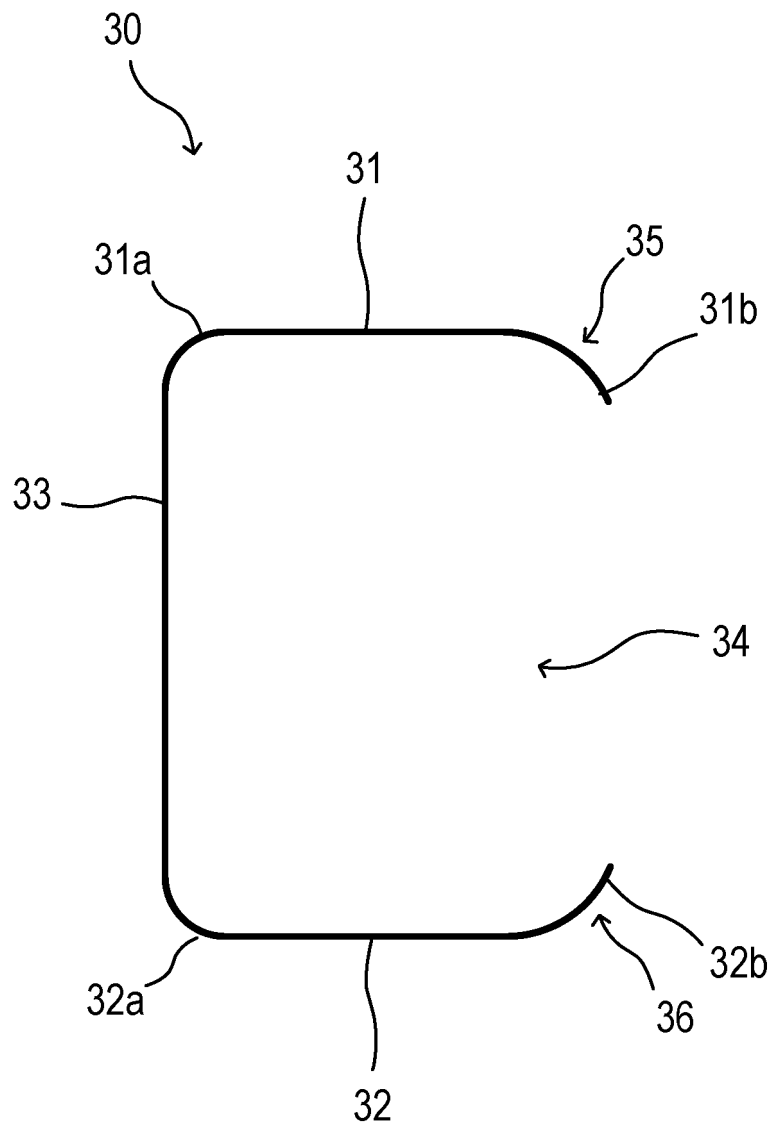


FIG. 5

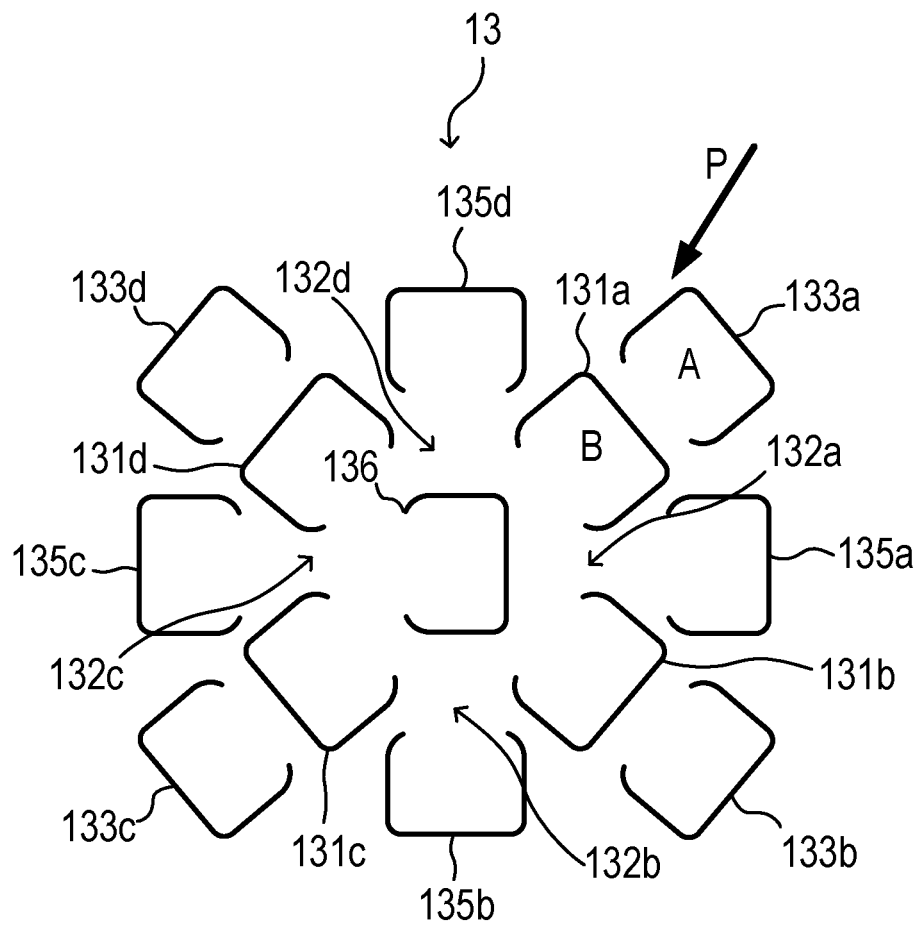


FIG. 6

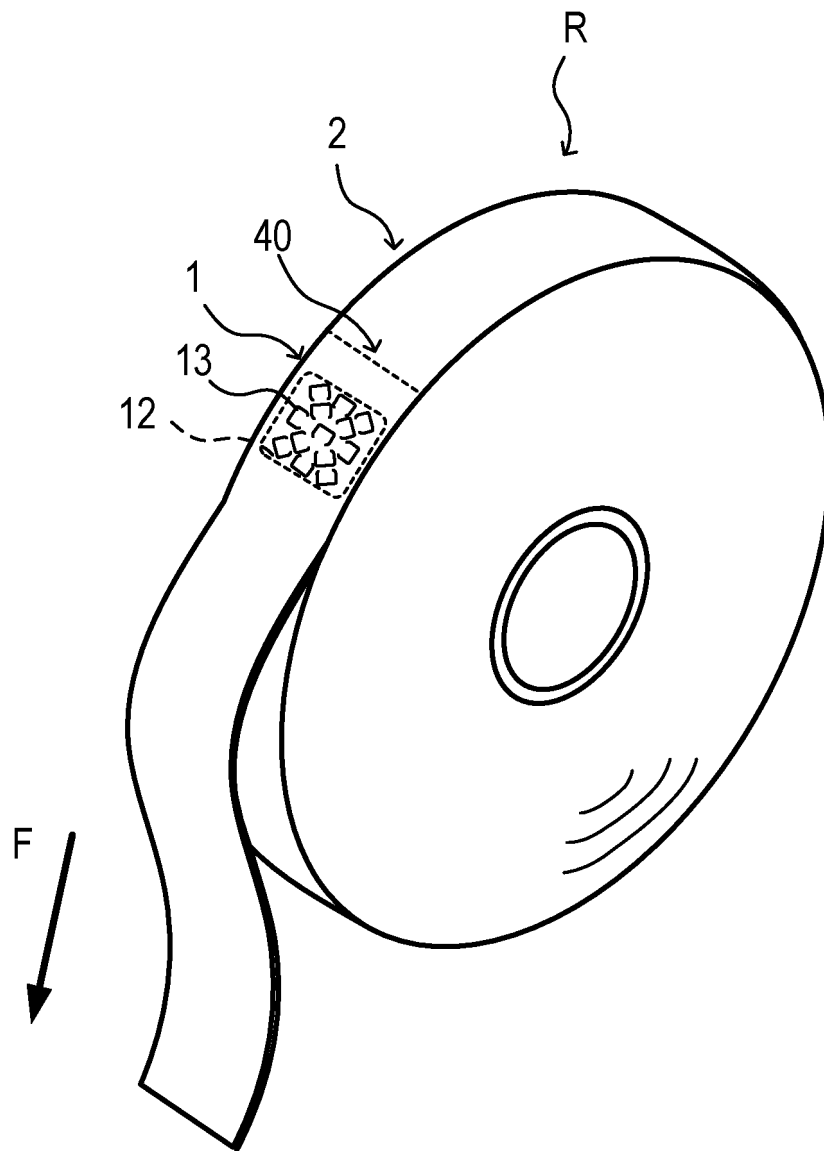


FIG. 7

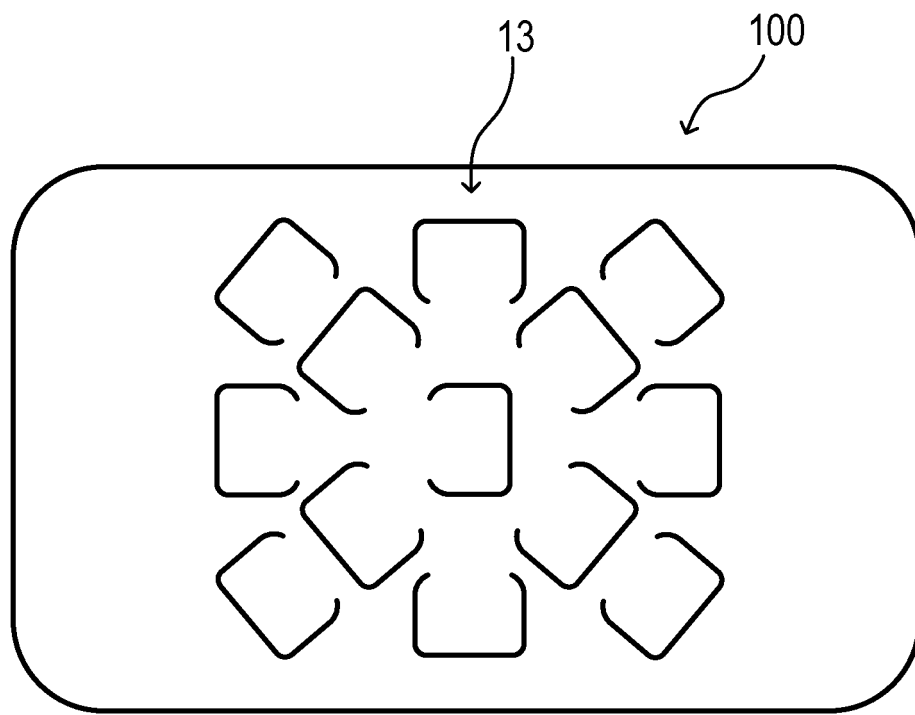


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/048056

A. CLASSIFICATION OF SUBJECT MATTER

G09F 3/03(2006.01)i; **G09F 3/10**(2006.01)i; **A41D 20/00**(2006.01)i
 FI: G09F3/03 M; G09F3/10 B; A41D20/00

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)

G09F3/03; G09F3/10; A41D20/00

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

Published examined utility model applications of Japan 1922-1996
 Published unexamined utility model applications of Japan 1971-2022
 Registered utility model specifications of Japan 1996-2022
 Published registered utility model applications of Japan 1994-2022

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.
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A	JP 2006-39209 A (SATO CORPORATION) 09 February 2006 (2006-02-09) paragraphs [0012]-[0022], fig. 1-4	1-7
A	JP 2005-234497 A (UNOSHI KABUSHIKI KAISHA) 02 September 2005 (2005-09-02) paragraphs [0014]-[0029], fig. 1-3	1-7
A	WO 2017/145343 A1 (TEMPEARL INDUSTRIAL COMPANY, LIMITED) 31 August 2017 (2017-08-31) paragraphs [0025]-[0121], fig. 1-10	1-7
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A	JP 2004-85614 A (SATO CORPORATION) 18 March 2004 (2004-03-18) paragraphs [0034]-[0052], fig. 1-9	1-7

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search

01 February 2022

Date of mailing of the international search report

15 February 2022

Name and mailing address of the ISA/JP

Japan Patent Office (ISA/JP)
 3-4-3 Kasumigaseki, Chiyoda-ku, Tokyo 100-8915
 Japan

Authorized officer

Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No. PCT/JP2021/048056

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11-231789 A (NISSAN DIESEL MOTOR COMPANY, LIMITED) 27 August 1999 (1999-08-27) paragraphs [0012]-[0017], fig. 1-7	1-7
A	US 5884425 A (AVERY DENNISON CORPORATION) 23 March 1999 (1999-03-23) entire text, all drawings	1-7

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2021/048056

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
WO 2013/014936 A1	31 January 2013	JP 2013-29661 A paragraphs [0015]-[0035], fig. 1-4	
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Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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- JP 2021013387 A [0059]