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(54) **GLOVE FOR FOOD HANDLING**

(57) A glove (10) for food handling is provided by which, even if the glove (10) for food handling is broken and a broken piece thereof mixes in food, the broken piece can be easily found, and further, workability can be improved.

The glove main body (10) for food handling is kneaded with a luminescent material that, even if a broken piece K of the glove for food handling mixes in food F, makes the broken piece K emit light in response to ultraviolet rays S by irradiating the food F with the ultraviolet rays S by using an ultraviolet light source L such as a black light. The luminescent material is kneaded throughout the entire area of the glove main body (10) for food handling. Further, on a palm surface of the glove (10) for food handling, a plurality of fine first projections (110a) and a plurality of fine second projections (110b) formed on each of the first projections are formed.

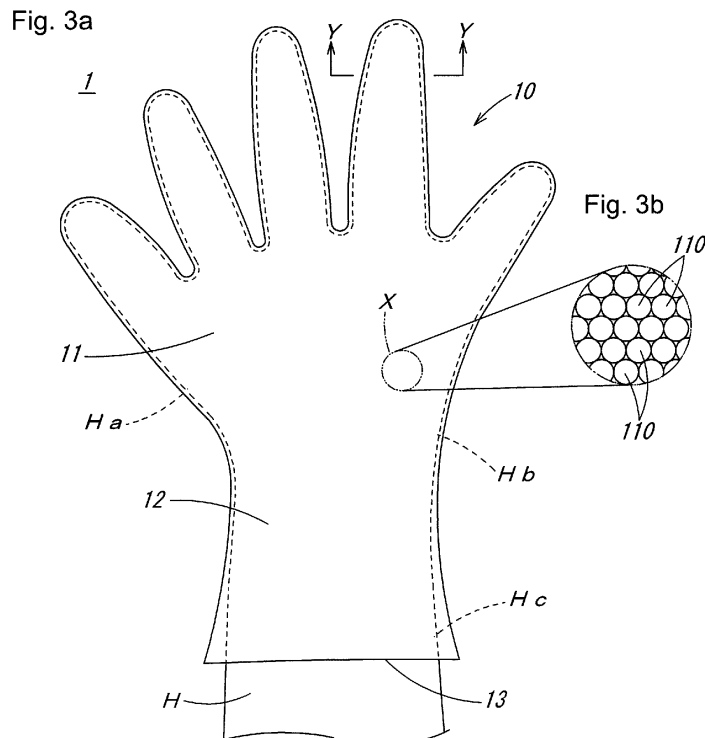
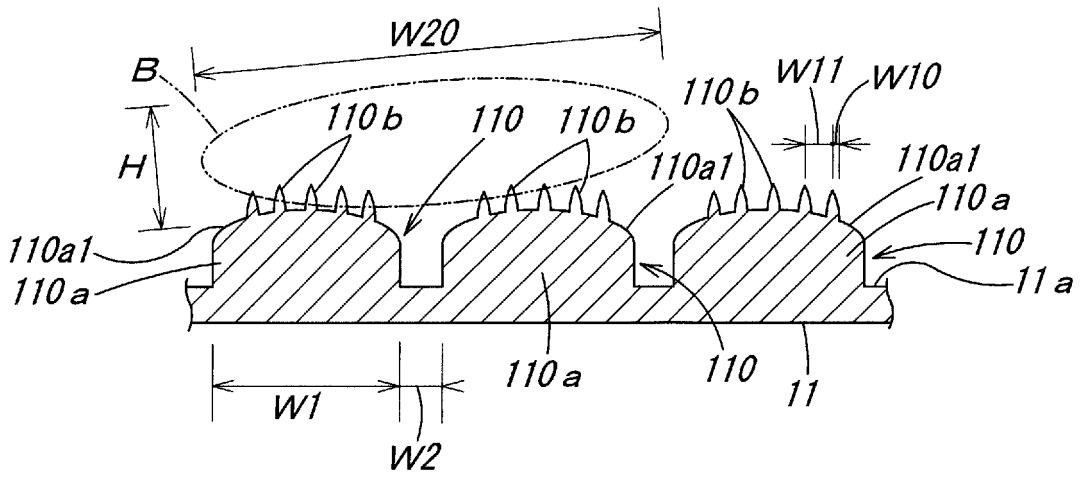


Fig. 3c



**Description**

## Technical Field

**[0001]** The present invention relates to a glove for food handling to be used when handling food.

## Background Art

**[0002]** Conventionally, as gloves for food handling to be used to directly handle food with hands, gloves for food handling obtained by making plastic film into bags having the shape of gloves and rubber-made gloves for food handling have been widely used to handle food (for example, refer to Patent Document 1).

## Prior Art Document

## Patent Document

**[0003]** Patent Document 1: Japanese Unexamined Patent Application Publication No. 2002-317320

## Summary of the Invention

## Problem to be Solved by the Invention

**[0004]** However, the glove for food handling as described above has had a problem that the glove itself is broken when handling food, and when a broken piece thereof mixes in the food, it is very difficult to find the broken piece. Therefore, there has been a problem that food with foreign matter mixed in may be shipped.

**[0005]** Therefore, in view of the above-described problem, an object of the present invention is to provide a glove for food handling by which, even if the glove for food handling is broken and a broken piece thereof mixes in food, the broken piece can be easily found, and further, workability can be improved.

## Means for Solving the Problem

**[0006]** The above-described object of the present invention is achieved by the following means. The characters in parentheses denote reference signs used in an embodiment described later, and these are not intended to limit the present invention.

**[0007]** A glove for food handling according to a first aspect of the invention includes:

- a glove main body (10) for food handling kneaded with a luminescent material that emits light in response to ultraviolet rays (S),
- a plurality of fine first projections (110a) formed on a palm surface of the glove main body (10) for food handling, and
- a plurality of fine second projections (110b) formed on each of the first projections (110a).

**[0008]** In a glove for food handling according to a second aspect of the invention, in the above-described glove for food handling according to the first aspect of the invention, the luminescent material is kneaded throughout the entire area of the glove main body (10) for food handling.

## Effects of the Invention

**[0009]** Next, effects of the present invention are described with use of reference signs shown in the drawings. The characters in parentheses denote reference signs used in an embodiment described later, and these are not intended to limit the present invention.

**[0010]** In the glove for food handling according to the first aspect of the invention, since the glove main body (10) for food handling is kneaded with a luminescent material that emits light in response to ultraviolet rays, even if a broken piece (K) of the glove (1) for food handling mixes in food (F) shown in Fig. 2, by irradiating the food (F) with ultraviolet rays (S) by using an ultraviolet light source (L) such as a black light, the broken piece (K) emits light in response to the ultraviolet rays (S), and accordingly, the broken piece (K) can be easily found.

**[0011]** Further, according to the present invention, even when a worker handles a viscous food material, a situation where the viscous food material (for example, a cooked rice grain (B)) adheres to the palm surface can be reduced by the plurality of fine first projections (110a) formed on the palm surface of the glove main body (10) for food handling. Further, a situation where the viscous food material (for example, the cooked rice grain (B)) adheres to the first projections (110a) can also be reduced by the plurality of fine second projections (110b) formed on each of the first projections (110a). Accordingly, even when a worker performs a work of handling cooked rice by using the glove (1) for food handling, a viscous food material (for example, the cooked rice grain (B)) easily separates from the palm surface, and this improves workability.

**[0012]** In the glove for food handling according to the second aspect of the present invention, since a luminescent material is kneaded throughout the entire area of the glove main body (10) for food handling, regardless of what portion of the glove (1) for food handling is broken, a broken piece (K) of the portion is kneaded with the luminescent material that emits light in response to ultraviolet rays, and therefore, the broken piece (K) that mixed in food (F) can be easily found.

## Brief Description of the Drawings

**[0013]**

Fig. 1 is a front view showing a state where a hand of a worker is inserted in a glove for food handling according to an embodiment of the present invention, and a palm surface faces forward.

Fig. 2(a) is an explanatory view describing irradiation of food with ultraviolet rays by using an ultraviolet light source, and Fig. 2(b) is an enlarged view of a portion A shown in Fig. 2(a), showing a state where a broken piece of the glove for food handling according to the same embodiment emits light in response to the ultraviolet rays when the broken piece mixes in the food.

Fig. 3(a) is a front view showing a state where a hand of a worker is inserted in a glove for food handling according to the same embodiment, and a palm surface faces forward, Fig. 3(b) is an enlarged view of a portion X shown in Fig. 3(a), and Fig. 3(c) is an enlarged sectional view taken along a line Y-Y shown in Fig. 3(a).

#### Best Mode for Carrying Out the Invention

**[0014]** Hereinafter, an embodiment of a glove for food handling according to the present invention is described in detail with reference to Fig. 1 to Figs. 3. In the following description, as upward, downward, leftward, and rightward directions, upward, downward, leftward, and rightward directions viewed from the front of the drawings are applied. A glove for food handling shown in the present embodiment is a glove compliant with the Food Sanitation Act.

**[0015]** As shown in Fig. 1, a glove 1 for food handling according to the present embodiment includes a glove main body 10 for food handling, and this glove main body 10 for food handling is made of polyethylene, vinyl chloride, thermoplastic elastomer, nitrile rubber, latex, or the like. The glove main body 10 for food handling thus made has a glove shape so as to allow a worker's hand H to be inserted inside as shown in Fig. 1. In detail, the glove main body 10 for food handling includes a palm portion 11, a narrow portion 12, and an opening 13.

**[0016]** The palm portion 11 is formed so as to cover the whole of a palm Ha portion of the worker's hand H along the shape of the palm as shown in Fig. 1. As shown in Fig. 1, the narrow portion 12 is formed integrally with a lower end portion of the palm portion 11 to have a narrowed shape so that a wrist Hb portion of the worker's hand H comes into close contact with the portion of the glove main body 10 for food handling. Accordingly, the glove 1 for food handling easily comes into close contact with the worker's hand H, and this improves workability.

**[0017]** In addition, the opening 13 is formed integrally with a lower end portion of the narrow portion 12, and is opened so as to allow the worker's hand H to be inserted inside the glove main body 10 for food handling.

**[0018]** On the other hand, throughout the entire area of the glove main body 10 for food handling, a luminescent material that emits light in response to ultraviolet rays is kneaded. This luminescent material responds to ultraviolet rays S (refer to Fig. 2(a)) irradiated from an ultraviolet light source L (refer to Fig. 2(a)) such as a black light, and is made of a zinc-based fluorescent pig-

ment, a fluorescent dye, or the like. This luminescent material is kneaded in a resin in a liquefied state before the glove main body 10 for food handling is manufactured. Accordingly, by solidifying the kneaded liquid, the luminescent material that emits light in response to ultraviolet rays is kneaded throughout the entire area of the glove main body 10 for food handling.

**[0019]** The thickness of the glove 1 for food handling thus formed is, for example, 15  $\mu\text{m}$  to 150  $\mu\text{m}$ , and is formed to include a single layer or multiple layers such as two layers or three layers.

**[0020]** Thus, the glove 1 for food handling constituted as described above is used by a worker as follows. That is, first, a worker inserts his/her hand H to the inside of the glove main body 10 for food handling from the opening 13. Accordingly, portions of a palm Ha, a wrist Hb, and an arm Hc (refer to Fig. 1) of the worker are inserted inside the glove main body 10 for food handling, and accordingly, as shown in Fig. 1, the glove 1 for food handling is worn on a hand H of a human.

**[0021]** In this state, the worker handles food F (in Fig. 2(a), a lunch is illustrated) such as ham, sausage, pickles, sweets, dairy products, and lunch, etc. At this time, for whatever reason, the glove 1 for food handling itself may be broken and a broken piece K as shown in Fig. 2(b) may mix in the food F (in Fig. 2(a), a lunch is illustrated). However, even when this kind of problem occurs, since the luminescent material that emits light in response to ultraviolet rays is kneaded throughout the entire area of the glove main body 10 for food handling of the glove 1 for food handling, the luminescent material is also kneaded in the broken piece K shown in Fig. 2(b). Therefore, as shown in Fig. 2(a), when the food F (in the drawing, a lunch is illustrated) is irradiated with ultraviolet rays S by using an ultraviolet light source L such as a black light, in response to the ultraviolet rays S, the broken piece K as shown in Fig. 2(b) emits light. Accordingly, even when a broken piece K as shown in Fig. 2(a) mixes in food F (in the drawing, a lunch is illustrated), the broken piece K can be easily found.

**[0022]** In the present embodiment, an example in which a luminescent material that emits light in response to ultraviolet rays is kneaded throughout the entire area of the glove main body 10 for food handling is shown, however, without limiting to this, the luminescent material may be kneaded in a portion. However, it is more preferable that a luminescent material that emits light in response to ultraviolet rays is kneaded throughout the entire area of the glove main body 10 for food handling. The reason for this is that regardless of what portion of the glove 1 for food handling is broken, a broken piece K of the portion is kneaded with the luminescent material that emits light in response to ultraviolet rays, and therefore, the broken piece K that mixed in the food F (in the drawing, a lunch is illustrated) can be easily found.

**[0023]** According to the present embodiment described above, since a luminescent material that emits light in response to ultraviolet rays is kneaded in the glove

main body 10 for food handling, even if a broken piece K of the glove 1 for food handling mixes in food F (in the drawing, a lunch is illustrated), by irradiating the food F with ultraviolet rays S by using an ultraviolet light source L such as a black light, the broken piece K emits light in response to the ultraviolet rays S, and therefore, the broken piece K can be easily found.

**[0024]** The glove 1 for food handling described above is processed as shown in Figs. 3. That is, double embossing is applied to the surface of the palm portion 11 as shown in Fig. 3(a). Accordingly, on the surface of the palm portion 11, as shown in Fig. 3(b), a plurality of fine projections 110 invisible to the naked eye are formed. In greater detail, each projection 110 includes a fine first projection 110a and second projections 110b finer than the first projection 110a. A plurality of first projections 110a respectively have a width W1 (for example, approximately 350  $\mu\text{m}$ ), and are formed at predetermined intervals W2 (for example, approximately 50  $\mu\text{m}$ ) integrally on a surface 11a of the palm portion 11. Accordingly, as shown in Fig. 3(c), the plurality of first projections 110a are integrally provided on the surface 11a of the palm portion 11.

**[0025]** On the other hand, the second projections 110b respectively have a width W10 (for example, approximately 5  $\mu\text{m}$ ), and are formed at predetermined intervals W11 (for example, approximately 15  $\mu\text{m}$ ) integrally on a surface 110a1 of the first projection 110a. Accordingly, as shown in Fig. 3(c), the plurality of second projections 110b are integrally provided on the surface 110a1 of the first projection 110a.

**[0026]** Thus, when handling a viscous food material such as dough, cooked rice, and potato salad by using the double-embossed glove 1 for food handling described above, for example, in a case of handling cooked rice by way of example, as shown in Fig. 3(c), a cooked rice grain B has a width W20 (for example, approximately 7000  $\mu\text{m}$ ) and a height H (for example, approximately 3000  $\mu\text{m}$ ), and on the other hand, on the surface 11a of the palm portion 11 of the glove 1 for food handling, the plurality of first projections 110a each having a width (refer to W1) narrower than the width W20 of the cooked rice grain B are formed, and intervals (refer to W2) between the first projections 110a are also narrower than the width W20 of the cooked rice grain B. Accordingly, a contact area of the cooked rice grain B with the surface 11a of the palm portion 11 is significantly reduced, so that a situation where the cooked rice grain B adheres onto the surface 11a of the palm portion 11 can be reduced. Further, the plurality of second projections 110b each having a width (refer to W10) narrower than the width W1 of the first projections 110a are formed on each of the surfaces 110a1 of the first projections 110a, and accordingly, a contact area of the cooked rice grain B with the surfaces 110a1 of the first projections 110a is significantly reduced, and therefore, a situation where the cooked rice grain B adheres onto the surfaces 110a1 of the first projections 110a can also be reduced.

**[0027]** Thus, according to the present embodiment, even when a worker performs a work of handling a viscous food material by using the glove 1 for food handling, the viscous food material easily separates from the palm portion 11, and this improves workability.

**[0028]** The shapes and dimensions, etc., shown in the present embodiment are just examples, and can be variously modified and changed within the scope of the present invention described in the claims.

#### Description of Reference Symbols

#### [0029]

1	Glove for food handling
10	Glove main body for food handling
110a	First projection
110b	Second projection
K	Broken piece
F	Food
L	Ultraviolet light source
S	Ultraviolet rays
B	Cooked rice grain

#### Claims

1. A glove for food handling comprising:
  - a glove main body (10) for food handling kneaded with a luminescent material that emits light in response to ultraviolet rays (S);
  - a plurality of fine first projections (110a) formed on a palm surface of the glove main body (10) for food handling; and
  - a plurality of fine second projections (110b) formed on each of the first projections (110a).
2. The glove for food handling according to Claim 1, wherein the luminescent material is kneaded throughout the entire area of the glove main body (10) for food handling.

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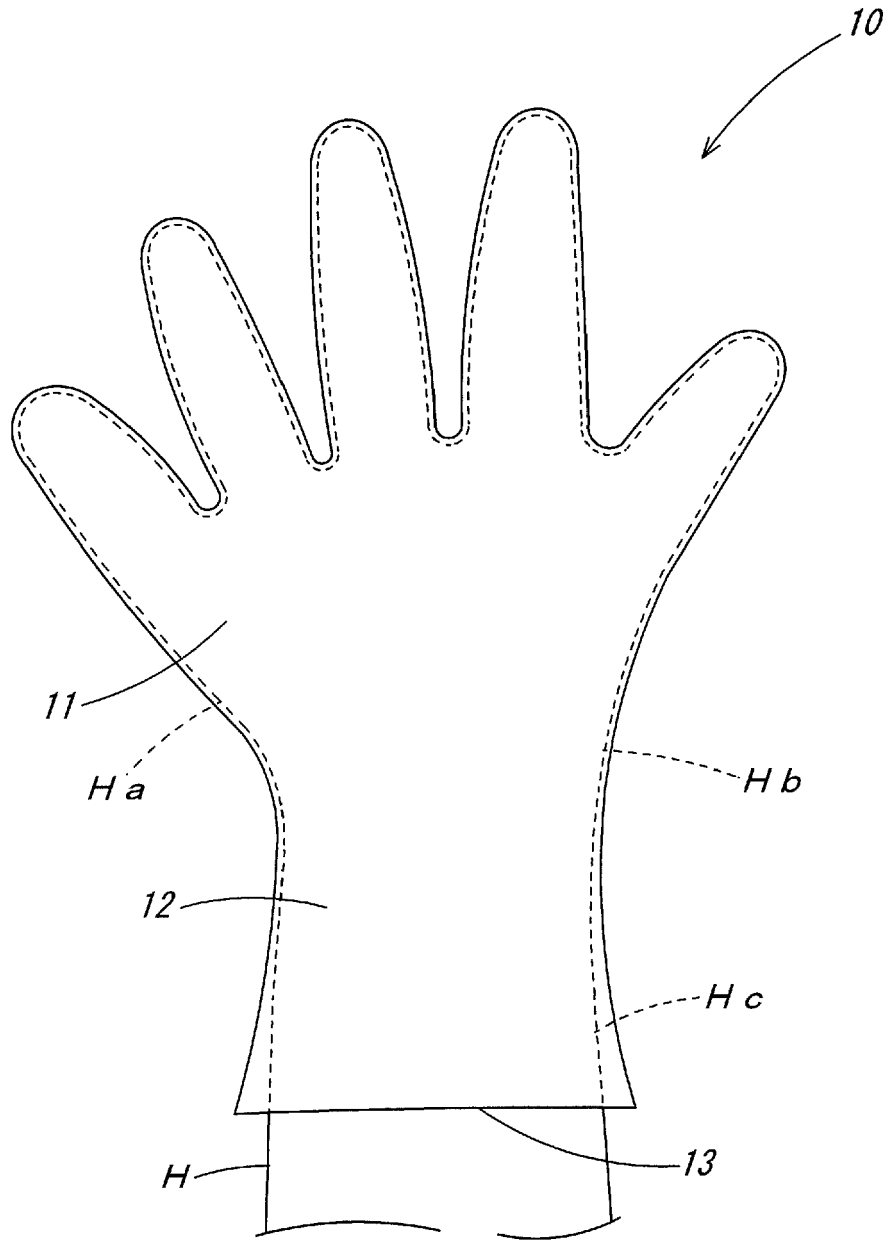


Fig. 1

Fig. 2a

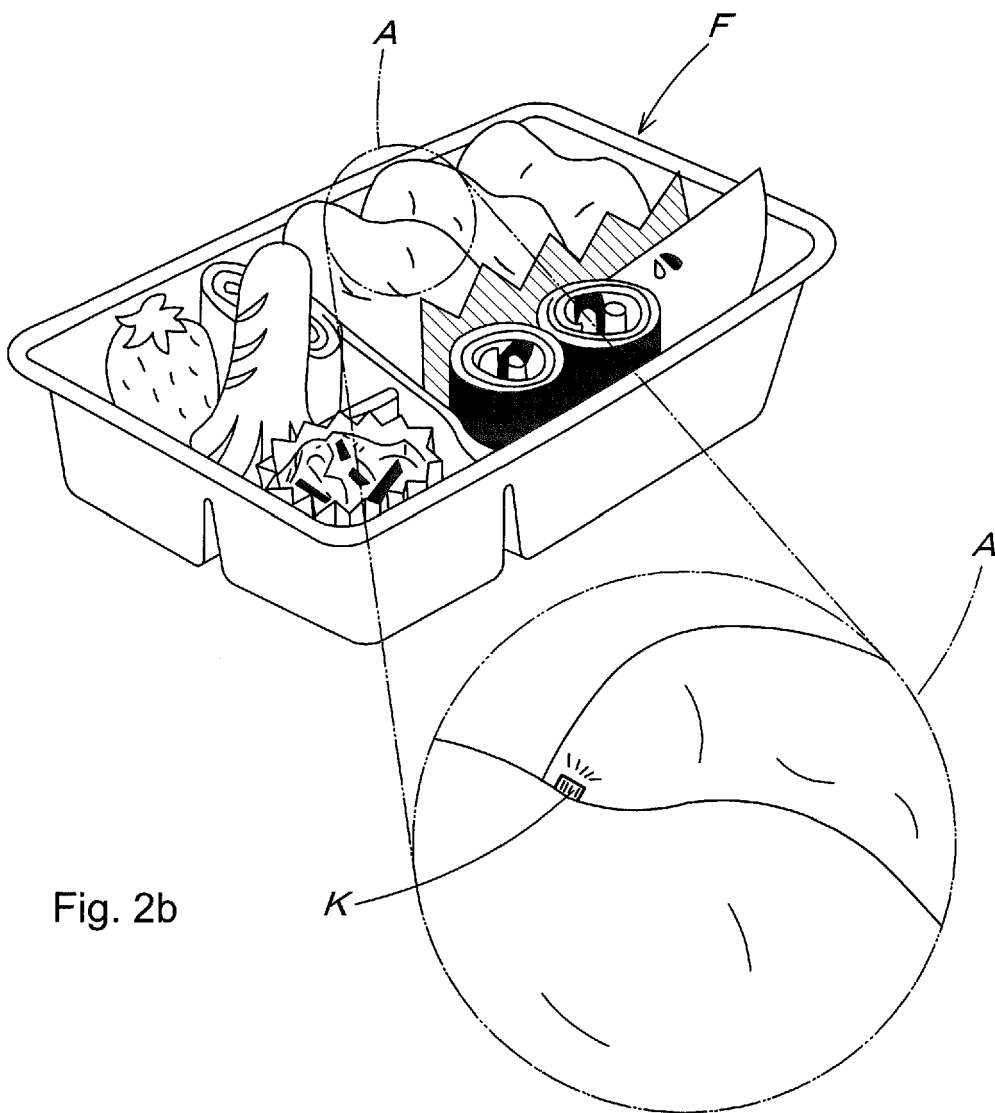
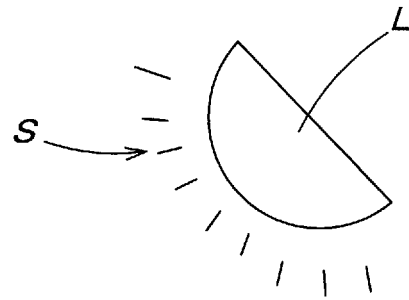


Fig. 2b

Fig. 3a

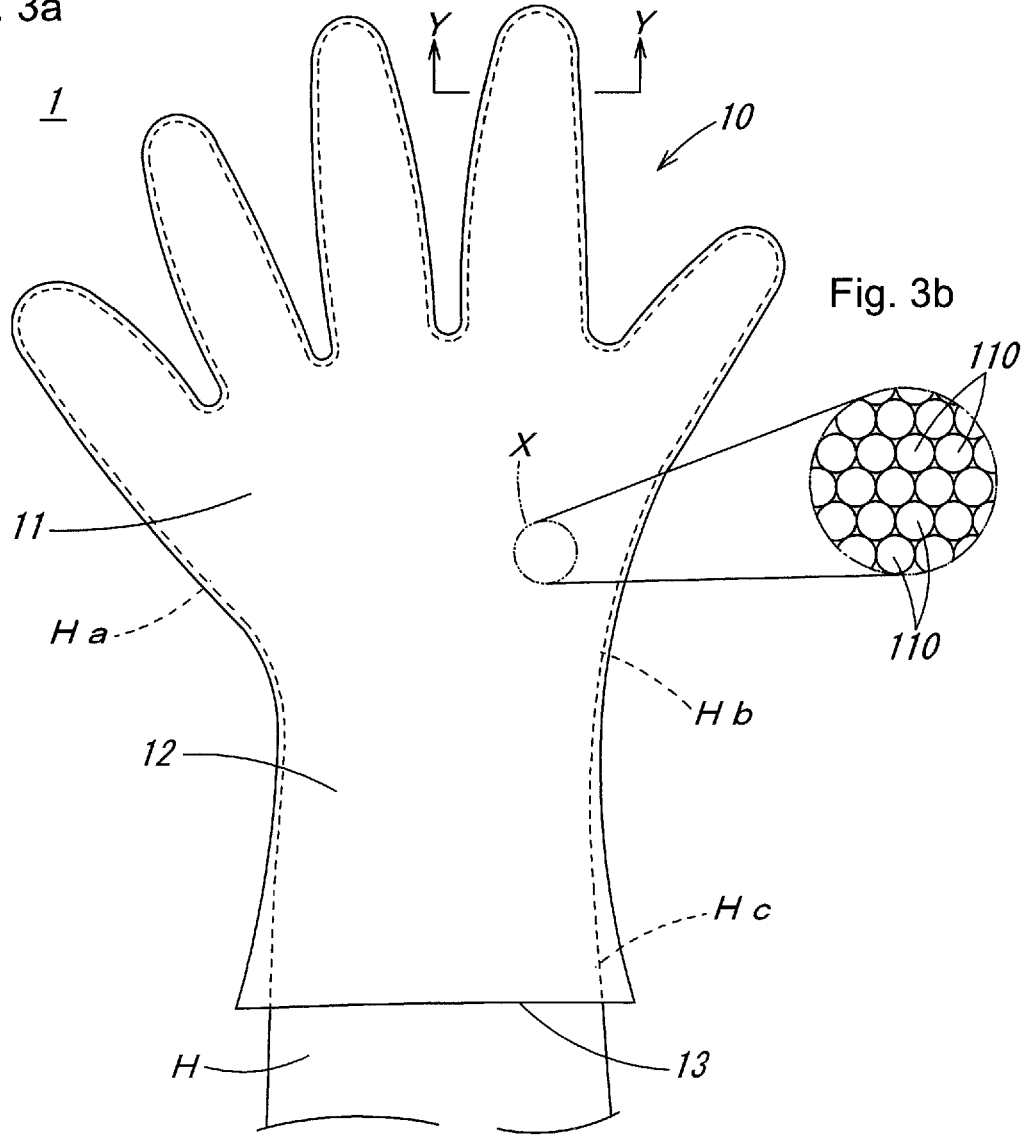


Fig. 3b

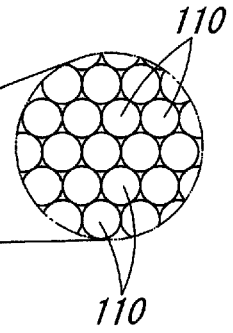
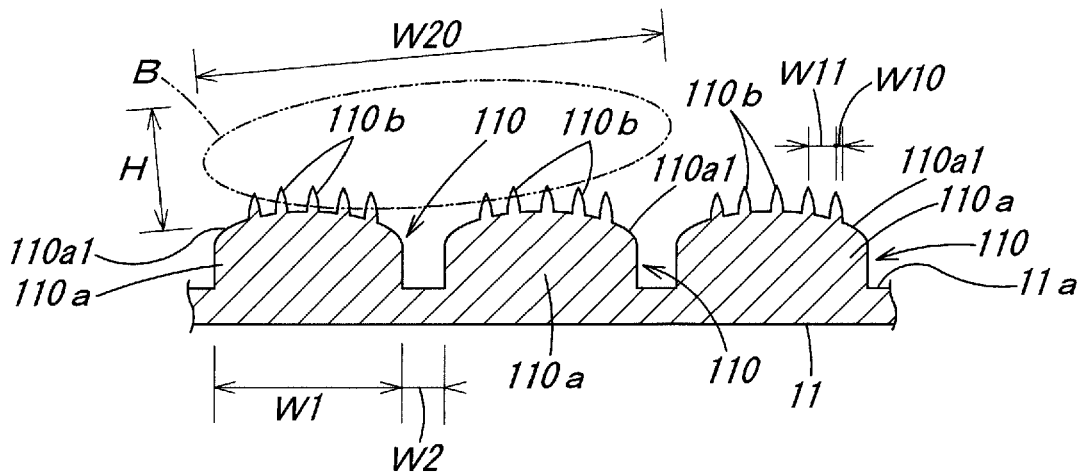


Fig. 3c







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Application Number  
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 June 2017	Examiner Krüger, Sophia
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