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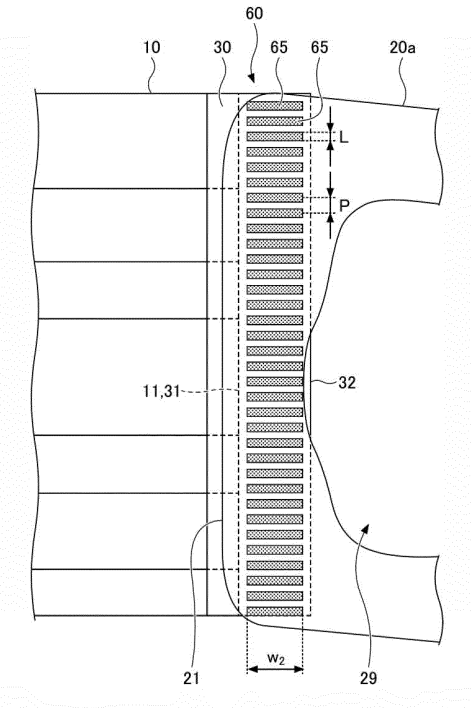
(54) **MASK**

(57) Included are a mask body, ear hook portions in a sheet shape that constitute a pair, and auxiliary materials in a sheet shape interposed to couple the mask body and the ear hook portions, wherein at each of end portions of the mask body in a left-and-right direction, the ear hook portions and the auxiliary materials are superposed on one surface side of the mask body, outer edges of the ear hook portions in the left-and-right direction are situated inward relative to outer edges of the mask body in the left-and-right direction and are situated inward relative to outer edges of the auxiliary materials in the left-and-right direction, first coupling portions at which the mask body and the auxiliary materials are coupled in a thickness direction and second coupling portions at which the ear hook portions and the auxiliary materials are coupled in the thickness direction are formed, and the second coupling portions extend to the outer edges of the ear hook portions in the left-and-right direction.

FIG.6



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Description

TECHNICAL FIELD

[0001] The present invention relates to a mask and a method for manufacturing a mask.

BACKGROUND OF THE INVENTION

[0002] A known configuration of a mask to be worn on the face includes: a mask body that at least partially covers the face of a wearer; and ear hook portions, constituting a pair, each being coupled to the mask body, i.e., a pair of members that can be hung on the ears of the wearer in order to hold the mask body at a wearing position. An stretchable member is often used for the ear hook portions.

[0003] In recent years, in order to reduce the load on the ears, it has been studied to use ear hooks in a sheet shape rather than ear hooks in string shapes. For example, PTL 1 discloses a mask in which a first ear hook portion and a second ear hook portion in a sheet shape are coupled to a mask body portion at the ends in the left-and-right direction.

RELATED-ART DOCUMENT

Patent Literature

[0004] PTL 1: Japanese Patent No. 5436262

SUMMARY OF THE INVENTION

Problems to be Solved by the Invention

[0005] However, in the configuration disclosed in PTL 1, the ear hook portions are directly coupled to the mask body. Therefore, depending on the configuration of the ear hook portion and/or the configuration of the mask body, sufficient coupling strength may not be obtained between the ear hook portions and the mask body. For example, when the ear hook portions are formed of a material having stretchability, the mask body cannot follow the stretch deformation of the ear hook portions when the mask is put on and while the mask is worn, and the ear hook portions may be separated from the mask body and the mask may be broken. For this reason, it is conceivable to devise a coupling between the ear hook portions and the mask body so that the two are coupled via separate members. However, the end portions of the ear hook portions can be free depending on the coupling method, and accordingly, the edges of the ear hook portions may be folded over, and the thickness of the mask may be increased by the folded portions of the edge portions, and the mask may become bulky when the mask is stored.

[0006] In view of the above, it is an object of one aspect of the present invention to provide a mask that is not easily broken, that is excellent in fit, and that does not take up much space when the mask is stored.

Means for Solving the Problem

[0007] An aspect according to the present invention includes: a mask body, ear hook portions in a sheet shape that constitute a pair, and auxiliary materials in a sheet shape interposed to couple the mask body and the ear hook portions, wherein at each of end portions of the mask body in a left-and-right direction, the ear hook portions and the auxiliary materials are superposed on one surface side of the mask body, outer edges of the ear hook portions in the left-and-right direction are situated inwardly relative to outer edges of the mask body in the left-and-right direction and are situated inwardly relative to outer edges of the auxiliary materials in the left-and-right direction, first coupling portions at which the mask body and the auxiliary materials are coupled in a thickness direction and second coupling portions at which the ear hook portions and the auxiliary materials are coupled in the thickness direction are formed, and the second coupling portions extend to the outer edges of the ear hook portions in the left-and-right direction.

Effects of the Invention

[0008] According to an aspect of the present invention, a mask that is not easily broken, that is excellent in fit, and that does not take up much space when the mask is stored can be provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

FIG. 1 is a plan view of a mask according to an embodiment of the present invention as seen from the outside.
FIG. 2 is a plan view of the mask illustrated in FIG. 1 as seen from the inside (face side).
FIG. 3 is a cross-sectional view taken along I-I of FIG. 1.
FIG. 4 is a plan view illustrating a state after ear hook portions, constituting a pair, are opened sideways.
FIG. 5 is a cross-sectional view taken along II-II of FIG. 4.
FIG. 6 is an enlarged view of a portion III of FIG. 4, and is a view for explaining a second coupling portion.
FIG. 7 illustrates a second coupling portion according to a modified embodiment.
FIG. 8 illustrates a second coupling portion according to another modified embodiment.
FIG. 9 illustrates a second coupling portion according to still another modified embodiment.
FIG. 10 illustrates a second coupling portion according to still another modified embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0010] Hereinafter, embodiments of the present invention are described in detail with reference to the drawings. In each of the drawings, unless otherwise explained, the same or corresponding components may be denoted with the same reference numerals and the description thereof may be omitted. The drawings are schematic for helping understanding of the invention.

(Basic Configuration of Mask)

[0011] A mask according to the present embodiment may be a mask capable of covering the face of a wearer, more specifically, covering at least the nose and the mouth of a wearer. The mask according to this embodiment can have a function of preventing foreign matter from reaching the face and preventing droplets generated by the wearer from being scattered, and is also referred to as a sanitary mask or surgical mask. The mask may be disposable or reusable by washing.

[0012] FIG. 1 is a plan view of a mask 1 according to the present embodiment. FIG. 1 is a view of the mask 1 as seen from the outside (or an outer surface side), i.e., from the side exposed to the outside and facing away from the face when the mask 1 is worn. FIG. 2 is a plan view of the mask as seen from the inside (face side). FIG. 3 is a cross-sectional view taken along line I-I of FIG. 1.

[0013] As illustrated in FIG. 1, the mask 1 according to the present embodiment includes: a mask body 10 which is disposed in front of the face of the wearer when the mask is worn and can mainly cover the nose and mouth of the wearer; and ear hook portions 20a, 20a, constituting the pair, coupled to the mask body 10. The mask body 10 has a height direction D1 corresponding to the height direction of the wearer's face when wearing the mask and a left-and-right direction D2 corresponding to the left-and-right direction of the face of the wearer when being worn. The height direction D1 is orthogonal to the left-and-right direction D2. In the form of FIG. 1, the mask body 10 has a rectangular shape in a plan view having long sides in the left-and-right direction D2, but the shape of the mask body 10 in a plan view is not limited to the shape as illustrated in the drawings.

[0014] As illustrated in FIGs. 1 and 2, the mask body 10 has a pleated structure 15 formed by multiple pleats arranged side by side in the height direction D1. The pleats of the pleated structure 15 are formed by folding a sheet constituting the mask body 10 at fold lines along the left-and-right direction D2. In a state in which multiple pleats are formed, both side portions (both ends in the left-and-right direction D2) of the mask body 10 are joined and fixed by heat sealing or the like. Therefore, when the mask 1 is used, the pleats of the pleated structure 15 are extended in the height direction D1, so that the center of the mask body 10 in the left-and-right direction D2 is curved so as to protrude toward the outer surface side of the mask 1, and can be deformed into a shape adapted to the three-dimensional shape of the face. The specific configuration of the pleated structure 15 is not particularly limited and may be a conventional configuration formed in a mask body.

[0015] The mask body 10 may have a multilayer structure formed by laminating multiple layers. For example, the structure may include at least three layers sandwiched between an outer layer and an inner layer of an intermediate layer having an enhanced function of collecting a foreign matter (dust, pollen, bacteria, viruses, and the like). Each layer constituting the body 10 preferably includes a fiber-containing layer such as a nonwoven fabric, a woven fabric, a knitted fabric, and the like, and more preferably includes a nonwoven fabric. Examples of the nonwoven fabric include a spunbond nonwoven fabric, a spunlace nonwoven fabric, a meltblown nonwoven fabric, an air through nonwoven fabric, a point bond nonwoven fabric, and the like. A meltblown nonwoven fabric which can contain fine fibers is preferably used for the intermediate layer. The fibers constituting the fiber-containing layer are preferably resin fibers, and the resin types of the resin fibers include polyethylene, polypropylene, polyethylene terephthalate, nylon, and the like. The basis weight

of the outer and inner layers may be 10 to 50 g/m^2, preferably 15 to 50 g/m^2. The basis weight of the intermediate layer having a high foreign matter collecting property is preferably 10 to 100 g/m^2 and more preferably 15 to 50 g/m^2.

[0016] The ear hook portions 20a, 20a, constituting the pair, may be in an annular shape (or in a closed belt shape), or may have a shape that includes an annulus in a plan view. When being worn, the ear hook portions 20a can be hung on the ears by allowing the ears of the wearer to enter the inside of the ring of each ear hook portion 20a, i.e., an opening 29 at the center of each ear hook portion 20a.

[0017] As illustrated in FIG. 1 and FIG. 2, the ear hook portions 20a, 20a, constituting the pair, may be formed in a sheet shape. The ear hook portions 20a, 20a, constituting the pair, are in a sheet form, and therefore, when the ear hook portion 20a is hung on the ear, the ear hook portion 20a can be brought into surface contact with the back surface of the ear or the back of the earlobe, so that the load on the ear can be reduced. Accordingly, even when used for a long period of time, discomfort can be reduced.

[0018] In the form as illustrated in FIG. 1 and FIG. 2, the ear hook portions 20a, 20a, constituting the pair, may be formed as a single sheet-shaped, i.e., an ear hook portion sheet 20 in which the ear hook portions 20a, 20a are separably coupled to each other at the center in the left-and-right direction D2. The term "single sheet" herein refers to a form composed of one continuous sheet. The "single sheet" may be a single layer or a stacked body in which multiple layers are stacked. Since the ear hook portions 20a, 20a, constituting the pair, are formed in a single sheet shape, the positioning of the ear hook portions 20a, 20a can be performed during manufacturing, thereby facilitating manufacturing of the mask. However, the ear hook portions 20a, 20a, constituting the pair, do not have to be necessarily coupled.

[0019] In a case where the ear hook portions 20a, 20a, constituting the pair, are formed as the ear hook portion sheet 20, the ear hook portion sheet 20 may be configured so as to be able to form the ear hook portions 20a, 20a, constituting the pair, separated from each other by breaking the ear hook portion sheet 20 at a predetermined position. Specifically, in the form of FIG. 1, the ear hook portions 20a, 20a, constituting the pair, are coupled by a coupling portion 28. The type of coupling at a separable coupling portion 28 between the ear hook portions 20a, 20a constituting the pair is not particularly limited, but is preferably separable by pulling with a usual force of the user. For example, it may be formed as perforations as illustrated in FIG. 1. The coupling portion 28 may also be formed by reducing the thickness of the sheet or by other means to weaken the border between the ear hook portions 20a, 20a constituting the pair or to increase stress. The coupling portion 28 may be configured so that a user can cut it with a tool such as scissors.

[0020] Both end portions of the ear hook portions 20a, 20a, constituting the pair, in the left-and-right direction D2 are coupled to the body 10 via auxiliary materials 30 (to be described later), and the other portions are not coupled to the mask body 10. When starting the use of the mask 1 according to the present embodiment, the user opens the portions of the ear hook portions 20a, 20a which are not coupled to the body 10 in the left-and-right direction D2 (also referred to as the expanding operation) before putting on the mask 1. When the ear hook portions 20a, 20a, constituting the pair, are separably coupled to each other as described above, the coupling is released before the expanding operation to separate the ear hook portions 20a, 20a from each other (also referred to as the separation operation).

[0021] The pair of ear hook portions 20a, 20a are coupled to both side portions (both end portions in the left-and-right direction D2) of one surface side of the mask body 10. As illustrated in FIGs. 1 to 3, the ear hook portions 20a, 20a, constituting the pair (the ear hook portion sheet 20) may have a shape and a size that does not protrude from the mask body 10 at least in the left-and-right direction D1 in a plan view. With this configuration, masks can be continuously manufactured by superposing and coupling the mask body 10 and the ear hook portion sheet 20 without requiring complicated processes such as folding and bending of the ear hook portion sheet 20.

[0022] The ear hook portions 20a, 20a (or the ear hook portion sheet 20) may be made of a material having stretchability, or a material having stretchability at least in the left-and-right direction. Since the ear hook portions 20a, 20a are stretchable, the user can easily pull the ear hook portions 20a, 20a to the back of the ears and then hang them on the ears when the user wears the mask (while the user is wearing the mask), and the mask body 10 can be fitted to the face by the tensile stress generated in the ear hook portions 20a, 20a while wearing the mask.

[0023] The ear hook portion 20a may be a single-layer sheet made of a stretchable material or a multilayer sheet formed by laminating multiple layers including a layer made of a stretchable material. The stretchable material may be a stretchable nonwoven fabric, a stretchable film, or a thread-like or string-like stretchable member such as yarn rubber. When a stretchable nonwoven fabric is included, the stretchability of the stretchable nonwoven fabric may be exhibited by stretchable fibers contained in the nonwoven fabric, for example, by the material of the fibers having stretchability or the fibers being crimped fibers. Alternatively, the stretchability may be exhibited by a predetermined physical structure, for example, by having irregularities on the surface. Specific examples of the stretchable nonwoven fabric include a stretchable air-through nonwoven fabric, a stretchable spunbond nonwoven fabric, a stretchable spunlace nonwoven fabric, a stretchable needle punch nonwoven fabric, a stretchable chemical bond nonwoven fabric, and the like. The basis weight of the nonwoven fabric used may be preferably 5 to 50 g/m^2, more preferably 8 to 35 g/m^2.

[0024] When the ear hook portion 20a is made of a multilayer sheet formed by laminating multiple layers of nonwoven fabrics, for example, a structure such as a spunbonded nonwoven fabric/meltblown nonwoven fabric/spunbonded nonwoven fabric can be used, and a nonwoven fabric can be used for at least one of these layers. When the ear hook portion

20a is made of a multilayer sheet including a stretchable film, a nonwoven fabric/stretchable film, a structure such as a nonwoven fabric/stretchable film and nonwoven fabric/stretchable film/nonwoven fabric (for example, a spunbonded nonwoven fabric/stretchable film/spunbonded nonwoven fabric, an air-through nonwoven fabric/stretchable film/air-through nonwoven fabric, and the like) may be used. In the case of a sheet formed by laminating two layers, one of the two layers is made stretchable, and while the stretchable layer is stretched, the other layer is laminated and intermittently fixed, and then the sheet is relaxed and returned to the natural state, so that a sheet for the ear hook portion 20a can be obtained. In the case of a sheet formed by laminating three layers, respective layers are laminated on both of the surfaces and intermittently fixed while the layer in the center is stretched, and then the sheet is relaxed and returned to the natural state, so that a sheet for the ear hook portion 20a can be obtained.

[0025] Of the above, a structure using a stretchable film, especially a structure in which nonwoven fabrics are provided on both surfaces of the stretchable film is preferable because manufacturing is easy and high stretchability is obtained. Examples of materials of the stretchable film include polyolefin such as polyethylene and polypropylene, polyurethane, and the like. With respect to the stretchability of the stretchable film, it is preferable that the maximum stretch rate (stretch rate at tensile fracture) is 3.5 to 4.0, as measured by a tensile testing machine. The stretchable film may have a function of allowing moisture to pass through. In addition, the stretchable film may have a function of allowing moisture to pass through. In a case where the stretchable film is used, the nonwoven fabric is intermittently coupled to the stretchable film by ultrasonic welding or the like while the stretchable film is stretched at a predetermined rate with respect to the natural length, and then the nonwoven fabric is relaxed and returned to the natural state, so that a sheet for the ear hook portion 20a can be obtained. Because portions of the nonwoven fabric that are not coupled are raised when the stretchable film is loosened, the resulting sheet has a large number of wrinkles extending in a direction substantially perpendicular to the stretch direction.

[0026] The sheet for the ear hook portion 20a may be formed by sandwiching it with nonwoven fabrics having a small stretchability or no stretchability while the thread-like rubber is extended. Furthermore, the above materials may be bonded by a stretchable or non-stretchable hotmelt nonwoven fabric (a nonwoven fabric whose fibers are softened or melted by heating so that it can be bonded to other members).

[0027] The basis weight of the ear hook portion 20a (the ear hook portion sheet 20) may be 20 to 150 g/m^2. The thickness of the ear hook portion 20a may be 100 to 3,000 μm.

(Auxiliary material)

[0028] In the present embodiment, as illustrated in FIG. 1 and FIG. 3, the sheet-shaped auxiliary material 30 interposed to couple the mask body 10 and the ear hook portion 20a is provided at each end portion of the mask body 10 in the left-and-right direction D2. Specifically, the ear hook portions 20a, 20a, constituting the pair, may be bonded to the side portions of the mask body 10 via the sheet-shaped auxiliary materials 30, 30.

[0029] The auxiliary material 30 may extend throughout the height direction D1 of the mask 1. The length (width) of the auxiliary material 30 in the left-and-right direction D2 is preferably 15 to 35 mm, depending on the size and configuration of the entire mask 1 and the sizes, shapes, and materials of the mask body 10 and the ear hook portions 20a. The basis weight of the auxiliary material 30 is 5 to 100 g/m^2. The thickness of the auxiliary material 30 may be 100 to 1,000 μm.

[0030] The auxiliary material 30 may be formed of a non-stretchable material or a material with small stretchability, or may be formed of a material having a certain degree of stretchability. The auxiliary material 30 may include, for example, a stretchable nonwoven fabric. In this case, the auxiliary material 30 is preferably stretchable at least in the left-and-right direction D2, but the stretchability of the auxiliary material 30 is preferably smaller than that of the ear hook portion 20a. The auxiliary material 30 may be formed of a material whose shape can be irreversibly deformed when a force is applied.

[0031] As illustrated in FIG. 1 and FIG. 3, the auxiliary material 30 is provided on a side of the mask body 10 where the ear hook portions 20a, 20a, constituting the pair, are superposed. Specifically, in the end portions of the mask body 10 in the left-and-right direction D2, the mask body 10, the ear hook portion 20a, and the auxiliary material 30 are superposed. In the form as illustrated in FIG. 1 and FIG. 3, the mask body 10, the ear hook portion 20a, and the auxiliary material 30 are stacked in this order. The outer edge 11 of the mask body 10 and the outer edge 31 of the auxiliary material 30 may be situated substantially at the same position in the left-and-right direction D2 but the outer edge (also referred to as a coupling-side edge) 21 of the ear hook portion 20a (the ear hook portion sheet 20) is situated inwardly in the left-and-right direction D2 than the outer edge 11 of the mask body 10 and the outer edge 31 of the auxiliary material 30. Accordingly, at the end portion in the left-and-right direction D2, the mask body 10 and the auxiliary material 30 can come into contact with each other in the thickness direction of the mask body 10, and also, the ear hook portion 20a and the auxiliary material 30 can come into contact with each other in the thickness direction of the mask body 10. Furthermore, in a range in which the mask body 10 and the auxiliary material 30 are in contact with each other, a first coupling portion 50 where both are coupled is formed, and in a range in which the ear hook portion 20a and the auxiliary material 30 are in contact with each other, a second coupling portion 60 where both are coupled is formed. The structure

of the first coupling portion 50 and the second coupling portion 60 in FIG. 1 to FIG. 3 (and also FIG. 4 and FIG. 5 referred to later) is shown schematically, and the details thereof (shape, size, arrangement, and the like) are explained with reference to enlarged views (FIG. 6 to FIG. 9).

[0032] As described above, in the present embodiment, the auxiliary material 30 is interposed for bonding between the ear hook portion 20a and the mask body 10, and accordingly, the mask 1 can be formed without directly coupling the ear hook portion 20a and the mask body 10. Therefore, the bonding between the mask body 10 and the auxiliary material 30 and the bonding between the ear hook portion 20a and the auxiliary material 30 can be separately formed in appropriate forms.

[0033] As described above, the mask body 10 has a function of blocking the entry of a foreign matter and preventing droplets generated by the wearer from being scattered, while the ear hook portion 20a is made of a stretchable member that has a function of holding the body 10 by being hung on the ears of the wearer when the wearer wears the ear hook portions 20a. Therefore, the body 10 and the ear hook portion 20a are usually made of different materials, and the ear hook portion 20a is preferably made of a material having relatively high stretchability. Therefore, in the conventional structure in which the body 10 and the ear hook portion 20a are directly coupled, when a force is applied to the mask 1 by pulling the ear hook portion 20a and the like, the mask body 10 cannot follow the stretch of the ear hook portion 20a, and the coupling cannot be maintained, and there is a possibility that both are detached from each other. In contrast, in the present embodiment, the mask body 10 and the ear hook portion 20a are not directly coupled with each other, and the auxiliary material 30 is interposed, and therefore, the mask that is less likely to be broken can be provided so that the ear hook portions 20a, 20a are less likely to be detached from the mask body 10 even if an excessively large force is applied.

[0034] Furthermore, the auxiliary materials 30, 30 are used, it is possible to avoid using a portion of the ear hook portion 20a for fixation with the mask body 10. Therefore, the ear hook portion 20a can be moved more freely relative to the mask body 10 than in the case where the ear hook portion 20a is directly coupled to the mask body 10, so that the position of the ear hook portion 20a relative to the ear can be set more freely when the ear hook portion 20a is attached to the ear.

[0035] Furthermore, according to the present embodiment, it is not necessary to use a large amount of adhesive agent for firmly bonding the mask body 10 and the ear hook portion 20a or to use an adhesive agent that becomes excessively hard after curing, and therefore, the function of each material is not hindered, the flexibility of the mask can be maintained, and the mask with good fit can be obtained.

(Operation for starting use and operation for putting on the mask)

[0036] Next, an operation performed by the user for starting the use is explained. At the time of starting the use of the mask, the user can expand the ear hook portions 20a, 20a, constituting the pair, outward in the left-and-right direction D2 (expansion operation) by pinching or holding them with their respective hands and pulling them in the directions opposite from each other. As illustrated in FIG. 1 to FIG. 3, in a case where the ear hook portions 20a, 20a, constituting the pair, are coupled by the separable coupling portion 28, this coupling is cancelled to separate the ear hook portions 20a, 20a from each other (separation operation). If the coupling portion 28 includes perforations formed along the border line between the ear hook portions 20a, 20a, constituting the pair, the perforations can be broken to separate the ear hook portions 20a, 20a along the border line. Thereafter, as illustrated in FIG. 3, the user can open the ear hook portions 20a, 20a, constituting the pair, outward in the left-and-right direction D2 (indicated by the arrows in drawings) while holding the them.

[0037] FIG. 4 illustrates a state in which the ear hook portions 20a, 20a, constituting the pair, are opened outward in the left-and-right direction D2 from the state illustrated in FIG. 1. FIG. 5 is a cross-sectional view taken along line II-II of FIG. 4. As illustrated in FIGs. 4 and 5, when the ear hook portions 20a, 20a, constituting the pair, are opened, the ear hook portions 20a, 20a are turned over. Specifically, the surfaces of the ear hook portions 20a, 20a that were facing the mask body 10 in the state before start of use are exposed.

[0038] After the user holds the ear hook portions 20a, 20a, constituting the pair, and opens them outward in the left-and-right direction D2, the mask body 10 is placed on the face of the wearer so that the surface on the face side of the mask body 10 faces the face of the wearer, and the ear hook portions 20a, 20a are hung on the respective ears of the wearer.

[0039] In the state before start of use (FIGs. 1 to 3), the ear hook portions 20a, 20a, constituting the pair, (the ear hook portion sheet 20) in the form of a single sheet are superposed on the mask body 10. The ear hook portions 20a, 20a, constituting the pair, may be superposed on any of the surfaces of the mask body 10, but it is preferable that they are superposed on the outer surface of the mask body 10 as illustrated in the drawing. Thus, when the mask 1 is worn, the contact with the inner surface (surface on the face side) of the mask body 10 can be reduced or substantially eliminated.

[0040] In the form illustrated in FIGs. 1 to 3, the ear hook portions 20a, 20a, constituting the pair, are coupled to the outer surface side of the mask body 10 (the side exposed to the outside when being worn), and are disposed on the

outer surface side of the mask body 10 in a state before the start of use. The side of the mask body 10 on which the ear hook portions 20a, 20a, constituting the pair, are superposed may be the inner surface side (face side) of the mask body 10, but since the ear hook portions 20a, 20a, constituting the pair, are disposed and coupled to the outer surface side, the possibility of touching the inner surface side (face side) of the mask body 10 when the ear hook portions 20a, 20a, constituting the pair, are expanded at the start of use can be reduced, and the mask can be put on hygienically.

[0041] For example, when the user puts the mask 1 on himself/herself, the mask 1 is placed on his/her face so that the inner surface of the mask body 10 faces his/her face, and while pressing the outer surface of the mask body 10 with one hand, the coupling of the ear hook portions 20a, 20a at the coupling portion 28 is released by the other hand, and one ear hook portion 20a is hung on the ear. After switching the hand holding the mask body 10 to the other hand, the other ear hook portion 20a can be hung on the ear with the hand that was originally holding the mask body 10.

[0042] Also, while the mask 1 is placed with the outside of the mask 1 facing upward (with the outer surface of the body 10 facing upward), the user opens the ear hook portions 20a, 20a, constituting the pair, outwardly in the left-and-right direction D2 by holding them with hands. Thereafter, the mask 1 is moved to the face of another wearer while the ear hook portions 20a, 20a constituting the pair are held, and the mask body 10 is arranged at a desired position of the wearer's face, and at this occasion, the ear hook portions 20a, 20a constituting the pair can be hung on the ears of the wearer while the way of holding the mask 1 is not changed. Therefore, the mask 1 according to the present embodiment can be suitably used when the mask is worn by a person who has difficulty wearing the mask by himself or herself, such as a child or a sick person.

[0043] As illustrated in FIGs. 1 and 2, the ear hook portions 20a, 20a may be formed with tab portions 25, 25 which can be pinched by the user. The tab portions 25, 25 are not particularly limited, as long as the tab portion can be pinched by the user in the separation operation and/or the expanding operation, but the tab portions 25, 25 are preferably shaped to project from the mask body 10, more preferably from the lower end of the mask body 10 in a plan view. Thus, the user can perform the separation operation and the expanding operation sanitarily without touching the mask body 10 or hardly touching it. The tab portions 25, 25 can also be used to adjust the fit of the ear hook portions 20a, 20a after putting them on.

[0044] A mark 18 that allows the outer and inner surfaces of the mask body 10 to be distinguished from each other (distinguishing between front and back) may be formed on the outer surface and/or the inner surface of the body 10 by embossing, printing, sewing, or the like. The form of the mark 18 is not limited as long as it can be visually recognized by the user. As illustrated in FIGs. 1, 2, and the like, the mark 18 may be letters, numbers, a symbol, a figure, a logo, or the like. If the mark 18 includes characters, the side on which the user can read the characters correctly can be recognized as the outer surface.

(Coupling between materials)

[0045] In the present embodiment, the ear hook portion 20a in the sheet shape and the auxiliary material 30 in the sheet shape are superposed and coupled at the first coupling portion 50. Furthermore, the mask body 10 and the auxiliary material 30 are superposed and coupled at the second coupling portion 60. Any of the first coupling portion 50 and the second coupling portion 60 can be formed by means of coupling the opposing surfaces of the members by applying pressure and/or heat, such as heat sealing, ultrasonic sealing, non-heating embossing, and the like. Among them, it is preferable to use heat sealing because reliable bonding is possible.

[0046] The coupling of the mask body 10 and the ear hook portions 20a, 20a (the ear hook portion sheet 20) by the first coupling portion 50 and the second coupling portion 60 may be formed according to the following procedure. First, a combined body of the ear hook portion 20a (or the ear hook portion sheet 20) and the auxiliary material 30 is formed. At this occasion, the auxiliary material 30 is disposed on the ear hook portion 20a with a shift in position such that an outer edge (coupling-side edge) 21 of the ear hook portion 20a in the left-and-right direction D2 is situated inwardly in the left-and-right direction D2 than an outer edge 31 of the auxiliary material 30 in the left-and-right direction D2, and the ear hook portion 20a and the auxiliary material 30 are coupled at the second coupling portion 60 to form the combined body. The combined body is placed on the mask body 10 such that the outer edge 21 of the ear hook portion 20a in the horizontal direction D2 is situated inwardly in the horizontal direction D2 than the outer edge 11 of the mask body 10 in the horizontal direction D2, preferably such that the outer edge 31 of the auxiliary material 30 is aligned with the outer edge 11 of the mask body 10. Accordingly, a portion in proximity to the end portion of the mask body 10 in the left-and-right direction D2 and the auxiliary material 30 come into direct contact with each other, and in this contact area, the first coupling portion 50 is formed. In this manner, the coupling portion between the mask body 10 and the ear hook portion 20a at the end portion of the mask 1 in the left-and-right direction D2 can be easily formed without performing complicated steps such as folding back and the like.

[0047] As illustrated in FIG. 1, any one of the first coupling portion 50 and the second coupling portion 60 is preferably formed continuously throughout the height direction D1, i.e., from the upper end to the lower end in the height direction D1. However, the structure of the first coupling portion 50 or the second coupling portion 60, i.e., with what pattern or

by what method the bonding is formed in the first coupling portion 50 or the second coupling portion 60, is not particularly limited. However, in order to ensure both of flexibility and coupling strength, both the first coupling portion 50 and the second coupling portion 60 are preferably made of multiple coupling sub-portions.

[0048] FIG. 6 is an enlarged view of one of the second coupling portions 60. FIG. 6 corresponds to an enlarged view of the portion III of FIG. 5 illustrating a state in which the ear hook portion 20a is expanded. As illustrated in FIG. 6, the second coupling portion 60 includes multiple coupling sub-portions 65, 65, ... Since the multiple coupling sub-portions 65, 65, ... are formed so as to be separated from each other in the height direction D1, flexibility can be improved especially when the mask 1 is bent in the height direction D1. The coupling sub-portions 65 are preferably formed by fusion bonding by heat sealing or the like, which is preferable because this can increase the coupling strength between the ear hook portion 20a and the auxiliary material 30.

[0049] In the example of FIG. 6, the length (width) of the coupling sub-portion 65 of the second coupling portion 60 in the left-and-right direction D2 corresponds to a width w2 of the second coupling portion 60. The width w2 of the second coupling portion 60 may be 3 to 10 mm. The width w2 does not necessarily have to be constant, but may vary depending on the position. By setting the width w2 to the above range, it is possible to form a secure coupling between the ear hook portion 20a and the auxiliary material 30, and the flexibility of the entirety of the mask 1 is not lost due to the hardening of the second coupling portion 60.

[0050] A pitch P of the coupling sub-portions 65 of the second coupling portion 60 in the height direction D1 (a length in the height direction D1 from the center of one coupling sub-portion 65 in the height direction D1 to the center of an adjacent coupling sub-portion 65 in the height direction D1) may be 0.5 to 5.0 mm. A length L of one coupling sub-portion 65 in the height direction D1 may be 0.1 to 1.0 mm.

[0051] The shape of the coupling sub-portion 65 is not particularly limited, and may be an oblong rectangular shape having long sides in the left-and-right direction D2 (FIG. 6), or may be a rectangular shape other than the oblong rectangular shape. Alternatively, it may be any shape, such as: a quadrilateral other than a rectangle; a polygon other than a quadrilateral; a circle; an ellipse; and the like. However, as illustrated in FIG. 6, when a shape that is long in the left-and-right direction D2 or a linear shape extending in the left-and-right direction D2 is preferable because the second coupling portion 60 is less likely to be broken by a force pulling the ear hook portion 20a in the left-and-right direction D2. In a case where all or a portion of the coupling sub-portion 65 is linear, the aspect ratio of the shape, i.e. (a short side or a short diameter) / (a long side or a long diameter), may be 0.1/15.0 to 1.0/4.0.

[0052] FIG. 7 illustrates a second coupling portion 160 as an example of the second coupling portion. FIG. 7 corresponds to an enlarged view of the portion III of FIG. 5 illustrating a state in which the ear hook portion 20a is expanded. Similarly to the second coupling portion 60 (FIG. 6), the second coupling portion 160 includes multiple coupling sub-portions 165, 165, ... formed so as to be spaced apart in the height direction D1, but differs from the second coupling portion 60 (FIG. 6) in that the coupling sub-portions 165, 165, ... extend to the outer edge (the coupling side edge) 21 of the ear hook portion 20a in the left-and-right direction D2. In FIGs. 6 and 7 corresponding to the enlarged view of the portion III of FIG. 5, the ear hook portion 20a is opened outward in the left-and-right direction D2 and the arrangement of the ear hook portion 20a is reversed in the left-and-right direction D2 from the state before the start of use (FIG. 1), and accordingly, the outer edge (the coupling side edge) 21 of the ear hook portion 20a in the left-and-right direction D2 is situated closer to the center (situated inwardly) in the left-and-right direction D2. The outer edge 21 of the ear hook portion 20a in the left-and-right direction D2 means the edge on the outer side of the ear hook portion 20a in the left-and-right direction D2 in a state before the start of use, i.e., before the ear hook portions 20a, 20a are expanded, and means an edge on the side that is coupled to the end portion of the mask body 10 in the left-and-right direction D2 via the auxiliary material 30.

[0053] Multiple coupling sub-portions 165, 165, ... are formed so as to be separated from each other in the height direction D1, and accordingly, flexibility can be improved especially when the mask 1 is bent in the height direction D1. The coupling sub-portions 165 are preferably formed by fusion bonding by heat sealing or the like, which is preferable because this can increase the coupling strength between the ear hook portion 20a and the auxiliary material 30.

[0054] In FIG. 7, the length (width) of the coupling sub-portion 165 of the second coupling portion 60 in the left-and-right direction D2 corresponds to the width w2 of the second coupling portion 160. The width w2 of the second coupling portion 160 may be 3 to 10 mm. The width w2 does not necessarily have to be constant, but may vary depending on the position. By setting the width w2 to the above range, it is possible to form a secure coupling between the ear hook portion 20a and the auxiliary material 30, and the flexibility of the entirety of the mask 1 is not lost due to the hardening of the second coupling portion 160.

[0055] A pitch P of the coupling sub-portions 165 of the second coupling portion 160 in the height direction D1 (a length in the height direction D1 from the center of one coupling sub-portion 165 in the height direction D1 to the center of an adjacent coupling sub-portion 165 in the height direction D1) may be 0.5 to 5.0 mm. A length L of one coupling sub-portion 165 in the height direction D1 may be 0.1 to 1.0 mm.

[0056] The shape of the coupling sub-portion 165 is not particularly limited, and may be an oblong rectangular shape in a plan view having long sides in the left-and-right direction D2, or may be a rectangular shape other than the oblong rectangular shape. Alternatively, it may be any shape, such as: a quadrilateral other than a rectangle; a polygon other

than a quadrilateral; a circle; an ellipse; and the like. However, as illustrated in FIG. 7, when a shape that is long in the left-and-right direction D2 or a linear shape extending in the left-and-right direction D2 is preferable because the second coupling portion 160 is less likely to be broken by a force pulling the ear hook portion 20a in the left-and-right direction D2. In a case where all or a portion of the coupling sub-portion 165 is linear, the aspect ratio of the shape, i.e. (a short side or a short diameter) / (a long side or a long diameter), may be 0.1/15.0 to 1.0/4.0.

[0057] As in the example illustrated in FIG. 7, when the second coupling portion 160 extends to the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2, and more preferably, when the ear hook portion 20a is formed so as to extend over the outer edge 21 in the left-and-right direction D2, the area up to the outer edge 21 of the ear hook portion 20a can be reliably coupled to the auxiliary material 30. In a case where the second coupling portion 160 does not extend to the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2 (in a case where the second coupling portion 160 does not include the outer edge 21 of the ear hook portion 20a), the area near the outer edge 21 of the ear hook portion 20a may rise away from the auxiliary material 30. As a result, the area near the outer edge 21 of the ear hook portion 20a may be bent or curled, and the mask 1 may be bulky in the thickness direction when stored. However, according to the example illustrated in FIG. 7, such possibility can be reduced, and the mask 1 can be stored compactly.

[0058] Furthermore, in a configuration in which the ear hook portion 20a is coupled to the outer surface side of the mask body 10 and the auxiliary material 30 is disposed on the outer side of the ear hook portion 20a, the outer edge 21 of the ear hook portion 20a is exposed on the outer side and is exposed to the human eye when worn. Therefore, when the area near the outer edge 21 of the ear hook portion 20a is bent or curled as described above, the appearance (aesthetics) of the mask when worn may be impaired. When the second coupling portion 160 extends to the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2, it is possible to improve aesthetics. In contrast, in a configuration in which the ear hook portion 20a is coupled to the inner surface side of the mask body 10 and the auxiliary material 30 is disposed inwardly relative to the ear hook portion 20a, the curled outer edge 21 of the ear hook portion 20a may come into contact with the face to impair the fit, but such inconvenience can be avoided.

[0059] The expression that "the second coupling portion extending to the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2" may include a case where the edge of the second coupling portion 60 in the left-and-right direction is aligned with the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2, or a case where the second coupling portion 60 is formed so as to extend, in the left-and-right direction D2, over the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2. In a case where the second coupling portion is formed so as to extend over the outer edge 21 of the ear hook portion 20a in the left-and-right direction D2, the length v by which the second coupling portion extends beyond the outer edge 21 in the left-and-right direction D2 may be greater than 0 to 3.0 mm.

[0060] FIG. 8 illustrates a second coupling portion 260 as another modified embodiment of the second coupling portion. The second coupling portion 260 has multiple coupling sub-portions spaced apart in the height direction D1, and extends to the outer edge (coupling-side edge) 21 of the ear hook portion 20a in the left-and-right direction D2, similarly to the second coupling portion 160 (FIG. 7). Therefore, the present embodiment can also prevent curling and bending in the area near the outer edge 21 of the ear hook portion 20a. However, the second coupling portion 260 differs from the second coupling portion 160 (FIG. 7) in that the coupling sub-portion is separated in the left-and-right direction D2.

[0061] Specifically, the second coupling portion 260 includes a row of multiple coupling sub-portions 265, 265, ... formed so as to be spaced apart in the height direction D1, and a row of multiple coupling sub-portions 266, 266, ... formed so as to be spaced apart in the height direction D1, the row of multiple coupling sub-portions 266, 266, ... being spaced apart in the left-and-right direction D2 from the row of multiple coupling sub-portions 265, 265, ... As described above, the second coupling portion 260 is formed of the multiple rows spaced apart in the left-and-right direction D2, and therefore, flexibility can be secured when the ear hook portion 20a and the auxiliary material 30 are bent in the left-and-right direction D2, so that the fit of the mask 1 can be improved.

[0062] FIG. 9 illustrates a second coupling portion 360 as a still another modified embodiment of the second coupling portion. The second coupling portion 360 has multiple coupling sub-portions spaced apart in the height direction D1, and extends to the outer edge (coupling side edge) 21 of the ear hook portion 20a in the left-and-right direction D2, similarly to the second coupling portion 160 (FIG. 7) and the second coupling portion 260 (FIG. 8). Therefore, the present embodiment can also prevent curling and bending in the area near the outer edge 21 of the ear hook portion 20a. In the second coupling portion 360, the coupling sub-portion is spaced apart in the left-and-right direction D2, similarly to the second coupling portion 260 (FIG. 8). However, the second coupling portion 360 differs from the second coupling portion 260 (FIG. 8) in that the structure of the coupling sub-portions included in the row is different.

[0063] In one row of multiple coupling sub-portions formed so as to be spaced apart in the height direction D1 included in the second coupling portion 360, coupling sub-portions having different lengths in the left-and-right direction D2 are alternately formed. Specifically, one of the coupling sub-portion rows (the row on he left side in FIG. 9) of the second coupling portion 360 has a first coupling sub-portion 365a having a long length in the left-and-right direction D2 and a second coupling sub-portion 365b having a short length in the left-and-right direction D2, and the first coupling sub-

portion 365a and the second coupling sub-portion 365b are alternately spaced apart in the height direction D1. Of these, the first coupling sub-portion 365a is formed so as to extend to the outer edge 21 of the ear hook portion 20a, and preferably to extend over the outer edge 21 of the ear hook portion 20a. The second coupling sub-portion 365b does not extend the outer edge 21 of the ear hook portion 20a. With this configuration, it is possible to prevent the second coupling portion 360 from becoming too hard while achieving the effect of preventing curling and bending in the area near the outer edge 21 of the ear hook portion 20a. Furthermore, as compared with the configuration (FIGs. 6 to 8) including the coupling sub-portions having a constant length in the left-and-right direction D2, designability can be improved.

[0064] FIG. 10 illustrates a second coupling portion 460 as a still modified embodiment of the second coupling portion. The second coupling portion 460 has multiple coupling sub-portions 465, 465, ... spaced apart in the height direction D1, and extends to the outer edge (coupling side edge) 21 of the ear hook portion 20a in the left-and-right direction D2, similarly to the second coupling portion 160 (FIG. 7). Therefore, the present embodiment can also prevent curling and bending in the area near the outer edge 21 of the ear hook portion 20a. However, the second coupling portion 460 differs from the second coupling portion 160 (FIG. 7) in that the pitches of the coupling small portions 465, 465, ... included in the second coupling portion 460 are not constant and differ depending on the position.

[0065] The pitches of the multiple coupling sub-portions 465, 465, ... included in the second coupling portion 460 decrease at the end portions in the height direction D1 and increase at the center. When putting on the mask 1 and while wearing the mask 1, the ear hook portion 20a is pulled in the left-and-right direction D2, and at this occasion, a force is likely to be applied to the upper end portion and the lower end portion of the second coupling portion. Therefore, as illustrated in FIG. 10, by reducing the pitch of the coupling sub-portion 465 of the second coupling portion 460 at the end portions in the height direction D1, the coupling strength at the end portions in the height direction D1 can be improved. In contrast, at the center of the second coupling portion 460 in the height direction D1, where the applied force is relatively small, the pitch of the coupling sub-portions 465 is increased, so that the flexibility of the second coupling portion 460 and also the flexibility of the mask 1 can be maintained.

[0066] The first coupling portion 50, which is a coupling portion between the mask body 10 and the auxiliary material 30, is preferably formed in the height direction D1 similarly to the second coupling portion 60. The length (width) w1 (FIG. 1) of the first coupling portion 50 in the horizontal direction D2 may be 3 to 10 mm. The width w1 does not necessarily have to be constant, but may vary depending on the position. By setting the width w1 to the above range, it is possible to form a secure coupling between the mask body 10 and the auxiliary material 30, and the flexibility of the entirety of the mask 1 is not lost due to the hardening of the first coupling portion 50. Furthermore, it is possible to reduce discomfort or the like which occurs when the first coupling portion 50 comes into contact with the face.

[0067] In the state before the start of use, the first coupling portion 50 and the second coupling portion 60 may be formed in contact with each other in a plan view, but they are preferably provided spaced apart from each other. The separation distance between the first coupling portion 50 and the second coupling portion 60 in a plan view may be 1 to 15 mm.

[0068] Hereinafter, specific aspects of the present invention are supplementarily explained below.

(Supplementary Note 1)

[0069] In an aspect according to the Supplementary Note 1, included are a mask body, ear hook portions in a sheet shape that constitute a pair, and auxiliary materials in a sheet shape interposed to couple the mask body and the ear hook portions, wherein at each of end portions of the mask body in a left-and-right direction, the ear hook portions and the auxiliary materials are superposed on one surface side of the mask body, outer edges of the ear hook portions in the left-and-right direction are situated inwardly relative to outer edges of the mask body in the left-and-right direction and are situated inwardly relative to outer edges of the auxiliary materials in the left-and-right direction, first coupling portions at which the mask body and the auxiliary materials are coupled in a thickness direction and second coupling portions at which the ear hook portions and the auxiliary materials are coupled in the thickness direction are formed, and the second coupling portions extend to the outer edges of the ear hook portions in the left-and-right direction.

[0070] According to the above-described aspect according to the Supplementary Note 1, the sheet-shaped auxiliary materials are interposed to couple the mask body and the sheet-shaped ear hook portions constituting the pair. In other words, the ear hook portions, constituting the pair, are coupled to the mask body via the respective auxiliary materials. In such a configuration, the coupling between the mask body and the auxiliary materials and the coupling between the ear hook portions and the auxiliary materials can be formed separately, and accordingly, these couplings can be optimized according to the materials of the two members to be coupled. Therefore, as compared with the case where the ear hook portions and the mask body are directly coupled, a coupling which does not impair the fit and is not easily broken can be indirectly formed between the ear hook portions and the mask body. Therefore, the mask that is not easily broken and that is excellent in fit can be obtained.

[0071] Furthermore, in this aspect, the first coupling portions where the mask body and the auxiliary materials are

opposed to each other is formed, and the second coupling portions where the ear hook portions and the auxiliary materials are opposed to each other is formed, and the second coupling portions extend to the outer edges of the ear hook portions in the left-and-right direction. Since the coupling ranges of the ear hook portions and the auxiliary materials extend to the outer edges of the ear hook portions, portions near the outer edges of the ear hook portions which are not coupled to the auxiliary materials can be prevented from rising and separating from the auxiliary materials. Therefore, the mask can be prevented from being bulky due to curling and bending in the portions near the outer edges of the ear hook portions when the mask is stored.

(Supplementary Note 2)

[0072] In an aspect according to the Supplementary Note 2, the second coupling portions are formed to extend over the outer edges of the ear hook portions in the left-and-right direction.

[0073] According to the above-described aspect according to the Supplementary Note 2, the coupling ranges between the ear hook portions and the auxiliary materials are configured to extend beyond the outer edges of the ear hook portions, and accordingly, it is possible to improve the above effect of preventing the portions near the outer edges of the ear hook portions not coupled to the auxiliary materials from being separated from the auxiliary materials.

(Supplementary Note 3)

[0074] In an aspect according to the Supplementary Note 3, the second coupling portions are formed by fusion bonding of the ear hook portions and the auxiliary materials.

[0075] According to the above-described aspect according to the Supplementary Note 3, the coupling strength between the ear hook portions and the auxiliary materials can be enhanced by coupling based on fusion bonding.

(Supplementary Note 4)

[0076] In an aspect according to the Supplementary Note 4, each of the second coupling portions includes a plurality of coupling sub-portions formed so as to be spaced apart along a height direction orthogonal to the left-and-right direction.

[0077] According to the above-described aspect according to the Supplementary Note 4, the coupling portions of the ear hook portions and the auxiliary materials of the second coupling portions are dispersed, and accordingly, the second coupling portions do not become excessively hard, and flexibility can be secured.

(Supplementary Note 5)

[0078] In an aspect according to the Supplementary Note 5, the plurality of coupling sub-portions are formed to be spaced apart in the left-and-right direction.

[0079] According to the above-described aspect according to the Supplementary Note 5, the coupling sub-portions are separated in the left-and-right direction, and accordingly, the movement of the ear hook portions become more free and an excellent fit can be obtained, while obtaining the above-described effects of preventing rising of portions near the outer edges of the ear hook portion in the left-and-right direction.

(Supplementary Note 6)

[0080] In an aspect according to the Supplementary Note 6, the plurality of coupling sub-portions include: first coupling sub-portions extending to the outer edges of the ear hook portions in the left-and-right direction; and second coupling sub-portion not extending to the outer edges, and the first coupling sub-portions and the second coupling sub-portions are arranged along the height direction.

[0081] According to the above-described aspect according to the Supplementary Note 6, the first coupling portions which extend over the outer edges of the ear hook portions in the left-and-right direction prevent the portions near the outer edges of the ear hook portions from rising from the auxiliary materials, and the second coupling portions which do not extend to the outer edges of the ear hook portions in the left-and-right direction can improve the flexibility of the second coupling portions.

(Supplementary Note 7)

[0082] In an aspect according to the Supplementary Note 7, a pitch of the plurality of coupling sub-portions formed on end portions in the height direction is less than a pitch, in the height direction, of the plurality of coupling sub-portions formed at a center in the height direction.

[0083] When the ear hook portions are pulled substantially in the left-and-right direction when putting on the mask, the upper end portions and lower end portions of the second coupling portions in the height direction are particularly susceptible to receiving force. Therefore, according to the above-described aspect according to the Supplementary Note 7, the coupling strength can be effectively increased by reducing the pitch of the coupling sub-portions on the end portions of the second coupling portions in the height direction, instead of decreasing overall pitches of the coupling sub-portions.

[0084] This application claims the priority to Basic Application No. 2020-130070 filed with the Japan Patent Office on July 31, 2020, the entire contents of which are incorporated herein by reference.

DESCRIPTION OF THE REFERENCE NUMERALS

[0085]

1	mask
2	first surface material
3	second surface material
5	stretchable film (stretchable material)
10	mask body
15	pleats
20	ear hook portion sheet
20a	ear hook portion
21	outer edge of ear hook portion in left-and-right direction
25	tab portion
28	separable coupling portion
29	opening
30	auxiliary material
31	outer edge of auxiliary material in left-and-right direction
50	first coupling portion
60, 160, 260, 360, 460	second coupling portion
65, 165, 265, 266, 365a, 365b, 366, 465	coupling sub-portion of second coupling portion

Claims

1. A mask comprising:

a mask body;
ear hook portions in a sheet shape that constitute a pair; and
auxiliary materials in a sheet shape interposed to couple the mask body and the ear hook portions,
wherein at each of end portions of the mask body in a left-and-right direction, the ear hook portions and the auxiliary materials are superposed on one surface side of the mask body,
outer edges of the ear hook portions in the left-and-right direction are situated inward relative to outer edges of the mask body in the left-and-right direction and are situated inward relative to outer edges of the auxiliary materials in the left-and-right direction,
first coupling portions at which the mask body and the auxiliary materials are coupled in a thickness direction and second coupling portions at which the ear hook portions and the auxiliary materials are coupled in the thickness direction are formed, and
the second coupling portions extend to the outer edges of the ear hook portions in the left-and-right direction.

2. The mask according to claim 1, wherein the second coupling portions are formed to extend over the outer edges of the ear hook portions in the left-and-right direction.

3. The mask according to claim 1 or 2, wherein the second coupling portions are formed by fusion bonding of the ear hook portions and the auxiliary materials.

4. The mask according to any one of claims 1 to 3, wherein each of the second coupling portions includes a plurality of coupling sub-portions formed so as to be spaced apart along a height direction orthogonal to the left-and-right direction.

5. The mask according to claim 4, wherein the plurality of coupling sub-portions are formed to be spaced apart in the left-and-right direction.

6. The mask according to claim 4 or 5, wherein the plurality of coupling sub-portions include: first coupling sub-portions extending to the outer edges of the ear hook portions in the left-and-right direction; and second coupling sub-portions not extending to said outer edges, and
the first coupling sub-portions and the second coupling sub-portions are arranged along the height direction.

7. The mask according to any one of claims 4 to 6, wherein a pitch of the plurality of coupling sub-portions formed on end portions in the height direction is less than a pitch, in the height direction, of the plurality of coupling sub-portions formed at a center in the height direction.

FIG.1

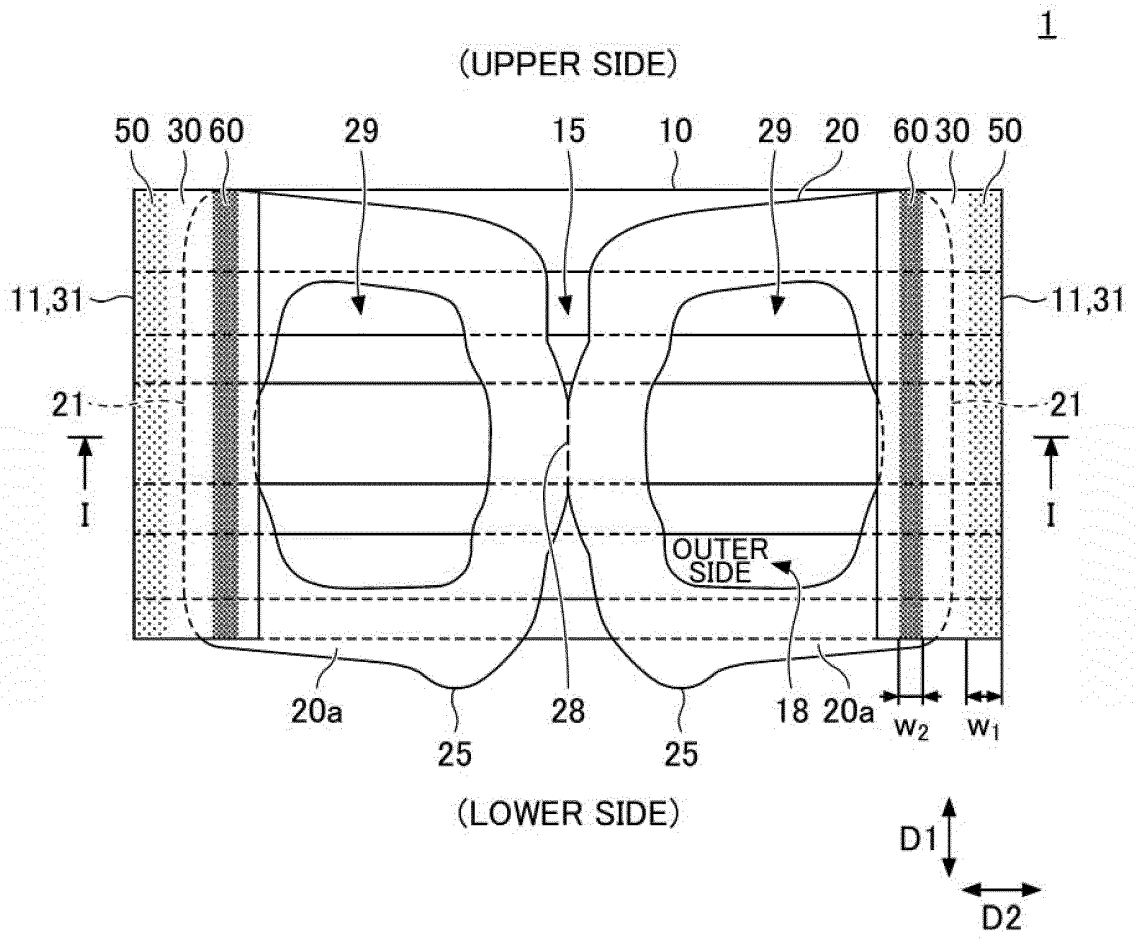

1
(UPPER SIDE)
50 30 60
29
15
10
29
20
60 30 50
11,31
11,31
21
21
I
I
OUTER SIDE
20a
25
28
25
18
20a
w2
w1
(LOWER SIDE)
D1
D2

FIG.2

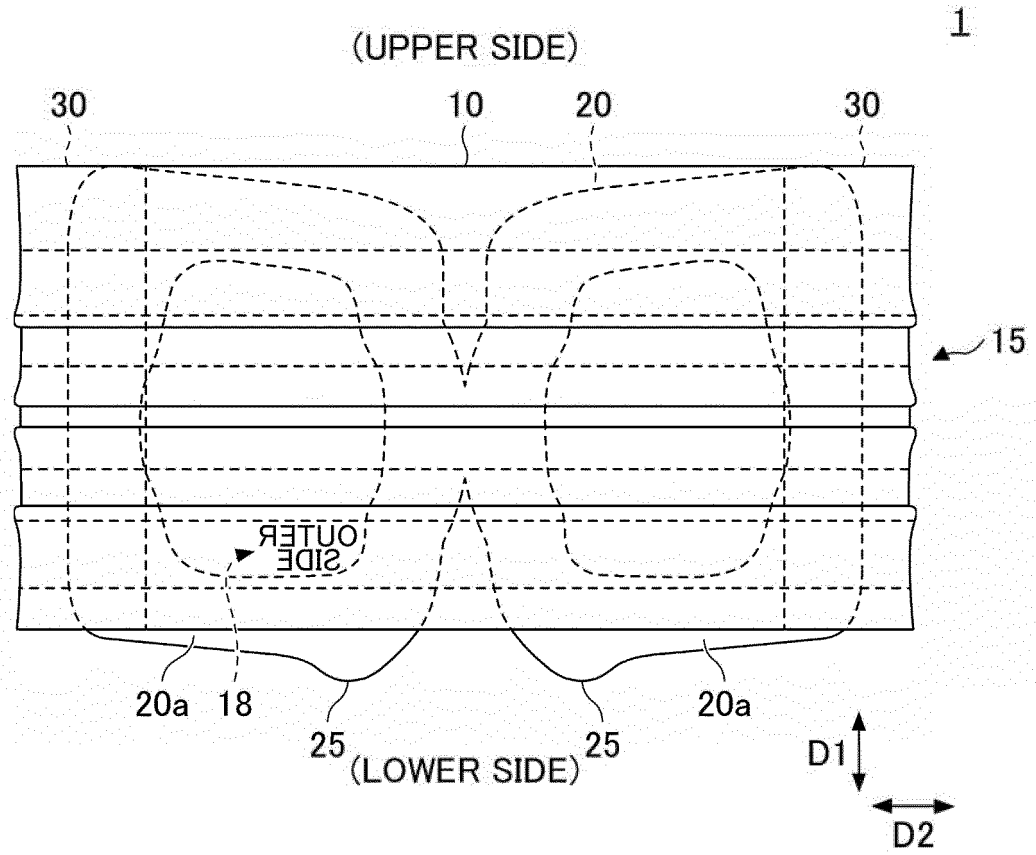

1
(UPPER SIDE)
30
10
20
30
15
OUTER SIDE
20a
18
25
(LOWER SIDE)
25
20a
D1
D2

FIG.3

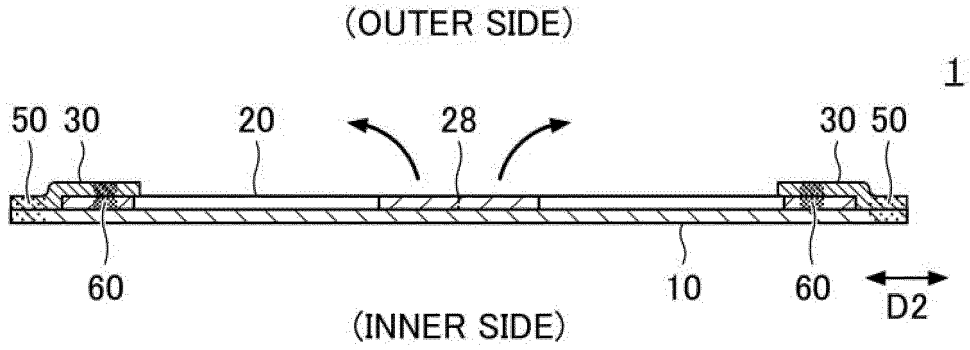

(OUTER SIDE)
1
50
30
20
28
30
50
60
10
60
D2
(INNER SIDE)

FIG.4

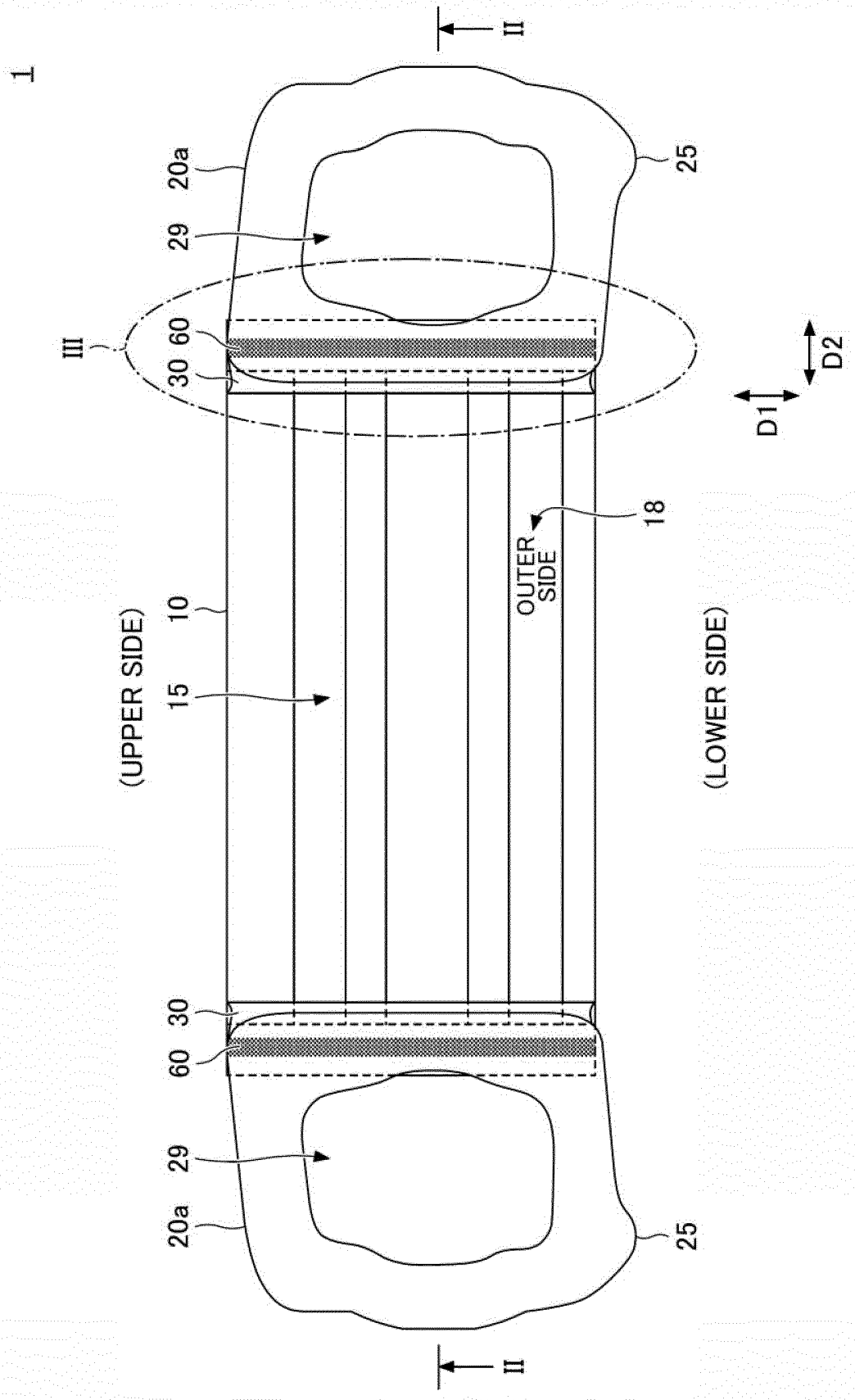

1
II
20a
29
25
III
60
30
D1
D2
18
OUTER SIDE
10
15
(UPPER SIDE)
(LOWER SIDE)
30
60
29
20a
25
II

FIG.5

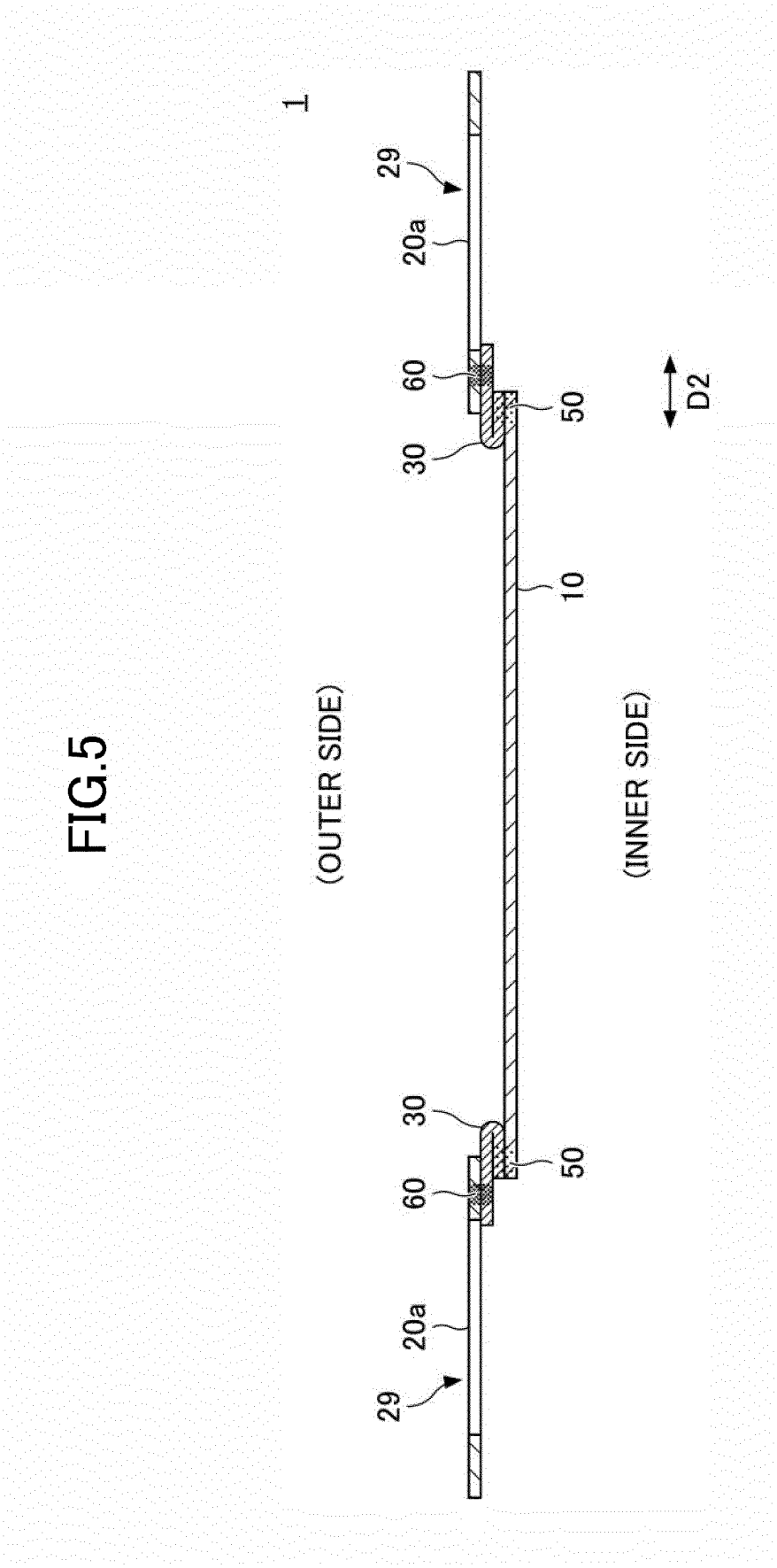


FIG.6

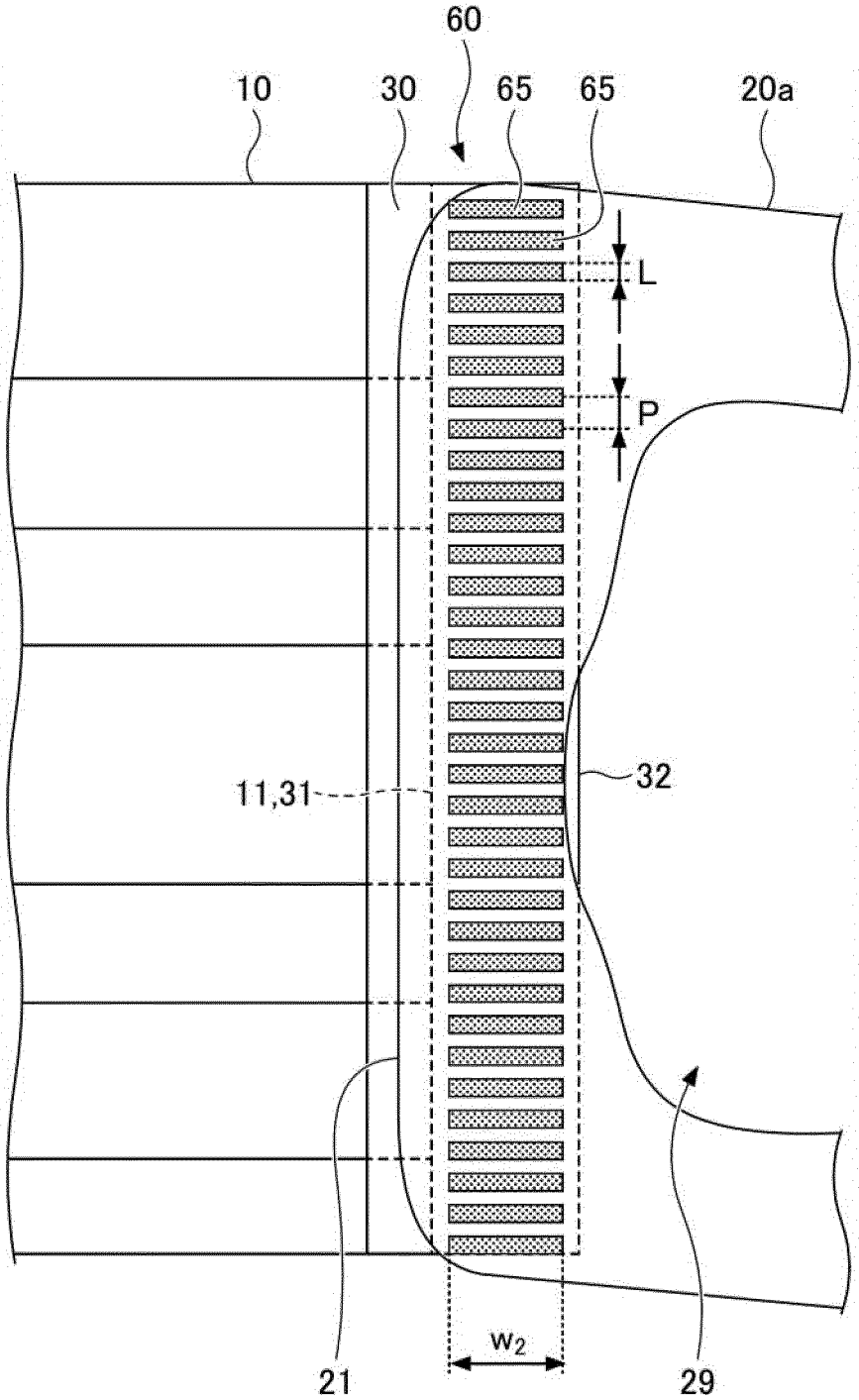


FIG.7

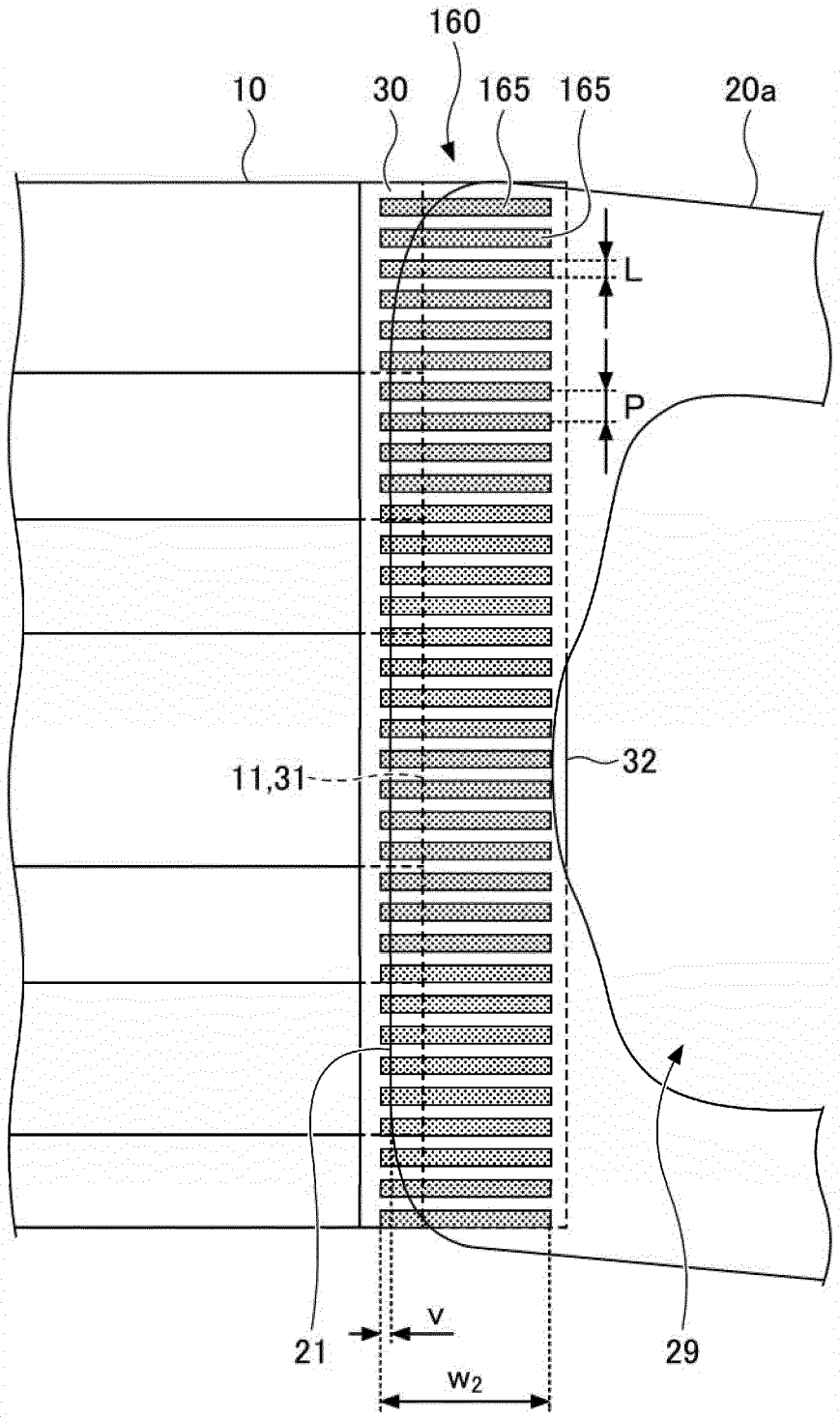


FIG.8

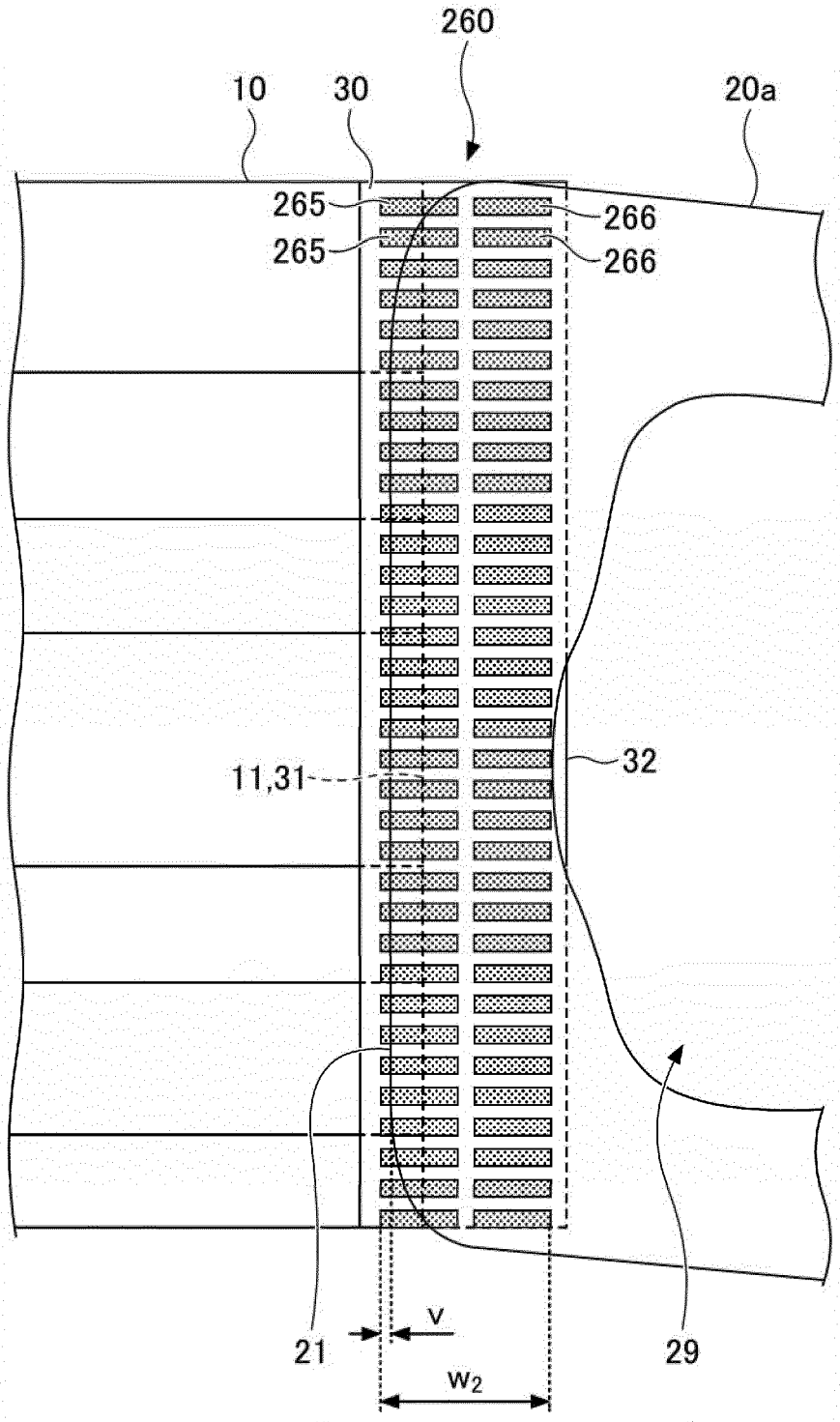


FIG.9

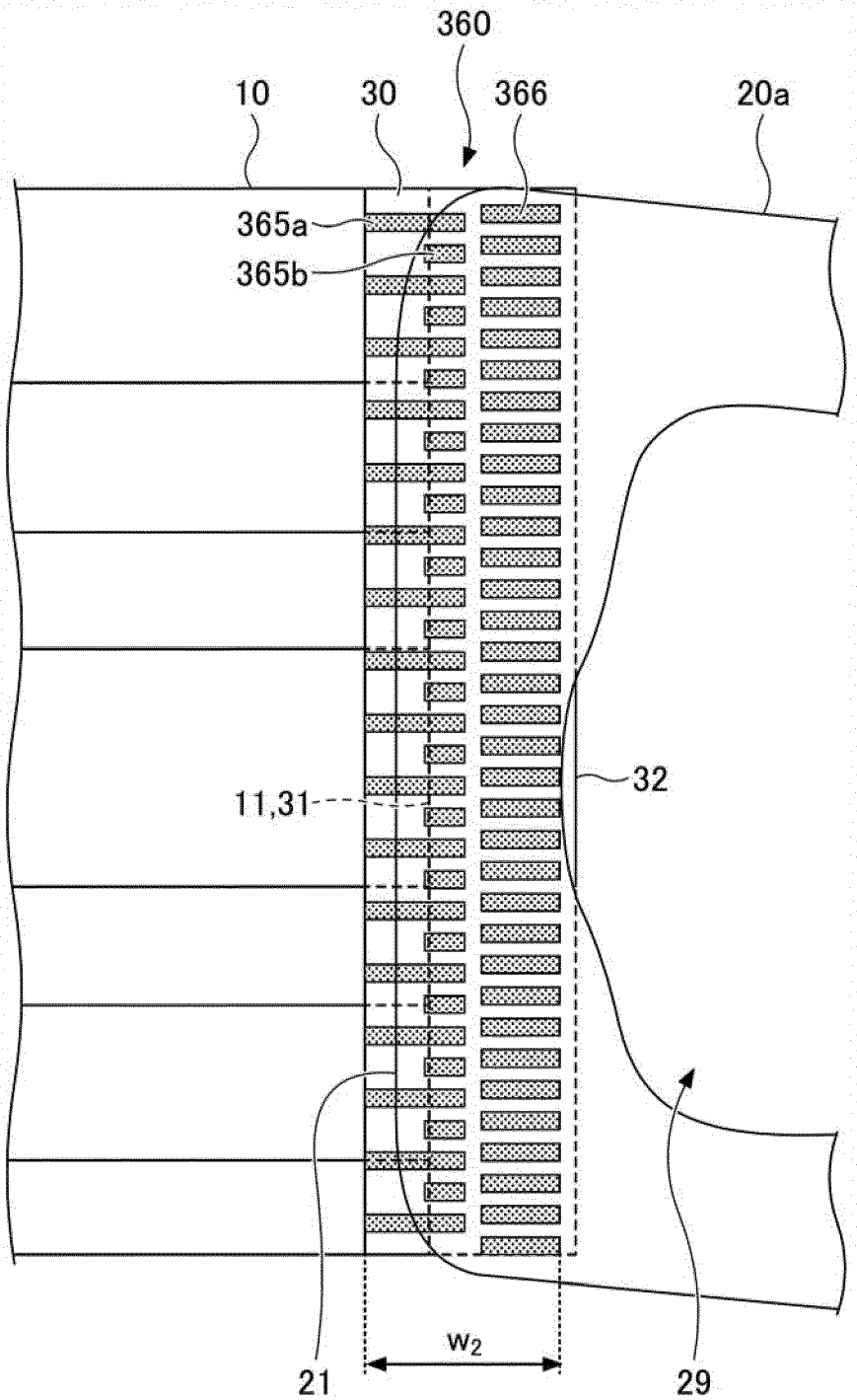
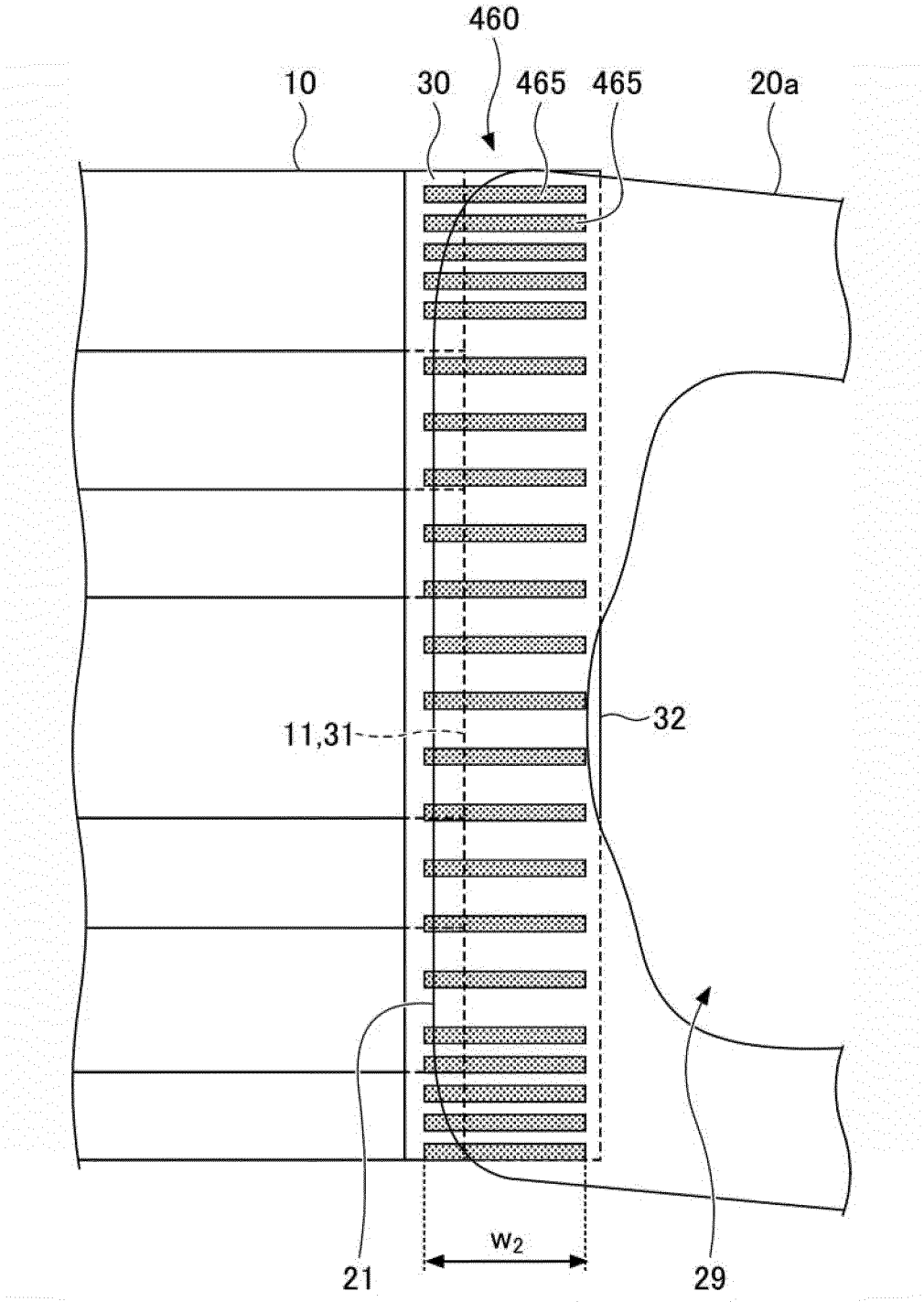


FIG.10



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2021/026113

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl. A61D13/11(2006.01)i
FI: A61D13/11H

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. A61D13/11, A62B18/02

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	1971-2021
Registered utility model specifications of Japan	1996-2021
Published registered utility model applications of Japan	1994-2021

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.
A	JP 2020-37755 A (SUZURAN KK) 12 March 2020 (2020-03-12), entire text, all drawings	1-7
A	JP 2013-31469 A (UNI CHARM CORPORATION) 14 February 2013 (2013-02-14), entire text, all drawings	1-7
A	JP 2011-167419 A (UNI CHARM CORPORATION) 01 September 2011 (2011-09-01), entire text, all drawings	1-7
A	JP 2014-30654 A (SAN-M PACKAGE CO., LTD.) 20 February 2014 (2014-02-20), entire text, all drawings	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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 August 2021	07 September 2021

Name and mailing address of the ISA/	Authorized officer
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Telephone No.

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

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2021/026113

JP 2020-37755 A	12 March 2020	(Family: none)	
JP 2013-31469 A	14 February 2013	CN 103635233 A KR 10-2014-0038428 A	
JP 2011-167419 A	01 September 2011	US 2013/0047995 A1 entire text, all drawings EP 2537559 A1 CN 102762261 A KR 10-2013-0036004 A	
JP 2014-30654 A	20 February 2014	US 2014/0034059 A1 entire text, all drawings EP 2695641 A2	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 5436262 B **[0004]**
- JP 2020130070 A **[0084]**