# SPECIFICATION

# WEARER'S OWN HAIR UTILIZING TYPE WIG

## Technical Field

[0001] This invention relates to a wig which is utilizing wearer's own hair, pulling out wearer's own hair below the wig worn on the scalp from the clearances of the wig and mixing it with false hair attached to the wig, and especially relates to the wig of utilizing wearer's own hair which can be worn stably on the wearer's head and can reduce the exposure to the outside by providing an annular member.

## Background Art

[0002] A wearer's own hair utilizing type wig is a kind of wig having a wig base formed with a net, which has a plurality of holes or meshes, whereby the wearer's own hairs are pulled out from the holes or meshes of a net, and mixed with false hair which was attached to the wig base. As this kind of the wig of utilizing wearer's own hair, as shown in Fig. 29, the type which is not provided with the outline in the wig base is known.

[0003] The known wig 200 shown in Fig. 29 comprises rib-like framework 210 and false hair 220 attached to the frame 210. The frame 210 comprises a plurality of ribs 211, which are arranged so that they may be formed in a straight line approximately in parallel in the longitudinal direction of the wearer's head, and a connection rib 212, which is arranged so that these ribs 211 are not disintegrated in the transverse direction at the mid position of these plurality of ribs 211 juxtaposed. In Fig. 29, although abbreviated to draw several of false hair 220 attached to the frame 210 and most is carried out in order to make structure of a frame 210 intelligible, false hair 220 is densely attached over the whole frame 210 in fact.

[0004] The rib 211 and the rib for connection 212 are connected by adhesion, binding, attaching by sewing, welding, etc. on those intersections. Each rib 211 and the rib for connection 212 were formed in a straight line of the material which cannot be easily influenced by heat of a dryer, for example, a polyamide synthetic fiber and synthetic resin material such as polyester, and are provided with rigidity and elasticity. False hair 220 attached to the rib 211 and the rib for connection 212 is preferably, for example, artificial hair of diameter about 0.05 to 0.2mm made of nylon (registered trademark), polyester, etc. besides human hair. It is bound, sewn on or twisted to the rib 211 and the rib for connection 212 and pasted, and many of

them are attached protruding in the predetermined direction.

[0005] When said wig 200 is worn, first, the wig 200 is put on the wearer's head, and its position is adjusted. As the position where to set on the wearer's head, the position in which the tip part of each rib 211 is entered several centimeters towards the top part side from a hair line is selected, and set at the selected position. Then, a pulling out work of the wearer's own hair follows. During this work, it is preferable to brush along with the rib 211 using a brush or a comb, pressing down the wig 200 by one hand on the head.

By brushing, for example, the front side towards the front and the backside towards back bordering on the rib for connection 212, the wearer can pull out the wearer's own hair held down by the wig 200 through ribs 211 upward. In that case, almost 100% of wearer's own hair can be easily pulled out through the ribs 211, without catching neither a brush nor a comb in the ribs 211 during brushing, and without entanglement of wearer's own hair around the rib 211, since each rib 211 extends mutually in parallel along the brushing direction.

[0006] As mentioned above, pulling out wearer's own hair on to the outside of the frame 210, mixing wearer's own hair and false hair 220, having the hair cut to a desired hairstyle, brushing lightly with the brush for hairdressing etc., wearing of the wig 200 is completed. It is convenient as fixation of the wig 200 on the scalp, fixing well-known stopper for wigs to the back side of a wig, to fasten and to fix the wearer's own hair by this stopper.

[0007] Since the periphery frame member which forms the outline of the wig base 210 does not exist and the rib 211 is embedded and provided into wearer's own hair, the wig 200 thus constituted as above is capable to pull out the wearer's own hair fully from the clearance on the wig, wearer's own hair and false hair 220 are mixed mutually well.

[0008] Patent Document 1 discloses the thus constituted wig.

[Patent Document 1] JP, 2002-115115 A

[0009] By the way, when the wig 200 shown in Fig. 29 is worn on the wearer's head, since the tip part of the rib 211 is not fixed, the tip part of the rib 211 tends to float. For example, when the wearer combs his hair or the wearer moves a head violently, the tip part of the rib 211 separates and loses touch from the scalp surface, some ribs 211 appear out of the wearer's hair, or the tip side of the rib 211 moves and shifts, and there is a possibility of leading to exposure of wig 200.

[0010] In said well-known wig 200, since the frame 210 itself comprises only linear ribs 211 and ribs for connection 212, it is difficult to stabilize and fix the stopper for

fixing the wig 200 to the wearer's scalp on the frame 210. Also, the rib 211 is arranged in the cross direction of the wearer's scalp, and since the parting line may be generated along the rib 211 in false hair 220 attached to the rib 211, a rib 211 becomes easily visible from the outside, and there is a possibility of leading to exposure of wig 200.

## Disclosure of the Invention

[0011] In view of the above-mentioned points, the object of the present invention is to offer the wig of utilizing wearer's own hair which is worn stably on the wearer's head by preparing an annular member and setting a rib to said annular member, capable to reduce the exposure to the outside, mixing the wearer's own hair with the false hair of a wig, and making hair rich in quantity as a whole.

[0012] In order to attain the above-mentioned object, the present invention is characterized in that it is the wig of utilizing wearer's own hair in which the wearer's own hair is pulled out from the opening of a wig base on which false hair is attached, and mixed with false hair, and the wig base is constituted of an annular member which has an opening inside, and a plurality of linear member which extended so that it might cross through said opening, are isolated from each other, and are provided in the annular member side by side, each linear member being formed in the shape of zigzag.

[0013] Said annular member comprises artificial skin, a lower net laminated on said artificial skin, and an upper net laminated on said lower net, and a lace tape and/or a satin tape are preferably attached to the bottom of artificial skin. It is further desirable if the net for preventing the exposure of the wig is arranged, protruding outward from the peripheral edge of an annular member.

Each of said linear members is preferred if both ends of it are formed in a flat plane part, said plane part is pinched by the annular member, and it is sewn on and fixed with thread material. Each linear member may be provided with the bending part which surges in the transverse direction, the bending parts of adjoining linear members are arranged in parallel with the annular member as they approach and depart mutually in the shape of zigzag, and the void which opens to pull out the wearer's own hair may be formed among each linear member.

The lower net which constitutes said annular member can adhere via a urethane coat to artificial skin. An annular member and each linear member are preferably formed curve-shaped along the form of the wearer's scalp.

[0014] According to the present invention, even if the linear member 12 is pulled

by brushing etc. for example, the end of the linear member does not rise or the direction of a linear member does not change since both ends of each linear member are fixed to the annular member by comparatively simple composition. Therefore, such possibility is reduced that the tip side of the rib 211 used as a free end may move like the well-known wig 200 shown in Fig. 29, or it may rise, may appear outside, and the wig 200 may be exposed.

[0015] Moreover, according to the present invention, since the linear member is bent in the shape of zigzag, hair separation is hard to occur, though there was a possibility that the wig 200 might be exposed in said well-known wig 200 because the rib 211 is lead in a straight line in the cross direction, hair separation of a straight line arises to hair. Also by above mentioned reason, exposure of a wig can be reduced by the present invention compared with the conventional wig 200. If the linear member is arranged in the shape of zigzag within the wearer's own hair, since it is covered in whole by the wearer's own hair and false hair of a wig base, these linear members will not be easily visible from the outside. If the linear member is made to bend in the shape of zigzag, quantity of false hair to attach can be increased since the length becomes long compared with a straight line-like linear member. Therefore, quantity of hair of a wig can be increased, and flexibility of hairstyle can be improved.

## Brief Description of the Drawings

[0016]

[Fig. 1] It is a plan view of a wearer's own hair utilizing type wig concerning an embodiment of the present invention.

[Fig. 2] It is a bottom plan view of a wearer's own hair utilizing type wig concerning an embodiment of the present invention.

[Fig. 3] It is a cross-sectional view along the line A-A in Fig. 1.

[Fig. 4] It is a cross-sectional view along the line B-B in Fig. 3.

[Fig. 5] It shows a manufacturing process of a wig base of a wearer's own hair utilizing type wig of the present invention.

[Fig. 6] It is a plan view of a gypsum mold used for manufacture of the wig base concerning the present embodiment.

[Fig. 7] It shows a forming board which produces the linear member concerning the present embodiment, in which (A) is a plan view and (B) is a cross-sectional view.

[Fig. 8] It shows the state where the first wire rod is attached to the forming board

of Fig. 7.

[Fig. 9] It shows the state where the second wire rod is fixed in the gypsum mold of Fig. 6.

[Fig. 10] It shows the state where the first artificial skin has been arranged in the gypsum mold of Fig. 6.

[Fig. 11] It shows the state where the first net was put on the gypsum mold of Fig. 10.

[Fig. 12] It is a figure for explaining the process which attaches the net for wig exposure prevention in the first intermediate.

[Fig. 13] It is a figure for explaining the process which attaches the net for wig exposure prevention in the first intermediate.

[Fig. 14] It shows the state where the masking tape was attached to the second intermediate.

[Fig. 15] It shows the portion of the first artificial skin excised from the second intermediate.

[Fig. 16] It shows the state where the fixed position of a linear member was entered in the masking tape.

[Fig. 17] It shows the state where the third wire rod has been arranged on the third intermediate.

[Fig. 18] It is a figure for explaining the process which produces the linear member which starts the present embodiment using the third wire rod.

[Fig. 19] It is a figure for explaining the process which produces the linear member which starts the present embodiment using the fourth wire rod.

[Fig. 20] It is a figure for explaining the process which produces the linear member which starts the present embodiment using the fourth wire rod.

[Fig. 21] It is a figure for explaining the state where the end of the monotonous part of a linear member was processed.

[Fig. 22] It is a figure for explaining the process of the temporary stop of a linear member and a net.

[Fig. 23] It is a figure for explaining the process of the temporary stop of a linear member and a net.

[Fig. 24] It is a figure for explaining the process of the temporary stop of a linear member and a net.

[Fig. 25] It is a figure for explaining the process of the unification with the fourth intermediate and the second net.

[Fig. 26] It is a figure for explaining the process which excises the surplus portion

of the first artificial skin.

[Fig. 27] It is a figure for explaining the process which attaches a lace tape and a satin tape in the fifth intermediate.

[Fig. 28] It is a figure for explaining the process which excises a surplus portion from the sixth intermediate.

[Fig. 29] It is the plan view showing the conventional wig.

Reference Signs List

[0017]

1 Wearer's own hair utilizing type wig
10 Wig base
11 Annular member
11A Opening
11B Space
12 Linear member
12A Bent part
13 Artificial skin
14 Lower net
15 Upper net
16 Lace tape
17 Satin Tape
18 Net for wig exposure prevention
20 False hair
50 Gypsum mold
51 Peripheral line
51A, 52A, and 55A The position of intersections
52 Inner perimeter line
53 Arrangement line
54 Line which shows attachment position of net 18 for wig exposure prevention
55 Boundary line of net for wig exposure prevention, and first net 140
60 Forming board
61 Base
62 Pillar member
63, 64 nails
66 Tack
67A, 67B the needle implement for fixation

71 to 75 masking tape
71A and 72A Fixed position
73A and 74B Boundary line of masking tape
80 Thread
121 First wire rod
122 Second wire rod
123 Third wire rod
124 Fourth wire rod
131 First artificial skin
131A Surplus portion
140 First net
150 Second net

Best Mode for Carrying out the Invention

[0018] Hereafter, with reference to Fig. 1 - Fig. 28, the embodiment of the present invention is explained in detail. Figs. 1 and 2 illustrate diagrammatically the wig of utilizing wearer's own hair (it is hereafter merely called a wig in abbreviation.) 1 in accordance with the embodiment of the present invention, wherein Fig. 1 shows the plan view of a wig 1, and Fig. 2 shows the bottom plan view of a wig 1. Wig 1 comprises a wig base 10, false hair 20 which is planted to the wig base and a stopper for a wig which is not illustrated. Although only several of the false hair 20 attached to the wig base 10 are drawn in Figs. 1 and 2 and most are omitted in order to explain the structure of the wig base 10 plainly, in fact, the false hair 20 is made to protrude upwards over the whole wig base 10, and is attached densely.

[0019] Wig base 10 comprises an annular member 11 which forms the circumference portion of the wig 1, an opening 11A formed in the inside of said annular member 11, and a plurality of linear member 12 which are formed as they traverse through the opening 11A along the longitudinal direction of the wearer's scalp, separated from each other, and are provided in parallel to the annular member 11. Fig. 3 is a cross-sectional view along A-A line of Fig. 1, and as shown in said cross-sectional view, the annular member 11 is formed belt-like so that between a peripheral edge and an inner peripheral edge may have predetermined width, and, in the illustrated example, is constituted as a lamination object with which a plurality of members were piled up. Specifically, the annular member 11 comprises an artificial skin 13, a lower net 14 piled up on the artificial skin 13, and an upper net 15 piled up on the lower net 14. Although an illustration is omitted,

the lower net 14 is fixed to the artificial skin 13 via the urethane coat applied to said lower net 14.

[0020] Preferably, the annular member 11 is formed curve-shaped along the shape of the wearer's scalp. In order to make better reinforcement and feeling of the annular member 11, a lace tape 16 is provided at the bottom of the artificial skin 13 along a peripheral edge, and a satin tape 17 is formed in it along the inner peripheral edge. Furthermore, the net for preventing exposure of a wig, i.e., a net for wig exposure prevention 18 is arranged on the wig base 10 as it protrudes outward from the peripheral edge of the annular member 11.

[0021] Both the lower net 14 and the upper net 15 are made of synthetic resin, and for example, the polyester of 25 mesh and thickness of 0.3mm. The lace tape 16 of, for example, polyester with width of 8mm, and thickness of 0.45mm, and the satin tape 17 of, for example, polyester with width of 3mm, and thickness of 0.30mm, are applicable.

[0022] A plurality of bending parts 12A are formed on said linear member 12, and the extension direction of the parts which connect the bending parts 12A mutually change alternately to the forward left, or the forward right by turns at every crooked point, surge in the shape of zigzag in a transverse direction along the scalp surface as a whole, and are constructed over the annular member 11. In an example of illustration, inside opening 11A of the annular member 11, the adjoining linear members 12 are mutually set from the frontal region to the back of the scalp with the intervals of the mutual bending parts 12A and 12A, as they approach and separate alternately. Thereby, between each of adjoining linear members 12, for example, a rhombic or diamond-shaped big space 11B useful to pull out the wearer's own hair is formed. As shown in Fig. 3, the linear member 12 is formed rather in the convex shape so that it may be in line to the curve form of the longitudinal direction of the wearer's scalp. The interval of the adjoining linear members 12 is not specifically restricted, allowed to be arbitrarily designed, for example, as a broad width of about 1 to 4 cm, or a narrow width of 1 cm or less, considering the wearer's thin hair state or hair style.

[0023] The linear member 12 is preferably made of a material which is not easily influenced by heat of a drier or others, for example, synthetic resin materials, such as a polyamide synthetic fiber and polyester, or in addition ,a material provided with elasticity and stiffness, such as metal, hard paper, hard rubber, wood, bamboo, glass fiber, and carbon fiber, can be used for it, and, for example, the linear member of desirable rigidity and elasticity will be obtained if it is formed with the

core/sheath structure which is made of polyester and nylon (registered trademark) with a diameter of about 0.1 to 3.0mm. Core/sheath structure means the structure which comprises a core part and a sheath part which covers said core part, for example, a core part is made of polyester, and a sheath part is made of nylon (registered trademark).

[0024] The linear member 12 is, as shown in Fig. 3, sewn on and fixed to the annular member 11 by the thread material of which illustration is omitted, having each end pinched among the lower net 14, the upper net 15, and the net for wig exposure prevention 18, so that its tip is set to the position which entered inside a little from the rim of the annular member 11. Here, Fig. 4 is a cross-sectional view along B-B line of Fig. 3, and as shown in this figure, the part from the tip of the linear member 12 close to the rim of the annular member 11 to about 5mm is formed in the shape of a plate, and it is inserted between the upper net 15 and the net for wig exposure prevention 18. In parts other than flat part 12B of the end of the linear member 12, the cross-section is formed circular.

[0025] False hair 20 is attached to the annular member 11 and the linear member 12 which constitute the wig base 10. False hair 20 may be, for example, artificial hair of a diameter about 0.05 to 0.2mm which is made of nylon (registered trademark), polyester, etc. besides human hair, is bonded, sewn, or twisted to the wig base 10, and many strands are attached protruding upward.

In order to fix a wig 1 to the wearer's scalp, the known stopper for wigs is provided in the desired part of the bottom of the annular member 11 which constitutes the wig base 10.

[0026] The wig 1 of the present invention is constituted as mentioned above, and the explanation of manufacturing method is made next. Especially, the wig base 10 of the wig 1 in accordance with the present invention is manufactured according to the manufacturing process shown in Fig. 5. First, explanation is made of the manufacturing method of the wig base 10.

According to the manufacturing process shown in Fig. 5, first, as Step S1, the gypsum mold which molded the wearer's scalp or imitated a typical scalp shape is prepared. As Step S2, two sheets of net are prepared and a scalp shape is applied to these nets. That is, a flat net member is processed thermally or an ultrasonic process into the shape which bulges in the shape of convexity. As Step S3, straight wire rods are prepared and shaped wavy, that is, into a zigzag shape. Then, as Step S4, the artificial skin in line with a scalp shape is produced.

As Step S5, the unification of the artificial skin produced at Step S4 and one

of the nets produced at Step S2 is performed to produce the first intermediate. Next, as Step S6, the net for wig exposure prevention 18 is attached to the first intermediate produced at Step S5 to produce the second intermediate. As Step S7, excision of unnecessary artificial skin, and the attachment position of a wire rod is marked in, to produce the third intermediate. Here, as Step S8, processing of the tip part of the wire rod with wavy shape or others formed at Step S3 is carried out . That is, both ends of a circular cross-sectioned wire rod is crushed and processed into a planar shape. This process may be conducted at the above-mentioned Step 3. As Step S9, the wire rod is tentatively attached to the third intermediate to produce the fourth intermediate.

Next, as Step S10, the other net produced at Step S2 is unified with the fourth intermediate to produce the fifth intermediate. As Step S11, the lace tape 16 and the satin tape 17 are attached to the fifth intermediate to produce the sixth intermediate. Finally, as Step S12, the wig base 10 is completed by excising unnecessary portions from the sixth intermediate.

Each of the above-mentioned steps S1 to S12 is explained below in full detail.

[0027] Step S1: preparation of gypsum

The gypsum mold formed to a scalp shape is prepared. And a line required to produce the wig base 10 is marked on the gypsum surface. Fig. 6 is a plan view of a gypsum mold 50, and as shown in this figure, a peripheral line 51 and an inner perimeter line 52 for defining the range of the annular member 11, an arrangement line 53 that shows an arrangement position of the linear member 12, and a line 54 which shows an attachment position of the net for wig exposure prevention 18 are marked on the gypsum surface.

[0028] Step S2: fabrication of a scalp shape from a net

First, after covering a polypropylene sheet on the gypsum mold 50 prepared at Step S1, a stocking made of nylon (registered trademark) is covered and fixed on said polypropylene sheet. And on the polypropylene sheet, two nets made of a synthetic resin are covered doubly, and fixed to the gypsum mold 50 with a needle for fixation. Between the two nets, the net which exists downward is formed as the lower net 14 by the below-mentioned process and the net which exists upward is formed as the upper net 15. Here, as each net made of synthetic resin, that of polyester of 25 mesh and thickness of 0.3mm is preferably used.

[0029] Then, after coating the mixture of thermosetting polyurethane resin solution and an organic solvent, methylethylketone, to the gypsum mold 50 covered

with the two nets, the scalp shape is formed to each net by drying at the temperature of 100 degrees C for 8 hours. As thermosetting polyurethane resin solution, for example, a main agent which uses modified polyisocyanate solution as a base resin, and hardener which uses a polyetherpolyol mixture as a main ingredient are used, and the formulation ratio may be 6.5g main agent, 3.5g hardening agent and 80.0g methylethylketone. And after the gypsum mold 50 is cooled, a net is removed from the gypsum mold 50. Between the two nets on which the model of scalp shape is formed by this process, one is called the first net 140, and the other is called the second net 150.

[0030] Step S3 production of a linear member: fabrication of waveform

First, the first linear wire rod with a diameter of about 0.1 to 3.0mm, made of polyamide synthetic fibers such as nylon (registered trademark) and a synthetic resin material such as polyester, is thermally fabricated to the shape of zigzag. For convenience, a forming board as shown in Fig. 7 would be used in that case. Fig. 7 (A) is a plan view of a forming board 60, and Fig. 7 (B) is a cross-sectional view of the forming board 60. As shown in these figures, the forming board 60 comprises a long and narrow wooden base 61 and a plurality of wooden pillar members 62 which stand up on the surface of the base 61 and are arranged in the base length direction. The mutually adjoining pillar members 62 are shifted to right and left alternately in the base length direction so that the axes of the pillars may not overlap. Each pillar member 62 is fixed to the base 61 with a nail 63. The diameter of the pillar member 62 is suitably selected in the range of, for example, 0.9 to 1.7cm, and the deviation to the right and the left of the adjoining pillar members 62 is also suitably chosen. The curvature of zigzag curves can be suitably set up by changing the diameter of the pillar member and shifting quantity.

[0031] The first wire rod is arranged to the thus constituted forming board 60. Concretely, as shown in Fig. 8, the first wire rod 121 is let between the adjoining pillar members 62 and 62, and is fixed by twisting both ends of a first wire rod 121 around the nails 64 and 64 which stand on the surface of both ends of the base 61. The shape of a bending part 12A is acquired by heating, for example, at 150 degrees C for 5 hours for thermal fabrication the forming board 60 with the twisted first wire rod 121. Thus, the second wire rod 122 wave-shaped as a whole is produced.

The process of the above step S2 is repeated to produce a plurality of second wire rods 122.

[0032] Next, each second wire rod 122 fabricated wave-shaped is placed on an arrangement line 53 drawn on the surface of the gypsum mold 50 shown in Fig. 6,

and in order to tightly stick the gypsum mold 50 and the second wire rod 122, as shown in Fig. 9, the bending part 12A of the second wire rod 122 is pressed tight and fixed on the gypsum surface with a tack 66. Further, the part of the second wire rod 122 which protrudes outside of a peripheral line 51 which is drawn on the surface of the gypsum mold 50 is fixed so as to stick tightly to the gypsum mold 50 with a needle for fixation 67A. Thus, in the state of tight adhesion of the second wire rod 122 to the surface of the gypsum mold 50, the gypsum mold 50 is heated, for example, at 150 degrees C for 5 hours, the shape of the gypsum mold 50, i.e., the wig wearer's scalp shape, is applied to the second wire rod 122, to produce the third wire rod 123 which is referred to Fig. 17. Then, after cooling the gypsum mold 50 to room temperature, a mark is put on the portion where the peripheral line 51 and the inner perimeter line 52 intersect with the third wire rod 123, the tack 66 and the needle for fixation 67A are removed from the gypsum mold 50, every third wire rod 123 is removed from the gypsum mold, and the adhering gypsum powder is flushed with water.

By this process, the third wire rod 123 which is formed curving along the shape of zigzag and the wearer's scalp shape can be produced.

[0033] Step S4 (production of an artificial skin):

First, a polypropylene sheet is put on the gypsum mold 50 and fixed to it, and a coated film is formed by applying the thermoplastic elastomer solution in which a deglossing agent is added on the gypsum mold 50, and as shown in Fig. 10, first artificial skin 131 in shape of a scalp is produced by drying it at the temperature of 60 degrees C for 2 hours. As thermoplastic elastomer solution in which a deglossing agent is added, for example, the solution with a thermoplastic elastomer dissolved in an organic solvent and with inorganic particles added therein is used. Concretely, the solution of the organic solvent with dimethylformamide and methylethylketone mixed at a ratio of 8:2 with urethane elastomer dissolved therein, and with 5 to 25% of powder silica of particle diameter 10 micrometers or less added also therein is used.

[0034] Step S5: unification of artificial skin and a net

As shown in Fig. 11, the first net 140 of a scalp shape fabricated at Step S2 is put on the first artificial skin 131 produced at Step S4, and the first artificial skin 131 and the first net 140 are fixed to the gypsum mold 50 with a needle for fixation 67B. And thermoplastic elastomer solution is applied to the portion of the first net 140 of the domain between the peripheral line 51 and the inner perimeter line 52 which are marked on the gypsum mold surface 50 as a mark to define the range of

an annular member 11. As said thermoplastic elastomer solution, for example, the solution in which thermoplastic elastomer is dissolved with organic solvent is used. Concretely, the solution in which urethane elastomer is dissolved with the organic solvent of dimethylformamide and methylethylketone mixed at a ratio of 8:2 is preferred.

[0035] After applying thermoplastic elastomer solution in a shape of a circle to the portion of the first net 140 of the domain between the peripheral line 51 and the inner perimeter line 52, it is dried for 30 minutes at the temperature of 60 degrees C. Then, the thermoplastic elastomer solution in which a deglossing agent is added is further applied to the portion of the first net 140 of the domain between the peripheral line 51 and the inner perimeter line 52. The thermoplastic elastomer solution in which said deglossing agent is added is the same as the solution at Step S4. Then, the first artificial skin 131 and the first net 140 unified in the domain between the peripheral line 51 and the inner perimeter line 52 by drying at the temperature of 60 degrees C for 2 hours. Here, what was unified and produced is called the first intermediate.

[0036] Step S6: attaching a net for wig exposure prevention

As shown in Fig. 12, on the first intermediate, i.e., the first net 140 unified at step S5 with the first artificial skin 131, along the line 54 used as the mark of the attachment position of the net 18 for wig exposure prevention drawn on the surface of the gypsum mold 50, the net 18 for wig exposure prevention is arranged, using an ultrasonic generator, and the net for wig exposure prevention 18 is tentatively attached to the first net 140 by ultrasonic welding. The display of the first intermediate is omitted in Fig. 12. As the net for wig exposure prevention 18, a belt-like product made of polyester of 14 mesh is used, and as shown in Fig. 13. The net 18 for wig exposure prevention is tentatively attached to the first net 140 in piles so that it may protrude about 2 mm from the peripheral line 51 which defines the range of the annular member 11. Then, the thermoplastic elastomer solution with the same deglossing agent as what was used at Step S4 added therein is coated to the net for wig exposure prevention 18 tentatively attached to the first net 140 in the range of the line 54 which indicates the attachment position of the net for wig exposure prevention 18 from the peripheral line 51, and by drying at the temperature of 60 degrees C for 1 hour, the net 18 for wig exposure prevention is fixed to the first net 140. Here, the net for wig exposure prevention 18 fixed to the first net 140 is called the second intermediate.

[0037] Step S7: excision of artificial skin, and marking of the attachment position

of a linear member

After attachment of the net for wig exposure prevention 18 at Step S6 is completed, the gypsum mold 50 is cooled to room temperature, and as shown in Fig. 14, masking tapes 71 and 72 are stuck on the first net 140 along the peripheral line 51 and the inner perimeter line 52 defining the range of the annular member 11 drawn on the surface of the gypsum mold 50. In Fig. 14, the display of the first artificial skin 131 and the first net 140 is omitted. The second intermediate which integrated the first artificial skin 131, the first net 140, and the net for wig exposure prevention 18 is removed from the gypsum mold 50, is turned over, and the portion of the first artificial skin 131 which is not integrated with the first net 140 is excised. Specifically, of the first artificial skin 131, the portion indicated with the alternate long and short dash line of the inner side surrounded by the inner perimeter line 52 is excised in Fig. 15.

[0038] Next, what integrated the first artificial skin 131, the first net 140, and a net for wig exposure prevention 18 is returned to the front and set up on the gypsum mold 50, and fixed to the gypsum mold with a needle for fixation. Then, as shown in Fig. 16, the fixing positions 71A and 72A of the linear member 12 are drawn on masking tapes 71 and 72 using the arrangement line 53 of the linear member 12 drawn on the surface of the gypsum mold 50 as a mark. In Fig. 16, the display of the first artificial skin 131 and the first net 140 is omitted. Here, the product which is after processing on the second intermediate at said process is called the third intermediate.

[0039] Step S8: processing of the tip part of a linear member

First, as shown in Fig. 17, the third wire rod 123 produced at Step S3 is arranged on the first net 140 according to the marks 71A and 72A which were drawn at Step S7 on masking tapes 71 and 72 and the arrangement line 53 of the linear member 12 which is drawn on the surface of the gypsum mold 50. In Fig. 17, the display of the first artificial skin 131 and the first net 140, i.e., the third intermediate, is omitted. Then, as shown in Fig. 18, a mark is put on position 52A of the intersection to the inner perimeter line 52 of the third wire rod 123, position 55A of the intersection of the third wire rod 123 to the boundary line 55 of the net for wig exposure prevention 18, and the first net 140, and position 51A of the intersection to the peripheral line 51 of the third wire rod 123. Then the third wire rod 123 is moved to other places, the intersection portion to the peripheral line 51 of the third wire rod 123 is crushed with an ultrasonic generator, plane monotonous part 12B is formed to produce the fourth wire rod 124. Then, again, as shown in

Fig. 19, the fourth wire rod 124 is laid so that the arrangement line 53 may be suited on the gypsum mold 50, and as shown in Fig. 20, the fourth wire rod 124 is cut by bordering on the position which enters inside about 1 mm from the peripheral line 51. The same processing follows to the other end of the fourth wire rod 124. Thus, the linear member 12 is produced. It is further preferable to shave the angle of the end of flat part 12B of the linear member 12, as shown in Fig. 21, and to form as a curve face.

[0040] Step S9: temporary setting of a linear member and a net

The linear member 12 the processing of which ended in Step S8 is arranged on the first net 140 adopted to the marks 71A and 72A which were drawn on the masking tapes 71 and 72 in Step S7 and the arrangement line 53 of the linear member 12 which was drawn on the surface of the gypsum mold 50, and then the linear member 12 is attached to the first net 140 with a masking tape 75 so that the position of the linear member 12 may not shift, as shown in Fig. 22. Then, these are removed from the gypsum mold 50, each linear member 12, which close to the part of the first net 140, is partially bound with thread to the corresponding peripheral edge 51 and the inner perimeter edge 52 respectively, in which the peripheral edge 51 and the inner perimeter edge 52 form the range of the annular member 11, and the linear member 12 is temporarily attached to the first net 140. Typically, as shown in Fig. 23, the part alpha of the linear member 12 close to the peripheral line 51 and the part beta of the linear member 12 close to the inner perimeter line 52 are fixed to the first net 140. More specifically, as shown in Fig. 24, thread 80 is taken out and inserted to the first net 140 with winding thread 80 around the surroundings of the tip part of the linear member 12 which entered inside about 3 mm from the peripheral edge 51 about 2 to 3 times, and the linear member 12 is partially fixed to the first net 140. The part beta of the linear member 12 is similarly fixed with thread. The displaying of the first net 140 is omitted in Figs. 23 and 24. The product, in which the linear member 12 were temporarily attached to the third intermediate is called the fourth intermediate.

[0041] Step S10: unification with a linear member and an annular member

The fourth intermediate produced at Step S9 is set up to the gypsum mold 50, and fixed with the needle implement for fixation. Further, other second net 150 formed at Step S2 is put on the first net 140, and fixed to the gypsum mold 50 with the needle implement for fixation. The second net 150 is temporarily attached to the first net 140 that integrated with the first artificial skin 131, wherein the two nets were partially integrated using an ultrasonic device, at outside of peripheral

line 51, which was drawn on the surface of the gypsum mold 50 so that the first and the second nets 140, 150 are piled up each other. Next, as shown in Fig. 25, the masking tapes 73 and 74 of 3 mm width are stuck along with the peripheral line 51 and the inner perimeter line 52. The masking tape 73 stuck along with the peripheral line 51 is arranged so that about half may overlap inside the peripheral line 51. The masking tape 74 stuck along with the inner perimeter line 52 is arranged so that about half may overlap with the outside of the inner perimeter line 52. And the product on which the first artificial skin 131, first net 140, and second net 150 are laminated is removed from the gypsum mold 50, and sewing follows along with the boundary line of the masking tapes 73 and 74 shown with Marks 73A and 74A in Fig. 25 using a sewing machine. As sewing thread, nylon (registered trademark) thread can be used, for example. In Fig. 25, the display of the first net 140 and the second net 150 is omitted.

[0042] By such machine sewing, the second net 150, the linear member 12, and the first net 140, which were integrated with the first artificial skin 131 are integrated. Thus, the integrated lamination product is turned over as shown in Fig. 26, and surplus partial 131A of the first artificial skin 131, which is not being fixed to the first net 140, is excised. Concretely, surplus partial 131A of the first artificial skin 131 located outside from the perforations of sewing along with the peripheral line 51 is excised. At above-mentioned process, the second net 150 unites with the fourth intermediate, and the product which surplus partial 131A was excised from first artificial skin 131 is called the fifth intermediate. Surplus partial 131A is excised from the first artificial skin 131, and the artificial skin 13 in the wig base 10 shown in Fig. 3 is formed.

[0043] Step S11: cling a lace tape and a satin tape

The fifth intermediate produced at Step S10 is turned over and, in order to make the contact feeling good, and as a member for reinforcing a lamination object, the lace tape 16 and the satin tape 17 are attached to the back of an artificial skin 13. Concretely, as shown in Fig. 27, the lace tape 16 is arranged on an artificial skin 13 along the peripheral edge of an artificial skin 13, sewed the both sides by a sewing machine, and attached to the fifth intermediate. As to the lace tape 16, a product made from polyester with a width of 8 mm and a thickness of 0.45 mm is used, for example.

[0044] The satin tape 17 is arranged on an artificial skin 13 along the inner perimeter edge of an artificial skin 13, sewed the both sides by a sewing machine, and attached to the fifth intermediate. As to the satin tape 17, a product made of

polyester with a width of 3 mm and a thickness of 0.30 mm is used, for example. As to sewing thread, it is preferable to use the thread made of a synthetic resin, for example. Since a fray tends to occur to ends of said lace tapes 16 and the satin tape 17, it is desirable that an end is beforehand burned with a soldering iron as anti-fraying process before attachment, for example. At this process, what attached the lace tape 16 and the satin tape 17 in the fifth intermediate is called the sixth intermediate.

[0045] Step S12: excision of an unnecessary portion

Next, the surplus portion of the sixth intermediate produced in above steps, until Step S11, is excised. Concretely, as shown in Fig. 28, the portion which has not overlapped with the artificial skin 13 between the first net 140 and the second net 150, i.e., the part of A, B, and C, is excised. A surplus portion is excised from the first net 140 and the second net 150, and the lower net 14 and the upper net 15 in the wig base 10 shown in Fig. 3 are formed. Thus, when an unnecessary portion is eliminated at present step, the wig base 10 shown in Fig. 1 – Fig. 3 will be completed.

[0046] False hair 20 is tied to the wig base 10 constituted as mentioned above. The wig 1 by present invention is completed by attaching the well-known stopper for wigs in the position of a request of the bottom of the annular member 11 of the wig base 10.

[0047] Next, usage of the thus manufactured wig 1 of the present invention is explained.

When wearing the wig 1, the wearer's own hair is pinched by the stoppers, which are provided in the back of the wig base 10, and wig 1 is set to the desired position on the wearer's scalp. Then, pulling out work of wearer's own hair follows. In this case, it is preferable to brush towards the length direction of the linear member 12 using a brush or a comb, pressing down a wig 1 on the scalp by one hand. Thereby, the wearer's own hair held down by the linear member 12 can be pulled out upwards through the linear member 12 of opening 11A of the annular member 11. In that case, about almost 100% of wearer's own hair can be easily pulled out through the linear member 12 and 12, without catching neither a brush nor a comb in the linear member 12 during brushing, and without entanglement of the wearer's own hair around the linear member 12, since each linear member 12 and 12 are extended mutually almost in parallel along the brushing direction.

[0048] Wearing of the wig 1 is completed, by brushing lightly with the hairdressing brush etc. and mixing the wearer's own hair and false hair 20, after

pulling out the wearer's own hair toward the external surface of the wig 1, and by having one's hair and false hair cut to a desired hairstyle.

[0049] Thus, by the wig 1 of present invention, since the ends of each linear member 12 and 12 are fixed to the annular member 11, the linear member 12 does not rise or the direction of the linear member 12 does not change or shift, even if the linear member 12 is pulled by brushing etc. On the other hand, by the conventional wig 200 shown in Fig. 29, since the rib 211 moved easily, there was a possibility that a rib 211 might appear or be exposed outside by brushing, careless handling, etc. By contrast, since the motion of the linear member 12 is regulated, the wig 1 by present invention causes neither rising of the linear member 12 nor change of the direction by deviate.

[0050] Although using the conventional wig 200 shown in Fig. 29, there was a possibility that hair separation might occur and the rib might be exposed since the rib 211 was extended in the shape of a straight line in the longitudinal direction, however, using the wig 1 by present invention, since the linear member 12 is crooked in the shape of zigzag and has extended to the longitudinal direction, it is hard to cause hair separation. Therefore, the wig 1 by the present invention can reduce exposure of a wig compared with the conventional wig 200. Since the linear member 12 is arranged in the shape of zigzag within the wearer's own hair and it is covered from in whole by the wearer's own hair and the false hair 20 of the wig base 10, it is not easily visible to the outside.

[0051] With the wig 1 by present invention, since the linear member 12 is bending in the shape of zigzag, much false hair 20 can be attached compared with the rib 211 of the conventional wig 200 extended in the shape of a straight line. Therefore, the quantity of the hair of a wig 1 can be increased. Since uneven and big space 11B is formed between the adjoining linear members 12 and 12, set on the annular member 11, wearer's own hair can be pulled out easily, and handling is also easy.

[0052] As the lace tape 16 and the satin tape 17 are attached to wig 1 of the present invention, reinforcement for preventing the fray of sewing thread and damage, which were used on the occasion of the unification by machine sewing, can be realized. With sewing thread, the portion where the fine sight was spoiled can be hidden and the contact feeling can be improved.

[0053] As explained above, the present invention can be implemented with various styles in the range that does not deviate from the meaning. For example, although four linear members 12 are provided in the wig 1 shown in Fig. 1, as for the number of the linear member 12, it is needless to say that it is not what is limited to the

example of illustration. Neither the number of bending part 12A of the linear member 12 nor the degree of a curve is also restricted to the example of illustration. The lace tape 16, the satin tape 17, and the net for wig exposure prevention 18 are not necessarily indispensable elements that what is necessary is just to have if needed. The arrangement direction of the linear member 12 is fine if the adjoining linear member 12 and 12 do not cross mutually, and it is not restricted to the longitudinal direction of illustration.

## CLAIMS

What is claimed is:

1. A wearer's own hair utilizing type wig,

wherein the wearer's own hair is pulled out from openings of a wig base to which fake hair is attached, and mixed with said fake hair, characterized in that:

said wig base is constituted with an annular member having openings inside, and a plurality of linear members extending to traverse said openings and being arranged mutually separated in parallel to said annular member, and

said annular member is constituted with artificial skin, a lower net laminated on said artificial skin, and an upper net laminated on said lower net.

2. The wearer's own hair utilizing type wig as set forth in claim 1, characterized in that:

lace tape and/or satin tape are attached to the bottom of said artificial skin.

3. The wearer's own hair utilizing type wig as set forth in either of Claim 1 or Claim 2, characterized in that:

a net for wig exposure prevention is provided to said wig base so as to protrude outward from the outer peripheral edge of said annular member.

4. The wearer's own hair utilizing type wig as set forth in claim 1, characterized in that:

both ends of each of said linear members are formed as flat plane parts, said flat plane parts are pinched by said annular member, and are sewed and fixed by thread material.

5. The wearer's own hair utilizing type wig as set forth in claim 1, characterized in that:

said lower net is fixed to said artificial skin via a urethane coat.

6. The wearer's own hair utilizing type wig as set forth in either of Claims 1 to 5, characterized in that:

each of said linear members is provided with a bending part which surges in a transverse direction, and

the bending parts of said adjoining linear members are arranged in the shape of zigzag in parallel to said annular member so that they may approach and separate mutually, and between linear members is formed an opening for pulling out the wearer's own hair.

7. The wearer's own hair utilizing type wig as set forth in either of Claims 1 to 5, characterized in that:

each of said linear members is bent in the shape of zigzag.