



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 158(3) EPC

(43) Date of publication:
15.01.2003 Bulletin 2003/03

(51) Int Cl.7: **A41G 5/00**

(21) Application number: **00985910.9**

(86) International application number:
PCT/JP00/09270

(22) Date of filing: **26.12.2000**

(87) International publication number:
WO 01/064065 (07.09.2001 Gazette 2001/36)

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

- **KAWARATANI, Yukihiro, Takara Co., Ltd.**
Tokyo 125-0062 (JP)
- **SUNO, Hiromi**
Kyoto-shi, Kyoto 607-8466 (JP)

(30) Priority: **29.02.2000 JP 2000001127**

(71) Applicant: **ADERANS CO., LTD.**
Shinjuku-ku, Tokyo 160-0022 (JP)

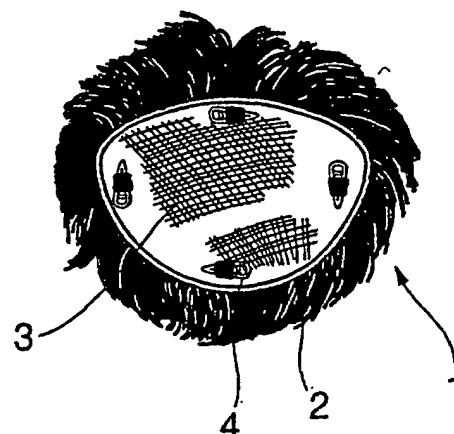
(74) Representative: **Fenlon, Christine Lesley**
Haseltine Lake & Co.,
Imperial House,
15-19 Kingsway
London WC2B 6UD (GB)

(72) Inventors:
• **SUGAI, Katsuo, Aderans Co., Ltd.**
Tokyo 160-0022 (JP)

(54) **WIG FOR DECORATING HAIR**

(57) An ornamental wig such as a toupee or a hair-piece, which requires no special treatment in a specialty store such as a beauty parlor, can change its color easily in response to the existence of light irradiation such as an ultraviolet ray. The ornamental wig includes reversible photosensitive discoloring imitation hair containing a photochromic compound at least in a portion thereof. The wig is of a size so as to be attachable to a human head, and an attaching device or devices are fitted to a portion of the wig.

FIG. 1



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to an ornamental wig such as a toupee or a hairpiece that can change a color thereof principally in response to the existence of a light irradiation such as an ultraviolet ray.

2. Descriptions of the Related Art

[0002] In recent years, especially among young men and women, changing their hair color to brown, yellow, red and so on has been in fashion. In this hair color change, his or her own hair, for example, black hair is decolorized and dyed in other favorite colors. Some time later, when his or her hair grows, since the new-growth portion of the hair coming out of a scalp is black, its color difference relative to the dyed hair portion is conspicuous. As a result, the new-growth portion must be decolorized and dyed again. Accordingly, additional cost and labor are required therefor, and the hair itself is subject to damage. Although there is another method for changing the hair color, in which the hair is dyed with an exclusive dye, a similar problem occurs since the live hair is used in this method as well.

[0003] On the other hand, there have been toupee and hairpiece used as imitation hair. Among them, there have been ones subjected initially to a dyeing treatment and coloring. However, each of these imitation hair pieces has a single color, and there has been no imitation hair that can change its color to other colors.

[0004] As described above, both the natural and imitation hair pieces require troublesome treatment such as decolorization and dyeing for changing their color, and the color change can not be easily performed. Accordingly, hair that can change its color instantaneously has not been known up to the present.

SUMMARY OF THE INVENTION

[0005] The present invention was made with the foregoing problems in mind. The object of the present invention is to provide an ornamental wig such as a toupee or a hairpiece, which does not require a special treatment in a specialty store such as a hair parlor and can easily change its color in response to light irradiation such ultraviolet ray radiation and or upon a change in temperature.

[0006] In order to solve the foregoing problems, an ornamental wig according to the present invention comprises reversible photosensitive discoloring imitation hair containing a photochromic compound at least in a portion thereof, in which the wig is of a size to be attachable to a human head, and an attaching means is fitted to a portion of the wig.

[0007] Note that, an hair ornamental wig is preferably constituted of a polyolefin fiber that contains an organic photochromic compound having a molecular weight of 300 or more, and further, according to needs, contains a pigment and wax series dispersant.

[0008] Moreover, the imitation hair may be constituted by combining reversible photosensitive discoloring imitation hair and reversible thermosensitive discoloring imitation hair.

[0009] Furthermore, the imitation hair may change its color entirely or partially.

[0010] Still further, the attaching means preferably has an ornament portion, a hairpin portion and an imitation hair fitting portion.

[0011] Still further, the ornament portion has an engaging portion with the hairpin portion freely detachable, and the attaching means and the imitation hair may be freely detachable from each other.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

Fig. 1 is a perspective view of an example of an ornamental wig according to the present invention;

Fig. 2A is a perspective view of a partial wig attached to a person's head;

Fig. 2B is another perspective view of a partial wig is attached to a person's head;

Fig. 3A is a perspective view of one example of a wig;

Fig. 3B is a perspective view of another example of the wig;

Fig. 3C is a perspective view of still another example of the wig;

Fig. 3D is a perspective view of yet another example of the wig;

Fig. 3E is a perspective view of yet another example of the wig;

Fig. 3F is a perspective view of yet another example of the wig;

Fig. 3G is a perspective view of yet another example of the wig;

Fig. 4A is an explanatory view of imitation hair in an original state;

Fig. 4B is an explanatory view of the imitation hair in a partially-changed state;

Fig. 4C is an explanatory view of the imitation hair in a further partially-changed state;

Fig. 5A is a perspective view showing a preferable state of hair for attaching the wig;

Fig. 5B is a perspective view showing another preferable state of the hair for attaching the wig;

Fig. 6A is a perspective view of a state where the wig is attached;

Fig. 6B is a perspective view of a wig attached to a person's head;

Fig. 6C is another perspective view of a wig at-

tached to a person's head; and

Fig. 7 is an illustration of a child using imitation hair.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] In Fig. 1, a reference numeral 1 generally denotes an ornamental wig. The wig 1 is constituted such that attaching devices 4 are attached to a net-shaped base member 3 having hair 2 implanted therein. The hair 2 is imitation hair made of a synthetic resin (fiber) or a regenerated resin (fiber). The wig 1 has a size set so as to be attachable to a person's hair.

[0014] The wig 1 is not limited to a wig that covers all of a person's hair. As shown in Figs. 2A and 2B, the wig 1 may be such as to only partially cover a person's. These partial wigs 1 also have the imitation hair 2 implanted on the base members 3 (not shown in Figs. 2A and 2B).

[0015] Moreover, as more fashionable wigs, the following are examples: a wig in which the ornamental imitation hair 2 is fitted to a tip end of a pin 5 (clasp-cum-base member) as shown in Fig. 3A; a wig in which the ornamental imitation hair 2 is fitted along a long rubber member 6 (clasp-cum-base member) as shown in Fig. 3B; and a wig in which the ornamental dummy hair 2 is fitted to an ornament portion 10 of a hairpin 4 as shown in Fig. 3C. As such types of wigs, other than the ones exemplified as described above, there are various types of the wigs 1 such as a braid type, a long-hair type, a chignon type, a screw type, a twist type and a zigzag type.

[0016] As described above, the imitation hair 2 may be fitted to the base member 3 in any manner, and the fitting manner is not limited to implanting. Moreover, the base member itself is not limited to a planar member. For example, the base member may be a belt-shaped member, or each of a member combined with the attaching device or devices such as the base member of each of Figs. 3A and 3B. Furthermore, the attaching device or devices 4 do not have any limitation, in particular, and may be freely selected from a hairpin, an America pin, a comb, a barrette, a rubber member (ring-shaped or string-shaped), a string, a wire, a net and the like can be freely selected.

[0017] The imitation hair 2 used in the wig 1 is a reversible photosensitive discoloring hair that changes its color with a light irradiation of an ultraviolet ray and the like as described later, and changes a certain color thereof to another color by irradiating a light thereon.

[0018] The imitation hair 2 may be uniformly changed in color over its entirety, or only partially changed in (i. e., with only a portion thereof changed in color). In the case where the entire imitation hair 2 The color of the entire imitation hair 2 that is initially shown may be changed to another color. Alternatively, the color of a portion that is initially shown differently from another portion may be changed to the other color of the entire

imitation hair 2 together with the other portion. On the other hand, in the case where the color of the imitation hair 2 is partially changed, as shown in Fig. 4A, groups of the imitation hair 2 that change their colors respectively may be made to exist in such a manner that small numbers of the hair groups are mixed with each other so that the entire imitation hair 2 can look like the hair having a single color by changing the respective colors. For example, it is conceived that red hair and white hair are mixed so that the mixed hair can look pink. And, in addition to the red and white colors being obtained by changing the other colors, the portion of the white color is left so as not to change its color, but the red color of the other portion may be obtained by changing the other color. Moreover, as shown in Fig. 4B, groups of the imitation hair 2 having different colors from each other may change their colors while each group is collected to some extent. In this case, the groups of the imitation hair 2 may change their colors only partially with the light irradiation of the ultraviolet rays and the like though they have a single color initially. Alternatively, the groups of the imitation hair 2 that have different colors initially may change their colors to another uniform color. Furthermore, as shown in Fig. 4C, the imitation hair 2 may change its color for each portion. In this case, a striped pattern may be formed with the light irradiation of the ultraviolet ray or the like. For example, the imitation hair 2 having entirely a striped pattern may be obtained by changing the color of a predetermined portion thereof having initially the same color as other portions by irradiating the light. Alternatively, the imitation hair 2 having a striped pattern initially may be changed to one that has another striped pattern having a different color from the original color with the light irradiation of the ultraviolet ray or the like.

[0019] Herein, as the imitation hair 2 used for the wig 1, a fiber material having a feature of containing a photochromic compound can be listed. The photochromic compound is a substance that has a function of changing a color reversibly with a light having a specified wavelength such as the ultraviolet ray. As such a photochromic compound, any compound can be used as long as it has been conventionally known as a photochromic compound. The photochromic compound is not subjected to particular limitations.

[0020] As examples of the photochromic compound, the following can be listed: an azobenzene series compound, a thioindigo series compound, a dihydrobromide series compound, a spiropyran series compound, a naphthopyran series compound, a benzopyran series compound, a spirooxazine series compound, a silver series compound and the like.

[0021] On the other hand, as the fiber material, various types of synthetic fibers and regenerated fibers can be listed.

[0022] By containing such a photochromic compound, the imitation hair 2 of the present invention has a reversible photosensitive discoloring function of

changing the color of the imitation hair 2 by irradiating the light such as the ultraviolet ray and returning the changed color to the original color by stopping the irradiation.

[0023] Incidentally, as a more preferable constitution of such imitation-hair having the reversible photosensitive discoloring property, a polyolefin fiber that contains an organic photochromic compound having a molecular weight of 300 or more can be listed. This polyolefin fiber has a good processing property, a low toxicity to a human body, the low toxicity being essential for such an application, and a low possibility of generating a toxic substance such as a dioxin due to burning after being discarded. As such, the polyolefin fiber has various advantages. However, since the polyolefin fiber itself does not typically have a polarity, when it is made to contain a substance having a polarity such as the photochromic compound, a blooming phenomenon occurs. For this reason, the present invention was made in an attempt to solve such a problem as the blooming phenomenon by selectively using an organic photochromic compound having a molecular weight of 300 or more.

[0024] Herein, the organic photochromic compound implies an organic compound among the foregoing photochromic compounds. As long as the organic photochromic compound has a molecular weight of 300 or more, the type thereof does not matter. However, it is particularly preferable to use at least a type of the compound selected from among a spiropyran series compound, a naphthopiran series compound, a benzopyran series compound and a spirooxazine series compound, which have high coloring density during the light irradiation and are rich in color types.

[0025] Specifically, the following can be listed:

- (1) 1, 3-dihydro-1, 3, 3-trimethyl-6'-(1-piperidinyl)-spiro[2H-indole-2, 3'-[3H] naphtho[2, 1-b] [1, 4]oxazine] (molecular weight 411);
- (2) 6'-(2, 3-dihydro-1H-indole-1-yl-1, 3-hydro-1, 3, 3-trimethyl-spiro[2H-indole-2, 3'-[3H]naphtho[2, 1-b] [1, 4]oxazine] (molecular weight 445);
- (3) 1, 3-dihydro-1, 3, 3-trimethyl-6'-(1-piperidinyl)-4-(triple-ole-methyl)-spiro[2H-indole-2, 3'-[3H] naphtho[2, 1-b] [1, 4]oxazine] (molecular weight 479);
- (4) 1, 3-dihydro-1, 3, 3, 4, 5-pentamethyl-spiro[2H-indole-2, 3'-[3H]naphtho[2, 1-b] [1, 4]oxazine] (molecular weight 356);
- (5) 3, 3-diphenyl-3H-naphtho[2, 1-b] pyran (molecular weight 334); and
- (6) 6-methoxy-2, 2-diphenyl-2H-1-benzopyran (molecular weight 314).

[0026] On the other hand, as the polyolefin fiber, any conventionally known polyolefin fiber can be used, and the polyolefin fiber is not subjected to any limitation. A wide range of fibers, for example, the polyolefin fiber, a polypropylene fiber, an ethylene-propylene copolymer

fiber and the like can be employed. Note that these fibers may be partially bridged fibers. Alternatively, the fibers may be fibers in which acrylonitrile, (meta-) acrylic acid, (meta-) ester acrylate, vinyl acetate, styrene, vinyl chloride, vinylidene chloride and the like are copolymerized or singly compounded.

[0027] Moreover, since the above-described organic photochromic compound typically exhibits discoloring between a solid color and a chromatic color in many cases, various types of pigments may be compounded in the concerned polyolefin fiber for the purpose of further enriching color variation thereof and so on. In this case, it is preferable to use a dispersant in order to increase dispersibility of the pigments in the fiber, and it is particularly preferable to use a wax type dispersant that does not inhibit the discoloring property of the above-described photochromic compound.

[0028] As examples of the pigments, the following can be listed: organic pigment, inorganic pigment, fluorescent pigment, luminous pigment, pearl pigment, metallic pigment, gold powder, silver powder, glass powder, thermochromic capsule pigment, a microcapsule containing perfume and the like. However, the pigments are not limited to the above examples.

[0029] Moreover, as examples of the wax type dispersants, a polyethylene wax, a polypropylene wax, a paraffin wax, an amide wax, a wax, a carnauba wax, a microcrystalline wax and the like can be listed. However, the wax type dispersants are not limited to the above examples.

[0030] As a method of manufacturing the imitation hair of the present invention constituted of the reversible photosensitive polyolefin fiber as described above, any conventionally known method may be employed, and the manufacturing method is not subjected to any limitation. For example, the above-described respective components are previously classified in a color palette, or directly mixed with a polyolefin resin as a fiber forming polymer, and then fusing and spinning are performed by use of a fusing/spinning apparatus. Thus, the reversible photosensitive polyolefin fiber can be obtained. Moreover, in this case, by varying a shape of a spinneret, a spinning speed, a drawing magnification or the like, the reversible photosensitive polyolefin fiber having various cross-sectional shapes (for example, circular shape, oval shape, star shape, triangular shape and gear shape) and various sizes (for example, 0.1 to 500 μm) can be obtained.

[0031] Note that the imitation hair of the present invention can contain various conventionally known additives other than the above-described components according to desires.

[0032] As examples of the additives, the following can be listed: ultraviolet ray absorbent; optical stabilizer; filler; dye; fluorescent dye; electrochromic agent; liquid crystal; ultraviolet ray emitting type coloring matter; perfume; flame retardant; flame proofing agent; deodorizer; antimicrobial agent; antiseptic; fungicide; repellent; and

light catalyst. However, the additives are not limited to the above-described examples.

[0033] Moreover, as examples of the imitation hair of the present invention other than the above-described examples, conjugate series imitation hair of a center/sheath type that contains an organic photochromic compound in a center thereof can be listed (see Japanese Patent Laid-Open No. Hei 4-202811).

[0034] Next, a method of attaching the wig of the present invention will be described below. For example, when the wig 1 shown in Figs. 3A and 3B is attached, it is recommended that a hair portion 7 be bundled in a dumpling shape at a side portion of the head as shown in Fig. 5A or a high position of the head as shown in Fig. 5B or be shaped in a pony-tail. Then, the imitation hair 2 is attached to the person's natural hair by the attaching device 4 on devices. When the wig 1 of Fig. 3A is attached to the natural hair of Fig. 5A, the result shown in Fig. 6A appears. When the wig 1 of Fig. 3A is attached to the hair of Fig. 5B, the result shown in Fig. 6B appears. In any case, although the wig may be attached so as to be identified purposely, the base of the wig 1 may be preferably hidden with the hair, a bandanna, a turban or the like. Naturally, two or more types of the wig may be combined and attached to the natural hair.

[0035] Furthermore, the wig shown in Fig. 3C will be described in detail below. The attaching device shown in Fig. 3C has an ornament portion, a hairpin portion and an imitation hair fitting part. As shown in Fig. 3D, the imitation hair is fitted between the ornament portion and the hairpin portion in a winding manner, as shown in Fig. 3D, and is fixed by simple engaging member such as a rubber band. Moreover, the imitation hair may be fixed by the engaging member as shown in Fig. 3E, or naturally may be fixed with adhesive or the like.

[0036] Moreover, the hairpins as shown in Figs. 3F and 3G have been conventionally available. In order to fit the imitation hair to these hairpins, the engaging member 9 with the hairpin portion may be provided in the ornament portion as shown in Fig. 3F so as to make the imitation hair freely detachable. Furthermore, when the hairpin 10, shown in Fig. 3G, is used, the imitation hair may be wound around the hairpin portion to be engaged with the rubber band or the like similar to that described above.

[0037] When light having a specified wavelength such as the ultraviolet ray is irradiated to the wig 1 after the wig 1 manufactured with the imitation hair 2 constituted as described above is attached to the head of a wearer, the imitation hair 2 changes its color to blue, red, yellow, green, etc. And when the light irradiation stops, the color is returned to the original color. As described above, since the color of the imitation hair 2 is changed only by irradiating the light such as the ultraviolet ray, the color of the imitation hair 2 of the wig 1 is changed between the cases, for example, where the wearer goes outside from the inside of a building and the imitation hair 2 receives sunlight, and where the wearer comes inside the

building from the outside. Because of this color change, the impression of the wearer given to others is changed, thus the wearer can change his/her image during a day.

[0038] Moreover, since the color of the wig 1 is automatically changed without any special care or treatment, handling thereof is very easy.

[0039] Furthermore, since the trouble of performing any special treatment to the imitation hair in a specialty store such as a beauty parlor can be eliminated and the imitation hair can be easily discolored in response to the existence of the light irradiation such as the ultraviolet ray, the imitation hair is low in cost and is convenient.

[0040] Still further, since the hair of the wearer is not directly subjected to the dyeing treatment, the hair cannot be damaged.

[0041] Still further, as shown in Fig. 7, by use of the wig 1 by a child, he or she can obtain a sense of unity with his/her mother or a doll 8 changing its hair color. Specifically, if the color of his/her mother's hair is green, the child may use the wig 1, the original color or the changed color of which is green. Alternatively, if the color of the doll's hair is changed from pink to green, the child may attach the wig 1 changing his or her color similarly. In such a manner, the child can feel a sense of unity with his/her mother or the doll.

[0042] Still further, a portion of the imitation hair 2 can change its color reversibly from a certain color to another color upon a change in temperature. Specifically, the imitation hair 2 may be a combination of the reversible photosensitive discoloring imitation hair that changes its color depending on the existence of the light irradiation such as the ultraviolet ray and the reversible thermosensitive discoloring imitation hair that changes its color depending on the temperature change.

[0043] In this case, as the thermosensitive discoloring substance, for example, as disclosed in USP 3,560,229, a composite having a combination of an electron impartable colorable compound (leuco coloring matter) and an electron receivable developer (phenol group and the like) as a base and a three-component series composite obtained by adding organic solvent to the above-described two components can be listed. Moreover, in Japanese Patent Publication No. Sho 62-28990, a thermosensitive discoloring substance having these composites encapsulated in so-called microcapsules is disclosed. Such a thermosensitive discoloring substance can also be preferably used. And, these thermosensitive discoloring substances are uniformly mixed with the polyolefin resin, the polypropylene, polyamide and the like, and the mixture is subjected to extrusion forming a filament-shaped body. Thus, the reversible thermosensitive discoloring imitation hair can be manufactured (see Japanese Patent No. 2519484, Japanese Patent Publication No. Sho 51-37180 and so on).

[0044] It is preferable that a portion that is the reversible thermosensitive discoloring imitation hair changes its color to blue, green, yellow, red and so on when the temperature of the imitation hair rises to a predeter-

mined temperature by heating it with a device such as a hair dryer. The discolored state is held for a while after stopping the heating. Thereafter, when the temperature of the imitation hair is lowered to below a predetermined temperature, the color returns to the original color again. Note that, if a thermosensitive discoloring substance that changes its color at about body temperature is used, the discolored state can be maintained while the wig 1 is attached to the wearer's head. Naturally, the foregoing pigments can be added to the reversible thermosensitive discoloring imitation hair depending on the purpose of enriching the color variation and so on.

[0045] By combining the reversible photosensitive discoloring imitation hair and the reversible thermosensitive discoloring imitation hair, a certain portion of the imitation hair changes its color depending on the existence of the light irradiation such as the ultraviolet ray, and another portion thereof changes its color depending on the temperature change. Accordingly, a complicated color change can be enjoyed.

[0046] Also in this case, the color can be easily changed at a low cost, and since the natural hair of the wearer is not directly subjected to the discoloring treatment, the hair cannot be damaged. As such, an effect similar to the case of the reversible photosensitive discoloring imitation hair can be obtained.

[0047] Thus, according to a first aspect of the present invention, when the light such as the ultraviolet ray is irradiated to the wig attached to the hair of the wearer by the attaching device or devices, the color of the imitation hair is changed. And when the light irradiation stops, the color returns to its original color. In such a manner, the color of the hair is changed only by irradiating with the ultraviolet ray. Accordingly, the color of the wig hair is changed between the case where the wearer goes outside from the inside of a building such that the wig receives sunlight, and the case where the wearer comes inside the building from the outside. Because of this color change, the impression of the wearer given to others is changed, and thus he or she can change his/her image during a day. And, since the color is changed by irradiating the light, no special tool or apparatus is required, and the color of the ornamental wig is automatically changed without any special care or treatment. Accordingly, handling thereof is very easy.

[0048] Furthermore, since the trouble of performing special treatment of the imitation hair in a specialty store such as a beauty parlor can be eliminated and the imitation hair can be easily discolored in response to the existence of the light irradiation such as the ultraviolet ray, the imitation hair is low in cost and is convenient.

[0049] Still further, since the natural hair of the wearer is not directly subjected to the dyeing treatment, the hair cannot be damaged.

[0050] According to a second aspect of the present invention, the imitation hair can have a good processing property, low toxicity to the human body and a low possibility of generating a toxic substance. Moreover, there

is no fear that the organic photochromic compound will bloom in the concerned imitation hair.

[0051] According to a third aspect of the present invention, since the pigment can be favorably dispersed without adversely affecting the organic photochromic compound, the imitation hair can be rich in the color variation.

[0052] According to a fourth aspect of the present invention, by combining the reversible photosensitive discoloring imitation hair and the reversible thermosensitive discoloring imitation hair, a complicated color change can be enjoyed.

[0053] According to a fifth aspect of the present invention, since the color of the entire imitation hair is changed, the changed color is conspicuous and the impression of the entire hair can be greatly changed.

[0054] According to a sixth aspect of the present invention, since the color of the partial imitation hair is changed, a subtle color change can be enjoyed.

[0055] According to a seventh aspect of the present invention, since the wig has the attaching device or devices, the ornament portion, the hairpin portion and the imitation hair fitting portion, the wig can be easily attached to the head, and does not become as exaggerated as a conventional toupee, and the cost thereof is low. Moreover, since the imitation hair is attached by one or more small engaging members such as a rubber band, the engaging member(s) is inconspicuously hidden in the imitation hair.

[0056] According to an eighth aspect of the present invention, since the ornament portion and the imitation hair are set freely detachable, the ornament portion and the imitation hair can be easily fitted to the conventional hairpin. Accordingly, a novel hair ornamental wig can be provided.

Claims

1. An ornamental wig, comprising:

reversible photosensitive discoloring imitation hair containing a photochromic compound at least in a portion thereof, wherein the wig is sized for attachment to a human head, and attaching means is fitted to a portion of the wig.

2. The ornamental wig according to claim 1, wherein the reversible photosensitive discoloring imitation hair is constituted of a polyolefin fiber that contains an organic photochromic compound having a molecular weight of 300 or more.

3. The ornamental wig according to claim 1, wherein the reversible photosensitive discoloring imitation hair is constituted of a polyolefin fiber that contains an organic photochromic compound having a mo-

molecular weight of 300 or more, a pigment and wax series dispersant.

4. The ornamental wig according to any one of claims 1 to 3, wherein the wig is constituted by combining reversible photosensitive discoloring imitation hair and reversible thermosensitive discoloring imitation hair. 5
5. The ornamental wig according to any one of claims 1 to 4, wherein the imitation hair changes its color entirely. 10
6. The ornamental wig according to any one of claims 1 to 5, wherein the imitation hair changes its color partially. 15
7. The ornamental wig according to any one of claims 1 to 6, wherein the attaching means has an ornament portion, a hairpin portion and an imitation hair fitting portion. 20
8. The ornamental wig according to any one of claims 1 to 6, wherein the ornament portion has an engaging portion for detachably engaging with the hairpin portion. 25

30

35

40

45

50

55

FIG. 1

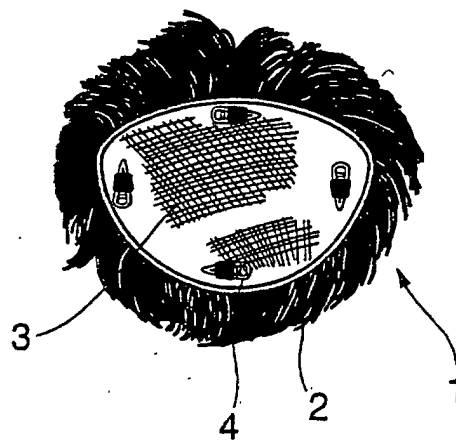


FIG. 2A



FIG. 2B

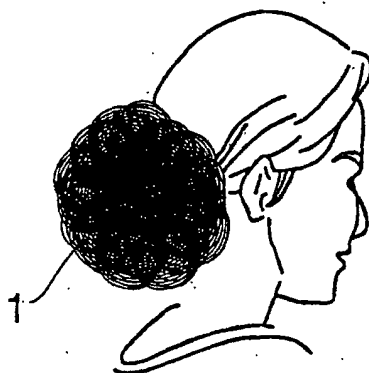


FIG. 3A

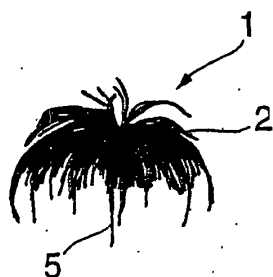


FIG. 3B



FIG. 3C

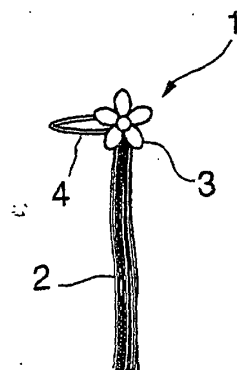


FIG. 3D

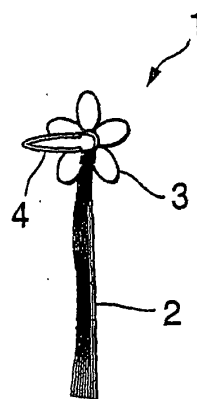


FIG. 3E

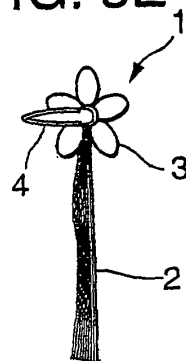


FIG. 3F

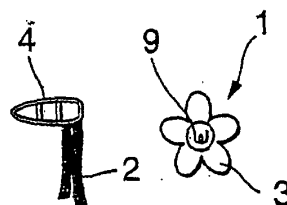


FIG. 3G

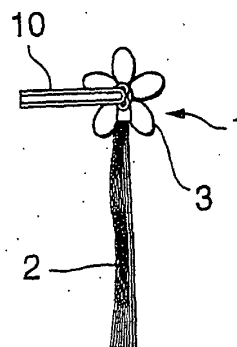


FIG. 4A

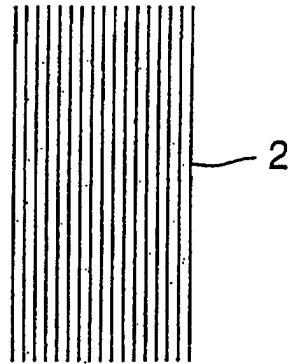


FIG. 4B

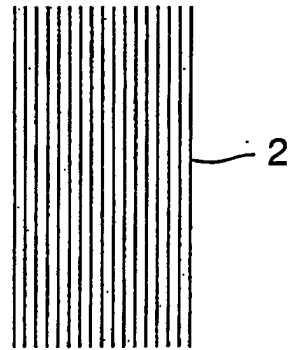


FIG. 4C

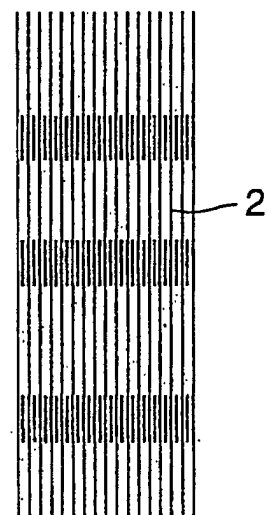


FIG. 5A



FIG. 5B

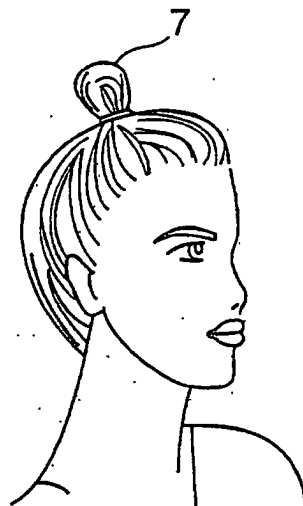


FIG. 6A



FIG. 6B



FIG. 6C



FIG. 7



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP00/09270

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl⁷ A41G 5/00

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ A41G3/00, 5/00

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

Jitsuyo Shinan Koho 1926-1996 Toroku Jitsuyo Shinan Koho 1994-2001

Kokai Jitsuyo Shinan Koho 1971-2001 Jitsuyo Shinan Toroku Koho 1996-2001

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.
X	JP, 06-313210, A (Matsui Shikiso Kagaku Kogyo K.K.), 08 November, 1994 (08.11.94), page 2, Column 1, line 17 to page 5, Column 8, line 20 (Family: none)	1, 5
Y		2-4, 6-8
X	JP, 06-280112, A (Asahi Chemical Industry Co., Ltd.), 04 October, 1994 (04.10.94), page 2, Column 1, line 8 to page 3, Column 3, line 1 (Family: none)	1, 5
Y		2-4, 6-8
Y	JP, 10-88439, A (Kanegafuchi Chem. Ind. Co., Ltd.), 07 April, 1998 (07.04.98), page 2, Column 1, lines 30 to 33 (Family: none)	2
Y	JP, 10-251916, A (Kanegafuchi Chem. Ind. Co., Ltd.), 22 September, 1998 (22.09.98), page 2, Column 1, lines 24 to 28 & WO, 98/40545, A & CN, 1219211, T	3
Y	JP, 06-71053, A (Pilot Ink Co., Ltd.), 15 March, 1994 (15.03.94), page 2, Column 1, lines 2 to 9 (Family: none)	4

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

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"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
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 05 March, 2001 (05.03.01)	Date of mailing of the international search report 13 March, 2001 (13.03.01)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP00/09270

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP, 10-295942, A (Pilot Ink Co., Ltd.), 10 November, 1998 (10.11.98), page 2, Column 1, lines 2 to 4 (Family: none)	6
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 52230/1989 (Laid-open No.142425/1990), (Yoshiko SHIMIZU), 03 December, 1990 (03.12.90), page 1, lines 4~8 (Family: none)	7,8

Form PCT/ISA/210 (continuation of second sheet) (July 1992)