

Patent Right	Date	December 20, 2021	Court	Intellectual Property High Court, Fourth Division
	Case number	2021 (Gyo-Ke) 10052		
<p>- A case in which the court ruled that the particular matters of the invention of the "Invention" related to an application include the solution of a problem exclusively by a mental activity of a human being, and the Invention cannot be said to be a "creation of technical ideas utilizing the laws of nature," and therefore that the Invention does not fall under the "invention" as set forth in Article 2, paragraph (1) of the Patent Act.</p>				

Case type: Case of seeking rescission of the JPO decision

Result: Dismissed

References: Article 2, paragraph (1) of the Patent Act

Related rights, etc.: Patent Application No. 2019-160189, Appeal against Examiner's Decision of Refusal No. 2020-12930

Summary of the Judgment

1. Outline of the case

The Plaintiff filed a patent application (Patent Application No. 2019-160189) for an invention titled "Analysis method of haircut techniques"; however, the Japan Patent Office (hereinafter referred to as the "JPO") refused the application. Therefore, the Plaintiff claimed an appeal against the examiner's decision of refusal (Appeal against Examiner's Decision of Refusal No. 2020-12930) and made an amendment to the claims and statements in the description (hereinafter referred to as the "Amendment"). The JPO approved the Amendment but made the decision that "the claim for the appeal in question is groundless" (hereinafter referred to as the "JPO Decision").

This is a case where the Plaintiff sought rescission of the JPO Decision against the Defendant.

2. In this judgment, the court explained as follows and dismissed the claim of the Plaintiff.

(1) The claims after the Amendment consist of Claims 1 through 9 and the statement of Claim 1 is as follows (hereinafter Claim 1 after the Amendment is referred to as the "Amended Invention in the Application").

[Claim 1]

An analysis method for haircut techniques that is used for the section selected in the second step of the following four steps:

the first step of estimating a naturally-dried, natural, straight hairstyle from the front

view, side view, and back view based on photographs, images, illustrations, or drawings of the person subject to the analysis; (hereinafter referred to as the "analysis subject");

the second step of selecting a section subject to the analysis from multiple sections;

the third step of conducting analysis for the section selected in the second step based on the naturally-dried, natural, straight hairstyle that was estimated in the first step, with regard to at least one of the following analysis items that fits the selected section:

A. Analysis of outline shape and expression;

B. Analysis of cut line;

C. Analysis of the position to add volume and the volume line;

D. Analysis of silhouette shape and expression;

E. Analysis of the position and presence of a part;

F. Analysis of section width or shape; and/or

G. Analysis of how face line and sections are connected or how sections are connected with each other;

and of obtaining analysis results;

and the fourth step of deriving information related to the aforementioned haircut technique from the aforementioned analysis results.

(2) Considering all steps together, the first step through the fourth step of the Amended Invention in the Application include the estimation of a naturally-dried hairstyle by the use of knowledge, etc. of hair (the first step), selection of the area on the head subject to the analysis (the second step), classification of the hairstyle of the analysis subject that was estimated by the analyst from the analysis items that fits the section (the third step), and derivation of an analysis for the haircut technique corresponding to the classification that are all conducted by the analyst in his/her mind. Even if the laws of nature are included in knowledge and experience related to hair that are used in the analysis process conducted in the mind of the analyst, solving the problem only through a mental activity of a human being is included in the particular matters of the invention, and it cannot be said to be "a creation of technical ideas utilizing the laws of nature." Therefore, the first step through the fourth step of the Amended Invention in the Application do not fall under the "invention" as set forth in Article 2, paragraph (1) of the Patent Act.

Judgment rendered on December 20, 2021

2021 (Gyo-Ke) 10052, Case of seeking rescission of the JPO decision

Date of conclusion of oral argument: November 25, 2021

Judgment

Plaintiff: Tomy's star Co., Ltd.

Defendant: Commissioner of the Japan Patent Office

Main text

1. The claim of the Plaintiff shall be dismissed.
2. The Plaintiff shall bear the court costs.

Facts and reasons

No. 1 Claim

The decision made by the Japan Patent Office (hereinafter referred to as the "JPO") on February 25, 2021, concerning the case of Appeal against Examiner's Decision of Refusal No. 2020-12930 shall be rescinded.

No. 2 Outline of the case

1. Outline of procedures at the JPO (There are no disputes between the parties.)
 - (1) The Plaintiff filed a patent application (Patent Application No. 2019-160189; hereinafter referred to as the "Application") for an invention titled "Analysis method of haircut techniques" on September 3, 2019.
 - (2) The Plaintiff received a notice of grounds for refusal dated December 10, 2019 and made an amendment to the claims and statements in the description dated January 31, 2020; however, the amendment was refused on June 5, 2020.
 - (3) The Plaintiff filed an appeal against the examiner's decision of refusal (Appeal against Examiner's Decision of Refusal No. 2020-12930) dated September 15, 2020, and made an amendment to the claims and statements in the description (hereinafter referred to as the "Amendment") on said date.

The JPO approved the Amendment but made the decision that "the claim for the appeal is groundless" (hereinafter referred to as the "JPO Decision") on February 25, 2021 and delivered a certified copy of the decision to the Plaintiff on March 16, 2021.

- (4) The Plaintiff filed this lawsuit to seek rescission of the JPO Decision on April 14,

2021.

2. Statement of the claims

The claims after the Amendment consist of Claims 1 through 9 and the statement of Claim 1 is as follows (hereinafter Claim 1 after the Amendment is referred to as the "Amended Invention in the Application").

[Claim 1]

An analysis method of haircut techniques that is used for the section selected in the second step of the following four steps:

the first step of estimating a naturally-dried, natural, straight hairstyle from the front view, side view, and back view based on photographs, images, illustrations, or drawings of the person subject to the analysis (hereinafter referred to as the "analysis subject");

the second step of selecting a section subject to the analysis from multiple sections;

the third step of conducting analysis for the section selected in the second step based on the naturally-dried, natural, straight hairstyle that was estimated in the first step, with regard to at least one of the following analysis items that fits the selected section:

A. Analysis of outline shape and expression;

B. Analysis of cut line;

C. Analysis of the position to add volume and the volume line;

D. Analysis of silhouette shape and expression;

E. Analysis of the position and presence of a part;

F. Analysis of section width or shape; and/or

G. Analysis of how face line and sections are connected or how sections are connected with each other;

and of obtaining analysis results;

and the fourth step of deriving information related to the aforementioned haircut technique from the aforementioned analysis results.

3. Summary of the JPO Decision

(1) A. The first step

According to [0026] through [0037] and Figure 1 through Figure 3 in the description attached to the application form of the Application (hereinafter, including drawings, referred to as the "Description in the Application"), "the first step" in the Amended Invention in the Application corresponds to "preliminary analysis" as stated in the Description in the Application and, in "the first step," an analyst estimates the "front silhouette line of naturally-dried, natural, straight hairstyle" based on "photographs, images, illustrations, or drawings of the front view of the analysis subject," the "side silhouette line of naturally-dried, natural, straight hairstyle" based on "photographs,

images, illustrations, or drawings of side view of the analysis subject," and the "back silhouette line of naturally-dried, natural, straight hairstyle" based on the "photographs, images, illustrations, or drawings of back view of the analysis subject." If a person is involved in beauty care, it may be easy for him/her to estimate an approximate position of a silhouette line of a naturally-dried, natural, straight hairstyle even based on photographs of permed hair. The Description in the Application states that if ear positions, ear side marks, and a vertex, etc. are drawn in addition when estimating each silhouette line, the silhouette line can be estimated more correctly; however, these auxiliary additions are not essential and the silhouette line can be estimated easily if the person is involved in beauty care.

Therefore, "the first step" in the Amended Invention in the Application specified that an analyst estimates a "naturally-dried, natural, straight hairstyle from the front view, side view, and back view" in his/her own mind by actually viewing "photographs, images, illustrations, or drawings of front view, side view, and back view of the analysis subject" with his/her own eyes and "the first step" is an estimation based on the recognition through human vision and the results thereof and is a mental activity of a human being. Therefore, it does not use the laws of nature.

B. The second step

According to [0018], [0040], [0041], [0044], [0047], [0049], [0057], [0078], and [0105] in the Description in the Application, in the second step, an analyst divides the entire head area of the analysis subject into sections by the simplicity or complicatedness, etc. of the hairstyle of the analysis subject based on the estimated naturally-dried, natural, straight hairstyle of the analysis subject and selects the head area subject to an analysis of the haircut technique. Therefore, the second step is a mental activity of an analyst, a human being, and does not use the laws of nature.

C. The third step

If "back side section and back center section below the ear top" are selected in the second step, the analysis item that fits these sections is "A. Analysis of outline shape and expression" ([0023]). According to the statements on the analysis for the analysis item of these sections ([0041], [0042], Figure 4), in the third step, an analyst classifies the naturally-dried, natural, straight hairstyle that was estimated in the first step for the section selected in the second step into types based on the analysis item that fits the selected section. It is a mental activity of an analyst, a human being, and does not use the laws of nature.

D. The fourth step

The fourth step is to derive information on haircut technique from the analysis

results obtained in the third step. According to the statements on the fourth step concerning the analysis results of the "back side section and back center section below the ear top" mentioned in C. above ([0024], [0043]), in the fourth step, the haircut technique is adapted to the combination of types classified in the third step and thereby the haircut technique used for the section selected in the second step can be derived. Consequently, the fourth step is the mental activity of an analyst, a human being, wherein the analyst estimates the adopted haircut technique based on the type classified in the third step, and does not use the laws of nature.

(2) Summary of patentability of the Amended Invention in the Application

As mentioned above, all steps from the first step through the fourth step are the mental activities of a human being and the "analysis method of haircut techniques" in the Amended Invention in the Application that consists of the first step through the fourth step is a mental activity of a human being and does not use the laws of nature.

Consequently, the Amended Invention in the Application does not fall under an "invention" as defined in Article 2 of the Patent Act and does not fall under "an invention with industrial applicability" as set forth in the main sentence of Article 29, paragraph (1) of the same Act, and therefore it cannot be patented.

4. Grounds for rescission

Patentability of the Amended Invention in the Application

(omitted)

No. 4 Judgment of this court

1. There are statements in the Description in the Application (Exhibit Ko 1) as shown in the Attachment and, according to the statements, the following matters are disclosed concerning the Amended Invention in the Application.

(1) The "Invention" is related to a method to analyze a haircut technique that is used in the hairstyle of the analysis subject ([0001]).

In beauty salons, a customer sometimes brings a photograph and says, "Please arrange my hair to look like this hairstyle," or the like. Inexperienced beauticians often do not know the right haircut technique for the hairstyle that the customer desires. More than 200 million hairstyles can be created by dividing hairstyles into bangs, top section, and other sections and by determining the haircut technique to be used for each section. Therefore, it is not easy for inexperienced beauticians and students to create hairstyles as shown in photographs. Since there was no systematic learning method or analysis method based on hairstyle design logic, it took time to train beauticians. Furthermore,

no attempts had been made to estimate and analyze a naturally-dried, natural, straight hairstyle based on photographs. Experienced beauticians only derive haircut techniques based on their experience of various hairstyles that they have learned. Therefore, it was not easy for inexperienced beauticians to derive haircut techniques based on photographs ([0003], [0004], [0006], and [0007]).

(2) The "Invention" aims to analyze front view photographs, side view photographs, and back view photographs of the hairstyle of the analysis subject and to provide an analysis method of haircut techniques that is used for the analysis subject. The Invention solved the problem mentioned in (1) above by making it an analysis method of haircut techniques that is used for the section selected in the second step of the following four steps: the first step of estimating a naturally-dried, natural, straight hairstyle from the front view, side view, and back view based on photographs, images, illustrations, or drawings of the analysis subject; the second step of selecting a section subject to the analysis from multiple sections; the third step of conducting analysis for the section selected above based on the naturally-dried, natural, straight hairstyle estimated above, with regard to at least one of the following analysis items that fits the selected section: "A. Analysis of outline shape and expression," "B. Analysis of cut line," "C. Analysis of the position to add volume and the volume line," "D. Analysis of silhouette shape and expression," "E. Analysis of the position and presence of a part," "F. Analysis of section width or shape," and/or "G. Analysis of how face line and sections are connected or how sections are connected with each other," and obtaining analysis results, and the fourth step of deriving information related to the aforementioned haircut technique from the aforementioned analysis results ([0009] and [0010]).

(3) An analysis of the haircut technique that is used based on photographs, illustrations, or drawings of the analysis subject can be conducted thanks to the "Invention." The aforementioned analysis method of the haircut technique is systematized and therefore enables even students and inexperienced beauticians to easily analyze haircut techniques ([0011]).

2. Meaning of the "invention" as set forth in Article 2, paragraph (1) of the Patent Act

The patent system grants an exclusive right, or patent right, to a person who discloses a new technology, or invention, for a specific period under specified conditions in compensation for the disclosure, while on the other hand, the system grants the opportunity to use the disclosed invention to a third party. The Patent Act aims to encourage inventions through promoting the protection and utilization of inventions, and thereby contribute to the development of industry (Article 1 of the Patent Act). In addition, the "invention" that is subject to a patent means "a highly-

advanced creation of technical ideas utilizing the laws of nature" (Article 2, paragraph (1) of the same Act) and is achieved through the following steps: establishment of specific technical problems; adopting a technical means for solving the problems; and confirming the effects of achieving the expected purpose by the relevant technical means.

Then, whether the invention, for which the patent stated in the claim is sought, can be found to fall under an "invention" as specified in Article 2, paragraph (1) of the same Act should be determined by considering whether the invention as a whole falls under a "creation of technical ideas utilizing the laws of nature" in light of the technical problems that are the premises of the invention, the structure of technical means for solving the problems, and the technical meaning of the effects, etc. derived from the structure.

As mentioned above, since the "invention" is "a creation of technical ideas utilizing the laws of nature," a simple mental activity of a human being, decision-making, abstract ideas, and human-made regulations cannot be called the laws of nature and nor do they use the laws of nature, and therefore they cannot be immediately considered to be creations that "use the laws of nature."

Consequently, even if any technical means are presented in the invention stated in the claim for which a patent is sought, in cases where the technical means are considered to be exclusively used for a mental activity of a human being, decision-making, abstract ideas, or human-made regulations upon solving the problems and it is impossible to say that "the laws of nature are used," as a result of consideration of the technical means as a whole in light of the technical meaning, it cannot be said that the invention falls under the "invention" as set forth in Article 2, paragraph (1) of the Patent Act.

The following matters are determined based on the above assumption.

3. "Patentability" of the Amended Invention in the Application

(1) "Analyst" in the analysis method of the haircut technique in the Amended Invention in the Application

As mentioned in No. 2, 2. above, the Amended Invention in the Application is an invention of an analysis method of the haircut technique that is used for the section selected in the second step of the following four steps: "the first step of estimating a naturally-dried, natural, straight hairstyle from the front view, side view, and back view based on photographs, images, illustrations, or drawings of the analysis subject," "the second step of selecting a section subject to the analysis from multiple sections," "the third step of conducting analysis for the section selected in the second step based on the naturally-dried, natural, straight hairstyle that was estimated in the first step, with

regard to at least one of the following analysis items that fits the selected section: 'A. Analysis of outline shape and expression,' 'B. Analysis of cut line,' 'C. Analysis of the position to add volume and the volume line,' 'D. Analysis of silhouette shape and expression,' 'E. Analysis of the position and presence of a part,' 'F. Analysis of section width or shape,' and/or 'G. Analysis of how face line and sections are connected or how sections are connected with each other,' and obtaining analysis results," and "the fourth step of deriving information related to the aforementioned haircut technique from the aforementioned analysis results."

As mentioned above, the Amended Invention in the Application is a method to analyze the haircut technique that is used for a specific section by following the first step through the fourth step in sequence. The actor of the analysis is not specified in the particular matters of the invention of the Amended Invention in the Application, and therefore it does not eliminate a human being from conducting the analysis. For reference, Embodiment Example 1 in the Description in the Application ([0026] through [0120]) states that "An analyst estimates a naturally-dried, natural, straight hairstyle and starts analysis. If a person is involved in beauty care, it may be easy for him/her to estimate an approximate position of a silhouette line of a naturally-dried, natural, straight hairstyle even based on photographs of permed hair. The following analysis of the embodiment example is conducted by using the naturally-dried, natural, straight hairstyle that is estimated by an analyst if not otherwise specified." ([0026]) and it can be said that it is assumed that a human being conducts such analysis.

(2) "The first step"

A. As mentioned above, in the first step, the particular matters of the invention are "estimating a naturally-dried, natural, straight hairstyle from the front view, side view, and back view based on photographs, images, illustrations, or drawings of the analysis subject." As mentioned in (1) above, it is not eliminated that a human being carries out the first step and it does not specify that an analyst "estimates" a "naturally-dried, natural, straight hairstyle from the front view, side view, and back view based on photographs, images, illustrations, or drawings" of the analysis subject by using a specific technical means.

Next, looking at the statement in the Description in the Application, based on the statement concerning the first step that "Before starting analysis for which the subjects are the outline, front silhouette, back silhouette, and inside silhouette (hereinafter referred to as "Analysis"), preliminary analysis is conducted for front photographs, side photographs, and back photographs of the analysis subject. In cases of photographs of permed hair, an analyst does not analyze the photographed hairstyle itself, but estimates

a hairstyle from which the perm was removed and that became naturally-dried, natural, and straight, and then starts analysis." ([0026]), the first step falls under the preliminary analysis before starting the Analysis. It is disclosed to estimate a "silhouette line" of a naturally-dried, natural hairstyle by drawing the ear positions, ear side marks, and vertex, etc. on the photographs and by referring to these positions in [0027], [0028], [0035], and [0036]. There is also a statement that "If a person is involved in beauty care, it may be easy for him/her to estimate an approximate position of a silhouette line of a naturally-dried, natural, straight hairstyle even based on photographs of permed hair." ([0026]). Based on these statements, since these auxiliary means are not essential and the Amended Invention in the Application does not specify the means of estimation, it can be said that an analyst estimates a naturally-dried hairstyle by looking at photographs, etc. of the analysis subject based on the analyst's knowledge and experience related to hair.

Then, the particular matters of the invention of the Amended Invention in the Application include that an analyst, a human being, estimates a naturally-dried hairstyle in the mind of the analyst by looking at photographs of the front view, side view, and back view of the analysis subject based on the analyst's knowledge and experience related to hair. Even if the laws of nature are included in the knowledge and experience related to hair that are used in the process of analysis conducted in the mind of the analyst, since the first step including the aforementioned estimation is a step to be completed in the mind of the analyst, it is a mental activity of the analyst and it cannot be said that it uses the laws of nature.

B. (A) On the other hand, the Plaintiff alleged that, as stated in No. 3, 1. (1) A. (A) above, the first step in the Amended Invention in the Application aims to eliminate unnecessary information (curls, waves, etc.) that hinders analysis in the second step and subsequent steps; it is purely a natural scientific purpose; the estimation of a naturally-dried hairstyle that is made for that purpose is a physical process to restore physical waves and curls in the hair by using a vertex and other biological characteristics; and it uses the laws of nature even if the process is carried out by a human being.

However, as mentioned in A. above, the Amended Invention in the Application does not specify to estimate a naturally-dried hairstyle based on photographs, etc. of the analysis subject by using a specific technical means. Even if it uses a vertex, etc. and other biological characteristics, it only uses "knowledge" related to the laws of nature in the mind of the analyst and it is completed as a mental activity of an analyst, a human being. In addition, the estimation does not exert any physical action on the external environment of the analyst but is directed only towards a mental activity of a human

being. Therefore, since it cannot be said that the first step "uses the laws of nature," such as the laws of physics, etc., the aforementioned allegation of the Plaintiff is groundless.

The Plaintiff alleged, as mentioned in No. 3, 1. (1) A. (A) above, that the naturally-dried hairstyle that corresponds to the hairstyle of the analysis subject is defined to be one and it is physically verifiable whether it becomes the hairstyle of the analysis subject by cutting the hair of a manikin head into the estimated naturally-dried hairstyle and by providing curls and waves. However, even if it is the case, as mentioned in A. above, since the Amended Invention in the Application includes an estimation of a naturally-dried hairstyle in the mind of the analyst and the estimation is a mental activity of a human being, and does not use the laws of nature, the fact that the results obtained from the mental activity of a human being are verifiable does not have an impact on the aforementioned determination.

(B) The Plaintiff also alleged that, as mentioned in No. 3, 1. (1) B. above, since it is stated in the Description in the Application that the first step can be automated almost completely by automatically extracting data similar to the hairstyle of the analysis subject from the database and can be computerized completely, in light of the technical level at the time, the JPO Decision which determined that the first step is a mental activity of a human being itself is incorrect. However, as mentioned in A. above, since the particular matters of the invention of the Amended Invention in the Application include that an analyst estimates a naturally-dried hairstyle in the mind of the analyst by looking at photographs of front view, side view, and back view of the analysis subject based on the analyst's knowledge and experience related to hair, even if it is disclosed in the Description in the Application that the first step can be automated or computerized, it does not have any impact on the aforementioned determination.

(3) The second step through the fourth step

A. (A) The second step is the particular matters of the invention of "selecting a section subject to the analysis from multiple sections." The Description in the Application has statements concerning the second step that "the degree of dividing the section can be appropriately determined based on the estimated naturally-dried, natural, straight hairstyle and the following sectioning in the embodiment example only demonstrates one example." ([0018]) and that "the section may be divided into smaller sections depending on the complexity of the hairstyle of the analysis subject and sections may be divided more roughly if the hairstyle is simple." ([0040]). These statements mean that an analyst appropriately divides sections depending on the "naturally-dried, natural, straight hairstyle" of the analysis subject that was estimated in the first step and selects

the area on the head for which the haircut technique is analyzed in the second step.

Then, it is not eliminated that an analyst, a human being, performs each step of the Amended Invention in the Application and, as mentioned above, in the second step, analysis is conducted based on the naturally-dried hairstyle that is estimated in the first step. As mentioned above, the particular matters of the invention include the first step wherein an analyst, a human being, estimates a naturally-dried hairstyle in his/her mind by looking at photographs of the front view, side view, and back view of the analysis subject based on his/her knowledge and experience related to hair. Therefore, it means that the second step also includes selecting an area on the head to be analyzed in the mind of the analyst, a human being, and it can be said that the selection is a mental activity of a human being itself and does not use the laws of nature.

(B) The third step is the particular matters of the invention of "conducting analysis for the section selected in the second step based on the naturally-dried, natural, straight hairstyle that was estimated in the first step," "with regard to at least one analysis item that fits the selected section" from analysis items "and obtaining analysis results." In other words, the third step is a step of conducting analysis for the section selected in the second step based on the naturally-dried, natural, straight hairstyle that was estimated in the first step, with regard to an analysis item that fits the section. In the Description in the Application, there is a statement on the example of an "outline analysis for the back side section and back center section below the ear top" ([0041]) in the analysis of the haircut technique where the subject for the analysis is an outline ([0040]). In this example, it is disclosed that the third step is a step of classifying the form and expression of the lower outline of the naturally-dried hairstyle that was estimated based on the back view photograph of the analysis subject with regard to the analysis item of "A. Analysis of outline shape and expression" ([0041] and [0042]).

However, as mentioned above, the first step and the second step include estimating a naturally-dried hairstyle in the mind of an analyst, a human being, and selecting the area on the head subject to the analysis and the third step includes, on the assumption of these steps, that an analyst, a human being, classifies the naturally-dried hairstyle of the analysis subject that was estimated by the analyst, among the analysis items that fit the section selected in the second step, based on the knowledge and experience related to hair, in the mind of the analyst, a human being. Therefore, the third step is also a mental activity of a human being itself and it cannot be said that the step uses the laws of nature.

(C) Next, the fourth step is the particular matters of the invention of "deriving information related to the aforementioned haircut technique" based on the analysis

results in the third step. In the Descriptions in the Application, there is a statement related to the example of an "outline analysis for the back side section and back center section below the ear top" ([0041]) in the analysis of haircut technique where the subject for the analysis is an outline ([0040]). In this example, it is disclosed that information on hair-cut technique corresponding to each type is derived based on the expression and shape of the lower outline that is classified respectively in the third step ([0043]).

However, as mentioned above, the first step through the third step include estimating a naturally-dried hairstyle in the mind of an analyst, a human being, selecting the area on the head that is subject to the analysis and classifying the naturally-dried hairstyle of the analysis subject that was estimated by the analyst, among the analysis items that fit the section in the mind of a human being. Therefore, the analysis of haircut technique by an analyst, a human being, by using knowledge related to haircut techniques corresponding to the type of the estimated naturally-dried hairstyle based on the analysis items is a mental activity of an analyst, a human being, itself and it cannot be said that the step uses the laws of nature.

B. On the contrary, the Plaintiff alleged that, as mentioned in No. 3, 1. (2) A. above, analysis in the second step through the fourth step uses the fact that the characteristics of a naturally-dried hairstyle correspond to haircut technique one-to-one and derives the haircut technique that led the results of naturally-dried hairstyle based on the physical characteristics of the analysis items of the Amended Invention in the Application; and analysis results obtained from the second step through the fourth step are verifiable by using a manikin head for haircut training, and therefore the analysis uses the laws of nature.

However, as long as the Amended Invention in the Application includes the estimation of a naturally-dried hairstyle of the analysis subject (the first step), the estimation of the section subject to the analysis (the second step), the classification of the estimated naturally-dried hairstyle for the selected section based on the analysis items (the third step), and analysis of haircut technique corresponding to the haircut technique for the classification (the fourth step) that are all conducted by an analyst, a human being, in his/her mind by using the knowledge, experience, etc. related to hair, these processes constitute a mental activity of a human being, and the fact that the analysis results are verifiable by using a manikin head for haircut training does not have an impact on the aforementioned determination, in the same manner as in the case of (2) B. (A) above.

The Plaintiff alleges, as mentioned in No. 3, 1. (2) B. above, that it is disclosed in the Description in the Application that the characteristics to be analyzed, including

preliminary analysis, can be databased and computerized completely, and therefore the JPO Decision is incorrect in that it ruled that the Amended Invention in the Application as a whole is not an invention that uses the laws of nature on the assumption that the second step through the fourth step are performed by a human being. However, as mentioned in (1) above, it is repeatedly explained that, in the Amended Invention in the Application, it is not eliminated that a human being conducts the analysis and the implementation of analysis by a human being in accordance with these steps is a mental activity of a human being itself. Therefore, the aforementioned allegation is groundless.

(4) Summary

Based on the above, and considering all steps together, the first step through the fourth step of the Amended Invention in the Application include the estimation of a naturally-dried hairstyle by the use of the knowledge, etc. of hair (the first step), selection of the area on the head subject to the analysis (the second step), classification of the hairstyle of the analysis subject that was estimated by the analyst from the analysis items that fit the section (the third step), and derivation of an analysis of the haircut technique corresponding to the classification that are all conducted by the analyst in his/her mind. Even if the laws of nature are included in knowledge and experience related to hair that are used in the analysis process conducted in the mind of the analyst, solving the problem found in 1. (1) above only through a mental activity of a human being is included in the particular matters of the invention, and it cannot be said to be "a creation of technical ideas utilizing the laws of nature." Therefore, the first step through the fourth step of the Amended Invention in the Application do not fall under the "invention" as set forth in Article 2, paragraph (1) of the Patent Act.

4. Conclusion

Consequently, without the need to make determinations on other points, it cannot be said that the Amended Invention in the Application falls under the "invention" as set forth in Article 2, paragraph (1) of the Patent Act; there is no error in the JPO Decision that made the same decision as above; therefore, the claim of the Plaintiff should be dismissed.

Consequently, the judgment is rendered as indicated in the main text.

Intellectual Property High Court, Fourth Division

Presiding judge: KANNO Masayuki

Judge: NAKAMURA Kyo

Judge: OKAYAMA Tadahiro

(Attachment)

[Detailed explanation of the invention]

[Technical field]

[0001]

The Invention is related to the method to analyze a haircut technique that is used in the hair style of the analysis subject.

[Background art]

[0002]

Beautician schools teach students haircut techniques to be used for creating multiple representative hairstyles. However, they teach only parts of countless hairstyles. After graduation, beauticians learn haircut techniques to create various hairstyles from their senior colleagues while working at beauty salons and improving their skills so that they can apply their obtained technique.

[0003]

In beauty salons, a customer sometimes brings a photograph and says, "Please arrange my hair to look like this hairstyle," or the like. Inexperienced beauticians often do not know the right haircut technique for the hairstyle that the customer desires.

[0004]

More than 200 million hairstyles can be created by dividing hairstyles into bangs, top section, and other sections and by determining the haircut technique to be used for each section. Therefore, it is not easy for inexperienced beauticians and students to create hairstyles as shown in photographs.

Since there was no systematic learning method or analysis method based on hairstyle design logic, it took time to train beauticians.

[0005]

As stated in Patent Document 1, a method to design hairstyles using figures and codes on a development diagram has been proposed; however, it does not disclose any method for creating the development diagram based on photographs brought in by customers. In addition, Patent Document 1 has a statement about haircut techniques, but there are no statements on which haircut technique is actually used for each hairstyle, and indicated haircut techniques can only create hairstyles as shown in already created development diagrams.

[0006]

In addition, analysis by estimating a naturally-dried, natural, straight hairstyle based on a photograph had not been tried.

[0007]

Experienced beauticians derive haircut techniques based on their past experience through which they have learned various hairstyles, and therefore it was not easy for inexperienced beauticians to derive a haircut technique based on a photograph.

[Prior art document]

[Patent Document]

[0008]

[Patent Document 1] Unexamined Patent Application Publication No. 2004-209284

[Outline of the Invention]

[Problem to be Solved by the Invention]

[0009]

The Invention aims to analyze photographs of the front view, side view, and back view of the hairstyle of the analysis subject and to provide an analysis method of the haircut technique used for the analysis subject.

[Means for Solving the Problem]

[0010]

An analysis by estimating naturally-dried, natural, straight hairstyle from the front view, side view, and back view of the analysis subject based on photographs, images, illustrations, or drawings has not been conducted so far.

Therefore, the problem is solved by using an analysis method of haircut techniques that is used for the section selected in the second step of the following four steps: the first step of estimating a naturally-dried, natural, straight hairstyle from the front view, side view, and back view based on photographs, images, illustrations, or drawings of the analysis subject; the second step of selecting a section subject to the analysis from multiple sections; the third step of conducting analysis for the section selected above based on the naturally-dried, natural, straight hairstyle estimated above, with regard to at least one of the following analysis items that fits the selected section:

A. Analysis of outline shape and expression;

B. Analysis of cut line;

C. Analysis of the position to add volume and the volume line;

D. Analysis of silhouette shape and expression;

E. Analysis of the position and presence of a part;

F. Analysis of section width or shape; and/or

G. Analysis of how face line and sections are connected or how sections are connected with each other; and obtaining analysis results;

and the fourth step of deriving information related to the haircut technique from the aforementioned analysis results.

[Effects of the Invention]

[0011]

An analysis of the haircut technique that is used based on photographs, illustrations, or drawings of the analysis subject can be conducted thanks to the Invention.

The aforementioned analysis method of the haircut technique is systematized, and therefore enables even students and inexperienced beauticians to easily analyze haircut techniques.

[Embodiment of the Invention]

[0013]

<Definitions>

The following definitions are stated to improve understanding of the description, but do not deviate from general definitions of beauty terms.

(Silhouette line) Both silhouette line and outline mean a hairstyle shape and they are synonymous. In the Invention, a silhouette line is drawn on a photograph during preliminary analysis. In order to highlight a shape line that is a border between an external area or face and hairstyle shape, it is called a silhouette line.

In beauty terms, they are simply called a silhouette or a silhouette line.

[0014]

(Outline) There is a line like a silhouette line which has a clear border between hairstyle shape and external area; however, the hairstyle shape is three-dimensional and there are shape lines that comprise the hairstyle shape, such as the ear-to line and volume line in Figure 2, etc., but may not be on the two-dimensional photograph as a border with the external area. In addition, there is a shape line for which a clear line cannot be determined due to loose hair tips, such as hem of naturally-dried, natural, straight hairstyle. When highlighting that it is a shape line of the hair style under such conditions, it is called an outline. For example, they are used as follows: the lower line of the hairstyle (shape line), the outline of the hem of the hairstyle.

In any case, in beauty terms, an outline and a silhouette line are synonymous and if outline and silhouette line replace one another in the Description, the details of the statements do not change. In the Description, when highlighting the border between the hairstyle shape and external area in order to make the explanation easier to understand, the term, a silhouette line, is used.

[0015]

(Panel) A panel means a hair bundle for a haircut, and it is called a panel because it is divided into the form of a panel.

[0016]

(Slice) This refers to dividing hair into a panel for a haircut. A vertical slice is where hair is divided into panels vertical to the floor, a horizontal slice where hair is divided into panels horizontal to the floor, a diagonal slice where hair is divided into panels diagonally, etc.

[0017]

(Cut line) The cut edge of a panel that is created by a haircut is called a cut line. It includes layered, gradation, one-length, same-length, etc. There are various kinds of hairstyles by the angle of the cut line.

[0018]

(Section) This refers to an area on the head with hair that is divided into specific ranges in order to provide a haircut. When providing a haircut by dividing the head into two sections, it is called a two-section haircut; into three or more sections, it is called a three-section haircut; and into smaller sections, it is called a multi-section haircut. In beauty terms, each section is named side section, top section, over-section, middle section, under section, and others. Each section is a unit area for providing a specified haircut technique.

In the Description, there are examples where analysis is conducted by dividing a case into when dividing the head into two sections and when dividing the head into three sections as indicated below "(Analysis)," "2. Analysis of haircut techniques for which the subject for the analysis is a front silhouette." As mentioned above, the degree of dividing the section can be appropriately determined based on the estimated naturally-dried, natural, straight hairstyle and the following sectioning in the embodiment example only demonstrates one example.

[0019]

(Ear-to line) This is also called an ear-to-ear line. In the Invention, it means a line that passes through the ends of the right and left Ear-5 and Vertex-a.

[0020]

(Stem) Stem refers to an angle for dividing hair into panels.

Dividing hair into a panel vertically against the scalp is called on-base. This is a basic way of dividing hair into panels.

Up-and down-stems refer to dividing hair into panels by holding the panel upward or downward. Up-step refers to dividing hair into panels upwards (towards the ceiling) rather than in a vertical condition against the scalp. Down-step refers to dividing hair into panels downwards (towards the floor) rather than in a vertical condition against the scalp.

Concerning front- and back-stems, the term "pulling the stem front" refers to

dividing hair into panels more on the front side (face side) rather than in a vertical condition against the scalp and the term "pulling the stem back" refers to dividing hair into panels more on the back side (occipital area side) rather than in a vertical condition against the scalp.

When dividing hair into panels from the specific area, the side middle section for example, multiple panels (multiple panel-like hair bundles) of the specific thickness are divided for the haircut. When dividing hair into multiple panels on-base, the direction of panels will change gradually in accordance with the round-shape of the scalp. For example, when dividing hair into panels in a vertical slice (vertical to the floor) along the outer periphery of the head, multiple panels will be divided radially centering around the head. The term "dividing hair into panels by one surface" refers to determining the panel surface angle and dividing hair into panels based on the angle regardless of the round shape of the scalp. Multiple panels that are divided along the scalp are in the same direction, in other words, in parallel.

[0021]

(Divided surface) This refers to each of the individual section surfaces, with each section made flat. For example, a bang section curves along with the scalp above the forehead. A divided surface of a bang section refers to a flat surface with the borders of the bang section on each side.

If hair in the bang section is divided into panels on-base horizontally, hair is divided into panels vertically against the scalp in the bang section, and therefore the panels become slightly fan-like in form. However, if hair is divided into panels vertically against the divided surface in the bang section horizontally, hair in the flat bang section (divided surface) is divided into panels vertically. Hair is divided into panels in the same direction on both ends and the center part of the bang section, and therefore the panels are in a panel-form in the horizontal direction.

To make it clear, when hair is divided into panels in the vertical direction and vertically against the divided surface of the bang section, the panels are square (both ends of the divided surface, or both ends of the panel are right angles) panel form.

[0022]

(Vertex) This refers to the highest point of the skull bone, in other words the highest point on a medial line when viewing the analysis subject from the front. If the photograph of the front view is taken when the analysis subject tilts his/her head, the highest point of the skull bone and the highest point of the head of the analysis subject in the photograph may be misaligned. In such photograph of the front view, the highest point of the skull bone will be estimated based on the photograph.

[0023]

(Analysis item) "Analysis item" as used in the Description refers to the subject to be analyzed. For example, if a cut line is obtained as an analysis result based on the shape of the silhouette line, the analysis item is "Analysis of silhouette shape and expression."

Analysis items to be analyzed in the Invention are any of the following seven analysis items:

- A. Analysis of outline shape and expression;
- B. Analysis of cut line;
- C. Analysis of the position to add volume and the volume line;
- D. Analysis of silhouette shape and expression;
- E. Analysis of the position and presence of a part;
- F. Analysis of section width or shape; and/or
- G. Analysis of how face line and sections are connected or how sections are connected with each other.

[0024]

(Haircut technique) A general haircut includes a series of actions of dividing hair into panels in a specific slice from the scalp, pulling them at a specific angle (stem), and cutting hair at a specified cut line (layered, gradation, concave, etc.).

In addition, a part also has a big impact on the hairstyle impression, and therefore a haircut is provided in consideration of the part.

Furthermore, various hairstyles are created by dividing the head into multiple sections (areas, such as top section, back under section, etc.) and using a different haircut technique for panels divided in each section.

The following elements derived as haircut techniques in the Invention are elements that have major impacts on hairstyle shape and expression:

- (A) Slice;
- (B) Stem;
- (C) Gradation, same-length, layered, square, concave, and other cut lines;
- (D) Part; and
- (E) Sectioning and section width.

There are other elements in haircut techniques, such as hair-tip cut techniques (thinning, shaggy, etc.). In addition to the haircut techniques in (A) through (E) above, there is no hindrance linking them with other haircut techniques.

[0026]

<Embodiment Example>

Before starting an analysis for which the subjects are outline, front silhouette, back silhouette, and inside silhouette (hereinafter referred to as the "Main Analysis"), preliminary analysis is conducted for the front view photographs, side view photographs, and back view photographs of the analysis subject.

In cases of photographs of permed hair, an analyst does not analyze the photographed hairstyle itself, but estimates a hairstyle from which the perm was removed and that became naturally-dried, natural, and straight, and then starts analysis.

If a person is involved in beauty care, it may be easy for him/her to estimate an approximate position of a silhouette line of a naturally-dried, natural, straight hairstyle even based on photographs of permed hair.

The following analysis of the embodiment example is conducted by using a naturally-dried, natural, straight hairstyle estimated by an analyst, if not otherwise specified.

[0027]

(Preliminary analysis)

1. Preliminary analysis method using a front view photograph

Please see Figure 1.

Prepare a front view photograph of the analysis subject. If Ear-5 cannot be identified due to hair, draw Ear-5. It is not necessarily required to draw Ear-5, but it is preferable to draw Ear-5 since the position of Ear-5 serves as an index when drawing Front silhouette line-3, etc.

Estimate a naturally-dried, natural, straight hairstyle based on the front view photograph of the analysis subject and draw the following lines and marks on the front view photograph.

[0028]

A. Draw Front silhouette line-3. When drawing Front silhouette line-3, if Ear side mark-b is entered in the position beside Ear-5 where Front silhouette line-3 is estimated to pass, Front silhouette line-3 can be drawn correctly. Front silhouette line-3 always passes the side of the ears. A customer may bring a front view photograph of a model, etc. for reference in which the model tilts his/her face slightly. In this case, if Ear side mark-b is drawn additionally, Front silhouette line-3 can be drawn more correctly.

Of course, when estimating Front silhouette line-3 for a naturally-dried, natural, straight hairstyle, Front silhouette line-3 does not come inside the skull bone. The position where hair thickness is added for the naturally-dried, natural, straight hairstyle based on the skull bone is the position of Front silhouette line-3.

[0029]

B. Draw Medial line-1.

Medial line-1 is the centerline that reaches the occipital area by passing the top of the chin, top of the nose, and Vertex-a and that divides the head in half. Vertex-a is on Medial line-1, and therefore it is not necessary to mark it; however, as mentioned above, in some of the front view photographs that customers bring in for reference for a haircut, the subjects slightly tilt their faces. If a mark is entered on Vertex-a, Medial line-1 can be drawn more accurately and this facilitates analysis.

[0030]

C. Draw Length auxiliary line-2 by dividing into the case of (A) or case of (B) below depending on the tilt of the side lower outline. If the tilt of the side lower outline is not clearly defined from the front view photograph, the tilt of the side lower outline may be examined by referring to the side view photograph.

[0031]

(A) If the side lower line is straight or rising towards the front side, draw Length auxiliary line-2 in parallel to Medial line-1 from the tail of the eye.

In cases of the analysis subject in Embodiment Example 1 as shown in Figure 2, the side lower outline is rising towards the front side, and therefore Length auxiliary line-2 is drawn from the tail of the eye as shown in Figure 1.

[0032]

(B) If the side lower line is falling towards the front side, draw Length auxiliary line-2 in parallel to Medial line-1 from outside the cheekbone.

[0033]

D. Set a position on Front silhouette line-3 at the widest part between Length auxiliary line-2 and Front Silhouette line3, as the Front volume position-B and enter a mark.

[0034]

E. When the hair line passes over Front volume position-B and starts to enter inside and the hair direction becomes stable, enter Length auxiliary line-2 in a straight line in the same direction until it intersects with Front silhouette line-3, and enter a mark at the intersecting point as Ear-to length point-A.

The aforementioned points and lines are used for the Main Analysis explained later.

[0035]

2. Preliminary analysis method using a side view photograph

Estimate a naturally-dried, natural, straight hairstyle based on the side view photograph of the analysis subject and draw the following lines and marks on the side view photograph.

A. Draw Side silhouette line-4.

If the face in the side view photograph is tilted and it is not a correct side view photograph, a mark may be entered on Vertex-a additionally for assistance in drawing Side silhouette line-4.

B. Draw Ear-to line-7.

Ear-to line-7 refers to a line that passes the ends of the right and left Ear-5 and Vertex-a as mentioned in the Definitions above. If Ear-5 cannot be identified due to hair, draw Ear-5. If Vertex-a is drawn additionally, it may help in drawing Ear-to line-7.

C. Draw Back volume position-C.

D. Draw Volume line-9.

Of course, Volume line-9 always passes Front volume position-B and Back volume position-C. If the position of Volume line-9 is difficult to identify, refer to Front volume position-B obtained through the preliminary analysis method for the front silhouette and enter Front volume position-B at the corresponding position on the side view photograph so that Volume line-9 can be drawn easily.

Volume positions (B and C) and Volume line-9 of the estimated naturally-dried, natural, straight hairstyle may change a lot depending on the hairstyle of the analysis subject.

[0036]

3. Preliminary analysis of back silhouette using a back view photograph

Estimate a naturally-dried, natural, straight hairstyle based on the back view photograph of the analysis subject and draw the following lines and marks on the back view photograph.

A. Draw Back silhouette line-8.

If the analysis subject in the back view photograph is tilted, Vertex-a may be drawn to help drawing Back silhouette line-8 in the same manner as in the preliminary analysis method using a front view photograph and side view photograph.

B. Draw Back volume position-C.

If Back volume position-C is difficult to identify, it may be entered in reference to Back volume position-C obtained through the preliminary analysis method using the side view photograph.

C. Draw Volume line-9.

If the position of Volume line-9 is hard to identify, it may be drawn in reference to Front volume position-B obtained through the preliminary analysis method using the front view photograph or Back volume position-C obtained through the preliminary analysis method using the side view photograph.

[0037]

Concerning photographs to be used for the preliminary analysis method, it is preferable to have all the front view, side view, and back view photographs of the analysis subject; however, if photographs in all directions cannot be prepared, it is possible to conduct analysis using only available photographs. In this case, part of the following analysis items for the Main Analysis will be analyzed.

In addition, for example, if there is only a front view photograph, it is possible to analyze all the following analysis items of the Main Analysis by drawing illustrations as alternatives to side view and back view photographs that are suitable to the hairstyle identified from the front view photograph. This is also included in the Invention.

Furthermore, analyses using only illustrations or drawings without using photographs are also included in the Invention.

Photographs, illustrations, or drawings do not have to be on paper-based media and they may be images shown on a display, such as a tablet terminal.

[0038]

(Main analysis)

[i] Cut line, such as layered, gradation, square, same-length, etc.

[ii] Slice

[iii] Angle of dividing hair into panels (stem)

[iv] Special haircut, such as concave, etc.

[v] Sectioning

and multiple other pieces of information related to haircut techniques are combined to specify a haircut technique and a haircut is provided.

The haircut technique has impact on the shape of a naturally-dried, natural, straight hairstyle, and therefore the haircut technique that is used can be identified by analyzing the natural, straight hairstyle that is estimated from the photograph.

[0039]

After completion of the aforementioned preliminary analysis, start the Main Analysis.

The Main Analysis involves analyzing photographs of the analysis subject roughly for the outline, front silhouette, back silhouette, and inside silhouette as the subject for the analysis.

The Main Analysis is an analysis method for deriving which haircut technique is used based on the photographs of the analysis subject. The hairstyle of the analysis subject can be reproduced by using the derived haircut technique.

In the following, the outline, front silhouette, back silhouette, and inside silhouette that are the subject for the analysis will be explained in sequence.

All of the following analyses are to estimate and analyze the naturally-dried, natural, straight hairstyle based on photographs of the analysis subject.

[0040]

1. Analysis of haircut techniques where an outline is the subject for the analysis

The analysis of the outline is conducted by dividing the hairstyle into the following (1) through (4) sections.

The section may be divided into smaller sections depending on the complexity of the hairstyle of the analysis subject and sections may be divided more roughly if the hairstyle is simple.

[0041]

(1) Outline analysis for the back side section and back center section below the ear top

A. Analysis of back lower outline shape and expression

Figure 4 (A) is an explanatory diagram of the lower outline shape from the back view.

The analysis area is the back side and back center below the ear top as shown in the shaded area. The haircut technique used for the panel divided in this area is analyzed.

The subject for the analysis is the lower outline shape of the naturally-dried, natural, straight hairstyle estimated from the back view photograph. This analysis item corresponds to "A. Analysis of outline shape and expression" in the Invention. The silhouette line in Figure 4 (A) is simplified for the explanation.

As shown in Figure 4 (C), expression of the lower outline is classified into the following three types:

- a) Lower outline shape is clearly defined;
- b) Lower outline shape is not clear and shown roughly; and
- c) Lower outline has weight (in-layered).

[0042]

Next, classify the lower outline shape from the back view into the following four types, as shown in Figure 4 (A), 1) through 4).

- 1) Round
- 2) Rising towards the front side
- 3) Straight
- 4) Falling towards the front side

[0043]

Based on the analysis results, the following information on the haircut technique related to the stem angle can be derived.

The slice for dividing hair into panels is horizontal; and

Analysis result [1]: In the case of a) and 1) Round or 2) Rising towards the front side, it is analyzed that a technique to cut hair at the position where a panel is tilted downward and naturally falls down is used.

Analysis result [2]: In the case of a) and 3) Straight or 4) Falling towards the front side, it is analyzed that a technique to cut hair by one surface by tilting a panel downward is used.

Analysis result [3]: In the case of b) and 3) Straight, it is analyzed that a technique to cut hair by holding a panel upward from the position where the hair naturally falls down is used.

Analysis result [4]: In the case of b) and 1) Round or 2) Rising towards the front side, it is analyzed that a technique to cut hair by pulling a stem front is used.

Analysis result [5]: In the case of b) and 4) Falling towards the front side, it is analyzed that a technique to cut hair by pulling a stem back is used.

Analysis result [6]: In the case of c) and 3) Straight, it is analyzed that a technique to cut hair by pulling a stem in the hairline direction is used.

Analysis result [7]: In the case of c) and 1) Round or 2) Rising towards the front side, it is analyzed that a technique to cut hair in over-direction by pulling a stem behind the back center line (see Figure 4) is used.

Analysis result [8]: In the case of c) and 4) Falling towards the front side, it is analyzed that a technique to cut hair in over-direction by pulling a stem to the front of the back center line (see Figure 4) is used.

[0044]

(2) Analysis of haircut technique for side outline (the ear top, from the sideburn to the temple)

A. Analysis of side lower outline shape and expression

Figure 5 is an explanatory diagram of analysis of the lower outline from the ear top to the sideburn.

The analysis area is the shaded area shown in Figure 5. The haircut technique used for the panel divided in this area is analyzed. The subject for the analysis is the outline shape of the lower end of the hair growing in the aforementioned area for the estimated naturally-dried, natural, straight hairstyle.

In concrete terms, classify the outline shape which is the subject for the analysis as shown in Figure 5 into the following four types 1) through 4) in Figure 5:

- 1) Round
- 2) Rising towards the front side
- 3) Straight

4) Falling towards the front side

[0045]

Next, classify the analysis area shown in the shaded area into the following three types:

- a) Line is clearly defined;
- b) There is a concave with hair growing from Connecting part-10 to the back side; and
- c) Line is not clear and there are steps.

[0046]

Based on the analysis results, the following information on the haircut technique related to the stem can be derived.

Analysis result [1]: In the case of a), it is analyzed that a technique to cut hair at the position where a panel naturally falls down to fit the shape obtained from the analysis result of the lower outline shape in 1) through 4) is used.

Analysis result [2]: In the case of b), it is analyzed that a technique to cut hair by pulling a panel front from the position where the panel naturally falls down to fit the shape obtained from the analysis results of the lower outline shape in 1) through 4) is used.

Analysis result [3]: In the case of c), it is analyzed that a technique to cut hair by holding the front- and back- stem slightly upwards from the position where a panel naturally falls down to fit the shape obtained from the analysis results of the lower outline shape in 1) through 4) is used.

[0047]

(3) Analysis of haircut technique of face line [1] (for front corner, from the sideburn to the temple)

A. Analysis of lower outline shape around the face line

The face line refers to the hairline around the face.

Expression from the side of the lower outline that is created by hair growing from around the face line going downwards is the subject for the analysis and the following haircut technique related to the stem is derived from the analysis results. This analysis item corresponds to "A. Analysis of outline shape and expression" in the Invention. Based on the analysis results, information on the haircut technique related to the stem can be derived.

[0048]

Analysis result [1]: If the lower outline of the hair growing from around the face line toward the front corner from the sideburn to the temple is straight (see Figure 6), it is analyzed that a technique to cut hair at the position where the hair naturally falls down is used.

Analysis result [2]: If the lower outline of the hair growing from around the face line toward the front corner from the sideburn to the temple is round and has minus curve (a curve where the center part rises up) (see the dotted lines in Figure 6), it is analyzed that a technique to cut hair by holding a stem up slightly from the position where hair naturally falls down (see the dash-dot-dash line in Figure 6) is used.

Figure 6 shows that when a stem is held slightly up and hair is cut in a straight cut line as shown in Figure 6 during the haircut and is returned to the position where the hair naturally falls down, it forms a minus curve (a curve where the center part rises up).

[0049]

(4) Analysis of haircut technique of face line [2] (from the Ear-to line to the lowest neckline)

This consists of the following three analyses.

[0050]

A. Analysis of the presence of a concave

The subject for the analysis is whether or not the lower outline below Front volume position-B from the front view has a concave in the area from the Ear-to line to the lowest neckline. The concave is a kind of cut line and this analysis item corresponds to "B. Analysis of cut line." It is not shown in the figure, but based on the analysis results, information on the haircut technique related to the cut line (concave) can be obtained.

[0051]

Analysis result [1]: If there is a concave in the lower outline from the Ear-to line to the lowest neckline, it is analyzed that a technique to cut hair by pulling a stem front to add a concave is used. If there is a concave, when looking from the front, the back hair can be seen more often and the length of the back hair is exaggerated and the lightness of hair tips of the outline and face line is also exaggerated.

Analysis result [2]: If there is no concave, it is analyzed that a technique to cut hair without adding a concave is used.

[0052]

B. Analysis of haircut start position for a concave

The analysis area is the shaded area shown in Figure 7. The subject for the analysis is the lower outline (back outline) from the back view. In addition, whether the width of the natural flow of the back outline is narrow or wide is the subject of the analysis and the haircut starting position for a concave is determined depending on the width. This analysis item corresponds to "A. Analysis of outline shape and expression" in the Invention. Information on a haircut technique related to the position for dividing hair

into panels (slice position) which is related to the start position of the cut line (concave) is obtained based on the analysis results.

If a concave is added to the back outline, the back outline is curved and the natural flow of the back outline is blocked, and therefore the start position of the concave can be identified.

[0053]

Analysis result [1]: If the width of the natural flow of the back outline is narrow, in other words, if the width is as shown as a) in Figure 7, the position for starting to pull a panel is Lowest neckline position-14 and it is analyzed that a technique to cut hair by pulling a stem front is used.

Analysis result [2]: If the width of the natural flow of the back outline is wide, in other words, if the width is as shown as b) in Figure 7, the position for starting to divide hair into panels is at the 2/3 position from below the ear (15) and it is analyzed that a technique to cut hair by pulling a stem front is used.

[0054]

Analysis result [1] and analysis result [2] are not an either-or choice. In addition, depending on the estimated naturally-dried, natural, straight hairstyle of the analysis subject, there is a case where the width is analyzed to be wider than the analysis result width [2]. In this case, the position to start dividing hair into panels may be Ear-to line-7. If the width of the natural flow of the back outline is in the middle of narrow a) and wide b), determine the position to start dividing hair into panels between Lowest neckline position-14 and Ear-to line-7 depending on the width and provide a haircut by pulling a step front.

Please see Figure 8. If the width of the natural flow of the back outline is narrow, divide hair into panels from the temple to the lowest neckline. As the width of the natural flow of the back outline becomes wider, narrow down the panel width gradually from the temple to Ear-to line-7 that passes the Subaural position, Ear 2/3 position, Ear 1/2 position, Ear 2/3 position, and Vertex-a.

Haircut is provided by pulling a stem front regardless of how panels are divided.

[0055]

C. Analysis of concave cut line

The inclination angle of the back outline from the Ear-to line to the lowest neckline is the subject for the analysis.

This analysis item corresponds to "A. Analysis of outline shape and expression" in the Invention.

The case where the inclination angle is small is shown as 1) in Figure 7 in both

cases where the width is narrow a) and wide b). The case where the inclination angle is small is shown as 1). The case where the inclination angle is large is shown as 2).

Based on the analysis results, the following information on the haircut technique related to the cut line can be derived.

Analysis result [3]: If the inclination angle is small as shown as 1) in Figure 7, it is analyzed that a gradation haircut technique is used.

Analysis result [4]: If the inclination angle is large as shown as 2) in Figure 7, it is analyzed that a layered haircut technique is used.

The haircut is changed gradually from gradation to layered based on the angle.
[0056]

As mentioned above, a haircut technique is determined based on the combination of analysis result [1] or analysis result [2] related to the haircut start position and analysis result [3] or analysis result [4] related to the cut line.

...

[0121]

(Embodiment Example 2)

Embodiment Example 2 is an invention related to teaching media that serve as a manual and a teaching system to teach the analysis method of the haircut techniques in Embodiment Example 1.

Hairstyles are rich in diversity, including short hairstyles, such as bobs, etc., and long hairstyles. In addition, when a perm is applied, it is often difficult for beautician school students, etc. to estimate a naturally-dried, natural, straight hairstyle, even though it is easy for a person skilled in the art who is familiar with beauty.

In addition, the analysis method of analysis items is often hard for students, etc. to understand.

Displays and other teaching media that show a method to estimate naturally-dried, natural, straight hairstyles based on the front view, side view, and back view photographs of the analysis subject and the analysis method of haircut techniques that is used for each section subject to the analysis based on the naturally-dried, natural, straight hairstyles obtained from the aforementioned estimation method, are prepared and these methods are taught to students, etc.

[0122]

However, there is a wide range of hairstyles and it is difficult to post photographs of examples of all hairstyles. The more photographs of examples are posted, the larger becomes the volume of information that is included in the teaching media, which may lead to Students' failure to understand the details to be taught. Teaching media thus

inevitably show only photographs of typical examples.

In addition, a customer of a beauty salon sometimes brings a photograph and says, "Please arrange my hair to look like this hairstyle," or the like, and if such hairstyle deviates from typical examples, analysis may be difficult for inexperienced beauticians. [0123]

Therefore, the teaching system shown in Embodiment Example 2 provides memory media where many photographs and videos of actual examples are stored, such as a server, etc.

[0124]

Photographs of actual examples may be photographs and videos of actual examples of naturally-dried, natural, straight hairstyles estimated based on the front view, side view, and back view photographs of the analysis subjects and may be photographs and videos of actual examples that are used when analyzing haircut techniques shown in Embodiment Example 1.

Then, provide hyperlinks and link two-dimensional bar codes to access photographs of actual examples along with each explanation of the analysis as shown in Embodiment Example 2 in teaching media.

For example, if students, etc. read a two-dimensional bar code through a smartphone and access photographs of actual examples stored in a server (memory media), their learning speed increases.

In addition, if the teaching media is a terminal, such as a tablet, etc., by way of providing links for accessing the photographs of actual examples by softkey, etc. close to the explanations on the analyses shown in Embodiment Example 1, students, etc. may access many photographs of actual examples corresponding to the aforementioned explanations stored in memory media, such as a server, etc.

[0125]

In the aforementioned example, memory media is placed on the network. If the memory size is big, photographs of actual examples may be stored on the memory media of a tablet terminal, etc.

[0126]

Beauticians, etc. who come across the teaching media may compile original actual examples by adding photographs of actual examples that they created to the memory media. If an administrator is allowed to select and disclose photographs of actual examples that are added to the server by connecting to the Internet, photographs of actual examples will have a wide variety.

Furthermore, it becomes possible for an administrator to analyze added photographs

of actual examples and develop new analysis items and methods that correspond to new hairstyles that are developed one after another.

[0127]

In addition, it is also possible to build databases with photographs, images, illustrations, or drawings of, at least the front views, side views, or back views of multiple analysis subjects to which silhouette lines are added for the estimated naturally-dried, natural, straight hairstyles.

[0128]

(Embodiment Example 3)

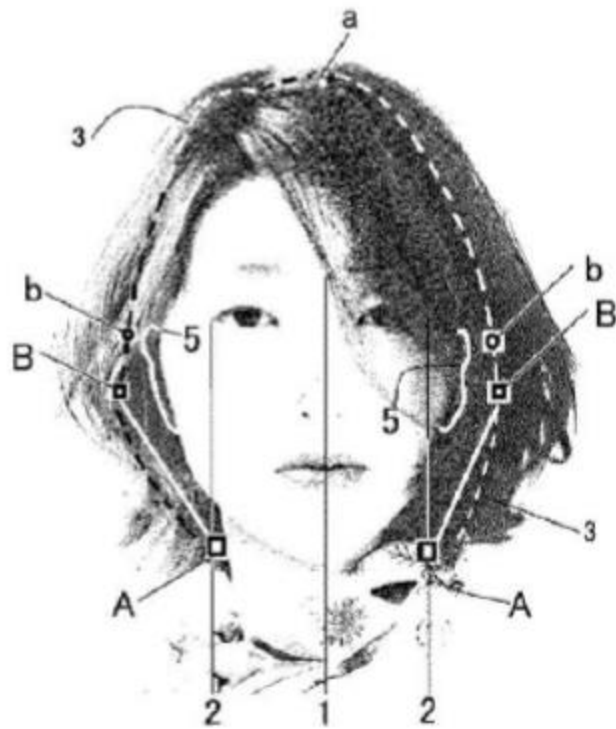
Build a neural-network system that has a means of inputting photograph data of analysis subjects and that automatically implements the analysis method of the haircut technique shown in Embodiment Example 1 based on the aforementioned photograph data. Achieve an automatic analysis device of haircut techniques in the aforementioned neural-network system by implementing supervised learning.

The learning for the automatic analysis device of haircut techniques may be implemented for the preliminary analysis method for photographs to estimate a naturally-dried, natural, straight hairstyle based on photographs of the analysis subject and if photographs of the analysis subject are input, it automatically estimates a naturally-dried, natural, straight hairstyle.

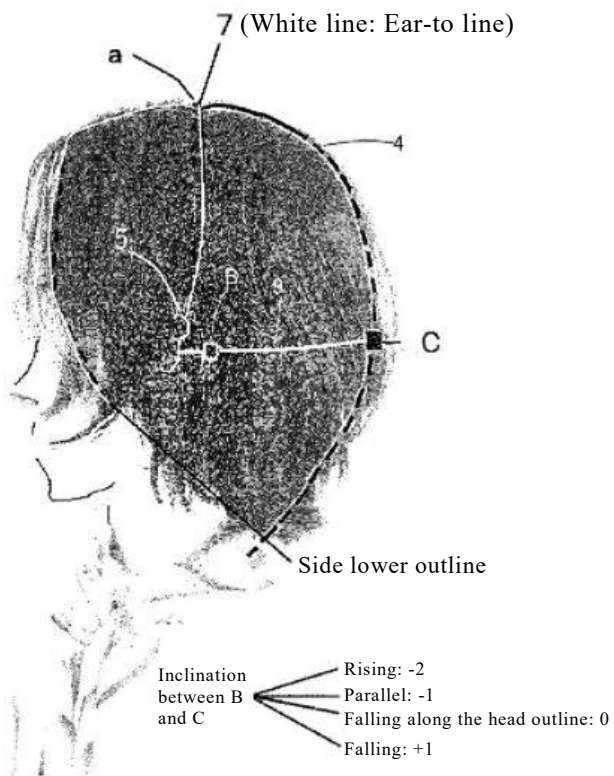
Then, it derives a haircut technique that is used for each section and shows it on the display.

The automatic analysis device may be connected to a network and it can build a system wherein if photographs of an analysis subject are sent by a smartphone to the automatic analysis device of haircut techniques that uses a cloud computing system, it automatically implements an analysis method of haircut techniques that is shown in Embodiment Example 1 and sends the analysis results to the smartphone.

[Figure 1]



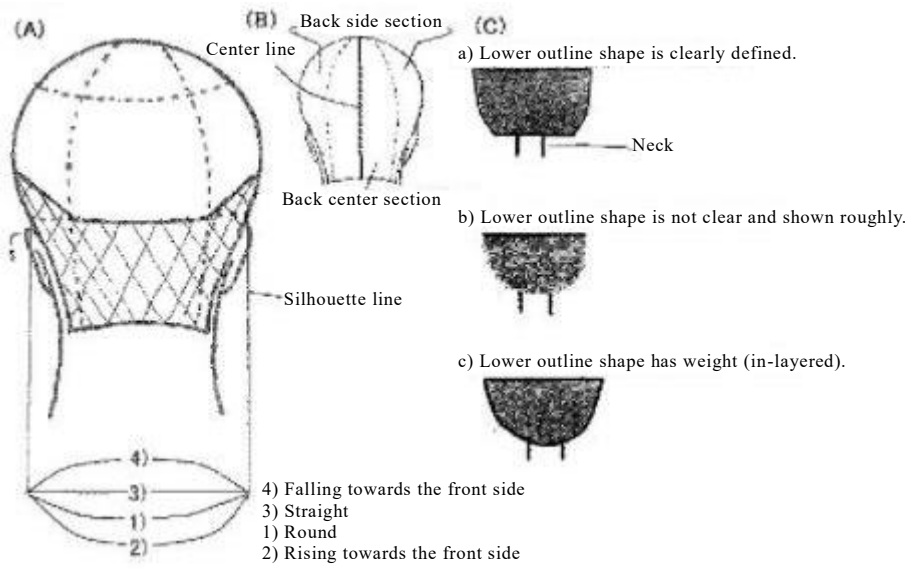
[Figure 2]



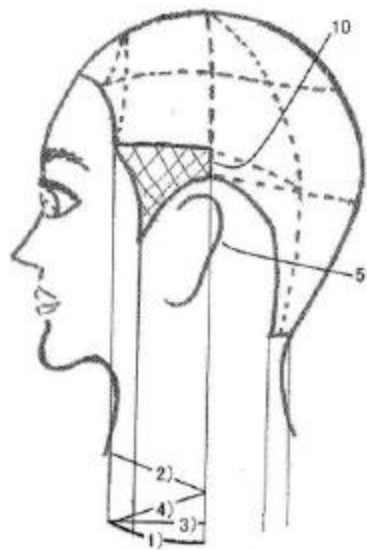
[Figure 3]



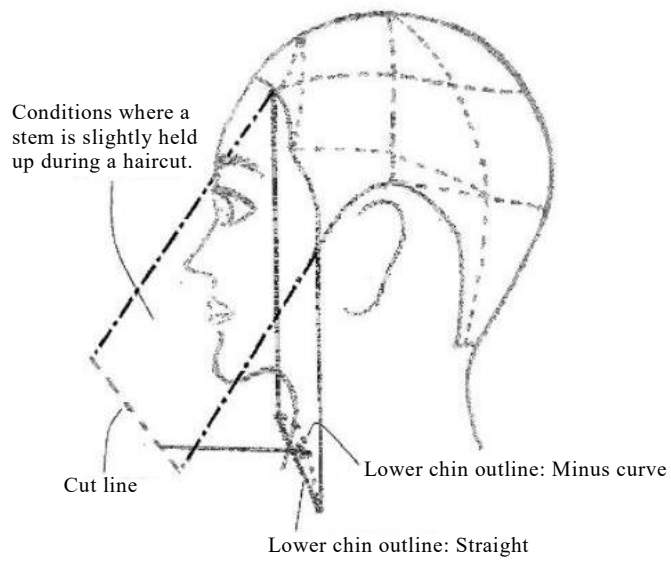
[Figure 4]



[Figure 5]



[Figure 6]



[Figure 7]

