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(54) **Method and device for the steam treatment of scalp hair**

Verfahren und Vorrichtung zur Dampfbehandlung von Kopfhair

Procédé et dispositif pour traitement à la vapeur des cheveux

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(56) References cited:  
**EP-A2- 0 103 547** **WO-A-20/05001337**  
**JP-A- 11 004 856** **JP-A- 11 147 052**  
**JP-A- 11 216 335** **JP-A- 2003 225 291**  
**KR-A- 20050 022 743**

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## Description

**[0001]** The invention concerns a method for the steam treatment of scalp hair in accordance with the preamble of Claim 1, as well as a device for the steam treatment of scalp hair in accordance with the preamble of Claim 2.

**[0002]** Owing to the positive results obtained, steam treatment of scalp hair is usually carried out with the aid of a device (steam apparatus) during hair color applications in hair dressing salons. Suchlike devices are known in different embodiments from, for example, WO2005/001337A1 (Fig. 7). In such a device steam is blown through a spray into a steam hood in which is positioned the head of a person (hairdresser's client) to whose scalp hair a hair color has been applied. Ammonia is released through the chemical process and the heat action of the steam. Since new steam is constantly generated, the ammonia is carried out of the steam hood with the steam and right up to the eyes and nose of the person and can cause irritation there. In addition an odor nuisance can occur as a result.

The publication KR20050022743 shows a hair processing device with a suction unit to suck odor of permanent solution.

The task of the invention is to prevent by simple means this irritation and/or odor nuisance during a corresponding steam treatment of scalp hair.

**[0003]** The task was solved according to the features of, respectively, Claim 1 or 2.

Further embodiments of the invention follow from the respective subclaims.

**[0004]** The invention is more closely illustrated by means of several embodiment examples. Shown are:

- Fig. 1 a method as a flow diagram;
- Fig. 2 a side view of a device of the prior art;
- Fig. 3 a side view of a device with automatic switch-off mechanism;
- Fig. 4 a sectional view of a detailed aspect of the device according to Fig. 3;
- Fig. 5 a block diagram of the device according to Fig. 3;
- Fig. 6 a plan view of the device according to Fig. 3, and
- Fig. 7 a perspective view of the device according to Fig. 3 with steam hood removed.

**[0005]** The principle solution of the set task is to extract the steam 11 enriched with ammonia C at the front region 12 of the steam hood 4. This is preferably carried out by means of an electrically driven fan 10. This fan 10 is preferably attached directly at the front region 12 of the steam hood 4. A suction port 13 of the fan 10 is so designed in such a way that the extraction of the steam 11 takes place mainly in the region above the eyes 14. Since ammonia emission C is reduced to such an extent during the course of the steam treatment that no irritation or odor nuisance can occur, from this time point on the fan 10 is deactivated at a preset ammonia emission value V 1.

**[0006]** The fan 10 can also be seated within the device 3.2 in order, for example, to support the output of the steam 11. In this case the suction port 13 is passed through the steam hood 4 into the neighborhood of the eyes 14.

**[0007]** The amount of air D that is to be extracted is controlled by the use of the electric fan 10. This control can take place during a (preset) time  $t_a$ , or through an ammonia sensor 7 located in the extracted air 16 with which the concentration of the ammonia emission C is measured and the fan 10 correspondingly regulated.

**[0008]** Since the concentration of the ammonia emission C in the air changes during the treatment the correct amount of air 16 can always be extracted with a controlled fan 10 in order to avoid irritation of the eyes 14. On the other hand, only the amount of air 16 that is absolutely necessary is extracted. In this way a uniform dampness of the scalp hair 1 is attained and a very consistent color reaction on the scalp hair 1 is achieved.

**[0009]** Fig. 1 shows a flow diagram of a method for the steam treatment of scalp hair 1 of a person 2 with a device 3.2 with a steam hood 4, wherein the scalp hair 1 is first treated with an agent that contains ammonia. At the start to of a steam treatment a controllable extraction unit 5 on the steam hood 4 is activated by a control unit 6, wherein during the further course of the steam treatment ammonia emissions C are recorded by a sensor 7 that is attached inside the steam hood 4 and measured by a measurement unit 8 ( $V_{x1} \dots V_{x5}$ ). The measurement unit 8 is connected with the control unit 6, wherein on attainment or undershooting of a preset ammonia emission value  $V_{x5} = V_1$  the extraction unit 5 is deactivated automatically by the control unit 6. At the end of the steam treatment  $t_b$  the device 3.2 (Fig. 3) is switched off automatically.

**[0010]** Fig. 2 shows a side view of a device 3 of the prior art. It is clear from this that the ammonia emissions C from the treated scalp hair 1 reach the eye/nose region B of the person 2 and can lead to irritation and an odor nuisance.

**[0011]** Fig. 3 shows a side view of a second device 3.2 with an automatic switch-off mechanism and a steam hood 4 for the steam treatment of scalp hair 1 of a person 2. A sensor 7 to record the ammonia emission values  $V_{x1} \dots V_{xn}$  is arranged inside the steam hood 4. The ammonia sensor 7 is connected with a measurement unit 8 for measurement of the ammonia emission values  $V_{x1} \dots V_{xn}$ , wherein the measurement unit 8 is connected with a control unit 6. The device 3.2 or, respectively, the steam hood 4 has an extraction unit 5 that is controllable by the control unit 6 and extracts the ambient air in the neighborhood of an (upper) forehead region A or an eye/nose region B of the person 2. At the start to of the steam treatment the extraction unit 5 is activated automatically by the control unit 6. By convergence with or undershooting of a preset ammonia emission value V 1 the extraction unit 5 is deactivated automatically. Preferably an electric fan 10 that can be arranged neatly in or on the steam

hood 4, is simple to operate (in on/off function and fan performance), and is very cost-effective is used as extraction unit 5.

**[0012]** The extraction unit 5 is arranged inside or outside the steam hood 4 in such a way that extraction of the ambient air in the neighborhood of the forehead region A or the eye/nose region B of the person 2 takes place, wherein the electric fan 10 is arranged in the extraction unit 5.

**[0013]** An optoelectronic ammonia sensor in chip form, for example, can be used as sensor 7.

**[0014]** Fig. 4 shows a detailed aspect of the second device 3.2 according to Fig. 3 as a sectional view.

**[0015]** Fig. 5 shows a block diagram of the device 3.2 in accordance with, respectively, Fig. 3 or Fig. 1. At the start to of a steam treatment a controllable extraction unit 5 on the steam hood 4 is activated by a control unit 6, wherein during the further course of the steam treatment ammonia emissions C are recorded by a sensor 7 arranged inside the steam hood 4 and measured by a measurement unit 8 (Vx1...Vx5). The measurement unit 8 is connected with the control unit 6, wherein on attainment or undershooting of a preset ammonia emission value  $Vx5=V1$  the extraction unit 5 is deactivated automatically by the control unit 6. At the end of the steam treatment tb the device 3.2 (Fig. 3) is switched off automatically.

**[0016]** Fig. 6 shows a plan view of the device 3.2 according to Fig. 3. In particular, it is evident here that the suction port 13 has approximately the width of the face of the person 2.

**[0017]** Fig. 7 shows a perspective view of the device 3.1, 3.2 according to Fig. 3 with the steam hood 4 removed. The steam sprays 18 are particularly evident here.

#### Reference list:

#### **[0018]**

1. Scalp hair
2. Person
- 3.1 First device
- 3.2 Second device
4. Steam hood
5. Extraction unit
6. Control unit
7. Ammonia sensor
8. Measurement unit
9. Time switch
10. Fan
11. Steam
12. Front region/steam hood 4
13. Suction port
14. Eyes
15. Nose
16. Extracted air
17. Exhaust air

18. Steam spray
- tb. End of steam treatment
- t1...tn. Measurement time points
- A. Forehead region
- 5 B. Eye/nose region
- C. Ammonia emission
- D. Air quantity
- Vx1...Vxn. Ammonia emission values
- V1. Preset ammonia emission value
- 10

#### **Claims**

1. A method for the steam treatment of scalp hair of a person with a device with a steam hood, wherein the scalp hair was treated previously with an agent that contains ammonia, **characterized in that** at the start (to) of the steam treatment ambient air in the neighborhood of a forehead region (A) or an eye/nose region (B) of the person 2 is extracted automatically by a controllable extraction unit (5) and the ammonia emission (C) within the steam hood (4) is recorded continuously and measured as ammonia emission values (Vx1...Vxn) and compared with a preset ammonia emission value (V1), wherein on reaching the preset ammonia emission value (V1) the extraction unit (5) is deactivated automatically.
2. A device with a steam hood for the steam treatment of the scalp hair of a person, wherein the scalp hair was treated previously with an agent that contains ammonia, **characterized in that** a sensor (7) for the recording of ammonia emission values (Vx1...Vxn) is arranged within the steam hood (4), wherein the sensor (7) is connected with a measurement unit (8) for the measurement of the ammonium emission values (Vx1...Vxn), wherein the measurement unit (8) is connected with a control unit (6), wherein the device (3.2) has an extraction unit (5) which extracts ambient air in the neighborhood of a forehead region (A) or an eye/nose region (B) of the person (2), wherein the extraction unit (5) is controllable by the control unit (6), wherein at the start (to) of the steam treatment the extraction unit (5) is activated automatically by the control unit (6), and wherein the extraction unit (5) is deactivated automatically on convergence of a preset ammonia emission value (V1) with a recorded ammonia emission value (Vx1...Vxn).
3. The device according to Claim 2, **characterized in that** the extraction unit (5) is arranged to the inside or outside of the steam hood (4) in such a way that an extraction of the ambient air in the neighborhood of a forehead region (A) or an eye/nose region (B) of the person (2) takes place.
4. The device according to Claim 2, **characterized in**

that an electric fan (10) is arranged in the extraction unit (5).

### Patentansprüche

1. Verfahren zur Dampfbehandlung von Kopfhaar einer Person mit einer Vorrichtung mit einer Dampfhaube, wobei das Kopfhaar zuvor mit einem Mittel behandelt wurde, das Ammoniak enthält, **dadurch gekennzeichnet, dass** zu Beginn ( $t_0$ ) der Dampfbehandlung Umgebungsluft aus der Umgebung eines Stirnbereichs (A) oder eines Augen-/Nasenbereichs (B) der Person (2) automatisch mittels einer steuerbaren Extraktionseinheit (5) extrahiert wird und die Ammoniakemission (C) innerhalb der Dampfhaube (4) kontinuierlich aufgezeichnet und als Ammoniakemissionswerte ( $Vx1...Vxn$ ) gemessen und mit einem vorgegebenen Ammoniakemissionswert (V1) verglichen wird, wobei bei Erreichen des vorgegebenen Ammoniakemissionswerts (V1) die Extraktionseinheit (5) automatisch deaktiviert wird.
2. Vorrichtung mit einer Dampfhaube für die Dampfbehandlung des Kopfhaars einer Person, wobei das Kopfhaar zuvor mit einem Mittel behandelt wurde, das Ammoniak enthält, **dadurch gekennzeichnet, dass** ein Sensor (7) zum Erfassen von Ammoniakemissionswerten ( $Vx1...Vxn$ ) innerhalb der Dampfhaube (4) angeordnet ist, wobei der Sensor (7) mit einer Messeinheit (8) zum Messen der Ammoniumemissionswerte ( $Vx1...Vxn$ ) verbunden ist, wobei die Messeinheit (8) mit einer Steuereinheit (6) verbunden ist, wobei die Vorrichtung (3,2) eine Extraktionseinheit (5) aufweist, die Umgebungsluft aus der Umgebung eines Stirnbereichs (A) oder eines Augen-/Nasenbereichs (B) der Person (2) extrahiert, wobei die Extraktionseinheit (5) durch die Steuereinheit (6) steuerbar ist, wobei zu Beginn ( $t_0$ ) der Dampfbehandlung die Extraktionseinheit (5) automatisch durch die Steuereinheit (6) aktiviert wird und wobei die Extraktionseinheit (5) automatisch bei Übereinstimmung eines vorgegebenen Ammoniakemissionswerts (V1) mit einem aufgezeichneten Ammoniakemissionswert ( $Vx1...Vxn$ ) deaktiviert wird.
3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die Extraktionseinheit (5) innerhalb oder außerhalb der Dampfhaube (4) so angeordnet ist, dass eine Extraktion der Umgebungsluft aus der Umgebung eines Stirnbereichs (A) oder eines Augen-/Nasenbereichs (B) der Person (2) stattfindet.
4. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** ein elektrisches Gebläse (10) in der Extraktionseinheit (5) angeordnet ist.

### Revendications

1. Procédé pour le traitement à la vapeur de la chevelure d'une personne avec un dispositif avec une hotte à vapeur, dans lequel la chevelure a été traitée précédemment avec un agent qui contient de l'ammoniac, **caractérisé en ce qu'**au début (to) du traitement à la vapeur, l'air ambiant dans le voisinage d'une région du front (A) ou une région de l'oeil/nez (B) de la personne (2) est extrait automatiquement par une unité d'extraction réglable (5) et l'émission d'ammoniac (C) au sein de la hotte à vapeur (4) est enregistrée de façon continue et mesurée en tant que valeurs d'émission d'ammoniac ( $Vx1...Vxn$ ) et comparée avec une valeur d'émission d'ammoniac prédéfinie (V1), dans lequel lorsqu'on atteint la valeur d'émission d'ammoniac prédéfinie (V1), l'unité d'extraction (5) est désactivée automatiquement.
2. Dispositif avec une hotte à vapeur pour le traitement à la vapeur de la chevelure d'une personne, où la chevelure a été traitée précédemment avec un agent qui contient de l'ammoniac, **caractérisé en ce qu'**un capteur (7) pour l'enregistrement des valeurs d'émission d'ammoniac ( $Vx1...Vxn$ ) est disposé au sein de la hotte à vapeur (4), où le capteur (7) est connecté à une unité de mesure (8) pour la mesure des valeurs d'émission d'ammoniac ( $Vx1...Vxn$ ), où l'unité de mesure (8) est connectée à une unité de contrôle (6), où le dispositif (3,2) a une unité d'extraction (5) qui extrait l'air ambiant dans le voisinage d'une région de front (A) ou une région d'oeil/nez (B) de la personne (2), où l'unité d'extraction (5) est réglable par l'unité de contrôle (6), dans lequel au début (to) du traitement à la vapeur, l'unité d'extraction (5) est activée automatiquement par l'unité de contrôle (6), et dans lequel l'unité d'extraction (5) est désactivée automatiquement à la convergence d'une valeur d'émission d'ammoniac prédéfinie (V1) avec une valeur d'émission d'ammoniac enregistrée ( $Vx1...Vxn$ ).
3. Dispositif selon la revendication 2, **caractérisé en ce que** l'unité d'extraction (5) est disposée à l'intérieur ou à l'extérieur de la hotte à vapeur (4) d'une manière telle qu'une extraction de l'air ambiant dans le voisinage d'une région de front (A) ou d'une région d'oeil/nez (B) de la personne (2) a lieu.
4. Dispositif selon la revendication 2, **caractérisé en ce qu'**un ventilateur électrique (10) est disposé dans l'unité d'extraction (5).

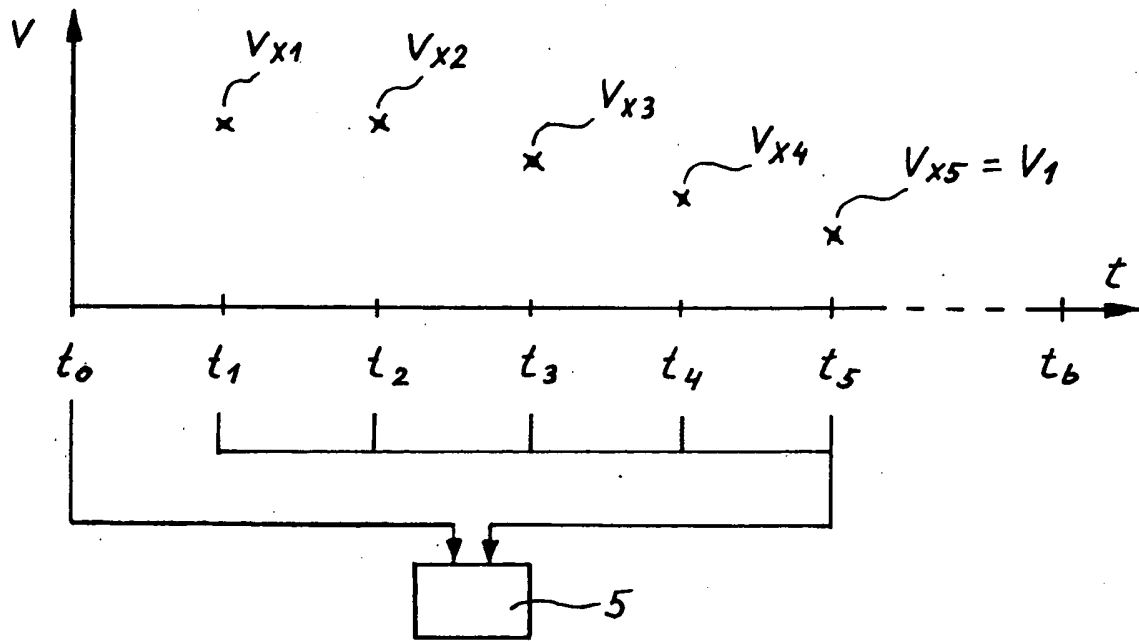


FIG. 1

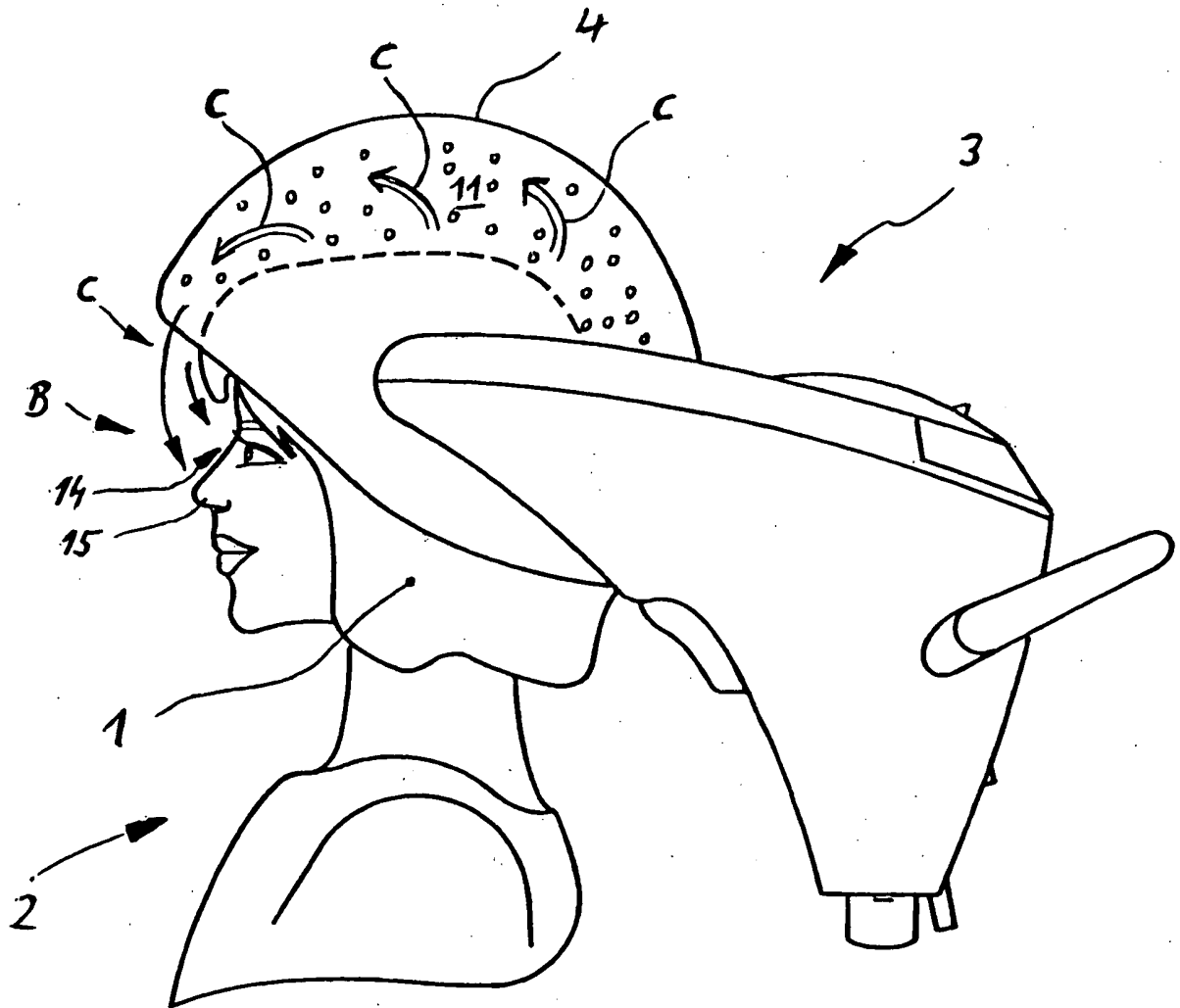


FIG. 2

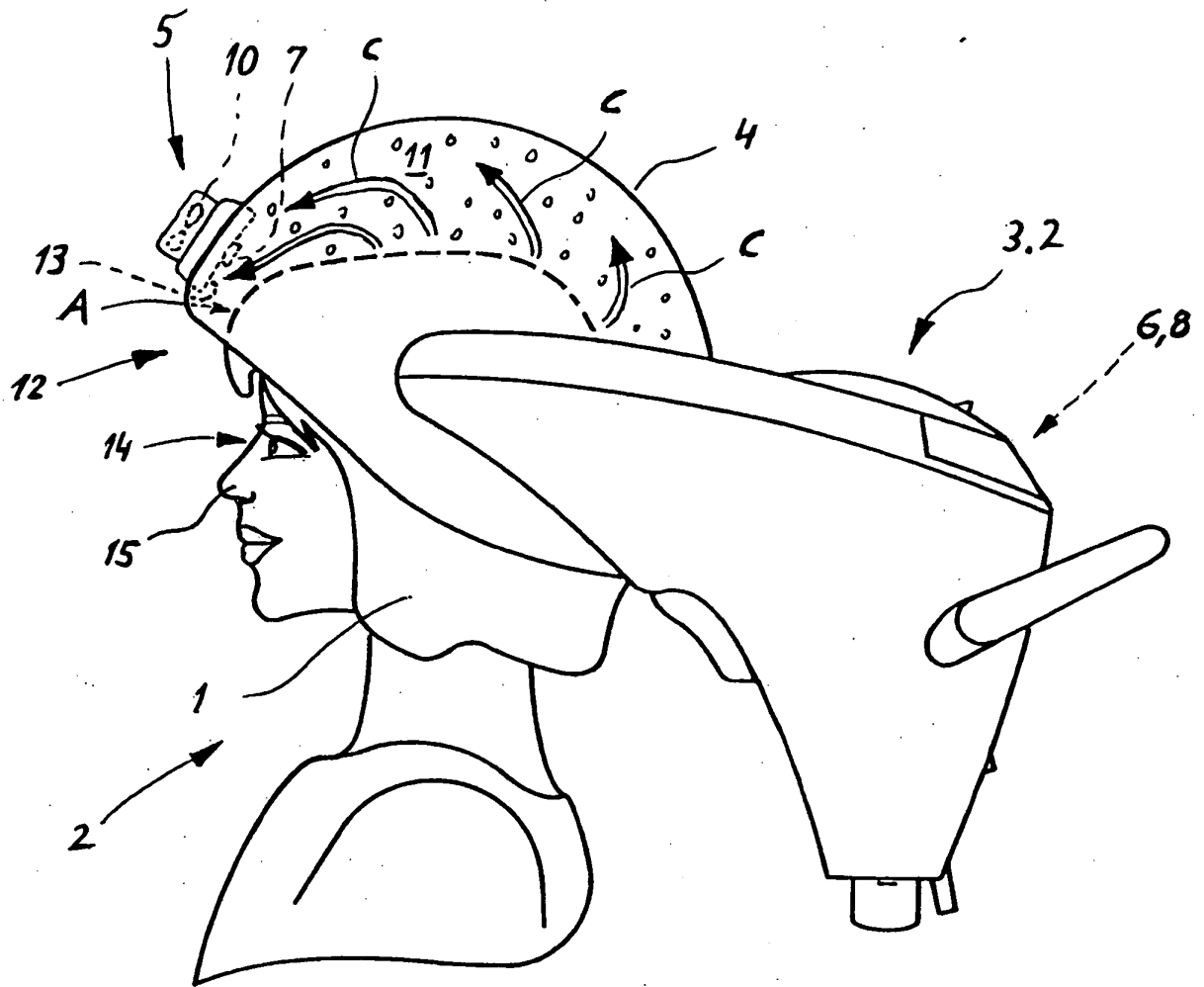


FIG. 3

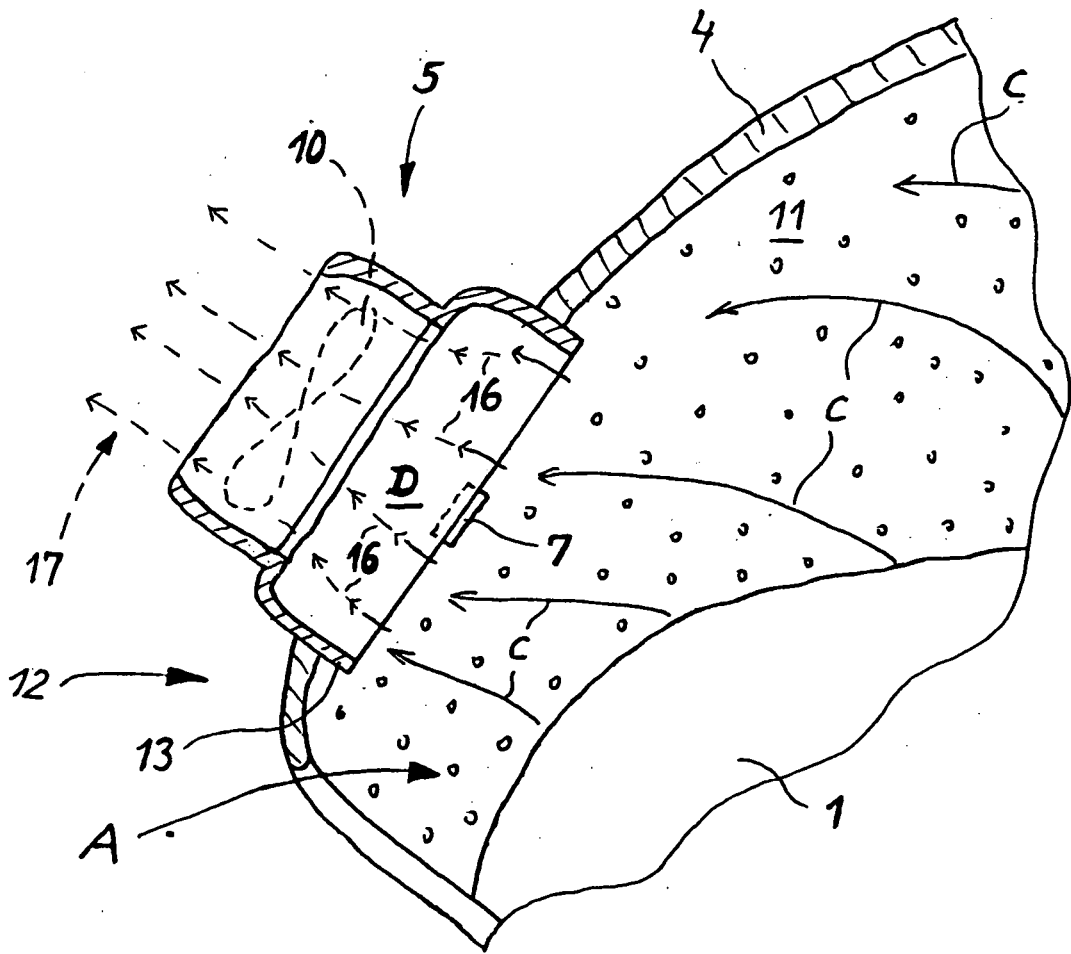


FIG. 4

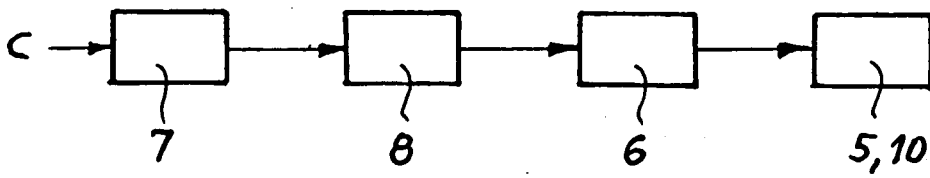


FIG. 5

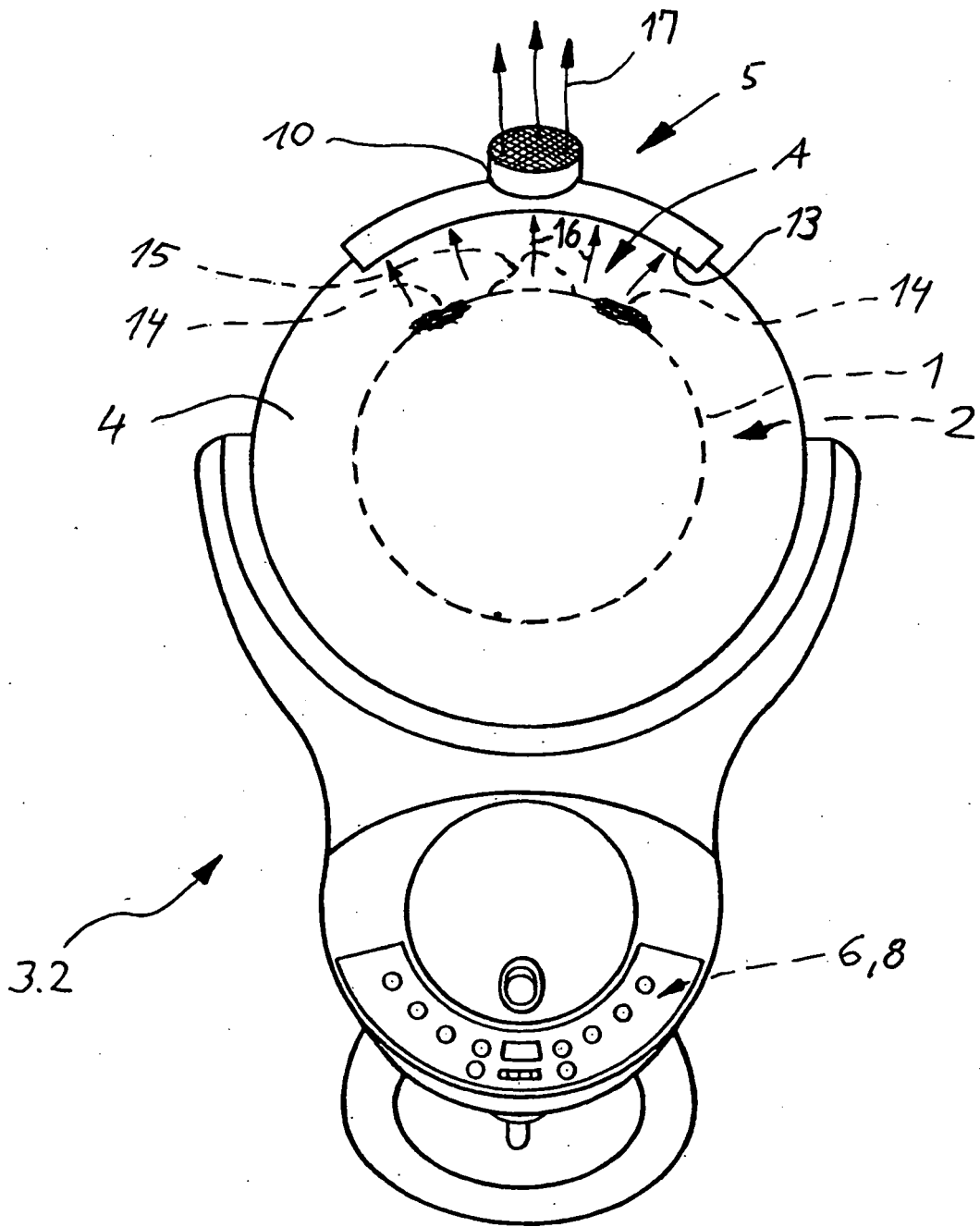


FIG. 6

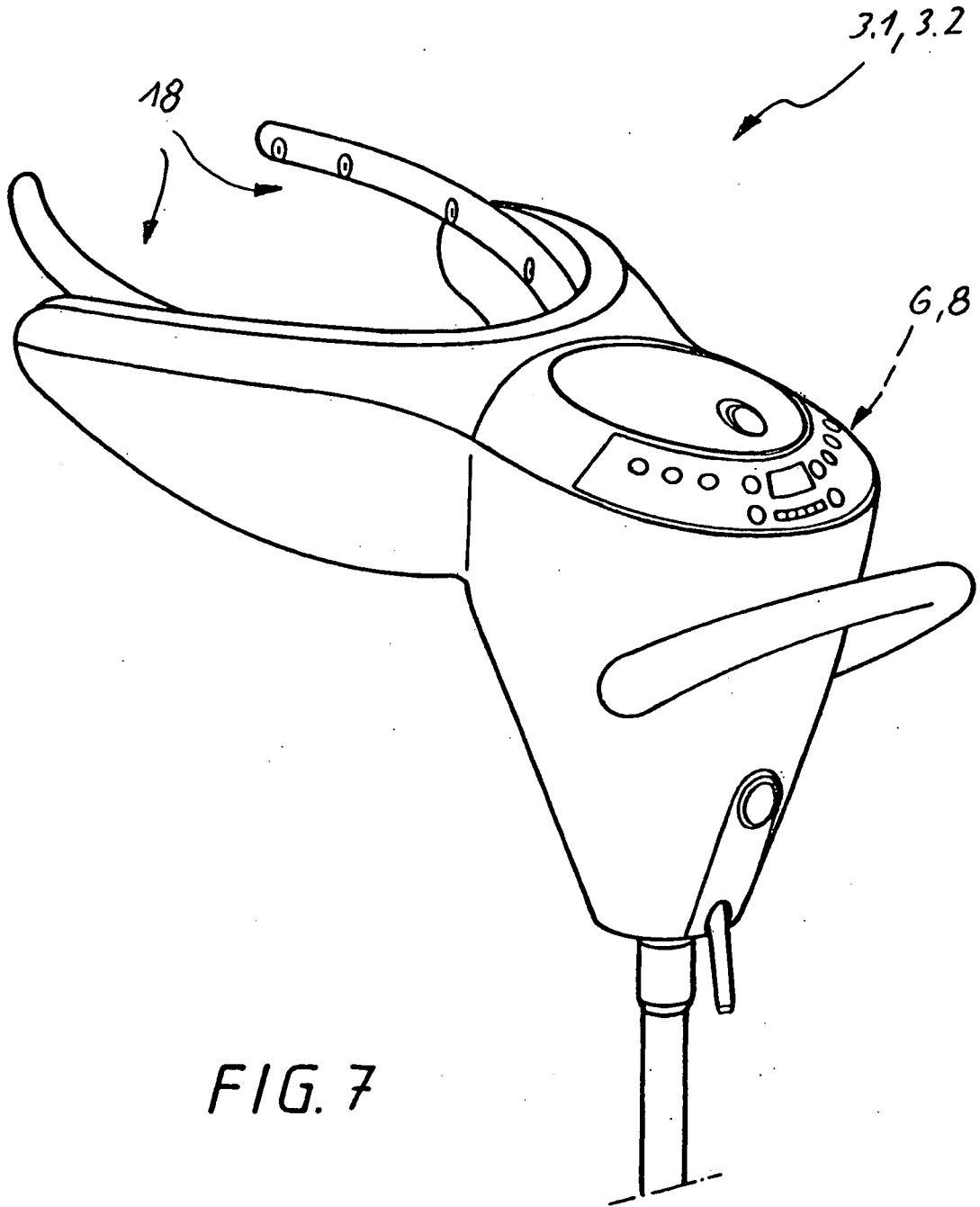


FIG. 7

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- WO 2005001337 A1 [0002]
- KR 20050022743 [0002]