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

(57) Device 3.2 with an automatic switch-off mechanism and a steam hood 4 for the steam treatment of the scalp hair 1 of a person 2. A sensor 7 for the recording of the ammonia emission values $V_{x1}...V_{xn}$ is located inside the steam hood 4. The ammonia sensor 7 is connected with a measurement unit 8 for measurement of the ammonia emission values $V_{x1}...V_{xn}$, 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 person (2). At the start to of the steam treatment the extraction unit 5 is automatically activated 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 is simple to control (in on/off function and fan performance) and is very cost-effective (Fig. 5) is used as extraction unit 5, which can be arranged compactly inside or on the steam hood 4.

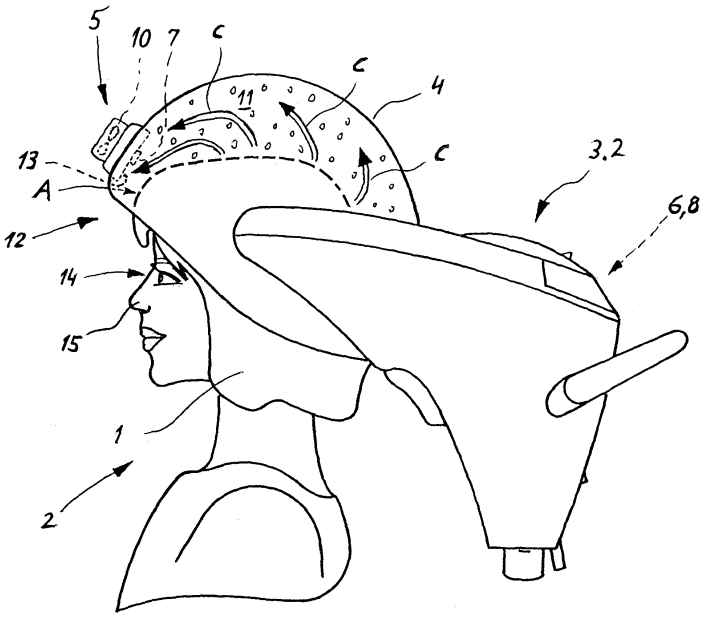

FIG. 5

EP 1 897 460 A1

Description

[0001] The invention concerns a method for the steam treatment of scalp hair in accordance with the preamble of, respectively, Claim 1 or 2, as well as a device for the steam treatment of scalp hair in accordance with the preamble of, respectively, Claim 3 or 5.

[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.

[0003] 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.

[0004] The task was solved according to the features of, respectively, Claim 1 or 2 or 3 or 5. Further embodiments of the invention follow from the respective subclaims.

[0005] The invention is more closely illustrated by means of several embodiment examples. Shown are:

Fig. 1 a first method as a flow diagram;
Fig. 2 a second method as a flow diagram;
Fig. 3 a side view of a device of the prior art;
Fig. 4 a side view of a first device with a time switch;
Fig. 5 a side view of a second device with automatic switch-off mechanism;
Fig. 6 a sectional view of a detailed aspect of the second device according to Fig. 5;
Fig. 7 a block diagram of the device according to Fig. 5;
Fig. 8 a plan view of the device according to Fig. 5, and
Fig. 9 a perspective view of the device according to, respectively, Fig. 4 and Fig. 5 with steam hood removed.

[0006] 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 either switched off at a preset time ta or is deactivated at a preset ammonia emission value V1.

[0007] 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.

[0008] 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 ta, 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.

[0009] 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.

[0010] Fig. 1 shows a flow diagram of a first method for the steam treatment of scalp hair 1 of a person 2 with a device 3.1 with a steam hood 4, wherein the scalp hair 1 was previously treated with a (hair coloring) agent that contains ammonia C. At the start to of steam treatment a controllable extraction unit 5 on the steam hood 4 is activated by a control unit 6, by which means highly odorous ammonia gasses (ammonia emission C) from the steam hood 4 cannot spread into a face region F (especially in the region of the eyes and nose B) of a person 2. After a preset time t1 has elapsed the extraction unit 5 is deactivated. At the end of the steam treatment tb the device 3.1 (Fig. 4) is switched off automatically.

[0011] Fig. 2 shows a flow diagram of a second 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 (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. 5) is switched off automatically.

[0012] Fig. 3 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.

[0013] Fig. 4 shows schematically a side view of a first device 3.1 with a steam hood 4 for the steam treatment of scalp hair 1 of a person 2, wherein the scalp hair 1

was previously treated with an agent that contains ammonia. The device 3.1 has a controllable extraction unit 5 with a suction port 13 that 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 by a control unit 6 and is deactivated after a prescribed time ta has elapsed. A time switch 9 is attached as control unit 6. The extraction unit 5 is preferably an electric fan 10, which is preferably attached in the front region 12 of the steam hood 4. In this way the flow of ammonia gasses into the eye/nose region B (eyes 14, nose 15) is practically prevented. It is possible to plan to control an amount of air D of the extracted air 16 through the fan 10.

[0014] Fig. 5 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 Vx1...Vxn 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 Vx1...Vxn, 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 V1 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).

[0015] 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.

[0016] An optoelectronic ammonia sensor in chip form, for example, can be used as sensor 7.

[0017] Fig. 6 shows a detailed aspect of the second device 3.2 according to Fig. 5 as a sectional view.

[0018] Fig. 7 shows a block diagram of the device 3.2. in accordance with, respectively, Fig. 5 or Fig. 2. 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. 5) is switched off automatically.

[0019] Fig. 8 shows a plan view of the device 3.2 according to Fig. 5. In particular, it is evident here that the suction port 13 has approximately the width of the face of the person 2.

[0020] Fig. 9 shows a perspective view of the device 3.1, 3.2 according to, respectively, Fig. 4 and Fig. 5 with the steam hood 4 removed. The steam sprays 18 are particularly evident here.

Reference list:

[0021]

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
to	Start/steam treatment
ta	Preset time
tb	End of steam treatment
t1...tn	Measurement time points
A	Forehead region
B	Eye/nose region
C	Ammonia emission
D	Air quantity
Vx1...Vxn	Ammonia emission values
V1	Preset ammonia emission value

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, wherein the extraction unit (5) is deactivated automatically after a preset time (ta) has elapsed.

2. 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.

3. A device with a steam hood for the treatment of scalp hair of a person, wherein the scalp hair was treated previously with an agent that contains ammonia, **characterized in that** the device (3.1) has a controllable extraction unit (5) that extracts the ambient air in the neighborhood of forehead region (A) or an eye/nose region (B) of the person (2), wherein at the start of (to) of the steam treatment the extraction unit (5) is activated by a control unit (6) and deactivated after end of a preset time (ta).

4. The device according to Claim 3, **characterized in that** the control unit (6) is a time switch (9).

5. 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 (Vxl...Vxn).

6. The device according to Claim 3 or 5, **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.

7. The device according to Claim 3 or 5, **characterized in that** an electric fan (10) is arranged in the extraction unit (5).

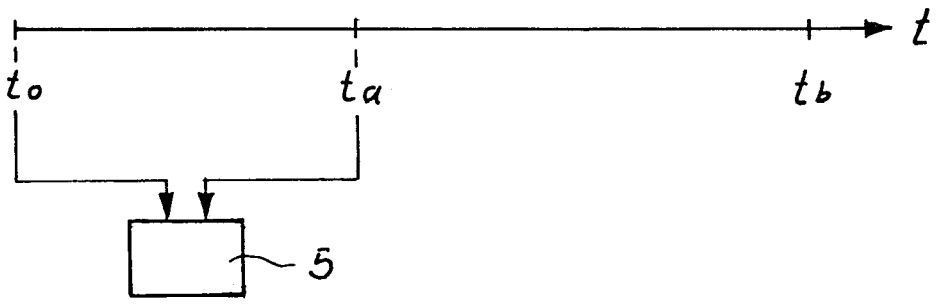

FIG. 1

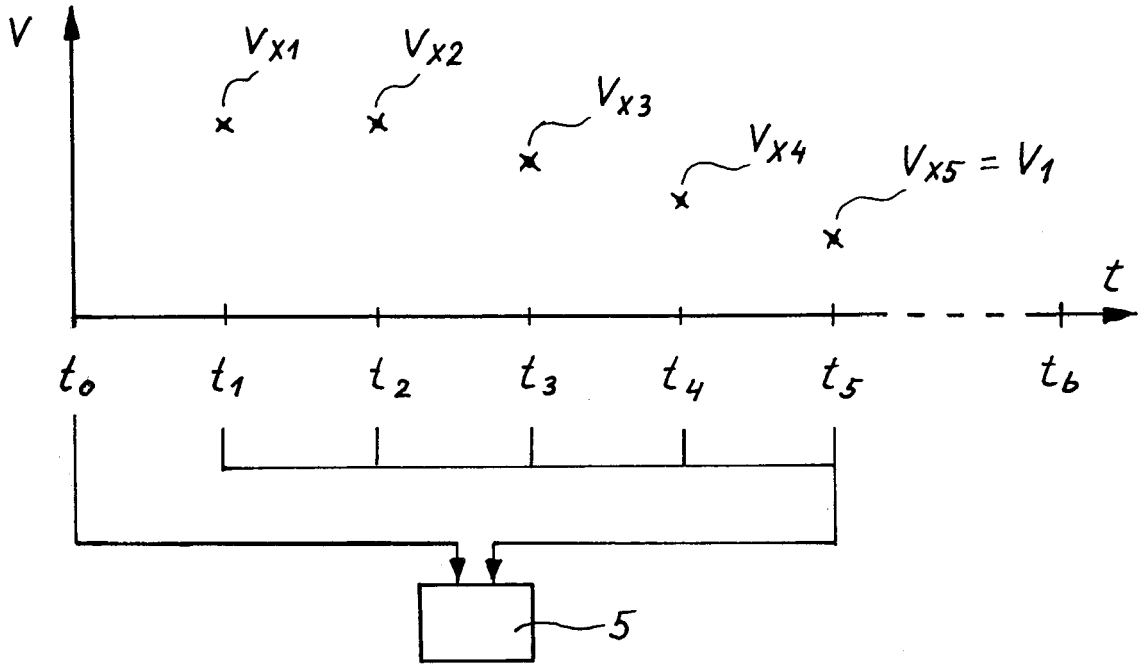

FIG. 2

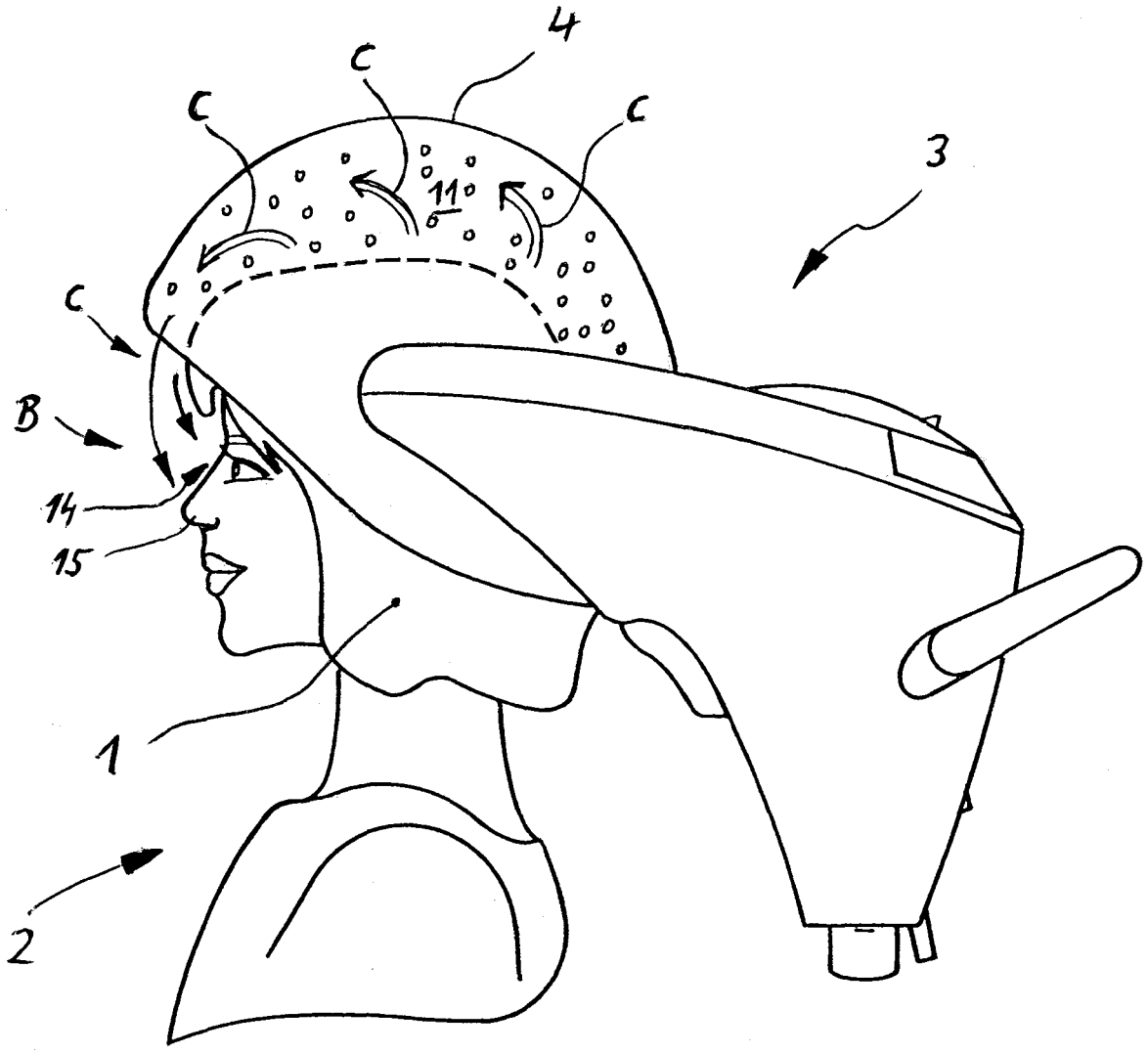

FIG. 3

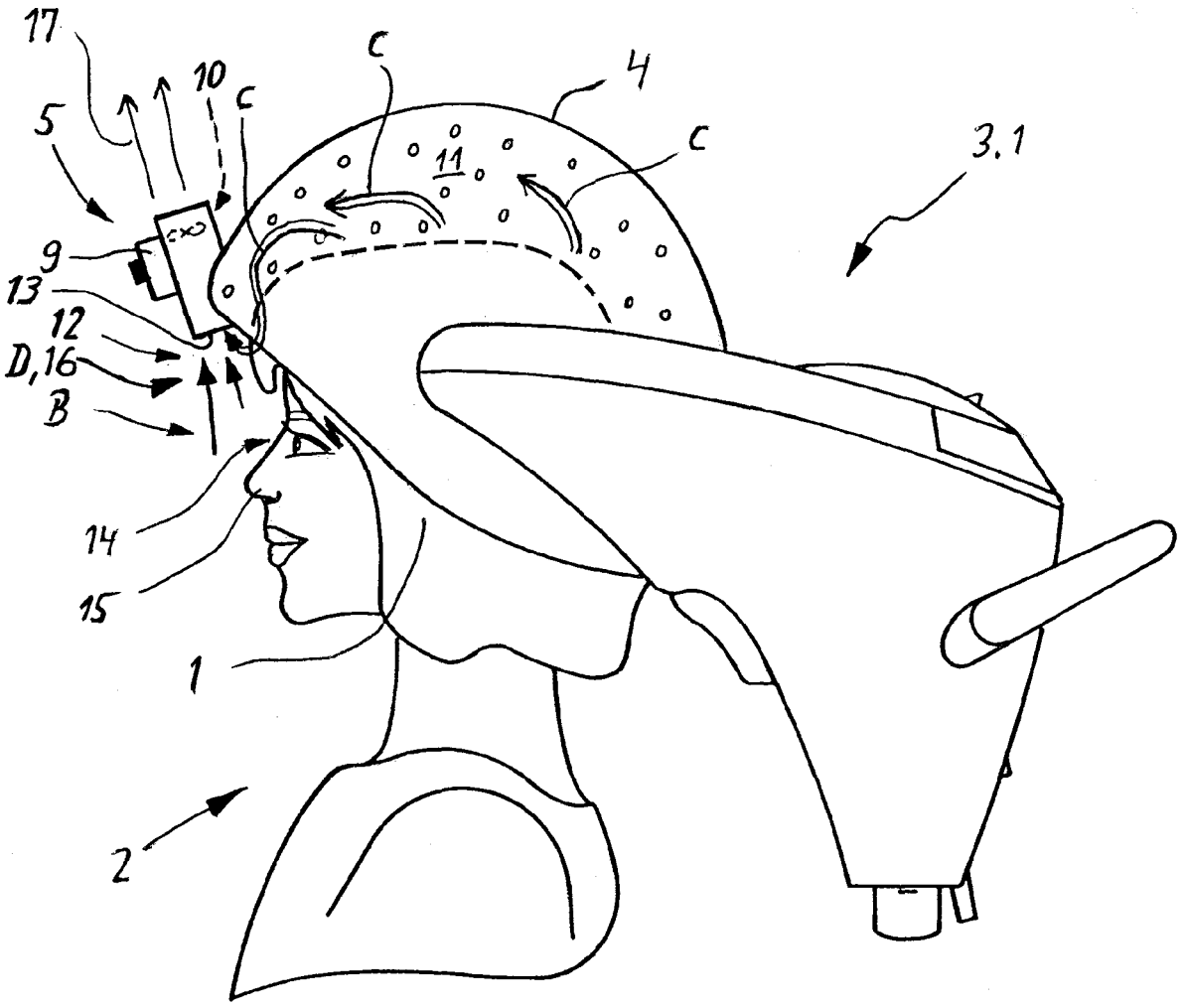

FIG.4

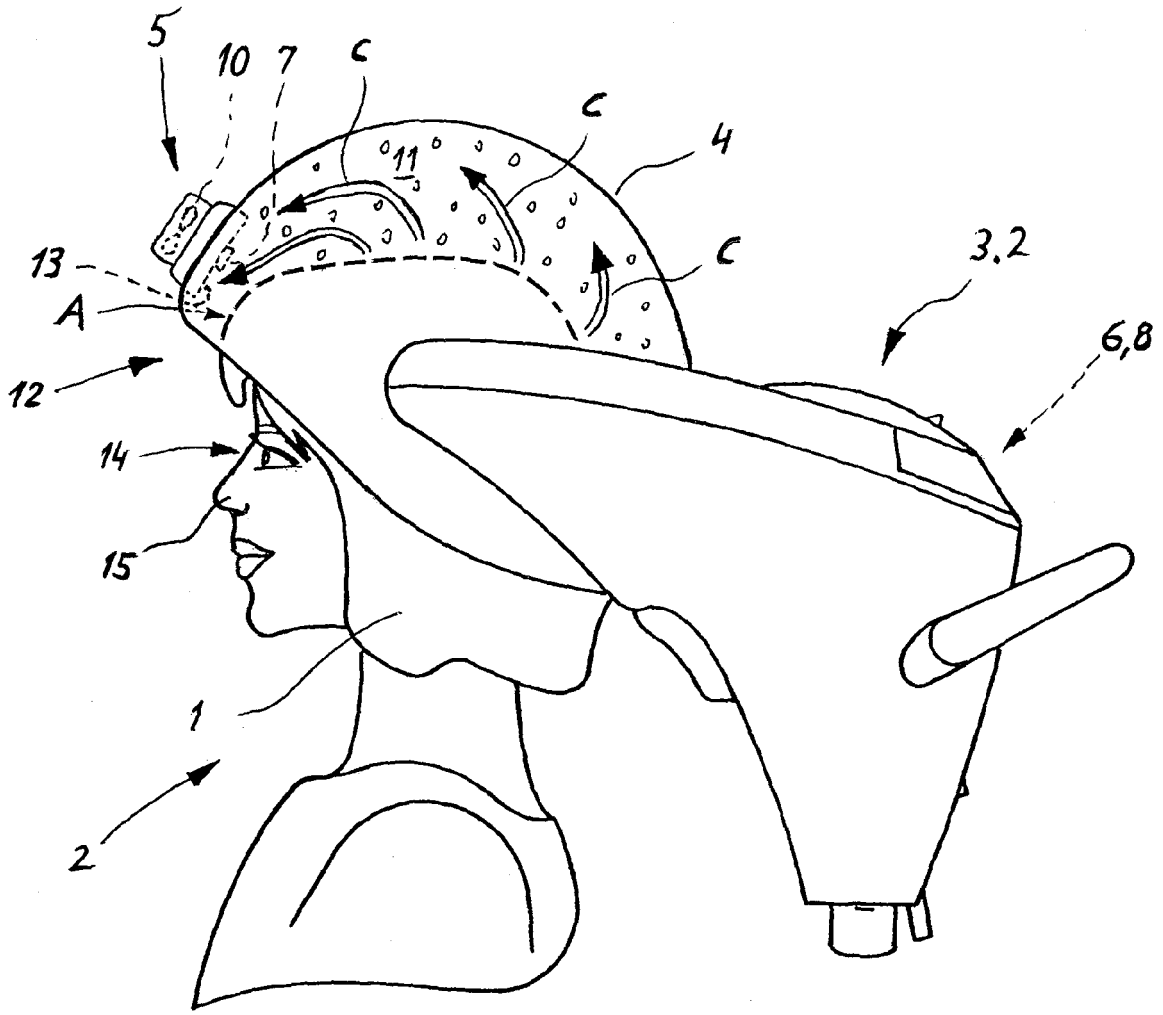

FIG. 5

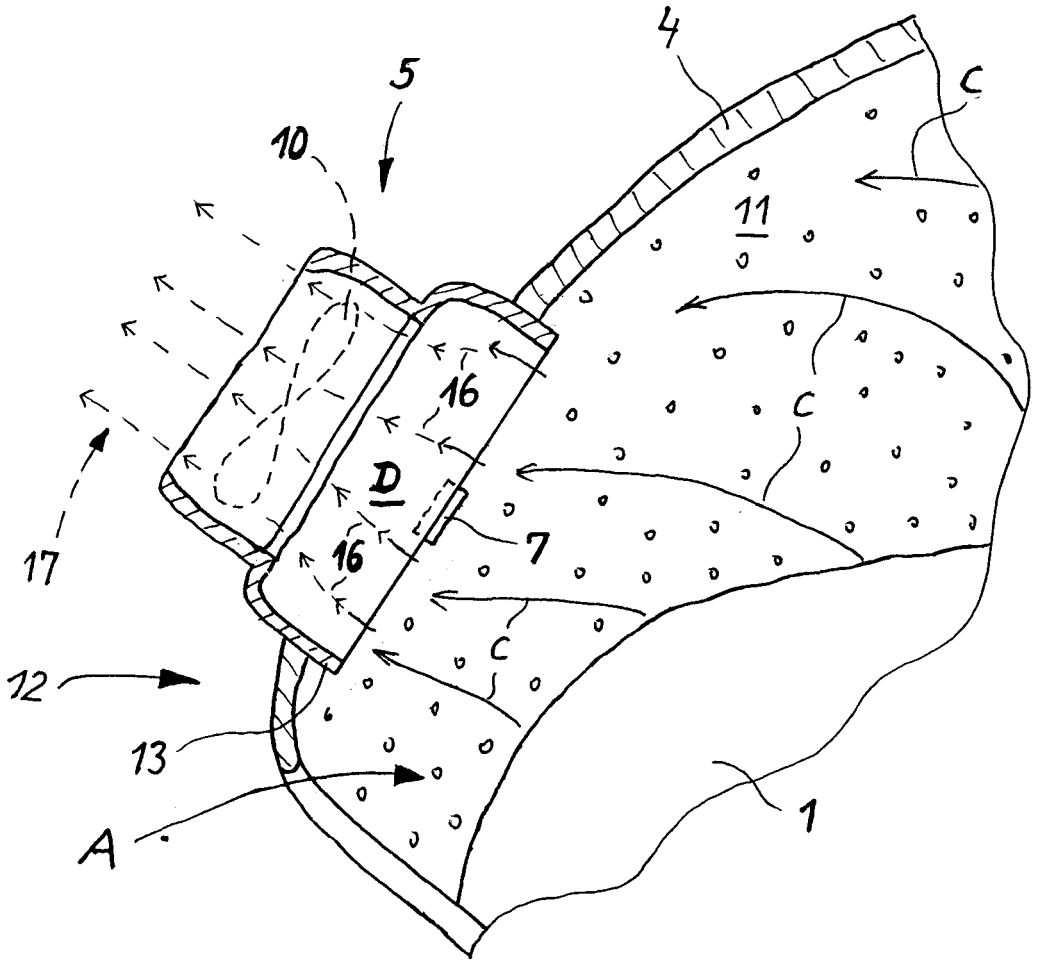

FIG. 6

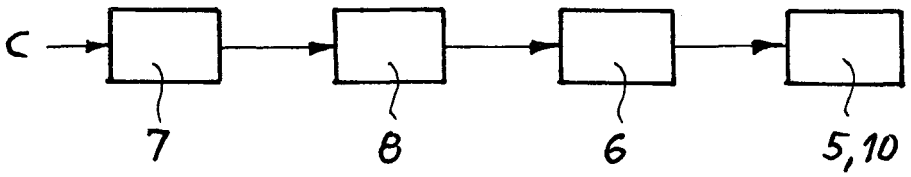

FIG. 7

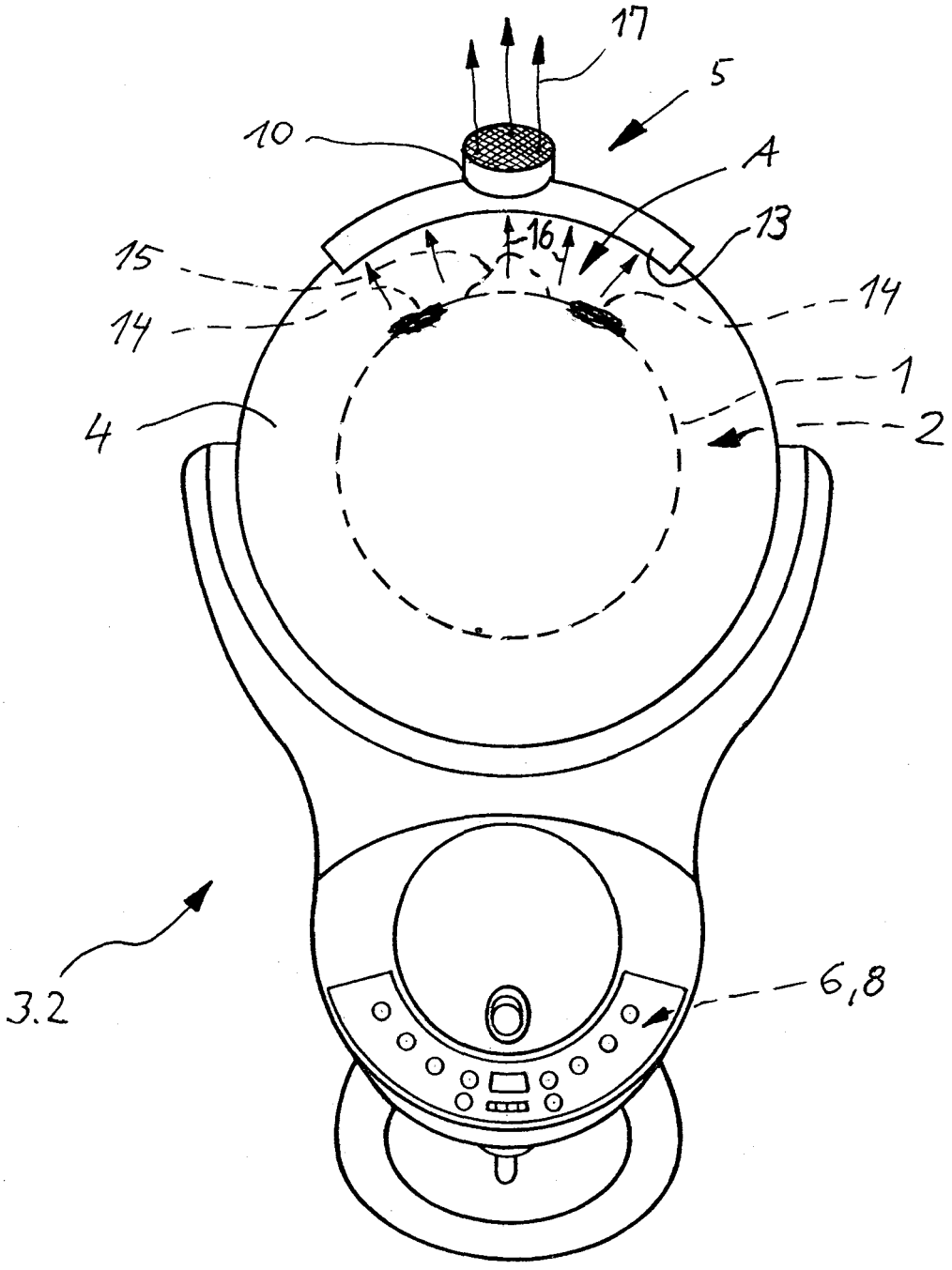

FIG. 8

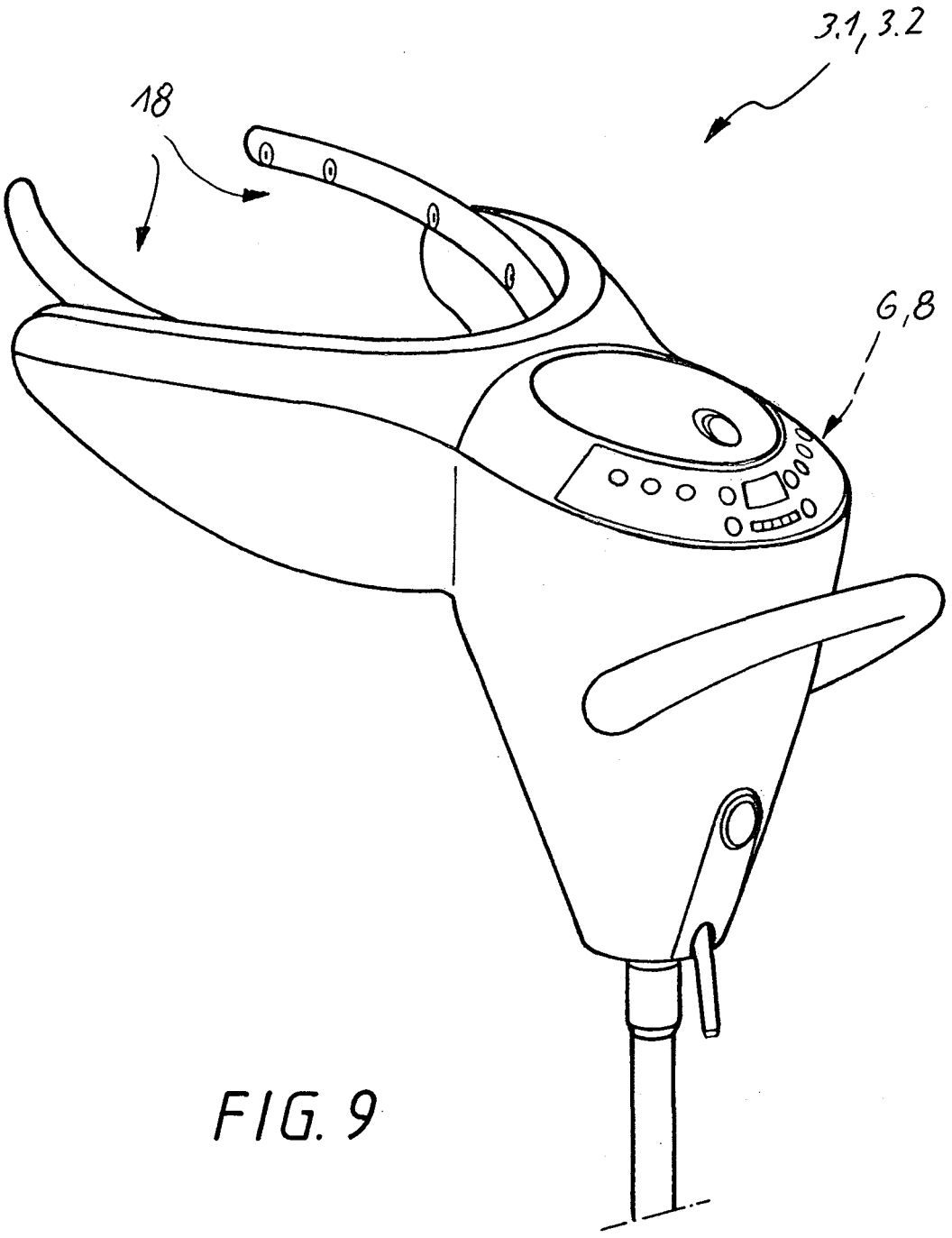

FIG. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 06 12 0260

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	KR 2005 022 743 A (LEE MAN TAEK) 8 March 2005 (2005-03-08) * abstract; figure 1 *	1,3,6,7	INV. A45D20/42
A	WO 2005/001337 A (WELLA AG [DE]; BAECKER FRANK [DE]; ANTHES PETER [DE]; PABST ANDREAS [D) 6 January 2005 (2005-01-06)		
A	EP 0 103 547 A2 (RIGO GIUSEPPE) 21 March 1984 (1984-03-21)		
A	JP 11 216335 A (HITACHI CHEMICAL CO LTD) 10 August 1999 (1999-08-10) * abstract *		
A	JP 11 147052 A (KASUYA MICHIO) 2 June 1999 (1999-06-02) * abstract *		
A	JP 2003 225291 A (UEDA NOEN KK; IKOLA JOURNAL KK; MATSURA SEISAKUSHO KK) 12 August 2003 (2003-08-12) * abstract *		TECHNICAL FIELDS SEARCHED (IPC) A45D
A	JP 11 004856 A (TAKAHASHI GENSUI) 12 January 1999 (1999-01-12) * abstract *		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 February 2007	Nicolás, Carlos

CATEGORY OF CITED DOCUMENTS

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07-02-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 2005022743 A		NONE	
WO 2005001337 A	06-01-2005	DE 102004031208 A1	13-01-2005
		EP 1639295 A1	29-03-2006
EP 0103547 A2	21-03-1984	US 4553339 A	19-11-1985
JP 11216335 A	10-08-1999	NONE	
JP 11147052 A	02-06-1999	JP 3191050 B2	23-07-2001
JP 2003225291 A	12-08-2003	NONE	
JP 11004856 A	12-01-1999	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2005001337 A1 **[0002]**