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SKIN-CREAM APPLICATION ROLLER

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(56) Prior Art Documents
DE 3447845
US 3702739

(57) Claim

1. A body roller for applying a lubricative medium to the human skin, having

- a grip element which is configured as a reservoir for the lubricative medium,

- a holding tube connected to said grip element, and

- an application roll coaxially and rotatably positioned on the free end of said holding tube, said application roll

- exhibits a hollow cylindrical inner member, into which the free end of the holding tube can be introduced in an axially clamping manner, and

- delivers via its outer circumferential area the lubricative medium supplied to it from the grip element via said holding tube,

characterised in that

- coaxially to the inner member there is situated a hollow

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cylindrical outer member, disposed at a distance from the inner member in order to obtain a cylindrical cavity therebetween,

- the outer member having peripheral discharge openings, and
- the lubricative medium is only guided through the front face opening of the holding tube and is then diverted at a front face of the application roll into the cylindrical cavity.

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INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)

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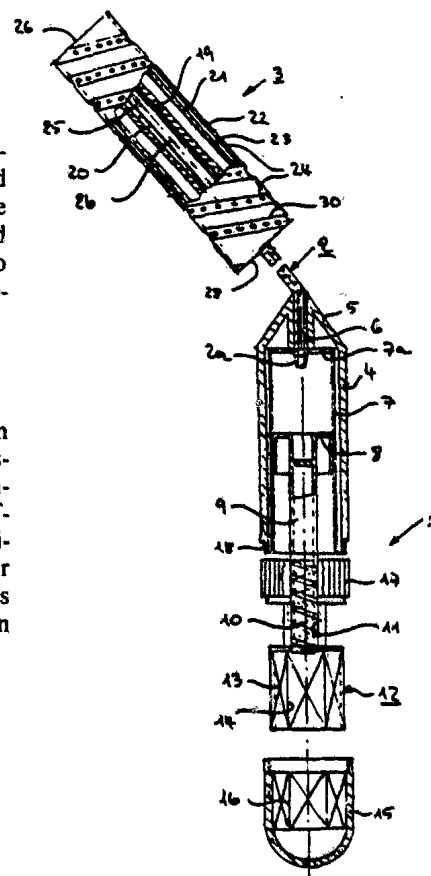
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(21) Internationales Aktenzeichen: PCT/EP91/01730 (22) Internationales Anmeldedatum: 11. September 1991 (11.09.91) (30) Prioritätsdaten: P 40 30 334.9 25. September 1990 (25.09.90) DE (71)(72) Anmelder und Erfinder: ZNIDAR, Wolf [DE/DE]; Moosstraße 21, D-8039 Puchheim (DE). (72) Erfinder; und (75) Erfinder/Anmelder (nur für US) : OBERHUBER, Karl [DE/DE]; Herzog-Johann-Straße 40, D-8000 München 60 (DE). (74) Anwalt: TER MEER, MÜLLER, STEINMEISTER & PARTNER; Mauerkircherstr. 45, D-8000 München 80 (DE).		(81) Bestimmungsstaaten: AT (europäisches Patent), AU, BE (europäisches Patent), CH (europäisches Patent), DE (europäisches Patent), DK (europäisches Patent), ES (europäisches Patent), FR (europäisches Patent), GB (europäisches Patent), GR (europäisches Patent), HU, IT (europäisches Patent), JP, LU (europäisches Patent), NL (europäisches Patent), SE (europäisches Patent), SU+, US. Veröffentlicht Mit internationalem Recherchenbericht. <div style="font-size: 2em; font-weight: bold; text-align: center;">646088</div>

(54) Title: SKIN-CREAM APPLICATION ROLLER**(54) Bezeichnung:** KÖRPERROLLER**(57) Abstract**

The roller proposed is intended to be used to apply an oil or cream to the human skin. It includes an applicator roll (3), a handle (1) and, to the handle (1), a rod (2) on whose distal end the applicator roll (3) is fitted so that it can rotate. The handle (1) is designed to incorporate a reservoir for the oil or cream, while the connecting rod (2) is tubular in design. In addition, the handle (1) includes a device (8-16) designed to squeeze the oil or cream out of the handle through the tubular rod (2) and into the applicator roll (3).

(57) Zusammenfassung

Ein Körperroller nach der Erfindung dient zum Auftragen eines schmierfähigen Mediums auf die menschliche Haut und weist eine das Medium abgebende Auftragswalze (3), ein Griffelement (1) und ein mit dem Griffelement (1) verbundenes, stangenförmiges Halteelement (2) auf, auf dessen freies Ende die Auftragswalze (3) aufsteck- und drehbar gehalten ist. Das Griffelement (1) ist als Tank für das schmierfähige Medium ausgebildet, während das stangenförmige Halteelement (2) ein Halterohr ist. Das Griffelement (1) weist ferner eine Auspreßeinrichtung (8 bis 16) auf, um das schmierfähige Medium aus dem Griffelement (1) durch das Halterohr (2) hindurch in die Auftragswalze (3) pressen zu können.



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Body roller

The invention relates to a body roller according to the preamble of Patent Claim 1 and, in particular, to a body roller for applying a lubricative medium to the human skin.

5 A body roller of this type is already known from German Offenlegungsschrift 28 25 926. It possesses an application roll which delivers an oil as the lubricative medium. The application roll is connected by a bar-shaped holding element to a grip element, the roller being
10 placed onto the free end of the bar-shaped holding element and being rotatably mounted thereon.

In the case of the known body roller, the oil is located in a reservoir within the application roll and is discharged via openings on the peripheral surface of the
15 application roll. The application roll can be removed from the bar-shaped holding element and accommodated in the grip element whenever the body roller is not intended to be used.

Semifluid media or creams cannot be applied using



the known body roller, since these are unable to pass straightforwardly through the openings on the peripheral surface of the application roll.

5 The object of the invention is to refine the known body roller in such a way that with it even semifluid media or creams can be applied to the skin.

The way in which the defined object is achieved is specified in the characterising part of Patent Claim 1. Advantageous designs of the invention can be
10 derived from the subclaims.

A body roller according to the invention is distinguished by the fact that the grip element is configured as a reservoir for the lubricative medium, the bar-shaped holding element is configured as a holding
15 tube and the grip element exhibits a squeezing device for forcing the lubricative medium out of the grip element through the holding tube into the application roll.

Using the body roller according to the invention, it is thus possible to apply a lubricative medium to the
20 skin even on inaccessible parts of the body, for example in the area of the back region. Apart from fluid media, for example, sun oils, body lotions and the like, semifluid media and creams also come into consideration as the lubricative medium. The media can also be medi-
25 cally active media. According to the viscosity of the medium in question, openings on the cylindrical peripheral surface of the application roll can be of larger or smaller configuration, so that the lubricative medium can only pass through them slowly whenever, due to the
30 action of the squeezing device, the lubricative medium in the grip element is placed under the pressure necessary for this purpose.

Advantageously, the application roll exhibits a hollow-cylindrical inner member, into which the free end
35 of the holding tube can be introduced in an axially clamping manner. The application roll then lies coaxially to the holding tube, which forms the rotational axis for the application roll. Coaxially to the inner member,



there is disposed at a distance from it a further outer member having the already mentioned peripheral discharge openings for discharging the lubricative medium supplied to it.

5 Thus, the lubricative medium, as a result of the action of the squeezing device, initially makes its way from the grip element through the tubular holding element into the hollow-cylindrical inner member and flows through the latter in the axial direction up to its
10 frontal end. It there comes up against the front wall of the outer member and is diverted into the space situated between the outer surface of the inner member and the inner surface of the outer member. The distance between
15 the outer surface of the inner member and the inner surface of the outer member is chosen to be of such a small size that the lubricative medium can make its way back as far as the grip element-side end of the application roll. In this case, the outlet openings for the lubricative medium in the outer member can become
20 larger from the side of the application roll facing away from the grip element to those of its sides facing towards the grip element.

 According to one very advantageous design of the invention, the discharge openings are located in a heli-
25 cal groove, which is situated on the outer peripheral surface of the outer member and runs in its axial direction. This helical groove serves as it were as a distribution worm to ensure an even more uniform distribution of the lubricative medium.

30 It is also of course possible, in the case of relatively fluid media, to provide a porous foam layer on the outer peripheral surface of the outer member in order thereby to create a buffer for the discharged medium. The foam layer can become saturated with oil and, when
35 pressurised as a result of the application roll being applied, can then deliver the oil onto the skin.

 Advantageously, seals can be disposed between the hollow-cylindrical inner member and the holding tube in



order to prevent the lubricative medium from running out in the axial direction of the holding tube.

According to one very advantageous design of the invention, the squeezing device can be formed by flexible side walls of the grip element. The grip element is in this case, for example, a plastic bottle or the like, which is filled with the lubricative medium. When the bottle is compressed, the lubricative medium makes its way through the holding tube into the application roll, so that it can pass through the discharge openings on the outer peripheral surface of the latter.

The flexible bottle can perfectly well take the form of a commercially available bottle which is equipped with a locking cap or screw cap. In this case, the grip-side end of the holding tube exhibits an adapter, which can be placed onto the opening of the bottle. An adapter can also however be used in those cases where the grip element is not configured as a bottle.

According to one refinement of the invention, a locking device is situated between the grip element and the application roll so that the transport of the lubricative medium from the grip element to the application roll or in the reverse direction can be interrupted whenever this is desirable.

According to one advantageous design of the invention, the grip element is of hollow-cylindrical configuration, the squeezing device exhibiting a piston which can be moved axially in the direction of the holding tube into the grip element. The piston can here run directly within the grip element or within a cartridge which has been inserted into the grip element. Into the frontal end of the cartridge, there then protrudes the grip-side end of the holding tube. This end is able to penetrate, for example, the previously closed front side of the cartridge whenever the cartridge is inserted into the grip element. The grip-side end of the holding tube can also be provided with an outer thread, onto which an exit channel in the cartridge is screwed.



In this case, an even better seal between the cartridge and the holding tube is obtained.

5 Preferably, the free end of the grip element exhibits a turning cap which, when rotated, gives rise to an axial displacement of the piston. Depending upon the direction of rotation of the turning cap, the piston can be moved in the direction of the application roll or away from it. As a result of the actual turning cap, the body roller acquires a compact and user-friendly structure.

10 The turning cap is preferably seated in a freely rotatable manner on a screw ring, which can be screwed onto the free end of the grip element. When the turning cap is rotated, a head of a coupling element, which head is situated in the interior of the turning cap, is taken
15 up by the turning cap, the coupling element not being able to be displaced in the axial direction. The greater part of it is situated within the turning cap, but a small part of it is also in the interior of the screw ring. In this case, the coupling element can be supported
20 against the turning cap-side front face of the cartridge or of the grip element. A piston rod of the piston, which piston rod is provided with an outer thread, is screwed into an axial thread channel of the coupling element, the piston being protected against rotation within the grip
25 element or the cartridge, so that it can slide only in the axial direction whenever the coupling element rotates as a result of the rotation of the turning cap. In order to prevent the piston from rotating, an axial slot can be present, for example, on the outer peripheral surface of
30 the piston, into which slot an axially running bulge on the inner wall of the cartridge or of the grip element engages.

 Illustrative embodiments of the invention are represented by the drawing, in which:

35 Fig. 1 shows a total view of the body roller in partial sectional representation, the grip element being in the dismantled state,



Fig. 2 shows a sectional representation of the assembled grip element,

Fig. 3 shows an application roll of the body roller in partial sectional representation, and

5 Fig. 4 shows a further illustrative embodiment of the body roller according to the invention.

Fig. 1 shows a body roller having a grip element 1 in dismantled representation, a holding tube 2 and an application roll 3.

10 Forming part of the grip element 1 is a grip cylinder 4 having a cylinder tip 5, which tip exhibits an axial longitudinal channel 6, through which runs a grip element-side end 2a of the holding tube 2. The grip element-side end 2a of the holding tube 2 is firmly
15 disposed in the axial longitudinal channel 6. A cartridge 7 is located within the grip cylinder 4 and extends in the longitudinal direction of the latter. It is also cylindrically configured. The grip element-side end 2a of the holding tube 2 protrudes through a front side 7a, facing towards it, of the cartridge 7, so that a lubricative medium can be transported within the cartridge 7 through the holding tube 2 to the application roll 3. Following consumption of the lubricative medium present within the cartridge 7, the cartridge 7 can be replaced
20 by a new one.

Within the cartridge 7, there is mounted, such that it can slide in the axial direction, a piston 8, which serves to force out the lubricative medium present in the cartridge 7. The piston 8 can slide only in the
30 axial direction and is prevented from rotating about the longitudinal axis of the cartridge 7, for example, by the fact that an axially running bulge (not represented) on the inner wall of the cartridge 7 engages into a corresponding axial groove on the outer peripheral wall
35 of the piston 8.

The piston 8 is firmly connected, on its surface pointing away from the front side 7a of the cartridge, to a piston rod 9, which is provided fully or at its rear



end with an outer thread 10. The piston rod 9 and the piston 8 can be connected to each other, for example, in one piece.

5 The piston rod 9 is screwed by its outer thread 10 into a thread channel 11 of a coupling element 12. The coupling element 12 is of hollow-cylindrical configuration and possesses, at its rear end pointing away from the grip cylinder 4, a head 13 of hexagonal configuration, for example, the hollow channel 14 of which serves
10 as a further receptacle for the piston rod 9. In the hollow channel 14, which is connected to the thread channel 11, an inner thread is no longer present.

In order to be able to rotate the coupling element 12 about its longitudinal axis, a turning cap 15
15 is provided, which exhibits on its inside a hexagonal recess 16, into which the head 13 of the coupling element 12 can be introduced to form a snug fit. When the turning cap 15 is rotated about its longitudinal axis, the coupling element 12 is thus jointly rotated.

20 The connection of the turning cap 15 to the grip cylinder 4 is served by a screw ring 17, the outer peripheral surface of which is knurled. The screw ring 17 is connected to the turning cap 15 on the front side in such a way that the turning cap 15 can be rotated relative to
25 it but cannot move in the axial direction. For this purpose, there can be present in the screw ring 17 an outer peripheral groove, into which radially inward pointing bosses of the turning cap 15 engage. By contrast, the screw ring 17 exhibits on its side facing
30 towards the grip cylinder 4 an inner thread, which can be screwed onto a frontal outer thread 18 located on a rear peripheral surface section of the grip cylinder 4. Fig. 2 shows the assembled state of the turning cap 15, the screw ring 17 and the grip cylinder 4. The coupling
35 element 12 has been omitted for the sake of clarity.

If, in the assembled state of the elements 4, 17 and 15, the turning cap 15 is rotated with the coupling element 12 inserted, then the coupling element 12 is also



jointly rotated. The head 13 of the coupling element 12 can in this case be supported against the opposing front side of the grip element 4 or of the cartridge 7. For this purpose, a shoulder (not represented) can also
5 however be present within the screw ring 17. Depending upon the direction of rotation of the turning cap 15, the piston rod 9 is in this case moved forwards or backwards in the axial direction, to be precise as a result of the screw connection between the piston rod 9 and the
10 coupling element 12. The rotation of the piston 8 is prevented by the rotation-protection already mentioned previously.

The already mentioned application roll 3 is fastened to the front or free end 2b of the holding tube
15 2. The application roll 3 in this case lies coaxially to the holding tube 2, the holding tube 2 forming the rotational axis of the application roll 3.

In the present case, the application roll 3 contains a guide tube 19 having an inner clamping and
20 bearing sleeve 20. The clamping and bearing sleeve 20 is firmly disposed in the interior of the guide tube 19 and serves for the clamping reception or bearing of the application roll 3 on the holding tube 2, which can be pushed in the axial direction into the guide tube 19.

25 The guide tube 19 is surrounded coaxially by an intermediate tube 21, the inner space between the guide tube 19 and the intermediate tube 21 being hermetically sealed. This can be achieved, for example, by frontal end surfaces (not represented) between the tubes 19 and 21.
30 These end surfaces also then secure the relative position of the two tubes 19 and 21 to each other.

The guide tube 19, the clamping and bearing sleeve 20 and the intermediate tube 21 form the already mentioned hollow-cylindrical inner member, coaxially to
35 which, at a distance, there is disposed an outer member 22. Between the inner wall of the outer member 22 and the outer wall of the inner member or the outer wall of the intermediate tube 21, there is a cylindrical cavity 23



for receiving the lubricative medium. This lubricative medium passes outwards through discharge openings 24 located on the peripheral surface of the outer member 22.

5 Upon movement of the piston 8 in the direction of the front side 7a of the cartridge 7, the lubricative medium makes its way first into the holding tube 2 and is discharged from the front-sided end 2b of the holding tube 2, which is situated in the interior of the guide tube 19. Depending upon how far the front-sided end 2b of
10 the holding tube 2 protrudes into the guide tube 19, the guide tube 19 takes over the further transport of the lubricative medium as far as the front side of the hollow-cylindrical inner member. The medium flows therefore in the direction of the arrow 25. Between the
15 front side of the hollow-cylindrical inner member and the opposing front face 26 of the application roll 3, there is a narrow gap 27 (see Fig. 3), through which the lubricative medium, emerging from the interior of the holding tube 2 or of the guide tube 19, is able to make
20 its way into the cylindrical cavity 23.

The outer member 22 is firmly positioned relative to the intermediate tube 21, for example by distancing elements (not represented) and by means of a common front wall 28 on the side, facing towards the grip element, of
25 the application roll 3. Between the outer wall of the holding tube 2 and the inner wall of the guide tube 19, there are sealing rings or seals 29, to prevent the lubricative medium from running out of the application roll 3 in the axial direction of the holding tube 2.

30 As can be seen with reference to Fig. 1, the discharge openings 24 lie in a helical groove 30 which is present on the outer peripheral surface of the outer member 22 and runs in the axial direction of the latter. The helical groove 30 forms a distribution worm for
35 better distribution of the lubricative medium discharged through the discharge openings 24. For example, the discharge openings 24 on the side of the front wall [sic] 26 can be smaller than on the side of the front wall 28,



in order to ensure the most uniform possible discharge of the lubricative medium over the entire axial length of the application roll 3. Alternatively, however, the number of discharge openings 24 per winding of the helical groove 30 can increase from the front face 26 to the front wall 28.

Fig. 3 shows a further illustrative embodiment of an application roll 3. The application roll 3 contains the already mentioned outer member 22 and only one hollow-cylindrical inner member 31, which is drawn in hatched representation. This inner member 31 is seated in a clamping and rotatable manner on the free end of the holding tube 2. The lubricative medium flows in the direction of the arrow 25 and is then diverted at the front face 26 of the application roll 3 into the cylindrical cavity 23, to be precise through the gap 27. The cylindrical cavity 23 is now situated between the inner wall of the outer member 22 and the outer wall of the inner member 31. Otherwise the illustrative embodiment according to Fig. 3 corresponds to that according to Fig. 1.

A further illustrative embodiment of the body roller according to the invention is represented in Fig. 4. Here, the application roll 3 exhibits the discharge openings 24 only on its outer peripheral surface, without the discharge openings coming to be situated in a helical peripheral groove. Instead of this, there is located on the surface of the outer member 22 a cylindrical foam member 32, made from porous foam, which is capable of absorbing lubricative medium discharged through the discharge openings 24.

The grip element 1 is configured in the form of a bottle 33, which is flexible, for example. By compressing the bottle 33, the lubricative medium contained therein can then be forced through the holding tube 2 into the application roll 3. For this purpose, the holding tube 2 exhibits at its bottle-side end an adapter 34, for example a screw cap, which can be screwed onto



the rim of a bottle opening.

A locking device 35, for example a sliding mechanism, serves to close and open an inner channel situated within the adapter 34, through which channel the lubricative medium is transported. The locking device 35 can then, for example, close the inner channel once a certain quantity of lubricative medium has been forced into the interior of the application roll 3. Instead of in the adapter 34, the locking device 35 can also be present in the area of the holding tube 2.

The entire body roller can be manufactured, for example, purely from plastic parts. The holding tube 2 can also however consist of metal, for example steel, since it is exposed to a particular stress.

It is also possible for the lubricative medium in the cartridge 7 to be placed under a positive gas pressure. In this case, a metering valve is present, e.g. in the area of the holding tube, which can be opened and closed in order to lead the lubricative medium to the application roll 3.



Claims

1. A body roller for applying a lubricative medium to the human skin, having

- a grip element which is configured as a reservoir for the lubricative medium,
- a holding tube connected to said grip element, and
- an application roll coaxially and rotatably positioned on the free end of said holding tube, said application roll
 - exhibits a hollow cylindrical inner member, into which the free end of the holding tube can be introduced in an axially clamping manner, and
 - delivers via its outer circumferential area the lubricative medium supplied to it from the grip element via said holding tube,

15 characterised in that

- coaxially to the inner member there is situated a hollow cylindrical outer member, disposed at a distance from the inner member in order to obtain a cylindrical cavity therebetween,
- the outer member having peripheral discharge openings, and
- the lubricative medium is only guided through the front face opening of the holding tube and is then diverted at a front face of the application roll into the cylindrical cavity.

2. A body roller according to Claim 1, characterised in that the discharge openings are located in a helical groove, which is situated on the outer peripheral surface of the outer member and runs in its axial direction.



3. A body roller according to Claim 1 or 2, characterised in that the outer member carries a porous foam layer on its outer peripheral surface.

4. A body roller according to any one of Claims 1 to 3,
5 characterised in that seals are situated between the hollow-cylindrical inner member and the holding tube.

5. A body roller according to any one of the Claims 1 to 4, characterised in that the hollow-cylindrical inner member comprises two hollow cylinders situated coaxially to each other
10 and firmly interconnected, the interspace between which is sealed on the front face side.

6. A body roller according to any one of Claims 1 to 5, characterised in that the squeezing device is formed by flexible side walls of the grip element.

15 7. A body roller according to any one of Claims 1 to 5, characterised in that the grip element is of hollow-cylindrical configuration and the squeezing device exhibits a piston which can be moved axially in the direction of the holding tube into the grip element.

20 8. A body roller according to Claim 7, characterised in that the free end of the grip element exhibits a turning cap which, when rotated, gives rise to an axial displacement of the piston.

9. A body roller according to Claim 8, characterised in that the turning cap is seated in a freely rotatable manner on a
25 screw ring, which can be screwed onto the free end of the grip element.



10. A body roller according to Claim 8 or 9, characterised in that the turning cap takes up a head of a coupling element, which head is situated in the interior of the turning cap, the coupling element being axially firmly positioned and being
5 provided with an axial thread channel, into which is screwed a piston rod, provided with an outer thread, of the rotation-protected piston.

11. A body roller according to any one of Claims 1 to 10, characterised in that a locking device is situated between the
10 grip element and the application roll to interrupt the transport of the lubricative medium.

12. A body roller according to any one of Claims 1 to 11, characterised in that the grip-sided end of the holding tube exhibits an adapter, by which it can be connected to the grip
15 element.

13. A body roller according to Claim 12, characterised in that the grip element is an elastic bottle, on the opening of which an adapter can be placed.

14. A body roller according to any one of Claims 1 to 13,
20 characterised in that a cartridge of lubricative medium can be inserted into the grip element.

15. A body roller according to Claim 14, characterised in that the lubricative medium in the cartridge is placed under a positive gas pressure and a metering device is present for the
25 metered discharge of the lubricative medium from the cartridge.

16. A body roller for applying a lubricative medium to the human skin, substantially as herein described with reference to the accompanying drawings.



Abstract

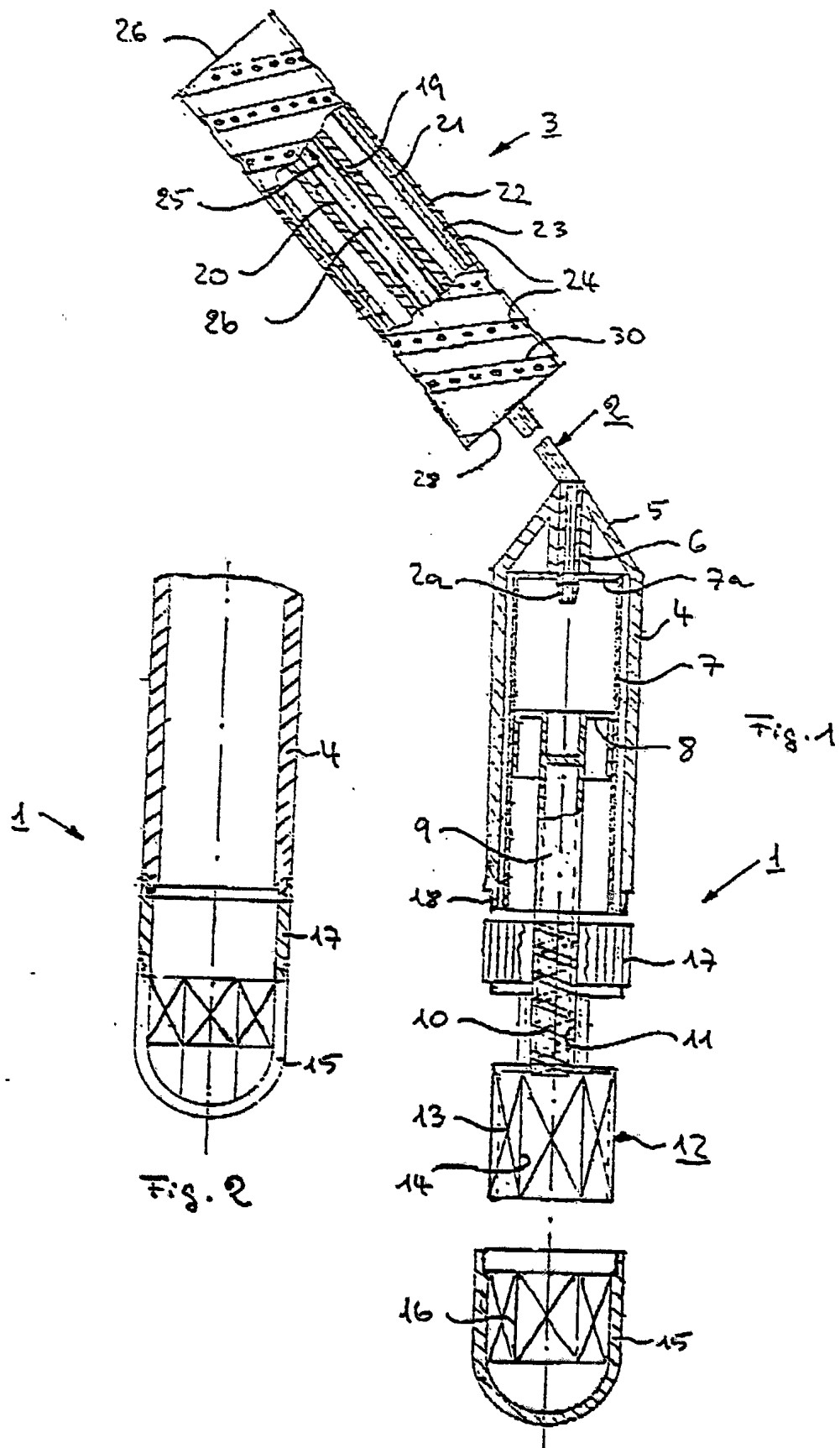
Body roller

A body roller according to the invention serves to apply a lubricative medium to the human skin and exhibits an application roll (3) delivering the medium, a grip element (1) and a bar-shaped holding element (2) connected to the grip element (1), onto the free end of which holding element the application roll (3) is held in a mountable and rotatable manner. The grip element (1) is configured as a reservoir for the lubricative medium, whilst the bar-shaped holding element (2) is a holding tube. The grip element (1) further exhibits a squeezing device (8 to 16) for forcing the lubricative medium out of the grip element (1) through the holding tube (2) into the application roll (3).

{Fig. 1)

1





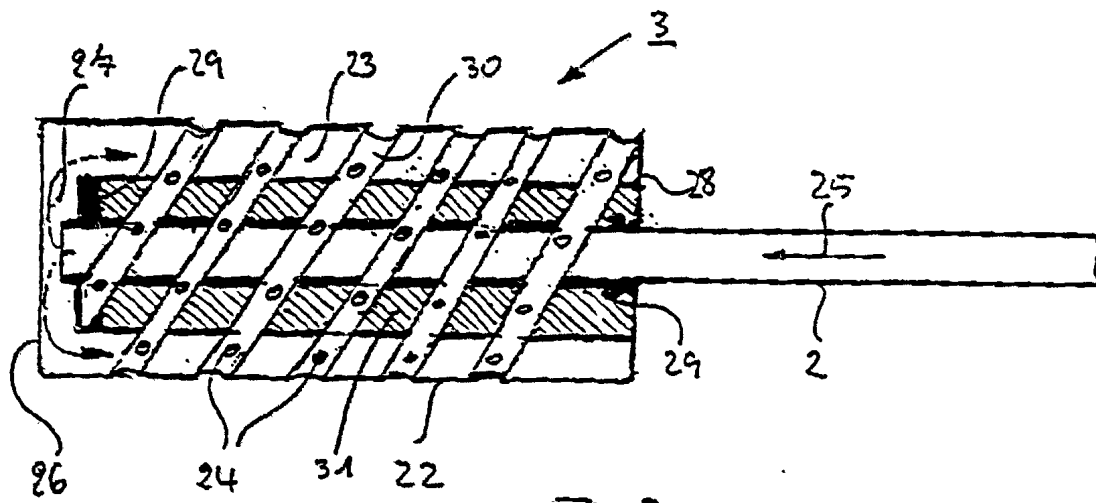


Fig. 3

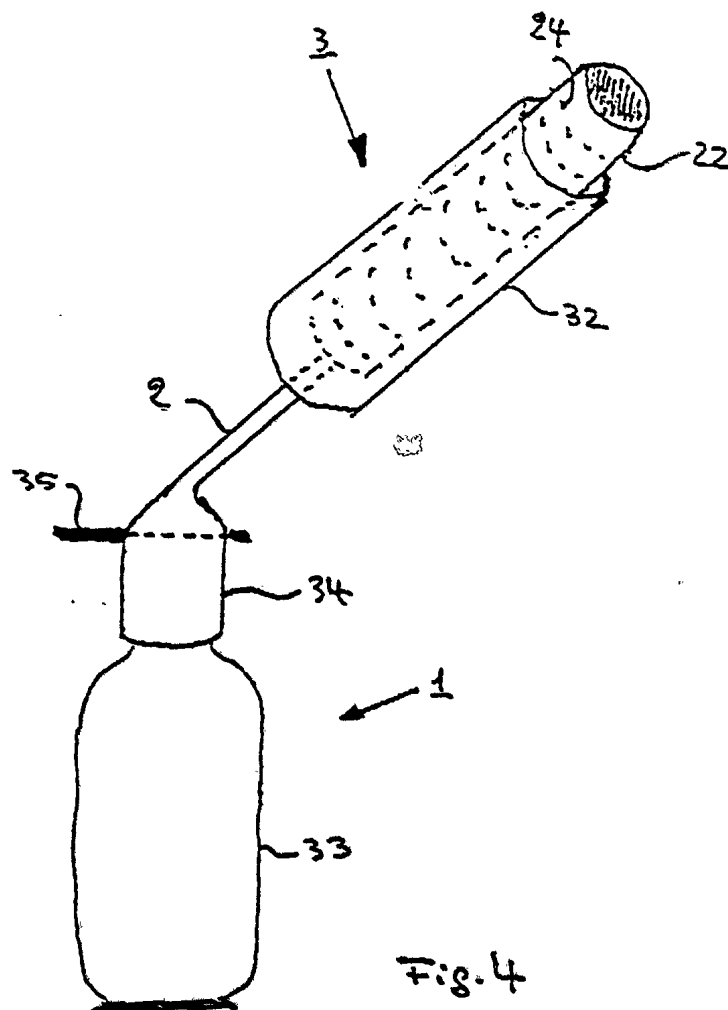


Fig. 4

INTERNATIONAL SEARCH REPORT

International Application No PCT/EP91/01730

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl. ⁵ : A45D 40/26		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int. Cl. ⁵	A45D; B05C; A61M	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category [*]	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE, A, 3 447 845 (BRADKE) 3 July 1986, see page 9, line 16 - page 10, line 13; figures 1,3	1,4,7,12,14
X	NL, A, 8 702 994 (STOCK) 3 July 1989, see page 6, line 3 - page 8, line 14; figures 1-4	1,4,6,12,13
A		2,16
X	US, A, 3 702 739 (RENTFROW) 14 November 1972, see figures 1-4	1,4,5,7,11,12
A	FR, A, 1 164 203 (AMANN) 7 October 1958, see the whole document	1,2,4,16
A	FR, A, 2 172 716 (SCHMIDT) 28 September 1973, see figure 1	2,16
A	US, A, 2 029 056 (CARLSON) 28 January 1936, see figures 6,7	3
A	EP, A, 0 241 370 (TILLEKE) 14 October 1987,	5
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[*] Special categories of cited documents: ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 48%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </div> </div>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
5 December 1991 (05.12.91)		20 December 1991 (20.12.91)
International Searching Authority		Signature of Authorized Officer
European Patent Office		

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
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see figure 2

A	FR, A, 1 281 338 (MAURIN) 12 January 1962, see figure 5	7,8
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A	CH, A, 282 225 (WIDMER) 16 July 1952, see the whole document	9,10
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A	US, A, 4 659 243 (WINSON) 21 April 1987, see figure 1	11
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A	US, A, 2 995 768 (SKURATOWICZ) 15 August 1961 see figures 1,4	15
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A	EP, A, 0 375 579 (TESTELIN) 27 June 1990.	
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**ANHANG ZUM INTERNATIONALEN RECHERCHENBERICHT
ÜBER DIE INTERNATIONALE PATENTANMELDUNG NR.**

EP 9101730
SA 50822

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten internationalen Recherchenbericht angeführten Patentedokumente angegeben.
Die Angaben über die Familienmitglieder entsprechen dem Stand der Datei des Europäischen Patentamts am
Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

05/12/91

Im Recherchenbericht angeführtes Patentedokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
DE-A-3447845	03-07-86	Keine	
NL-A-8702994	03-07-89	Keine	
US-A-3702739	14-11-72	Keine	
FR-A-1164203		Keine	
FR-A-2172716	28-09-73	GB-A- 1415788 NL-A- 7301208	26-11-75 21-08-73
US-A-2029056		Keine	
EP-A-0241370	14-10-87	FR-A- 2596674 FR-A- 2608071 AU-A- 7232687 WO-A- 8706112	09-10-87 17-06-88 09-11-87 22-10-87
FR-A-1281338		Keine	
CH-A-282225		Keine	
US-A-4659243	21-04-87	Keine	
US-A-2995768		Keine	
EP-A-0375579	27-06-90	FR-A- 2640494	22-06-90

EPO FORM P4073

Für nähere Einzelheiten zu diesem Anhang : siehe Amtsblatt des Europäischen Patentamts, Nr.12/82

I. KLASSTIFIKATION DES ANMELDUNGSGEGENSTANDS (bei mehreren Klassifikationssymbolen sind alle anzugeben) ⁶		
Nach der Internationalen Patentklassifikation (IPC) oder nach der nationalen Klassifikation und der IPC		
Int.Kl. 5 A45D40/26		
II. RECHERCHIERTE SACHGEBIETE		
Recherchierter Mindestprüfstoff ⁷		
Klassifikationssystem	Klassifikationssymbole	
Int.Kl. 5	A45D ; B05C ; A61M	
Recherchierte nicht zum Mindestprüfstoff gehorende Veröffentlichungen, soweit diese unter die recherchierten Sachgebiete fallen ⁸		
III. EINSCHLAGIGE VERÖFFENTLICHUNGEN ⁹		
Art. ¹⁰	Kennzeichnung der Veröffentlichung ¹¹ , soweit erforderlich unter Angabe der maßgeblichen Teile ¹²	Betr. Anspruch Nr. ¹³
X	DE,A,3 447 845 (BRADKE) 3. Juli 1986 siehe Seite 9, Zeile 16 - Seite 10, Zeile 13; Abbildungen 1,3	1,4,7, 12,14
X	NL,A,8 702 994 (STOCK) 3. Juli 1989 siehe Seite 6, Zeile 3 - Seite 8, Zeile 14; Abbildungen 1-4	1,4,6, 12,13
A	US,A,3 702 739 (RENTFROW) 14. November 1972 siehe Abbildungen 1-4	2,16
X	FR,A,1 164 203 (AMANN) 7. Oktober 1958 siehe das ganze Dokument	1,4,5,7, 11,12
A		1,2,4,16
<p>¹⁰ Besondere Kategorien von angegebenen Veröffentlichungen:</p> <p>"A" Veröffentlichung, die den allgemeinen Stand der Technik definiert, aber nicht als besonders bedeutsam anzusehen ist</p> <p>"E" älteres Dokument, das jedoch erst am oder nach dem internationalen Anmeldedatum veröffentlicht worden ist</p> <p>"I" Veröffentlichung, die geeignet ist, einen Prioritätsanspruch zweifelhaft erscheinen zu lassen, oder durch die das Veröffentlichungsdatum einer anderen im Recherchenbericht genannten Veröffentlichung belegt werden soll oder die aus einem anderen besonderen Grund angegeben ist (wie ausgeführt)</p> <p>"O" Veröffentlichung, die sich auf eine mündliche Offenbarung, eine Benutzung, eine Ausstellung oder andere Maßnahmen bezieht</p> <p>"T" Veröffentlichung, die vor dem internationalen Anmeldedatum, aber nach dem beanspruchten Prioritätsdatum veröffentlicht worden ist</p> <p>"T" Spätere Veröffentlichung, die nach dem internationalen Anmeldedatum oder dem Prioritätsdatum veröffentlicht worden ist und mit der Anmeldung nicht kollidiert, sondern nur zum Verständnis des der Erfindung zugrundeliegenden Prinzips oder der ihr zugrundeliegenden Theorie angegeben ist</p> <p>"X" Veröffentlichung von besonderer Bedeutung; die beanspruchte Erfindung kann nicht als neu oder auf erfinderischer Tätigkeit beruhend betrachtet werden</p> <p>"Y" Veröffentlichung von besonderer Bedeutung; die beanspruchte Erfindung kann nicht als auf erfinderischer Tätigkeit beruhend betrachtet werden, wenn die Veröffentlichung mit einer oder mehreren anderen Veröffentlichungen dieser Kategorie in Verbindung gebracht wird und diese Verbindung für einen Fachmann naheliegend ist</p> <p>"A" Veröffentlichung, die Mitglied derselben Patentfamilie ist</p>		
IV. BESCHEINIGUNG		
Datum des Abschlusses der internationalen Recherche	Abschließendatum des internationalen Recherchenberichts	
05. DEZEMBER 1991	20. 12. 91	
Internationale Recherchenbehörde	Unterschrift des bevollmächtigten Bediensteten	
EUROPAISCHES PATENTAMT	SIGWALT C.	

III. EINSCHLAGIGE VERÖFFENTLICHUNGEN (Fortsetzung von Blatt 2)		
Art °	Kennzeichnung der Veröffentlichung, soweit erforderlich unter Angabe der maßgeblichen Teile	Betr. Anspruch Nr.
A	FR,A,2 172 716 (SCHMIDT) 28. September 1973 siehe Abbildung 1 ---	2,16
A	US,A,2 029 056 (CARLSON) 28. Januar 1936 siehe Abbildungen 6,7 ---	3
A	EP,A,0 241 370 (TILLEKE) 14. Oktober 1987 siehe Abbildung 2 ---	5
A	FR,A,1 281 338 (MAURIN) 12. Januar 1962 siehe Abbildung 5 ---	7,8
A	CH,A,282 225 (WIDMER) 16. Juli 1952 siehe das ganze Dokument ---	9,10
A	US,A,4 659 243 (WINSON) 21. April 1987 siehe Abbildung 1 ---	11
A	US,A,2 995 768 (SKURATOWICZ) 15. August 1961 siehe Abbildungen 1,4 ---	15
A	EP,A,0 375 579 (TESTELIN) 27. Juni 1990 ---	

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. EP 9101730
SA 50822**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information. 05/12/91

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-3447845	03-07-86	None	
NL-A-8702994	03-07-89	None	
US-A-3702739	14-11-72	None	
FR-A-1164203		None	
FR-A-2172716	28-09-73	GB-A- 1415788	26-11-75
		NL-A- 7301208	21-08-73
US-A-2029056		None	
EP-A-0241370	14-10-87	FR-A- 2596674	09-10-87
		FR-A- 2608071	17-06-88
		AU-A- 7232687	09-11-87
		WO-A- 8706112	22-10-87
FR-A-1281338		None	
CH-A-282225		None	
US-A-4659243	21-04-87	None	
US-A-2995768		None	
EP-A-0375579	27-06-90	FR-A- 2640494	22-06-90