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(54) **SUCTION DEVICE FOR REMOVING PARASITES FROM HAIR**

(57) The present invention relates to a vacuum device for removing parasites (nits, lice, etc.) from hair, which enables the effective and fast removal of any type of parasite from hair, all in a clean and innocuous manner for the patient, preventing said parasites from having to be manually removed, while preventing the hair from being suctioned and damaged. The vacuum device (1) basically comprises a hollow main body (10) having a mouth (11) for coupling to a conventional domestic vacuum cleaner (A) and at least one pair of combs (20, 30) arranged substantially parallel and facing each other, each having a plurality of bristles (21, 31) with a different inter-bristle space (E1, E2) for each comb (20, 30).

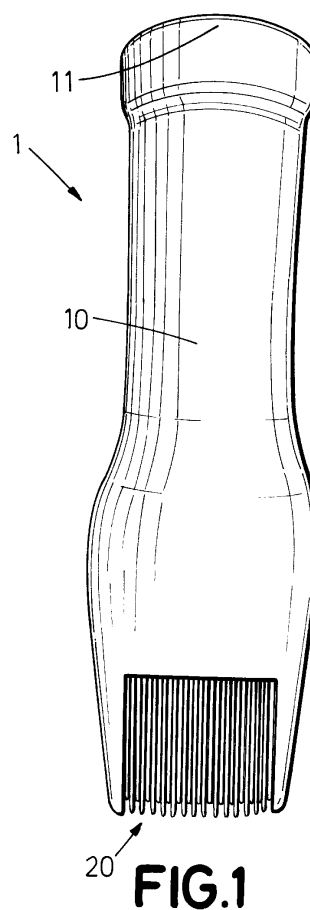


FIG.1

Description

OBJECT OF THE INVENTION

[0001] The present invention belongs to the field of hygiene and health and, more specifically, to apparatuses or devices for treating pediculosis, specially adapted for vacuuming or suctioning parasites present in hair, such as lice, nits or similar.

[0002] The object of the present invention is a vacuum device for effectively and quickly removing any type of parasite present in hair, all in a clean and innocuous manner for the patient.

BACKGROUND OF THE INVENTION

[0003] The drawbacks, discomfort, sores and itching caused by pediculosis or the skin condition caused by the infestation of lice, located primarily on the scalp, and mainly affecting children aged between three and twelve, although it can equally affect adults, are currently well known.

[0004] The pediculicidal treatments that currently exist on the market do not make it possible to completely and effectively eradicate parasites (lice, nits or similar); additionally, the conventional products used are highly toxic and harmful to health, and can even build up tolerance in patients due to the continued use thereof. It is an acknowledged fact that the use of said products (pills, special lotions, etc.) is not free from complications and may even be contraindicated in young children.

[0005] Another major drawback to be pointed out in current pediculicidal treatments is that their prophylactic use is not allowed (prevention before the appearance of pediculosis), having to wait for the parasites to be visible in order to apply them, which would entail the possibility of continued contagion among family members or at school, thereby making the problem chronic with progressive re-infestations. In addition to the foregoing, what is really complicated in the parasite elimination process is the complete eradication of the infestation all at once, since nits and other parasites remain attached to the combs or nit combs and to hair or fall to the ground or on clothes, remaining alive and with new re-infestation potential, with the negative consequences this implies.

[0006] Likewise, another existing drawback of the devices developed to date is that they suction long hair, while tangling it and rendering the eradication of parasites and nits unmanageable and ineffective.

[0007] Lastly, another drawback to be pointed out is that existing pediculicidal treatments cannot be used as many times as required in a single event, obliging the patient to wait three, five or seven days, depending on the active ingredient in question.

DESCRIPTION OF THE INVENTION

[0008] The present invention makes it possible to solve

the aforementioned drawbacks by means of a vacuum device for removing parasites (nits, lice, etc.) from hair, which enables the effective, simple and quick removal of any type of parasite present in hair, all in a clean and innocuous manner for the patient, preventing said parasites from having to be manually removed, while preventing the hair from being suctioned and damaged. It should also be noted that the vacuum device described herein applies to both long and short hair, regardless of its nature, whether straight or curly.

[0009] More specifically, the vacuum device of the invention basically comprises a hollow main body, preferably with a tubular and ergonomic configuration, having a mouth for coupling to a conventional domestic vacuum cleaner; and at least one pair of combs arranged substantially parallel and facing each other, each of which having a plurality of bristles or teeth with a different inter-bristle space for each comb, such that at least one first comb of the aforementioned combs is configured to facilitate combing and retention of hair without being suctioned and wherein a second comb is configured to allow the dragging and retention of the parasites in the hair for suctioning them using a domestic vacuum cleaner.

[0010] In general, conventional domestic vacuum cleaners are equipped with an internal bag or sack where all the suctioned material is deposited, due to which the suctioned parasites may be removed and disposed of in a clean and safe manner.

[0011] Preferably, the vacuum device of the invention comprises two rows of facing combs, which are convergent therebetween, their bristles being inclined at a certain angle with their tips closer together with respect to their bases. This angular layout facilitates the combing, retention and elimination of parasites, preventing damage to the hair.

[0012] Likewise, preferably, the first comb has a wider inter-bristle space with respect to the second comb, thereby enabling said first comb to retain the hair without tangling or suctioning it, allowing only the parasites to pass, which will subsequently be collected by the second comb. Therefore, the first comb (having a greater inter-bristle space) has the function of facilitating combing and retention of the hair so that it does not become tangled or suctioned; whereas the second comb (having a smaller inter-bristle space) enables the proper dragging and retention of the parasites in the hair for final suctioning thereof through the vacuum tube or hose.

[0013] At this point, it should be noted that when reference is made herein to a "domestic vacuum cleaner", it also relates to any other vacuum system equally attachable to the vacuum device of the invention. Furthermore, it has been envisaged that the vacuum device may additionally comprise a removable grille that functions in the manner of a filter and which can easily be extracted for removing and disposing of the nits and parasites. In addition, it has also been envisaged that said removable grille may additionally comprise a magnifying lid that facilitates the visualisation of the parasites and nits re-

moved from the scalp, as well as ensuring that they have been completely eliminated on not observing their presence, which will avoid prolonging the patient's concerns and doubts.

[0014] Lastly, some of the main advantages obtained through the vacuum device object of the invention are listed below:

- Valid for all hair types: straight or curly, long or short.
- Attachable to any conventional vacuum cleaner.
- Ergonomic, enabling access to any hair zone.
- Complete eradication of the parasites in hair.
- Does not suction or tangle hair, constituting an effective device based on a suctioning comb/nit comb (which can be used from the root to the tip of the hair).
- Adjustable suction force by controlling the opening of the device window.
- Does not damage the scalp.
- Applicable both for prophylactic use and for treating pediculosis.
- Possibility of use as a one-time treatment and as an adjuvant together with pediculicides.
- Useful for users of all ages.
- Possibility of use with dry hair.
- Reusable, both for professional and domestic use.

DESCRIPTION OF THE DRAWINGS

[0015] As a complement to the description being made, and for the purpose of helping to make the characteristics of the invention more readily understandable, in accordance with a preferred example of practical embodiment thereof, said description is accompanied by a set of drawings constituting an integral part thereof, which, by way of illustration and not limitation, represent the following:

Figure 1 shows a front view of the vacuum device for removing parasites from hair object of the invention.

Figure 2 shows a detailed view wherein the two combs and their corresponding rows of bristles can be observed.

Figure 3 shows a view of the rear portion of the device, wherein its mouth for coupling a conventional vacuum cleaner can be observed.

Figure 4 shows a general view wherein a conventional vacuum cleaner with the vacuum device already incorporated and coupled to its suction tube can be observed.

Figure 5 shows an upper view of the vacuum device, similar to figure 2 but configured for short hair, wherein a lid on the first comb with greater interbristle space can be observed.

Figure 6 shows a view of the vacuum device in accordance with another preferred embodiment, wherein a slot with gradual opening and a removable grille can be observed.

PREFERRED EMBODIMENT OF THE INVENTION

[0016] What follows is an example of a preferred embodiment making mention of the aforementioned figures, without limiting or reducing the scope of protection of the present invention.

[0017] Figure 1 shows the vacuum device (1) for removing parasites from hair object of the invention, which comprises:

- a hollow main body (10) having a tubular and ergonomic configuration for favouring gripping by the user, provided with a flexible mouth (11), shown more clearly in figure 3, for coupling to a conventional domestic vacuum cleaner (A), and
- a pair of combs (20, 30) or "nit combs", arranged in a facing position and quasiparallel to each other, as represented in figure 2, wherein each of said combs (20, 30) is provided with a plurality of bristles (21, 31) defining a different inter-bristle space (E1, E2) for each comb (20, 30). In accordance with the present embodiment, said bristles (21, 31) are metallic and, more specifically, made of stainless steel to endow them with resistance and robustness without becoming deteriorated or rusted by wet hair.

[0018] More specifically, in figure 2 it can be observed that the first comb (20) has a wider inter-bristle space (E1) with respect to the second comb (30), thereby facilitating combing and preventing the hair from being suctioned, letting only the parasites pass.

[0019] Furthermore, the second comb (30) has a smaller inter-bristle space (E2) with respect to that existing in the first comb (20), said second comb (30) having a larger number of bristles (31) with a smaller cross-section and diameter with respect to the bristles (21) of the first comb (20), whereupon said bristles (31) are closer together. This special arrangement of the bristles (21, 31) with different inter-bristle space (E1, E2) favours the aforementioned functions for each of the combs (20, 30): combing, retention of the hair and passage of the parasites for the first comb (20); and dragging and final suction of the parasites through the vacuum (A) as represented by figure 4, for the second comb (30).

[0020] At this point, it should be noted that the fact that the mouth (11) of the hollow main body (10) is made of flexible material enables it to be coupled to the hoses or tubes of vacuum cleaners (A) of different dimensions, formats and commercial brands, endowing the vacuum device (1) described herein with a universal nature.

[0021] In figure 2 it can also be observed that the two rows of combs (20, 30) are arranged convergently therebetween, their bristles (21, 31) being inclined at a certain angle, with their tips closer together with respect to their bases. Additionally, it has been envisaged that the tips of the bristles (21, 31) are blunt and rounded to avoid possible damage to the skin of the scalp.

[0022] In accordance with another preferred embodi-

ment, shown in figure 5, it has been envisaged that, in the case of patients with short hair or shaven heads, the vacuum device (1) additionally comprises a lid (40) dimensionally adapted to be fitted to the first comb (20), the comb having greater interbristle space (E1), thereby annulling its action and actuating the second comb (30) only in this case. This makes it possible to handle and provide the vacuum device (1) with a greater angle of inclination, which is necessary to retain the parasites in said short hair, thereby increasing its suction capacity and wherein in this case the functions of the first comb (20) (combing and retention of the hair) are not necessary.

[0023] Likewise, as can be observed in figure 6, it has been envisaged that the vacuum device (1) may comprise a slot (50) having a gradual opening to allow the adjustment of the suctioning power or force of the vacuum cleaner (A), said slot (50) also having a microparticle filter (51) to prevent parasites from escaping.

[0024] Additionally, the possibility is envisaged that the vacuum device (1) may further comprise a removable grille (60), shown in figure 6, which also has a filter (61) that transversely crosses the hollow main body (10) for the subsequent removal and disposal of the suctioned nits and parasites. Said removable grille (60) may be disposable or reusable, with or without a magnifying lid for visualising the parasites removed. Additionally, in the present embodiment, the location chosen for the removable grille (60) at a front position of the hollow main body (10) and, more specifically, between the combs (20, 30) and the slot with gradual opening (50). This would allow more effective filtering of the parasites while not obstructing or impeding the attachment of the mouth (11) of the hollow main body (10) to the vacuum cleaner (A) or suctioning system in question.

[0025] Therefore, by means of the present invention a vacuum device (1) of an innocuous and eco-friendly nature is provided, with access to any part of the scalp, regardless of the length or hair type of the infested person, allowing the collection by retention and removal by suction of the parasites, achieving total eradication thereof all at once, wherein it can be used both therapeutically in infested persons and prophylactically regardless of age or sex.

Claims

1. A vacuum device (1) for removing parasites from hair, **characterised in that** it comprises:

- a hollow main body (10) provided with a mouth (11) for coupling to a conventional domestic vacuum cleaner (A), and
- at least one pair of combs (20, 30) arranged substantially parallel and facing each other, each having a plurality of bristles (21, 31) with a different inter-bristle space (E1, E2) for each

comb (20, 30), such that at least one first comb (20) is configured to facilitate combing and retention of the hair without suctioning it, letting the parasites pass; and wherein a second comb (30) is configured for dragging and retaining the parasites in the hair for final suctioning thereof through the vacuum cleaner (A).

2. The vacuum device (1), according to claim 1, **characterised in that** it comprises two rows of combs (20, 30) facing each other.
3. The vacuum device (1), according to claim 2, **characterised in that** the combs (20, 30) are arranged convergently therebetween, their bristles (21, 31) being inclined at a certain angle, with their end tips closer together with respect to their bases.
4. The vacuum device (1), according to any one of the preceding claims, **characterised in that** the first comb (20) has a wider inter-bristle (E1) space with respect to the second comb (30).
5. The vacuum device (1), according to any one of the preceding claims, **characterised in that** the second comb (30) has a larger number of bristles (31) with respect to the first comb (20) and these are closer together.
6. The vacuum device (1), according to claim 5, **characterised in that** the bristles (31) of the second comb (30) have a smaller cross-section and diameter with respect to the bristles (21) of the first comb (20).
7. The vacuum device (1), according to claim 1, **characterised in that** the hollow main body (10) has a tubular and ergonomic configuration.
8. The vacuum device (1), according to claim 1, **characterised in that** the mouth (11) of the hollow main body (10) is made of flexible material.
9. The vacuum device (1), according to claim 1, **characterised in that** the bristles (21, 31) of the comb (20, 30) have a blunt and rounded tip.
10. The vacuum device (1), according to claim 1, **characterised in that** the bristles (21, 31) are made of stainless steel.
11. The vacuum device (1), according to claim 1, **characterised in that** it further comprises a lid (40) dimensionally adapted to be fitted to the first comb (20), the comb having greater inter-bristle space (E1).
12. The vacuum device (1), according to claim 1, **char-**

acterised in that it further comprises a slot (50) with gradual opening to allow the regulation of the suction force of the vacuum cleaner (A), said slot (50) also being provided with a microparticle filter (51) for preventing parasites from escaping.

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13. The vacuum device (1), according to claim 1, **characterised in that** it further comprises a removable grille (60) having a filter (61) that transversely penetrates the hollow main body (10) for the removal and disposal of the suctioned nits and parasites.
14. The vacuum device (1), according to claims 12 and 13, **characterised in that** the removable grille (60) is positioned at the front of the hollow main body (10), between the combs (20, 30) and the slot (50) with gradual opening.
15. The vacuum device (1), according to any one of claims 13 or 14, **characterised in that** the removable grille (60) further comprises a magnifying lid for visualising the parasites.

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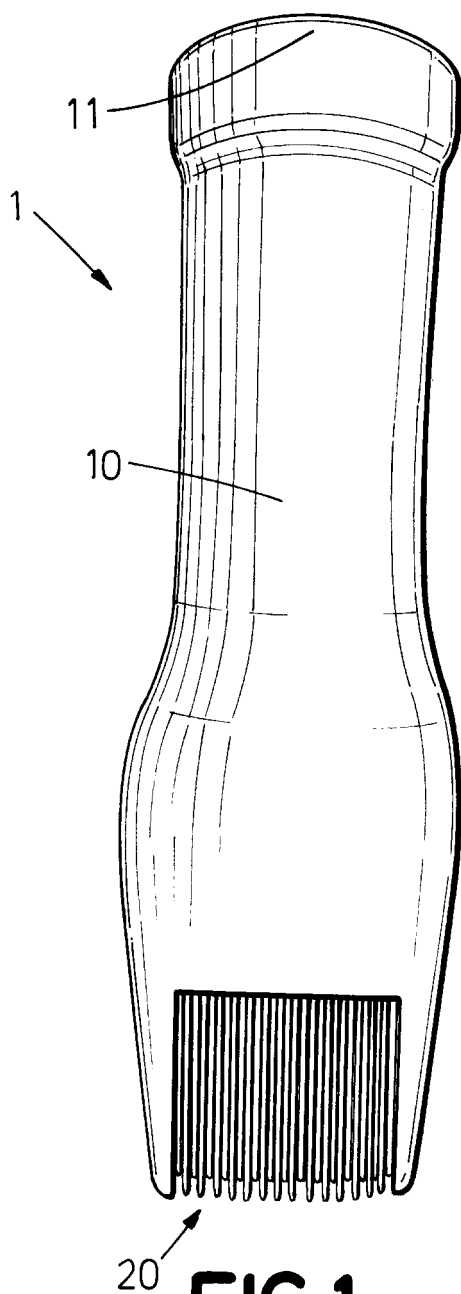


FIG.1

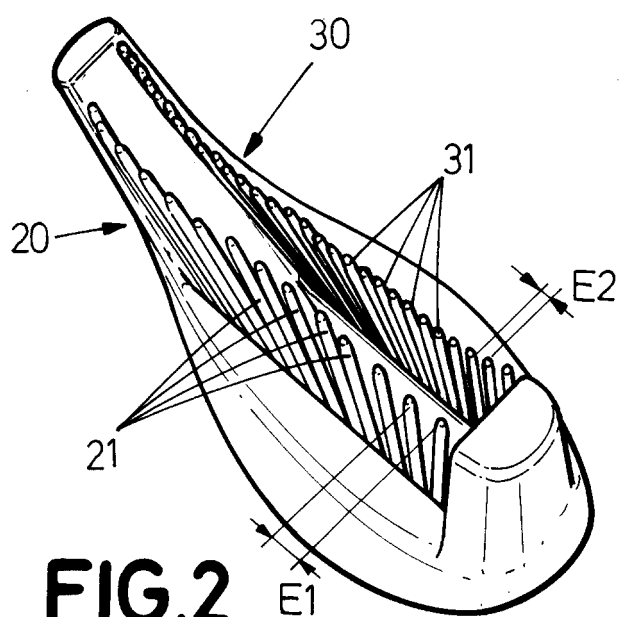


FIG.2

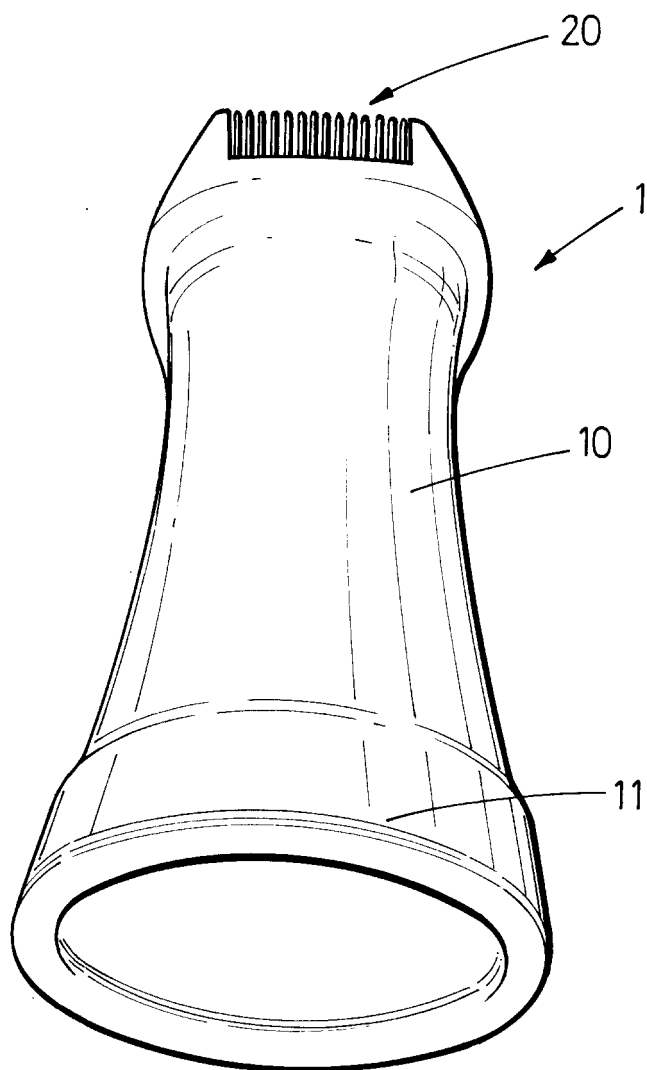


FIG.3

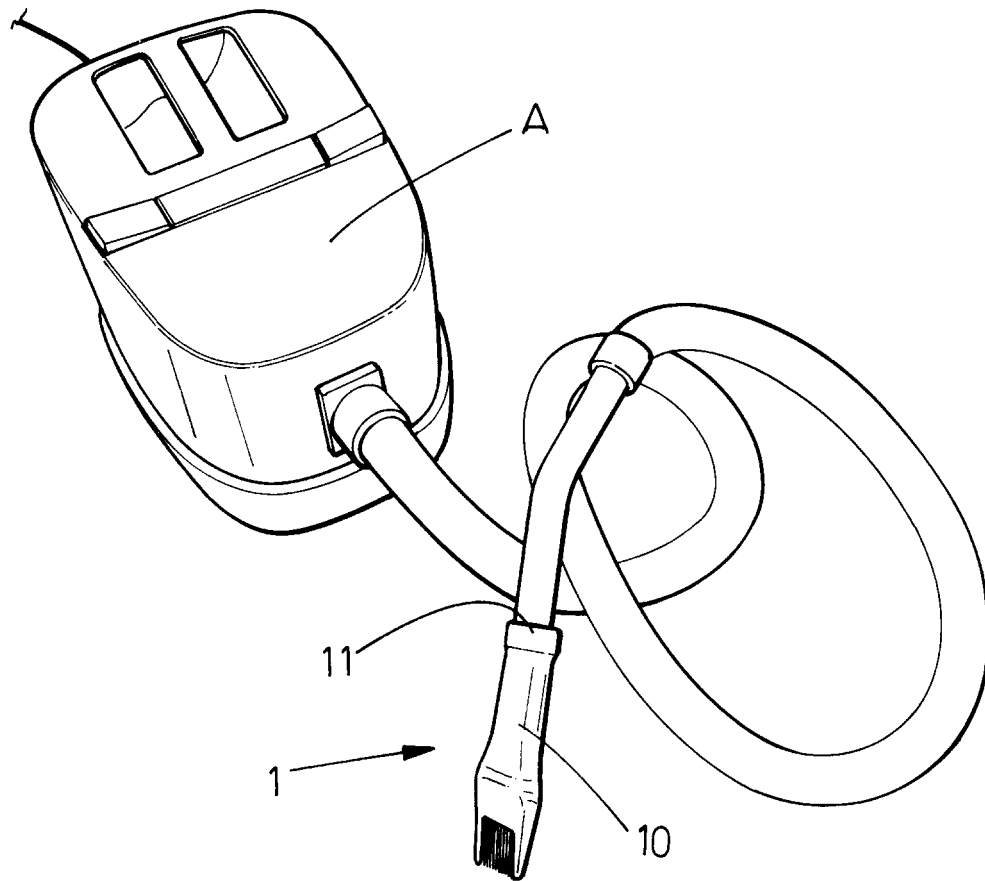
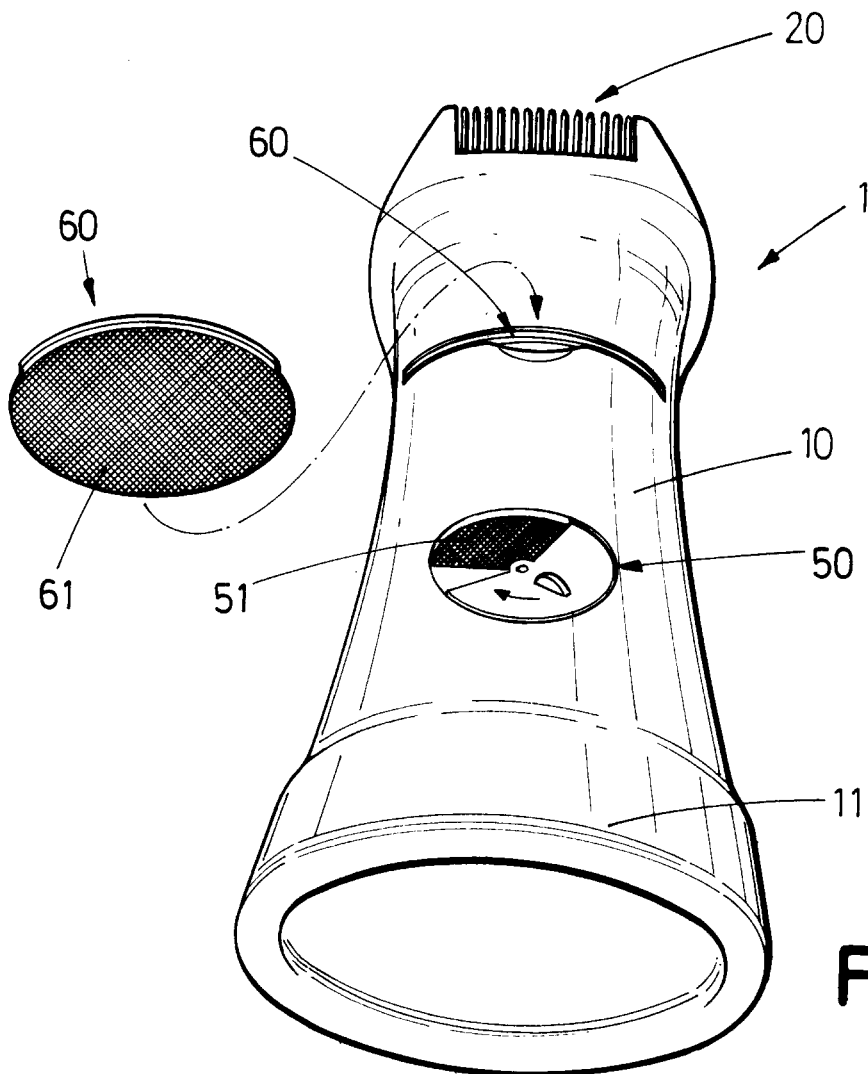
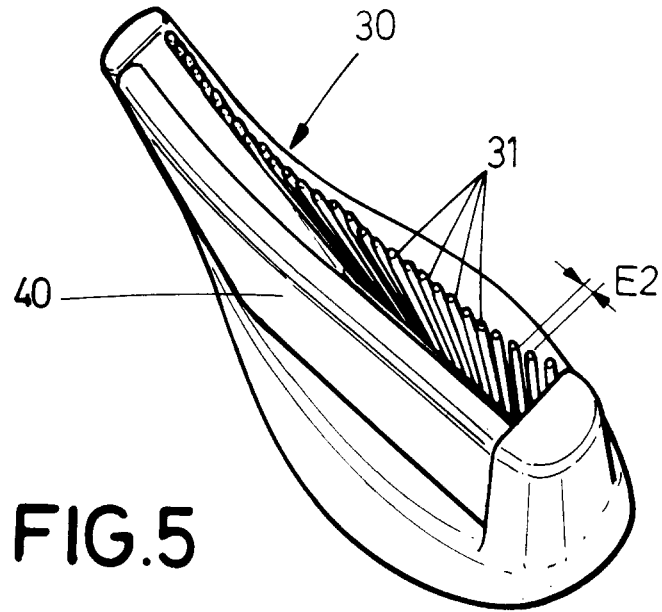


FIG. 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2014/070723

A. CLASSIFICATION OF SUBJECT MATTER

A45D24/32 (2006.01)

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A45D

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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

* Special categories of cited documents:

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Date of the actual completion of the international search
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INTERNATIONAL SEARCH REPORT

International application No.
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