



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.11.2019 Bulletin 2019/46

(51) Int Cl.:
B26B 19/38 (2006.01)

(21) Application number: **18171816.4**

(22) Date of filing: **11.05.2018**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

- **Van der Kooi, Johannes Tseard**
5656 AE Eindhoven (NL)
 - **Stapelbroek, Martinus Bernardus**
5656 AE Eindhoven (NL)
 - **Aitink, Albert Jan**
5656 AE Eindhoven (NL)
 - **Hoexum, Everhardus Johannes**
5656 AE Eindhoven (NL)
 - **Rao, Ramachandra Ganesh**
5656 AE Eindhoven (NL)
- (74) Representative: **de Haan, Poul Erik et al**
Philips International B.V.
Philips Intellectual Property & Standards
High Tech Campus 5
5656 AE Eindhoven (NL)

(71) Applicant: **Koninklijke Philips N.V.**
5656 AE Eindhoven (NL)

(72) Inventors:
• **Godlieb, Robert**
5656 AE Eindhoven (NL)

(54) **SHAVING ASSEMBLY AND HAIR CUTTING APPLIANCE**

(57) Embodiments of present disclosure relates to a shaving assembly and a hair cutting appliance comprising the shaving assembly. The shaving assembly comprises: a supporting arm extending in a first direction; a cutting element comprising at least one moving tooth arranged along the first direction; a guard foil extending in the first direction and surrounding the cutting element, the guard foil comprising: a contact surface and a bent part, wherein an angle between the contact surface and the supporting arm is an acute angle, and at least one guard tooth slot is formed across the contact surface and the supporting arm, wherein the shaving assembly further comprises: a blocking member extending between the moving tooth and the supporting arm in a second direction that is substantially perpendicular to the contact surface, wherein the blocking member is adapted to facilitate hair being released from the guard tooth slot when the guard tooth slot is moved against the hair.

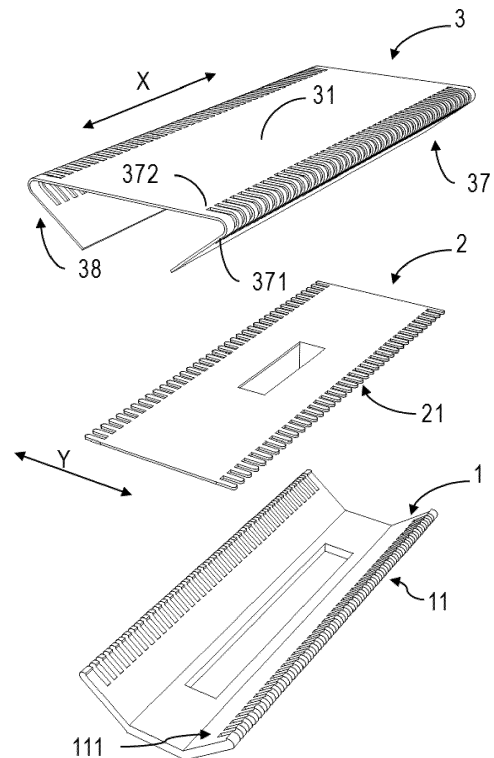


FIG. 1A

Description

FIELD OF THE INVENTION

[0001] Embodiments of present disclosure generally relate to home appliance, and more specifically, to a shaving assembly and a hair cutting appliance comprising the shaving assembly.

BACKGROUND OF THE INVENTION

[0002] Conventional trimmers or clippers for shaving and grooming facial hairs are designed to cut the hairs at a certain distance from the skin. Some close shaving trimmers have been proposed to use a modified construction to enable hair cutting at a much closer distance from the skin. Normally, close shaving trimmers relies on thinner guard-teeth. Further, for achieving an effective and comfortable trim, complex rounding features and other features may also be needed.

[0003] As an example, CN106346519A discloses an appliance where a thin and flat metal sheet with guard teeth or hair-catching cut-outs is stretched over a molded base. This type of appliance is usually cheaper as it can be simply constructed from a flat sheet of thin foil. However, such an appliance usually leads to clogging of cut hair at the angulated guard tooth slots. Such clogging issue may especially be caused by relatively long hairs being stuck or wedged in the tilted portion of the slot. In this case, the catching of subsequent hairs will be hindered or even completely stopped.

SUMMARY OF THE INVENTION

[0004] Embodiments of the present disclosure provide a shaving assembly with an anti-clogging blocking member and a hair cutting appliance comprising the shaving assembly.

[0005] In first aspect, a shaving assembly is provided. The shaving assembly comprises: a supporting arm extending in a first direction; a cutting element comprising at least one moving tooth arranged along the first direction; a guard foil extending in the first direction and surrounding the cutting element, the guard foil comprising: a contact surface and a bent part, wherein the contact surface is adapted to be in contact with skin, and the bent part extends in the first direction for fixing the guard foil on the supporting arm, and wherein an angle between the contact surface and the supporting arm is an acute angle, and at least one guard tooth slot formed across the contact surface and the supporting arm and arranged along the first direction, wherein the guard tooth slot is adapted to direct hair to the moving tooth when the guard tooth slot is moved against the hair, wherein the shaving assembly further comprises: a blocking member extending between the moving tooth and the supporting arm in a second direction that is substantially perpendicular to the contact surface, wherein the blocking member is

adapted to facilitate hair being released from the guard tooth slot when the guard tooth slot is moved against the hair.

[0006] According to embodiments of the present disclosure, the blocking element can effectively push or eject the cut hairs out of the tooth slot, which reduces the possibility of the hair clogging occurring at the guard tooth slots, thereby enabling a continuous and comfortable shaving.

[0007] In some embodiments, the supporting arm comprises at least one groove arranged along the first direction and corresponding to the at least one guard tooth slot, wherein an end of the guard tooth slot extends to a bottom of the groove and an opposite end of the guard tooth slot extends to the moving tooth. In this way, the hairs, especially long hairs, can be easily received at the cutting position of the moving teeth in a substantially vertical orientation.

[0008] In some embodiments, the blocking member comprises a first blocking part extending between the moving tooth and the supporting arm in the second direction and comprising a surface facing the guard tooth slot. In these embodiments, the first blocking part may apply an additional force via the surface to push the cut hair out of the slot, when the guard tooth slot is moved against the hair. In this case, the release of the stuck hair no longer just relies on the force applied by the subsequent hair. In this way, the hair can be easily released from the slots.

[0009] In some embodiments, an end of the first blocking part is connected to a root associated with the moving tooth, and an opposite end of the first blocking part is separated from an inner wall of the supporting arm by a first distance. In this way, the maintained first distance can reduce the friction generated between the opposite end of the first blocking part and the inner wall of the supporting arm during the movement of the moving tooth.

[0010] In some embodiments, the blocking member further comprises at least one second blocking part extending between the moving tooth and the supporting arm in the second direction, wherein the second blocking part is oriented substantially perpendicular to the first blocking part. In some embodiments, the at least one second blocking part comprises two second blocking parts arranged at different sides of the first blocking part. The second blocking parts additionally provide two side walls, which help to maintain the orientation of the cut hair by limiting the movement freedom of the cut hair, in the first direction. In this way, the cut hair can be properly manipulated by the side walls before it is released out of the slot.

[0011] In some embodiments, an end of the second blocking part is connected to the moving tooth and an opposite end of the second blocking part is separated from an inner wall of the supporting arm by a second distance. In this way, the maintained second distance likewise can reduce the friction generated between the opposite end of the second blocking part and the inner

wall of the supporting arm during the movement of the moving tooth.

[0012] In some embodiments, the opposite end of the second blocking part has a surface matching with an inner wall of the supporting arm. In this way, the almost entire inner space defined by an angulated portion can be filled with the second blocking part, which further decreases hair clogging possibility

[0013] In some embodiments, the surface extends along the inner wall of the supporting arm and beyond a bottom of a groove of the supporting arm, the groove corresponding to the guard tooth slot. In this way, the cut hair can be continuously manipulated by the side walls before it is completely released out of the slot.

[0014] In some embodiments, an end of the first blocking part is connected to a bottom of a groove of the supporting arm, the groove corresponding to the guard tooth slot, and an opposite end of the first blocking part is separated from the moving tooth by a third distance. In some embodiments, an end of the second blocking part is connected to a finger associated with a groove of the supporting arm, the groove corresponding to the guard tooth slot, and an opposite end of the second blocking part is separated from the moving tooth by a fourth distance. In this alternative way, the blocking member can be connected to the supporting arm, instead of the moving tooth, which reduces the weight of the moving tooth. Meanwhile, the original design of the cutting element will be not affected.

[0015] In some embodiments, the blocking member is integrally formed with the moving tooth. In some embodiments, the blocking member is integrally formed with the supporting arm. Such integrally formed blocking member may ease the fabrication and assembly of the shaving assembly, and meanwhile improving the overall stiffness.

[0016] In second aspect, a hair cutting appliance is provided. The hair cutting appliance comprises: a shaving assembly according to the first aspect of the present disclosure; and a driving mechanism configured to cause a movement of the cutting element inside the shaving assembly.

[0017] Through the following discussions, it would be apparent that compared to conventional hair cutting appliance, the hair cutting appliance comprising the anti-clogging shaving assembly according to various embodiments of present disclosure avoids the hair clogging occurring at the slots, and thereby the discomfort and discontinuousness occurred during the user's shaving can be eliminated. Meanwhile, the simple design and easy fabrication makes such cutting appliance cost-effective.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Drawings described herein are provided to further explain the present disclosure and constitute a part of the present disclosure. The example embodiments of the disclosure and the explanation thereof are used to explain the present disclosure, rather than to limit the

present disclosure improperly.

FIG. 1A illustrates an exploded view of an a shaving assembly in accordance with various embodiments of the present disclosure, with no blocking member attached;

FIG. 1B illustrates a perspective view of the shaving assembly as shown in FIG. 1A in an assembled state; FIG. 1C illustrates another perspective view of the shaving assembly as shown in FIG. 1B;

FIG. 2 illustrates a side view of the shaving assembly of FIG. 1C;

FIGs. 3A-3B schematically illustrate the clogging generating process caused by the cut hair;

FIG. 4 schematically shows an internal view of the shaving assembly of FIG. 1C with hair clogging formed;

FIG. 5 illustrates a perspective of a blocking member attached on a cutting element, in accordance with an embodiment of the present disclosure;

FIG. 6 illustrates a perspective of a shaving assembly having the blocking member attached on a cutting element, in accordance with an embodiment of the present disclosure;

FIG. 7 illustrates a side view of the shaving assembly as shown in FIG. 6; and

FIGs. 8A-8C schematically illustrate how the hair clogging is prevented by the blocking element as shown in FIGs. 5-7.

[0019] Throughout the drawings, the same or similar reference symbols are used to indicate the same or similar elements.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0020] Principles of the present disclosure will now be described with reference to several example embodiments shown in the drawings. Though example embodiments of the present disclosure are illustrated in the drawings, it is to be understood that the embodiments are described only to facilitate those skilled in the art in better understanding and thereby achieving the present disclosure, rather than to limit the scope of the disclosure in any manner.

[0021] FIG. 1A illustrates an exploded view of a shaving assembly 100 according to various embodiments of the present disclosure. As shown, the shaving assembly 100 generally comprises a guard foil 3, a cutting element 2, and a base comprising two supporting arms 1.

[0022] For sake of discussions, in the following, the length direction of the shaving assembly 100 is referred to a "first direction" X, the height direction of the shaving assembly 100 is referred to a "second direction" Z, and the width direction of the shaving assembly 100 is referred to a "third direction" Y. The first direction X and the third direction Y are perpendicular to each other and jointly define a horizontal plane XY. The second direction Z

is substantially perpendicular to the horizontal plane XY.

[0023] The two supporting arms 1 extend in the first direction X and are tilted with respect to the third direction Y by a certain angle. The cutting element 2 also extends in a first direction X and comprises multiple moving teeth 21 that are arranged along the first direction X. Further, in some embodiments, the guard foil 3 can be stretched to surround the cutting element 2 via a bend of a part of the guard foil 3 with respect to an axis along the first direction X.

[0024] As illustrated in FIGs. 1A-1C, the guard foil 3 comprises a contact surface 31 and a bent part 38. When operated, the contact surface 31 is adapted to be in contact with skin of a user, and the bent part 38 extends in the first direction X for fixing the guard foil 3 on the supporting arm 1. In this way, the guard foil 3 can be supported or suspended on the supporting arm 1, thereby forming an inner space 320 of the shaving assembly 100 as illustrated in FIG. 1B. The inner space 320 can be used to accommodate the driving mechanism 300 for causing the movement of the cutting element 2, as illustrated in FIG. 1C.

[0025] In some embodiments, the contact surface 31 may be substantially flat. In some other embodiments, the contact surface 31 may include some additional surface features (such as, curved features) to enhance the shaving comfort. In some other embodiments, the whole contact surface may be even constructed as a curved surface to meet some specific requirements.

[0026] Still with reference to FIG. 1A, according to embodiments of the present disclosure, multiple guard tooth slots 37 are arranged along the first direction X. The guard tooth slots 37 are formed across both the contact surface 31 and the supporting arm 1. In other words, those guard tooth slots 37 are formed at the corner or angulated part that is formed by the contact surface 31 and the supporting arm 1. Those guard tooth slots 37 correspond to the moving teeth 21 and can be used to direct hair to the moving teeth 21 when the guard tooth slot 37 is moved against the hair during the operation.

[0027] In some embodiments, as illustrated in FIG. 1A, the supporting arm 1 may comprise multiple grooves 11. Those grooves 11 are likewise arranged along the first direction X and corresponding to the guard tooth slots 37. In this example, one end 371 of the guard tooth slot 37 extends to a bottom 111 of the groove 11, and the opposite end 372 of the guard tooth slot 37 extends to the moving tooth 21. Thereby, an angulated guard tooth slot 37 is formed. In this way, the hairs, especially long hairs, can be easily guided into the slots 37 to arrive at the cutting position of the moving teeth 21 in a substantially vertical orientation, or in other words, in the second direction Z).

[0028] Referring to FIG. 2, as discussed above, due to the tilted orientation of the supporting arm 1, when the guard foil 3 is fixed on the supporting arms 1, an acute angle θ is formed between the contact surface 31 of the guard foil 3 and the supporting arm 1. The inventors have

found that in association with the structure of the shaving assembly 100, a potential clogging may occur at the angulated guard tooth slots 37, and especially at the tilted portion of the guard tooth slot 37 attached along the supporting arm 1.

[0029] This is in part because the angulated guard tooth slots 37 will increase the possibility that the long hair is stuck or wedged at the tilted portion of the guard tooth slots 37. In addition, the dimension of the slot along the first direction X is normally designed to be in the same order of the diameter of a hair to enable an effective cutting, which also attributes to the hair wedge. Moreover, especially when the guard foil 3 is fixed on the supporting arm 1, and thus the guard tooth slot 37 is aligned with the relative thick groove 11, a thick slot is formed, which also attributes to the hair wedge.

[0030] FIGs. 3A-3B schematically illustrate the clogging generating process caused by the cut hair in the shaving assembly 100. As illustrated in FIG. 3A, the hair 201 has been cut and stuck at a guard tooth slot 37. Then, with a further movement of the shaving assembly 100 against the hairs as illustrated in FIG. 3B, the previously cut and stuck hair 201 may not be easily released or pushed out of the slot just via the force generated by the subsequent hair. In other words, the applied force by the subsequent hair may not be sufficient enough to bring the stuck hair 201 out of the slot. This is because the interaction force between soft hairs is usually weak.

[0031] Then, as illustrated in FIG. 3C, with more and more cut hairs are wedged in the slot, a clogging is finally formed to close the slot. As such, even with a further movement of the shaving assembly against the hairs, only short hairs may still reach the moving teeth 21, while long hairs can no longer be received into the slot to reach the cutting position of the moving teeth 21. As such, the user must stop the shaving and clean the wedged hairs.

[0032] FIG. 4 schematically shows an internal view of the shaving assembly with the formed hair clogging. As shown, in some circumstances, the cut hair 201 may not be able to position itself properly. Rather, it may fall over to cross two neighboring moving teeth 21 in a substantially horizontal direction. This would even worsen the clogging.

[0033] In view of the forgoing, according to various embodiments of the present disclosure, the shaving assembly 100 as shown in FIGs. 1A-4 is further equipped with an anti-clogging blocking member 40. The blocking member 40 extends between the moving tooth 21 and the supporting arm 1 in the second direction Z that is substantially perpendicular to the flat contact surface 31. The blocking member 40 may facilitate hair 201 being released from the guard tooth slot 37 when the guard tooth slot 37 is moved against the hair 201.

[0034] Now various embodiments of the shaving assembly 100 with the blocking element 40 will be described with reference to FIGs. 5-8C.

[0035] In some embodiments, the blocking member 40 can be integrally formed with the moving tooth 21 as an

extension of the moving tooth 21. In this case, the blocking member 40 may be made from same material as that of the moving tooth 21. In other embodiments, the blocking member 40 can be made from, for example, plastic to reduce the overall cost and weight.

[0036] FIG. 5 shows a perspective view of the blocking element 40 attached to the moving teeth 21. As shown, in some embodiments, the blocking member 40 may comprise a first blocking part 41. The first blocking part 41 extends between the moving tooth 21 and the supporting arm 1 in the second direction Z and comprises a surface 411 facing the guard tooth slot 37.

[0037] When the guard tooth slot 37 is moved against the hair, the blocking part 41 may apply an additional force via the surface 411 to push the cut hair 201 out of the guard tooth slot. In this case, the release of the stuck hair no longer just relies on the force applied by the subsequent hair as discussed above. As such, the hair 201 can be easily released from the slots 37.

[0038] As shown in FIG. 5, in some embodiments, first blocking part 41 has two ends 412 and 413 opposite to one another. The end 412 can be connected to a root 211 associated with the moving tooth 21, and the opposite end 413 can be separated from an inner wall of the supporting arm 1 by a first distance (not shown). That is, the opposite end 413 is not directly contacted with the inner wall of the supporting arm 1. This avoids the friction between the opposite end 413 and the inner wall of the supporting arm 1 generated during the movement of the cutting element 2.

[0039] In some embodiments, the blocking member 40 may further comprise at least one second blocking part 42 which also extends between the moving tooth 21 and the supporting arm 1 in the second direction Z. The second blocking part 42 may be oriented substantially perpendicular to the first blocking part 41 to form a side wall.

[0040] In some embodiments as shown in FIGs. 5-6, the second blocking part 42 may comprise two second blocking parts arranged at different sides of the first blocking part 41, respectively, to form two side walls. Such side walls facilitate limiting the movement freedom of the cut hair, and especially the movement freedom along the first direction X. In this way, the cut hair can be properly manipulated by the side walls before it is pushed out of the slot by the first blocking part 41. With the help of the second blocking parts 42, the cut hair 201 crossing the slot as illustrated in FIG. 4 can be effectively avoided.

[0041] As further illustrated in FIG. 6, like the arrangement of the first blocking part 41, one end 422 of the second blocking part 42 may be connected to the moving tooth 21 and the opposite end 423 of the second blocking part 42 may be separated from an inner wall of the supporting arm 1 by a second distance h. The second distance h is clearly illustrated in FIG. 7. The second distance h likewise avoids the friction between the opposite end 423 and the inner wall of the supporting arm 1 generated during the movement of the cutting element 2.

[0042] The opposite end 423 of the second blocking

part 42 has a surface 421 matching the inner wall of the supporting arm 1, as can be seen from FIGs. 6 and 7. As illustrated in FIG. 7, the surface 421 may follow the profile of the inner wall of the supporting arm 1, so that the almost entire inner space defined by the angulated portion (when viewed from side) can be filled with the second blocking part 42, which further decreases hair clogging possibility.

[0043] In some embodiments, the surface 421 of the second blocking part 42 may extend along the inner wall of the supporting arm 1 and beyond the bottom 111 of the groove 11 of the supporting arm 1. In this way, the cut hair can be continuously manipulated by the side walls before it is completely released out of the slot.

[0044] Alternatively, in some embodiment, the blocking member 40 can be connected to the supporting arm 1 as an extension of the supporting arm 1, instead of being connected to the moving tooth 21 as illustrated in FIGs. 5-7.

[0045] Therefore, in some embodiments, the end 412 of the first blocking part 41 can be connected to the bottom 111 of the groove 11 of the supporting arm 1. Accordingly, the opposite end 413 of the first blocking part 41 can thus be separated from the moving tooth 21 by a third distance (not shown). In some embodiments, the blocking member 40 can be integrally formed with the supporting arm 1 as an extension of the supporting arm 1.

[0046] Similar to the arrangement of the blocking part 41, in some alternative embodiments, the end 422 of the second blocking part 42 can be connected to a finger 112 associated with the groove 11 of the supporting arm 1. The finger 112 is clearly illustrated in FIG. 4. Accordingly, the opposite 423 end of the second blocking part 42 can be separated from the moving tooth 21 by a fourth distance (not shown).

[0047] FIGs. 8A-8C schematically illustrate how the hair clogging is prevented by the blocking element. As illustrated in FIG. 8A, the hair 201 has been cut and stuck at a guard tooth slot. Then, with a further movement of the shaving assembly against the hairs as illustrated in FIG. 8B, the previously stuck hair 201 now can be pushed out of the slot by the blocking element, so that the catching of subsequent hairs will not be hindered. As illustrated in FIG. 3C, before receiving the subsequent hair to the cutting position, the previously stuck hair would always have been already pushed out. Thereby, enabling a continuous and comfortable shaving behavior, with no need to stop and clean the stuck hair in the middle of the shaving.

[0048] In sum, by means of the anti-clogging shaving assembly according to various embodiments of present disclosure, the hair clogging that may potentially occur at the slots can be effectively reduced and even eliminated, which enables comfortable and continuousness shaving. Moreover, the simple design and easy fabrication of such anti-clogging shaving assembly makes it easy to be integrated with currently available close shaving trimmers.

[0049] It is to be understood that the above detailed embodiments of the present disclosure are only to exemplify or explain principles of the present disclosure and not to limit the present disclosure. Therefore, any modifications, equivalent alternatives and improvement, etc. without departing from the spirit and scope of the present disclosure shall be comprised in the scope of protection of the present disclosure. Meanwhile, appended claims of the present disclosure aim to cover all the variations and modifications falling under the scope and boundary of the claims or equivalents of the scope and boundary.

Claims

1. A shaving assembly (100) comprising:

a supporting arm (1) extending in a first direction (X);
 a cutting element (2) comprising at least one moving tooth (21) arranged along the first direction (X);
 a guard foil (3) extending in the first direction (X) and surrounding the cutting element (2), the guard foil (3) comprising:

a contact surface (31) and a bent part (38), wherein the contact surface (31) is adapted to be in contact with skin (200), and the bent part (38) extends in the first direction (X) for fixing the guard foil (3) on the supporting arm (1), and wherein an angle (θ) between the contact surface (31) and the supporting arm (1) is an acute angle, and
 at least one guard tooth slot (37) formed across the contact surface (31) and the supporting arm (1) and arranged along the first direction (X), wherein the guard tooth slot (37) is adapted to direct hair to the moving tooth (21) when the guard tooth slot (37) is moved against the hair,

characterized in that the shaving assembly (100) further comprises:

a blocking member (40) extending between the moving tooth (21) and the supporting arm (1) in a second direction (Z) that is substantially perpendicular to the contact surface (31), wherein the blocking member (40) is adapted to facilitate hair (201) being released from the guard tooth slot (37) when the guard tooth slot (37) is moved against the hair (201).

2. The shaving assembly (100) of claim 1, **characterized in that** the supporting arm (1) comprises at least one groove (11) arranged along the first direction (X) and corresponding to the at least one guard tooth slot (37), wherein an end (371) of the guard tooth

slot (37) extends to a bottom (111) of the groove (11) and an opposite end (372) of the guard tooth slot (37) extends to the moving tooth (21).

3. The shaving assembly (100) of claim 1, **characterized in that** the blocking member (40) comprises a first blocking part (41) extending between the moving tooth (21) and the supporting arm (1) in the second direction (Y) and comprising a surface (411) facing the guard tooth slot (37).

4. The shaving assembly (100) of claim 3, **characterized in that** the first blocking part (41) comprises a first end (412) and a second end (413), wherein the first end (412) is connectable to a root (211) associated with the moving tooth (21), and the second end (413) is separated from an inner wall of the supporting arm (1) by a first distance.

5. The shaving assembly (100) of claim 3, **characterized in that** the blocking member (40) further comprises at least one second blocking part (42) extending between the moving tooth (21) and the supporting arm (1) in the second direction (Z), wherein the second blocking part (42) is oriented substantially perpendicular to the first blocking part (41).

6. The shaving assembly (100) of claim 5, **characterized in that** the at least one second blocking part (42) comprises two second blocking parts arranged at different sides of the first blocking part (41).

7. The shaving assembly (100) of claim 5, **characterized in that** the second blocking part (42) comprises a first end (422) and a second end (423), wherein the first end (422) is connectable to the moving tooth (21) and the second end (423) of the second blocking part (42) is separated from an inner wall of the supporting arm (1) by a second distance (h).

8. The shaving assembly (100) of claim 7, **characterized in that** the second end (423) of the second blocking part (42) has a surface (421) matching with an inner wall of the supporting arm (1).

9. The shaving assembly (100) of claim 8, **characterized in that** the surface (421) extends along the inner wall of the supporting arm (1) and beyond a bottom (111) of a groove (11) of the supporting arm (1), the groove (11) corresponding to the guard tooth slot (37).

10. The shaving assembly (100) of claim 3, **characterized in that** the first blocking part (41) comprises a first end (412) and a second end (413), wherein the first end (412) is connectable to a bottom (111) of a groove (11) of the supporting arm (1), the groove (11) corresponding to the guard tooth slot (37), and

the second end (413) is separated from the moving tooth (21) by a third distance.

11. The shaving assembly (100) of claim 4, **characterized in that** the second blocking part (42) comprises a first end (422) and a second end (423), wherein the first end (422) is connectable to a finger (112) associated with a groove (11) of the supporting arm (1), the groove (11) corresponding to the guard tooth slot (37), and the second end (423) is separated from the moving tooth (21) by a fourth distance. 5 10
12. The shaving assembly (100) of claim 1, **characterized in that** the blocking member (40) is integrally formed with the moving tooth (21). 15
13. The shaving assembly (100) of claim 1, **characterized in that** the blocking member (40) is integrally formed with the supporting arm (1). 20
14. A hair cutting appliance, **characterized in** comprising:
- a shaving assembly (100) according to any of claims 1-13; and 25
- a driving mechanism configured to cause a movement of the cutting element (2) inside the shaving assembly (100). 30

30

35

40

45

50

55

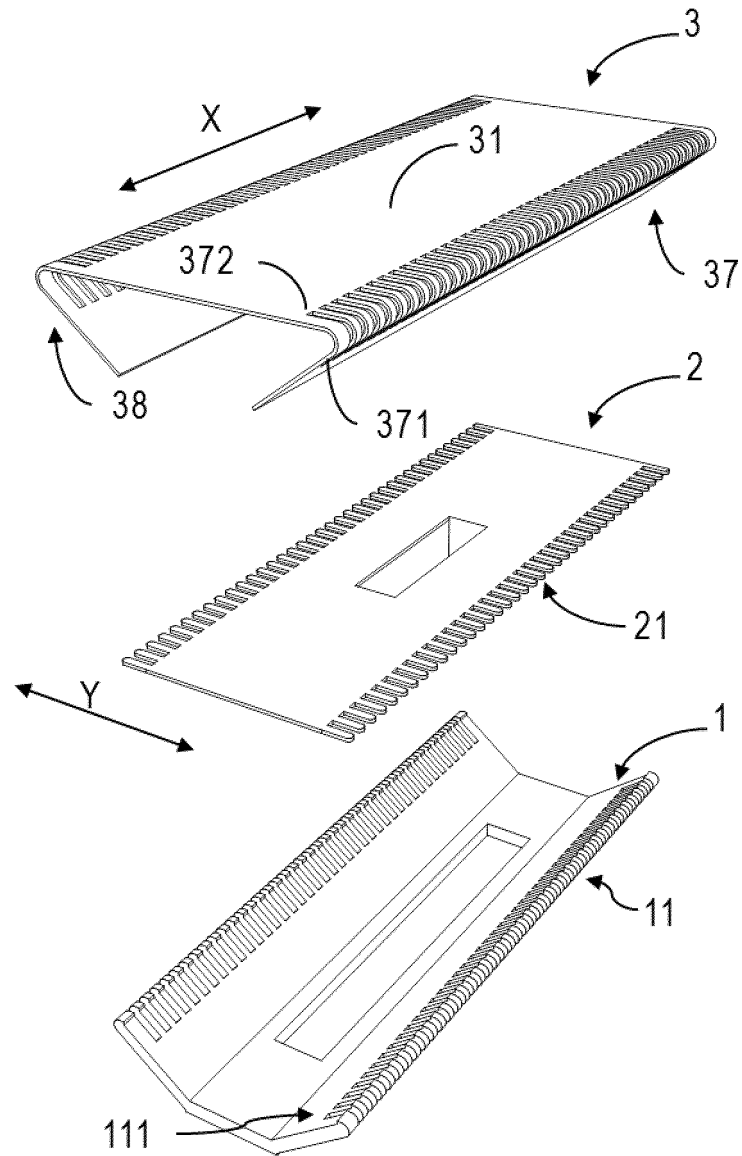


FIG. 1A

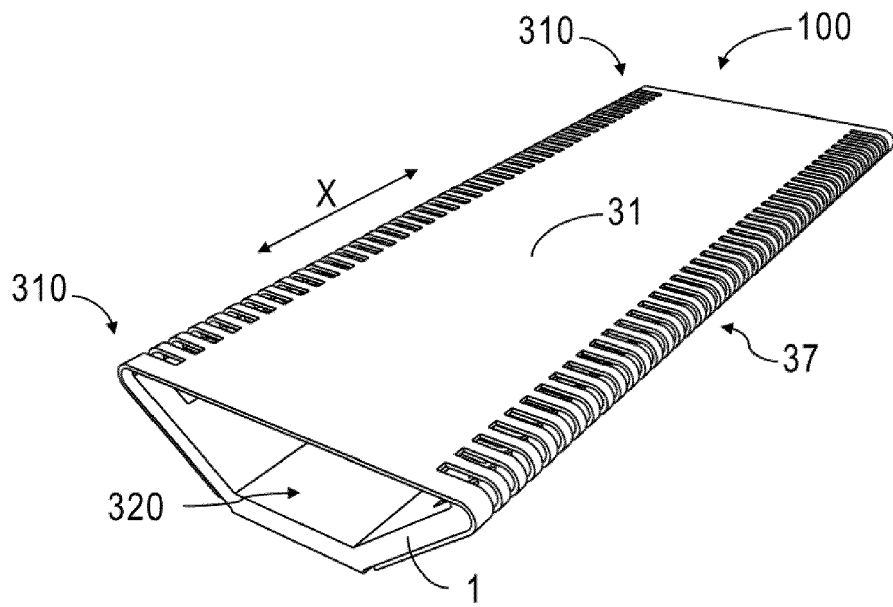


FIG. 1B

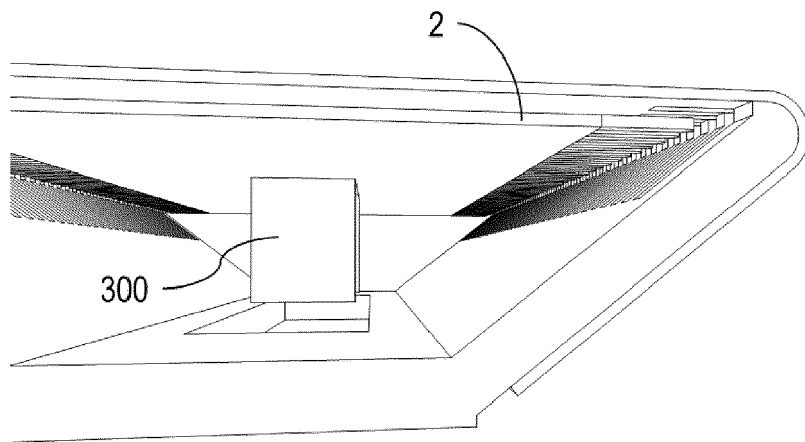


FIG. 1C

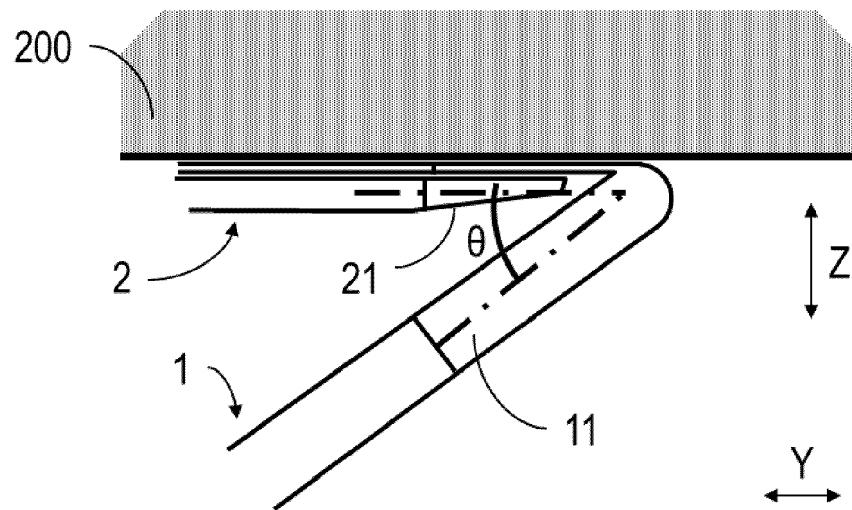


FIG. 2

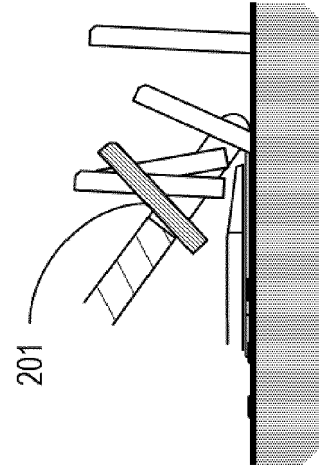


FIG. 3C

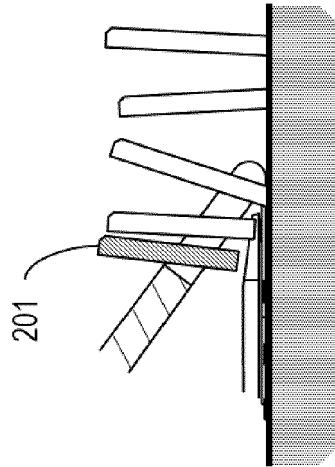


FIG. 3B

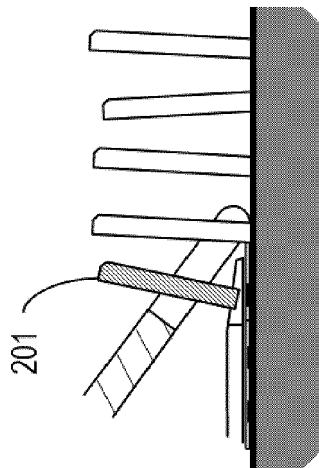


FIG. 3A

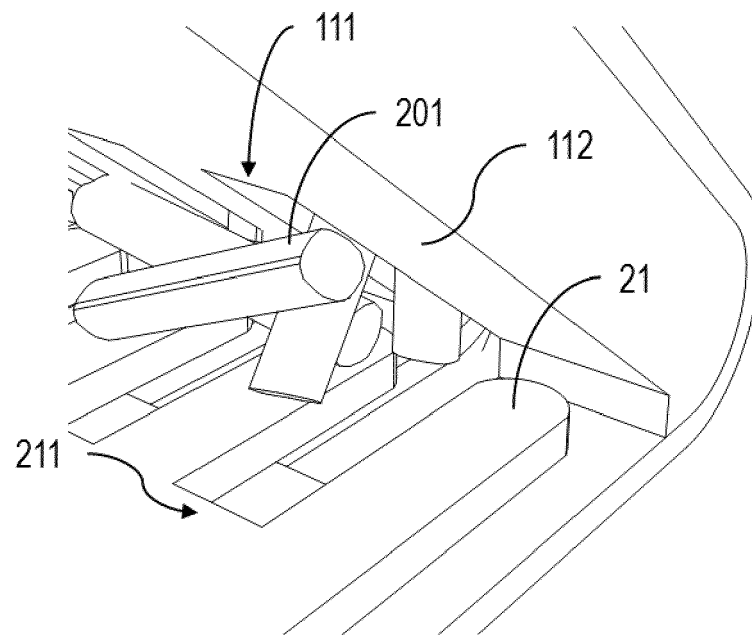


FIG. 4

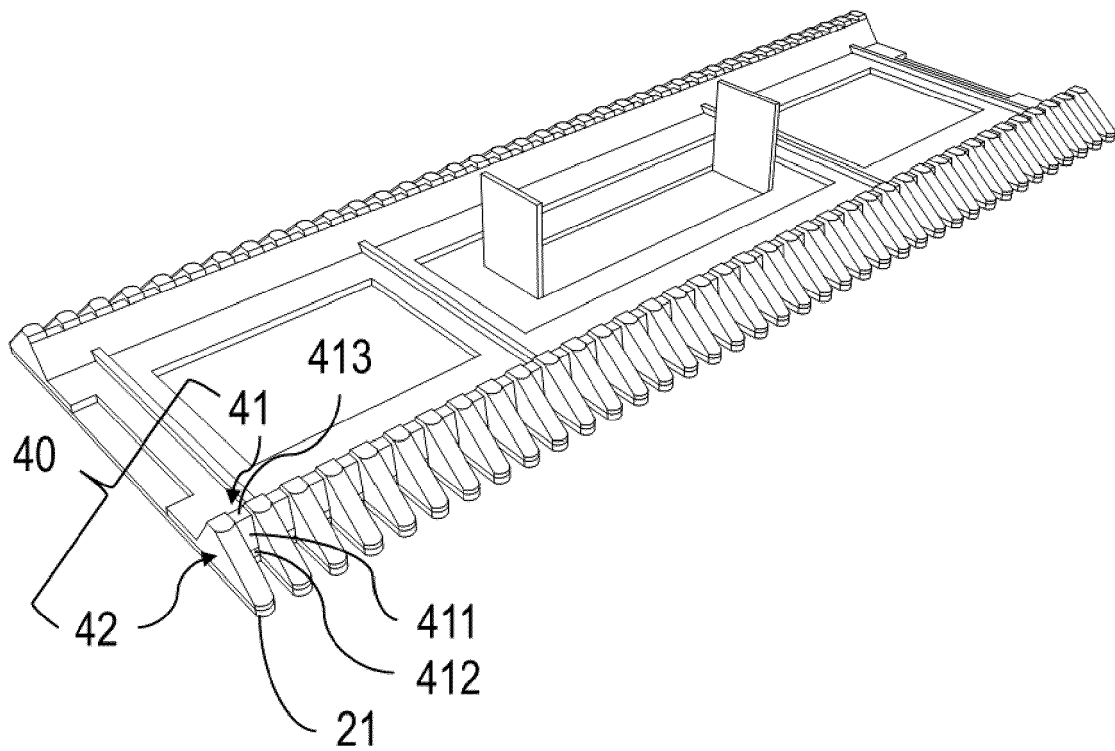


FIG. 5

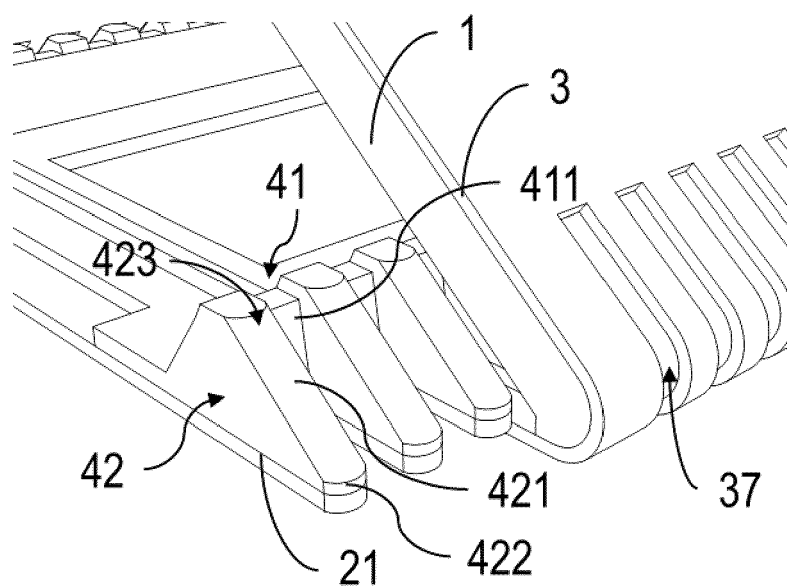


FIG. 6

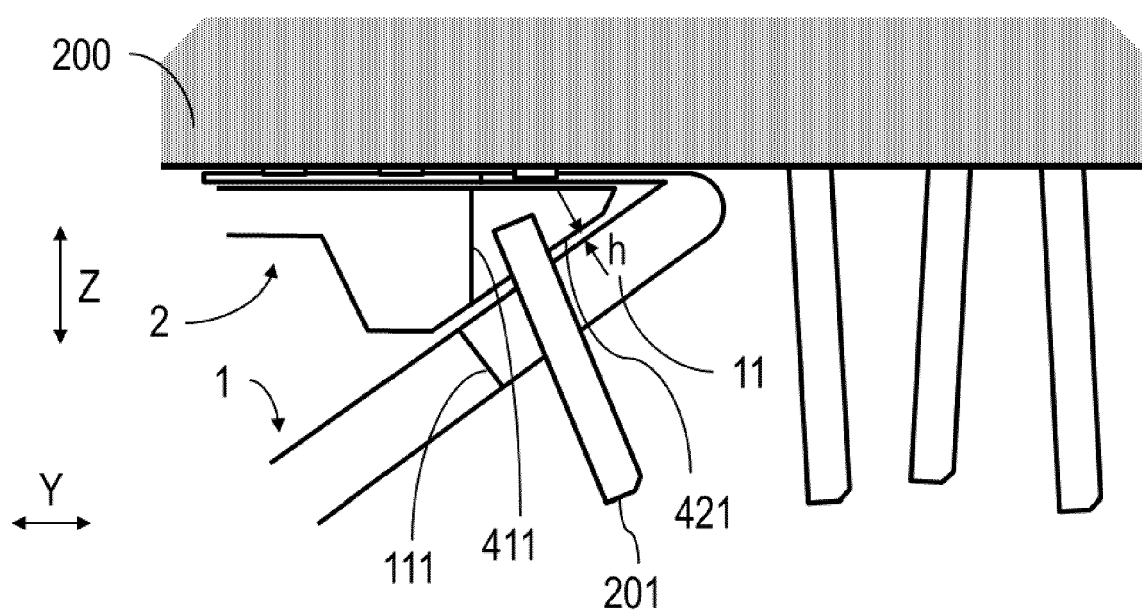


FIG. 7

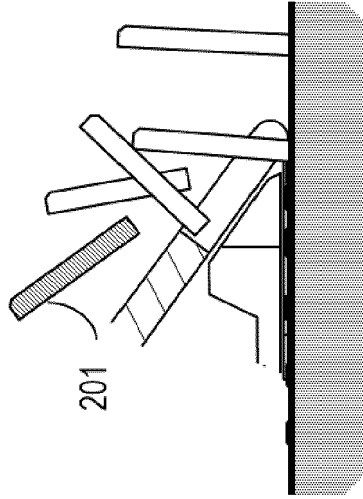


FIG. 8C

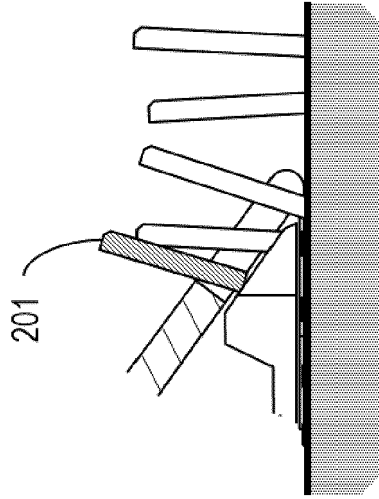


FIG. 8B

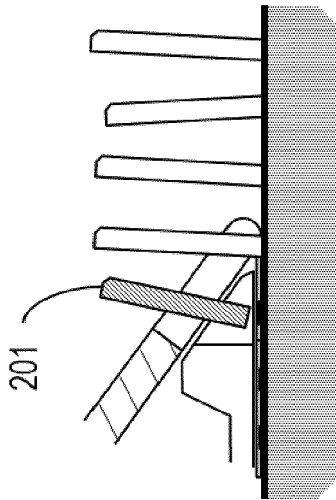


FIG. 8A



EUROPEAN SEARCH REPORT

Application Number
EP 18 17 1816

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 2018/068353 A1 (WU RANGPAN [CN]) 19 April 2018 (2018-04-19)	1-12,14	INV. B26B19/38
A	* abstract; figures 3,4 * -----	13	
Y	US 2 151 965 A (HANLEY JOHN A) 28 March 1939 (1939-03-28)	1-12,14	
A	* figure 4 * -----	13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B26B
Place of search		Date of completion of the search	Examiner
Munich		8 November 2018	Cardan, Cosmin
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

 1
EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 17 1816

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European 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.

08-11-2018

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2018068353 A1	19-04-2018	CN 106346519 A	25-01-2017
		US 2018257248 A1	13-09-2018
		WO 2018068353 A1	19-04-2018

US 2151965 A	28-03-1939	NONE	

15

20

25

30

35

40

45

50

55

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

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 106346519 A [0003]