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(54) ANTI-SPLASH DEVICE FOR TOILETS

(57) The device is formed from an essentially oval frame (1), open at one end, in which are defined two branches from which a plurality of flexible filaments (2) project inwardly, the filaments defining a shock-absorbing plane for urine or feces entering the toilet, such that the frame is disposed slightly above the water level of the U-bend of the toilet. For this purpose, the device has

an arm (4) comprising a "U" shape (5) for coupling and fitting on the edge of the toilet bowl. In this way, the filaments (2) deform elastically on contact with feces or urine, acting as shock-absorbing elements that reduce the entry speed of the waste, preventing this from creating splashes when it comes into contact with the toilet water.

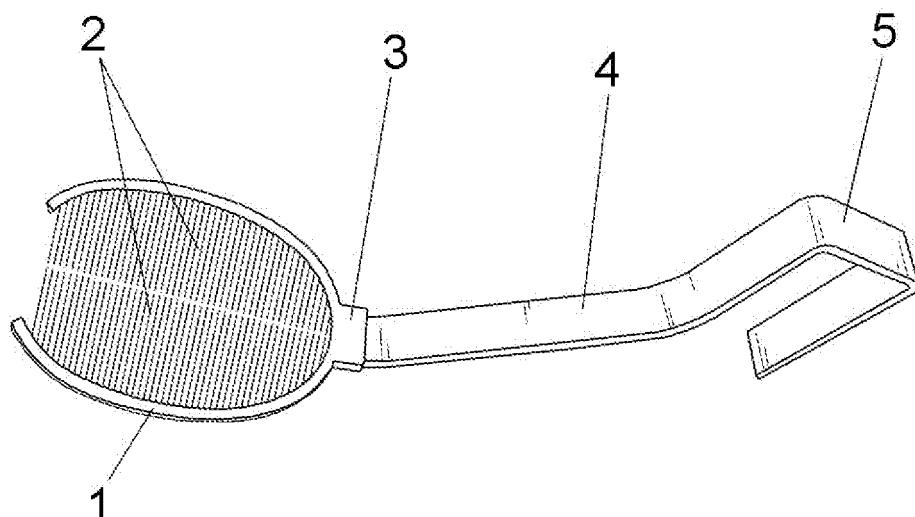


FIG. 1

Description**OBJECT OF THE INVENTION**

[0001] This invention refers to a device for preventing to avoid splash-generation during use of toilets.

[0002] The object of the invention is therefore to provide a removable modular element that may be fitted onto the edge of a toilet bowl that prevents the well-known splashes originating from physiological events such as urination and defecation.

[0003] The device is applicable to any kind of toilet, acting as an elastic element and consequently brakes and slows access of urine and/or feces to the toilet, thus avoiding splash-generation.

BACKGROUND OF THE INVENTION

[0004] As is known, during the physiological actions of urinating and defecating in a toilet, it is relatively common for such waste, whether liquid or solid, to impact the water the toilet S-trap, generating a spray which may stain the user, as well as the toilet itself, with the consequent negative impact this entails.

[0005] Trying to obviate this problem, devices are known to prevent splashing, in some cases to avoid smudging the rim of the toilet seat, such as in document U200200944 on an anti-splash lavatory lid, consisting of a kind of cover that is attached to the toilet surface on its top, showing its front region a recess and two ergonomic zones lateral to said recess, complemented with a hinge for attaching said cover, all in order to raise the orifice access to a toilet near the emission of urine in men, thus avoiding splashing at the top of the lid area.

[0006] This solution is complex, since it requires a bulky accessory, which must be removed and put on whenever he performs the action to urinate, whether not solve the problem of splashing occurring during defecation.

[0007] Document US 2005241053 describes an accessory to fit to toilets which guides urine so it descends in a controlled manner and avoids splashing, involving a much more complex solution than the previous one and that is difficult to implement.

[0008] Also, in US 2005014471 on January 1, an anti-spatter and deodorant device for urinals is described that, although it has a simple and easily implemented solution, it an application limited to urinals, making it impossible to apply to conventional toilets, as it is intended solely to avoid splashing of urine, which passes through its spongy body, but that would obviously not allow use when it comes to solid waste.

[0009] In patent US 7921478, another anti-spatter lavatory device, consisting of a kind of swing baffle that, although it prevents the ring and the toilet lid from being sprinkled with male urine, does not avoid the problems of splashing described when sitting to excrete, that is, when defecating.

[0010] One may also cite the relevant document WO 201023697 concerning an anti-splash device for toilet bowls, a device is intended for male people urinating in a sitting position, that has the same problems or previously discussed and regarding splash issues when defecating.

DESCRIPTION OF THE INVENTION

[0011] The device subject hereof fully solves the problems outlined above satisfactorily in every aspect discussed based on a simple but highly effective solution.

[0012] To that end and more specifically, the device of the invention is comprised of an oval contoured frame, with an open ended area at the end and another fitted with a socket into which an arm may be plugged, so the unit may be fitted to the upper edge of the toilet bowl, with the particular feature that the pattern of the oval frame is sized to match the access aperture to the toilet S-trap, being fitted with several flexible filaments, preferably of silicone, or they could be of any flexible material that provides a damper surface for urine and solid excrement.

[0013] Thus, once the device is placed over the mouth of the toilet S-trap, it forms a sort of flexible barrier defined by the aforementioned silicone filaments, which act as deformable dampers, avoiding sudden contact of urine or feces with the water the S-trap contains, thus avoiding splashing caused both in one case or another.

[0014] The device has the feature that the frame with the silicone filaments may be separated from the fixing arm, that frame preferably being of plastic material, like the arm, that has a rigid or flexible nature, that arm having an end section bent into a "U", providing the means of adapting this to the top edge or opening of the toilet bowl, with an arm projecting from said "U" shape, sloping downward so the frame provided at the opposite end, with the deformable elastic surface that acts as a damping element, is located above the level of the water the toilet S-trap contains.

[0015] A removable device is thus achieved, occupying a minimum volume, with a highly effective function.

[0016] Optionally, said removable arm of the frame may solely have the function of an applicator element.

[0017] The previously mentioned end section bent into a "U" is not necessary and therefore, said frame is simply supported on the interior of the toilet in a stable manner.

[0018] Thus, the aesthetics and cleanliness of the toilet is improved with respect to the initial version described.

[0019] Insofar as the proper frame, it does not necessarily have to be oval, but rather adaptable together with the filaments, which emerge therefrom, to the shape of the bottom of the toilet. Said frame may incorporate some superficial recesses or pockets which are able to provide disinfecting or aromatic gel, preferably in a solid form, that will dissolve with the water poured by the toilet and thereby improve its hygiene.

[0020] Likewise, the device as a whole may be covered

with an anti-stick film that prevents it from getting dirty.

[0020] Insofar as the materials used, although some have been mentioned as preferential, the invented device may be fabricated from any appropriate material, incorporate reinforcement materials or even be obtained in biodegradable materials, as for example, a cardboard base that dissolves in water and the like, so that its removal is not necessary once used as well as being able to include photo-luminescent materials that provide visibility under poor conditions of luminosity.

[0021] Finally, it should be indicated that obviously, the device may be personalized by the frame itself, the arm or both with company logos, publicity messages or the information/decoration that is deemed to be appropriate.

DESCRIPTION OF THE DRAWINGS

[0022] To complement the description to be provided below and in order to aid better understanding of the features of the invention, according to a preferred practical embodiment thereof, there is attached as an integral part of that description a set of drawings representing the following for the purposes of illustration, although this is not limiting:

Figure 1. Shows a general perspective view of an anti-splash device for toilets performed according to the object of this invention.

Figure 2. Shows a bottom perspective view of the assembly in the previous figure.

Figure 3. Shows a perspective exploded view of the device of the previous figures.

Figure 4. Shows a sectional view of a toilet in which the device of the invention is properly installed.

Figure 5. Finally, shows a detail of a variant embodiment of the device.

Figure 6 Shows a perspective view of a variation for creating the device in which the portable arm of the frame is not only detachable, but may also function as an applicator for removal once placed on the toilet.

Figure 7- Shows finally a perspective view of the device of the previous figure duly disassembled.

PREFERRED EMBODIMENT OF THE INVENTION

[0023] In view of the figures stated, one may see how the device proposed is comprised on the basis of a frame (1), which in the example chosen embodiment is obtained in PVC, without excluding other materials, oval and open at one end, forming a pair of arched arms inside which there are many filaments (2) of silicone or similar material that establish a surface that allows the passage of urine

and even feces, by elastic deformation of said filaments, thereby significantly reducing the access speed of this urine or feces within the toilet, thus preventing splash generation.

[0024] The rear end of the frame (1) includes a socket (3) into which the end of an arm may be plugged (4), the opposite end of which has a double bend to form a hook element (5) fixed to the upper edge (6) of the toilet bowl or (7) in which it is applied.

[0025] Thus, and as shown in Figure 4, the frame (1) with strands of silicone (2) are positioned to form a deformable horizontal plane above the level (8) of the water contained in the toilet S-trap so that these silicone strands (2) act as damping means for the urine and feces due to their high flexibility, returning to their inoperative position once such feces or urine has passed through, that is, forming a cushioning surface again, that may be used as often as needed without adversely affecting its stability or structure.

[0026] As may be seen in Figure 5, the frame (1') may have a single piece with the arm (4) which ends in a "V" section at its lower end, from which emerge two arched arms forming that frame, with slightly curved filaments (2') of greater length inside.

[0027] According to another feature of the invention, the filaments (2-2') are able to include a coating based on an air freshener product.

[0028] In parallel, the filaments (2-2') are able to include a coating based on a thermo-chromatic paint, that is one that changes color on contact with urine, especially designed for the young to learn how to use the toilet properly.

[0029] In accordance with the practical embodiment of the variation in figures 6 and 7, the arm (4') which is attachable and detachable from the frame (1) though the socket may present a "C" shape in order to function as an applicator element, that is to say, that it may only be used to facilitate the manoeuvres of placement and removal of the frame on the interior of the toilet in a stable manner.

[0030] Said combination of frame (1) and filaments (2) may adopt shapes other than oval without it effecting the essence of the invention since the geometry of toilets may be very different.

[0031] In addition, the frame (1) may incorporate a series of extreme sockets on its upper side in which a disinfecting gel (1) and/or air freshener, preferably solid, may be included, and which dissolves little by little in the water poured by the toilet, thereby improving its hygiene.

Likewise, the device, as a whole, may be covered with an anti-stick film that prevents it from getting dirty.

[0032] Insofar as the materials used, the device may be obtained in photo-luminescent materials that facilitate their visibility under poor conditions of luminosity as well as in bio-degradable materials such as for example on the basis of cardboard dissolvable in water and like in order that its removal is not necessary once it has been used.

Claims

ble materials.

1. Anti-spatter device for toilets, **characterized in that** it is constituted from a frame (1-1') of preferably oval shape and flexible material, inside which multiple flexible filaments are fitted (2-2') to form a shock-absorbing surface for urine or feces entering the toilet, it being foreseen for one end of said frame to end in an arm (4) which incorporates a shape (5) for coupling and adaptation on the aperture or top edge of the toilet bowl (7) concerned. 5
2. Anti-spatter device for toilets, according to claim 1, wherein the frame (1) is open at one end, forming therein two arched branches inside which the filaments are fitted (2). 15
3. Anti-spatter device for toilets, according to claim 1, wherein the frame (1) is detachable from the arm (4), with a recess on its front end (3) into which the arm (4) is pressed. 20
4. Anti-spatter device for toilets, according to claim 1, **characterised by** the frame (1) preferably being PVC. 25
5. Anti-spatter device for toilets, according to claim 1, **characterised by** the filaments (2-2') preferably being silicone. 30
6. Anti-spatter device for toilets, according to claim 1, **characterised by** the filaments (2-2') including a coating of an air freshener product.
7. Anti-spatter device for toilets, according to claim 1, **characterised by** the filaments (2-2') including a coating of thermo-chromatic paint. 35
8. Anti-splatter device for toilets according to claims 1 and 3, **characterised by** the arm (4') attachable and detachable from the frame (1) presents a "C" shape as a kind of applicator 40
9. Anti-splatter device for toilets according to claim 1 **characterised by** the frame (1) incorporates a series of recesses on its upper side in which a gel (10) and/or freshener is established. 45
10. Anti-splash device for toilets according to claim 1, characterised because it is covered by a film of anti-stick material. 50
11. Anti-splash device for toilets according to claim 1, characterized because it is obtained in photo-luminous materials. 55
12. Anti-splash device for toilets, according to claim 1 characterised because it is obtained in biodegrada-

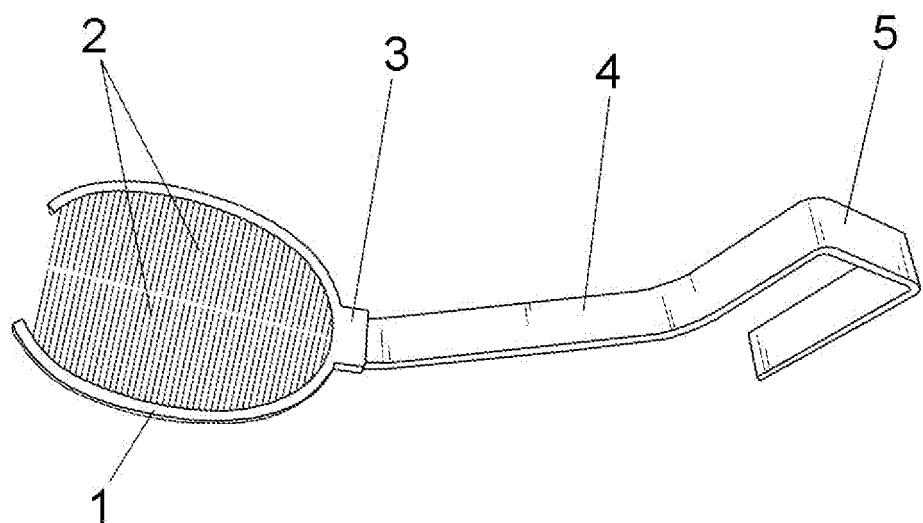


FIG. 1

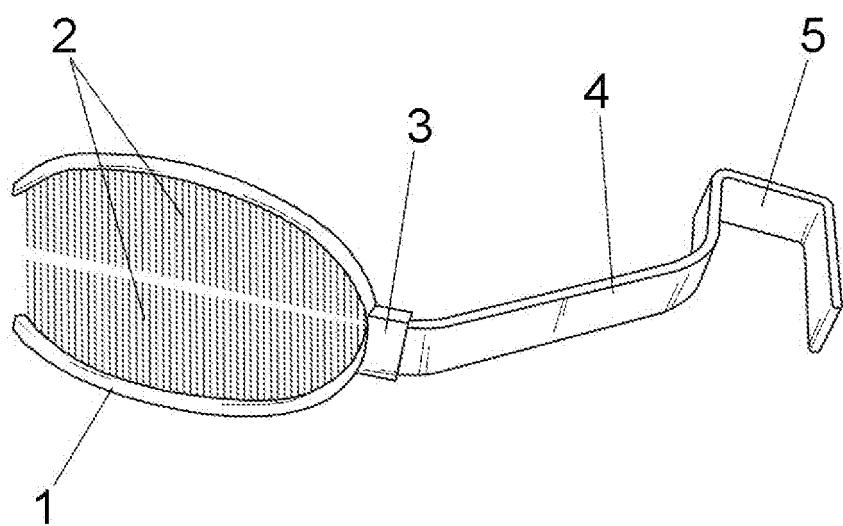
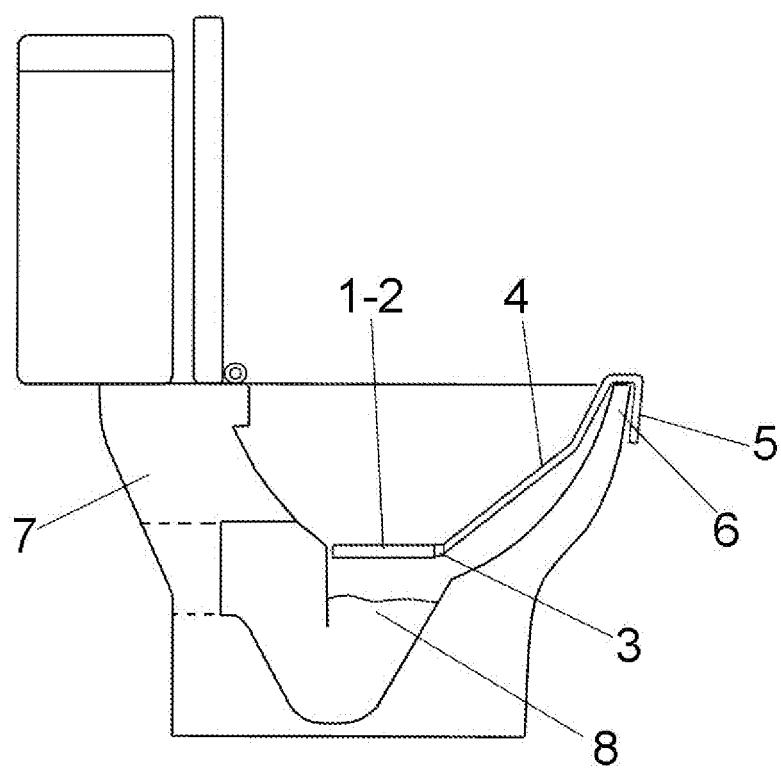
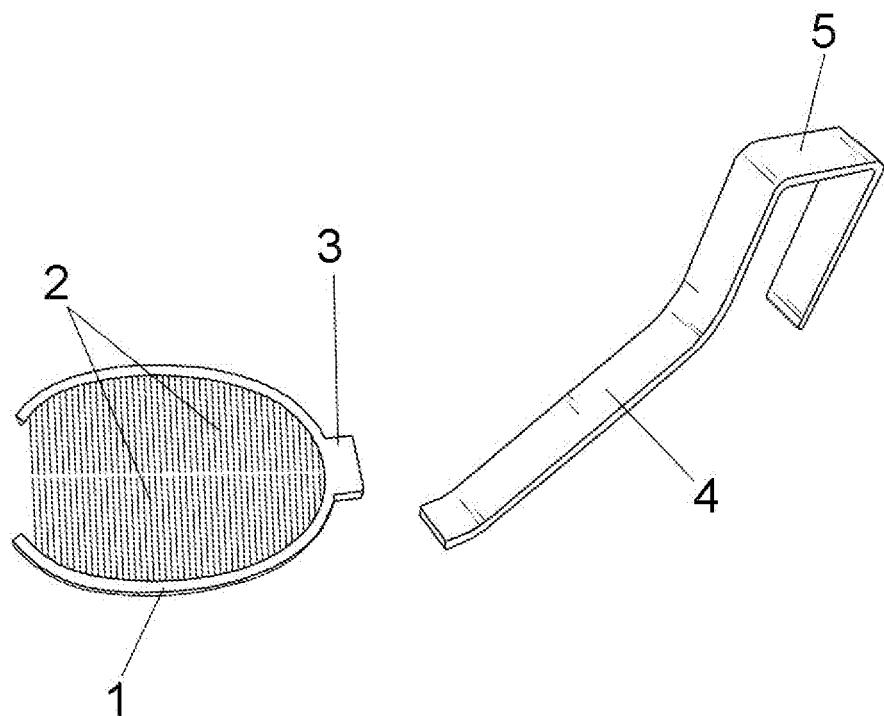


FIG. 2



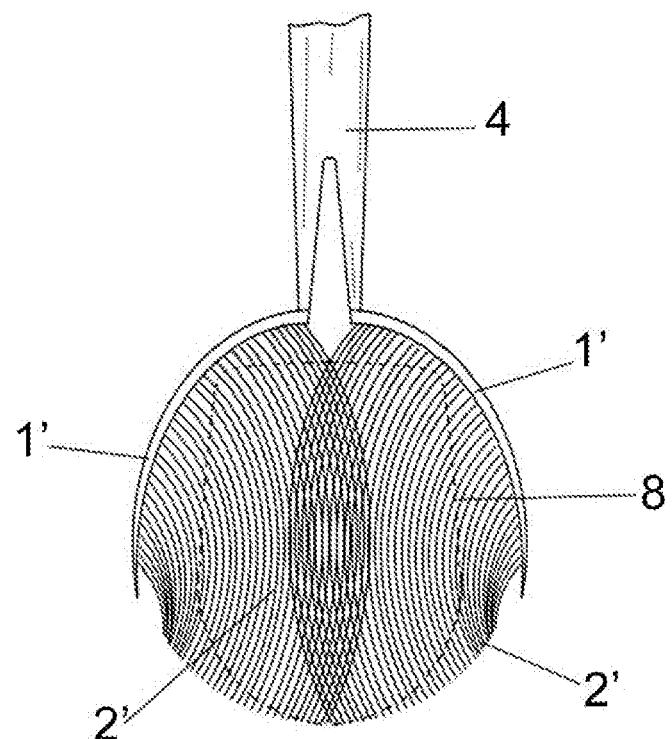


FIG. 5

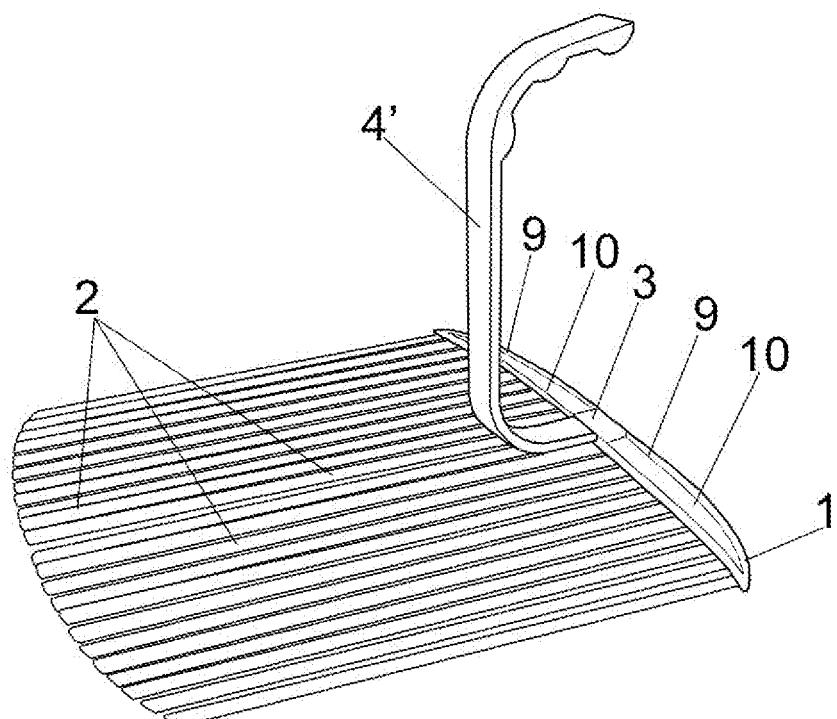


FIG. 6

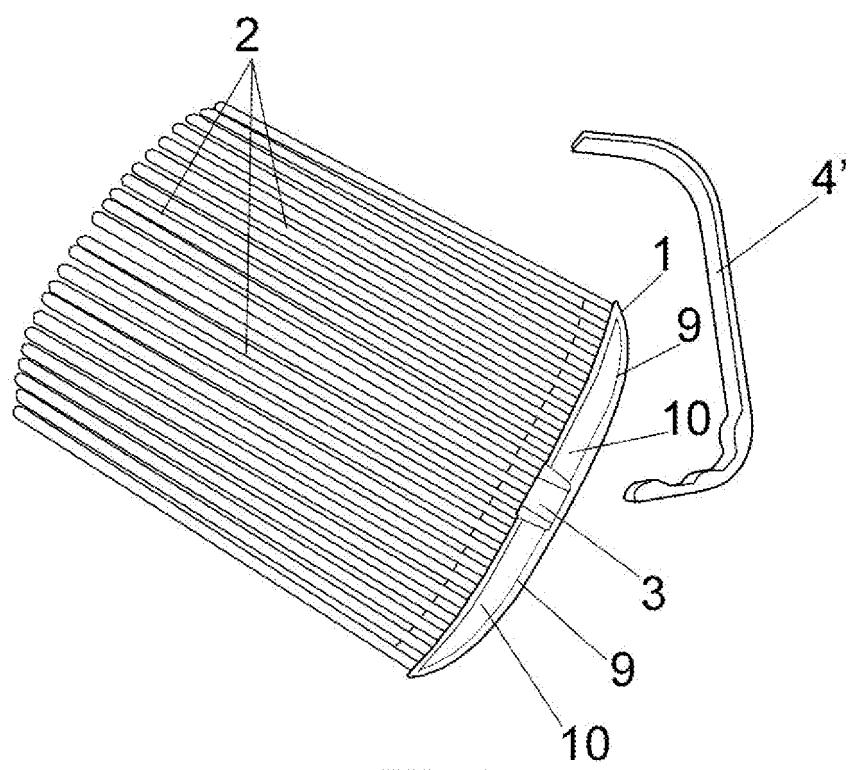


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2017/070507

5	A. CLASSIFICATION OF SUBJECT MATTER		
	<p><i>E03D9/00</i> (2006.01) <i>E03D11/13</i> (2006.01)</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>		
10	B. FIELDS SEARCHED		
	<p>Minimum documentation searched (classification system followed by classification symbols)</p> <p>E03D</p>		
15	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
	<p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p> <p>EPODOC, INVENES, WPI</p>		
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
	Category*	Citation of document, with indication, where appropriate, of the relevant passages	
25	Y	AU 1606588 A (J BIT DAVID JOHN BIT DAVID) 01/12/1988, the whole document.	1-12
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35	A	NL 1015339C C1 (HAAN BENNIE DEN) 03/12/2001, abstracts WPI and EDOPOC.	7
40	<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
	<p>* Special categories of cited documents:</p> <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>"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> <p>"&" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"X" 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 documents, such combination being obvious to a person skilled in the art</p> <p>"&X" document member of the same patent family</p>		
45	<p>Date of the actual completion of the international search 18/09/2017</p> <p>Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04</p>		
50	<p>Date of mailing of the international search report (19/09/2017)</p> <p>Authorized officer P. Alonso Gaston</p> <p>Telephone No. 91 3495323</p>		
55	Form PCT/ISA/210 (second sheet) (January 2015)		

INTERNATIONAL SEARCH REPORT

International application No. PCT/ES2017/070507
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5	C (continuation).	
10	DOCUMENTS CONSIDERED TO BE RELEVANT	
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25	A	US 4352216 A (GRIM DALE D) 05/10/1982, the whole document.
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Information on patent family members

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