(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 266 936 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
10.01.2018 Bulletin 2018/02

(51) Int Cl.:
E01F 7/02 *(2006.01)*

(21) Application number: **17001145.6**

(22) Date of filing: **05.07.2017**

(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:
MA MD

(30) Priority: **06.07.2016 ES 201600477**

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(54) **PROTECTIVE VISUAL AND WIND BARRIER**

(57) Protective visual and wind barrier consisting of precast reinforced concrete posts (1), separated from one another a variable distance and arranged in one, two or more lines or rows, generating both a visual barrier and a very effective protection against the wind, such that when the air strikes the first posts (1) it is split up into several gusts which are split up again into more gusts when they hit the second row (2) and so on and so forth when they hit the third row (not depicted herein), contemplating the possibility of a fourth row, a fifth row, etc., as needed. A very significant reduction of the wind speed is thereby generated, creating a relatively calm atmosphere on the other side of the barrier.

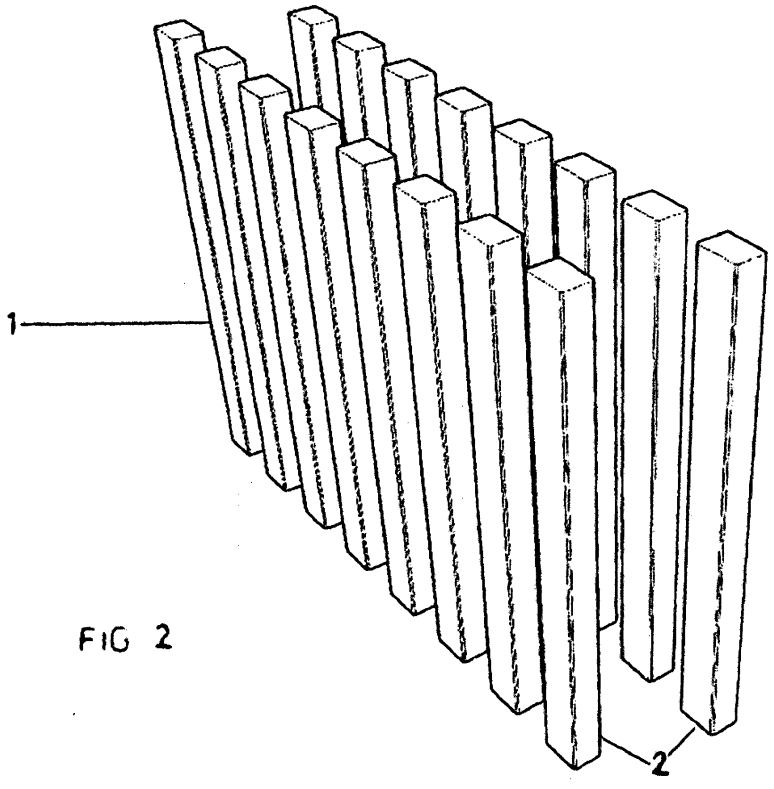

FIG 2

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Description

TECHNICAL FIELD

[0001] As indicated by the title, the object of the present invention relates to a protective visual and wind barrier, having an obvious advantage over those barriers already known, which advantage will be described below.

PRIOR ART

[0002] The present invention is based on conventional systems that have been used since ancient times, said systems being both natural and artificial systems for protection against the wind, such as palisade fencing, hedges, open worked walls, or even fabric or perforated barriers. They all have drawbacks. Take, for example, the case of fabrics. If the openings in the mesh are closed up, the area of protection is drastically reduced, in turn generating turbulences that force the lower layers of air up to higher altitudes. Having a permeability of greater than or less than 50% in simple, thin barriers (for example fabric or metal barriers) does not increase the area they protect, but quite the contrary; they reduce this area as turbulences are generated immediately on the other side of the protective element in the case of having a lower permeability and at high wind speeds with barriers having a higher permeability. Compounding that with the real possibility of the protective fabrics becoming clogged up (accumulation of sediments), the area this barrier is supposed to protect is reduced to half (from twenty times the height of the barrier to just ten times the height), turbulences increasing on the other side thereof. These barriers require continuous maintenance and have the purpose of obtaining a low permeability that involves trapping a large number of particles entrained by the air that are falling to the ground. An effective barrier for generating a relatively calm area requires a permeability of 50%, whereas a barrier that effectively traps the particles requires a very low permeability, so the same type of fabric barrier will not serve for both wind-trapping and particle-trapping functions.

[0003] To solve these drawbacks, a protective visual and wind barrier made up of precast reinforced concrete elements has been designed, eliminating all the drawbacks of the previous barriers and having a rapid and economic construction. The system on which it is based has been subjected to a number of aerodynamic tests conducted in a wind tunnel, assuring a very high efficacy as a wind speed reducing element, and more importantly, it is able to generate a very large area of protection that is independent of the saturation of the element. Saturation thereof is impossible because it has a high net permeability, even though the gross permeability is very low as a result of the dual arrangement of the elements, thereby extending the protective effect and minimizing turbulences in the protected area. These advantages along with its capacity of being indefinitely maintained over time, retaining its protective capabilities, zero maintenance and simple and long-lasting appearance, makes it the only solution for aggressive environments and for environments with very high wind speeds, having a low installation time and cost.

[0004] The features of the invention are described in detail below in the following description of the invention.

DESCRIPTION OF THE INVENTION

[0005] The protective visual and wind barrier of the present invention consists of precast reinforced concrete posts separated from one another a variable distance and arranged in one, two or more lines, thereby generating both a visual barrier and a very effective protection against the wind. The final effect of the barrier will depend on the angulation, separation between posts and size thereof, such that by modifying the separation between posts, their angle in relation to the wind, the separation between lines, the height and section of the posts, a wide range of wind reductions can be configured as needed.

[0006] It can be a removable and therefore temporary system, or it can be permanent. The use of precast concrete also allows for a wide range of possibilities in terms of textures and colors without altering its durability and efficacy, so many images can be created when this system is also used as a visual barrier. It can be placed on an existing surface, anchoring it to same by means of chemical or mechanical systems, or it can be provided along with its own foundation, which is also precast, which meets and adapts to the requirements and stresses to which said barrier will be subjected.

[0007] It can be used as a protection against the wind in areas close to seaports, waterfronts or other areas heavily exposed to wind and in turn require a high resistance to both meteorological conditions and aggressive environments.

[0008] This barrier has a permeability per line of 55% and a combined permeability of 10%, so it has an efficacy proven in earlier tests as regards wind reduction. In terms of the capacity to trap dust, this system works in two ways. On one hand, the combined permeability of the system is 10% and this means that only 10% of the air that goes through it will not hit the protective elements, making the particles fall to the ground. On the other hand, since a large calm area is generated on the other side, the speed of the air that goes through it without hitting anything will be reduced by 60%, so its particle holding capacity also drops proportionally, these particles being deposited in the area surrounding the installation, and all this without the main drawback of clogging up (accumulation of sediments) that the other systems suffer, which substantially increases maintenance costs, while the barrier object of the present invention has zero maintenance cost.

[0009] A set of drawings is attached to better understand the features of the invention and forming an integral part of this specification, which drawings depict the fol-

lowing with an illustrative and non-limiting character.

DRAWINGS OF THE INVENTION

[0010]

Figure 1 shows a three-dimensional elevational view of the structural element of the present invention where the placement of the posts in two rows can be seen.

Figure 2 shows a three-dimensional plan view of the element shown in Figure 1.

Figure 3 shows a three-dimensional elevational view of the posts with a different angulation with respect to that depicted in Figures 1 and 2.

Figure 4 shows a plan view of a wind attenuation diagram.

PREFERRED EMBODIMENT OF THE INVENTION

[0011] The protective visual and wind barrier of the present invention consists of precast reinforced concrete posts (1), separated from one another a variable distance and arranged in one, two or more lines or rows, generating both a visual barrier and a very effective protection against the wind, such that when the air strikes the first posts (1) it is split up into several gusts which are split up again into more gusts when they hit the second row (2) and so on and so forth when they hit the third row (not depicted herein), contemplating the possibility of a fourth row, a fifth row, etc., as needed, thereby generating a very significant reduction of the wind speed, creating a relatively calm atmosphere on the other side of the barrier.

[0012] The way this barrier works can be observed in the plan view of the wind attenuation diagram shown in Figure 4. Starting from the existence of an area (3) exposed to strong gusts of wind (4), said wind is split up into gusts (5) when it goes through the posts (1), which gusts are split up again into more gusts when they go through the spaces between the posts (1) of the row (2) and so on and so forth until the protected area (6) is seen to have a considerable reduction of the impact of the wind, even being completely calm.

[0013] The slight permeability to the wind that exists allows preventing vertices and turbulences on the other side of same. By modifying the separation between posts (1), their angle in relation to the winds (see Figure 3), the separation between lines (2), the height and section of the posts (1), a wide range of wind reductions can be configured, as needed, following the laws of aerodynamics.

[0014] It is not considered necessary to extend this description so that a person skilled in the art can understand the scope of the invention and the advantages derived from same. The terms used to draft this specification must always be interpreted in the broadest and most non-limiting manner. The materials, shape, size and arrangement of the elements will be susceptible to variation provided that it does not entail a change in the essential features of the invention claimed below.

Claims

1. A protective visual and wind barrier, **characterized in that** it consists of precast reinforced concrete posts (1), separated from one another a variable distance and arranged in one, two or more lines or rows, generating both a visual barrier and a very effective protection against the wind, such that when the air strikes the first posts (1), it is split up into several gusts which are split up again into more gusts when they hit the second row (2) and so on and so forth when they hit the third row (not depicted herein), contemplating the possibility of a fourth row, a fifth row, etc., as needed. Thereby generating a very significant reduction of the wind speed, creating a relatively calm atmosphere on the other side of the barrier.

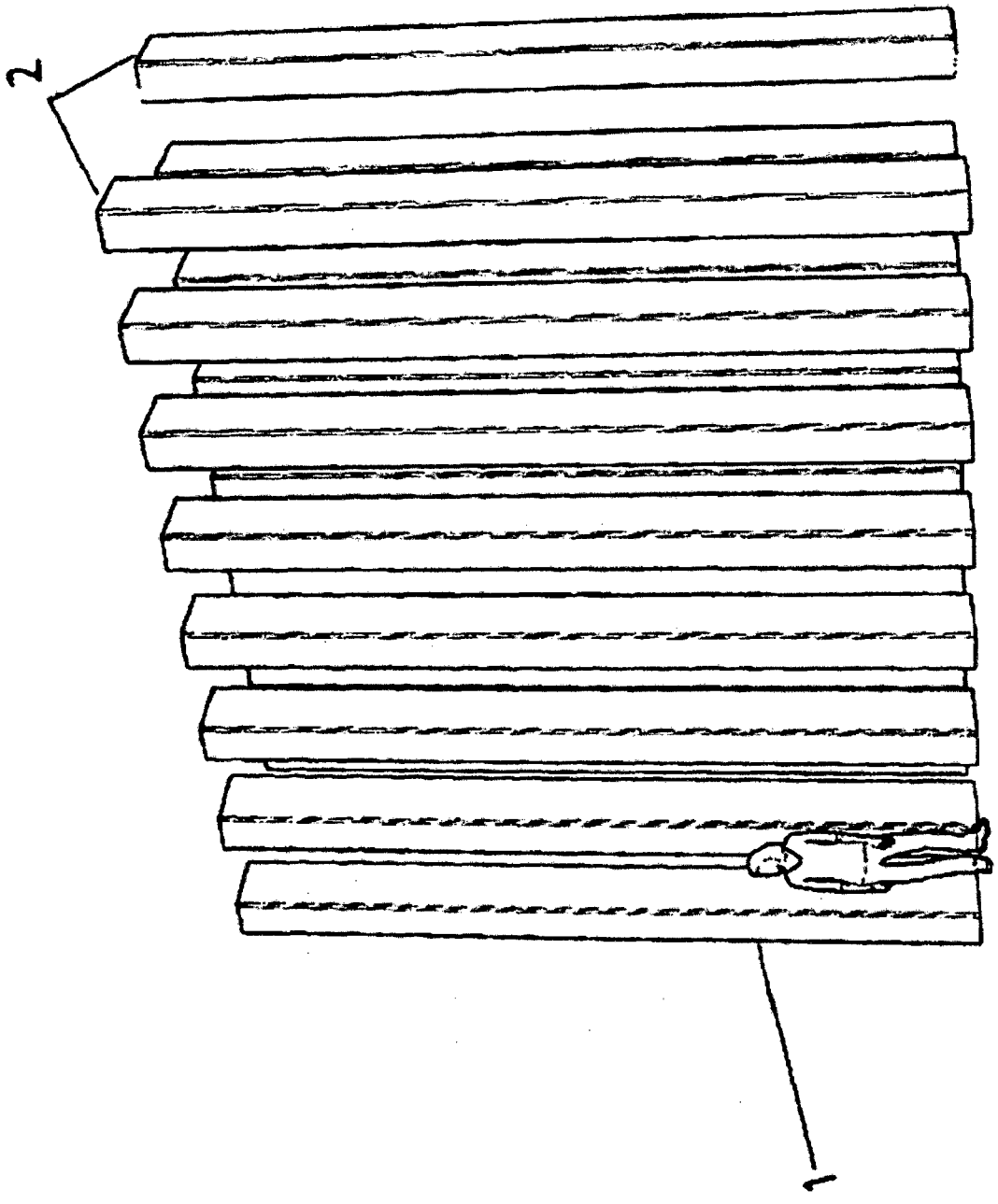

FIG 1

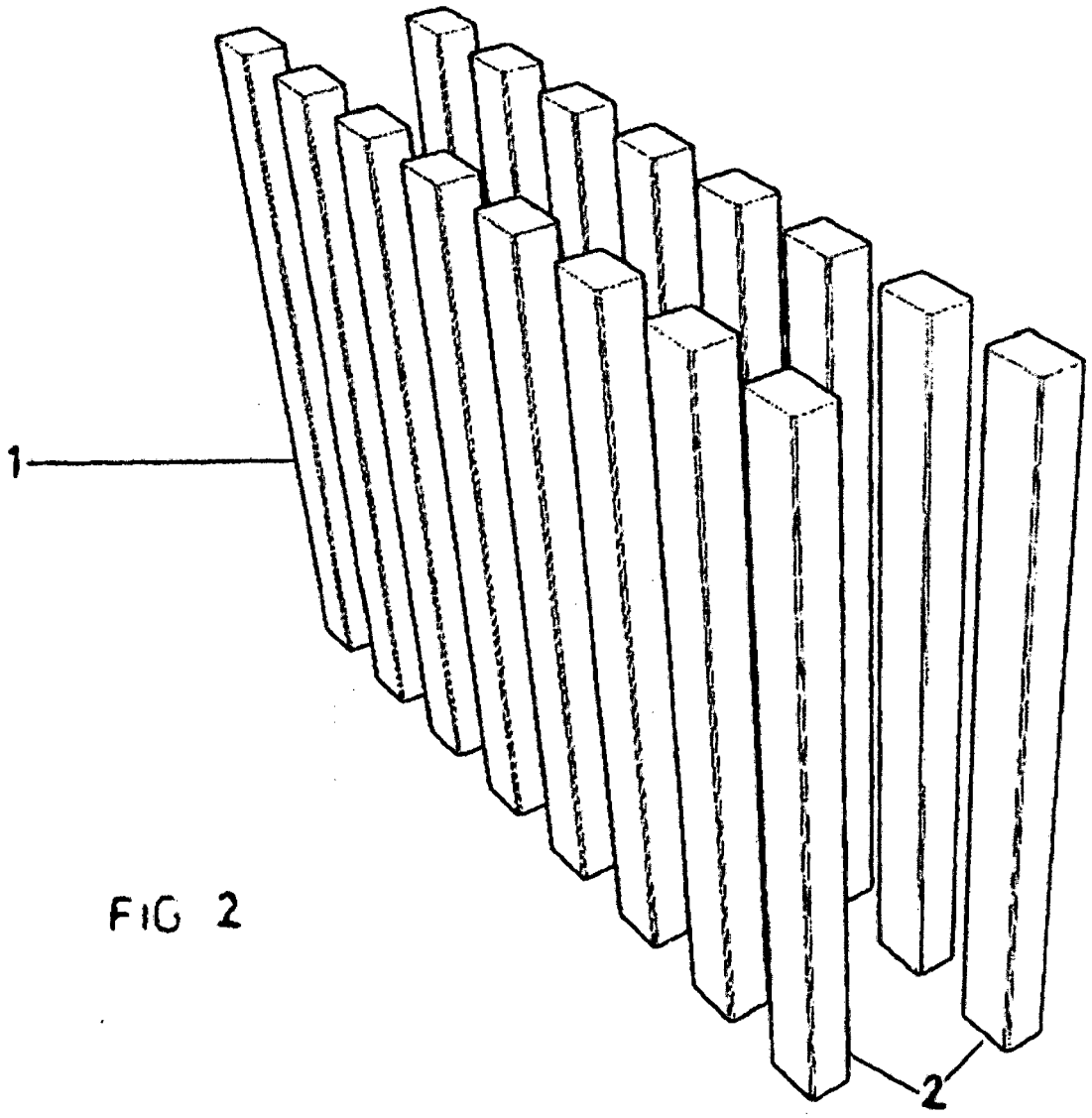

FIG 2

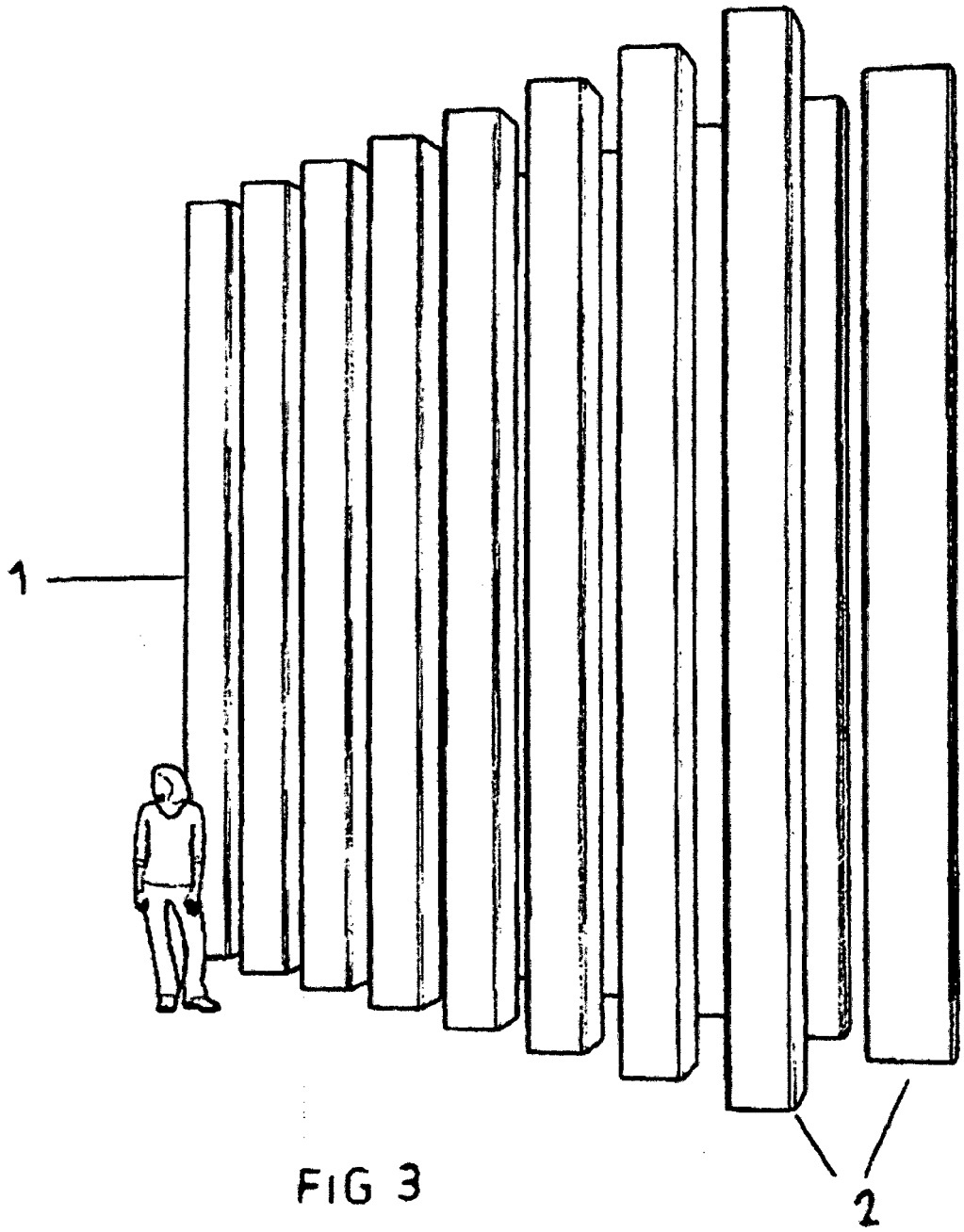

FIG 3

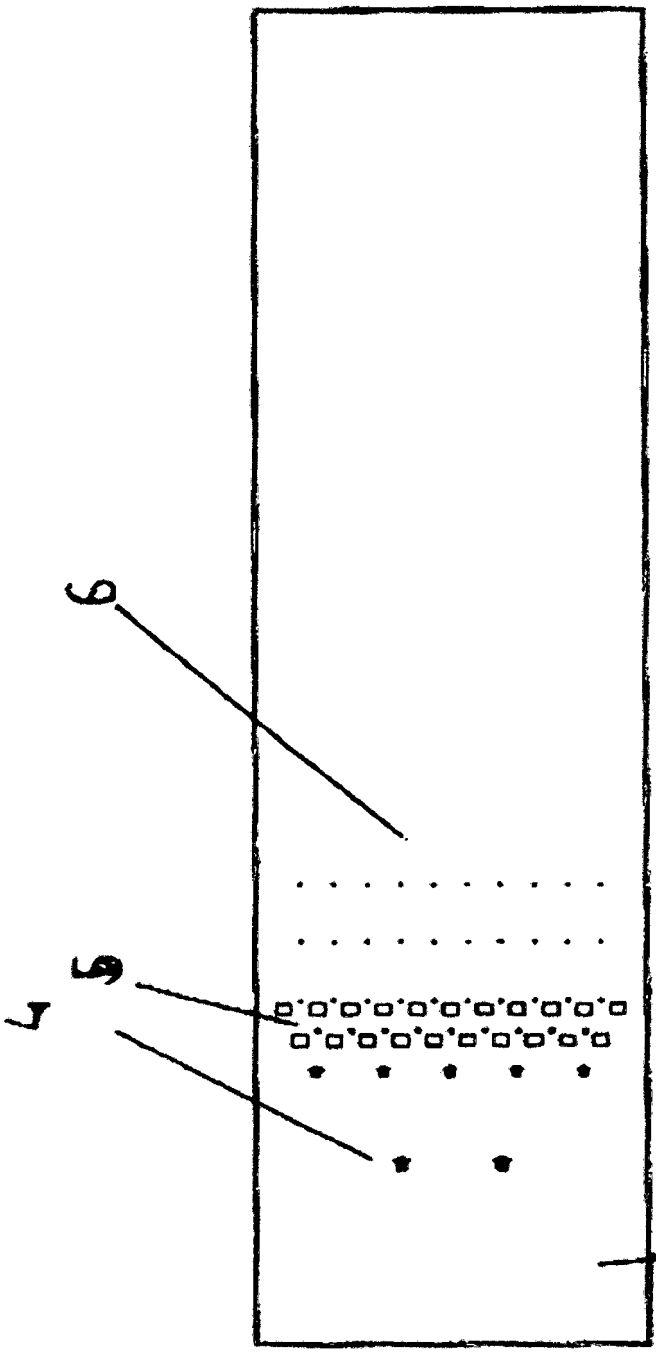

FIG 4

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EUROPEAN SEARCH REPORT

Application Number
EP 17 00 1145

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	KR 2016 0077930 A (YU HEUNG SIK [KR]; JIN SUNG KYUN [KR]) 4 July 2016 (2016-07-04) * paragraphs [0018], [0022], [0075], [0077] * * figures 1,4,13a *	1	INV. E01F7/02
X	KR 200 431 158 Y1 (NOT MENTIONED) 15 November 2006 (2006-11-15) * paragraphs [0013], [0014], [0015] * * figure 7 *	1	
A,P	US 2017/073911 A1 (HOLLAND RODNEY HANS [US] ET AL) 16 March 2017 (2017-03-16) * paragraphs [0002], [0006], [0064] * * figures 5A,5B,6A,6B *	1	

TECHNICAL FIELDS SEARCHED (IPC)

E01F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	24 November 2017	Kremsler, Stefan

CATEGORY OF CITED DOCUMENTS

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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
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24-11-2017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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KR 200431158 Y1	15-11-2006	NONE	
US 2017073911 A1	16-03-2017	US 2017073911 A1	16-03-2017
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82