



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.09.2016 Bulletin 2016/39

(51) Int Cl.:
F21V 37/02 ^(2006.01) **F21V 35/00** ^(2006.01)
F21W 131/10 ^(2006.01)

(21) Application number: **16020094.5**

(22) Date of filing: **22.03.2016**

(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

(71) Applicant: **Branimir, Paskvan**
51221 Kostrena (HR)

(72) Inventor: **Branimir, Paskvan**
51221 Kostrena (HR)

(74) Representative: **Laskarin, Anamari**
Odvjetnicko Društvo Macesic i Partneri
Pod Kastelom 4
P.O. Box 366
51000 Rijeka (HR)

(30) Priority: **23.03.2015 HR P20150331 T**

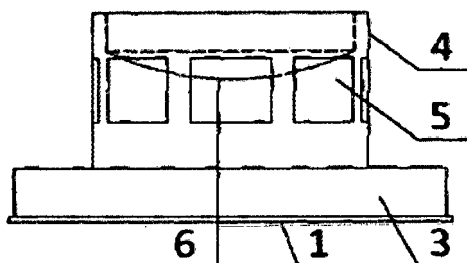
(27) Previously filed application:
23.03.2015 HR P20150331 T

(54) **FLAME SUPPORTING COVER**

(57) Flame Supporting Cover in all its performing versions enables improved, safe and continued burning of candles in the rain and the wind in a simple and efficient manner, due to reduced heating it has a beneficial effect on the plastic body of the lantern. In its principal version it consists of the lower part (1) and the upper part (2) which connect to form a functional unit. From the horizontal perspective, the cape (7), completely covers the vertical openings (5) and prevents forced penetration of air flow into the housing of the lantern and in accordance

with fluid dynamics, by means of the dome (6), enables successful warm air flow and its exit through the upper part of the vertical openings (5), and afterwards through the horizontal openings (9) into the atmosphere. Fresh air enters through the space between the seats (3) and the cape (7) and further through the lower part of the vertical openings (5) into the body of the candle. The gutter (10) and the wings (11) disable the contact of rain-drops to the body (4) and their entrance into the interior of the candle.

IMAGE 1



Description**Field of the Invention**

[0001] The invention relates to the field of gravestone candles, lanterns, garden candles, torches and all other areas where the flame is used for heating, illumination or creating atmosphere.

Technical Problem

[0002] Weather conditions such as wind or rain significantly affect the burning of candles (lanterns). Through standard covers of the gravestone candles with vertically placed air openings the wind freely enters inside the housing of the candle, creates an air swirl inside the formwork, disturbs the flame and puts it out very often. Abundant rainfall, especially if carried by the wind, enters through the openings, mixes with melted paraffin and puts out the flame. As the top of the flame reaches up to 1.400°C, it significantly heats the lid, occasionally melts the plastic bearing and immerses inside the housing of the candle. Lifting the lid presents a risk of burn injuries.

State of the Art

[0003] The candles are protected from rainfall and wind by insertion into special housings (lanterns), whilst the gravestone candles are protected from rainfall and wind by the metal or plastic lids with vertical openings. In several patent searches we came across a few solutions which are in practice hardly feasible and financially unprofitable. We have not found any solution offered by the below presented invention.

Summary of the Invention

[0004] Flame Supporting Cover is a hollow three-dimensional object which covers the housing where the source of the flame is located. It consists of several parts which connect into a functional unit.

[0005] In a simple and efficient manner, it enables improved, safe and continued burning of the candle in the rain and the wind in a way that it prevents direct penetration of undesirable horizontal air flow into the housing of the lantern and flickering of the flame, and in accordance with fluid dynamics enables successful vertical warm air flow, product of combustion and air supply necessary for supporting the flame. The innovative lid heats less which has a positive effect on the plastic formwork and enables safer handling. The invention can be performed in 6 versions.

Brief Description of Drawing

[0006] The accompanying drawings that are included in the description and which form part of the description of the invention, illustrate previously considered, best

modalities of the invention and assist in explaining the methods of use of the invention.

Image 1 displays the drawing of the lower part of the Flame Supporting Cover.
 Image 2 displays the drawing of the lower part with detachable dome.
 Image 3 and 4 display the drawing and the ground plan of the upper part of the Flame Supporting Cover.
 Image 5 displays the drawing of the first version of the Flame Supporting Cover.
 Image 6 displays the drawing of the second version of the Flame Supporting Cover.
 Image 7 displays the drawing of the third version of the Flame Supporting Cover.
 Image 8 displays the drawing of the fourth version of the Flame Supporting Cover.
 Image 9 displays the drawing of the fifth version of the Flame Supporting Cover.
 Image 10 displays the drawing of the sixth version of the Flame Supporting Cover.
 Image 11 displays the ground plan of the underlid as part of the sixth version of the Flame Supporting Cover.

Detailed Description of at Least One Mode of Realization of the Invention**[0007]**

Referring to image 1:

The lower part (1) of the Flame Supporting Cover consists of a wider seat (3) and narrower body (4). The lower part (1), in its first version has the body (4) with vertically placed openings (5) and it is vaulted with inverted dome (6). The dome (6) is spaced apart from the wall of the body (4). The walls of the body (4) can be placed vertically or can be less or more inclined whereby the body (4), from a three-dimensional aspect, could assume a mild form of a truncated cone. The depth of the cone, from a horizontal aspect, exceeds the upper edge of the vertical openings (5).

Referring to image 2:

A specifically designed dome (6) can be inserted into the top of the body (4), of the lower part (1), whereby the lower part (1) would then consist of 2 separate parts.

Referring to Image 3 and 4:

The upper part (2) of the Flame Supporting cover

consists of the roofing (8) and the cape (7). The upper part (2), in its first version, has the roofing (8) which consists of horizontal openings (9) placed on its brim and the gutter (10) which can be horizontal or inclined. Horizontal openings (9) can also be placed horizontally or inclined. They are pierced from 3 sides so that the wings (11) that result from piercing the horizontal openings (9), on side looking towards the center of the upper part, (2) continue to hold on them Image 3 displays the scheme of the upper part (2) with inclined horizontal openings (9) and inclined gutter (10).

Referring to image 5:

After they are constructed, the lower part (1) and the upper part (2) connect unto a functional unit. In the first version of the Flame Supporting Cover they connect in a way that the elevated part of the roofing (8) is located on the top of the body (4). Warm fluids stimulated by the flame rise up to the inverted dome (6), where they spill along it and exit through the upper part of the vertical openings (5) and further through horizontal openings (9) into the atmosphere. Due to the appearance of the negative pressure, fresh air is vacuumed through the space between the cape (7) and the seat (3) and through the lower part of the vertical openings (5) it enters into the housing of the candle and supports the burning of the flame. The cape (7), from the horizontal perspective, more than completely covers the vertical openings (5) and thereby disables direct penetration of undesirable horizontal air flow into the housing of the candle. The gutter (10) and the wings (11) prevent rain drops to contact the body (4) and their penetration through the vertical openings (5) into the interior of the lantern. During the burning of the candle, due to spreading of the material caused by heat, the top of the body (4) connects to the roofing (8) in such way that the lower part (1) and upper part (2) cannot be separated by the influence of bad weather conditions. The lower part (1) and the upper part (2) can be fastened for example by mechanical lateral impact in the area of the elevated roofing (8), which results in deformation of the sheet metal and fastens the components. As this cover as a whole cools down well, the temperature on the seat (3) by which the Flame Supporting cover is placed on the plastic body of the lantern, is lower than the temperature of the seats of standard sheet metal lids, which beneficially effects the plastic housing of the candle.

Referring to image 6:

The second version of the Flame Supporting Cover has the upper part (2) known from the first version of the Flame Supporting Cover but performed with a longer cape (7) and vacuum openings (12) positioned in the lower part of the cape (7). In the elevated part of the roofing (8) there is an inserted dome (6) that can be connected to it by the method described in the first version. The lower part (1) has a simplified form whereby the body (4) is not vaulted nor has any vertical openings. Through the vacuum openings (12) the air enters into the cover and passing over the hollow body (4) it enters into the housing of the candle and supports the burning of the flame. As the upper part (2) overlies the seat (3) by the cape (7), the upper part (2) together with the lower part (1) can be in the zone of the seat (3) connected by the same or by a method similar to the one described in the first version of the Flame Supporting Cover.

Referring to image 7:

The third version of the Flame Supporting Cover consists of the lower part (1), known from the first version of the Flame Supporting Cover, and the upper part (2), also known from the first version, but performed with a longer cape (7) and vacuum openings (12). As the upper part (2) primarily relies on the seat (3), the roofing (8) can have a less elevated part or it can be flat. The upper part (2) together with the lower part (1) can be in the zone of the seat (3) connected by the same or by a method similar to the one described in the first version of the Flame Supporting Cover.

Referring to image 8:

The fourth version of the Flame Supporting Cover consists of the lower part (1), known from the first version of the Flame Supporting Cover, and the upper part (2) performed with the cape (7), vacuum openings (12) and the roofing (8) in spherical shape with the outflow opening (13) located on its top. However, through such opening the rain can enter to a lesser extent but it will accumulate inside the dome (6) and since the top of the flame reaches a very high temperature it is to expect that the accumulated water will evaporate very fast which will have a positive effect on the cooling of the cover. The upper part (2) together with the lower part (1) can be in the zone of the seat (3) connected by the same or by a method similar to the one described in the first version of the Flame Supporting Cover.

Referring to image 9:

The fifth version of the Flame Supporting Cover consists of the lower part (1) in the simplified form known from the second version of the Flame Supporting Cover and of the upper part (2) known from the third version of the Flame Supporting Cover. The upper part (2) together with the lower part (1) can be in the zone of the seat (3) connected by the same or by a method similar to the one described in the first version of the Flame Supporting Cover. Since the upper part (2) with the roofing (8) does not reach the body (4) there is no need that the part of the roofing (8) is particularly elevated.

Referring to images 10 and 11:

The sixth version of the Flame Supporting Cover has the under-lid (14) which consists of inverted funnel (15) and the circumferential part (17). The inverted funnel (15) has the upper opening (16) on its top. The circumferential part (17) has the slope (18) and the lower openings (19). The upper part (2) in the shape of a bell with vacuum openings (12) and covered top openings (20) overlies the circumferential part (17). The under-lid (14) with the upper part (2) can be in the zone of the circumferential part (17) connected by the same or by a method similar to the one described in the first version of the Flame Supporting Cover. Warm fluids resulted from the burning of the flame are rising up, passing through the inverted funnel (15), the upper opening (16) and through the top openings (20) exit into the atmosphere. Fresh air enters through the vacuum openings (12) and further through the lower openings (19) into the housing of the candle and supports the burning of the flame.

Method of Application

[0008] The Flame Supporting Cover is universal and suitable as a lid of the most of classical lanterns. Apart from that it can be applied on garden candles or torches, that is, on every flame which is located inside the housing and is used for heating, illumination and creating the atmosphere. Mass production is possible. By means of the Flame Supporting Cover, certain producers of the candles or lids for lanterns can achieve significant advantage over the competition in the era of global influences on the local market.

The list of used reference signs:

[0009]

- 1 - lower part
- 2 - upper part
- 3 - seat

- 4 - body
- 5 - vertical openings
- 6 - dome
- 7 - cape
- 8 - roofing
- 9 - horizontal openings
- 10 - gutter
- 11 - wings
- 12 - vacuum openings
- 13 - outflow openings
- 14 - under-lid
- 15 - inverted funnel
- 16 - upper opening
- 17 - circumferential part
- 18 - slope
- 19 - lower openings
- 20 - top openings

Claims

1. Flame supporting cover **characterized by** several separate parts which connect to a functional unit.
2. Flame supporting cover, according to claim 1 and in its version **characterized by** the lower part (1) which consists of the seat (3) and the body (4) of smaller diameter, with formwork that has vertical openings (5) and that is vaulted by the inverted dome (6).
3. Flame supporting cover, according to claim 1 **characterized by** the upper part (2) which consists of the roofing (8) with horizontal openings (9) located on the edge of the roofing (8) with wings (11), the gutter (10) and the cape (7).
4. Flame supporting cover, according to claims 1, 2 and 3 and in its version **characterized by** the upper part (2) which connects with the lower part (1) so that the elevated part of the roofing (8) overlies the body (4).
5. Flame supporting cover, according to claim 1 and in its version **characterized by** the lower part (1) which consists of the seat (3) and the body (4) that has no vertical openings and is not vaulted.
6. Flame supporting cover, according to claims 1, 3 and 5 and in its version **characterized by** dome (6) which is inserted into the elevated part of the roofing (8) whereby the upper part (2), performed with the longer cape (7) and vacuum openings (12) relies on the lower part (1) in the zone of the seat (3).
7. Flame supporting cover, according to claims 1, 2 and 3 and in its version **characterized by** the upper part (2) which is performed with the longer cape (7) and vacuum openings (12) and it relies on the lower part (1) in the zone of the seat (3).

8. Flame supporting cover, according to claims 1 and 2 and in its version **characterized by** the upper part (2) which consist of the cape (7) that has vacuum openings (12) and the roofing (8) in spherical shape which has the outflow opening (14) on its top and relies on the lower part (1) in the zone of the seat (3) 5
9. Flame supporting cover, according to the claim 1 and in its version **characterized by** the under-lid (14) which consists of inverted funnel (15) which has the upper opening (2) on its top and of circumferential part (17) which consists of the slope (18) and the lower openings (19). 10
10. Flame supporting cover, according to claim 1 and 9 and in its version **characterized by** the upper part (2) in shape of a bell with vacuum openings (12) and covered top openings (20) which relies on the under-lid (14) in the zone of the circumferential part (17). 15 20

25

30

35

40

45

50

55

IMAGE 1

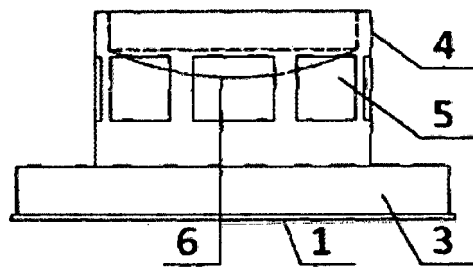


IMAGE 2

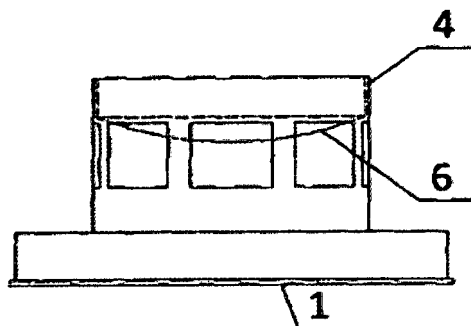


IMAGE 3

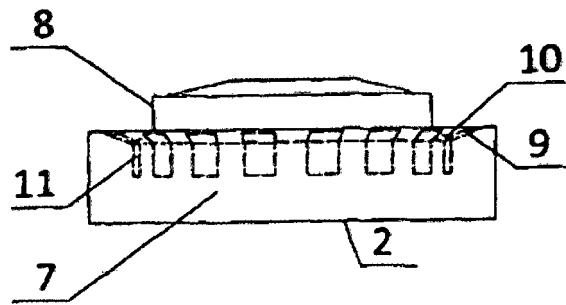


IMAGE 4

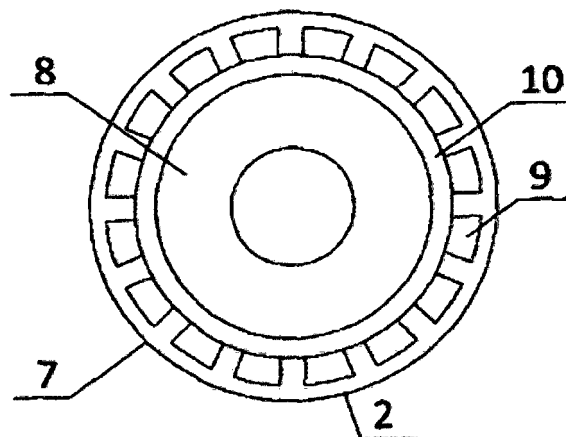


IMAGE 5

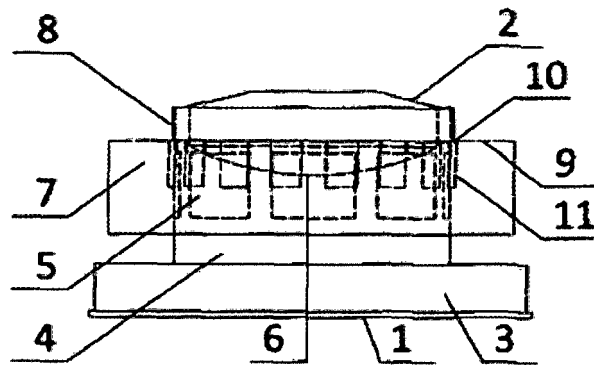


IMAGE 6

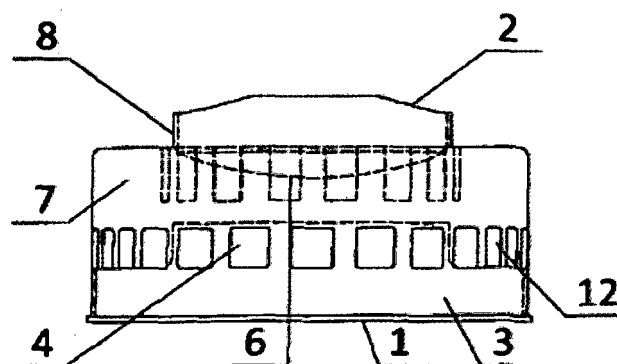


IMAGE 7

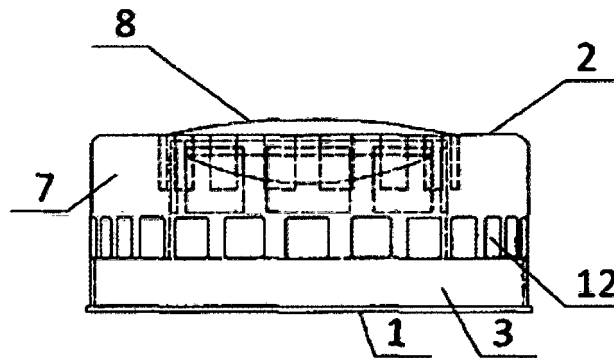


IMAGE 8

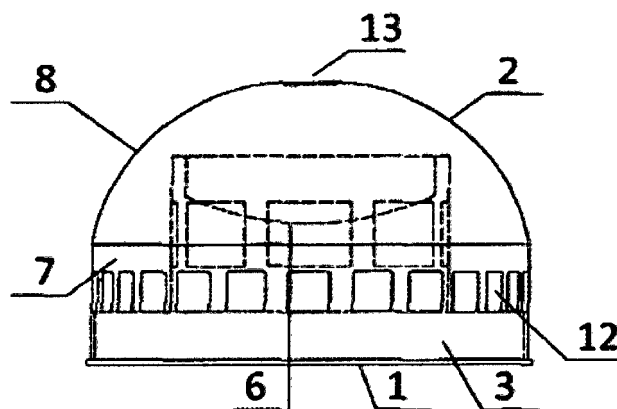


IMAGE 9

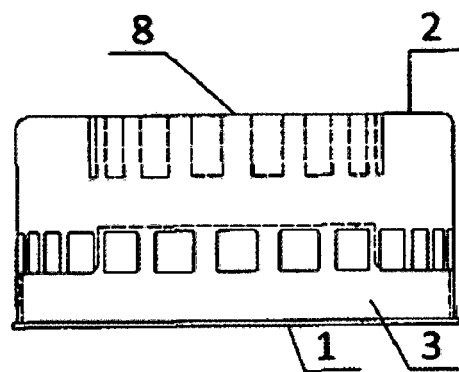


IMAGE 10

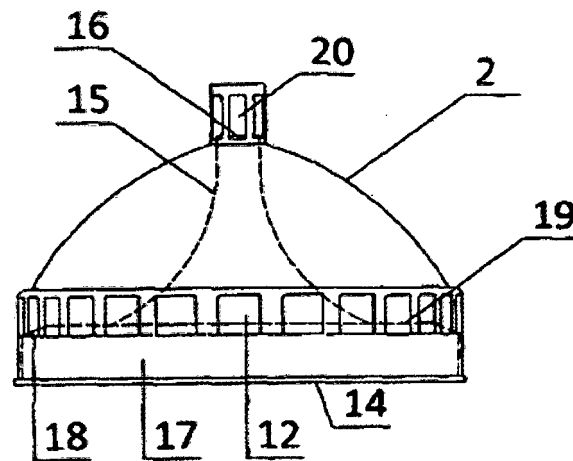
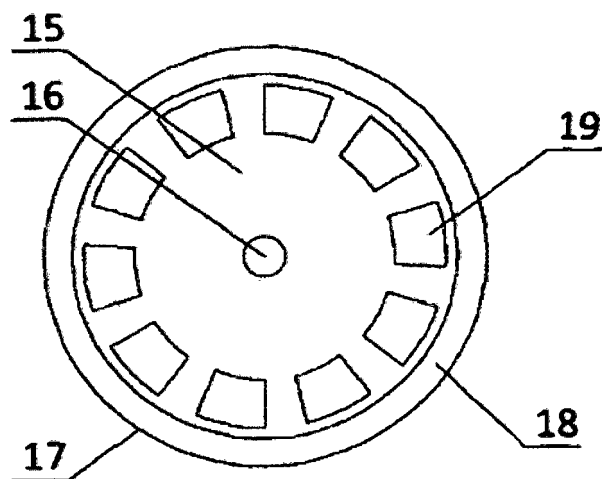


IMAGE 11





EUROPEAN SEARCH REPORT

Application Number
EP 16 02 0094

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)
X	JP 2002 289037 A (SAGO KUNIYOSHI) 4 October 2002 (2002-10-04) * figures 2-4 *	1,2,5,9	INV. F21V37/02 F21V35/00
X	SI 9 500 184 A2 (STELE TONE [SI]) 31 October 1995 (1995-10-31) * figures 1-3 *	1,5,9,10	ADD. F21W131/10
X	US 2014/227650 A1 (WROBEL ANDRZEJ [PL]) 14 August 2014 (2014-08-14) * the whole document *	1,5,9	
X	SI 20 101 A2 (LAMOVSEK GERMAN [SI]) 30 April 2000 (2000-04-30) * figures 1-3 *	1,5,9	
Y		10	
X	WO 01/55637 A1 (L K PLANSTAAL AB [SE]; KLAVBORG LARS [SE]) 2 August 2001 (2001-08-02) * figures 1-3,4-6 *	1,5	
Y		10	
X	SI 20 169 A (ILIRIJA RAZVOJ PROIZV IN TRZEN [SI]) 31 August 2000 (2000-08-31) * figures 1,2 *	1,5	TECHNICAL FIELDS SEARCHED (IPC)
X	FR 385 464 A (JOSEPH MARIE BALTHAZARD [FR]) 13 May 1908 (1908-05-13) * figure 1 *	1,5	F21L F21V F21W E04H
X,P	EP 2 955 436 A1 (NIFRA PARFÜMERIE GES M G H NACHFOLGER PANNY KG [AT]) 16 December 2015 (2015-12-16) * figures 1-3 *	1,5	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 August 2016	Examiner Dinkla, Remko
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			

EPO FORM 1503 03.82 (P04C01)

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

EP 16 02 0094

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.

19-08-2016

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2002289037 A	04-10-2002	NONE	
SI 9500184 A2	31-10-1995	NONE	
US 2014227650 A1	14-08-2014	CA 2844043 A1 EA 201490225 A1 EP 2729734 A1 US 2014227650 A1 WO 2013006070 A1	10-01-2013 30-04-2014 14-05-2014 14-08-2014 10-01-2013
SI 20101 A2	30-04-2000	NONE	
WO 0155637 A1	02-08-2001	AT 438829 T AU 3065701 A CY 1109562 T1 DK 1254339 T3 EP 1254339 A1 ES 2331053 T3 PT 1254339 E SE 514059 C2 WO 0155637 A1	15-08-2009 07-08-2001 13-08-2014 23-11-2009 06-11-2002 21-12-2009 02-11-2009 18-12-2000 02-08-2001
SI 20169 A	31-08-2000	NONE	
FR 385464 A	13-05-1908	NONE	
EP 2955436 A1	16-12-2015	AT 515798 A4 EP 2955436 A1	15-12-2015 16-12-2015