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

(11) EP 2 827 065 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
21.01.2015 Bulletin 2015/04

(51) Int Cl.:
F24C 7/06 *(2006.01)*

(21) Application number: **14461553.1**

(22) Date of filing: **11.07.2014**

(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

(30) Priority: **15.07.2013 PL 40468913**

(71) Applicant: **Wronski, Andrzej**
05-807 Podkowa Lesna (PL)

(72) Inventor: **Wronski, Andrzej**
05-807 Podkowa Lesna (PL)

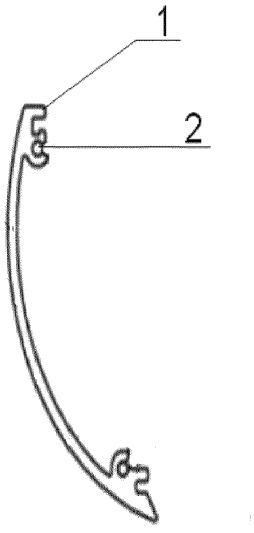
(74) Representative: **Fietko-Basa, Sylwia**
Kancelaria Patentowa
Grazyna Basa
Ul. Jagiellonska 59
25-734 Kielce (PL)

(54) The longitudinal profile, particularly of the linear radiant heater and the housing of the linear radiant heater emitting infrared radiation

(57) The longitudinal profile particularly of the linear radiant heater is characterized in that it has the shape of a strip on the edges of which there are slotted guides positioned **(1)** and on the inner side of the strip, there is at least one slotted or pass-through projection (2) or a guide for determining the heater elements.

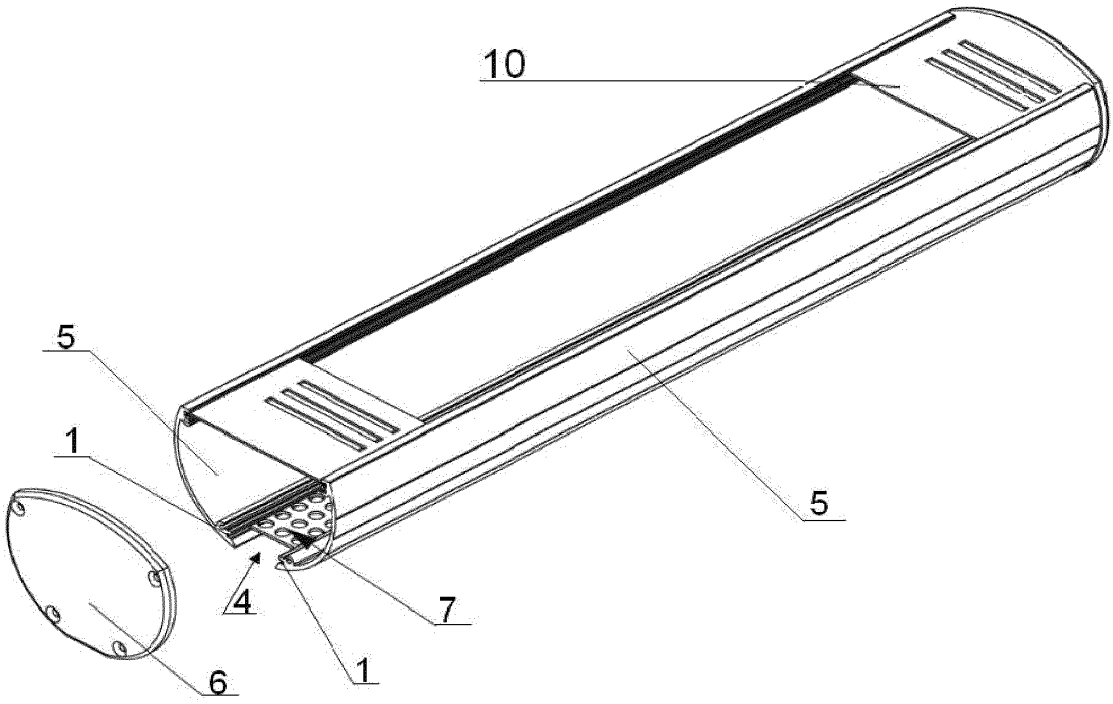
The housing of the linear radiant heater emitting infrared radiation containing a vault-shaped longitudinal body, side covers, upper covers and if applicable a mounting holder, is characterized in that the longitudinal body (4) has the split construction composed of at least two profile longitudinal strips (5) favorably made out of the longitudinal profile according to the claims from 1 to 4, and which are favorably positioned symmetrically to one another.

Fig. 2



EP 2 827 065 A1

Fig. 6



Description

[0001] The object of the invention is the longitudinal profile particularly of the linear radiant heater and the housing of the linear radiant heater emitting infrared radiation. These elements are to be used in small, electrically driven, infrared radiant heaters.

[0002] In known electrically driven, linear radiant heaters emitting infrared radiation, the heater housing consists of a one-piece, longitudinal body in the shape of a vault while the side covers are mounted to the body sides. Moreover, the housing is usually fitted with a holder for mounting the heater.

[0003] For instance, the utility model Ru 60147 is the radiant heater housing made out of aluminum profile of a spatial construction, which constitutes a monolithic unit with the reflector. The sides are secured with the covers in the form of screwed plates with the outline adjusted to the housing shape. This type of housing is adapted to the specific radiant heater size and its transverse parameters cannot be changed. Moreover, it is difficult to make ventilation openings in it, which significantly extends the time of the heater manufacturing.

[0004] The problematic issue in the case of infrared radiant heaters is the high temperature which has a significant impact on the shape and size of the housing and the applied cooling system of this housing. The necessity of dissipation of large heat volumes which are generated in the area of the filament often leads to an increase in the housing size and the space between the reflector and the housing. This, in turn causes the increase in the labor and material costs.

[0005] The aim of the invention is to develop the longitudinal profile which will enable the construction of modular housings of various sizes. This will cause a significant reduction of the housing manufacturing costs and thus the reduction of costs of the complete radiant heater. The aim of the invention is also to develop a minimized, simple and inexpensive radiant heater housing.

[0006] The longitudinal profile particularly of the linear radiant heater is characterized in that it has the shape of a strip on the edges of which there are slotted guides positioned and on the inner side of the strip there is at least one slotted or pass-through projection or a guide for determining the heater elements.

[0007] The profile is characterized in that in cross-section, the strip side is in the "C" letter shape.

[0008] The profile is characterized in that in cross-section, the strip side has the shape of a flat bar.

[0009] The profile is characterized in that it contains at least one external guide.

[0010] The housing of the linear radiant heater emitting infrared radiation containing a vault-shaped longitudinal body, side covers, upper covers and if applicable a mounting holder, according to the invention is characterized in that the longitudinal body has the split construction composed of at least two profile longitudinal strips favorably made out of the longitudinal profile according to the invention and which are favorably positioned symmetrically to one another.

[0011] The housing is characterized in that the profile longitudinal strips are connected to one another with connectors located along the body or on the body sides.

[0012] The housing is characterized in that the connector along the body has the form of at least one bottom strip favorably perforated of the width chosen from the model range.

[0013] The housing is characterized in that the connectors along the body have the form of at least one upper cover of the width chosen from the model range.

[0014] The housing is characterized in that the connectors at the body sides have the form of the side covers of the width chosen from the model range.

[0015] The housing is characterized in that the side connectors have the form of the longitudinal elements of the length chosen from the model range and with the screw holes located at the ends of these elements.

[0016] The solution according to the invention allows for a simple and quick assembly of various size radiant heaters. By cutting the longitudinal profile to appropriate length and selecting the connectors form the model range of a specific width and length, it is possible to manufacture radiant heaters in line with any order, saving time, materials and labor. Manufacturing simple connectors of various dimensions is significantly cheaper than manufacturing the complete housing. The invention solves also the problem of the radiant heater ventilation because depending on the needs, the ventilation system may be direct, that is without mounting the bottom strip, or with an open-work, bottom strip with a chosen model of ventilation openings. Additionally, the radiant heater is characterized in an aesthetically pleasing and compact design.

[0017] The invention in its production option is shown in the figure where fig.1 and fig. 2 shows the longitudinal profile in cross-section with the side in the "C" letter shape, with a various arrangement of projections on the interior side, fig. 3 shows the longitudinal profile the side of which has the shape of a flat bar in cross-section while on the outside there is a profiled external guide, fig. 4 shows the radiant heater housing in a perspective view with the use of connectors in the form of the side covers., fig. 5 shows the radiant heater housing in a perspective view with a connector in the form of the longitudinal element, fig. 6 shows the housing in a perspective view with the bottom strip and side covers, fig. 7 shows the body elements in a perspective view made out of the profile the side of which has the shape of a flat bar in a perspective view, fig. 8 shows the connector in the form of the longitudinal element while fig. 9 shows the housing applied to an exemplary radiant heater.

[0018] In the production option, the longitudinal profile particularly of the linear radiant heater, in cross-section, has the side in the shape of the "C" letter while at the ends of the profile there are longitudinal, slotted guides **1** directed perpendicularly towards the longitudinal axis

of the heater while on the interior side of the profile there are two longitudinal projections located **2** with the screw holes which can be positioned in any place as it is presented in fig. 1 and 2.

[0019] The other production option shows the longitudinal profile which, in cross - section has the side in the shape of a flat bar and is fitted with the same elements as the longitudinal profile shown in the first option and additionally it has external guides **3** for example to place a logo or for mounting a holder.

[0020] In other production options, the profile in the shape as in the first or subsequent options may have additional internal guides or pass-through projections for example for cable or the heater routing.

[0021] The housing of the linear radiant heater emitting infrared radiation consists of the longitudinal split body **4** which is made out of two profile longitudinal strips **5** made out of the profile the side of which, in cross-section is in the "C" letter shape. The profile strips **5** are connected to one another by the connectors in the form of side covers **6** tighten to the strips **5** with screws. In this case, the ventilation system constitutes a gap which appeared between the strips **5.** The width of the housing may be changed by applying side covers **6** of appropriate width. The radiant heater cover grille, the upper covers **10** and the holder elements not shown in the figure are inserted into the slotted guides **1** located at the ends of the profile longitudinal strips **5.**

[0022] In other production option, an additional connector in the form of an open-work bottom strip **7** fabricated from plate is inserted to the housing as in the first option. The bottom strip **7** is inserted into the slotted guides **1** located at the ends of the profile longitudinal strips **5.**

[0023] In another production option, the housing body is composed of two profile strips with the cross-section in the "C" letter shape. The profile strips were connected with a connector in the form of the longitudinal element **8** fitted with screw holes **9.** The connector in the form of the longitudinal element **8** connects the longitudinal profile strips **5** diagonally.

[0024] In other production options, the profile strips **5** in cross-section have the side in the shape of a flat bar.

Claims

1. The longitudinal profile particularly of the linear radiant heater, **characterized in that** it has the shape of a strip on the edges of which there are slotted guides **(1)** positioned and on the inner side of the strip there is at least one slotted or pass-through projection **(2)** or a guide for determining the heater elements.

2. The profile according to the claim 1, **characterized in that** in cross-section, the strip side is in the "C' letter shape.

3. The profile according to the claim 1, **characterized in that** in cross-section, the strip side is in the shape of a flat bar.

4. The profile according to the claims from 1 to 3, **characterized in that** it contains at least one external guide **(3).**

5. The housing of the linear radiant heater emitting infrared radiation containing a vault-shaped longitudinal body, side covers, upper covers and if applicable a mounting holder, **characterized in that** the longitudinal body **(4)** has the split construction composed of at least two profile longitudinal strips **(5)** favorably made out of the longitudinal profile according to the claims from 1 to 4, and which are favorably positioned symmetrically to one another.

6. The housing according to the claim 5, **characterized in that** the profile longitudinal strips **(5)** are connected to one another with connectors located along the body **(4)** or on the body sides **(4).**

7. The housing according to the claim 6, **characterized in that** the connector along the body has the form of at least one bottom strip **(7)** favorably perforated of the width chosen from the model range.

8. The housing according to the claim 6, **characterized in that** the connector along the body has the form of at least one upper cover **(10)** of the width chosen from the model range.

9. The housing according to the claim 6, **characterized in that** the connectors at the body sides **(4)** have the form of the side covers **(6)** of the width chosen from the model range.

10. The housing according to the claim 6, **characterized in that** the connectors at the body sides **(4)** have the form of longitudinal elements **(8)** of the length chosen from the model range and with the screw holes **(9)** located at the ends of each longitudinal element **(8).**

Fig. 1

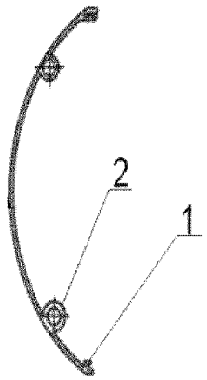


Fig. 2

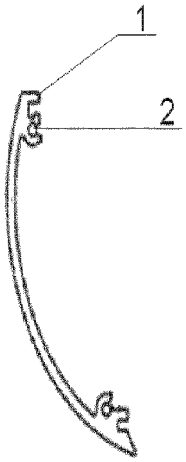


Fig. 3

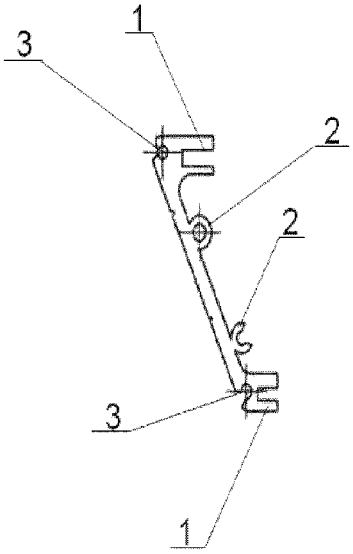


Fig. 4

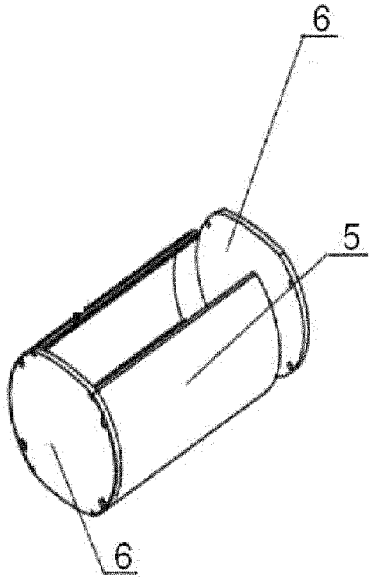


Fig. 5

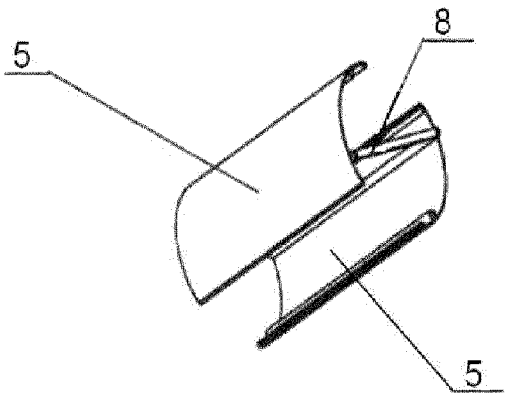


Fig. 6

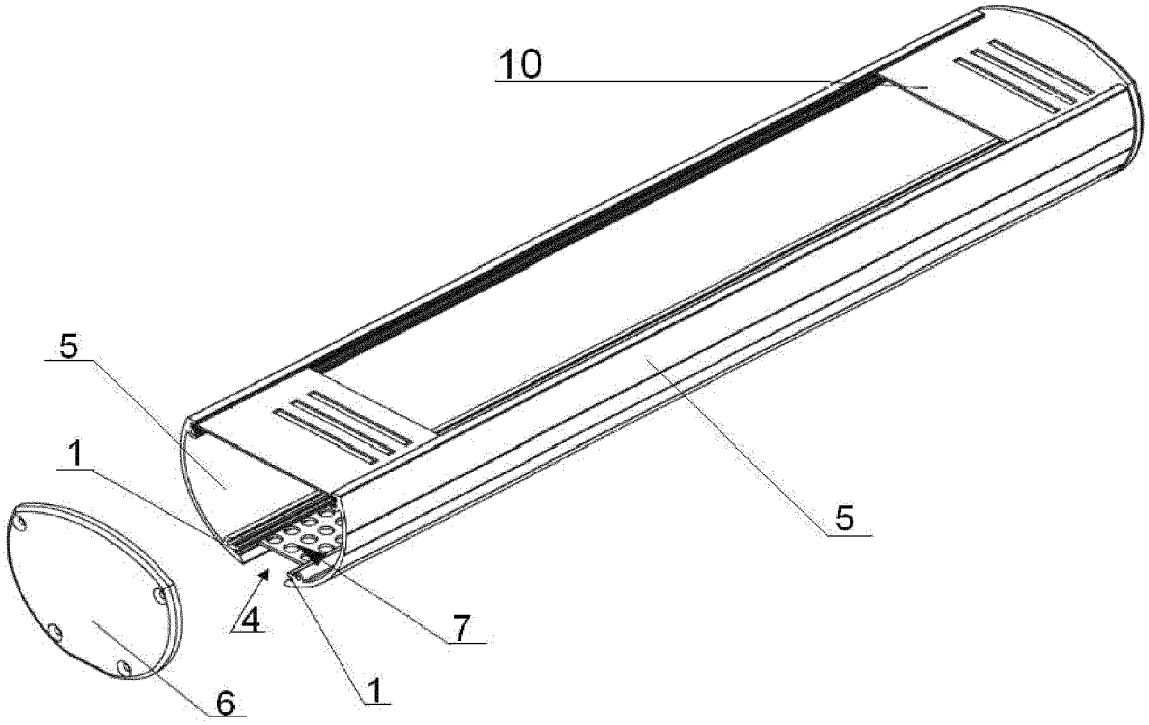


Fig. 7

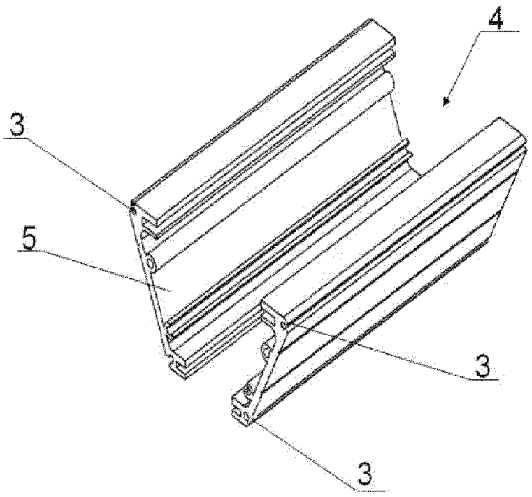


Fig. 8

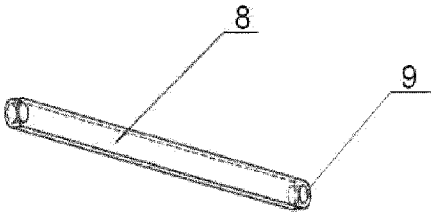
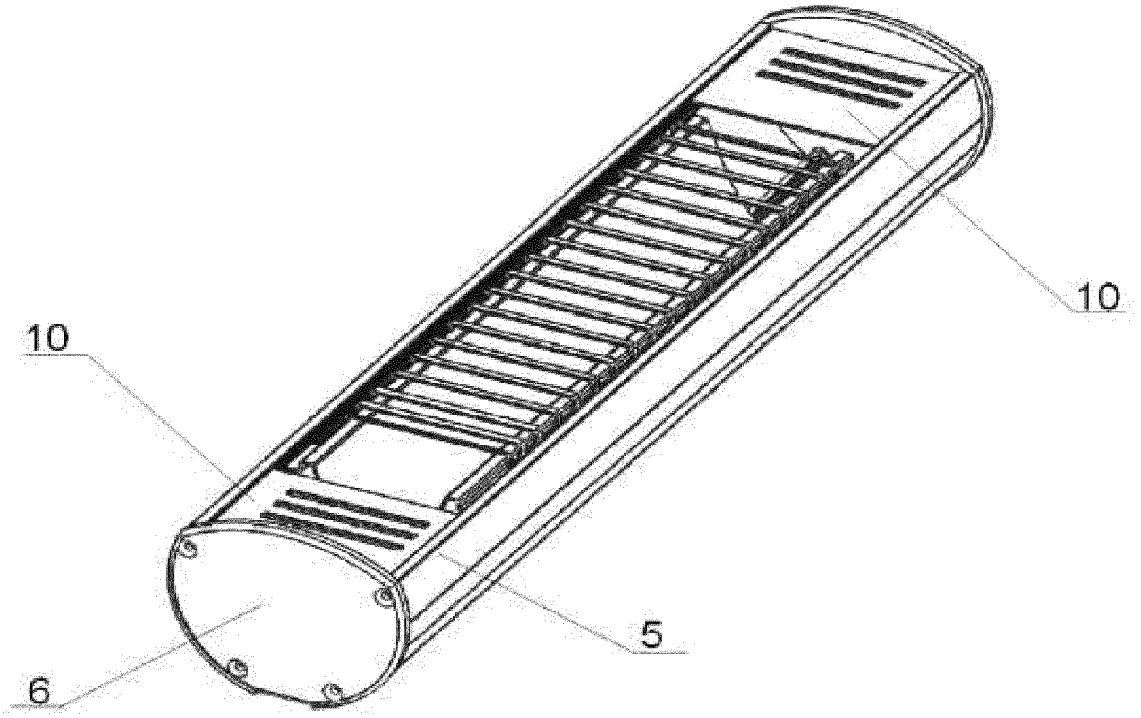


Fig. 9



Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 14 46 1553

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 Y	US 2008/083727 A1 (ZANK JEFFREY T [US] ET AL) 10 April 2008 (2008-04-10) * paragraphs [0018], [0019]; figures 1-3,8 *	1,2,4 10	INV. F24C7/06
X	WO 89/02565 A1 (WESSELTOFT AS [NO]) 23 March 1989 (1989-03-23) * page 3, paragraphs 2,3; figure 1 *	1,3	
X Y	GB 908 725 A (ASS ELECT IND) 24 October 1962 (1962-10-24) * column 1, line 10 - line 15 * * column 1, line 23 - line 36; figure 3 * * column 2, line 75 - column 3, line 6 *	5-9 10	
Y	US 2 627 014 A (KOLB JOSEPH E) 27 January 1953 (1953-01-27) * column 1, line 26 - line 33; figure 1 * * column 3, line 4 - line 24 *	10	
A	US 3 654 471 A (NILSSON HANS ERIK) 4 April 1972 (1972-04-04) * column 1, line 64 - line 70; figure 1 *	1,5	TECHNICAL FIELDS SEARCHED (IPC) F24C H05B
A	DE 20 52 304 A1 (STEINMETZ M) 27 April 1972 (1972-04-27) * page 3, paragraph 2; figures *	1,5	
A	CA 2 581 545 A1 (CALORIGEN USA CORP [US]) 20 September 2008 (2008-09-20) * figures *	1,5	
A	PL 207 574 B1 (WRONSKI TEO-TERM ANDRZEJ DANUTA) 12 December 2003 (2003-12-12) * figures *	1	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 December 2014	Verdoodt, Luk

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 14 46 1553

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.

15-12-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008083727 A1	10-04-2008	NONE	
WO 8902565 A1	23-03-1989	NONE	
GB 908725 A	24-10-1962	NONE	
US 2627014 A	27-01-1953	NONE	
US 3654471 A	04-04-1972	AT 312116 B	27-12-1973
		BE 741657 A	13-05-1970
		CA 925840 A1	08-05-1973
		CH 515455 A	15-11-1971
		DE 1957910 A1	25-06-1970
		DK 140703 B	29-10-1979
		ES 373408 A1	16-03-1972
		FI 50736 B	01-03-1976
		FR 2024852 A1	04-09-1970
		GB 1234846 A	09-06-1971
		JP S4811175 B1	11-04-1973
		NL 6916881 A	15-05-1970
		NO 128633 B	17-12-1973
		US 3654471 A	04-04-1972
		ZA 6907701 A	30-06-1971
DE 2052304 A1	27-04-1972	NONE	
CA 2581545 A1	20-09-2008	NONE	
PL 207574 B1	12-12-2003		

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82