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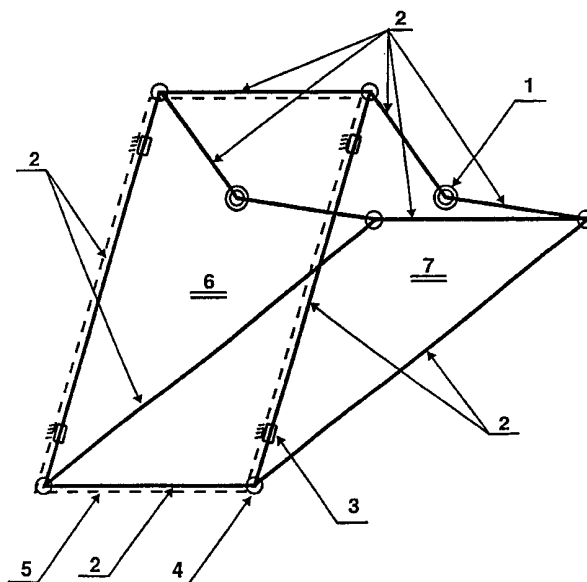
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MOSQUITO NET



(57) Abstract: The design deals with a mosquito net intended for windows with horizontally or vertically pivoting casements that is to install in the peripheral frame placed outside or inside in front of the window frame. The device consists of a light structure having a shape of a triangular prism formed by rods (2) and rotating and joining elements (4) that is along its periphery fastened to the window frame (5) using the rod (2) of one of its rectangular walls (6). All the remaining walls are covered with a mosquito net. The rods (2) of the rectangular structure wall (6) adjoining the window frame (5) are placed in self-locking holders (3) on the window frame (5). As an alternative, the rods (2) of the other rectangular structure wall (7) can be divided and interconnected by means of rotating braking joints (1) that are self-locking and adjustable.

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MOSQUITO NET

Field of the invention

The invention deals with a mosquito net intended for windows with horizontally or vertically pivoting casements to prevent from insect penetration that is fixed in a peripheral frame installed outside or inside in front of the window frame.

Background

In the windows with vertical pivoting the insect is prevented from penetration by means of a mosquito net installed in a solid frame firmly or loosely fitted to the window frame. However, this most frequently used design cannot be applied in the windows with pivoting casements where one half of the window casement pivots out of the window opening around the horizontal or vertical axis.

For that purpose a mosquito net that consists of two parts and is known. In this design one part of the net is fixed from the outside and opposite to the window casement that opens inside, i.e. three sides of the net periphery are fixed to the outer surface of the window frame, whilst the fourth one is fixed to the glass pane of the window casement using adhesive tapes. Similarly, the other part of the mosquito net is fixed to the other half of the window casement that opens outside. With this design it is not possible to ensure thorough sealing in the place of contact of the net with the window pane and frame in the area of the rotating joint of the window casement, and especially in the cut holes intended for metal fittings. Besides, the net is difficult to install, and the window is not easy to access for cleaning and maintenance.

Another known design that is protected by the CZ patent 283 889 consists in the following: the peripheral frame with a mosquito net is fixed to an external slat of the slat system surrounding the periphery of the window frame and swinging around pins located on one side of the window frame. In accordance with this patented design the external slat is designed as a three-dimensional covering slat consisting of planar slat strips connected in edges so as to form a rectangular frame. The planes of the slat strips are oriented normal to the frame plane, one side of which is fixed to the pins.

The pins are attached to edges of at least one spacer slat placed inside the covering slat that is fitted to the outside surface of the window frame.

According to the other design alternative the edge of the covering slat diverted from the peripheral frame is provided with a seaming fold turned towards the adjacent spacer slat. One edge of the spacer slat is fitted with a seaming fold, whilst the opposite edge has an inside seaming fold. The edge of the fastening slat turned towards the peripheral frame has an outside seaming fold. All seaming folds of adjoining slats are formed so as to clinch one into another. When the window casement is to be opened for airing, the system of the spacer slats will become spread simultaneously; at full opening the edges of individual slats will clinch one into another by means of their locking clamps formed by pairs of seaming folds with opposite orientation. Thus, the full peripheral area between the edges of the window casement and the window frame is perfectly sealed. After lifting the roller with the mosquito net using a tilt cord inside the room the window opening is protected against penetration of the insect, yet airing is still possible.

As obvious from the above description, the design according to the CZ patent 283 889 is rather complicated, and thus expensive. Besides, the slat barrier restricts the profile of the opened window and reduces airing. And the window does not provide for easy access for cleaning and maintenance.

The invention objective is to provide such a mosquito net design as to be suitable for windows with horizontally or vertically pivoting casements having their horizontal or vertical axes of rotation in the midway, or within the edge of the window casement. The device should reliably prevent the insect from penetrating into the room when the window is opened, enable thorough airing of the room and maintenance, especially window cleaning and frame coating. In addition, the device shall satisfy the other requirements such as those concerning its long service life, easy operation, maintenance and installation.

Summary of the Invention

The objective has been achieved, and the subject to the said invention is a mosquito net intended for windows with horizontally or vertically pivoting window casements. The device consists of a net installed in the peripheral frame located outside or inside, i.e. in front of the window, depending on the design. The device is formed by a light plastic structure having a shape of a triangular prism that consists of rods and rotating and connecting elements; along its periphery it is fastened to the window frame by means of the rods of one of its rectangular walls. All the remaining walls are fitted with a mosquito net. The rod of the rectangular wall of the structure adjoining the window frame are fixed in self-locking holders on the window frame and can be removed, if needed.

A design alternative providing for easier device handling and better storage has the rods of the other rectangular structure wall divided and connected one to another by means of rotating braking joints that are self-locking and adjustable.

Suitable materials for fabrication of the device are plastics, but also the other materials can be used, e.g. wood, wire, etc.

The main advantages of the device are the following: it is simple and not demanding with respect to the manufacture and technology, it provides for reliable functioning and easy operation and maintenance. The device is fixed to the window frame using simple click-in/click out holders, which provides for easy removal and re-installation of frames for window maintenance including window frame coating. Dimensions and shape of the frame enable to have it installed on the window for an unlimited period of time even at opening and airing without any risk of insect penetration, or accumulation of dirt – leaves, flying tree seeds, etc. This design ensures thorough sealing of the space within the opened window casement and protection against insect penetration.

The rod joints enable to remove the structure very easily and store it anywhere in winter without any excessive requirements for space. It is also possible to disassemble and re-assemble the whole structure, which subsequently provides for easy cleaning or washing of the mosquito net.

Basically, the same design can also be used for the windows with vertical casements rotating around the horizontal axis both in the midway and in the edge of the window casement. For different window sizes and types it is possible to use the same frame connecting elements: only length of the rods and dimensions of the mosquito net will vary.

Drawings

In order to better understand the design and function the device is shown on the drawings attached. The drawings can be used for all types of windows with both vertically and horizontally pivoting casements featuring either vertical or horizontal axis of rotation.

Fig. 1 is a sectional view of the roof 1 with a window casement 2 having a horizontal axis of rotation that is equipped with a mosquito net not shown on the figure. The supporting structure 3 of the device can be made so as to form a wedge extending over the full space of the window (shape V) or a half-wedge covering only the space of the pivoting part of the window, while the other half of the window is covered by the net fixed to the frame (shape Y). It can be installed both inside and outside the window frame.

Fig. 2 is a general view of the structure, Fig. 3 is a side view of the assembled structure: both of them refer to the opened window.

One rectangular wall 6 of the device is fixed to the window frame 5 by means of self-locking holders 3 fastened to the window frame 5. The device can easily be disassembled. The structure consists of rods 2 that are connected using rotating joining elements 4. In the design as shown in the Fig. 2 and 3 the rods 2 of the other rectangular wall 7 of the structure are divided and their parts are connected by means of rotating braking joints 1.

As obvious from Fig. 3, the device is too easy and fast to install by simply inserting the rods 2 into the joining elements 4 and rotating braking joints 1. At the same time the

mosquito net shall be placed on the rods 2. The self-locking holders 3 shall permanently be screwed onto the window frame 5. The structure may be removed from the self-locking holders 3 and reinstalled anytime. With the window closed the structure can be placed into the required position by simple pushing, and fixed by means of the self-locking braking joint . The position can be changed up to full closing, which is practical for out-of-season storage.

PATENT CLAIMS

1. The mosquito net intended for windows with horizontally or vertically pivoting casements that is installed in the peripheral frame placed outside or inside in front of the window frame

f e a t u r e s

a light plastic structure having a shape of a triangular prism consisting of rod (2), rotating and joining elements (4) that is along its periphery fastened to the window frame (5) using the rod (2) of one of its rectangular walls (6). All the remaining walls are covered with the net; the rods (2) of the rectangular structure wall (6) adjoining the window frame (5) are placed in self-locking holders (3) on the window frame (5) and can be removed, if needed.

2. The device according to claim 1 features the rods (2) of the other rectangular structure wall (7) that are divided and interconnected using rotating braking joints (1).
3. The device according to claim 2 features the rotating braking joints (1) that are self-locking and adjustable.

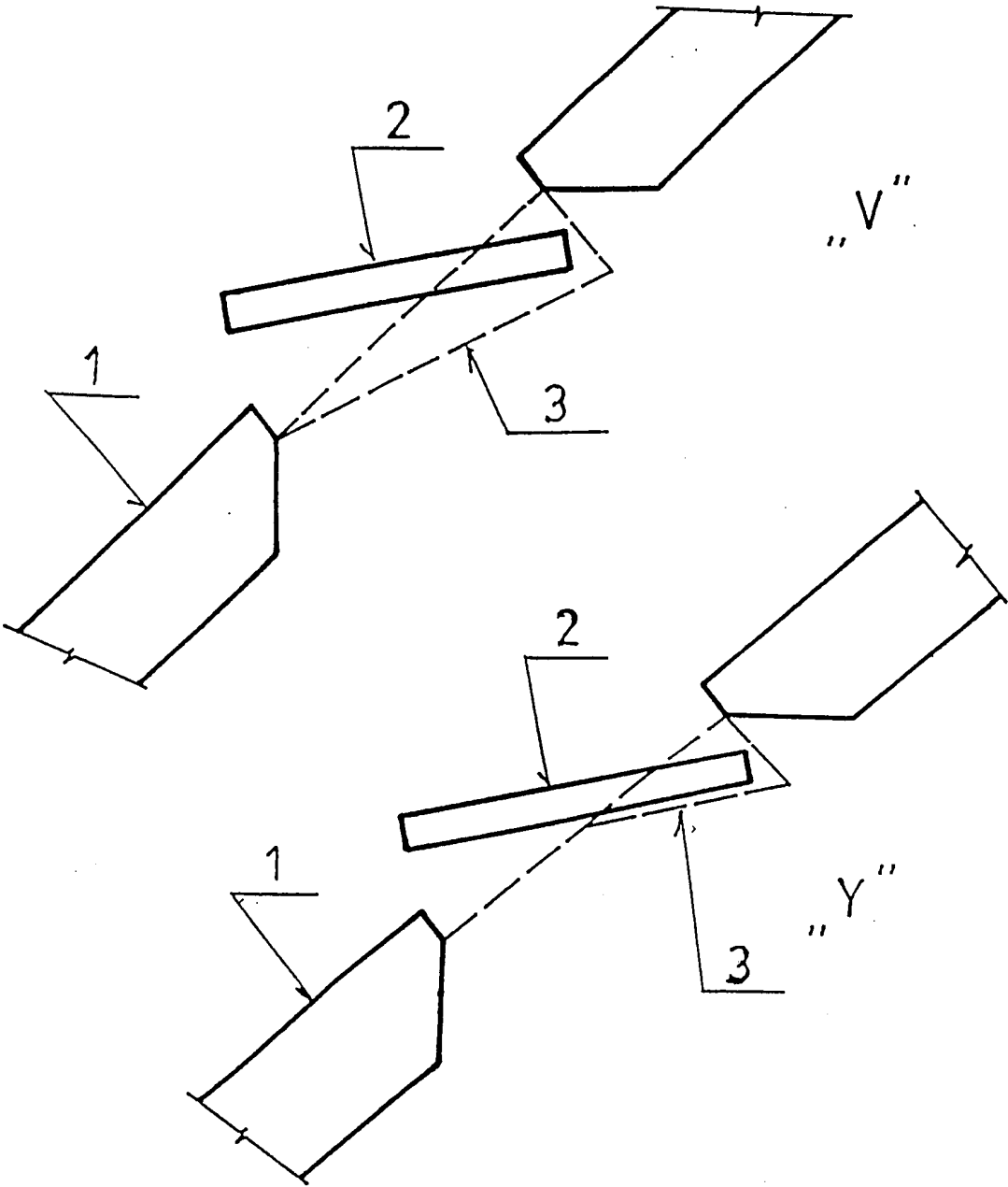


Fig. 1

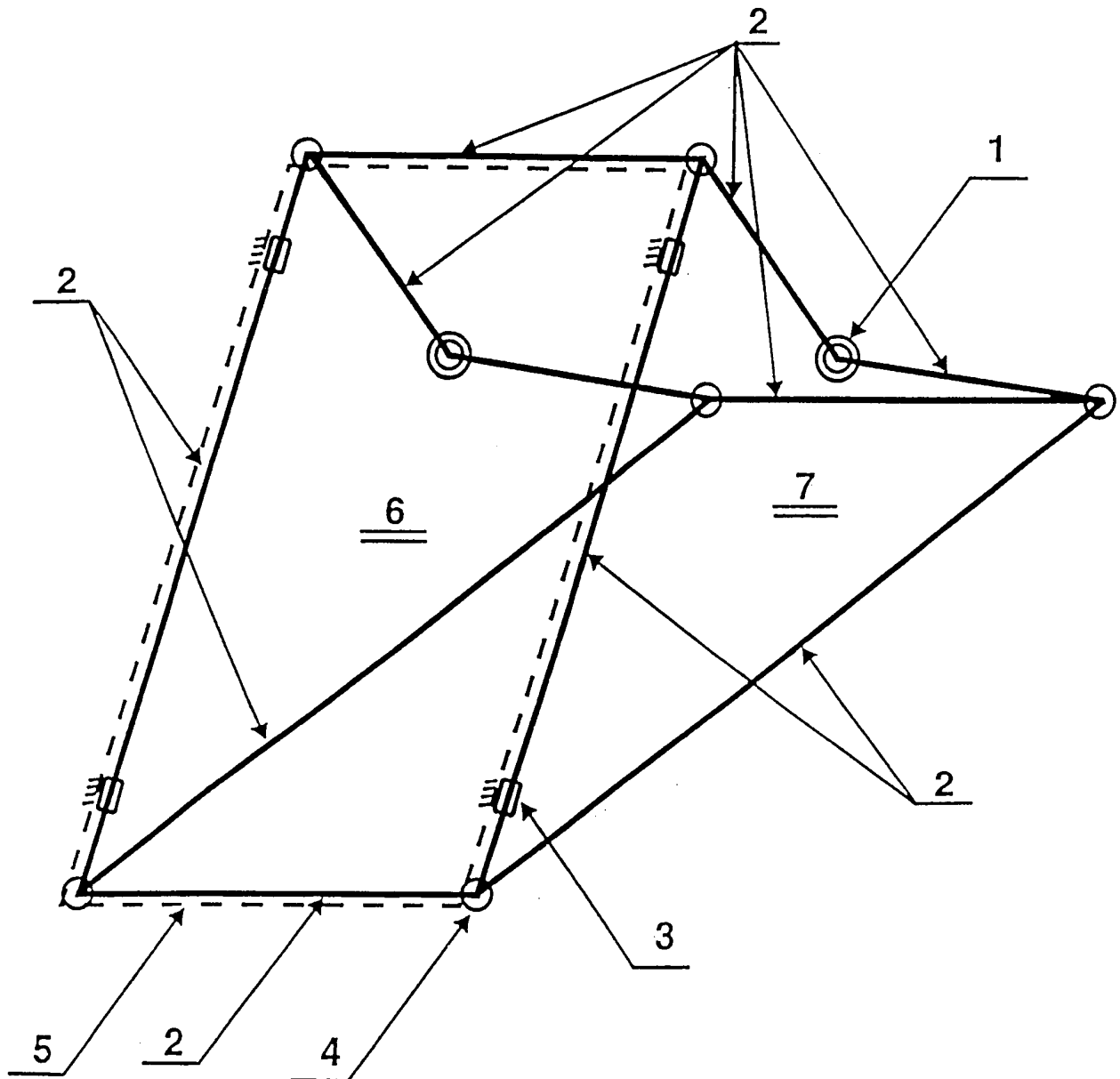


Fig. 2

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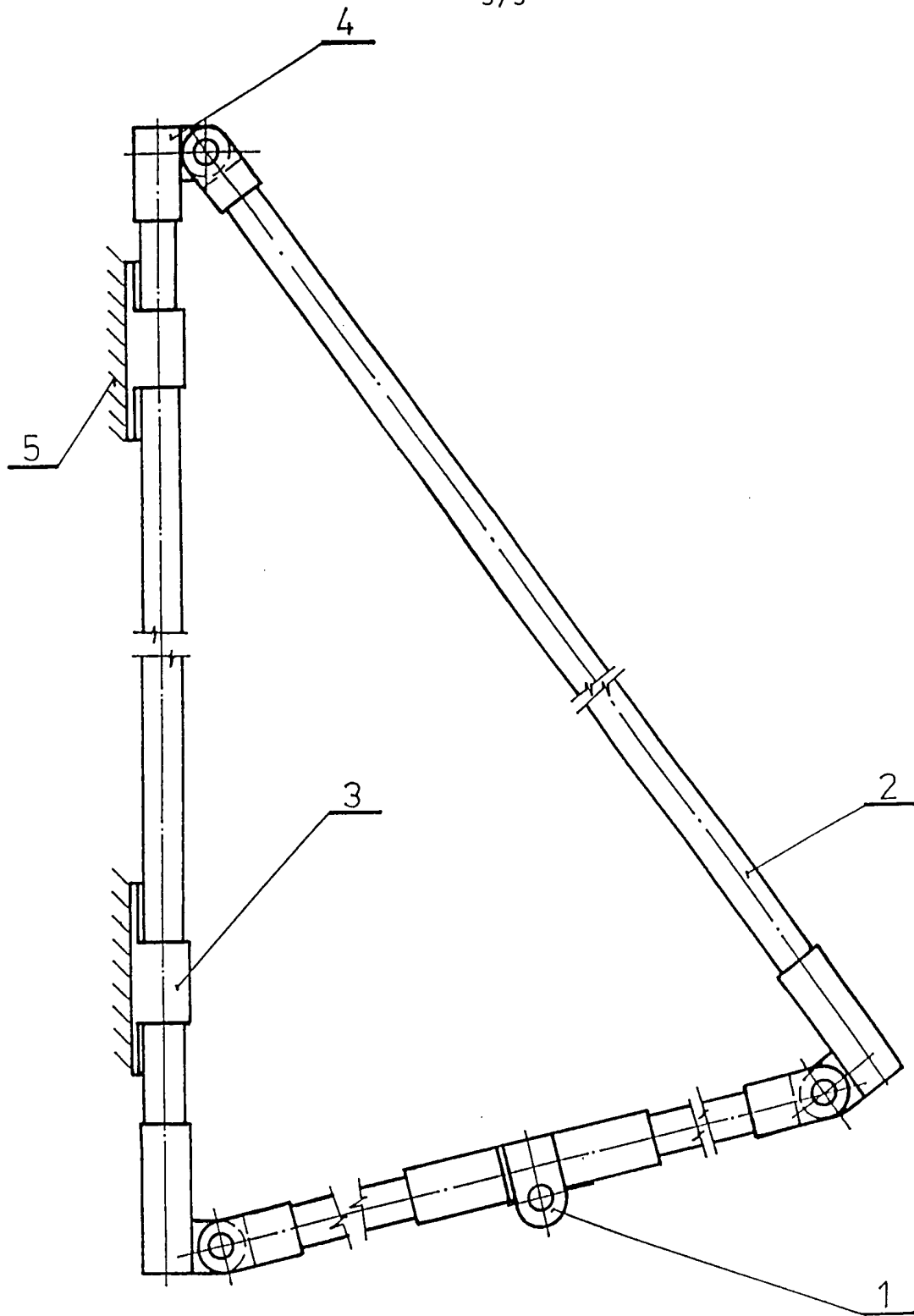


Fig. 3

INTERNATIONAL SEARCH REPORT

Interr 1al Application No
PCT/CZ 00/00043

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E06B9/52

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E06B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 32 32 712 A (HEMPEL JUERGEN) 8 March 1984 (1984-03-08) the whole document	1
A	DE 196 26 909 A (JUENGLING MICHAEL) 8 January 1998 (1998-01-08) column 2, line 22 - line 26; figure 3	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

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- "E" earlier document but published on or after the international filing date
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- "X" 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
- "Y" 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 such documents, such combination being obvious to a person skilled in the art.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CZ 00/00043

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3232712 A	08-03-1984	NONE	
DE 19626909 A	08-01-1998	NONE	