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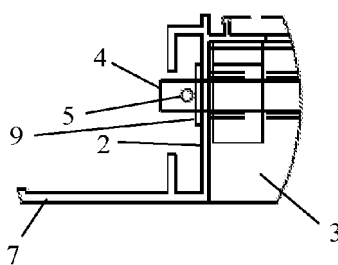
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(54) **Burglar-resistant ventilation grille**

(57) The present invention relates to a burglar-resistant ventilation grille (1) which can be fitted in or on wall openings of existing buildings without requiring considerable alteration works. To this end, said ventilation grille (1) comprises a grille frame (2), two or more slats (3) which are fitted in a fixed, non-rotatable position and vir-

tually parallel to one another in the grille frame (2) and at least one burglar-resistant bar (4) which is arranged along the length of one of said two or more slats (3) and extends beyond the slat (3) on either side of said slat (3), and is arranged so as to be rotatable with respect to the grille frame (2).



**FIG. 5**

## Description

**[0001]** The present invention relates to a burglar-resistant ventilation grille, comprising a grille frame which delimits an air flow passage, comprising two or more slats which, in the fitted position of the ventilation grille, are arranged in a fixed, non-rotatable position with respect to the grille frame and virtually parallel to one another in the air flow passage in the grille frame, and comprising at least one burglar-resistant bar which, in the fitted position of the ventilation grille, is arranged along the length of one of said two or more slats and extends beyond the slat on either side of said slat.

**[0002]** There are different types of ventilation grilles in which the slats are arranged so as to rotate between a closed and an open position in the grille frame, in which case these slats have to be brought into their closed position in order to render the grille burglar-resistant. However, the present invention relates to ventilation grilles with fixedly arranged, non-rotatable slats and wants to provide such a ventilation grille which is burglar-resistant in a non-rotatable open position of the slats.

**[0003]** In the case of existing ventilation grilles with fixedly arranged non-rotatable slats, a burglar-resistant bar is provided on each second slat which extends beyond the slat on either side of the slat. However, such ventilation grilles have to be incorporated into a wall opening, in which case the ends of these burglar-resistant bars are anchored into the wall surrounding the wall opening. To this end, these bars may, for example, be bricked or concreted into this wall.

**[0004]** Such ventilation grilles can therefore only be built into wall openings if the wall surrounding the wall opening is erected in such a way that the burglar-resistant bars can be anchored into this wall. Without considerable alteration works, it is not possible to incorporate such a burglar-resistant ventilation grille in existing buildings which have not yet been provided with such burglar-resistant grilles.

**[0005]** Chinese utility model CN 2898251 Y describes a ventilation grille which attempts to ensure burglar-resistance in an open position of the rotatably arranged slats without the burglar-resistant bars having to be anchored in the wall. To this end, burglar-resistant bars are fitted in the slats which have been fitted in the grille frame in a fixed and non-rotatable manner by means of nuts. However, in practice, even if the slats are arranged in a fixed and non-rotatable manner, such a burglar-resistant ventilation grille can only satisfy the stringent requirements for burglar-resistance if the burglar-resistant bars are dimensioned to be very strong or are made of steel in order to be able to withstand large torsional strain.

**[0006]** It is therefore an object of the present invention to provide a lightweight burglar-resistant ventilation grille with fixedly arranged non-rotatable slats which can be fitted in or on the wall openings of existing buildings without requiring considerable alteration works and which can satisfy the stringent requirements regarding burglar-

resistance.

**[0007]** This object is achieved by providing a burglar-resistant ventilation grille, comprising a grille frame which delimits an air flow passage, comprising two or more slats which, in the fitted position of the ventilation grille, are arranged in a fixed, non-rotatable position with respect to the grille frame and virtually parallel to one another in the air flow passage in the grille frame, and comprising at least one burglar-resistant bar which, in the fitted position of the ventilation grille, is arranged along the length of one of said two or more slats and extends beyond the slat on either side of said slat, in which the burglar-resistant bar, in the fitted position of the ventilation grille, is arranged so as to be rotatable with respect to the grille frame.

**[0008]** The slat can then either be securely fixed to this burglar-resistant bar or in a manner so as to be rotatable with respect to this burglar-resistant bar.

**[0009]** In case of a burglary, burglars can usually break the mounts on which the slats are fitted in the ventilation grille or the slats of such a ventilation grille themselves. The burglar-resistant bars thus provide an additional obstacle so as to prevent burglary. If these burglar-resistant bars are arranged fixedly and non-rotatably with respect to the grille frame, but have not been anchored in the wall surrounding the wall opening, a burglar has sufficient grip to break these bars or the mounting points of these bars. In order to prevent this from happening, in the prior art such bars were therefore made from steel and/or dimensioned to be relatively strong. However, if, according to the present invention, the burglar-resistant bars are rotatably arranged with respect to the grille frame, then, when an attempt is made to break these bars or the mounting points of these bars, a burglar has no grip on the bars and this attempt fails, due to the rotation of the bars with respect to the grille frame. This makes it possible to dimension the bars to be much lighter or to make them from a material which is less stiff, such as, for example, aluminium instead of steel.

**[0010]** In a preferred embodiment of a ventilation grille according to the present invention, the grille frame is provided with an opening on either side of the slat to which the burglar-resistant bar is fitted, through which opening the burglar-resistant bar extends in the fitted position of the ventilation grille and in which, at each end of the burglar-resistant bar, a disabling element is provided which prevents this end from being moved past the opening.

**[0011]** In a particularly simple embodiment, said disabling element is a split pin which is fitted through an opening in the end of the burglar-resistant bar.

**[0012]** Preferably, an annular platelet is provided around the burglar-resistant bar, between the split pin and the grille frame, which prevents the split pin from being pulled through the grille frame.

**[0013]** Furthermore, the ventilation grille is preferably provided with an edge profile on the edges of the grille frame, by means of which the ends of the burglar-resistant bar are protected, so that these cannot be readily

reached by a burglar. If a ventilation grille is intended to be built into a wall opening, this edge profile may be designed in such a manner that this profile also serves as a stop.

**[0014]** In a first specific embodiment of a ventilation grille according to the present invention, the slat, to which the burglar-resistant bar is fitted, is hollow and the burglar-resistant bar is fitted inside the space in this slat.

**[0015]** In a second specific embodiment, the burglar-resistant bar is attached to a surface of the slat.

**[0016]** Still more specifically, in the fitted position of the ventilation grille, a burglar-resistant bar is fitted on each second slat and is fixedly connected to this slat and is arranged so as to be able to rotate with respect to the grille frame.

**[0017]** In a further preferred embodiment of a ventilation grille according to the present invention, the slats can be fitted to the grille frame so as to be detachable.

**[0018]** Preferably, the slats can then be fitted to the grille frame by means of a click-fit connection so as to be detachable.

**[0019]** In order to repel insects and to increase the burglar-resistance of the grille still further, a ventilation grille according to the present invention furthermore preferably comprises an insect mesh which is disposed in the air flow passage. Such an insect mesh preferably has a mesh width smaller than 25 mm.

**[0020]** The present invention will now be explained in more detail by means of the following detailed description of some preferred burglar-resistant ventilation grilles according to the present invention. The aim of this description is solely to give illustrative examples and to indicate further advantages and features of these ventilation grilles and can therefore by no means be interpreted as a limitation of the area of application of the invention or of the patent rights defined in the claims.

**[0021]** In this detailed description, reference numerals are used to refer to attached drawings, in which:

- **Fig. 1** shows a first embodiment of a burglar-resistant ventilation grille according to the present invention in cross section, cut transversely to the slats and the burglar-resistant bars;
- **Fig. 2** shows a slat and a burglar-resistant bar of the first embodiment from Fig. 1 attached thereto separately in cross section;
- **Fig. 3** shows the first embodiment of a burglar-resistant ventilation grille from Fig. 1 in front view;
- **Fig. 4** shows the first embodiment of a burglar-resistant ventilation grille from Fig. 1 in cross section, cut between two slats;
- **Fig. 5** shows an end of the ventilation grille as illustrated in Fig. 4, in more detail;
- **Fig. 6** shows an end of a burglar-resistant bar of a ventilation grille according to the present invention, in which a split pin is fitted through an opening in this bar, after which the legs of the split pin are folded over;

- **Fig. 7** shows the end of a burglar-resistant bar from Fig. 6, in which the legs of the split pin have been folded over;

- **Fig. 8** shows a second embodiment of a burglar-resistant ventilation grille according to the present invention in cross section, cut transversely to the slats and the burglar-resistant bars.

**[0022]** A burglar-resistant ventilation grille (1) according to the invention as illustrated in Figs. 1, 3, 4 and 8 comprises a grille frame (2) which delimits an air flow passage. Via this air flow passage, air can be supplied from an external space to an internal space or air can be discharged from an internal space to an external space, etc.

**[0023]** The grille frame (2) is composed of aluminium profiles and is substantially rectangular in shape. However, it is equally possible for round ventilation grilles to be designed according to the same principle.

**[0024]** At regular intervals, this grille frame (2) is provided with support members (8) to which slats (3) of the ventilation grille (1) can be click-fitted. These slats (3) are also configured as aluminium profiles. After the slats (3) have been click-fitted to the support members (8), these slats (3) divide the air flow passage of the ventilation grille (1) into partial air flow passages.

**[0025]** To each second slat (3) which is incorporated in the ventilation grille (1), a burglar-resistant bar (4) is fitted along the length of this slat (3), with this burglar-resistant bar (4) extending on either side of this slat (3). These burglar-resistant bars (4) are aluminium bars. Alternatively, these bars (4) could, for example, be made of steel.

**[0026]** In the illustrated embodiments of a ventilation grille (1), the slats (3), to which a burglar-resistant bar (4) is attached, are hollow, with the burglar-resistant bars (4) in each case being arranged in the space of the respective slat (3). The bars (4) may in this case be fixedly attached to the slats (3) or may be provided in the space of the respective slat (3) in a rotating manner.

**[0027]** Openings are provided in the grille frame (2), in each case on either side of the slats (3) to which a burglar-resistant bar (4) is fitted, through which openings these burglar-resistant bars (4) are fitted, as can be seen in Figs. 4 and 5. The burglar-resistant bars (4) are fitted through these openings in a loose manner, so that they are rotatable with respect to the grille frame (2). In order to prevent the burglar-resistant bars (4) from being able to be removed from the grille frame (2) by a burglar after the ventilation grille (1) has been fitted, a split pin (6) is arranged in each end of each burglar-resistant bar (4) in a known manner through an opening (5) in this end, as can be seen in Fig. 6, in which case the legs of this split pin (6) are folded over, as can be seen in Fig. 7. Between the split pin (6) and the grille frame (2), an annular platelet (9) is fitted which prevents the split pin (6) from being pulled through the opening in the grille frame (2). This annular platelet (9) may be made, for example, from

stainless steel.

**[0028]** The grille frame (2) is furthermore provided with an edge profile (7), so that the ends of the burglar-resistant bars (4) are protected and can no longer be reached by a burglar after the ventilation grille (1) has been built into a wall opening. In the first embodiment of a ventilation grille (1), as illustrated in Figs. 1, 3 and 4, this edge profile (7) is designed in such a manner that it can also serve as a stop when the ventilation grille (1) is built into a wall opening.

**[0029]** In order to finish the ventilation grille (1) aesthetically, the various profiles can be made of the same material and in this case be given a matching appearance, etc.

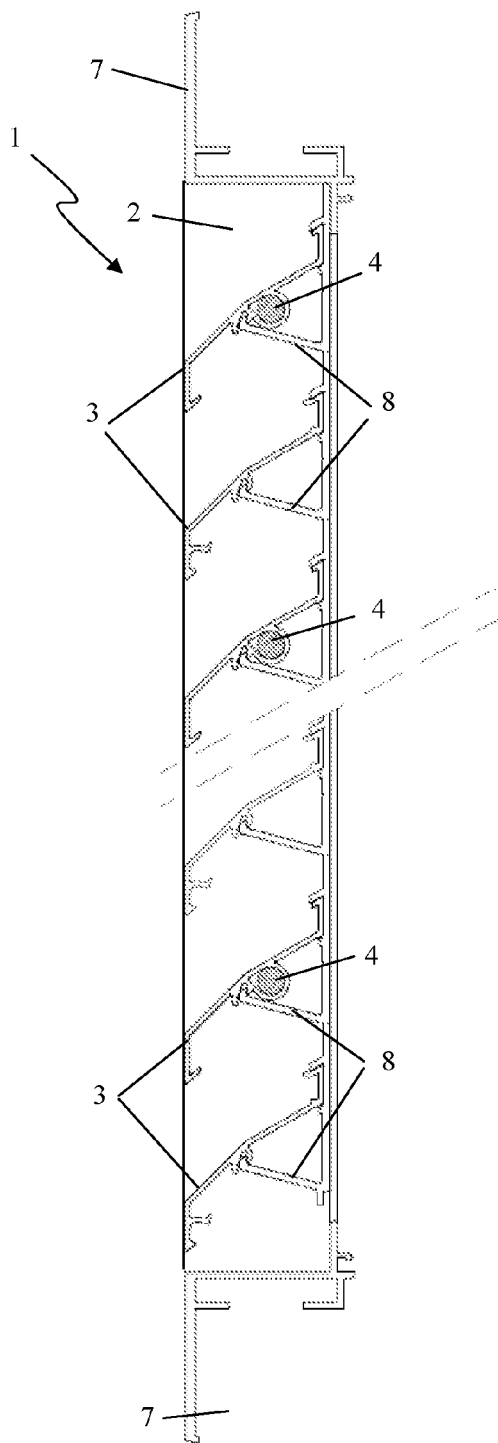
**[0030]** In order to repel insects and to increase the burglar-resistance of the grille still further, for example, an insect mesh may be provided in the air flow passage. Such an insect mesh preferably has a mesh width smaller than 25 mm, so that an insect having a diameter of 25 mm cannot get through the mesh of this insect mesh.

## Claims

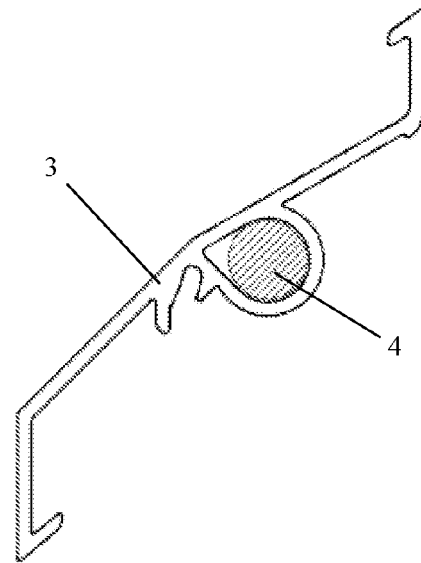
1. Burglar-resistant ventilation grille (1), comprising a grille frame (2) which delimits an air flow passage, comprising two or more slats (3) which, in the fitted position of the ventilation grille (1), are arranged in a fixed, non-rotatable position with respect to the grille frame (2) and virtually parallel to one another in the air flow passage in the grille frame (2), and comprising at least one burglar-resistant bar (4) which, in the fitted position of the ventilation grille (1), is arranged along the length of one of said two or more slats (3) and extends beyond the slat (3) on either side of said slat (3), **characterized in that** the burglar-resistant bar (4), in the fitted position of the ventilation grille (1), is arranged so as to be rotatable with respect to the grille frame (2).
2. Burglar-resistant ventilation grille (1) according to Claim 1, **characterized in that** the grille frame (2) is provided with an opening on either side of the slat (3) to which the burglar-resistant bar (4) is fitted, through which opening the burglar-resistant bar (4) extends in the fitted position of the ventilation grille (1) and in which, at each end of the burglar-resistant bar (4), a disabling element (6) is provided which prevents this end from being moved past the opening.
3. Burglar-resistant ventilation grille (1) according to Claim 2, **characterized in that** said disabling element (6) is a split pin which is fitted through an opening (5) in the end of the burglar-resistant bar (4).
4. Burglar-resistant ventilation grille (1) according to Claim 3, **characterized in that** an annular platelet

(9) is provided around the burglar-resistant bar (4), between the split pin (6) and the grille frame (2).

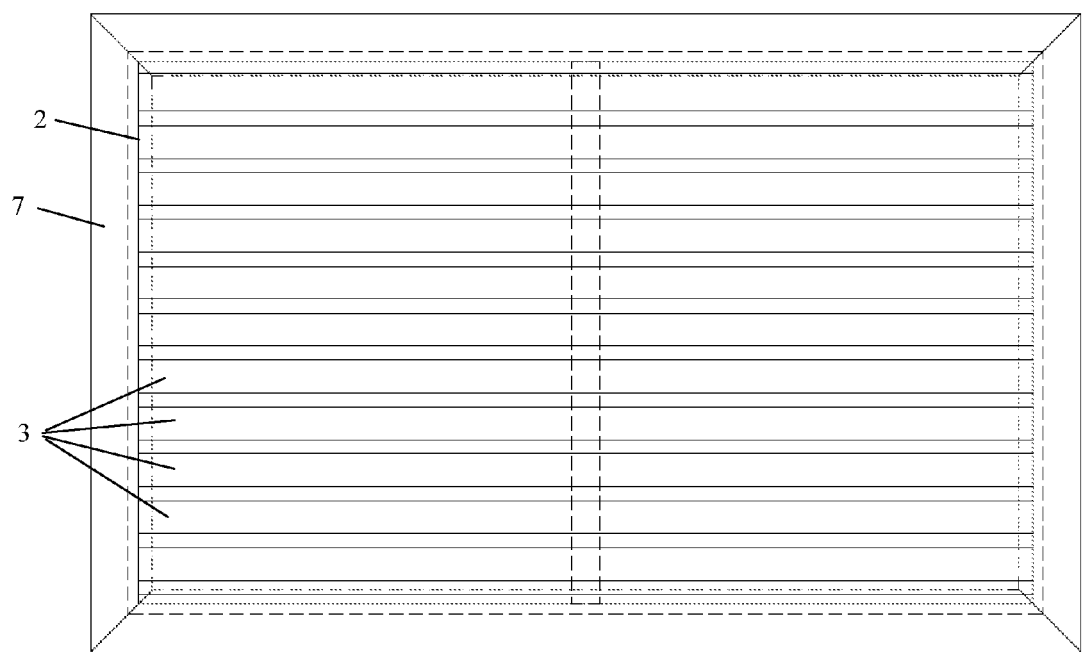
5. Burglar-resistant ventilation grille (1) according to one of Claims 2 to 4, **characterized in that** the ventilation grille (1) is provided with an edge profile (7) on the edges of the grille frame (2), by means of which the ends of the burglar-resistant bar (4) are protected.
6. Burglar-resistant ventilation grille (1) according to one of the preceding claims, **characterized in that** the slat (3), to which the burglar-resistant bar (4) is fitted, is hollow and the burglar-resistant bar (4) is fitted inside the space in this slat (3).
7. Burglar-resistant ventilation grille (1) according to one of the Claims 1 to 5, **characterized in that** the burglar-resistant bar (4) is attached to a surface of the slat (3).
8. Burglar-resistant ventilation grille (1) according to one of the preceding claims, **characterized in that**, in the fitted position of the ventilation grille (1), a burglar-resistant bar (4) is fitted on each second slat (3) and is fixedly connected to this slat (3) and is arranged so as to be able to rotate with respect to the grille frame (2).
9. Burglar-resistant ventilation grille (1) according to one of the preceding claims, **characterized in that** the slats (3) can be fitted to the grille frame (2) so as to be detachable.
10. Burglar-resistant ventilation grille (1) according to Claim 9, **characterized in that** the slats (3) can be fitted to the grille frame (2) by means of a click-fit connection so as to be detachable.
11. Burglar-resistant ventilation grille (1) according to one of the preceding claims, **characterized in that** said ventilation grille comprises an insect mesh which is disposed in the air flow passage.



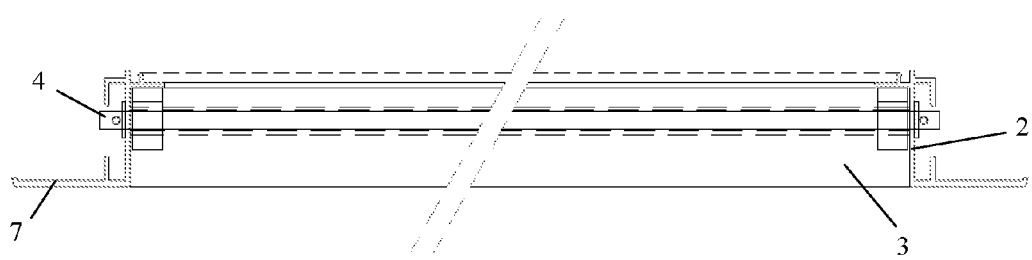
**FIG. 1**



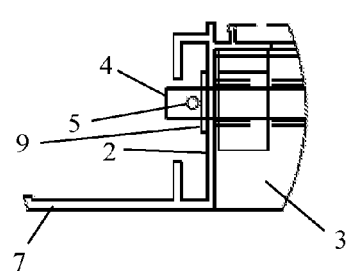
**FIG. 2**



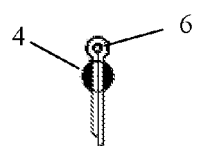
**FIG. 3**



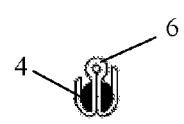
**FIG. 4**



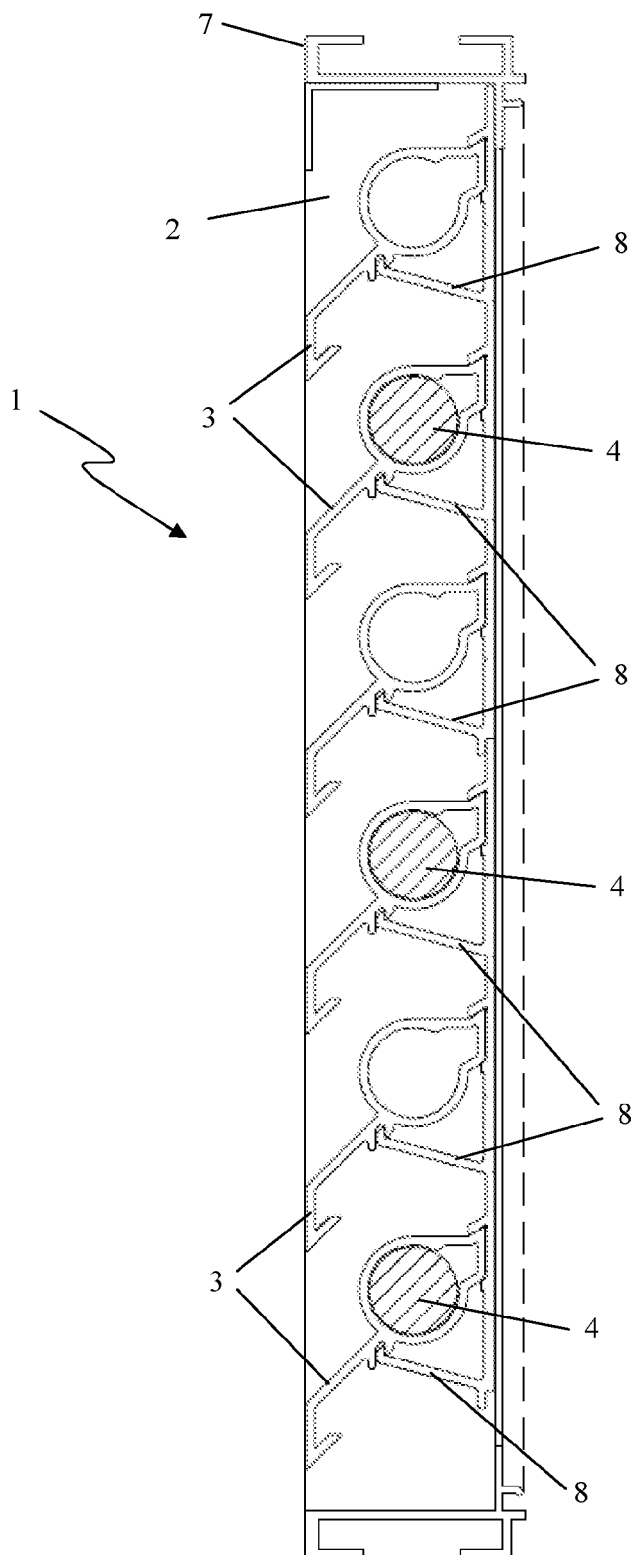
**FIG. 5**



**FIG. 6**



**FIG. 7**



**FIG. 8**

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- CN 2898251 Y [0005]