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(72) Inventor: **Forestan, Egidio**

36043 Camisano Vicentino (Vicenza) (IT)

(74) Representative: **Forattini, Amelia**

Internazionale Brevetti

Ingg. ZINI, MARANESI & C. S.r.l.

Piazza Castello 1

20121 Milano (IT)

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(71) Applicant: **Bifor SRL Unipersonale**

36016 Thiene (VI) (IT)

(54) **Protective structure particularly for air conditioning systems**

(57) The present invention relates to a protective structure particularly for air conditioning systems whose particularity resides in that it includes a substantially rigid

box-like body which has at least one open face and includes at least one ventilation opening formed on the remaining closed faces.

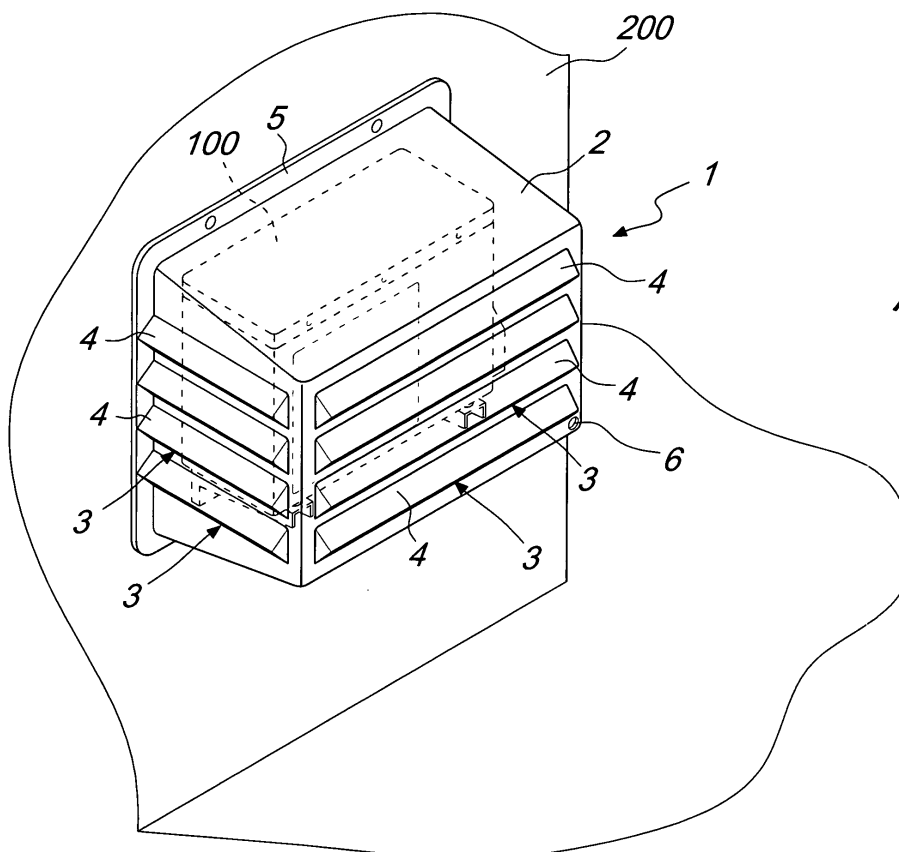


Fig. 1

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Description

[0001] The present invention relates to a protective structure, particularly for air conditioning systems, which can be used to protect external units of air conditioning systems.

[0002] As is known, air conditioning systems are generally constituted by one or more internal units, which are placed inside the rooms to be air conditioned, and by an external unit, which is usually mounted on brackets which are anchored to an external wall at various heights or placed on the balcony or terrace that covers the building.

[0003] The external units and all the associated systems are therefore constantly exposed to the inclemency of the weather and to the aggression of environmental factors, as well as to impacts, accidental mechanical stresses or vandalisms, which very often cause their swift deterioration.

[0004] It should also be noted that these external units, in addition to causing significant noise, very often disfigure the architectural decor of buildings, causing disputes especially in condominiums.

[0005] While the problems of protection against the inclemency of the weather are partly solved by removable coverings made of plastic-laminated fabric, which are placed on the external units during winter and must be removed when the air conditioning system is operated, or by cantilever roofs which act as a shelter against rain and snow, the other drawbacks are currently unsolved.

[0006] The aim of the invention is to solve the problems described above by providing a protective structure particularly for air conditioning systems which is capable of protecting the external units against the inclemency of the weather and environmental factors and also against accidental or vandalism-related mechanical actions.

[0007] Within the scope of this aim, an object of the invention is to provide a protective structure which allows to reduce maintenance to the external units, protecting systems and wiring and preventing the nesting of birds between the wall and the external unit.

[0008] Another object of the invention is to provide a protective structure which increases the safety of air conditioning systems and is capable of protecting the external units against electrical discharges or fire.

[0009] Another object of the invention is to provide a protective structure which reduces the noise of external units of air conditioning systems and can be fully painted, allowing to reduce its architectural impact.

[0010] Another object of the invention is to provide a protective structure which increases the passive safety of external units of air conditioning systems, providing a valid protection against accidental contacts and impacts, particularly when the external units are installed at eye level.

[0011] Another object of the invention is to provide a protective structure which can be manufactured at competitive costs and is advantageous from a purely economic standpoint.

[0012] This aim and these and other objects which will become better apparent hereinafter are achieved by a protective structure, particularly for air conditioning units, characterized in that it comprises a substantially rigid box-like body which has at least one open face and includes at least one ventilation opening formed on the remaining closed faces.

[0013] Further characteristics and advantages will become better apparent from the following detailed description of preferred but not exclusive embodiments of a protective structure according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a protective structure according to the invention after installation;
Figure 2 is a perspective view of a protective structure according to the invention during installation;
Figure 3 is a front view of a protective structure according to the invention after installation;
Figure 4 is a side view of a protective structure according to the invention after installation;
Figure 5 is a perspective view of a constructive variation of a protective structure according to the invention after installation;
Figure 6 is a front view of the constructive variation of the protective structure according to the invention after installation;
Figure 7 is a side view of the constructive variation of the protective structure according to the invention after installation.

[0014] With reference to the above cited Figures 1 to 4, a protective structure, particularly for air conditioning systems, generally designated by the reference numeral 1, comprises a box-like body 2 which is shaped like a parallelepiped or, preferably, like a truncated pyramid with a square base, and has dimensions which allow it to contain an external unit 100 of an air conditioning system.

[0015] The box-like body 2 has a substantially non-deformable structure, at least one face of which is open, the non-deformable structure is made of molded synthetic material and can be monolithic or modular as a function of the requirements or of the constructive choices.

[0016] Multiple ventilation openings 3 are formed on the closed faces of the box-like body 2 and ensure heat exchange. The openings are protected by a corresponding number of rain flaps 4 which are blended with them.

[0017] The box-like body 2 has an anchoring means, which is constituted, in this embodiment, by a perforated flange 5, which is joined monolithically to the box-like body 2 and is blended with the edge of its open face and allows to detachably associate it with the floor or a wall 200 after resting the open face against the floor or wall.

[0018] The condensation is drained by at least one condensation drain hole 6 which is formed in the box-like body 2 and is connected to the external unit 100 of air

conditioning systems.

[0019] The protection offered by the protective structure 1 can be increased by making the box-like body 2 with fire-resistant and self-extinguishing material and by optionally joining a thermally insulating layer, not shown in the figures, to it. Comfort can be increased by means of a soundproofing layer, not shown in the figures, which also is associated with the box-like body 2.

[0020] In a constructive variation of the protective structure according to the invention shown in the accompanying Figures 5 to 7, in which it is generally designated by the reference numeral 11, each of the ventilation openings 3, instead of being blended with a rain flap 4, is provided with an antibird grille 7, which is joined to the box-like body 2.

[0021] For the constructive variation shown in Figures 5 to 7, the elements that correspond to the ones already described with reference to the embodiment shown in Figures 1 to 4 have been designated by the same reference numerals.

[0022] The use of the protective structure according to the invention is described hereinafter.

[0023] The protective structure 1 is arranged at the external unit 100 of an air conditioning system, introducing the unit in the box-like body 2 through its open face.

[0024] The edge of the open face and the perforated flange 5 rest against the wall 200 or the floor, to which they are detachably anchored.

[0025] The condensation drain hole 6 is connected to the external unit 100 of the air conditioning systems.

[0026] In practice it has been found that the protective structure, particularly for air conditioning systems, according to the invention fully achieves the intended aim and objects, and it can protect external units, their wiring and their systems against the inclemency of the weather, against environmental factors, and against accidental or vandalism-related mechanical actions.

[0027] The protective structure according to the invention reduces the noise level of the external units of air conditioning systems and allows to increase their safety by protecting them against electrical discharges or possible fires.

[0028] This application claims the priority of Italian Patent Application No. VI2006A000324, filed on 7 November 2006, the subject matter of which is incorporated herein by reference.

[0029] The protective structure particularly for air conditioning systems thus conceived is susceptible of numerous modifications and variations, within the scope of the appended claims. All the details may be replaced with other technically equivalent elements.

[0030] In practice, the materials used, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to the requirements and the state of the art.

Claims

1. A protective structure particularly for air conditioning units, **characterized in that** it comprises a substantially rigid box-like body which has at least one open face and comprises at least one ventilation opening provided on the remaining closed faces.
2. The protective structure according to the preceding claim, **characterized in that** each of said ventilation openings comprises a rain flap which is blended with said box-like body.
3. The protective structure according to one or more of the preceding claims, **characterized in that** each of said ventilation openings comprises an antibird grille which is joined to said box-like body.
4. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body comprises an anchoring means which is suitable to detachably associate said box-like body with a wall or a floor.
5. The protective structure according to one or more of the preceding claims, **characterized in that** said anchoring means comprises a perforated flange, which is joined monolithically to said box-like body and is blended with the edge of said open face.
6. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body comprises at least one condensation drain hole.
7. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body comprises a thermally insulating layer.
8. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body comprises a soundproofing layer.
9. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body is provided by means of a structure which is shaped like a truncated pyramid.
10. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body is provided as a monolithic structure.
11. The protective structure according to one or more of the preceding claims, **characterized in that** said box-like body is provided as a modular structure.
12. The protective structure according to one or more of the preceding claims, **characterized in that** said

box-like body is made of fire-resistant and self-extinguishing material.

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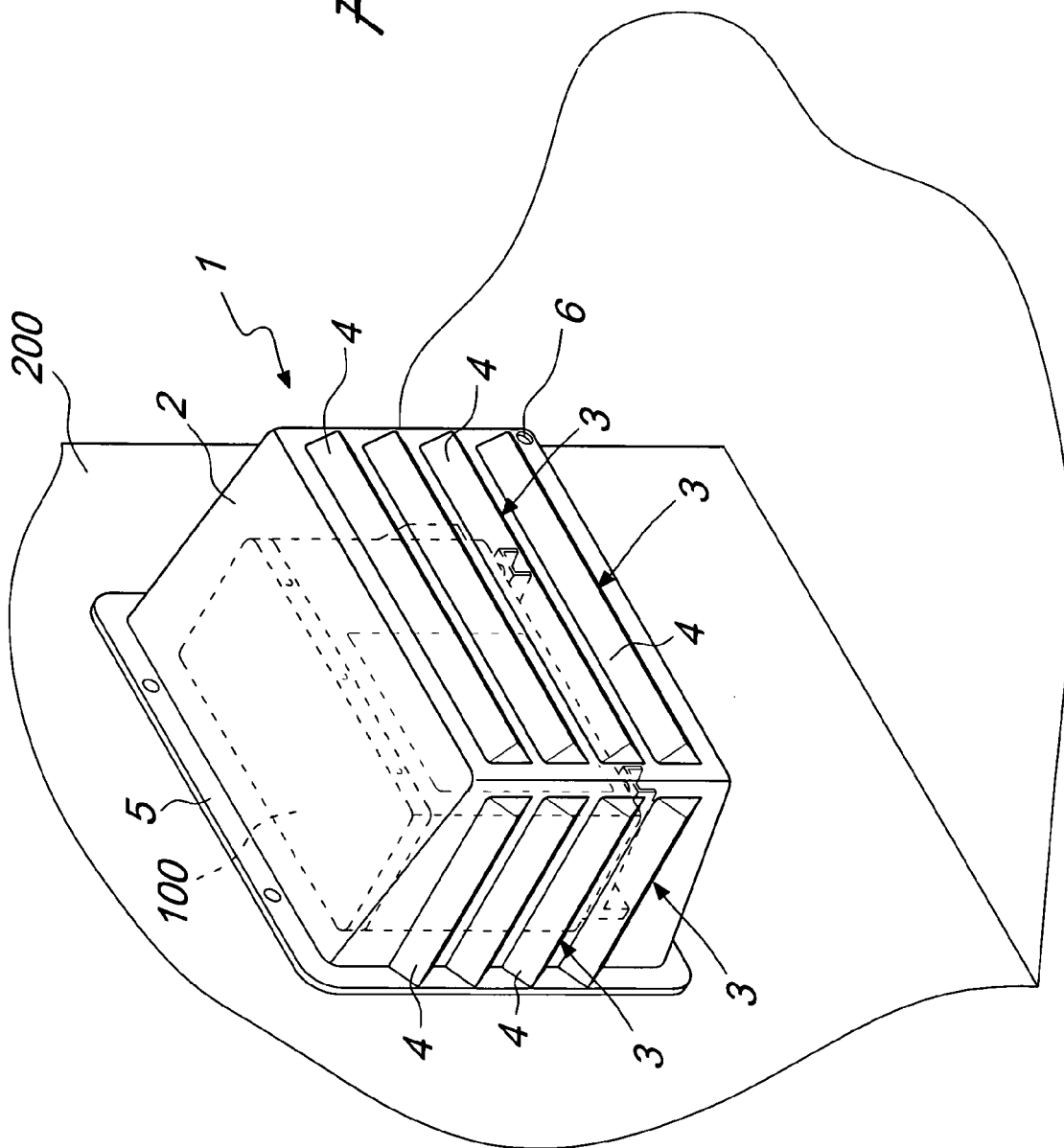
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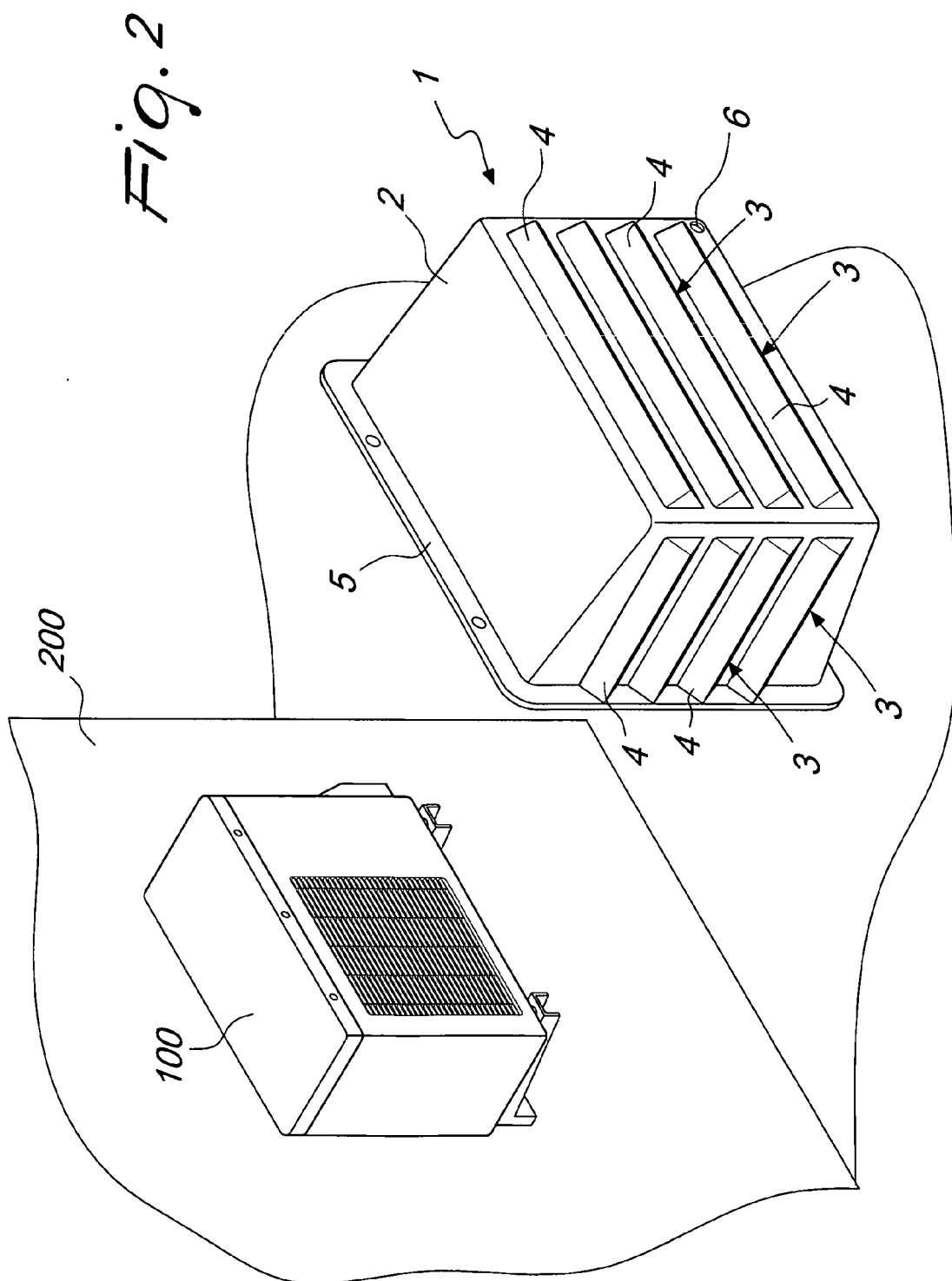
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Fig. 1





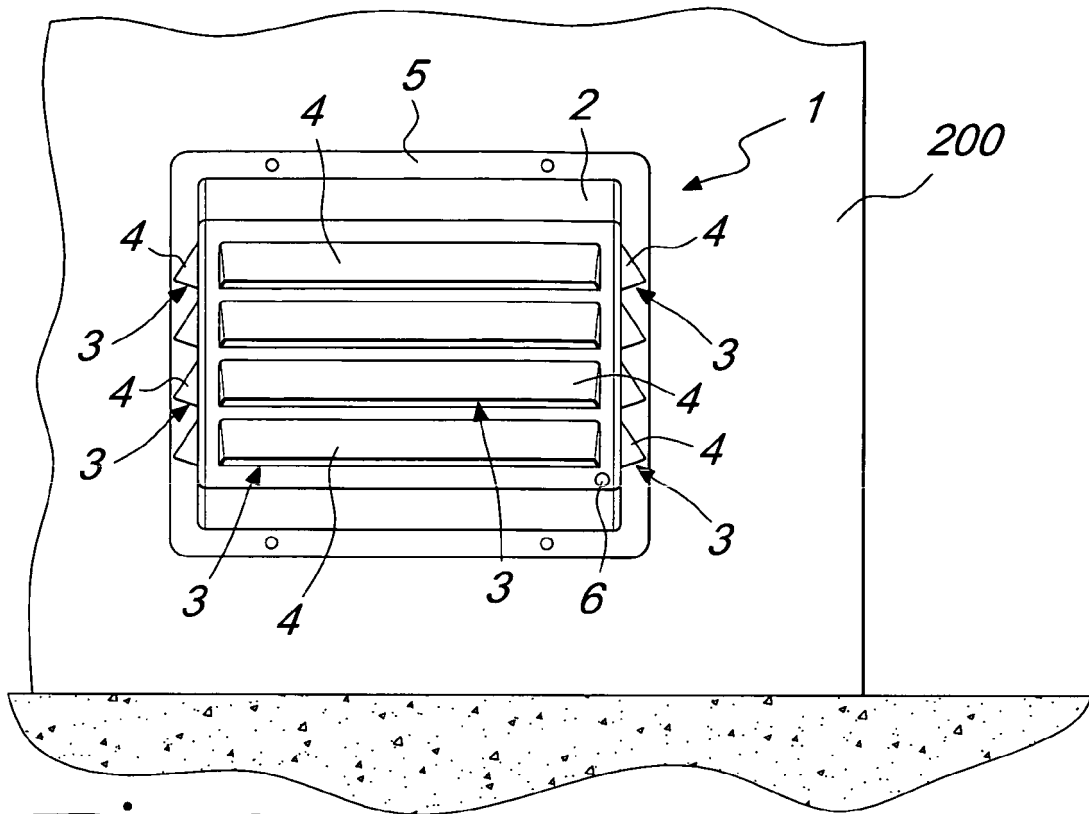


Fig. 3

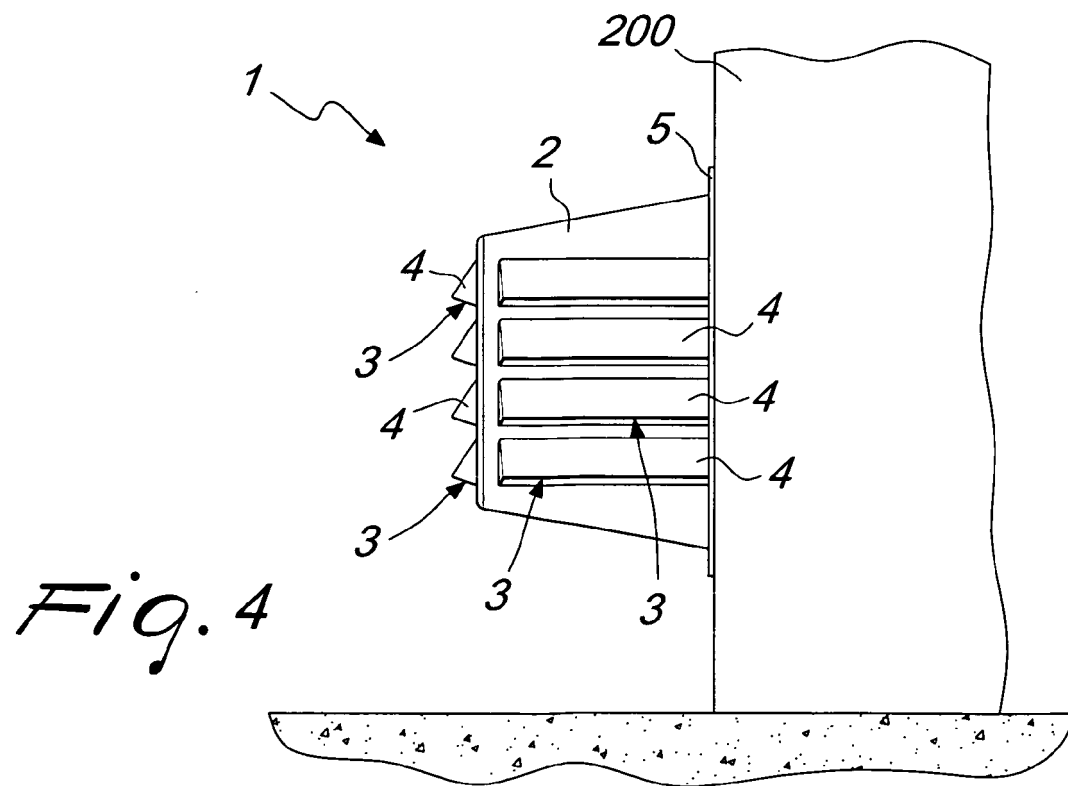
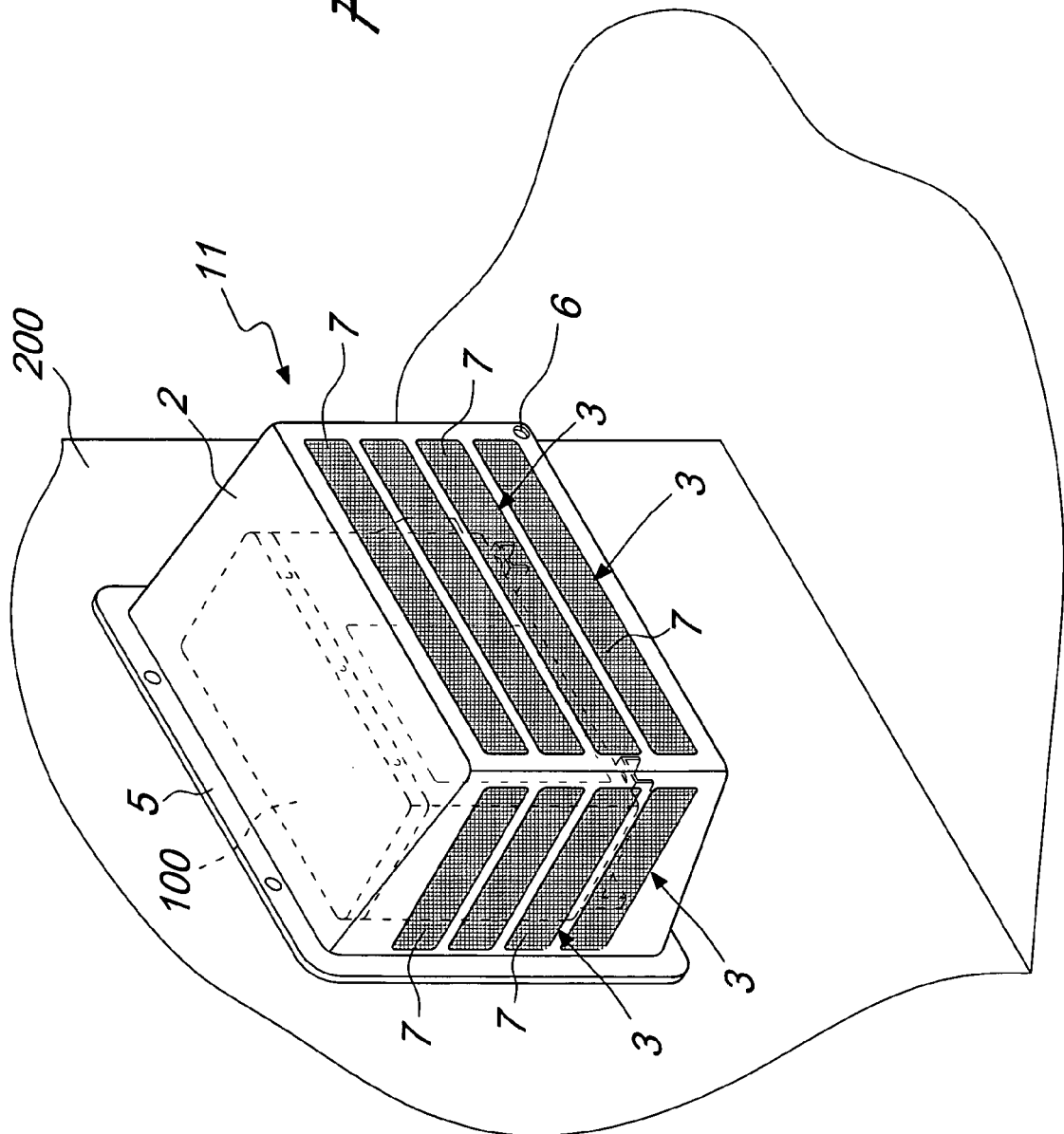


Fig. 4

Fig. 5



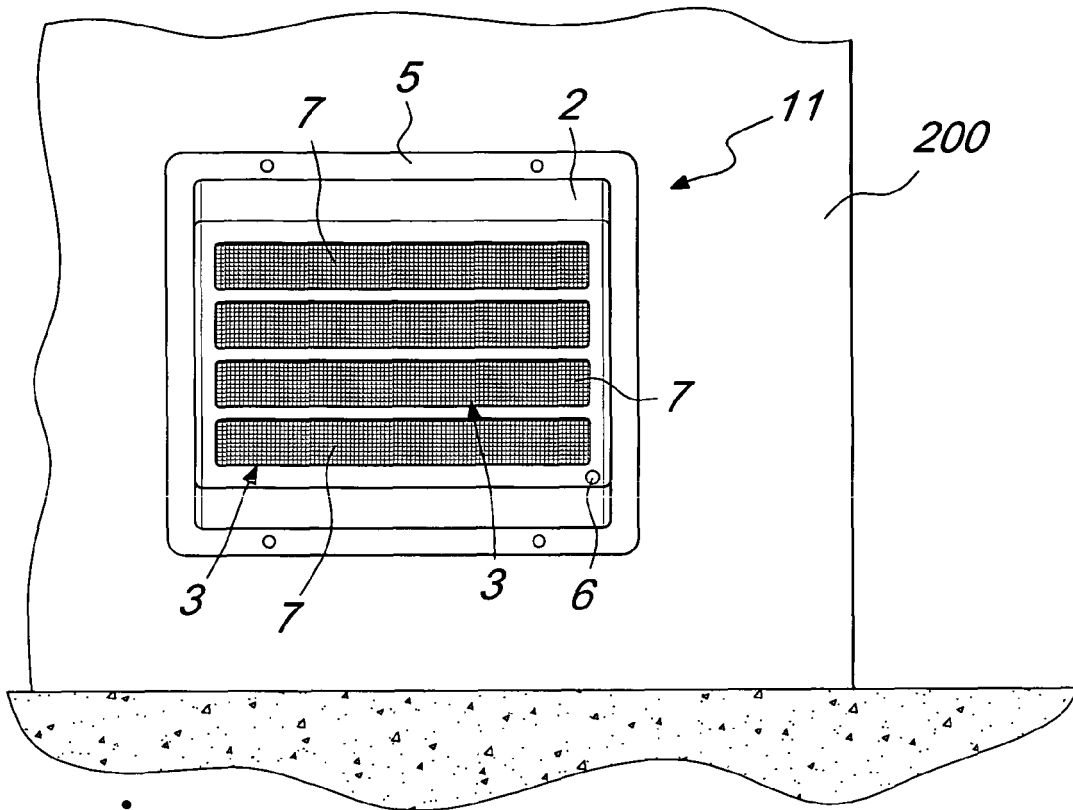


Fig. 6

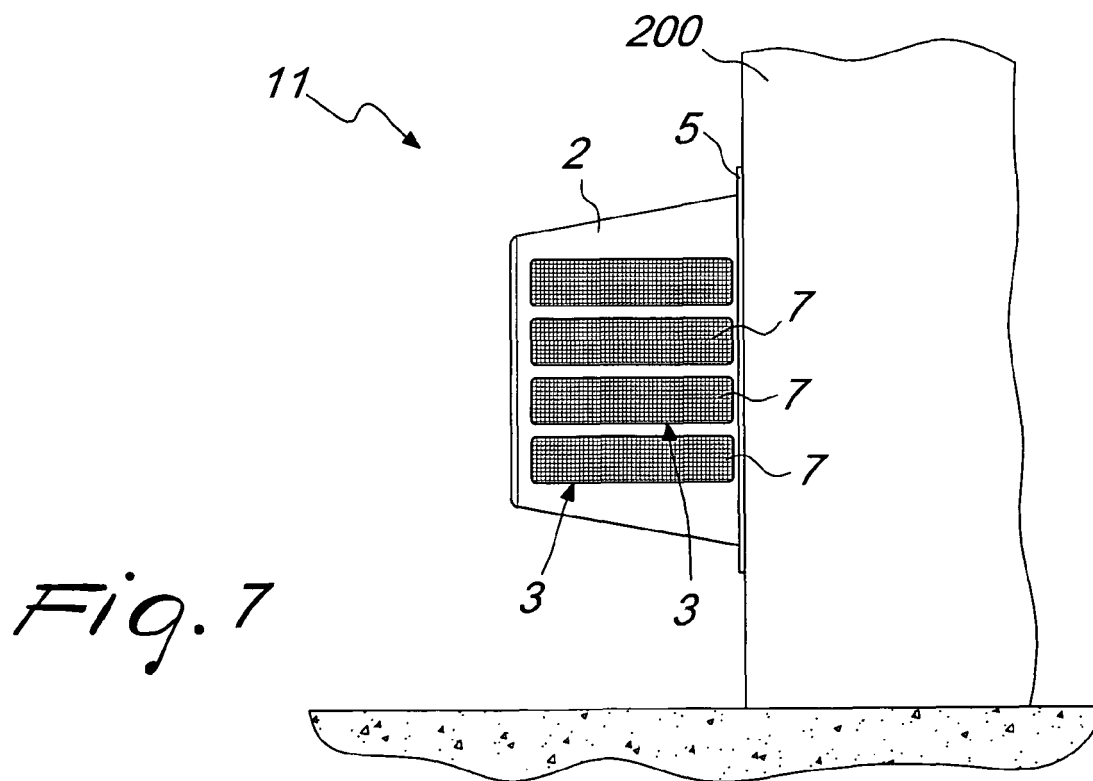


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- IT VI20060324 A [0028]