Radiator particularly for heating outdoor spaces

A radiator (1), particularly for heating outdoor spaces, comprising a supporting body (2) intended to support a source (3) of heating rays and a panel (4) provided with a surface (4a) that is reflective for at least a fraction of the heating rays, the radiator (1) further comprising means (5) for varying the orientation of the panel (4) with respect to the source (3).
Description

[0001] The present invention relates to a radiator particularly for heating outdoor spaces.

[0002] In recent years, radiators have been marketed which can be used in particular to heat outdoor spaces in order to utilize, even in the coldest months, forecourts, terraces, gardens of bars, hotels and outdoor premises in general.

[0003] Such radiators are composed of a base that contains for example a fuel tank and an elongated structure extending upwardly to support a burner that is adapted to heat the surrounding space by way of the energy radiated by the outside walls due to the combustion of the fuel contained in the tank.

[0004] Generally, these radiators have a panel, usually shaped like a parabola, that is arranged above the burner and is meant to reflect the heating rays, for example the infrared rays, which are radiated by the walls of the burner in an upward direction and would therefore be scattered.

[0005] These devices are not free from drawbacks: the panel is in fact usually rigidly connected to the burner and therefore allows to reflect the rays exclusively along a substantially vertical direction.

[0006] The aim of the present invention is to eliminate or reduce drastically the drawbacks noted above in known types of radiators.

[0007] Within this aim, an object of the invention is to provide a radiator that allows to direct at will the rays reflected by the panel.

[0008] Another object of the invention is to provide a radiator that has a simple structure, in order to allow low manufacturing costs.

[0009] Another object is to provide a radiator that is capable of giving the greatest assurances of reliability and safety in use.

[0010] This aim and these and other objects that will become better apparent hereinafter are achieved by a radiator, particularly for heating outdoor spaces, comprising a supporting body intended to support a source of heating rays and a panel provided with a surface that is reflective for at least a fraction of said heating rays, characterized in that it comprises means for varying the orientation of said panel with respect to said source.

[0011] Advantageously, a radiator according to the invention is characterized in that the heating rays are infrared rays.

[0012] Further characteristics and advantages of the radiator according to the invention will become better apparent from the following detailed description of some currently preferred embodiments thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a partial side elevation view of a radiator, with parts partially shown in phantom lines, illustrating in dashed lines a second utilization position of a panel;

Figure 2 is a view, similar to Figure 1, of a radiator provided with different movement means;

Figure 3 is a view, similar to Figure 1, of a radiator with different locking means;

Figure 4 is a view, similar to Figure 1, of a radiator with a different connection between a panel and a source of heating rays;

Figure 5 is a view, similar to Figure 1, of a further embodiment of the radiator according to the invention;

Figure 6 is a view of a different constructive solution of the movement means; and

Figure 7 is a view, similar to Figure 1, of still another embodiment of the radiator according to the invention.

[0013] With reference to the figures, a radiator according to the invention, generally designated by the reference numeral 1, comprises a supporting body 2 that allows to support a source 3 of heating rays.

[0014] Conveniently, the heating rays are infrared rays, which as is known have a high heating value.

[0015] The radiator 1 has a panel 4 provided with a reflective surface 4a designed to direct downwardly the fraction of rays emitted by the source 3 that would otherwise propagate upwardly, with an inevitable loss of efficiency: said panel is arranged at least partially above the source 3.

[0016] According to the invention, the radiator 1 is provided with means for varying the orientation of the panel 4 with respect to the source 5.

[0017] With reference to Figure 1, the means for varying the orientation of the panel are constituted by at least one hinge 5 for connection between the source 3 and the panel, so as to allow a rotation of said panel (illustrated by the arrow 100) with respect to the source and therefore the possibility for the user to orientate it at will.

[0018] In particular, the means for orientating the panel comprise movement means such as, as shown in Figure 1, a traction element 6 that is articulated, at an end portion 6a, to the panel 4.

[0019] Furthermore, the means for varying the orientation are advantageously provided with means for locking the panel when, for example, it is in the utilization position, shown in dashed lines in Figure 1.

[0020] Said locking means are constituted for example by a locking tab, which in the embodiment of Figure 1 is shaped like a hook 7, located at the traction element and detachably arrangeable in at least one respective engagement seat 8 provided in the supporting body 2.

[0021] With reference to Figure 2, the movement means are constituted by a traction element 6, which is provided with an end pin 6b that is adapted to slide, during the rotation (again indicated by the arrow 100) of the panel 4 about the hinge 5, in a slot 9 that is rigidly coupled to said panel.
In particular, in this embodiment the movement means are provided with actuation means, advantageously constituted by a lever system 10 that is functionally connected to the traction element 6 by way of an intermediate lever 11.

Conveniently, the lever system 10 has an actuation handle 12 to facilitate the orientation of the panel on the part of the user. The locking means are constituted by the traction element proper which, in the position of the panel shown by the dashed line in Figure 2, transmits to the lever system 10 a thrust that tends to keep the handle in the lowered position.

In this case, the traction element is arranged inside the source 3.

The radiator shown in Figure 3 has locking means constituted by a screw-and-nut pair; in particular, the traction element 6 has a wing nut 13 provided with a threaded portion 13a that is designed to engage a seat 14 that is provided with a female thread and is rigidly coupled to the supporting body 2.

With reference to Figure 4, the panel 4 is pivoted to the hinge 5, which is arranged at a lower portion of the source 3, by way of a connecting rod 14.

In the embodiment shown in Figure 5, the traction element 6, arranged inside the source 3, can slide within an eye 15 and can be locked by screwing a threaded element 16 which, by partially blocking the opening of the eye, achieves an interference connection between the traction element and the supporting structure.

With reference to Figure 6, the means for orientating the panel are constituted by complementarily shaped surfaces for rotary coupling, such as for example two parts of a cylindrical surface, between the panel and the source.

The locking means, in this case, are constituted by threaded elements that can be screwed into respective female threads formed at the cylindrical surface arranged at the top end of the source 3.

As an alternative, if one wishes to achieve a coupling such as a spherical joint between the source 3 and the panel 4, it is possible to use complementarily shaped surfaces that are respectively constituted by a portion of a spherical dome.

With reference to Figure 7, the means for varying the orientation of the panel can be constituted by at least one spherical joint, which has for example a ball 17 that is supported by the source 3 and is accommodated within a substantially cylindrical skirt 18 that is anchored to the panel 4, by means of a complementary flange 19.

In this embodiment, the locking means are advantageously constituted by a locking slider 20, which is adapted to be pressed against an upper portion of the ball 17 by way of the user's action on actuation means constituted by a lever 21 that actuates an eccentric element 22.

The source 3 can be, for example, constituted by a burner that has perforated walls, which by being heated by the combustion of a fuel, such as propane gas, butane gas or others, emit the heating rays.

Advantageously, the supporting means contain a tank for containing the fuel.

The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the protective scope determined by the appended claims.

For example, the source 3 can be constituted by a resistor brought to incandescence by electric current.

All the details may further be replaced with other technically equivalent elements.

The materials and the dimensions may be various according to requirements.

The disclosures in Italian Utility Model Application No.VR2001U000059 from which this application claims priority are incorporated herein by reference.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A radiator, particularly for heating outdoor spaces, comprising a supporting body intended to support a source of heating rays and a panel provided with a surface that is reflective for at least a fraction of said heating rays, characterized in that it comprises means for varying the orientation of said panel with respect to said source.

2. The radiator according to claim 1, characterized in that said heating rays are infrared rays.

3. The radiator according to one or more of the preceding claims, characterized in that said panel is arranged at least partially above said source.

4. The radiator according to one or more of the preceding claims, characterized in that said means for orientating said panel comprise at least one spherical joint.

5. The radiator according to one or more of the preceding claims, characterized in that said means for orientating said panel comprise at least one hinge.

6. The radiator according to claim 4 or 5, characterized in that said at least one joint or said at least
one hinge connects said panel and said source.

7. The radiator according to claim 4 or 5, characterized in that said at least one joint or said at least one hinge connects said panel and said supporting body.

8. The radiator according to one or more of the preceding claims, characterized in that said means for orientating said panel comprise complementarily shaped surfaces for rotational coupling between said panel and said source.

9. The radiator according to one or more of the preceding claims, characterized in that said means for orientating said panel comprise complementarily shaped surfaces for spherical coupling between said panel and said source.

10. The radiator according to one or more of the preceding claims, characterized in that said means for varying the orientation comprise means for locking said panel with respect to said source.

11. The radiator according to one or more of the preceding claims, characterized in that said means for varying the orientation comprise means for moving said panel.

12. The radiator according to claim 11, characterized in that said movement means comprise at least one traction element that is articulated to said panel at an end portion and means for detachable coupling between said traction element and said supporting body.

13. The radiator according to one or more of the preceding claims, characterized in that said movement means comprise a hinge for articulation between said traction element and said panel.

14. The radiator according to one or more of the preceding claims, characterized in that said traction element comprises an end pin that can slide within a slot that is rigidly coupled to said panel.

15. The radiator according to one or more of the preceding claims, characterized in that said actuation means comprise a lever system that is functionally connected to said traction element.

16. The radiator according to one or more of the preceding claims, characterized in that said lever system comprises an actuation handle.

17. The radiator according to one or more of the preceding claims, characterized in that said locking means comprise at least one locking tab at a portion of said traction element that can be inserted detachably in a respective engagement seat at said supporting body.

18. The radiator according to one or more of the preceding claims, characterized in that said locking means comprise screw-and-nut connecting means.

19. The radiator according to one or more of the preceding claims, characterized in that said emission source comprises at least one burner for burning gas.

20. The radiator according to one or more of the preceding claims, characterized in that said reflective surface has a concavity that is directed toward said source.
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The present search report has been drawn up for all claims

Place of search: MUNICH  
Date of completion of the search: 17 February 2003  
Examiner: Merkt, A

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