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(54) **Heating system for row of seats**

(57) HEATING SYSTEM FOR ROW OF SEATS, implementing infrastructure and local public entertainment and other uses, that is a proper wiring in their technical characteristics and safety for its use, it takes electricity (1), either online or by the action of an electric power generator at low voltage and through the corresponding panel (2) of elements of protection and control, electric power leads by a wiring that runs through each row of stands (3) feeding connections based outlet (4), which is located in an easily accessible form to each locality, enabling the power supply to some seat and back pads that are set over the fixed seats and whose function is to transmit the input of heat conduction in physical contact

with the users.

The THERMIC SEATS, it consists of two parts, seat (5) and back (6), Carrying an electrical resistance flexible (7) finished in conductive cable (8) fixed by a mesh (10) attached superficially, joining the spare seat and back, and covered the whole set in an exterior case (12) decorative which goes abroad for a lower vertex, the cable conductor (8) ended in a pin connection (9) and through the electrical resistance (7), transforms electric current into heat spread across the surface of seat-back, conveying a sense of thermal comfort as a result of driving by contact with the user. The seats thermal object of the invention are folding and transportable, with an elastic fixing (14).

FIGURE 1

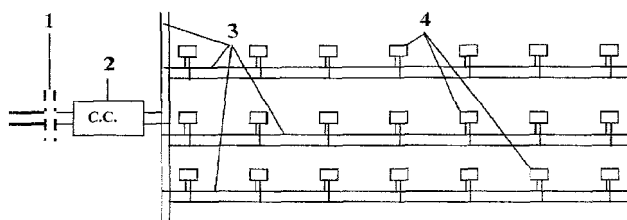


FIGURE 2

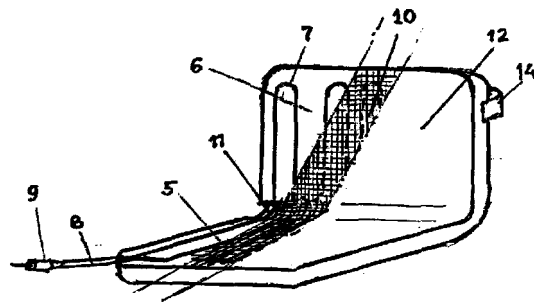
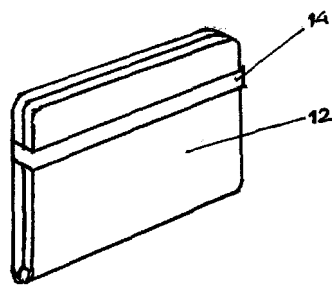


FIGURE 3



Description

PURPOSE OF INVENTION

[0001] The present invention consists in an integrated heating system with application in row of seats for the attendance of people in infrastructures and premises for spectacles, mainly those that are developed outdoors or in great spaces and which are difficult to warm up by other systems, as they can be sport stages and places for celebration any type of events, powered by electricity.

[0002] The invention intends the comfort benefit that the heat provides to the attending seated people in events by means of the thermal sensation caused by conduction of the heat emitted to each person by contact with the emitting heat center to the temperature adapted with effective and healthful effect.

[0003] The system consists on the contribution to the people for the sensation of thermal comfort through a pad of thermal seat and endorsement that is placed in the seat of row of seats for individual use and it connects to electricity itself to the heating system, with specific characteristics of security and use.

[0004] The thermal seat, portable and adaptable installed to fixed seats, with optional use for the assistants, produces the appropriate heat, in a point of view of health and comfort where it is used, through the action of a flexible electrical resistance which are protected by coverings of security following the current regulations, and which is broadcast by heat conduction through the contact to the users who will get the comfort of the thermal sensation and anatomical comfort in the human body.

INVENTION ANTECEDENTS

[0005] Until now, analogous systems are not known, nor in Spain, either in different countries in Europe, there not the knowledge of any existence of thermal applications in great outdoors facilities for events, only in closed places of the facilities.

[0006] The only system used until now are pipes of hot water installations that cross the row of seats in their inferior part and others by means of projection of infrared ray radiation that give off heat towards the existing public, or by hot air projection from the superior zone towards the spectators, with deficit of effectiveness and considerable power cost.

INVENTION DESCRIPTION

[0007] The heating system for row of seats presents a structure differentiated in two integrated elements: The installation of electric energy supply to bases outlet, and heat seats.

[0008] The electrical installation - The technical characteristics relate to the conduct of electricity at low voltage, to a connection system, which is used specifically for the power of the seats thermal, and that from making

overall electricity space to warm up or through an electric generator, which is supplied the electric power at low-voltage and it is determined through an electricity line, with the intervention of the corresponding box electrical with protection and control mechanisms.

[0009] The electrical cables, consists of several lines journey along the different rows of stands to warm up, feeding the groundwork for an electrical outlet located in an easily accessible form to each locality seat, with technical features and safety accessibility exclusively for the connection of thermal seats.

[0010] Thermal seats - Consist on portable pad and adaptable to the fixed seating of row of seats and consist mainly of two parts, seat and back, constructed from heat insulating material to the part of support in its location and anatomical conformation suited to the convenience of human body in sitting position, coupled with each other so articulated, which carry an electrical resistance flexible that is protected by security coatings, covered by existing legislation, with technical characteristics appropriate to the desired temperature, ending in an outflow of electrical connection to the outside the pad with a pin outlet, whose technical characteristics and exclusively relate to the base of outlet of the electrical installation specific.

The set of spare seat and back are carrying an electric heating element so embedded, which runs the surface of the two pieces in zig-zag, with the aim of projecting the diffusion of heat from the surface of contact with the human body. This set is assembled on an adjusted fixing each of the two pieces on the inside of a case closed weatherproof fabric. The pad is folding on the side of the seat with union backing for its adaptation to a fixed seat in the sitting position and folded position for the convenience of transport, carrying an elastic subject for both the back of the seat, as in the folded position. The external physical appearance is optional in terms of colour and graphic design of the external case of the pad.

[0011] By applying this system and is industrially makes a substantial improvement in the comfort of the spectators who choose to have a seat location transmitter heating driving when direct contact, because of the difficulties of implementation of alternative heating systems such as convective systems, since the hot air for their lost density escapes by lifting and radiation due to the lack of space in a distance effective for receiving waves electromagnetic.

[0012] Moreover, the low power consumption in order to 30 watts per unit, resulting in a low cost and in his case, an optimum performance of its energy consumption by individual use and straightforward.

[0013] Another of the benefits this heating system gives is the medical aspect, as the direct heat protects from cold and benefit anatomical areas of the human body, such as the lumbar area and digestive and evacuation parts.

[0014] To complement the narrative that follows is going to make in order to help a better understanding of the characteristics of the invention is attached to the descrip-

tive report a set of drawings based on figures graphic.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

Figure 1 - It shows a pattern of electrical installation for feeding to the thermal pads.

Figure 2 - It shows a perspective view of a thermal pad in a seat position with two intermediate sections which allow customers to view their internal composition.

Figure 3 - It shows a perspective view of the thermal pad in folded position for transport.

DESCRIPTION OF PREFERRED METHOD OF REALIZATION

[0016] As can be seen in the diagram in Figure 1, taken from the overall electricity (1) that goes to low voltage and intervened by certain elements of protection and control installed on the panel (2), being conducted through the electrical lines (3) along the different rows of stands to warm up, installing a base outlet easily accessible to every seat, for the connection of power (4) of each seat pad heat.

[0017] The thermal pad seat, as shown in Figure 2, is formed by a piece of seat (5) and one of back (6) and it is built with materials of adaptation anatomical and thermal insulation, which behave in a way embedded in zig-zag along the surface of both parts, an electric heating element flexible (7) unique adaptation to the intended use. The electrical resistance, is connected to a wire conductor feeding outward (8), which in turn is connected to a plug connection (9), which is coupled to the base of outlet (4) of the electrical installation own system. The resistance (7) is fixed at their accommodation by the accession of fabric mesh fibreglass or similar (10), which also serves as a nexus between the spare seat and back. The union of resistance in the stretch between seat and back, protected by a flexible hose protection (11) at the same time acts as a separator between the two parts, allowing the central articulation of the whole pad. The ensemble described is set in a case (12), waterproof fabric and physical appearance optional. Elastic (14) is fastened to the outside case in the part which makes contact with the back of the seat holds the thermal seat pad to the back of the fixed seat in the position of use.

[0018] Figure 3 represents the thermal pad in folded position for transport, setting the position by means of elastic (14) attachment seats. This allows optionally the permanence of the invention in the fixed seats or the possibility of store/transport them until required or needed again.

Claims

1. HEATING SYSTEM FOR ROW OF SEATS, implementing infrastructure and local public entertainment and other uses, that is a proper wiring in their technical characteristics and safety for its use, it takes electricity (1), either online or by the action of an electric power generator at low voltage and through the corresponding panel (2) of elements of protection and control, electric power leads by a wiring that runs through each row of stands (3) feeding connections based outlet (4) with a unique form of electrical connection for the destination of specific use of the system heating, which is located in an easily accessible form to each locality's seat stands to warm up, enabling the power supply to some seat and back pads that are set over the fixed seats and whose function is to transmit the input of heat conduction in physical contact with the users.

2. THERMIC SEATS FOR HEATING OF ROW OF SEATS, it consists of two parts, seat (5) and back (6), Carrying an electrical resistance flexible (7) finished in conductive cable (8) fixed by a mesh (10) attached superficially, joining the spare seat and back, and covered the whole set in an exterior case (12) decorative which goes abroad for a lower vertex, the cable conductor (8) ended in a pin connection (9) with features and form corresponding to the base of outlet (4) of the electrical installation, that through their connection and through the electrical resistance (7), transforms electric current into heat spread across the surface of seat-back, conveying a sense of thermal comfort as a result of driving by contact with the user.

That the thermal seats are folding and transportable, in order that the installation of fixed seating in the stands, with hold of optional elastic (14), either permanently or temporarily, taking it off is simple, easy handling and portability.

FIGURE 1

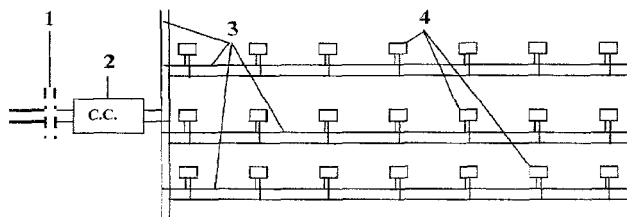


FIGURE 2

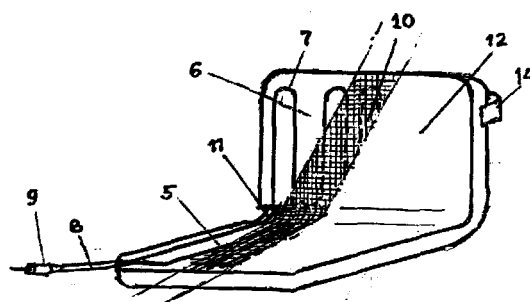
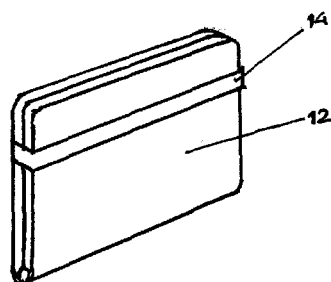


FIGURE 3





EUROPEAN SEARCH REPORT

 Application Number
 EP 07 38 5202

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		22 April 2009	Kus, Slawomir
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			

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EUROPEAN SEARCH REPORT

Application Number
EP 07 38 5202

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
P,X	US 2007/152479 A1 (HOWMAN JOHN R [US] ET AL) 5 July 2007 (2007-07-05) * paragraph [0032] - paragraph [0055]; figures 1-7 * -----	1	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 April 2009	Examiner Kus, Slawomir
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 38 5202

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
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