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(54) **PORTABLE PAINT BOOTH USED FOR THE REPAIR OF AUTOMOBILE BODIES**

(57) A portable paint carbin applicable to the repair of motor vehicle bodies, consisting of a body (1) formed by inflatable components (2), situated vertically, joined by means of horizontal cross beams (2'), having side closing areas (3) shaped as flexible laminas (3), provided with a conduit (15) for the entry of air and a second

conduit or connection (13) for the evacuation of air from the inside to the outside, having a pre-filter (16) in the upper part and lighting tubes (17), as well as filters (11) and (12), fresh air intake (10), trap (9), heating element (8), motor (6) provided with a sucking propeller (7) and a driving propeller (7') respectively, as well as a grille (14).

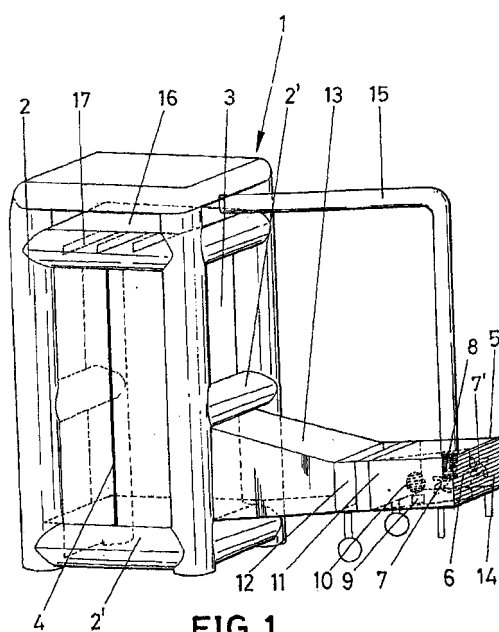


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The present specification refers to a patent application regarding a portable paint cabin applicable to the repair of motor vehicle bodies, whose purpose lies in permitting its application as a conventional paint cabin, but with the particularity of being carried due to its basic characteristic of substantially reducing its size. It may be assembled in any place, including roads, allowing the repair of paint work which necessarily requires the use of a cabin.

FIELD OF THE INVENTION

[0002] This invention is applicable to the industry dedicated to the manufacture of accessories, auxiliary components and tools for the repair and painting of motor vehicle bodies.

BACKGROUND OF THE INVENTION

[0003] The applicant is aware of the existence of various cabins intended to permit painting operation of motor vehicle bodies that due to wear or accident should be superficially repaired.

[0004] It has been observed that when a vehicle demands a painting operation over an area of reduced size, paint experts in the automobile sector use a conventional painting cabin, independently of the size of the repair to be performed.

[0005] Likewise, it has been demonstrated that on many occasions the motor vehicles which has been subjected to a repair in the workshop, are obliged to wait until the paint cabin is free, to permit their delivery to the owner with the repair completed, again insisting on the fact that the repair is carried out independently from its size.

[0006] It has also been observed that these repairs are always carried out using a general painting cabin, there not existing any possibility of repairing the damaged paint on the vehicle body in another area of the workshop.

[0007] The obvious solution to the problem existing at present would be to have a paint cabin which could be portable, involving the possibility of its transfer inside a vehicle of reduced dimensions, completing the repair, either in situ, that is, where the vehicle is located or prepare several areas of a bay to repair several vehicles at the same time with different specialists from the interior of this paint cabinets, which due to its portable nature, counts with suitable dimensions.

[0008] However, the applicant is unaware of the existence of an invention having the aforementioned features.

DESCRIPTION OF THE INVENTION

[0009] The portable paint cabin applicable to the repair of motor vehicle bodies proposed by the invention is an evident novelty within the specific field of application.

[0010] More specifically, the portable paint cabin applicable to the repair of motor vehicle bodies object of the invention, is constructed from a structure formed by hollow bodies of a flexible plastic material capable of being inflated with air, adopting a vertical and resistant configuration, having four corner zones which act as supporting links, joined to each other by cross beams, provided with a floor and a ceiling in which the components and devices described below are incorporated.

[0011] The paint cabin may also be made from a detachable structure consisting of tubular components, strips, etc. forming a structure with similar application to the pneumatic components described above.

[0012] The bodies configuring the cabin support are joined to each other by laminas of flexible plastic material which make the structure generally airtight, the latter having on one of its sides, specifically that located in the front, a zip permitting the use of this area as an entry and exit and the plastic lamina of this area acting as a door in the structure perimeter fastened by velcro or similar material, with the object of permitting that the entry and exit zone acts as an antipanic door, since if any anomaly occurs inside the cabin, the operator may leave it without having to open the zip.

[0013] The structure may be lightly raised, such that the invention optionally has its supporting cross beams raised to a suitable height from the ground so that the cabin remains supported by the corner parts or edges.

[0014] In the ceiling, there are mobile fluorescent lamps over which a fresh air pre-filter is situated, which air passes inside the cabin through an elastic connection tube with a body provided with wheels and support legs, from which a tube emerges through the opposite side of the cabin acting as an extraction area for solids and volatile materials like paints and solvents that may be filtered by the pertinent filters located in the body from which the connection funnel emerges, a body also having a connection to the conduit facilitating fresh air entry inside the cabin through the upper area, for which inside the portable filter body and other devices, there is a motor generating the movement of the two blades, one of them driving the fresh air through the elastic connection tube and the other, evacuating the gases arriving inside, this activation body likewise having a recirculation bypass trap, a fresh air connection, as well as a heating element connected to the elastic connection tube.

[0015] An exit grille for the filtered gases has also been foreseen.

[0016] The second blade connected to the motor acts as a propeller or sucking blade.

[0017] To repair a vehicle, on one of its sides the invention is provided with some tubular plastic laminas,

which in their perimeter has fastening and closing means, located over the vehicle body to be repaired, surrounding the perimeter of the zone where the specific repair should be made, permitting the operator to have access to the vehicle by means of some mobile telescopic springs to facilitate the support of this device by means of these laminas which acts as an extension, and consequently, suitably perform the painting operation, all the latter in collaboration with the components constituting the cabin and additional items acting as a complement and in harmony with the latter

DESCRIPTION OF THE DRAWINGS

[0018] To complement the description being made and to permit a better understanding of the features of the invention, attached to the present specification as an integral part thereof, there are two sheets of drawings in which the following are shown with an illustrative and non-limiting character.

[0019] Figure 1 corresponds to a perspective view of the portable paint cabin applicable to the repair of motor vehicle bodies object of the invention.

[0020] Figure 2 shows an elevation view of the object shown in figure 1, which is shown located next to a vehicle whose body must be repaired.

[0021] Finally, Figure 3 shows a view of the object shown in Figure 1 showing the surface of the operator's support raised.

PREFERRED EMBODIMENT OF THE INVENTION

[0022] In figure 1 it may be observed how the portable paint cabin (1) applicable to the repair of motor vehicle bodies (30) is formed from a structure (2) consisting of pneumatic bodies inflatable by means of air or any other fluid, adopting the configuration of a parallelepiped reinforced by cross beams (2'), the sides being closed by means of plastic laminas (3), except one of them, which configures a door whose laminas are joined to the perimeter by means of conventional and hermetic adhesives such as velcro and which in turn is divided into two laminas by means of a zip (4) as shown in figure 2, being next to the same a body (5) provided with wheels and supports (18) from which a connection funnel (13) emerges, across which the body (5) performs the aspiration of solid and volatile particles, there being in the mouth of the connection funnel (13) filters (11) and (12) which act as filters for the volatile materials, for example organic solvents, and a filter for solid particles, there then being inside the body (5) a bypass type recirculation trap (9), as well as a fresh air connection (10), there emerging from the body (5) a conduit (15) through which fresh air enters inside the cabin (1) through the upper part, which air is driven by a motor (6) activating two blades (7) and (7'), one of them acting as a sucker and the other one as a driver, to achieve that the aspired air coming from the activation of the cabin across the filters

(11) and (12) exits outside through a filtered gas exit grille (14).

[0023] The incorporation in the elastic tube (15) of a heating element (8) has been foreseen.

5 [0024] Inside the cabin (1) and in the upper part, a fresh air prefilter (16) is incorporated and in the lower part thereof, and duly separated, some mobile incandescent fluorescent lamps (17) to permit the existence of the pertinent electric illumination inside the paint cabin (1).

10 [0025] It must be repeated that the fresh air, breathable and in perfect condition passes inside the cabin through the channel (15) driven by the blade or propeller (7') activated by the motor (6). This air, which is duly filtered by the pre-filter (16); while the air with solid and volatile particles is extracted from inside the cabin by the action of the propeller (7) which is likewise activated by the motor (6) achieves the gradual extraction of the mentioned particles, which before reaching the outside are filtered by the filters (11) and (12).

20 [0026] According to Figure 2, it is shown that from one side the cabin (1) a skirt (19) emerges across two mouths by means of which the operator located inside the cabin (1) has a pertinent communication with the area of the vehicle (30) which should be repaired, adjusting the mouth-piece by conventional means, perimetrically surrounding the area to be repaired.

25 [0027] There is an auxiliary mobile telescopic neck facilitating the location of this mouth-piece or skirt.

30 [0028] If any anomaly occurs inside the cabin (1), the side area thereof provided with a zip (4) is shaped as an antipanic exit, through which the operator in need may abandon the area.

35 [0029] In figure 3, a second embodiment of the invention is seen, in which the floor of the cabin is raised, the connection tube (13) being able to have access through the lower area if considered relevant.

40 [0030] It must be mentioned that in the painting stage, the unfiltered fresh air passes through the tube (15) inside the cabin (1), being purified by the pre-filter (16) and this same air exits to the outside through the conduit (13), passing through the filters (11) and (12), respectively, reaching the outside totally filtered through the grille (14).

45 [0031] However, in the drying stage, the lighting (17) remains off, unfiltered fresh air entering through the channelling (15) mixing with air recovered by the bypass or trap (9) directed towards the channelling (15) involving the partial recirculation of air of the cabin (1), the air being evacuated once it has penetrated inside the cabin through the connection (13) and when the bypass trap (9) remains open, it recirculates again through the conduit (15), it being necessary to indicate that the air passing inside thanks to the action of the heating component 55 (8) has a suitable temperature for its application.

Claims

1. A portable paint cabin applicable to the repair of motor vehicle bodies, characterised on being constituted from inflatable bodies (2), vertically placed, joined by inflatable transverse bodies (2'), having an upper and lower area, as well as sides consisting of plastic laminas (3) joined to the components (2) and (2') except the lamina constituting the access door, which is fixed to the perimeter of the area where it is located by means of Velcro type adhesives, this lamina area having a central zip (4), there emerging from the cabin body (1) a wide skirt (19) provided with closing means in its sides, permitting it to shape an hermetic mouth-piece over the vehicle (30) surface to be repaired, there being in the upper inside area of the cabin (1) a fresh air prefilter below which there are some portable fluorescent lamps (17), the cabin having a connection to a conduit (15) for the entry of air and a conduit (13) for the exit of air and gases and in turn, both conduits are connected to a component (5) housing the extraction and heating equipment and provided with wheels (18).

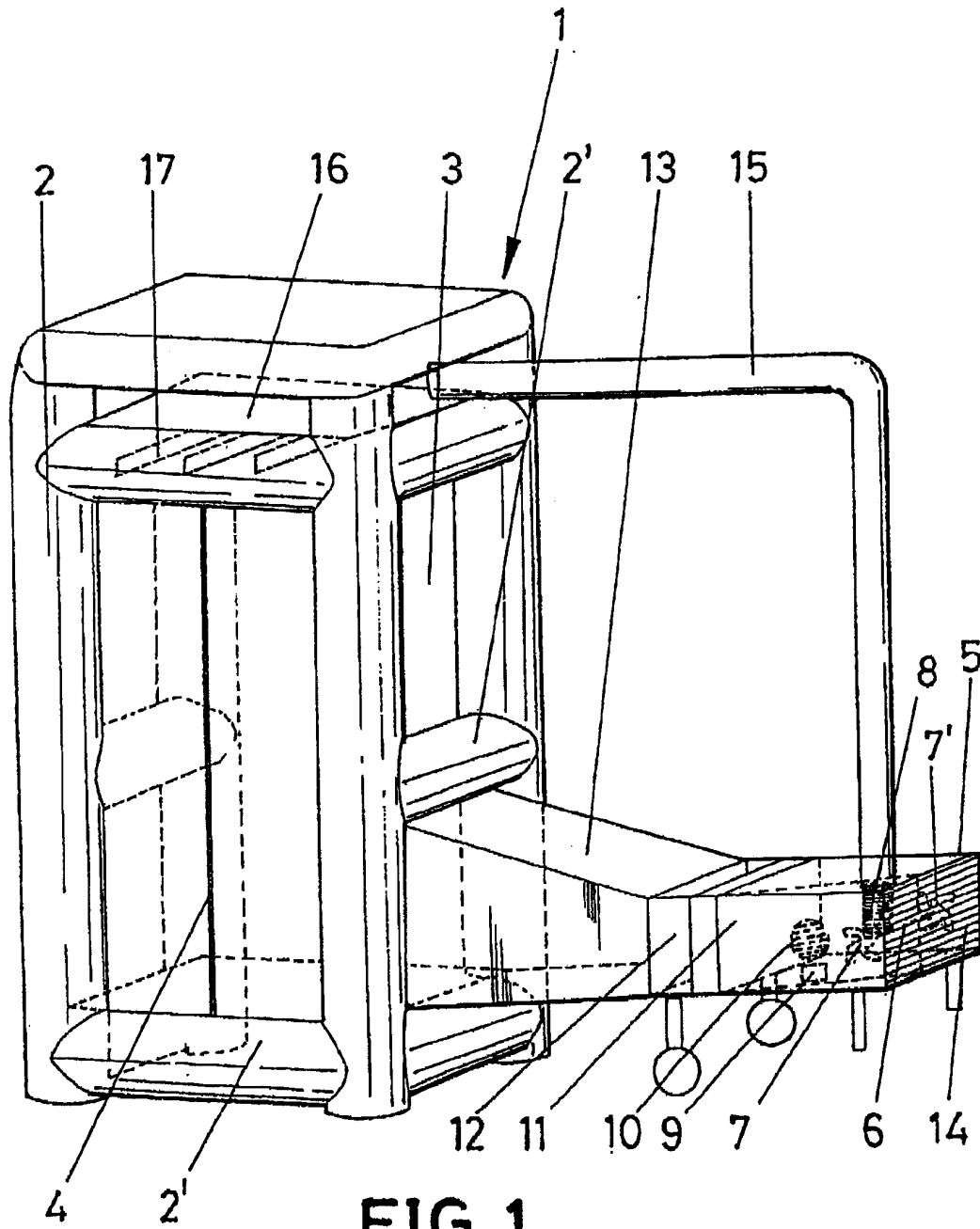
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2. A portable paint cabin applicable to the repair of motor vehicle bodies according to the first claim, **characterised in that** the equipment (5) has filters (11) and (12) destined to filter volatile and solid particles respectively, extracted from inside the cabin, there then existing a recirculation trap or bypass (9), directing the air towards the conduit (15) across which fresh air penetrates the cabin or towards the outside across the grille (14) located in the outside area of the equipment (5).

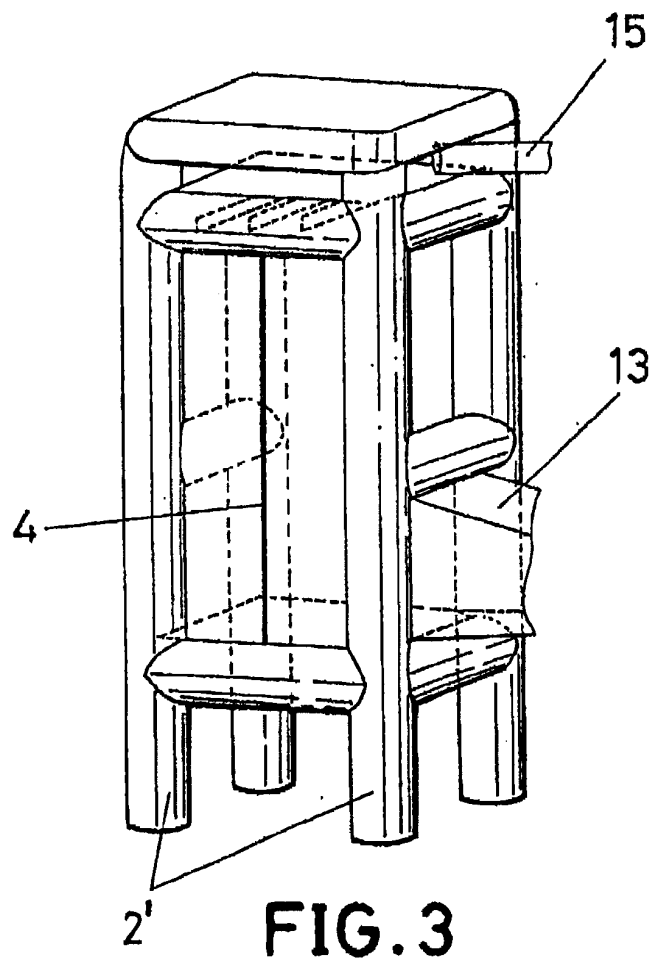
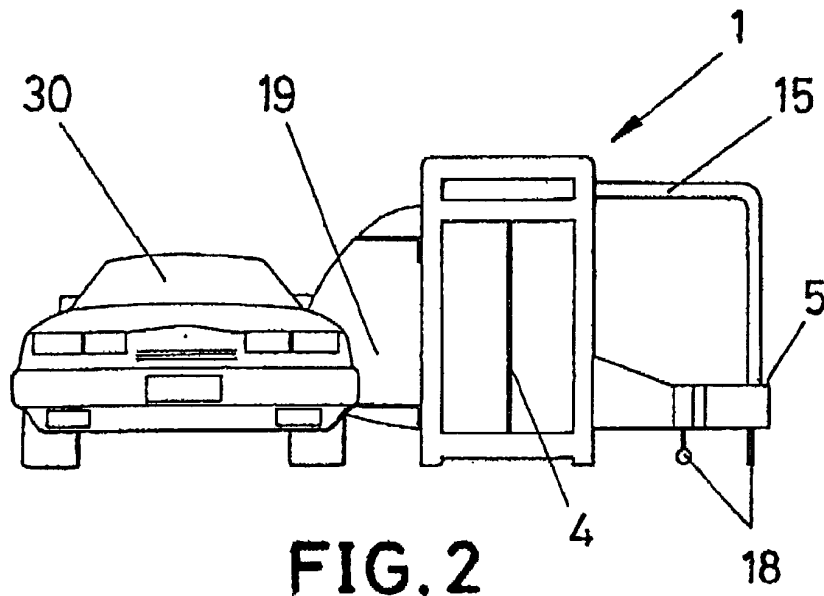
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3. A portable paint cabin applicable to the repair of motor vehicle bodies according to previous claims, **characterised in that** the air penetrating inside the cabin (1) through the conduit (15) and the air carrying particles, passing to the outside across the conduit (13) from inside the cabin (1) are activated by means of propellers (7) and (7'), joined to a motor (6), the propeller (7) acting as a sucker and the propeller (7') as a driver.

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4. A portable paint cabin applicable to the repair of motor vehicle bodies according to the previous claims, **characterised in that** inside the equipment (5) there is a fresh air connection (10) and a heating element (8) adapted inside the tubular body (15).

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5. A portable paint cabin applicable to the repair of motor vehicle bodies according to previous claims, **characterised in that** the floor of the cabin (1) may be separated from the support area of the vertical support components (2).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 01/00232A. CLASSIFICATION OF SUBJECT MATTER ⁶:

IPC7 : B05B 15/12

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)

IPC7 : B05B

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 practicable, search terms used)

EPODOC, WPI, PAJ, CIBEPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5236506A (MAZAKAS) 17 August 1993 column 2, line 65-column 6, line 24; figures 1-12	1-5
A	US 4662309 A (MULDER) 05 May 1987 column 4, line 59-column 8, line 5; figures 1-4.	1-4
A	US 4590884 A (KREEGER et al) 27 May 1986 column 2, line 34-column 4, line 34-column 4, line 61; figures 1-5.	1-3
A	EP 0144124 A2 (NORDSON) 12 June 1985 page 2, line 30- page 4, line 4; figure.	1-2
A	US 5162132 A (DIAZ) 10 November 1992 column 2, line 60-column 3; figures	1



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

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"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

"A" document member of the same patent family

Date of the actual completion of the international search
05 July 2001 (05.07.01)Date of mailing of the international search report
24 July 2001 (24.07.01)Name and mailing address of the ISA/
European Patent Office
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INTERNATIONAL SEARCH REPORT
 Information on patent family members

 International Application No
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