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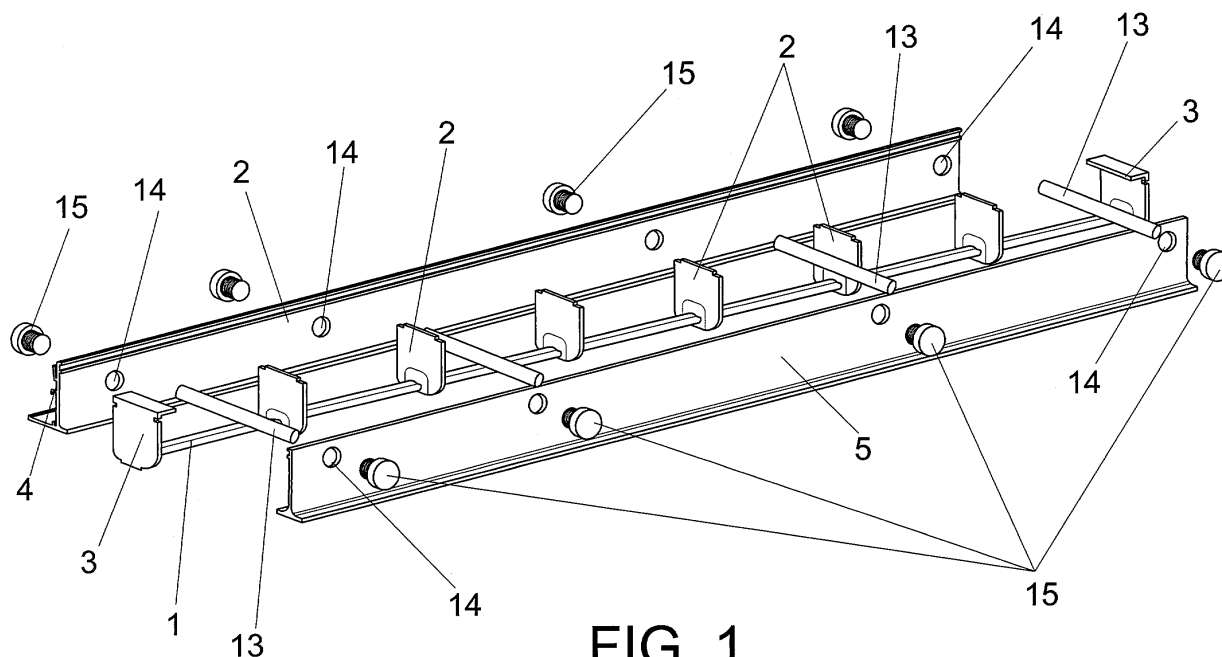
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(54) **Rectangular air conditioning diffuser**

(57) The diffuser basically comprises a longitudinal slat (1) made up of sections that are coupled between respective intermediate supports (2) and end supports (3), said supports being provided with pins (9), which are inserted for coupling and securing the different sections of the slat (1), supplemented with two side shapes (4), which are braced between each other by means of tubular cross members (13) acting as spacers housed

in opposing holes (14) in these shapes (4) and secured by means of rivets (15). The diffuser may have more than one module or longitudinal slat (1), in which case the above-described structure will be repeated, there being intermediate shapes between which the corresponding slats (1) are arranged longitudinally with their intermediate supports (2) and ends (3), while there are always two longitudinal end supports (4).



**FIG. 1**

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## Description

### OBJECT OF THE INVENTION

[0001] The present invention refers to a rectangular air conditioning diffuser which has one or more directional longitudinal slats fitted between supports cross-wise to them, supplemented with side support shapes and even one or more intermediate shapes, depending on the number of longitudinal slats, connected to one another by means of tubular cross members.

[0002] The object of the invention is to offer a diffuser of a simple construction that is easy to install/remove and fulfils its function efficiently.

### BACKGROUND OF THE INVENTION

[0003] Certain air conditioning diffusers are commonly provided with individually independent deflector fins, so that each of them may adopt the most suitable position to direct the blast of hot or cold air in a given direction.

[0004] This solution presents certain drawbacks, which chiefly revolve around the following aspects:

- The fastening of the supports to the base plate is not as reliable as would be desirable, as the grooves with which the supports are provided for their coupling to the windows in the plate do not make the anchorage strong enough to counteract the tendency that the supports have to swivel sideways.
- The layout of the fins means that the air output area varies according to the degree of inclination of said fins, which has an unfavourable impact on the operation and performance of the system.

### DESCRIPTION OF THE INVENTION

[0005] The diffuser envisaged here has a series of special features that may be of any appropriate length and width and is made up of one or more directional longitudinal slats arranged between respective side shapes, so that, in the case of having a single slat, there will be two identical side shapes, whereas, if having more slats, there will be two identical longitudinal side shapes and intermediate spacer shapes between the different slats.

[0006] The slats, of a slightly curvilinear, tubular and flattened configuration, are assembled by the press-fitting, on their ends, of respective pins belonging to the transverse supports, wherein the end supports only include one pin for engaging in the respective end of the slat, whereas the intermediate supports include two pins for engaging in the two adjoining shapes of the slats concurring at these intermediate supports. Said supports have a rectangular configuration, so that, in the case of

the ends, they are reinforced with bracing ribs, and so that the place where the pin or pins are embodied is adjacent to one of the edges in the case of intermediate supports, which are provided with longitudinal splicing all the way round for fitting inside the respective slat, with the special feature that each support has an undercut in a large area of the rectangular body or plate.

[0007] The side shapes, whether just two single elements in the event of including one longitudinal slat only, or two side and other intermediate elements if there is more than one slat, are made up of elongated bodies with through holes for engaging the ends corresponding to the transverse bracing tubes, which also act as section spacers, being attached by means of rivets running through the holes and screwed into the ends of the above-mentioned tubes for spacing and bracing the shapes.

[0008] With this configuration the diffuser is simple to install as the different shapes making up each longitudinal slat merely have to be engaged on the pins of the respective supports, and the longitudinal side shapes are then secured by means of the spacing and bracing tubes, assisted by the rivets that are fixed and screwed into the ends of these tubes and which pass through the above-mentioned holes in the shapes.

### DESCRIPTION OF THE DRAWINGS

[0009] To supplement the description being given here and in order to contribute to a better understanding of the features of the invention, in accordance with a preferred example of a practical embodiment of same, this description is accompanied by a set of drawings, as an integral part thereof, wherein there is represented for purely informative and non-restrictive purposes the following:

Figure 1.- It shows a representation according to an exploded overall perspective view of a rectangular diffuser produced in accordance with the object of the invention, including a single module, i.e. two side shapes and an intermediate longitudinal slat, as well as the corresponding tubular side section bracing cross members.

Figure 2.- It shows a sectional view of the set-up of the slats in relation to the intermediate supports.

Figure 3.- It shows a sectional and plan view of a slat fitting end support.

Figure 4.- It shows a sectional and plan view of the intermediate support.

Figure 5.- It shows, lastly, a cross-sectional close view of the of the set-up corresponding to the diffuser in question with two modules, i.e. with two longitudinal slats, two lateral shapes and an interme-

diate section.

## PREFERRED EMBODIMENT OF THE INVENTION

[0010] In the light of the above-mentioned figures it may be observed how the diffuser in question comprises one or more longitudinal slats (1) made up of adjoining sections which are fastened by engaging in corresponding intermediate supports (2) and end supports (3), supplemented by a pair of side shapes (4), if having a single slat (1), or else with two side shapes (4) and intermediate sections (5) when it includes two or more slats, the side shapes (3), as represented in figure 3, being composed of a plate (6) with bracing ribs (7), an undercut (8) and, in line with the area of the undercut, a perpendicular pin (9) with a longitudinally-splinted outer surface for engaging in the corresponding tubular end of the slat (1).

[0011] Further, in the sides of the plate (6) making up the support (3) it has grooves (10), for positioning, engaging and securing it on respective guides (11), provided both in the end shapes (4), which close the main frame of the diffuser longitudinally, and in the intermediate shapes (5), as is shown in figure 5.

[0012] For their part, the intermediate supports (2) also consist of a plate (12) likewise provided with an undercut (8) as in the end supports (6), and a pair of pins (9) facing each other, i.e. one on either side of the plate (12), also longitudinally splinted like the pins on the end supports (6), so that the pins (9) on the plate (12) corresponding to the supports (2) are engaged in the adjacent facing ends of sections of slat (1), as shown clearly in figure 2.

[0013] The structure described is supplemented with tubular cross members (13) arranged between side shapes (4) in the event of there being only one module, or else between the intermediate profiles and the side profiles if there is more than one module, so that in any case these tubular cross members (13) are positioned in holes (14) provided both in the side shapes (4) and in the intermediate shapes (5), and they are secured by means of respective rivets (15), which pass through holes (14) and are fixed in the ends of the aforesaid tubular elements or cross members (13) acting as section braces and spacers, either between the end shapes in the event of there being only one module, or else between the intermediate shapes and the actual end shapes if there are more than two modules.

(4) or else with these shapes (4) and intermediate shapes (5), if having more than one longitudinal slat (1); there being further provision made for the side shapes (4) and, when applicable, the longitudinal side shapes (5) to be braced between one another by means of tubular cross members (13), which act as both links and spacers between the different shapes, the latter being provided with holes (14) for positioning these tubular members (13), which are secured by means of respective end rivets (15).

2. A rectangular air conditioning diffuser, according to claim 1, **characterised in that** the end supports (3) have one connecting pin (9) on the end sections of the slat (1), whereas the intermediate supports (2) have two pins (9), one on either side, for coupling in the adjoining concurrent sections in each intermediate support (2) corresponding to the actual slat (1), provision also being made for the supports to have side grooves (10) so that they may be positioned and engaged on respective guides (11) provided for the purpose on the side supports (4).
3. A rectangular air conditioning diffuser, according to claim 1, **characterised in that** the sections of slat (1) are tubular, slightly bowed and substantially flat.

## Claims

1. A rectangular air conditioning diffuser, **characterised in that** it comprises one or more longitudinal slats (1) determined by sections coupled between intermediate supports (2) and with the end sections of each slat (1) coupled on end supports (3), which are supplemented with two longitudinal side shapes

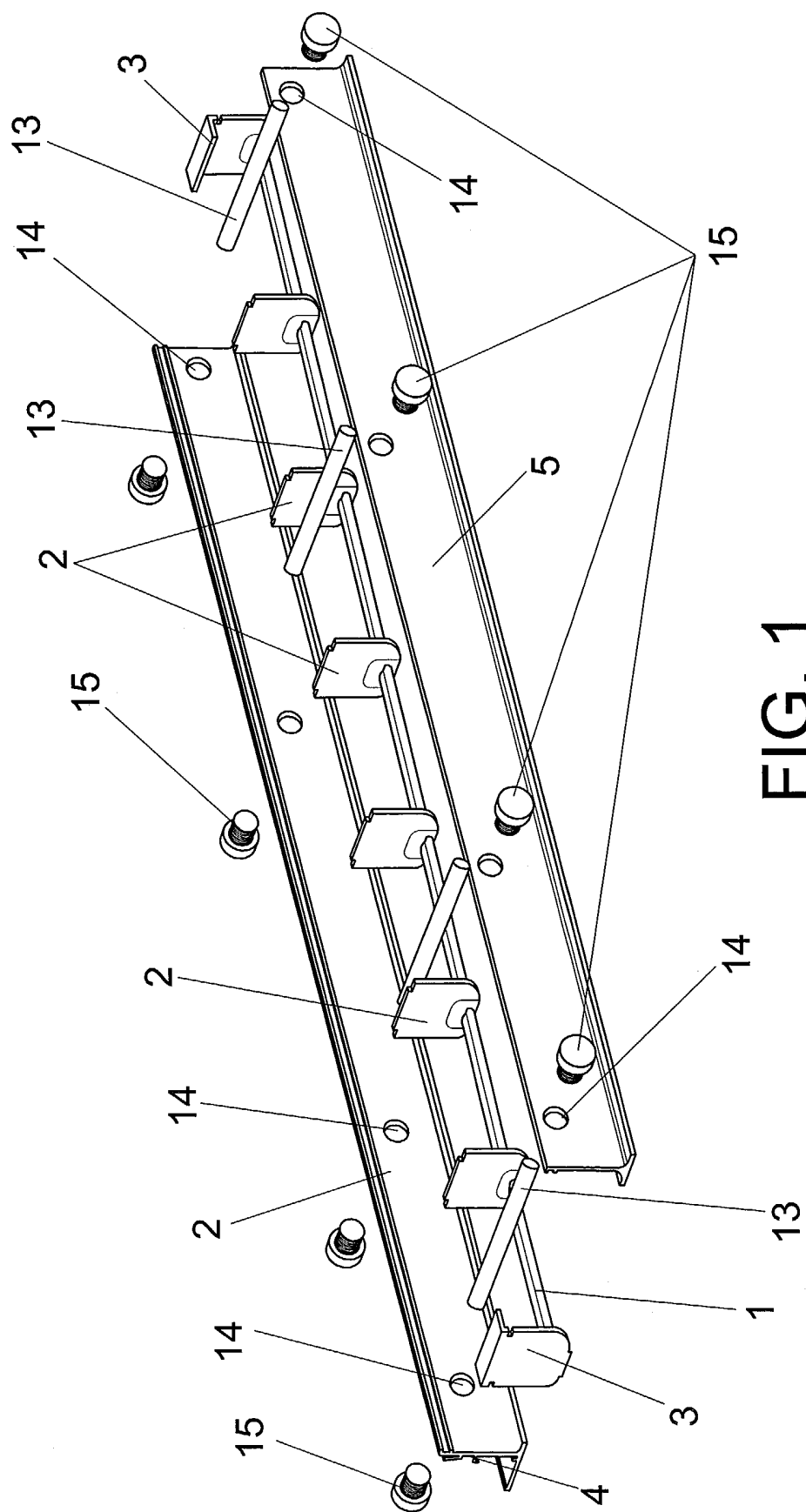
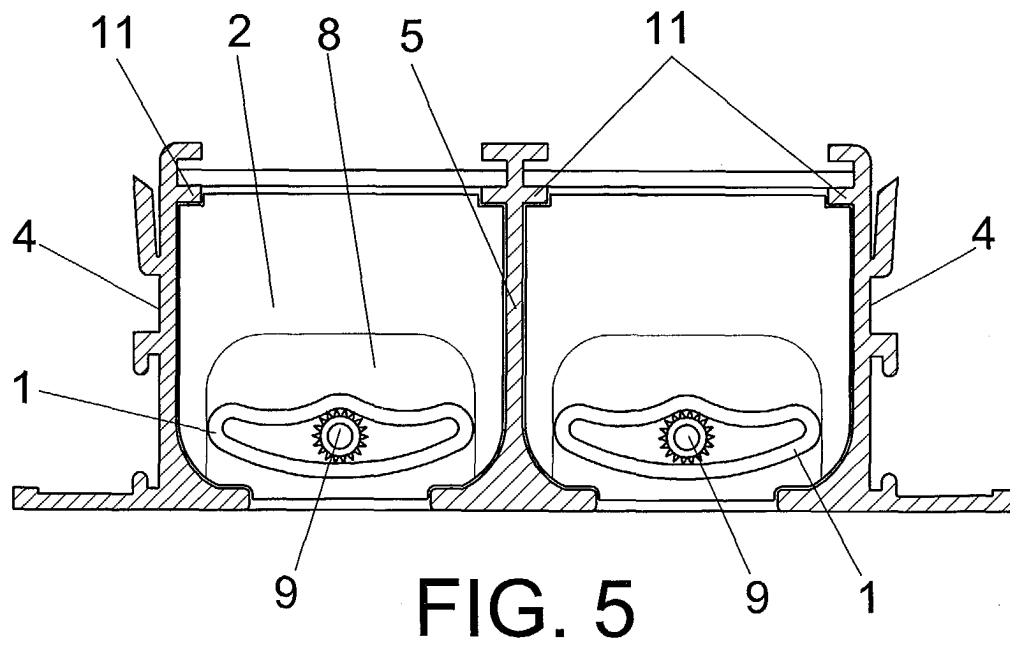
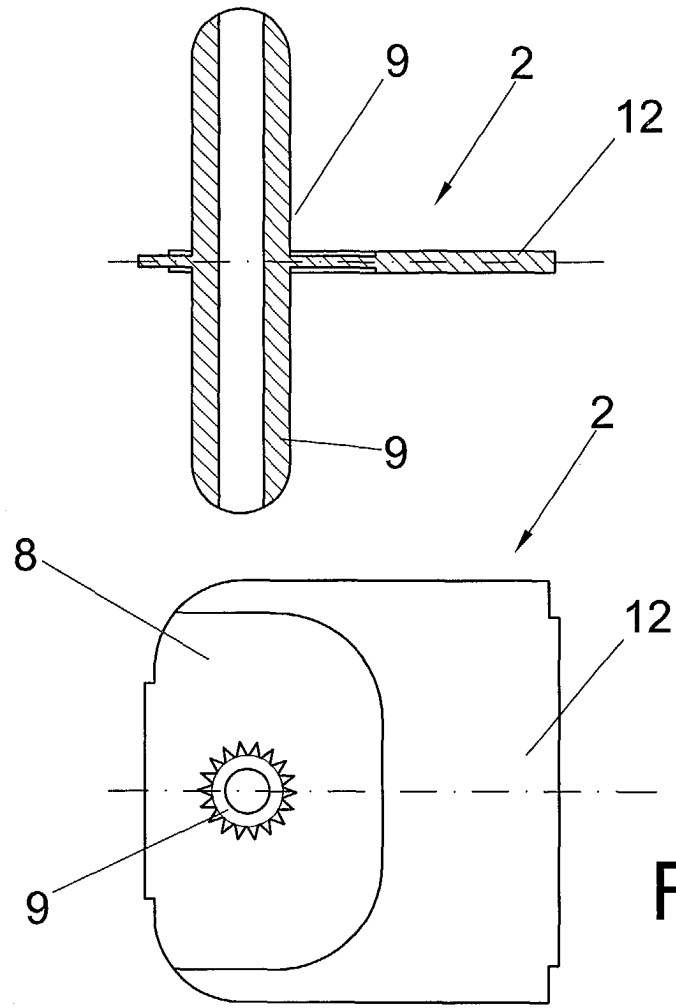


FIG. 1







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## EUROPEAN SEARCH REPORT

Application Number  
EP 03 38 0266

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The present search report has been drawn up for all claims			
Place of search <b>MUNICH</b>		Date of completion of the search <b>5 August 2004</b>	Examiner <b>Valenza, D</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>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</p> <p>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 &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04C01)

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

EP 03 38 0266

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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