

# PATENT SPECIFICATION

1,029,023

DRAWINGS ATTACHED.

1,029,023



Date of Application and filing Complete Specification :  
Aug. 21, 1963. No. 8045/65.

Application made in Denmark (No. 3846) on Sept. 3, 1962.  
(Divided out of No. 1,029,022).

Complete Specification Published: May 11, 1966.

© Crown Copyright 1966.

Index at Acceptance:—E1 V130.

Int. Cl.:—E 04 b 5/56.

## COMPLETE SPECIFICATION.

### Improvements in or relating to Carrying Rails for False Ceiling Panels.

I, JEAN FISCHER, of Danish Nationality, of Sankt Klemens, Denmark, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a carrying rail for a false ceiling panel and has been divided out of co-pending Application No. 33068/63 (Serial No. 1,029,022) which describes and claims a false ceiling panel and a false ceiling having at least two of the false ceiling panels juxtaposed.

A known arrangement of a false ceiling panel comprises trough-shaped parallel thin-walled elements which along at least one of their longitudinal edges are provided with a mounting flange for engaging holding lugs in carrying rails suspended from the main ceiling and disposed transversely of the longitudinal direction of the false ceiling elements.

The numbers of carrying rails in such false ceiling panel which is as a rule rectangular, are dependent on the lengths of the elements, the spacing of the carrying rails normally not exceeding 125—150 cm dependent on the longitudinal rigidity of the false ceiling elements. In a known construction, the carrying rails are channel sections, in the bottom portion of which the holding lugs are punched out, and which are suspended from the main ceiling by means of a suitable number of longitudinally adjustable supporting straps. The two extreme carrying rails associated with each panel lie slightly within the panel side-edges which are formed by the end edges of the false ceiling elements, and normally, particularly with a view to improving the appearance, these end portions are enclosed in a special border rail concealing the end edges of the

elements. The manufacture and mounting of these border rails involve a certain rise in costs, which for a given false ceiling depends inter alia on the number of panels of the false ceiling, at least two border rails being required for each panel. Consequently, the rise in costs will be lowest if the entire false ceiling is constituted by a single panel. This has contributed to the circumstance that heretofore endeavours have as a rule gone in the direction of making large panels though for other reasons smaller panels might be desirable. This applies not least to large factory and office premises having shiftable partitions. Even if such premises are based on the module system, it is often seen that no regard has been had to the module system when installing a false ceiling in other way than the lengths of the false ceiling element conform with a multiple of the module. A consequence thereof is that the shiftable partitions are normally only extended up to the false ceiling instead of being extended right up to the main ceiling, which is preferable for stability and sound-deadening reasons. The false ceiling elements extending, for example, over 3—5 modules may moreover make required changes in the placing of the lighting fixtures difficult when shifting a partition.

This invention has for its object to provide a carrying rail which may be used optionally at either edge of a false ceiling panel and which makes it economically reasonable when installing a false ceiling to reduce the size of the individual false ceiling panels so that their lengths in the longitudinal direction of the elements will correspond, for example, to the module of a building in which the installation is to be made.

The invention provides a carrying rail intended for use in false ceiling panels of the kind stated to support a false ceiling ele-

[Price 4s. 6d.]

ment, which rails consists of a preferably rolled or extruded cross profile. According to the invention two neighbouring flanges or neighbouring arms of the cross are both provided with holding lugs for the ceiling element disposed at the sides of the arms facing away from the angular space between said arms, and are both adapted for serving as suspension flanges according to need. As the cross section of this carrying rail is symmetrical with respect to the line halving the angle between the two neighbouring flanges, this carrying rail may optionally be used at one or the other side edge of a ceiling panel by turning the rail through 90° about its longitudinal axis so that the disadvantage of having to rotate a carrying rail through 180° about a vertical transverse axis is overcome.

Not only is the advantage obtained that it will become superfluous to mount separate border rails on the edge portions of the elements, the downwards-directed flange or arm of the cross replacing such separate border rails, but the carrying rails may further be utilised for establishing the required connection with the walls of the premises, e.g. shiftable partitions extending right up to the main ceiling. Still further, the carrying rails may also be directly used as support for lighting fixtures or other installations in the premises.

With a view to appearance, it may be preferable that the lug-free flanges or arms of the cross profile at their sides facing the angular space between said flanges are provided with a longitudinally extending fluting. Such fluting will by way of example conceal rolling marks, if any, which may be of some importance because said flange sides will be more or less visible in the finished false ceiling.

In the following the invention will be more fully explained with reference to the accompanying drawing, wherein:

Fig. 1 is a vertical section through parts of two false ceiling panels suspended on carrying rails from a main ceiling, and between which a movable partition is disposed,

Fig. 2 a section on a larger scale, taken along line II—II of Fig. 3, of the portion indicated by a dot-and-dash circle A in Fig. 1;

Fig. 3 a section taken along the line III—III of Fig. 2, and

Fig. 4 a cross-section of a carrying rail of a slightly modified construction.

In Fig. 1, 1 is part of a main ceiling from which a false ceiling is suspended, this false ceiling comprising a number of false ceiling panels 2, of which two are shown in Fig. 1. Each false ceiling panel 2 consists of a plurality of trough-shaped parallel thin-walled elements 3 of, for example, perforated aluminium sheet, and in the cavity of these

elements provision may be made for a sound-deadening material of some appropriate kind. In the embodiment shown, each element 3 is along one side edge provided with a mounting flange 4 for engaging holding lugs 5 or 5<sup>1</sup> in carrying rails 6 extending transversely of the longitudinal direction of the elements 3, and which are suspended from the main ceiling by means of carrying straps 7. These straps are longitudinally adjustable by means of clamps 8 of a suitable kind, so that the various carrying rails 6 can be adjusted so as to lie in plane with each other irrespective of irregularities, if any, in the ceiling surface 1.

In the embodiment shown in the drawings, the carrying rails 6 are of cross-shaped cross-section. The rail shown to the left in Fig. 1 and in Fig. 2 comprises a horizontal arm or flange 7 extending inwardly above the false ceiling elements 3 and being provided with the holding lug 5, a downwards-directed flange 10 covering or bordering the end edges of the false ceiling elements 3, an upwards-directed flange 11 which by means of a screw connection 12 is connected with a suitable number of supporting straps 7 and is also provided with the lugs 5<sup>1</sup> similar to the holding lugs 5 and projecting from the right hand surface of the flange and a fourth flange 13 disposed in plane with, and facing away from, the holding lug flange 9.

The carrying rail to the right in Fig. 1 is similar to that described above but is turned 90° in clockwise direction so that in this case the lugs 5<sup>1</sup> serve to hold the ceiling elements 3 while the lugs 5 are not in use. The horizontal flanges 13 and 10, respectively, of the two carrying rails of both false ceiling panels shown in Fig. 1 extend forwardly towards a shiftable partition wall 14 located between the two panels. If desired said flanges may be more or less tightly connected with said wall. If the partition wall 14 is taken down, the spacing between the two false ceiling panels may afford room for the installation of a lighting fixture 15 as indicated in dot-and-dash line, and this fixture may with its edges rest on the two flanges while, at the same time, it is retained in place by the upwards-directed flanges of the two carrying rails.

In the interest of completeness, it should be added that the spacing between the two panels may also be used for accommodating an air injection or suction gap of an air-conditioning plant or a sprinkler plant, the nozzles of which may be mounted in fire-proof plates resting on the two flanges 13. Fig. 2, to engage and hold the elements 3<sup>1</sup> of an adjacent ceiling panel 2<sup>1</sup>.

The two carrying rails in Fig. 1 are identical and are shown to a larger scale in Figs. 2 and 3. Both the flange 9 acting as a horizontal carrying flange and the flange 11 act-

70

75

80

85

90

95

100

105

110

115

120

125

130



9

lugs

ing as a vertical suspension flange are provided with the holding lugs 5 and 5<sup>1</sup>, respectively, and both of said flanges are also provided with elongated holes 16 and 16<sup>1</sup> for screw connection 12.

Irrespective of whether the carrying rail 6 is suspended in one or the other of the two positions shown in Fig. 1, one and the same angular space, viz. the space between the flanges 10 and 13, will be the only one visible, and shown in Fig. 4 the sides of said angular space may be designed with a longitudinally extending fluting 17. The purposes thereof will appear from the foregoing explanation.

In Fig. 3, 18 shows a projection disposed near the holding lug 5 and serving as a stop for the flange 4 on the false ceiling element 3 engaging this lug 5.

#### WHAT I CLAIM IS:—

1. A carrying rail for use in a false ceiling panel to support a false ceiling element,

which consists of a preferably rolled or extruded cross profile, characterised in that two neighbouring flanges or neighbouring arms of the cross are both provided with holding lugs for the ceiling element disposed at the side of the arms facing away from the angular space between said arms.

2. A carrying rail as claimed in claim 1, characterised in that the lug-free flanges or arms of the cross are provided with a longitudinally extending fluting at their sides facing the angular space between said flanges or arms.

3. A carrying rail for use in a false ceiling panel substantially as described and shown in the accompanying drawing.

STEVENS, LANGNER, PARRY  
& ROLLINSON,  
Chartered Patent Agents,  
Agents for the Applicant.

ing as a vertical suspension flange are provided with the holding lugs 5 and 5<sup>1</sup>, respectively, and both of said flanges are also provided with elongated holes 16 and 16<sup>1</sup> for screw connection 12.

Irrespective of whether the carrying rail 6 is suspended in one or the other of the two positions shown in Fig. 1, one and the same angular space, viz. the space between the flanges 10 and 13, will be the only one visible, and shown in Fig. 4 the sides of said angular space may be designed with a longitudinally extending fluting 17. The purposes thereof will appear from the foregoing explanation.

In Fig. 3, 18 shows a projection disposed near the holding lug 5 and serving as a stop for the flange 4 on the false ceiling element 3 engaging this lug 5.

ing panel to support a false ceiling element, which consists of a preferably rolled or extruded cross profile, characterised in that two neighbouring flanges or neighbouring arms of the cross are both provided with holding lugs for the ceiling element disposed at the side of the arms facing away from the angular space between said arms.

2. A carrying rail as claimed in claim 1, characterised in that the lug-free flanges or arms of the cross are provided with a longitudinally extending fluting at their sides facing the angular space between said flanges or arms.

3. A carrying rail for use in a false ceiling panel substantially as described and shown in the accompanying drawing.

STEVENS, LANGNER, PARRY  
& ROLLINSON,  
Chartered Patent Agents,  
Agents for the Applicant.

#### WHAT I CLAIM IS:—

1. A carrying rail for use in a false ceil-

Abingdon: Printed for Her Majesty's Stationery Office, by Burgess & Son (Abingdon), Ltd.—1966.  
Published at The Patent Office, 25 Southampton Buildings, London, W.C.2,  
from which copies may be obtained.

