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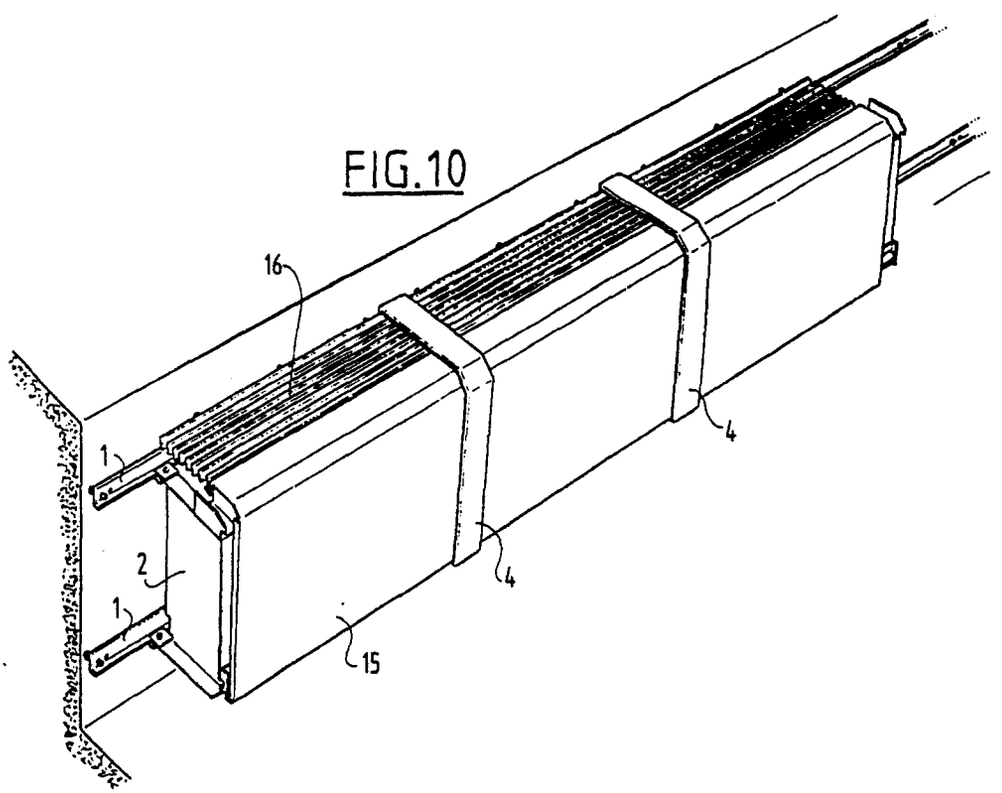
(54) Continuous enclosure.

(57) Continuous enclosure with at least one bearing profile (1) for fitting continuously along a wall, and bearing elements (2) protruding transversely thereof for supporting external enclosure parts (3) substantially parallel to the bearing profile (1).

FIG.10



EP 0 420 308 A1

CONTINUOUS ENCLOSURE

In interiors of large utilitarian buildings such as offices, schools and hospitals all kinds of devices are used for the climate control of the interior. These devices comprise for instance convection heaters and ventilation units. For the operation of these devices all kinds of pipes, conduits and air ducts are further needed in the interior.

In addition electrical lines are often needed, such as mains voltage, telephone and data lines.

These devices, conduits and the like are usually arranged separately in the interior without being channelled into the walls, floors or ceilings. The disposition and lay-out of the interior can hereby be adapted to changing requirements.

In order to arrange the devices and the like in the interior in an aesthetically responsible manner it is known to employ an enclosure in the form of a housing for arranging continuously along a wall. A cable duct for the electrical leads can be integrated in this enclosure.

Known embodiments consist of a number of separate, adjoining units mounted to a continuous whole and each containing the necessary devices and such like. With respect to connecting pipes and so on these units have to be arranged at an early stage of the building. This results in a great risk of damage during the further building. The separate units have to be specifically designed for each application. The known systems are moreover not very flexible in the case of later change of the lay-out of the space in which they are disposed.

The invention has for its object to provide an enclosure with which these drawbacks are obviated. With the continuous enclosure according to the invention this is achieved by the steps as characterized in claim 1. The continuous bearing profile or the bearing profiles with the bearing elements protruding transversely thereof can be arranged in an early stage of the building and the climate conditioning units such as heating or cooling units can be arranged without problems. Only at a much later stage, shortly before completion of the building, can the separate external enclosure parts be arranged on the bearing profiles. If the lay-out is changed the enclosure parts can be simply removed again and re-fitted in a changed position.

The step of claim 2 is preferably applied. Each bearing element can herein support the ends of two adjoining enclosure parts so that a minimum number of bearing elements is required and a maximum utilizable space is available inside the enclosure.

According to a further favourable development of the invention the step of claim 3 is applied. Thus obtained is a large tolerance in lengthwise direction of the enclosure. The use of covering strips results in a number of additional advantages which will be further elucidated.

Simple fitting and removal of the covering strips is achieved with the step of claim 4. The step of claim 5 is preferably applied therein. Due to the resilient foam material the hook connections remain under load so that the covering strips do not come loose in undesirable manner. The enclosure parts are furthermore well fixed through the resilient gripping of the foam material.

A favourable embodiment from the point of view of manufacturing technique is further characterized in claim 6. The clamps can be arranged on the bearing profile once it has been mounted so that an accurate placing thereof is possible.

Further advantages and features of the present invention will become apparent from the following description of a preferred embodiment of the present invention. Reference is made in this description to the annexed figures which are discussed consecutively.

The enclosure can be embodied in many different ways. The structure of all embodiments of the enclosure is however basically always the same.

This general structure consists of (fig. 1):

- base profiles 1
- bearing panels 2 (constructed of bearing plates and support brackets)
- enclosure parts 3 (for example front panels, grid parts, cable duct)
- covering strips 4.

Attachment of the enclosure to the building takes place by means of two L-profiles 1 which in the embodiment shown are both fixed on the wall. This fixing is realized by (fig. 3): adjustable distance bolts 5 and fixing screws 7. The distance bolts 5 and screws 7 are arranged pair-wise at a determined interval of for instance 750 mm. One type of profile 1 with fixing elements can always be used for all embodiments so that this bearing profile 1 can optionally be held in stock.

Bearing elements 2 are attached to the bearing profiles 1 such that they protrude transversely thereof. These bearing elements are steel-plate components and have bent over edges. Fixing to the bearing profiles 1 is performed in the same manner for each point of attachment by means of a bolt 13 with nut 8 and clamping plate 11 (fig. 3 and 4). In order to prevent the construction bending during tightening a stiffening plate 9 is point welded onto the bearing plate 10.

Cut away portions can be arranged in the bear-

ing plates 10 for the purpose of conduit feed, for example.

Support brackets 14 are point welded onto the bearing plates 10 (fig. 5). These are also steel-plate components.

The assembly of bearing plate 10 and support brackets 14 is further described as bearing element. The bearing elements can differ greatly depending on the embodiment of the product. All bearing elements are however preferably identical per project.

Enclosure parts 3 are arranged on the bearing elements 2. These consist in the embodiment shown of steel front panels 15 and aluminium grids 16.

The front plates 15 are attached (fig. 6A) by hooking them from underneath into the bottom support bracket 14, subsequently pivoting the top part into the correct position and allowing the front panel 15 to drop onto the bearing elements (fig. 6B). The aluminium grid 16 is fitted by laying protruding studs of the grid 16 on the rear side onto the bearing profile 1 and at the front by laying in the double bent edge of the front panel 15 (fig. 6C). In this case therefore the upper bearing profile also has the function of supporting the grid 16.

Arranged on the transition seams between the enclosure parts 3 are covering strips 4. These are also folding steel-plate components which cover the transition seams and can have a nominal part in fixation of the enclosure parts 3. On the side where they lie against the enclosure parts 3 they are provided with a layer of resilient and non-slip foam material 19 (fig. 7).

The covering strips are fitted as follows:

- A clamp 20 (fig. 9) is pressed onto the upper bearing profile 1.
- The covering strip is hooked with the hook-like bottom end 17 behind the lower edge of the front panel 15. The position of the covering strip 4 is herein wholly independent of the position of the bearing elements 2.
- The covering strip 4 is placed round the enclosure parts 3.
- The protruding plate portion with the opening 18 is pushed behind the bearing profile 1. The opening 18 in the covering strip 4 herein snaps into place automatically behind the clamp 20.

In order to once again remove the strip it is pressed downward so that the strip moves downward by the clamp 20. The strip 4 is simultaneously pushed in the direction of the bearing profile 1. Due to the resilience of the strip, which is slightly opened out for the purpose of fitting, it springs loose of the clamp 20.

Removal of the covering strip 4 therefore costs more effort than fitting. Thus achieved on the one hand is that rapid fitting is possible, while on the other hand the strip cannot easily be pried loose, for instance by users who are bored.

Due to the resilient foam material 19 the covering strip remains well locked in the clamp 20. Because the strip 4 is fixed at both outer ends it lies consistently well on the underlying components.

Fig. 10 shows the enclosure in the above described mounted state.

In another embodiment of the invention a lower bearing profile 22 can be fitted on the floor instead of on the wall. The bearing elements 23 are then provided with a leg portion 21 which bears on the lower base profile 22 (fig. 11).

The bearing elements 2 can in principle be placed in two ways relative to the enclosure parts 3 (see top view fig. 12):

- Between the enclosure parts, wherein approximately as many bearing elements 2 are necessary as there are segments of enclosure parts 3.
- Under the enclosure parts, wherein approximately twice as many bearing elements 2 are necessary as there are segments of enclosure parts 3. This solution is more costly but has particular additional advantages. This placing is employed when the length of the segments is comparatively large and the danger exists with unfavourable loading of bending of particular components. This placing can also be favourable when partition walls are used transversely on the enclosure, as will be further elucidated.

In many cases it will be possible to place the appliances for installation on the floor or to simply suspend them on the wall.

Another possibility is to attach to the bearing profiles 1, 21 support brackets 24 to which appliances such as heating devices, air pipes and conduits can be fixed (fig. 13). The support brackets 24 are in principle all identical per project. The embodiment is determined per project and adapted to the situation.

The support brackets 24 are fixed to the base profile 1 by the known connection with clamping plates (fig. 3, 4).

The enclosure according to the invention can be adapted simply to a changed interior, for instance when a partition wall is added or removed. This is of importance in view of the frequent practice in buildings wherein the space is regularly laid out differently.

In this case it is always a matter of placing bearing elements 2 under the enclosure parts 3 (see fig. 12 on the right).

The place where the partition wall is or can be placed is therein always the transition between the segments. The location of this segment transition is selected in the design in accordance with a point in the modular lay-out of the building. This is gen-

erally speaking the location where partition walls can be present.

In the placing of a partition wall the following operations are performed:
- removing the covering strip 4
- shifting of enclosure panels away from each other. The horizontal clearance per segment transition is geared to the placing of one partition wall per two segments.
- placing of the partition wall. The conduits and cable duct will remain continuously running, for which purpose cut away portions are sawn into the partition wall. After arranging of the partition wall cracks are filled in known manner.
- enclosure parts 3 are pushed against the partition wall.
- covering strips 4 are arranged.

The removal of a partition wall proceeds in reverse sequence:
- covering strips removed
- enclosure parts 3 shifted away from each other
- partition wall removed
- enclosure parts 3 pushed against one another
- covering strip arranged.

In the case of a newly placed partition wall no extra panels need be arranged for acoustic insulation and fire-proofing. The partition wall can namely run through to the relevant wall or floor.

Nor does the finishing of the transition between the enclosure and the partition wall require any extra care since it is removed from sight by the covering strips.

The flexibility of the invention also manifests itself when pillars 26 stand in the space. As shown in fig. 14 and 15, the enclosure panels can simply be shifted against (or for aesthetic reasons placed leaving a gap to) the pillar 26. Only an extra transitional panel 27 is needed for finishing. The external covering strips 4 connect the parts visually to one whole (fig. 15). Similar solutions are of course possible in the case of more forwardly placed pillars, alcoves, extensions, corners and the like.

Fig. 16 shows an overview in schematic cross sections of some possible embodiments of the enclosure according to the invention.

Further advantages and features of the invention will become apparent in the following summary.

1. Due to the applied adjustable bearing profile 1 with bearing elements 2 adjustable in horizontal direction:
   a-labour-intensive operations such as aligning and fixing to the building take place in an early stage of the building with easily manageable components
   b-aligning proceeds more easily since the different aligning directions are mutually independent:
   - first horizontal aligning (and fitting of screws 7)
   - subsequent aligning at right angles to the wall with adjusting bolts 5 (and tightening of screws 7)
   - subsequent determining of the position of the bearing elements 2 in horizontal direction (and tightening the clamping bolts 13 thereof).
   c-the horizontal location of the bearing elements 2 is permanently flexible, so that:
   - when installing appliances the location thereof can, if necessary, be changed.
   - in the case circumstances change later, adaptation is possible.
   d-the location of the bearing elements 2 in horizontal direction is not very accurate and they do not require to be arranged exactly at right angles to the bearing profiles 1, certainly not in the case of placing under the enclosure parts (fig. 12 on the right).
   e-the possibility exists in many cases of allowing the enclosure to run along in front of or behind pillars
   f-integration with support brackets 24 is possible for attaching appliances 25, conduits, pipes and similar.
   g-a large aligning area is possible between the wall and the bearing profile 1.
2. Due to separation of the location of the bearing construction and the location of the transition of the segments:
   a-partition walls can be placed or removed later, wherein
   - no acoustic and/or fire resistant transitional partitions are needed
   - a good and rapid finishing of the transition seam between partition wall and product is possible.
   b-bearing elements are not visible, whereby they may be embodied and treated roughly so that they are suitable for manipulation in an early stage of the building. All visible parts can be arranged at a very late stage of the building.
   c-no point welds are visible.
3. Due to the use of an on-lying covering strip for finishing the tolerance seams:
   a-a large clearance is possible in horizontal direction, while the finishing of the tolerance seam has a visibly constant width.
   b-instead of an aluminium grid, wide sheet fins which combine an aesthetic quality with a low cost price can be finished in aesthetically responsible manner with the on-lying strip.
   c-the finishing of the sides of the enclosure parts does not have to take place carefully

since the side edges are covered off anyway. During painting the panels may be held at the sides.

d-transitions in the case of head end connecting of cable ducts can also be covered. This can save labour because it is not necessary to work precisely.

4. Due to possible standardization:

a-low price

b-quicker price estimate, with little difficulty (costs)

c-short delivery time

d-smaller projects become cost-effective

e-because there is less custom work less intensive contact with the customers is needed and the cost price is held down further.

5. Due to great variation potential in embodiment and dimensions:

a-good adaptation to different situations in buildings and the appliances used

b-great freedom of choice in appearance, for instance very small dimensions, great heights etc.

6. Inclined front blow-out opening (fig. 16; 1, 4, 7, 9, 12):

a-no articles can be placed on the blow-out opening, while there is however still space (depending on the dimensioning) to put something down. The result is that the blow-out functions well and the user does not become irritated by the space occupied by the enclosure because he can put things down onto it anyway.

7. Integration of functions:

a-the bearing profile serves as adjusting facility, functions as support for an aluminium grid and serves for fixing of the covering strips.

Claims

1. Continuous enclosure **characterized by** at least one bearing profile for fitting continuously along a wall, and bearing elements protruding transversely thereof for supporting external enclosure parts substantially parallel to the bearing profile.

2. Enclosure as claimed in claim 1, **characterized in that** the bearing elements for the enclosure parts support these enclosure parts close to their ends.

3. Enclosure as claimed in claim 1 or 2, **characterized in that** the bearing elements for the enclosure parts support these enclosure parts with mutual spacing and that covering strips are arranged over the adjoining ends of enclosure parts.

4. Enclosure as claimed in claim 3, **characterized in that** the covering strips are hooked with a hook-like bottom end about the lower end of adjoining enclosure parts and are hooked with a top end to the bearing profile.

5. Enclosure as claimed in claim 4, **characterized in that** the covering strips carry a layer of resilient foam material on their side facing towards the enclosure parts.

6. Enclosure as claimed in claim 4 or 5, **characterized in that** the covering strips are hooked with their top end behind clamps arranged on the bearing profile.

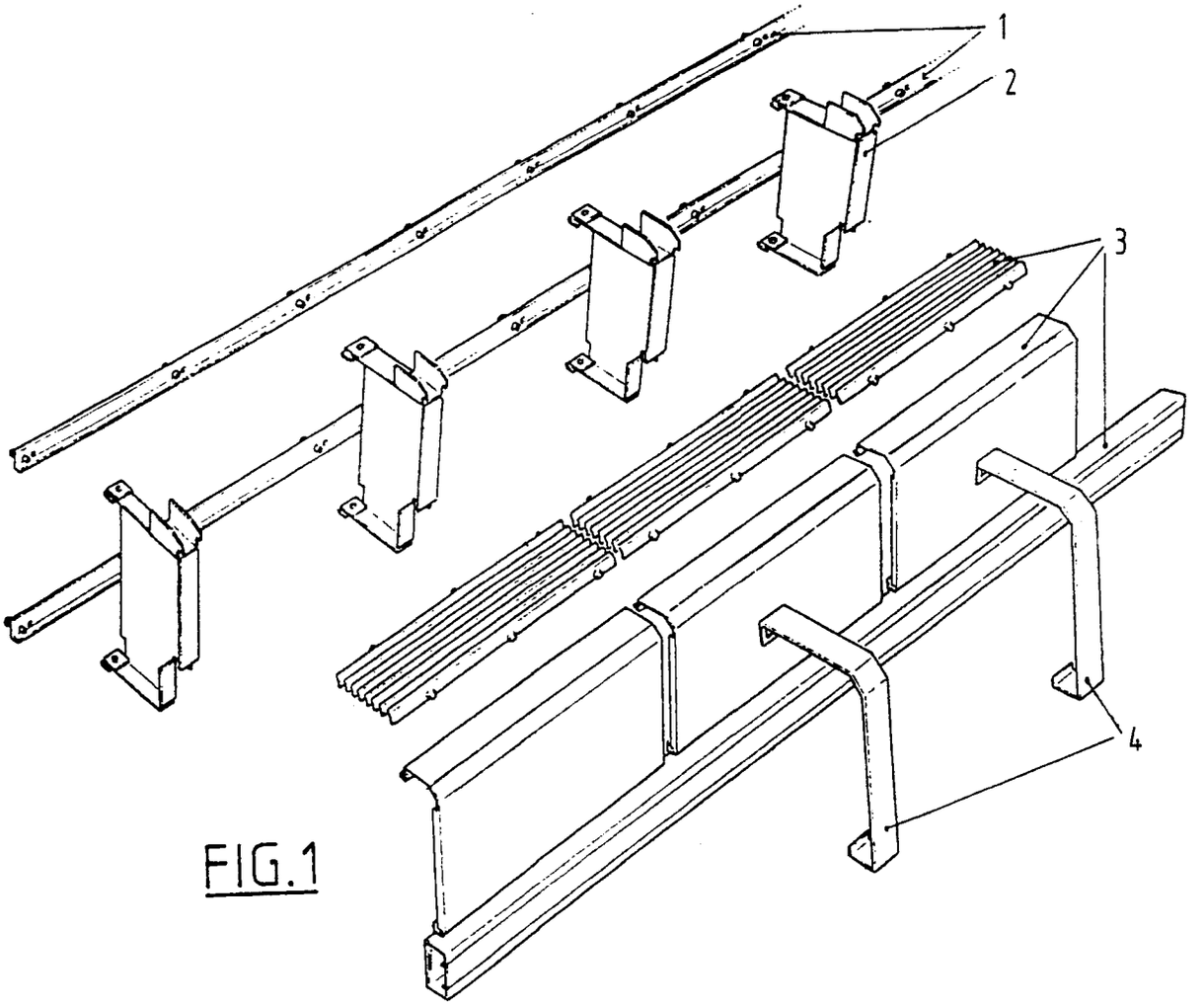


FIG.1

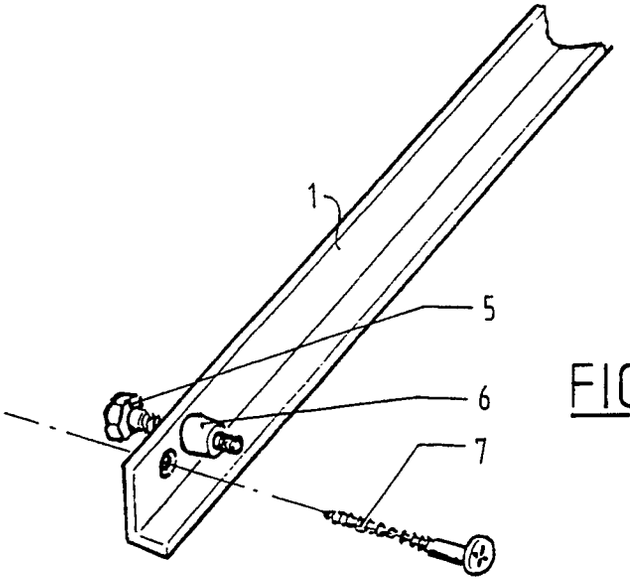


FIG.2

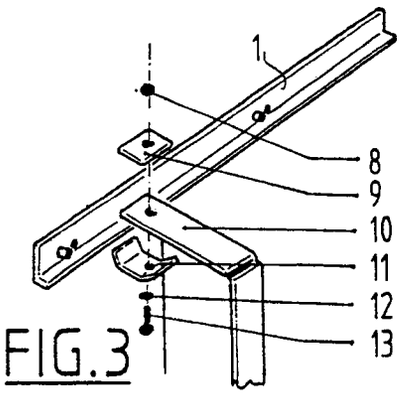


FIG.3

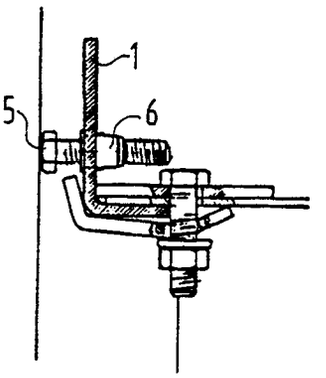


FIG.4

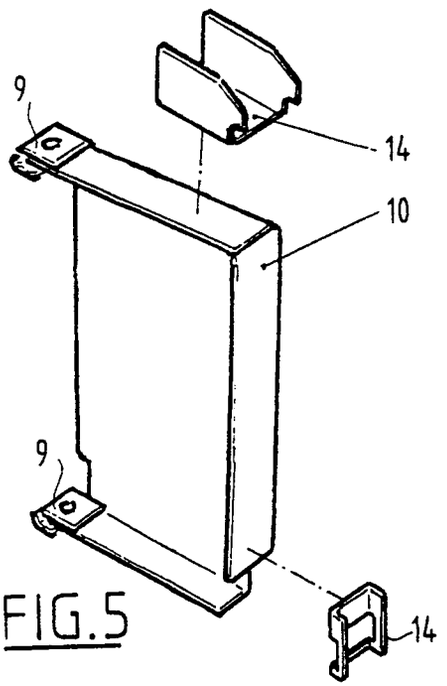


FIG.5

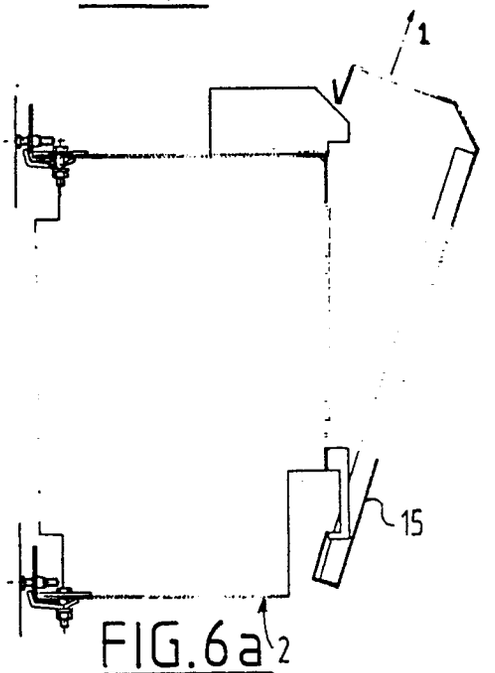


FIG.6a

FIG.6b

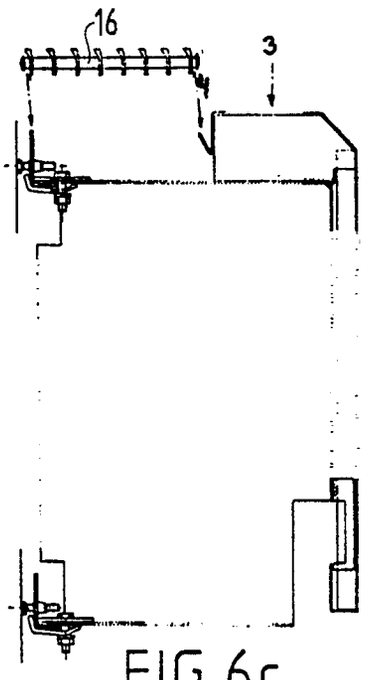


FIG.6c

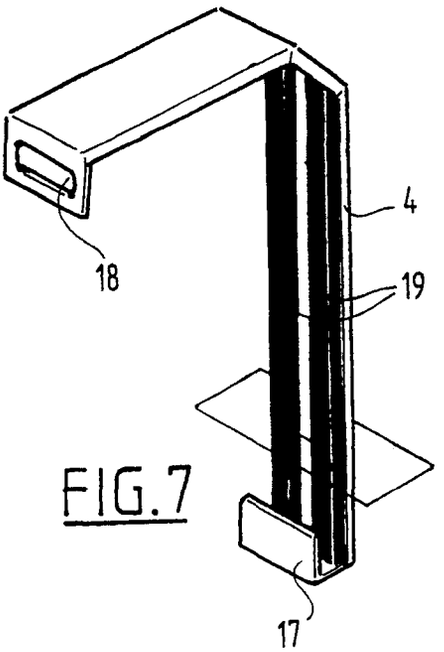


FIG.7

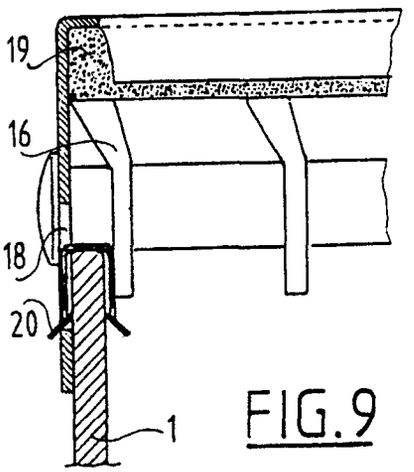


FIG.9

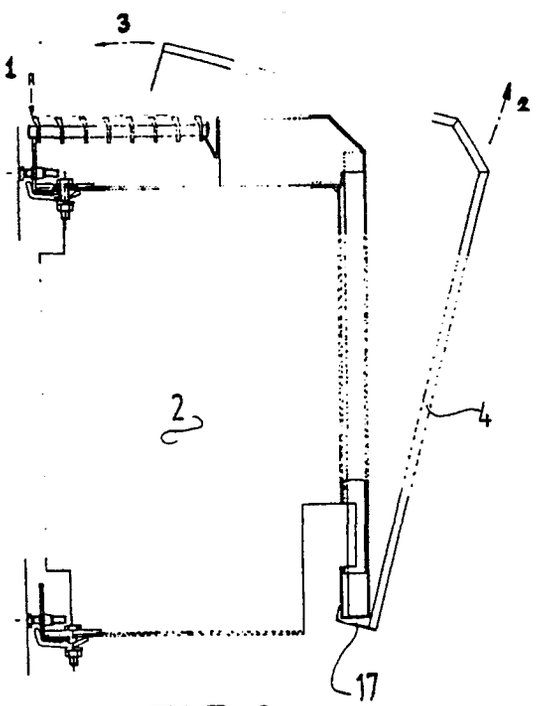


FIG.8a

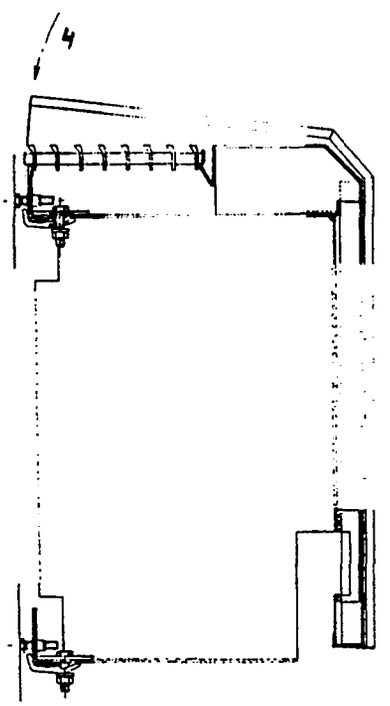
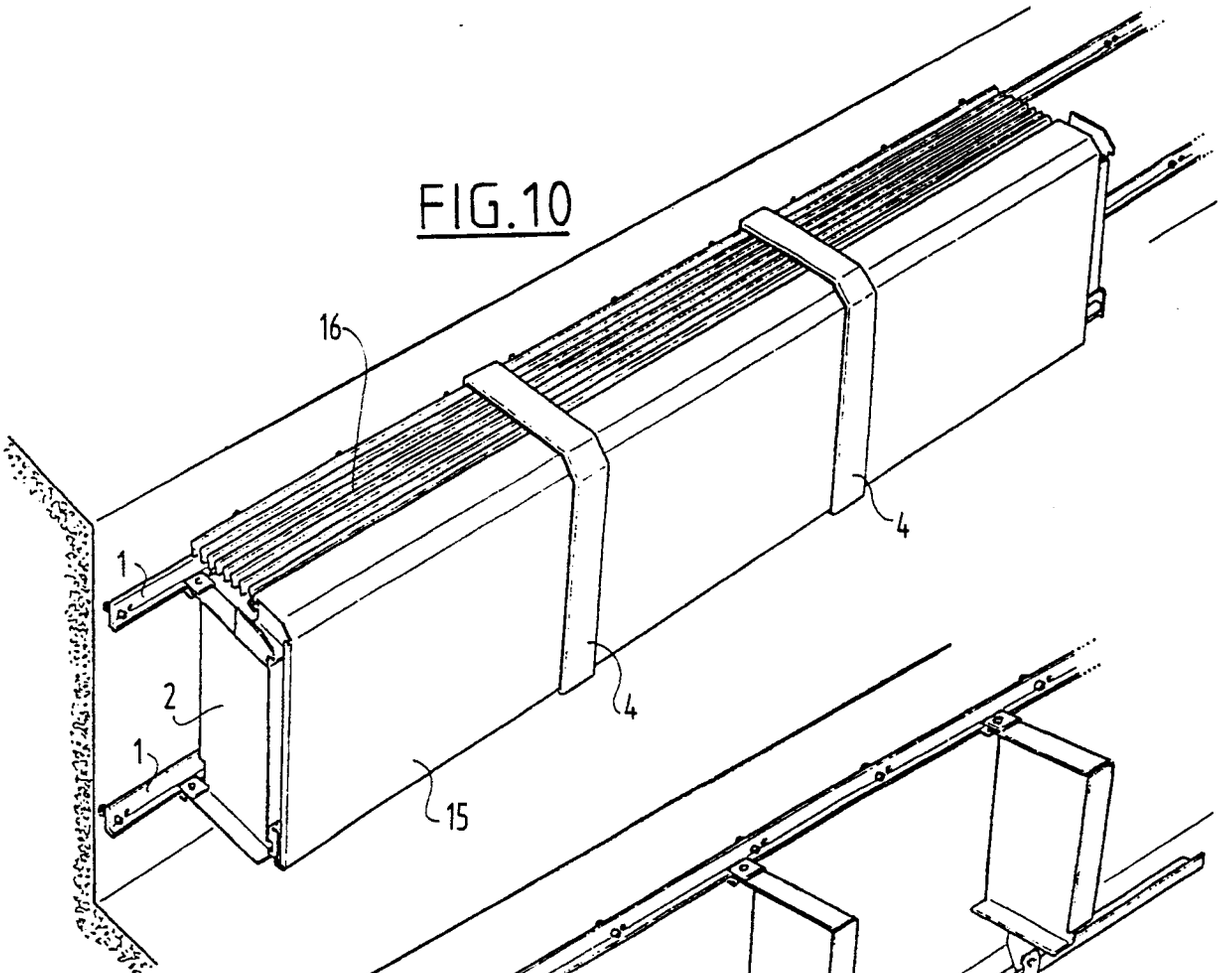


FIG.8b

FIG.10



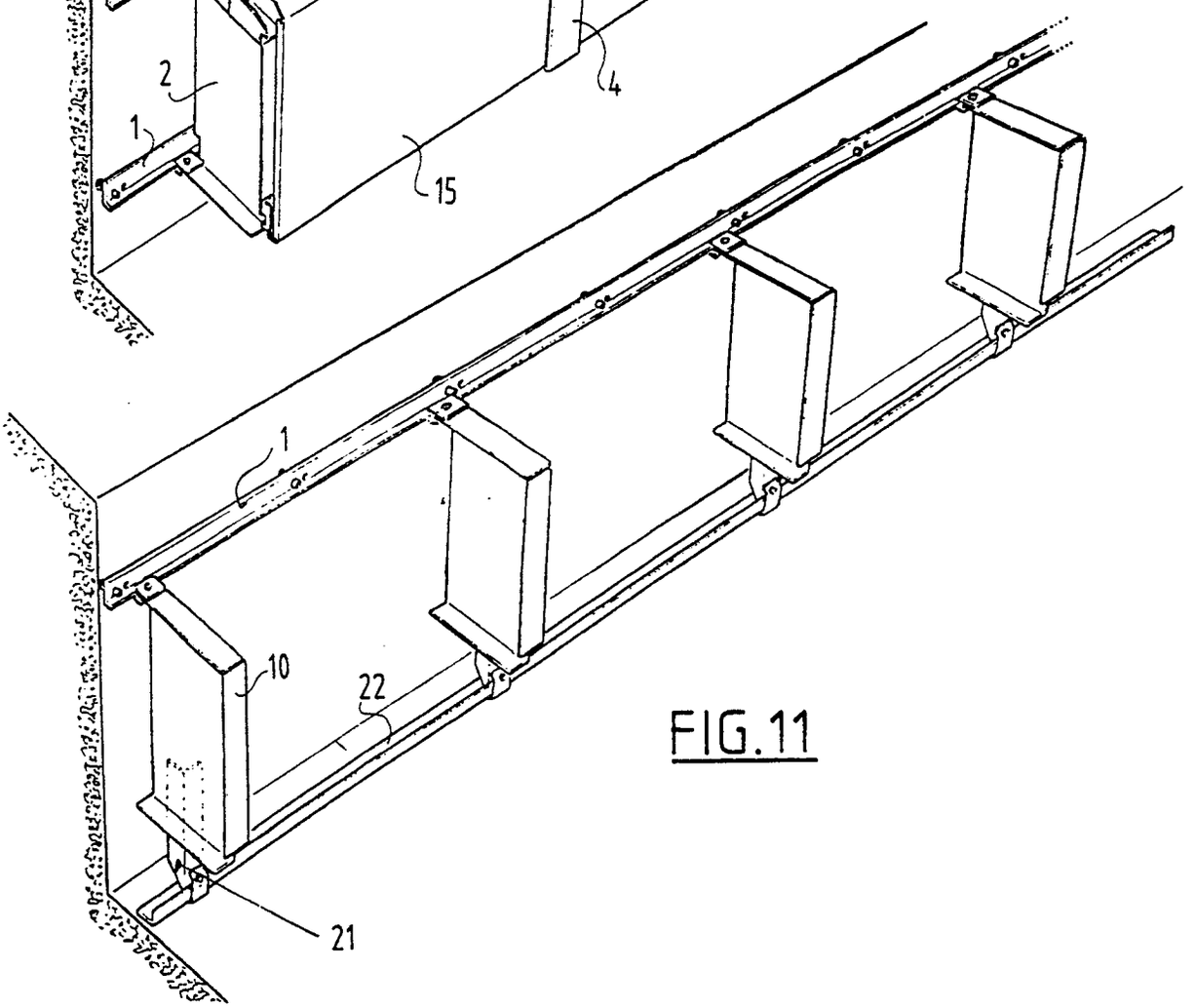


FIG.11

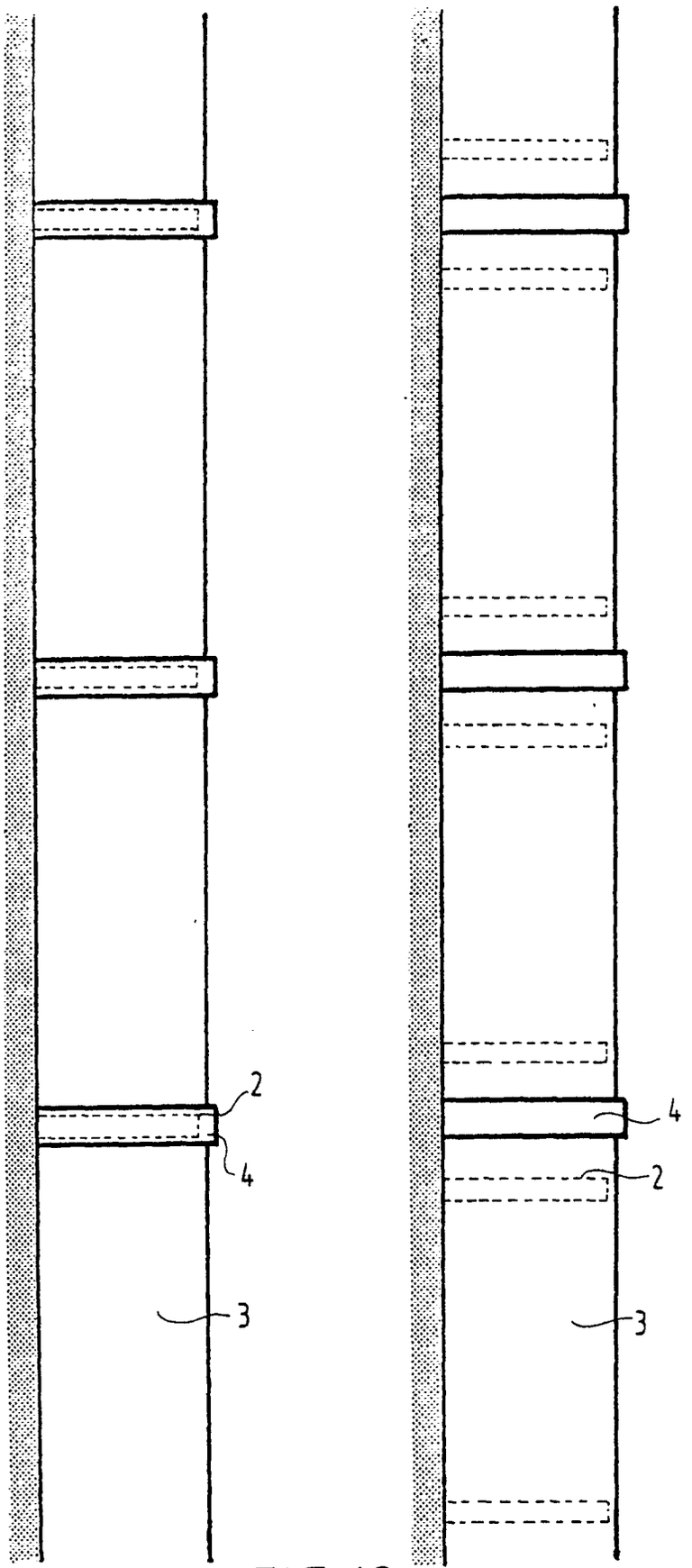


FIG.12

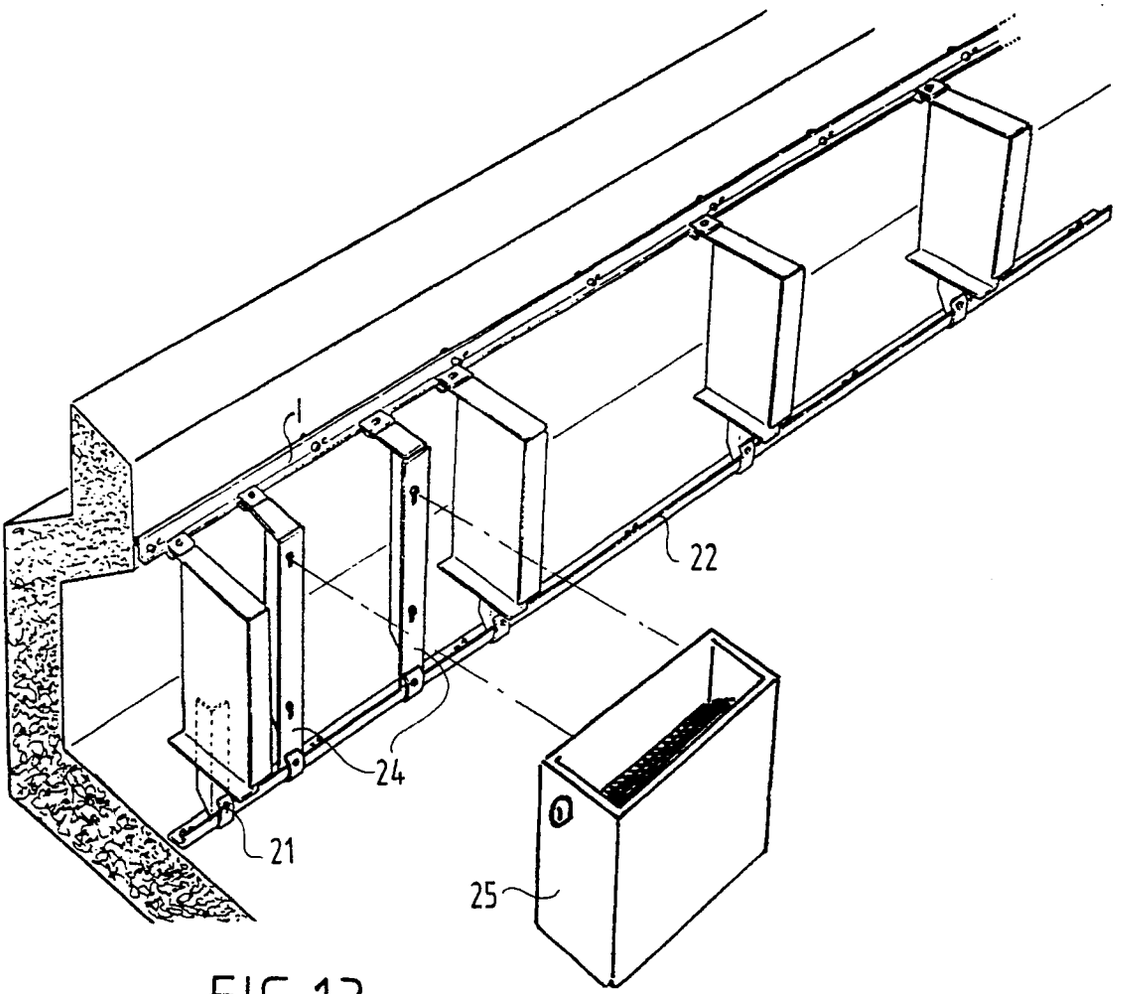


FIG.13

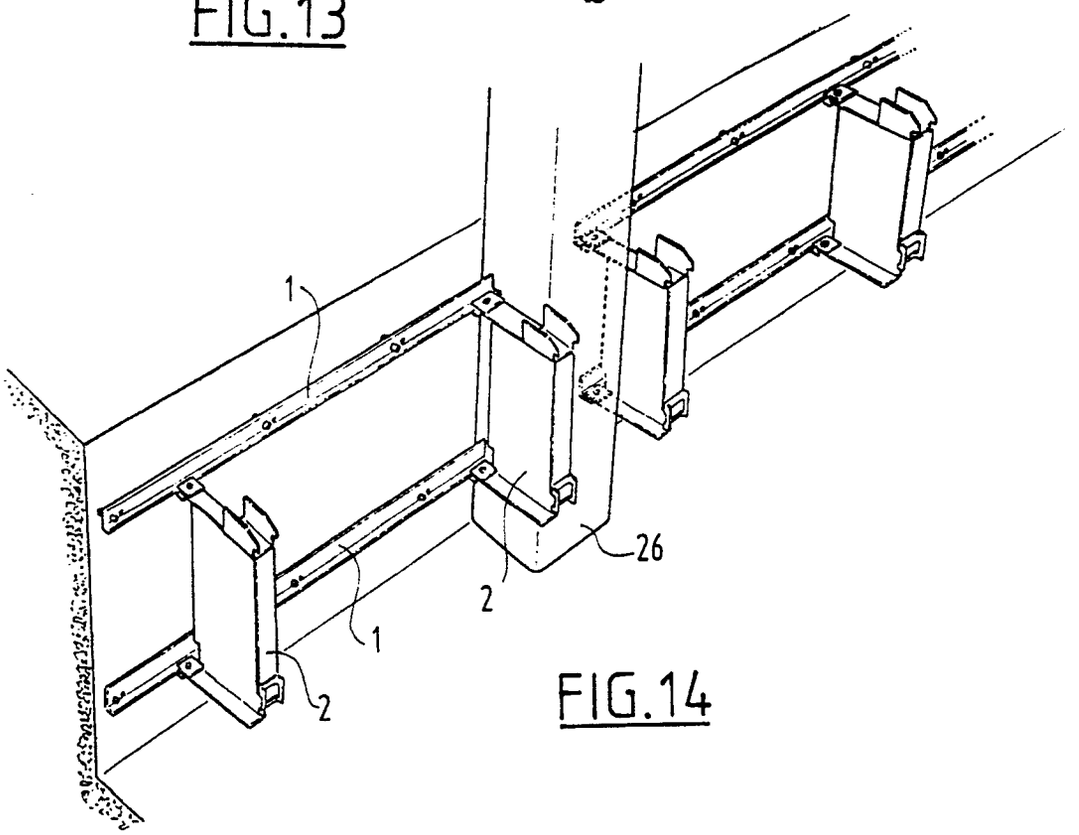


FIG.14

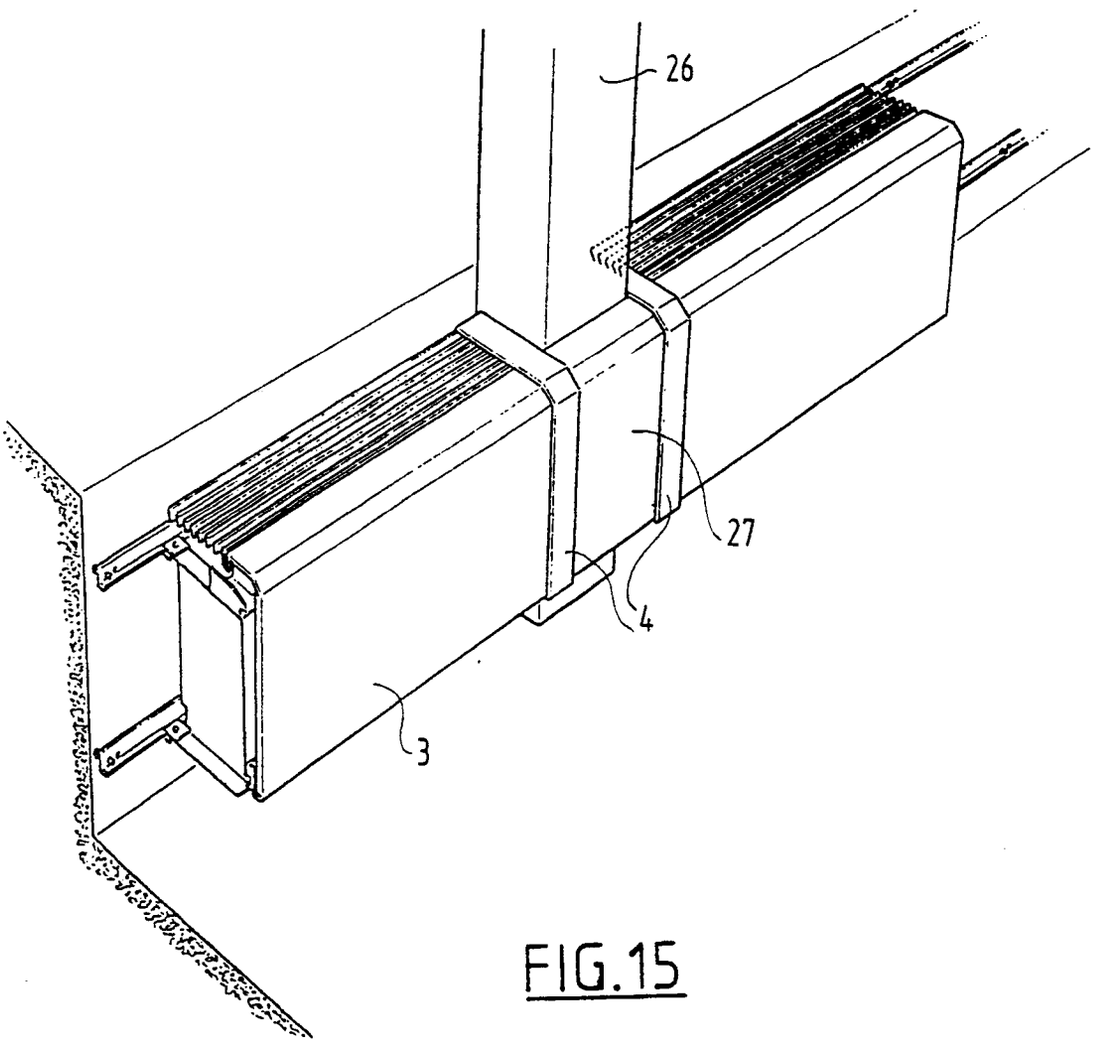


FIG.15

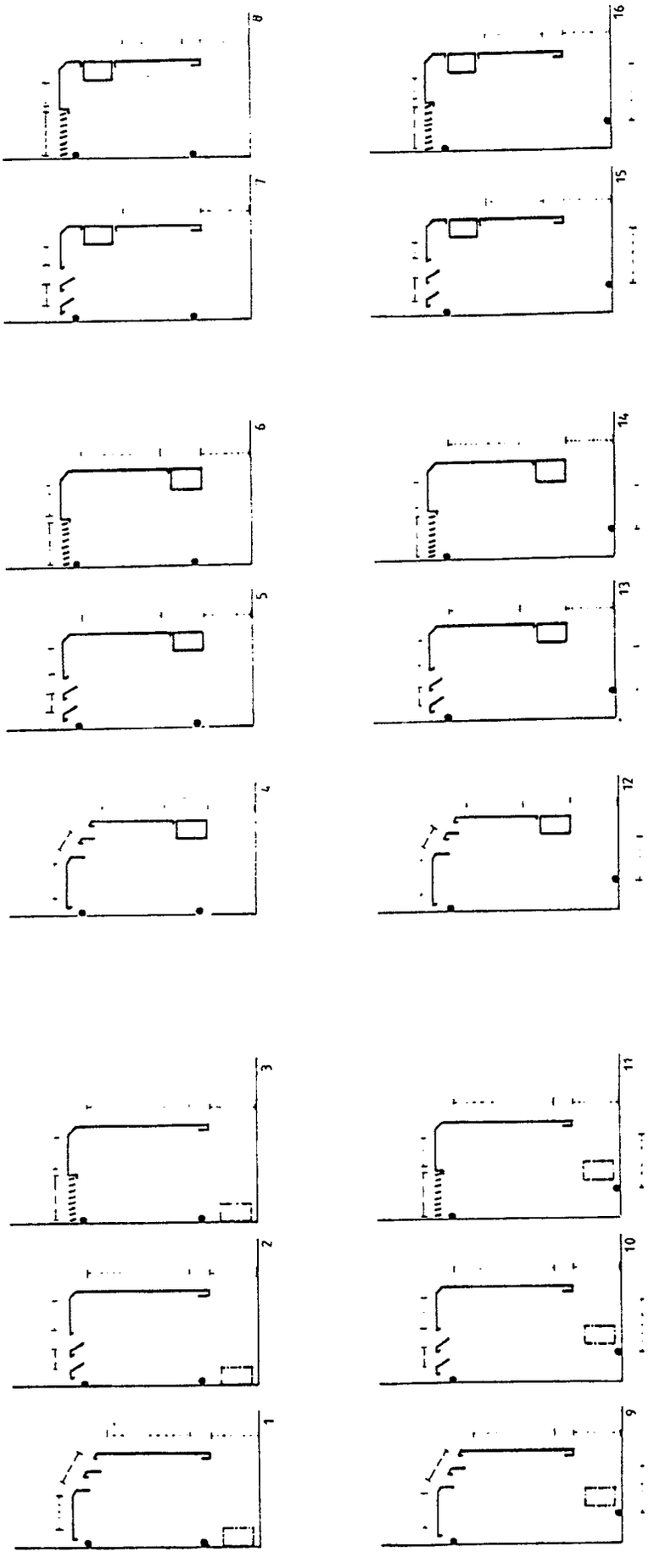


FIG.16

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 20 2111

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	NL-A-8 600 634 (INSTALLATIEGROEP VAN BUUREN-VAN SWAAY B.V.) * Fig. *	1,3	F 24 D 19/06 E 04 F 17/08 E 04 F 19/00
A	CH-A-5 018 83 (GÜDEL) * Fig. *	1	
A	CH-A-4 492 07 (FORSCHUNGS-ANSTALT FÜR WÄRMETECHNIK) * The whole document *	1,2,3	
A	DE-A-2 103 993 (SCHÄFER-WERKE KG) * Fig. *	1	
A	US-A-3 827 202 (PHILLIPS) * Abstract *	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

F 24 H
E 04 F

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	27 November 90	VAN GESTEL H.M.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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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