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W. TSCHIESCHE

3,295,284

BUILDING STRUCTURE, SUCH AS A WALL, A CEILING
OR A LINING FOR A WALL OR CEILING

Filed July 3, 1962

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FIG. 1

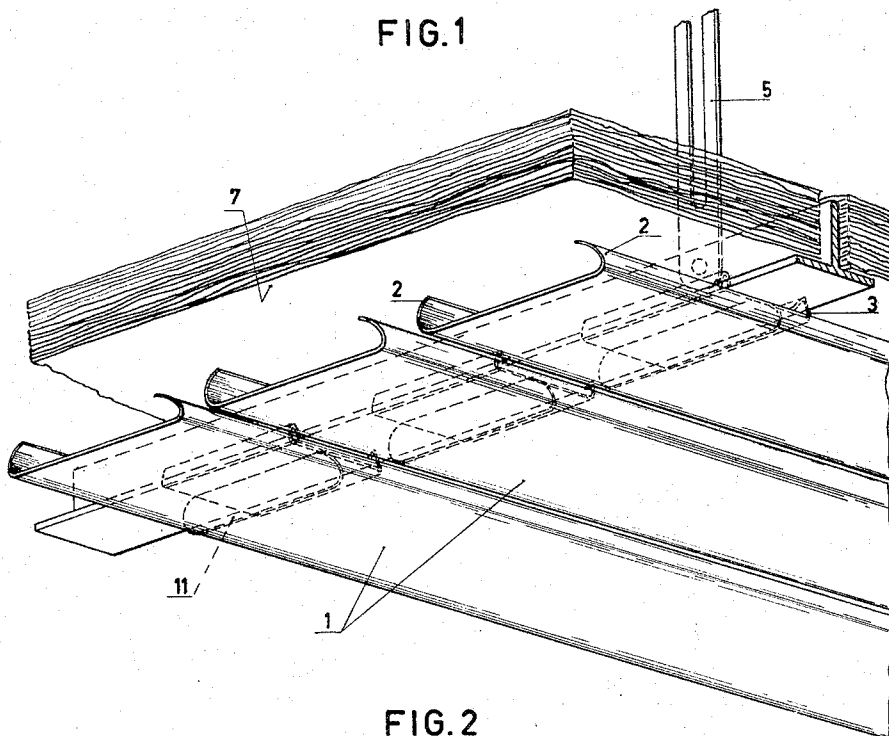
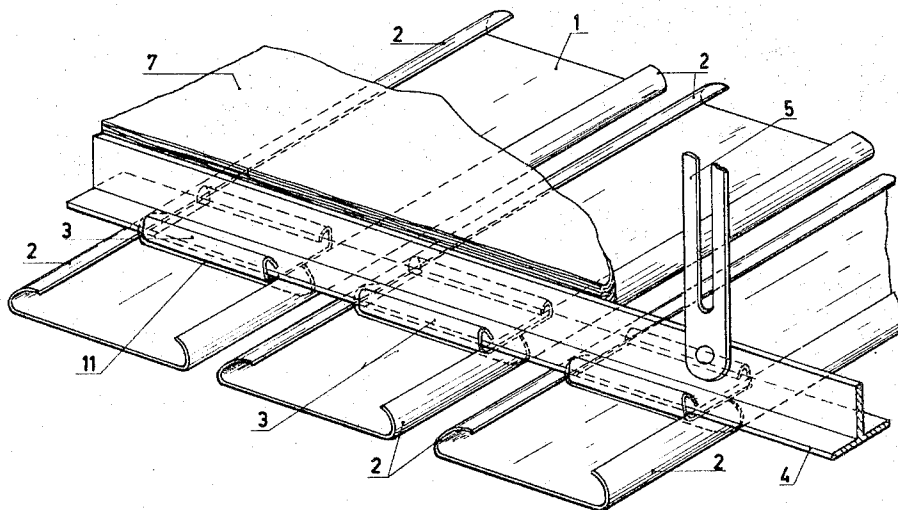


FIG. 2



INVENTOR

Werner Tschiesche

BY *Stevens, Davis, Miller & Mosher*

ATTORNEYS

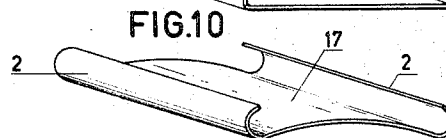
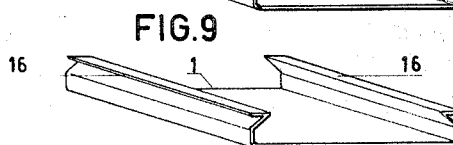
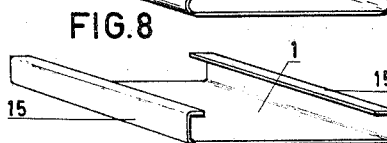
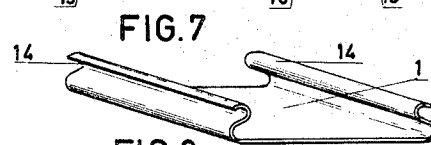
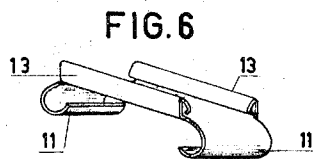
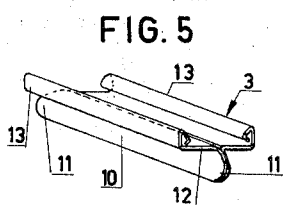
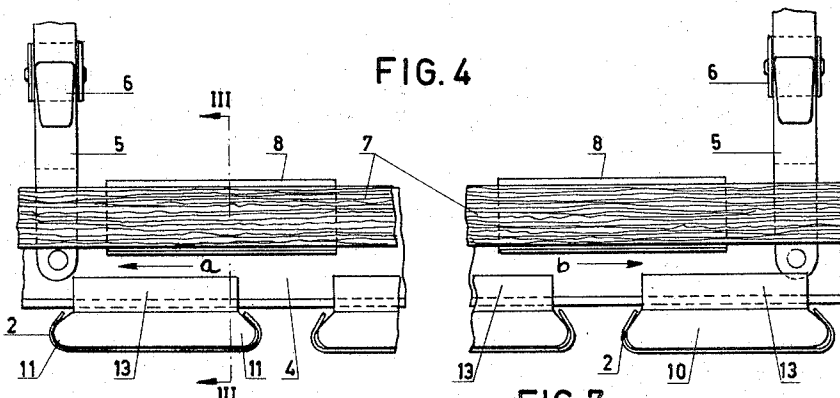
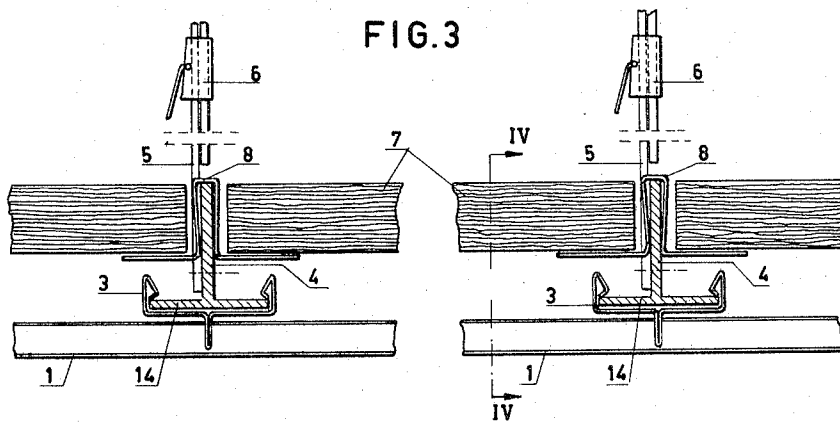
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INVENTOR

Werner Tschiesche

BY *Stevens, Davis, Miller & Mosher*

ATTORNEYS

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FIG.11

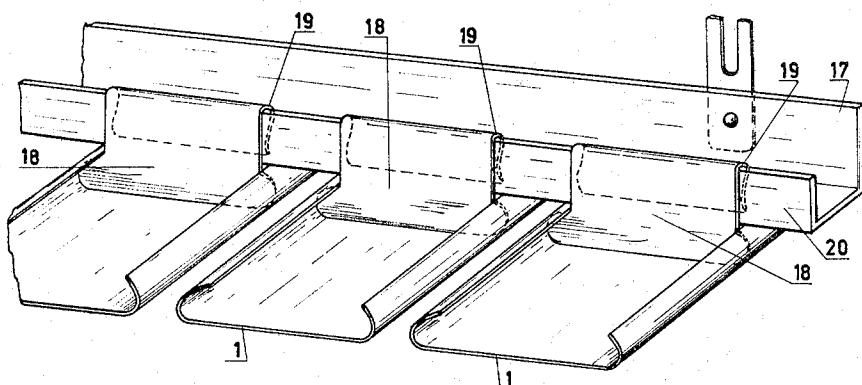


FIG.12

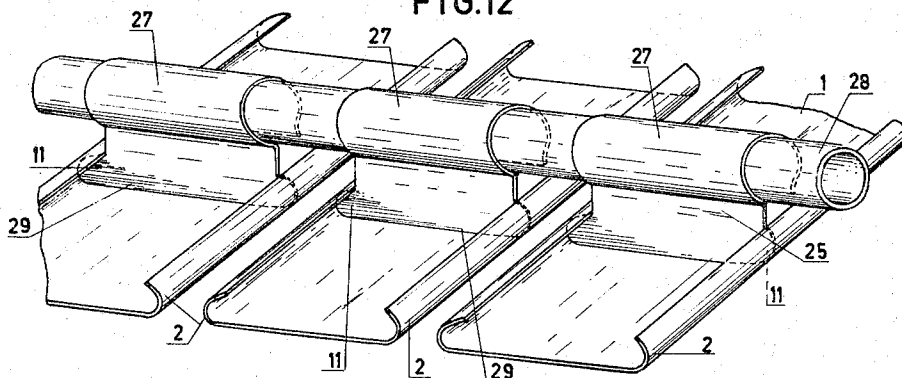
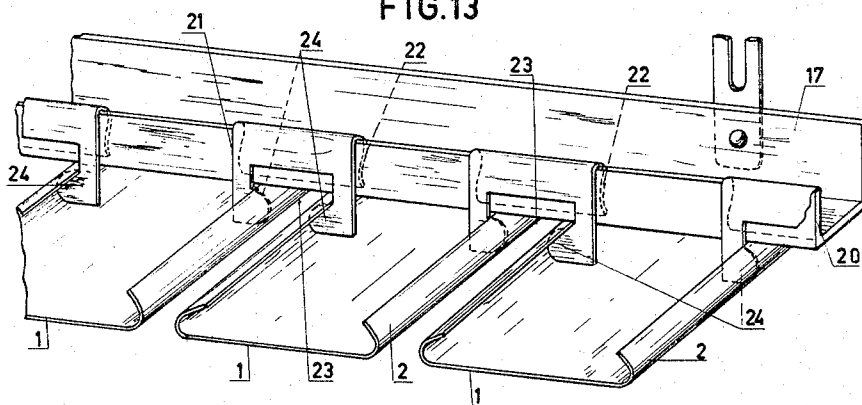


FIG.13



INVENTOR

Werner Tschiesche

BY *Stevens, Davis, Miller & Mosher*

ATTORNEYS

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FIG. 14

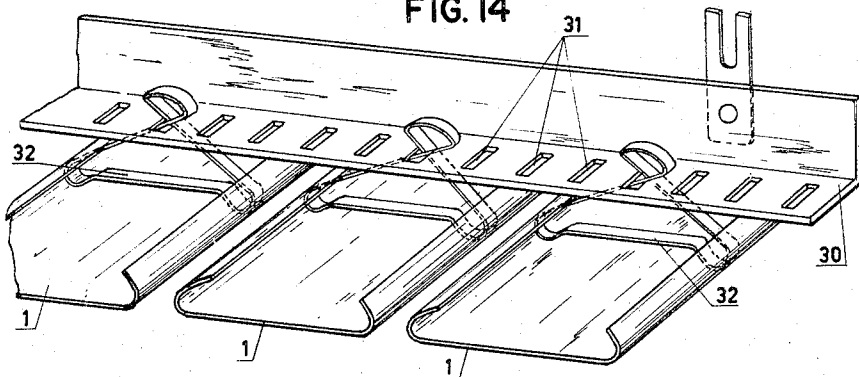


FIG. 15

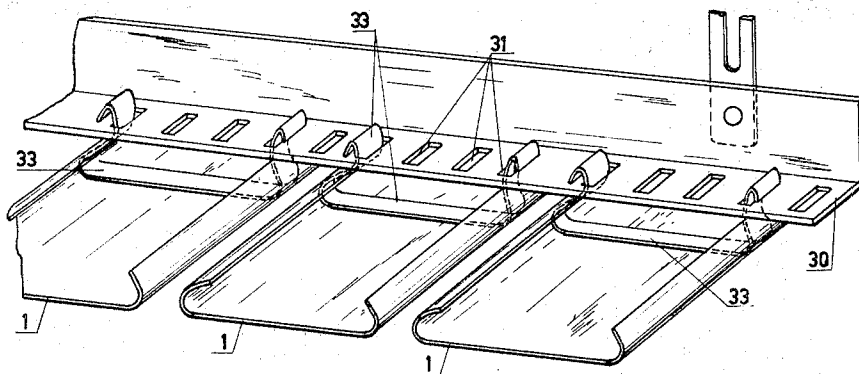
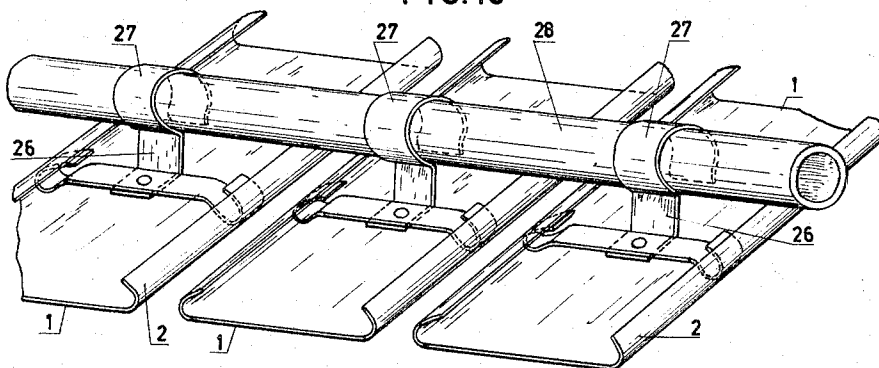


FIG. 16



INVENTOR

Werner Tschiesche

BY *Stevens, Davis, Miller & Mosher*

ATTORNEYS

Jan. 3, 1967

W. TSCHIESCHE

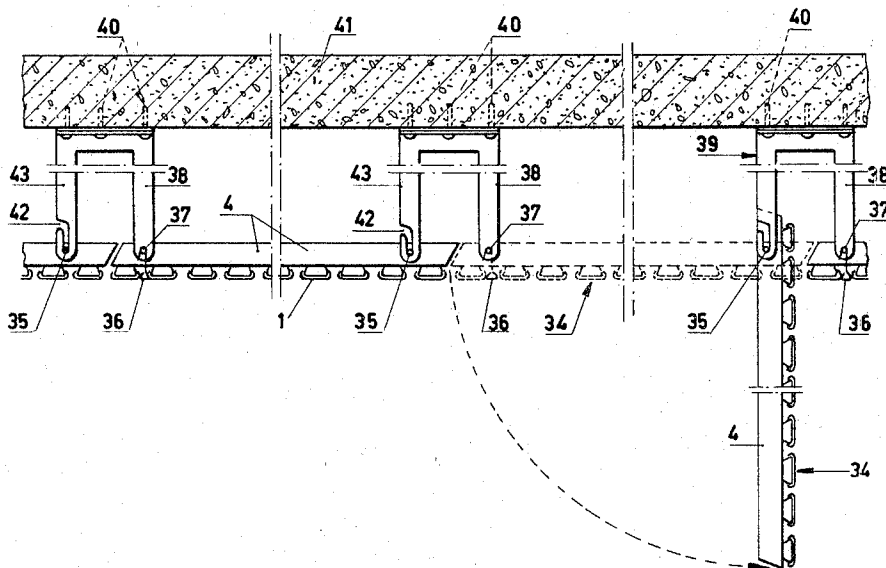
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FIG. 17



INVENTOR

Werner Tschiesche

BY *Stevens, Davis, Miller & Mosher*

ATTORNEYS

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3,295,284

BUILDING STRUCTURE, SUCH AS A WALL, A CEILING OR A LINING FOR A WALL OR CEILING

Werner Tschiesche, Essen-Stadtwald, Germany, assignor, by mesne assignments, to Hunter Douglas International Ltd., Montreal, Quebec, Canada, a corporation of Quebec

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Claims priority, application Germany, July 3, 1961,

T 13,494

6 Claims. (Cl. 52—483)

This invention relates to a wall, ceiling or suchlike construction or to a lining for such a wall, ceiling or suchlike construction respectively and also relates to a method for the manufacture of such a wall, ceiling or suchlike construction or of a lining for such a wall, ceiling or suchlike construction respectively.

When manufacturing the walls, ceilings or suchlike constructions known so far, as well as linings for such walls, ceilings or suchlike constructions, which consist of lamellae, or panels secured to stringers provided with projecting parts fixedly connected thereto, on which parts said lamellae or panels are clampingly mounted, one usually meets with the fact that the width of the wall or the ceiling is no multiple of the width of the lamellae or panels and of the distance between said lamellae or panels. This entails the disadvantage that the wall or the panel must be provided with rims or strips covering the open edge portions. Another difficulty consists in that often ceilings or walls are not accurately rectangular so that at one end of the wall or the ceiling there is a smaller gap than at the other end thereof. Also when utilizing edge strips this remains visible, as said edge strips do not extend parallel to the lamellae or panels.

These disadvantages are avoided by utilizing the wall, ceiling or suchlike construction or the lining for such a wall, ceiling or suchlike construction respectively in that said lamellae, panels or similar strip-like elements are supported by holding members which are secured slidably or adjustably respectively to said stringers or tubes. On account of the fact that the carrier members have been manufactured separately from the stringers and are supported by the edges of said stringers, they can be arranged uniformly distributed over the entire length of the stringers. If the two sides of the wall, ceiling or suchlike surface do not extend parallel to each other, all of the intervening spaces or part of them between the lamellae or similar strip-like parts may taper which does not attract attention. It is obvious that it is not necessary to construct the entire ceiling or suchlike surface in this way, but that also part thereof, in particular if ceilings or walls of great width are involved, may be constructed in the known manner with stringers having projections fixedly secured thereto.

According to the invention the holding members may comprise at least one bent carrier part, said carrier parts being supported by the stringers or tubes. Thereby the side edges of these holding members are bent, said bent side edges co-operating with the stringers. If the holding members are supported by carrier tubes or suchlike profiled stringers, these holding members may, according to the invention, be provided with at least one circularly or hook-like bent portion engaging with a carrier tube. The holding members may also be constructed as resilient clamps and the stringers are provided with apertures in

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which the holding members are inserted. Furthermore the holding members may consist of a metal plate of which two opposite edges are bent downwards, whereas the two other opposite edges are bent upwards.

If in the case of a wall or ceiling lining of the above-described type some work has to be done in the space behind said lining, it was necessary up till now to remove the lamellae or similar strip-like elements one by one. According to the invention the space behind the lining can be made quickly accessible in that the entire surface formed by the lamellae or panels comprises one or more sections which in itself are adapted to be removed from the entire lining in that such a section either is swung out like a trapdoor to one side, the other side of this trapdoor remaining in a hinge of the carrier construction, or is entirely released from the lining.

It has been surprisingly found that in the case of walls, ceilings or suchlike constructions or linings for such walls, ceilings or suchlike constructions, in which the lamellae or similar strip-like elements are interspaced, a sound-absorbing construction is accomplished if behind said wall or lining acoustic-enhancing or sound-absorbing material, for example in the form of sheets or strips, is provided.

The invention will be explained below with reference to the accompanying drawings showing diagrammatically and by way of example some embodiments of a wall lining or ceiling lining according to the invention.

FIG. 1 shows a bottom view of part of a ceiling lining in perspective, in which behind said lining a layer of sound-absorbing material is provided.

FIG. 2 shows a top view thereof.

FIG. 3 is a longitudinal section of FIG. 4, viewed in the direction of the arrow III—III.

FIG. 4 is a cross-section of FIG. 3, viewed in the direction of the arrows IV—IV.

FIG. 5 shows in perspective an embodiment of a holding member.

FIG. 6 shows in perspective another embodiment of the holding member.

FIGS. 7, 8, 9 and 10 show in perspective some other embodiments of the lamellae or panels.

FIGS. 11, 12, 13, 14, 15 and 16 show in perspective some embodiments of a lining according to the invention.

FIG. 17 shows an embodiment of a lining in which parts thereof are adapted to be swung downwards like a trapdoor.

As is apparent from FIGS. 1—4, panels or similar strip-like elements 1 are secured with bent edges 2 with the aid of holding or fastening members 3 to T-shaped stringers 4 which by means of holding members 5 are fastened to a fixed support (not shown), for example to a wall or to an unfinished ceiling, the distance between the wall or the ceiling and the lining formed by the lamellae or panels being adapted to be adjusted stepwise with the aid of clamping screws or similar means or in a stepless manner with clamps 6 of band steel or other known means known per se. In order to increase the sound-absorbing effect a sheet or breadth 7 of sound-absorbing materials is disposed above the strip-like members 1, either directly as shown in FIG. 1, or by means of clamps 8 as shown in FIGS. 3 and 4.

FIG. 5 shows a holding or fastening member 3 utilized in the embodiment shown in FIGS. 1—4, said holding member being manufactured from a metal sheet and having a T-shaped cross-section. The ends of the ver-

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tical portion 10 are made to conform with the turned-up edges 2 of the elements 1 and they constitute holding tongues 11 for the elements 1, the horizontal portion 12 being provided with bent edges 12 with which the holding member 3 is slidably clamped onto the horizontal portion of the T-shaped stringer 4.

The fastening of the elements 1 to the stringers is effected by sliding or pressing said elements on the tongues of the carrier of holding members, the inner walls of the resilient turned-up edges abutting against said tongues. The holding member 3 is so secured to the horizontal portion of the T-shaped stringer 4 that it may be moved into the direction of the arrow *a* or *b* accordingly as this is necessary so that consequently the distance of the elements 1 can be adjusted in a stepless manner.

An increase of the clamping and spring action of the holding member is obtained by an increase of the width of the holding tongues 11, as shown in FIG. 6. The width of the gaps between the elements is of particular importance for the acoustic as well as for the optical effect of the lining. They must be adapted to be made wider or narrower according to the purpose in view and this should be possible also after completion of the lining.

FIGS. 7-10 show four different profiles of the elements 1. According to FIG. 7 the bent edges are provided with a second outwardly bent edge portion 14. FIG. 8 shows an element 1 with rectangularly bent edges 15. According to FIG. 9 the edges 16 of the element 1 are angularly bent, whilst FIG. 10 shows an element having an arched central portion 17, the edges 2 being bent in accordance with the edges of the elements according to FIGS. 1-4.

The adjustability of the elements 1 is obtained by the carrier or holding members of which the shape is in particular influenced on the one hand by the cross-section of the elements and on the other hand by the type of the stringer.

FIGS. 11 and 13 show holding members for a U-shaped stringer 17. According to FIG. 11 holding members 18 have been utilized of which the lower portion is constructed in the same way as the lower portion of the holding member according to FIG. 5. The holding members engage with a bent edge 19 with the legs 20 of the U-shaped stringer 17. According to FIG. 13 the carrier or holding members 21 engage likewise with a bent edge 22 with the legs of the stringers. Said holding members 21 are provided with a recess 23 in which two lips 24 project which are in engagement with the bent edges 2 of two adjacent elements 1.

FIGS. 12 and 16 show holding members 25 and 26 respectively which are slidably mounted with a circularly or hooklike bent portion 27 around a tube 28, for example an installation tube. The lower portion of the holding members 25 is provided, in the same manner as shown in FIG. 5, with lips 11 engaging with the bent edges 2 of the elements 1.

FIGS. 14 and 15 show stringers 30 having an angular cross-section and comprising rectangular slots 31 with which the holding members 32 and 33 respectively are in engagement, said holding members being constructed as resilient clips. This embodiment presents the possibility of a simple step-like adjustment and mounting of the elements 1.

The lining shown in FIG. 17 presents another embodiment of the described stringers and the mounting thereof to a ceiling or wall. It is preferred to utilize this lining if installation lines or the like must be covered, where construction parts thus covered must continually be checked or where the access to the space behind the lining must remain easily accessible for other reasons. The entire ceiling or wall lining is thereby subdivided into a number of sections each of which is adapted to be removed from the lining. This is done in such manner that the stringers 4 are connected at one end by a

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hinge 35 and at the other end by a hook 36 with a pin 37 of a leg 38 of a holding clip 39. This holding clip 39 is secured by means of screws 40 to the underside of a ceiling 41. By pushing or turning the hook 36 upwards the entire section 34 may be swung downward like a trapdoor, as shown in dotted lines. If the section 34 must be entirely removed from the lining, the other stringer end is lifted out of the slot 42 of the arm 43 of the holding clip, after the section has been swung downwards. Another advantage of this suspension method consists in that, if work has to be done in the space behind the lining, it is not necessary first to remove one element after the other, but that complete sections can be removed and that no parts of the lining need be laid on the floor so that consequently damages of said parts and accidents are prevented and the closing of the lining, after the work has been carried out, is considerably facilitated.

The description and the drawings only relates to some embodiments of the invention, but these may be modified in many ways which remain within the scope of the invention and are covered by the claims.

I claim:

1. A building structure, such as a wall, a ceiling or a lining for a wall or ceiling, comprising at least two carrier members, holding members for carrying lamella elements side-by-side cross-wise to said carrier members, said holding members being provided with means for adjustably supporting them on a carrier member in lengthwise direction of said carrier member, the lamella elements having upturned edges and each holding member being formed by sheet metal and having at least two protruding portions clampingly engaging with the inside of the upturned edges of a lamella element, each lamella element being carried independently from one another by at least two adjustably arranged holding members for adjusting the distance between said lamella elements.

2. A building structure according to claim 1, characterized in that means for adjustably securing the lamella elements to the carrier members is provided and consists of a bent part of the holding members gripping over the carrier members, said holding members being slidably arranged on the carrier members.

3. A building structure according to claim 1, characterized in that the protruding portions of the holding members consist of rigid tongues and the holding members are provided with at least one bent portion gripping over at least a portion of the carrier members.

4. A building structure such as a wall, a ceiling, or a lining for a wall or ceiling, comprising at least two carrier members, holding members for carrying lamella elements side-by-side cross-wise to said carrier members, the upper portion of each of said holding members having means for engaging it in hanging relationship to said carrier member, the lower portion of said holding member having at least two spaced protruding portions, said lamella elements having resilient upturned edges, said edges in repose being spaced apart a distance less than the distance between said protruding portions, said edges being adapted to engage said protruding portions in a resiliently loaded condition, whereby said lamella elements may be longitudinally and laterally positioned on said carrier members.

5. A building structure such as a wall, a ceiling, or a lining for a wall or ceiling, comprising at least two carrier members, holding members for carrying lamella elements side-by-side cross-wise to said carrier members, the upper portion of said holding member having means adapted to slidably engage said carrier member under constant spring tension, the lower portion of said holding member having at least two spaced protruding portions, said lamella elements having resilient upturned edges, said edges in repose being spaced apart a distance less than the distance between said protruding portions, said edges being adapted to engage said protruding portions.

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tions in a resiliently loaded condition, whereby said lamella elements may be longitudinally and laterally positioned on said carrier members.

6. A building structure such as a wall, a ceiling, or a lining for a wall or ceiling, comprising at least two carrier members, holding members for carrying lamella elements side-by-side cross-wise to said carrier members, the upper portion of said holding member having means for resiliently clamping it to said carrier member, the lower portion of said holding member having at least two spaced protruding portions, said lamella elements having resilient upturned edges, said edges in repose being spaced apart a distance less than the distance between said protruding portions, said edges being adapted to engage said protruding portions in a resiliently loaded condition, whereby said lamella elements may be longitudinally and laterally positioned on said carrier members.

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- 15 RICHARD W. COOKE, JR., *Primary Examiner*.
 JACOB L. NACKENOFF, FRANK L. ABBOTT,
Examiners.
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