Oct. 11, 1966 O. S. JENSEN 3,277,622

FLEXED WALL OR CEILING FACING

Filed Dec. 4, 1962

Fig. 1

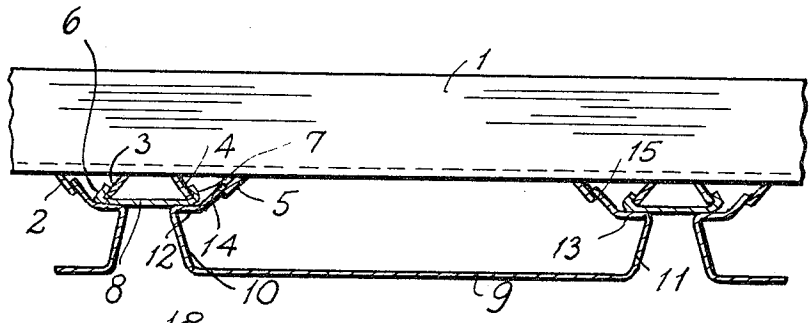


Fig. 2

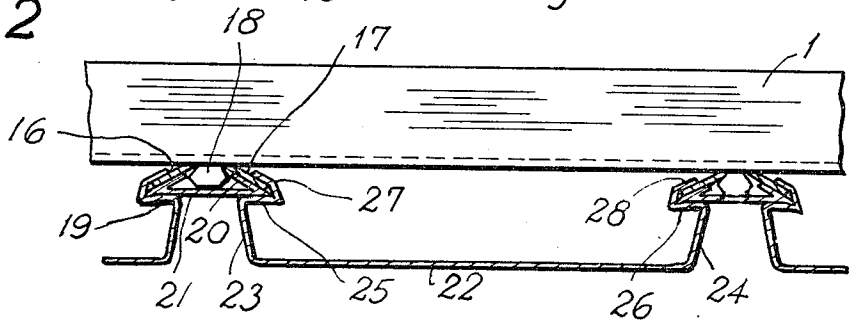


Fig. 3

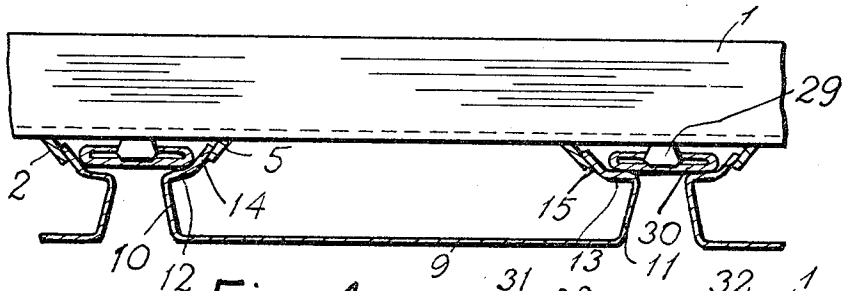


Fig. 4

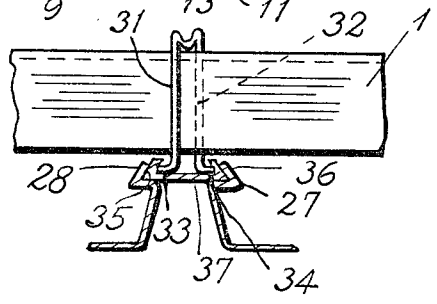
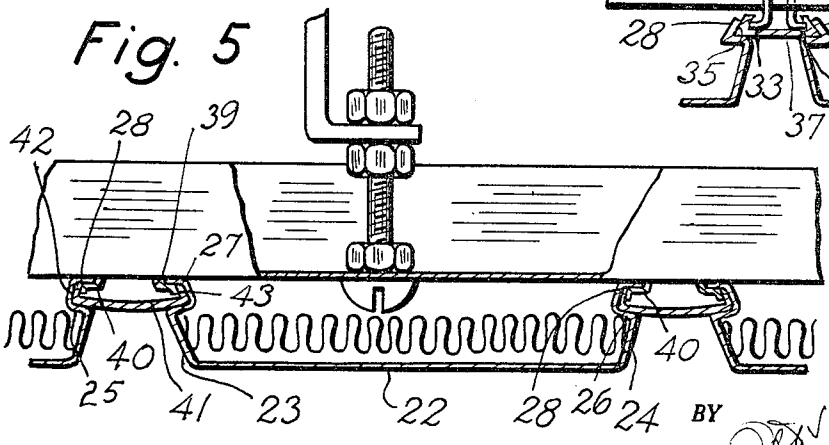


Fig. 5



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FLEXED WALL OR CEILING FACING

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The invention relates to a wall or ceiling facing, where generally channel formed, thin walled panel elements are placed beside each other, preferably with spacing between the side walls of the channels, and are fastened on supporting rails, running transversely to the panel elements and which have engaging members for disengageably holding the panel elements.

In such facings it is of crucial importance that the panel elements lie flush with each other after being mounted, especially when the front side of the panel elements are plane. The panel elements are generally arranged with the side walls of the channels mutually spaced apart, so that a relatively wide groove is obtained between them. It is furthermore of crucial importance that it is easy to mount the panel elements and that it is relatively easy to remove a single element. It is also of great consequence that it is relatively easy to carry out such variations, so that adaptation can take place according to different construction modules, and that a natural termination at the sides of the facing can be brought about without special elements that are to be adapted to the mounting place.

The hitherto known facings of the type indicated do not fulfil all the laid down requirements in a satisfactory way, and it is the object of the invention to devise an improved facing of the type indicated. The facing according to the invention is characterized in that the panel elements at the two side walls have engaging flanges that are directed obliquely rearwards to the front side of the channels and slope away from each other, and that the mutual distance between the engaging flanges when the panel elements are untensed differs so much from the distance between the corresponding sloping engaging members on the supporting rails that said engaging flanges, when engaging, press resiliently against the engaging members, and also that there are arranged stopping members, lying in a plane, against which rearwardly placed portions of the panel elements are pressed by means of the resilient engagement of the panel elements. On account of the resilient engagement it is easy to mount and dismount a single panel element without taking the neighbouring elements down. On account of the resilient pressing against the stopping members the front sides of the channels will flush with each other. By variating the distance between the engaging members on the supporting rails and thereby the mutual distance between the side walls of the two panel elements there will in a simple way be obtained an adaptation according to different construction modules.

In some cases it will be advantageous or necessary that the facing is completely closed. This may be obtained, according to the invention, by placing strip elements between the channel formed panel elements so that they lie behind the latter's side walls, the front side of which strip elements form stopping members for the rear edges of the side walls of the panel elements.

The channel formed panel elements may, according to the invention, at both sides have an inwards extending flange portion, whereto the engaging flange is connected. In this way there can be obtained an exceptionally practical construction of a closed facing where the inwardly extending flange portions abut against the front side of the strip elements. When there is to be adaptations according to the variating construction modules, this can take place by altering the panel element's overlapping of the strip elements or by altering the width of the strip elements.

The strip elements may, according to the invention be fastened to the supporting rails by means of special engaging members on the latter. By these means an easy mounting of the facing is obtained. The strip elements may, according to the invention, have flanges, which obliquely project towards the rear of the strip elements. In this way an exceptionally easy mounting of the strip elements is obtained.

According to the invention the supporting rails may, beside the per se known punched out tongues, forming the engagement members for the panel elements, have tongues for engagement with the engaging flanges of the strip elements. When a panel element is taken down e.g. in order to allow examination of installations behind the facing, the strip elements will be held fast at the sides by means of the tongues. Taking down a panel element can be advantageous if a partition is to be set up.

The engaging flanges of the panel elements, may, according to the invention, engage with the engagement flanges of the strip elements. By these means it is obtained that there on the supporting rails only must be provided engaging members for the strip elements. Furthermore the panel elements will be held securely fast to the strip elements in the entire length, so that there is no risk of having an unwanted wide joint between them.

The engaging members of the supporting rails may, according to the invention, consist of resilient hoops that are resiliently fastened on the supporting rails. Such resilient hoops are easy and cheap to produce and mount. By employing such hoops the advantage is obtained that it is unnecessary to take specially great care when mounting the supporting rails as in the case when the engaging members consist of tongues on the supporting rails as in the latter case care must be taken so that the tongues on the supporting rails lie exactly in line with each other.

The invention will now be further described with reference to the accompanying drawings which illustrate, by way of example, five embodiments of a facing according to the invention and in which:

FIGURES 1, 2 and 3 are a sectional view of three embodiments of the facing,

FIGURE 4 is a sectional view of a detail of a fourth embodiment of the facing, and

FIGURE 5 is a sectional view of a fifth embodiment of the facing.

In the FIGURES, 1, 3, 4 and 5, **1** designates a supporting rail that with advantage may consist of a U-section that is arranged with the main portion downwards. A plurality of such supporting rails are fastened parallel with each other under a ceiling (not shown).

In the embodiment shown in FIGURE 1 the supporting rail has equidistantly spaced apart sets of four engaging tongues **2**, **3**, **4** and **5** of which the two outermost **2** and **5** are directed slopingly towards each other, while the two middle ones **3** and **4** are directed slopingly away from each other.

On the two middle tongues **3** and **4** there are hooked rearwardly projecting resiliently engagement flanges **6** and **7** on a strip element with a plane front side portion **8**.

The facing comprises substantially channel formed panel elements, that have a plane front side portion **9**, obliquely rearwardly directed side walls **10** and **11**, inwardly directed flange portions **12** and **13** and obliquely rearwards, inwardly towards each other directed engagement flanges **14** and **15**. These engagements flanges **14** and **15** engage with the away from each other directed

outermost tongues of the two tongues sets, lying beside each other. The panel elements have such dimensions that the engagement flanges **14** and **15** engage resiliently with the tongues and the flange portions **12** and **13** will therefore be pressed towards the rear to abutment against the front side portion **8** of the strip elements. The engaging flanges **14** and **15** do not go as far as they can under the tongues and it will therefore be possible, when taking a panel element down, to displace the panel element to the side to a sufficient degree, so that one side can be pulled away from the tongue in question.

In the embodiment shown in FIGURE 2 the supporting rails have equidistantly spaced apart sets of tongues **16, 17** and **18** of which the two outermost **16** and **17** are directed obliquely away from each other, while the middle one **18** is transversal and may lie at right angles to the main portion of the supporting rail. The side edges of this tongue are undercut. On these tongues **18** there are hooked rearwardly projecting resilient engaging flanges **19** and **20** on the strip elements with a plane front side portion.

The facing comprises furthermore channel formed panel elements having a plane front side portion **22**, oblique side walls **23** and **24**, inwardly directed flange portions **25** and **26** and obliquely outwards and rearwards directed engaging flanges **27** and **28** that engage with the two, towards each other facing outer tongues of two neighbouring sets. The channel formed elements have such dimensions that the engaging flanges **27** and **28** press resiliently against the tongues, and the inwards extending flange portions **25** and **26** will therefore be pressed against the front side portion **21** of the strip elements. By compressing a panel element its engaging flanges may be disengaged from the tongues so that it can be taken down.

The embodiment shown in FIGURE 3 corresponds substantially to the one shown in FIGURE 1, but the tongues **3** and **4** are replaced by a single tongue **29**, that has the same shape as the tongue **18** in the embodiment shown in FIGURE 2. The strip elements **30** are correspondingly made for engagement with such a tongue.

In the embodiment shown in FIGURE 4 the supporting rail is made without tongues. On the supporting rails there are placed substantially U-shaped hoops, the branches of which **31** and **32** clamp tightly round the flanges of the supporting rail and at the bottom have outwards projecting engagement portions **33** and **34** that engage with flanges **35** and **36** directed obliquely inwards towards each other on strip elements with a plane front side portion **37**. The top placed transverse part of the hoop is curved and lies with its middle portion resilient against the main portion of the U-formed supporting rail, which in this case lies at the top, so that the strip element is pulled upwards against the bottom edges of the flanges of the supporting rail.

The panel elements are made in a way similar to the embodiment shown in FIGURE 3 and the engaging flanges **27** and **28** engage with the outer sides of the engaging flanges of the strip elements.

The embodiment shown in FIGURE 5 has panel elements with substantially the same form as shown in FIGURES 2 and 4. The supporting rail **1** has opposite each other directed tongues **39** and **40**, each with an oblique innermost portion, a horizontal middle portion and an oblique outermost portion. The facing furthermore has narrow strips **41** with the engaging edges **42** and **43**, that are bent round and engage with the outermost oblique portions of neighbouring tongues **40** and **39**, while the engaging portions **27** and **28** of the panel elements engage round the engaging edges **42** and **43** of the strips and engage behind the horizontal middle portion of the tongues **39** and **40**. In this way the portions **25, 27** and **26, 28** encircle the edge portions of the strips **41** along the entire length.

In the installation of the strip elements to the supporting rails, the strip elements **41** are first snapped onto the

tongues **42, 43**, and thereupon the panel elements **22** through **28** are snapped onto the edges **42** and **43**. The lateral grooves **25, 27** and **26, 28** provide engagement members with a considerable stiffness, whereas the panel elements portions **22, 23** and **24** have considerable elasticity in the lateral direction so that the lateral engagement force is not dependent on small inaccuracies of the parts. Therefore reliable engagement is obtained so that there is no danger of the panel elements falling down even though they are made of a relatively thin sheet material. Furthermore, the groove edge engagement between the groove portions **25, 27**, and **26, 28** and the edge portions **42, 43** over the entire length of the element prevents any rattling between the elements.

The shown and described embodiments are only to be considered as examples, as different variations are conceivable within the scope of the invention. The facing is primarily meant for employment in the so-called acoustical ceilings where sound absorbing material is plaecd in the channels. If eventually ventilation through the ceiling surface is to be established at a later time elements may be removed and replaced by elements perforated for the passage of air. When placing partitions a single panel element may be taken down to make room for the partition, at the same time obtaining a uniform (inverted) appearance of the junction of the ceiling with both sides of the partition. The element, the strip element, that forms the bottom in the joint between two panel elements may be given a special colour in which way a greater accentuation of the joint is obtained. Each element can form a self-supporting termination along the long sides of the surfacing. The strip elements may be entirely left out, in which case the panel elements generally close together. In connection with vertical placing of the facing as wall surfacing the advantage is obtained, on account of the inwards directed flange portions, that sound absorbing material is effectively held fast at both sides so that there is no risk of the material falling out of the elements.

What I claim is:

1. Wall or ceiling facing comprising: a plurality of resilient thin walled elongated panel elements in spaced side by side relationship, each of said panel elements having a face with upstanding side walls along the elongated edges thereof, said side walls being directed rearwardly relative to the face, and said side walls having on their edges remote from said face flange portions being angularly related to said side walls, said panels having a space between their adjacent edges and said panel faces being co-planar, supporting rails running transversely to the direction of the panel elements, said supporting rails having engaging means spaced therealong at panel width intervals and said side walls being flexted to press resiliently said flange portion against said engaging means thereby disengageably holding the panel elements, said engaging means including an elongated strip element lying between adjacent spaced panels behind said flange portions, and held in place by said engaging means, said strip element having a plane front side portion parallel to said panel face plane between which and said engaging means the side wall flanges are engaged.

2. Wall or ceiling facing as recited in claim **1**, wherein said side walls are directed obliquely rearwardly relative to the face and slope away from each other.

3. Wall or ceiling facing according to claim **1**, in which the strip elements have rearwardly and obliquely inward directed engaging flanges.

4. Wall or ceiling facing according to claim **3**, in which the supporting rails have tongues for engagement with the engaging flanges of the strip elements.

5. Wall or ceiling facing acocrding to claim **3**, in which the engaging flanges of the panel elements engage with the engaging flanges of the strip elements.

6. Wall or ceiling facing according to claim **5**, in which the engaging members of the supporting rails consist of

resilient hoops that are resiliently fastened on the supporting rails.

7. Wall or ceiling facing as recited in claim 5, wherein the front sides of said strip element form stopping members for the rear edges of the side walls of said panel elements and wherein said panel elements have, at either side and at the innermost edge of the side wall theerof, an inwardly extending flange portion to which said engaging flange is connected.

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