

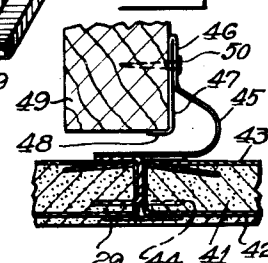
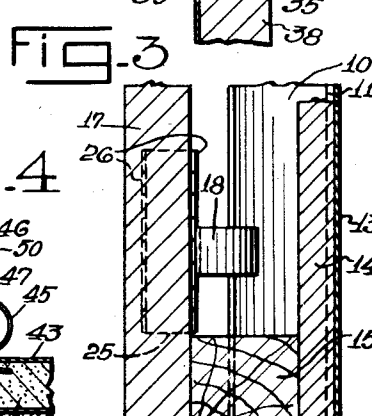
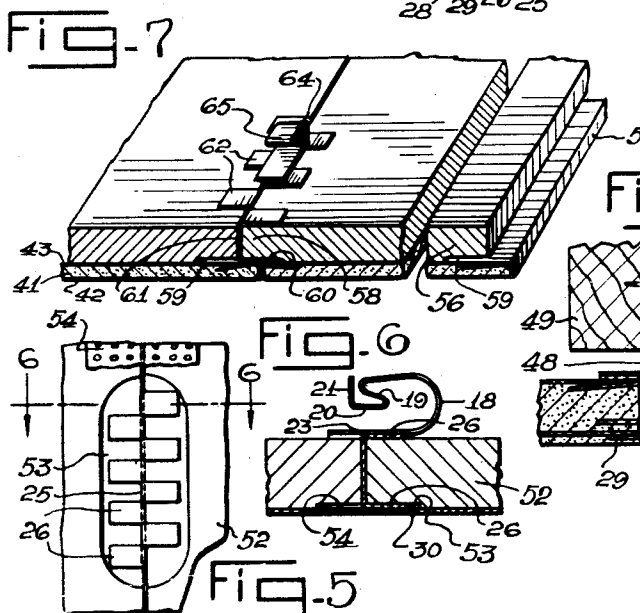
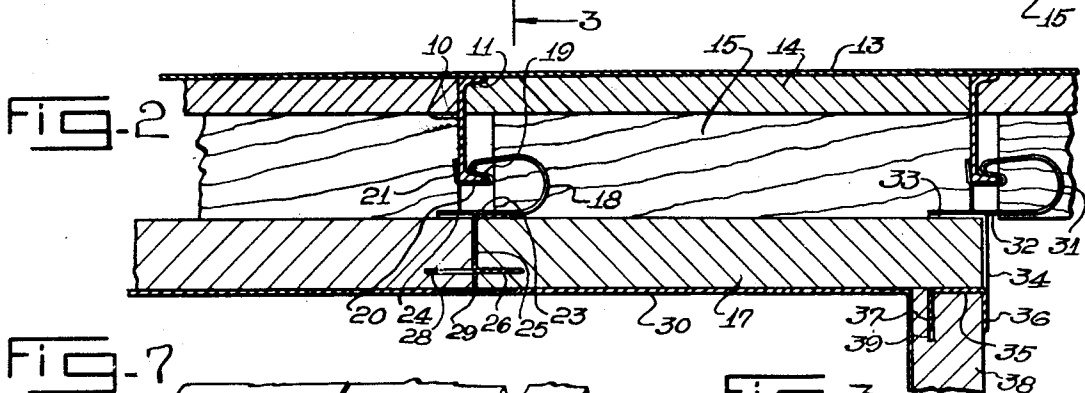
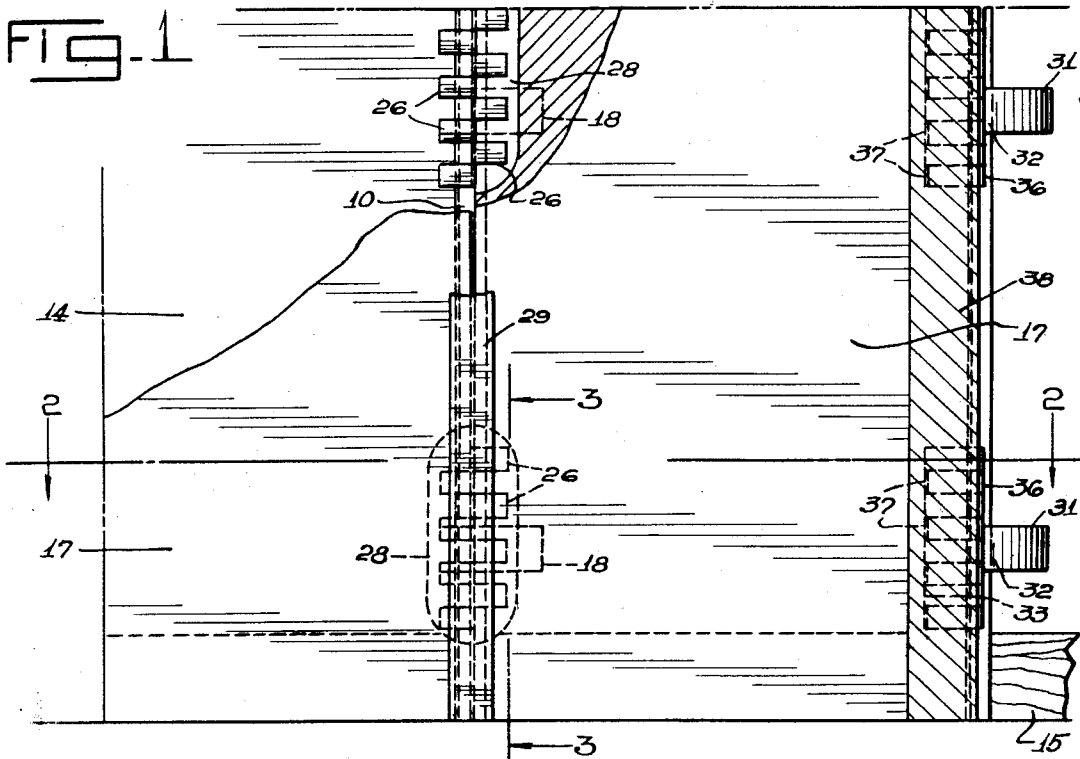
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RESILIENT BUILDING CONSTRUCTION

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## RESILIENT BUILDING CONSTRUCTION

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4 Claims. (Cl. 72—118)

This invention relates to building constructions, and has reference more particularly to building constructions employing resilient clips for supporting wall panels in spaced relation to the studs forming the framework of the building.

In my Patent No. 1,778,412 entitled "Sound insulated building", I have disclosed a building construction employing resilient clips for spacing apart building panels from the supporting framework of the building for the purpose of insulating against sound and also for the purpose of preventing cracks in the plaster applied to the panel. The construction has proved highly efficient for the purposes described but a more convenient attachment of the panel to the clip is desired. It is also desirable to combine heat insulation with sound insulation. The clips should be so attached to the panels that the faces of the panels are left perfectly smooth at the joint, so that a very thin coating of plastic material, such as plastic paint, can be applied to the faces of said panels.

An object of the present invention, therefore, is to provide a building construction employing resilient clips in which the faces of the panels at the joints between the panels, are perfectly smooth and adapted for the reception of a plastic paint.

Another object of the invention is to provide a resilient building construction combining heat insulation with sound insulation; also to improve building constructions in other respects hereinafter specified and claimed.

Reference is to be had to the accompanying drawing forming a part of this specification, in which

Fig. 1 is a sectional elevation of the improved resilient building construction with parts broken away to disclose the construction,

Fig. 2 is a transverse section through the building construction taken on line 2—2 of Fig. 1,

Fig. 3 is a sectional elevation through the building construction taken on line 3—3 of Fig. 1,

Fig. 4 is a sectional plan view through a modified form of construction in which the spring clips are attached to wooden studs,

Fig. 5 is a fragmentary elevation of a modified form of clip attachment suitable for use with insulating board,

Fig. 6 is a sectional view through the insulating board construction taken on line 6—6 of Fig. 5, and

Fig. 7 is a perspective, sectional view showing the clip attachment with panels of composite heat insulating and plaster boards.

The studs of the building may consist of steel channels 10 having flanges 11, these channels preferably extending vertically and being seated at their lower ends on a foundation 12. If de-

sired, the exterior wall of the building may consist of steel plates 13 which are welded to the outer flanges 11 of the steel channels. Insulating panels 14 of wood fiberboard, or other suitable material, may be adhesively attached to the inner face of the plates 13 between the channels. Nailing strips 15 are preferably secured to the foundation 12 between the channel studs.

In order to attach inner, building panels 17 to the steel studs 10, arcuate, resilient spring clips 18 are provided which terminate at one end in a reverse bent flange 19 which is again folded upon itself to form a flange 20 and is then bent at right angles to form a flange 21, the flanges 19, 20 and 21 being so shaped as to enclose one of the channel flanges 11. The flanges 19, 20 and 21 are also so arranged that the clip may be attached to the channel 10 by an angular movement of the spring clip. At its opposite end, the spring clip 18 terminates in a flange 23 which extends parallel to the inner face of panel 17 and is attached, as by spot welding, to inner, oppositely disposed fingers 24 formed along the inner edge of a panel engaging clip 25. The clip 25 is preferably in the form of a short plate which has oppositely disposed fingers 26 formed along its outer edge for engagement in slots 28 formed in each abutting edge of the panels 17 by any suitable means, such as a gillsaw. The slots 28 are spaced a distance inwardly from the outer face of the panel 17 so that said outer face at the junction of two abutting panels presents a smooth surface which can be covered with a thin, perforated, metallic foil 29 by a suitable adhesive or crack filling cementitious material so as to prevent cracking of a layer of plastic paint 30 which is subsequently applied to the outer faces of the panels 17 after the application of the metal foil 29. If it is desired to apply a thicker layer of plaster to the outer faces of the panels 17 instead of a layer of plastic paint 30, a strip of screen wire may be nailed over the joint between abutting panels 17 to reinforce said joint and prevent cracking. The salient feature of the present invention, however, resides in spacing the fingers 26 inwardly from the face of the panel 17 so as to present a smooth outer face for the reception of the plastic paint. It will be noted that the fingers 24 and 26 extend parallel and form a pair of oppositely disposed channels for the reception of the edges of the panels 17. The lower edges of the panels 17 may be nailed to the nailing strips 15.

At the corners of the room, a slightly modified form of spring clip 31 is employed in which the terminal flange 32 of said clip engages with an outwardly extending flange 33 formed on a metallic body member 34. A flange 35 extends

outwardly from the body 34 and parallel to the flange 33, the flange 35 being provided with a plurality of outwardly extending spaced fingers 36 and 37 for the reception of the edge  
5 of one of the panels 38. Slots 39 are formed in the edge of the panel 38 for the reception of the fingers 37, the slots 39 being spaced apart from the outer face of the panel 38.

10 Instead of the fiber boards 17, wall boards or plaster boards may be used as shown in Fig. 4. These wall boards consist of a cementitious core material 41, usually composed of gypsum with other modifying ingredients, such as wood fiber. The core 41 is usually provided  
15 with heavy paper cover sheets 42 and 43 which are folded about the edge of the core. Slots 44 are cut in the edge of the wall board by the gillsaw so that a pair of slots are in registry position when a pair of wall boards lie with  
20 their edges in abutting relation. In this case also the slots 44 are spaced apart from the outer face of the wall boards so that said outer face presents a smooth appearance, and the joint between abutting wall boards may be covered  
25 with the strip of reinforcing foil 29 in the same manner as is seen in Fig. 2.

Instead of attaching the spring clips 18 to steel channels 10, clips 45 (Fig. 4) may be provided with an attaching flange 46 folded  
30 back on itself to form a flange 47 and then laterally to form a right angle flange 48. The flanges 47 and 48 enclose one corner of a wooden stud 49 and the flanges 46 and 47 are perforated to receive an attaching nail 50 which is driven  
35 into the stud 49 so as to support the clip 45 and the wall board.

40 As an alternate to the formation of the slots 28 in the edges of the panels 17, panels of insulating fiber board 52 may be provided with recesses 53 (Figs. 5 and 6) which can be formed by a suitably shaped die, which is laid on the surface of the panel and struck a blow with a  
45 hammer to form said recess 53. The recess 53 is preferably of a depth substantially equal to the thickness of the fingers 26 so that the outer faces of said fingers lie in the plane of the inner face of the board. A somewhat wide strip of perforated metal foil 54 is then applied  
50 over the board joints, the fingers 26 and the recesses 53 by a suitable joint filler cement or other desired adhesive or cementitious material. After the foil 54 has been applied, the inner face of the panels 52 are then in condition for the reception of the layer 30 of plastic paint.

55 In the form of the invention shown in Fig. 7, a heat insulating fiber board 56 is adhesively attached to the face of a wall board 57 so that the fireproof qualities of the wall board are combined with the heat insulating qualities of  
60 the fiber board. The fiber board is preferably the same size as the plaster board 57 but is offset so that lap joint 58 is formed to give a stronger joint between the panels. Slots 59 are formed in the fiber board 56, preferably at the  
65 inner face between said fiber board and the plaster board. The fingers 60 are formed on the edge of a clip 61 and are received in the slot 59. Oppositely disposed fingers 62 are formed on the opposite edge of the clip 61, spaced apart  
70 from the fingers 60 and extending parallel thereto so as to form channels for the reception of the edges of adjoining fiber boards 56. The clip 61 may be provided with a resilient spring  
75 connector 18, or it may be provided with a non-

resilient connecting clip 64 which has engaging flanges 65 for attachment to the flange of a channel runner furring strip.

80 It should be understood that the surface of the fiber board 17 may be left bare without applying the coating of plastic paint 30 in which case the fiber board acts to prevent reverberation or echoes in a room so that substantial  
85 acoustical correction is obtained. The combination of such a sound absorbing fiber board 17 with the resilient clip 18 also affords the maximum of acoustical absorption and the combined action has such an effect that the sound absorption curve at different pitches is more nearly  
90 a straight line with a high efficiency at all pitches. For partitions, resiliently held panels 17 or wall boards may be placed on both sides of the studs 10 or 49, in which case extremely high sound insulation efficiency is obtained. I have found that for such a construction, the  
95 sound insulation is about 47 decibels which is substantially equal to a 9" double tile wall with a 2" air space. The spring clips 18 are of such thickness and resiliency that they absorb the vibrations of the panels 17 due to sound waves  
100 impinging on their surface but yet such clips are of sufficient strength that they will support the structural loads.

I would state in conclusion that while the illustrated examples constitute practical embodiments of my invention, I do not wish to limit myself precisely to these details, since manifestly, the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.  
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Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a building construction, a stud, a spring clip attached at one end to said stud, outstanding fingers associated with the opposite end of  
115 said spring clip, and building panels having their edges in abutting relation, the edges of said panels being provided with slots for the reception of a plurality of said fingers.

2. In a building construction, a plurality of 120 spaced channel studs having webs and outstanding flanges along each edge thereof, a spring clip having flanges enclosing one of the flanges on said channel stud, and a plurality of outstanding parallel fingers associated with said  
125 spring clip and forming channels for the reception of the edges of abutting panels so as to resiliently connect said panels to said studs, said panels being provided with slots in the edges thereof spaced from each face of said panels,  
130 said slots being arranged to receive a plurality of said fingers.

3. In a building construction, a stud, resilient spring clips attached to said stud, a plurality of building panels arranged with their edges in  
135 abutting relation adjacent said clips, outstanding fingers formed on said spring clips and extending into said edges for resiliently connecting said panels to said studs, and a cementitious coating applied to one face of said building  
140 panel.

4. In a building construction, a plurality of metallic studs, a metal facing attached to said studs, insulating board secured to said facing between said studs, and building panels resiliently connected to said studs and spaced apart from said insulating board.  
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