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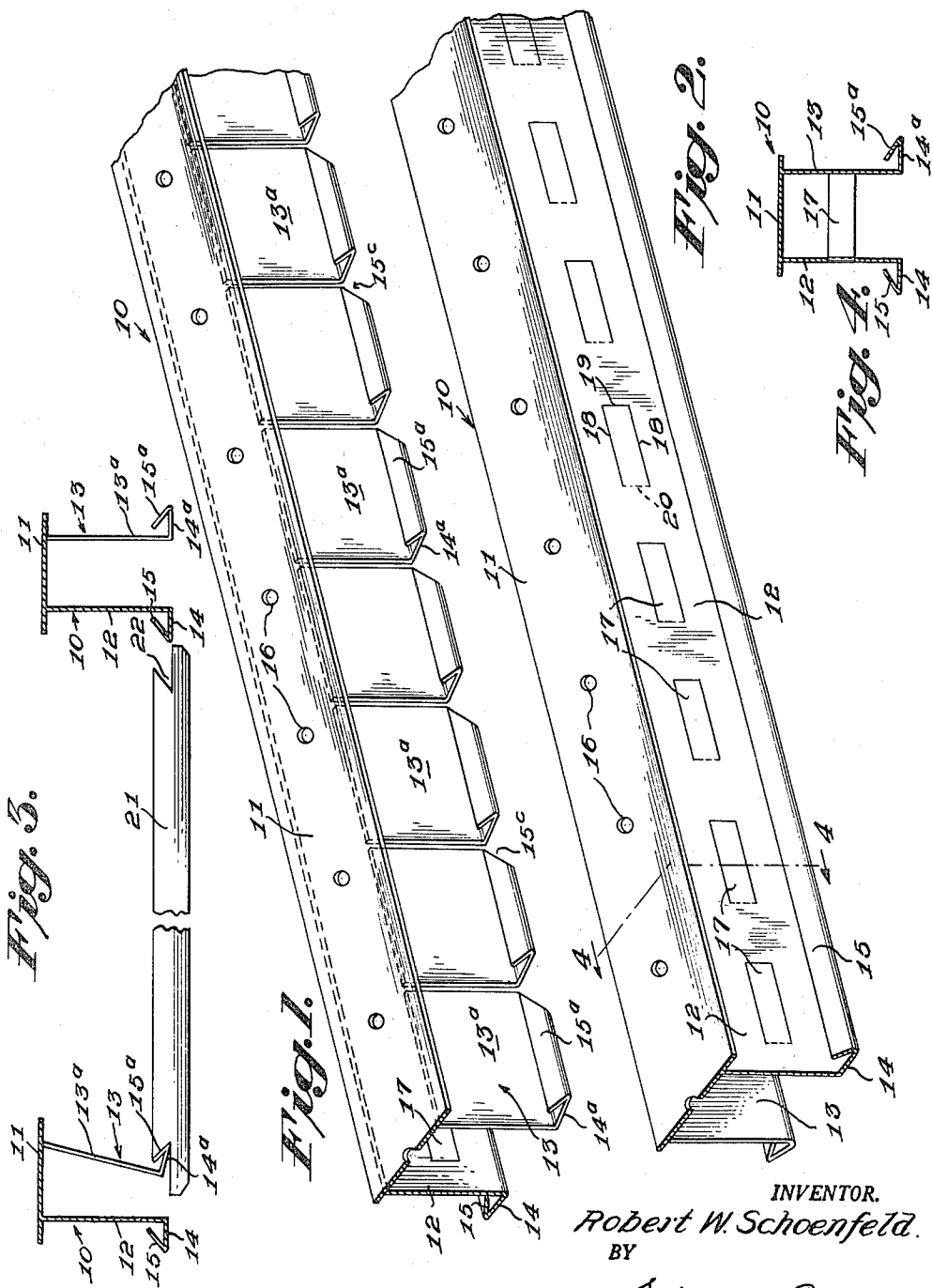
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3,175,656

MEANS FOR MOUNTING ACOUSTICAL CEILINGS

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2 Sheets-Sheet 1



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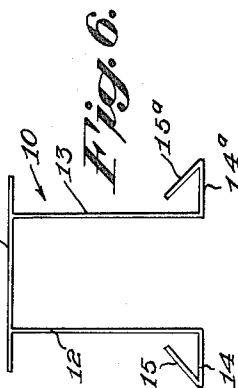
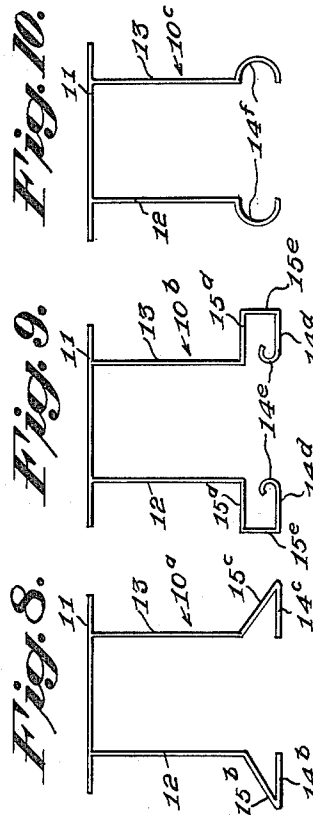
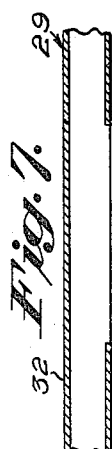
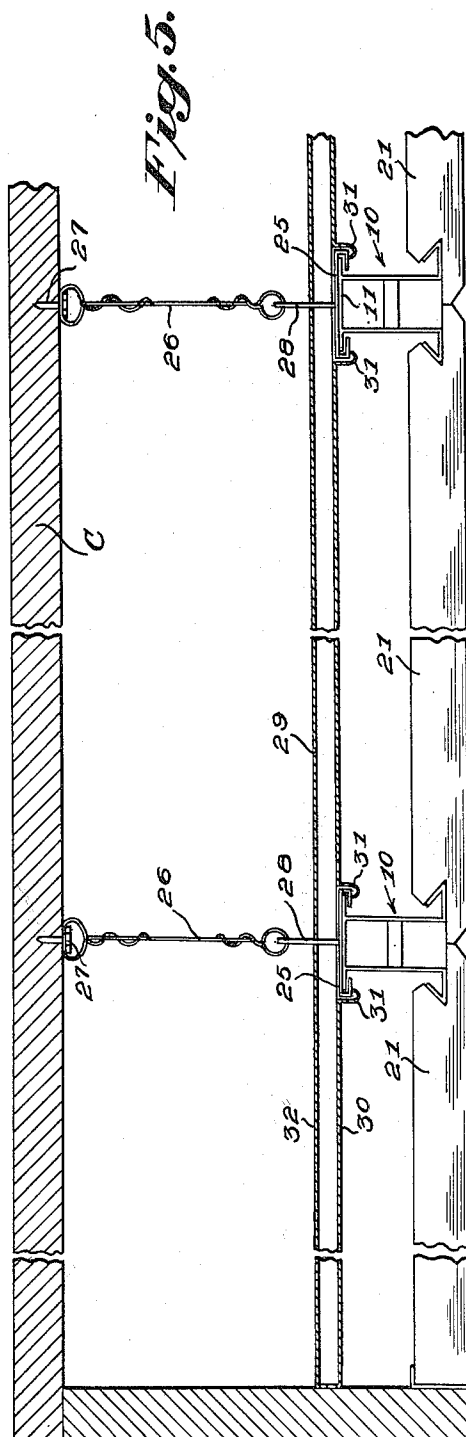
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MEANS FOR MOUNTING ACOUSTICAL CEILINGS

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3,175,656

MEANS FOR MOUNTING ACOUSTICAL  
CEILINGSRobert W. Schoenfeld, 3033 N. Cramer St.,  
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4 Claims. (Cl. 189—88)

This invention relates to means for mounting acoustical ceilings.

In acoustical systems of the type embodying a plurality of individual sound absorbing units, installation has been a difficult and time consuming job. Accordingly, one feature of the present invention is to provide an acoustical system embodying individual sound absorbing units having provision for quick and easy mounting thereof on a deck, ceiling, or the like.

In accordance with conventional practice, the individual sound absorbing units are each composed of a pan which supports the sound deadening material, and the pans are releasably secured to T-bars which are attached to the deck or ceiling at spaced intervals. The present invention is principally concerned with the end formation of the pans together with novel spring lock bars adapted for cooperation with the ends of the pans and a deck, ceiling, or the like.

A further feature of the invention is the provision of novel means for securing the lock bars to the deck, ceiling, or the like.

Other features of the invention will become apparent in the course of the following detailed description, taken in connection with the accompanying drawings, wherein:

FIG. 1 is a fragmental perspective view of one of the improved lock bars in accordance with a preferred structural embodiment thereof;

FIG. 2 is a fragmental perspective view of the lock bar of FIG. 1 as viewed from the opposite side thereof;

FIG. 3 is a broken elevational view showing a pair of laterally opposed lock bars together with one of the sound absorbing tile units in the course of application thereof to the lock bars;

FIG. 4 is a transverse sectional view of the lock bar of FIGS. 1 and 2 as observed in the plane of line 4—4 on FIG. 2;

FIG. 5 is a broken view partly in elevation and partly in vertical section and illustrating the acoustical system in accordance with a preferred structural embodiment thereof;

FIG. 6 is an end elevational view of the lock bar shown in FIGS. 3 and 4;

FIG. 7 is a fragmental vertical longitudinal sectional view of a space bar included in the improved acoustical system;

FIGS. 8, 9 and 10 are respectively end elevational views of modified forms of lock bar.

Referring now in detail to the drawings and first to FIGS. 1 and 2 thereof, the improved lock bar 10 in a preferred structural embodiment thereof comprises a horizontal plane top wall 11 and opposite side walls 12 and 13 whose upper edges are secured to the top wall 11 slightly inwardly from the opposite edges thereof.

The lock bar 10 is preferably of relatively thin sheet metal construction.

The side wall 12 is provided with a non-interrupted V-flange at its lower edge and which comprises a relatively narrow portion 14 extending laterally outwardly at right angles to the side wall 12 and a second relatively narrow portion 15 which is disposed at an acute angle to the portion 14 and extends toward the side wall 12 with the free edge thereof in spaced relation thereto. The top wall 11 is provided with a longitudinal series of apertures 16 for the reception of nails for securement of the lock bars

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to a deck, ceiling or the like. The side wall 12 is provided with a longitudinal series of rectangular spacing tab members 17 which as indicated in FIG. 2 are provided by vertically spaced longitudinal through cuts 18 and vertical through cuts 19 intermediate the longitudinal cuts and at corresponding ends thereof thereby providing for inwardly deflecting the spacing tab members 17 on the vertical lines 20 whereby the spacing tab members are capable of being disposed between the side walls 12 and 13 for normally retaining same in vertical and parallel relation as is indicated in FIG. 4.

As is indicated in FIG. 1, the wall 13 is interrupted in the provision of relatively narrow longitudinally disposed sections 13<sup>a</sup> each of which is provided with a V-flange at its lower edge and which flange comprises a relatively narrow portion 14<sup>a</sup> extending laterally outwardly at right angles to the wall of section 13<sup>a</sup> at right angles thereto and a relatively narrow portion 15<sup>a</sup> which is disposed in acute angular relation to the portion 14<sup>a</sup> with the free edge thereof in spaced relation to the wall of said section. It will be observed that the portions 14<sup>a</sup> face each other (see FIG. 1).

With reference to FIG. 3 it will be observed that in the application of sound absorbing units 21 which are provided at opposing edges thereof with V-recesses 22, one edge of a unit will first be engaged with the flange portions 14<sup>a</sup> and 15<sup>a</sup> of a section 13<sup>a</sup> which is capable of flexing inwardly toward the wall 12 with the opposite edge of the unit spaced from wall 12 of an adjacent lock bar 10, after which section 13<sup>a</sup> is permitted to expand to its normal vertical position with a resulting engagement of said opposite edge of the unit with the flange of wall 12 of an adjacent lock bar 10. After the assembly of the units the tab members 17 are moved to the position indicated in FIG. 4 with a resulting stabilization of the assembly. In order to provide clearance in the assembly of the units 21 the ends of flange portions 14<sup>a</sup>, 15<sup>a</sup> are in angular relation with the provision of outwardly opening V-recesses 15<sup>c</sup> between the sections 13<sup>a</sup>.

In FIG. 5 is illustrated an application of the novel lock bars wherein same are suspended from a ceiling C and which embodies a snap clip 25 which is releasably engaged with a top wall 11 of each lock bar 10. The snap clips 25 are suspended from the ceiling C by means of wire or strap metal 26 whose upper ends are secured to the ceiling C as by means of nails 27 and whose lower ends are secured to the snap clips 25 as by means of projections 28.

In order to maintain the lock bars 10 in a stable position horizontally, a spacer bar 29 is disposed between and in spaced relation to the ceiling C and the acoustical ceiling sound absorbing units 21. The bar 29 is preferably of hollow formation as indicated in FIG. 7 and same is provided in its lower wall 30 with spaced downwardly projecting and inwardly curved flanges 31 between which the snap clips 25 are disposed and the upper wall 32 of the spacer bar 29 is provided with openings through which the projections 28 extend. As is indicated in FIG. 5 the flanges 31 which are yieldable snap over the clips 25. While in FIG. 5 only one spacer bar 29 is shown, it will be understood that there will be one for each four or five rows of units 21.

The modified form of lock bar 10<sup>a</sup> shown in FIG. 8 is similar to that of FIGS. 1 to 4 except that the unit engaging flanges embody opposed downwardly diverging upper portions 15<sup>b</sup> and 15<sup>c</sup> and lower portions 14<sup>b</sup> and 14<sup>c</sup> which extend inwardly toward each other.

In the modified form of lock bar 10<sup>b</sup> shown in FIG. 9, the flanges are of rectangular formation and each includes an upper outwardly projecting portion 15<sup>d</sup>, a vertical portion 15<sup>e</sup> and a lower inwardly projecting portion 14<sup>d</sup> which terminates in an outwardly arcuate portion 14<sup>e</sup>.

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According to the embodiment 10<sup>a</sup> of FIG. 10 the opposing flanges 14<sup>f</sup> are semi-circular in cross section with the convex walls thereof facing outwardly.

It is to be observed that the lock bars in each embodiment disclosed are of the form shown in FIGS. 1 and 2 and that such lock bars are capable of being directly secured to a deck or ceiling by utilizing the apertures 16 for passage of walls or the like or same may be suspended as in FIG. 5.

I claim:

1. A lock bar for supporting sound absorbing units beneath a ceiling, comprising a horizontal top wall, a pair of spaced parallel side walls unitary with the top wall and being disposed inwardly of the side edges thereof, the lower edges of said side walls being provided with flange means for supporting adjacent edges of sound absorbing units, one of said side walls being provided with rectangular spacing tab members which are normally disposed in the plane of said one side wall and connected therewith at corresponding ends thereof, and said spacing tab members being bendable from said one of said side walls at right angular relation thereto with the opposite ends thereof engaged with the other side wall.

2. A lock bar according to claim 1, wherein said other side wall comprises a plurality of sections depending from said top wall.

3. A locking bar for supporting adjacent ends of a pair of sound absorbing units from a ceiling and wherein said ends of the units have abutting edges and a recess above the abutting edges at each side thereof, each said unit being notched inwardly at its opposite edges, said recesses having a cut away portion extending from the abutting wall of said edge and intermediate the thickness of said unit and thence extending diagonally outwardly and upwardly to the upper surface of said unit, said bar comprising a horizontal plain top wall and spaced apart opposite side walls, said side walls having outwardly directed means unitary with the lower edges thereof for engaging within recesses in the ends of a pair of sound absorbing units and one of said side walls being readily yieldable for facilitating engagement of the said sound absorbing units therewith, said structure being characterized by the

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fact that one of said side walls is interrupted in the provision of relatively narrow longitudinally spaced sections, and there is an inwardly directed V-flange unitary with the lower edge of each section.

4. A locking bar for supporting adjacent ends of a pair of sound absorbing units from a ceiling and wherein said ends of the units have abutting edges and a recess above the abutting edges at each side thereof, each said unit being notched inwardly at its opposite edges, said recesses having a cut away portion extending from the abutting wall of said edge and intermediate the thickness of said unit and thence extending diagonally outwardly and upwardly to the upper surface of said unit, said bar comprising a horizontal plain top wall and spaced apart opposite side walls, and side walls having outwardly directed means unitary with the lower edges thereof for engaging within recesses in the ends of a pair of sound absorbing units and one of said side walls being readily yieldable for facilitating engagement of the said sound absorbing units therewith, said structure being characterized by the fact that one of its side walls is provided with a plurality of longitudinally spaced rectangular tab members adapted to be pushed inwardly with corresponding ends thereof engaging the other side wall for the purpose set forth.

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