Jan. 13, 1970 M. D. JAHN 3,488,908

CONCEALED GRID CEILING STRUCTURE AND PANEL THEREFOR PROVIDING ACCESSIBILITY

Filed July 12, 1967 3 Sheets-Sheet 1

Fig. 1

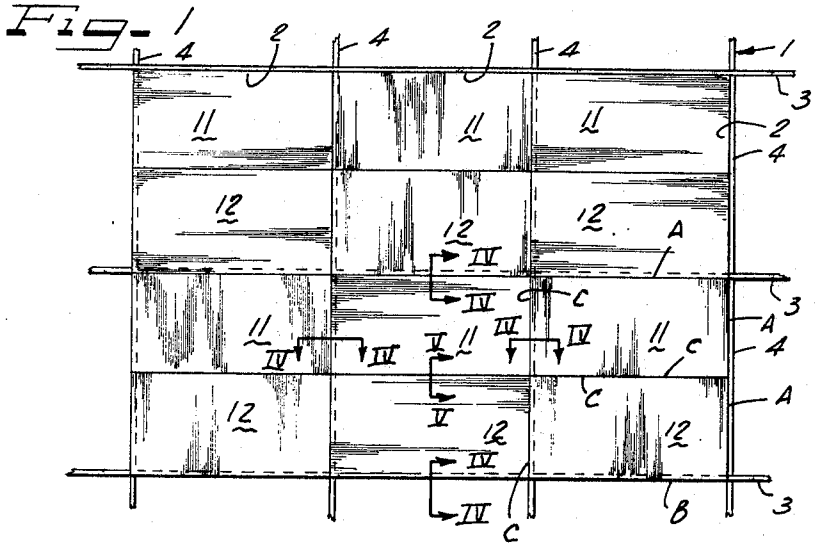


Fig. 2

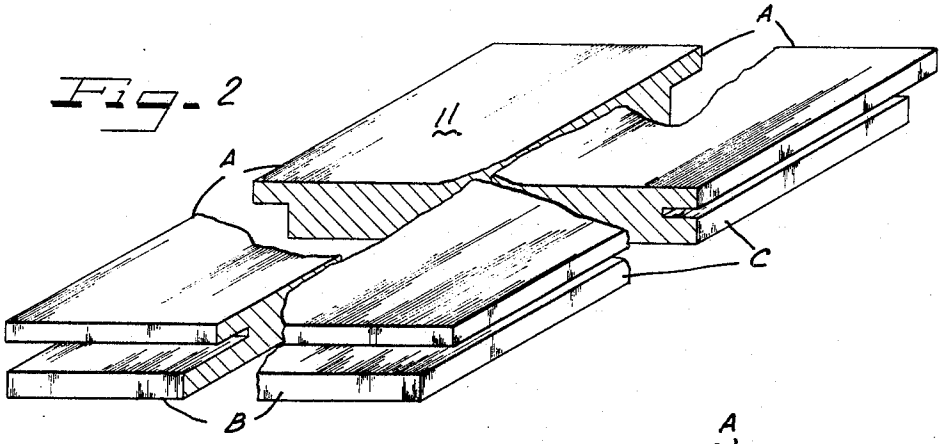
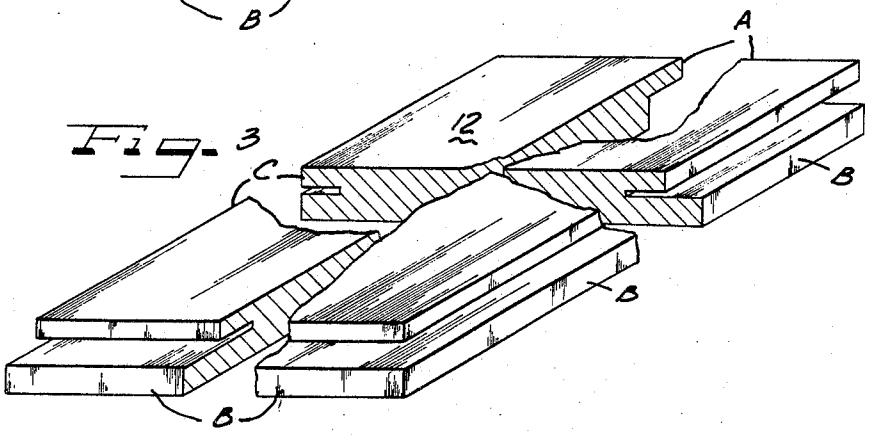


Fig. 3



INVENTOR.
MARTIN D. JAHN

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

Jan. 13, 1970 M. D. JAHN 3,488,908

CONCEALED GRID CEILING STRUCTURE AND PANEL THEREFOR PROVIDING ACCESSIBILITY

Filed July 12, 1967 3 Sheets-Sheet 2

Fig. 4

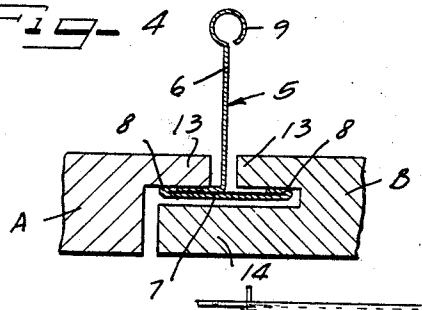


Fig. 5

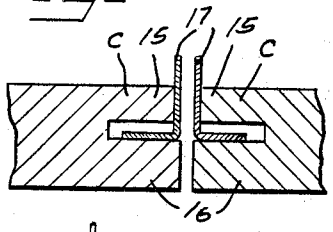
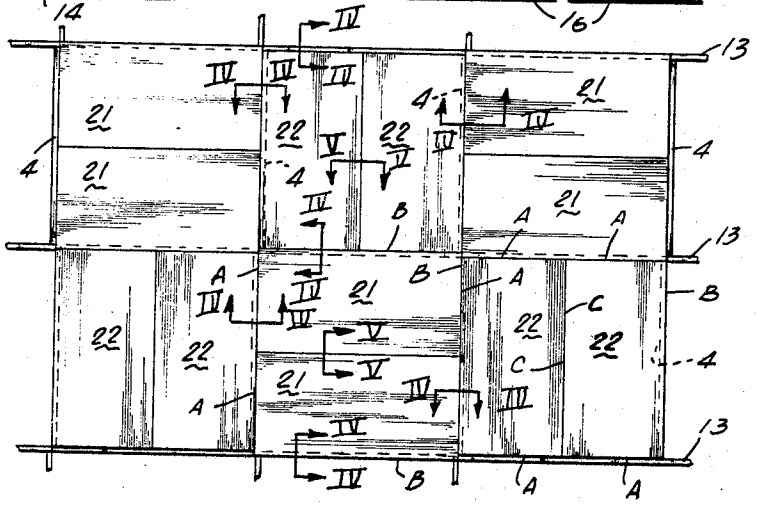


Fig. 6



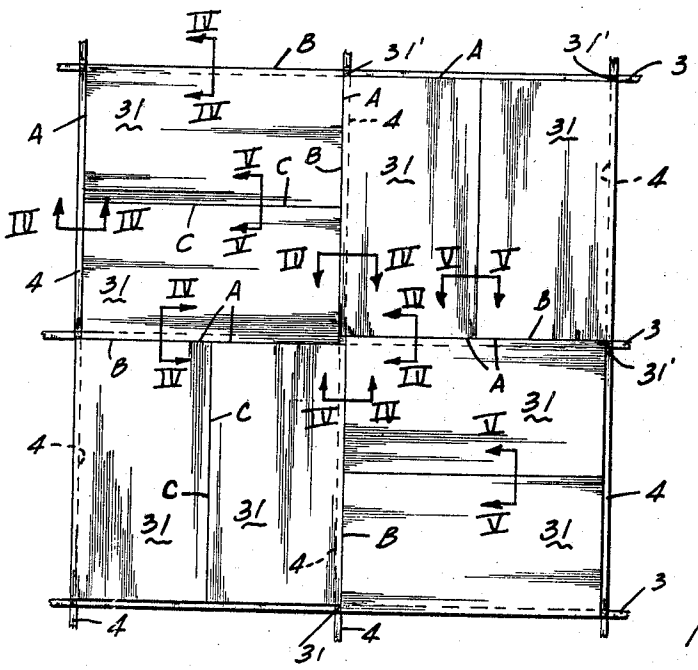


Fig. 7

INVENTOR.
MARTIN D. JAHN

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

Jan. 13, 1970 M. D. JAHN 3,488,908

CONCEALED GRID CEILING STRUCTURE AND PANEL THEREFOR PROVIDING ACCESSIBILITY

Filed July 12, 1967 3 Sheets-Sheet 3

Fig. 8

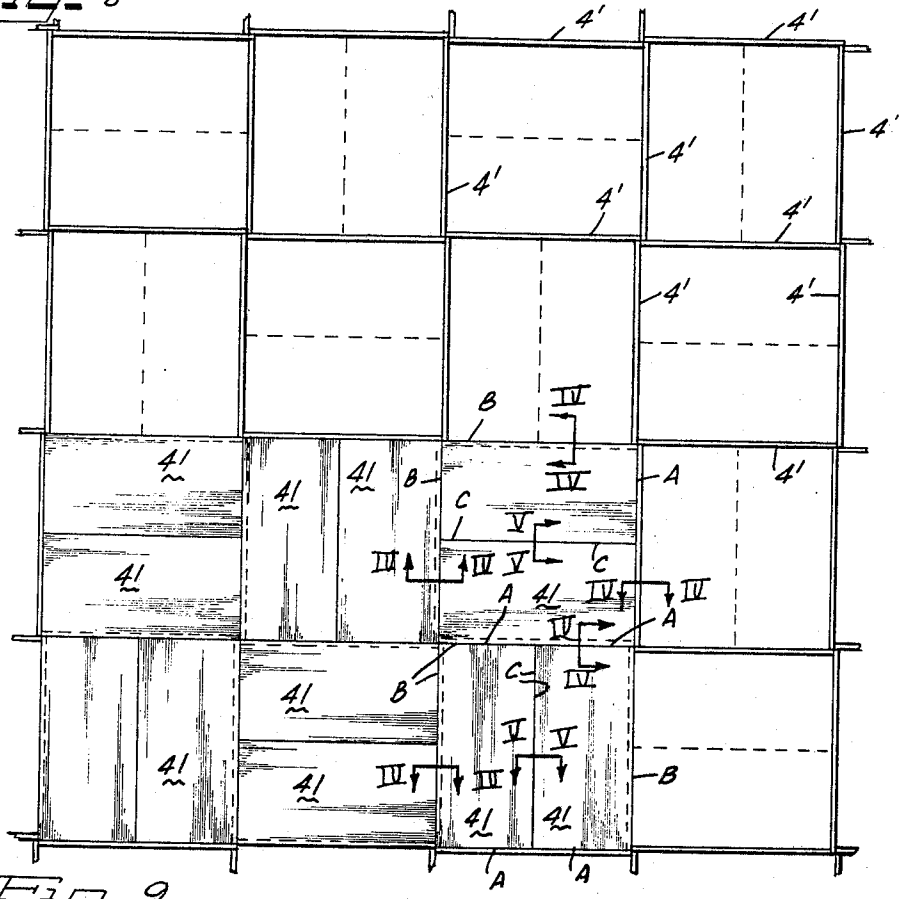


Fig. 9

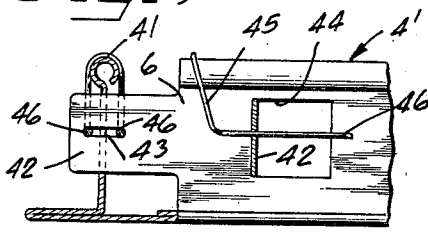


Fig. 10

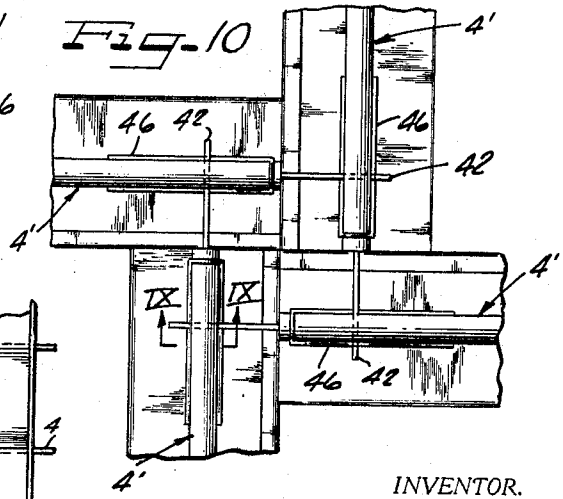
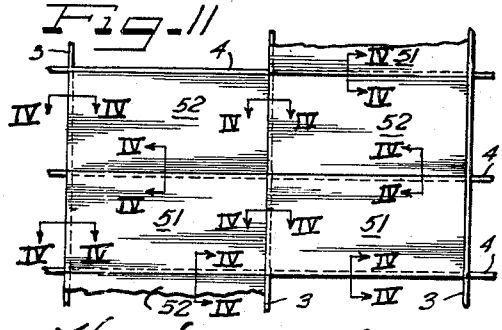


Fig. 11



INVENTOR.
MARTIN D. JAHN

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

United States Patent Office 3,488,908 Patented Jan. 13, 1970

3,488,908

CONCEALED GRID CEILING STRUCTURE AND PANEL THEREFOR PROVIDING ACCESSIBILITY

Martin D. Jahn, Chicago, Ill., assignor to Chicago Metallic Corporation, Chicago, Ill., a corporation of Illinois

Filed July 12, 1967, Ser. No. 652,824
Int. Cl. E04b 5/52
U.S. Cl. 52—496 8 Claims

ABSTRACT OF THE DISCLOSURE

A ceiling structure with concealed supporting grid, and panel therefor, providing accessibility thereabove and which may be fire-rated, comprising a plurality of runner elements arranged to form a panel-supporting structure with rectangular panel-receiving openings defined by longitudinally extending flange portions of the runner element which are concealed by the panels, the panels being arranged in pairs, each panel being operative to close at least part of a grid opening, the panels being so constructed along their edges that such a pair of panels have edge portions along two panel edges which underlie the flange portions of the runner elements, and along the other edges adjacent runner elements have edge portions which overlie portions of the runner elements, the juncture between two abutting panels of such a pair (when cooperable to close a single opening) and the edges of at least one panel of a pair being so constructed that such panel may be moved upwardly to provide accessibility thereabove, and if desired the structure can be constructed to comply with the fire-rating requirements.

THE DISCLOSURE

The invention is directed to ceiling structures of the suspended type utilizing a panel-supporting grid constructed of runner elements upon which the respective ceiling panels are supported. Such ceiling structures may be generally divided into two classes, the first being the so-called "concealed grid" type and the other being the so-called "exposed grid" type, and the present invention falls in the first class in which the runner elements are completely concealed by the respective ceiling panels. In ceilings of this type it is particularly desirable that the structure be so designed that access may be gained above the ceiling panels, preferably 100%, i.e. all panels can be readily detached from the grid structure. Likewise, it is desirable that the structure be of the "fire-rated" type, which refers to the ability of the ceiling structure to remain intact in the event of fire for at least a specified time, i.e. to support the ceiling panels during such period even though expansion may take place in the respective runner elements as a result of the applied heat, without a rupture or destruction of the ceiling structure.

SUMMARY OF THE INVENTION

The invention is directed to a ceiling structure utilizing a novel panel structure in which the panels are so designed that full access thereabove may be readily gained, the panels being disposed in pairs, each pair being operative to close at least part of a grid opening with portions of each closure underlying and thus concealing corresponding portions of the grid structure whereby the entire grid structure is completely concealed in the assembled ceiling, the panels at the same time being so constructed that at least one panel of each pair may be readily removed from their operating position to provide accessibility thereabove. The panels may be so designed,

in accordance with the invention, that known grid structures of various types may be utilized therewith, or a novel grid structure, in accordance with the invention may be employed to enable the attaining of a desired fire rating.

The present invention has among its objects the production of such a ceiling structure and panel therefor which is exceedingly simple, relatively inexpensive to manufacture and requires no unusual or difficult technique in its assembly.

Other advantages of the invention will be apparent to those skilled in the art from the disclosure herein given.

In the drawings, wherein like reference characters indicate like or corresponding parts:

FIG. 1 is a plan view of the under side or exposed face of a ceiling structure constructed in accordance with the present invention;

FIG. 2 is an isometric figure of the corner portions of a ceiling panel constructed in accordance with the invention;

FIG. 3 is a similar figure of a cooperable panel to be used with the panel of FIG. 2;

FIG. 4 is a sectional view through a runner structure and adjacent edge portions of a pair of ceiling panels, taken approximately on the respective lines 4—4 of FIGS. 1, 6, 7 and 8;

FIG. 5 is a similar section through the edge portions of a pair of abutting ceiling panels, taken approximately on the respective lines 5—5 of FIGS. 1, 6, 7 and 8;

FIG. 6 is a plan view similar to FIG. 1 illustrating the application of the invention to a different form of grid structure utilizing parallel main runner members and offset cross runners;

FIG. 7 illustrates a modification of the ceiling panels, utilizing a grid structure similar to that illustrated in FIG. 1;

FIG. 8 is a plan view similar to FIGS. 1, 6 and 7, illustrating a grid structure utilizing grid runner elements constructed in accordance with FIGS. 9 and 10, and illustrating the manner in which the ceiling panels are assembled therewith;

FIG. 9 is a sectional view taken approximately on the line 9—9 of FIG. 10.

FIG. 10 is a top plan view of the juncture of the end of four runners assembled as illustrated in FIG. 8; and

FIG. 11 is a plan view, similar to FIG. 1, illustrating a modification in which each panel of a pair closes a single grid opening.

DETAILED DESCRIPTION OF INVENTION

Referring to FIGS. 1–3, the ceiling structure of FIG. 1 comprises a supporting grid structure indicated generally by the numeral 1, comprising runner elements which are disposed to form a grid having square grid openings 2 which are aligned in both coordinate directions and illustrated as being formed by a plurality of main runners 3 extending parallel to one another and connected at spaced points by aligned cross runners 4. The main runners 3 may be formed in suitable lengths, for example, assuming grid openings of approximately 4' x 4', 8' or 12' and where the span is greater than the length of a runner, two or more runners may be fastened together in abutting end to end relation. Various types of known interlocking structures are available for this purpose. The main runners 3 are connected by the uniformly spaced cross runners 4, the ends of which may be suitably interlocked with the associated main runner, numerous different types of interlocking structures being available, and could, for example, be constructed in a manner similar to that illustrated in FIG. 9, which will hereinafter be described in detail.

As illustrated in FIG. 4, as well as in FIG. 9, runners f this general type may be formed, for example, from a ieet metal strip and suitably rolled or otherwise shaped) provide the desired configuration, such runners, as lustrated in FIG. 4, being generally of T-shaped transerse cross section which in the assembled ceiling is inerted. The runner, indicated generally by the reference umeral **5** of FIG. 4, is illustrated as comprising a longiidinally extending leg or web portion **6** terminating at s lower edge in a cross portion **7**, in effect forming ligned flanges **8**, and may be provided at its upper end ith suitable reinforcing means, as for example, a tubuir head **9**. This type of runner construction is known and o need is seen to go into further detail with respect there).

Each grid opening defined by the grid structure **1** is dapted to be closed by a pair of ceiling panels **11** and **12**, ke panels being similarly oriented in the respective grid penings.

In all of the embodiments of the invention illustrated 1 the drawings, the ceiling panels are all similar to one nother to the extent that the edges of all panels fall into ne of three types of construction which are more particlarly illustrated in FIGS. 4 and 5. It will be apparent iat due to the rectangular configuration of the respective anels whereby a pair of cooperable panels is employed 1 all forms of the invention, each operable to close at ast a part of a grid opening, in which each pair of panels rms an approximate square, as specifically discussed in nnection with each individual embodiment, each panel as two relatively long side edges and two relatively short de or end edges. Consequently the panels of each pair operate providing a sufficient number of edge portions) underlie and conceal the lower faces of runner elements ipporting the same that all runner elements are conealed in the completed ceiling, with at least one panel f such a pair having only one edge underlying a runer element.

The panels are so constructed that in all embodiments f FIGS. 1 to 10 each closure structure formed by a pair f panels has two edges which are adapted to underlie nd conceal the adjacent runner elements, while the reaining two edges are constructed to merely overlie flange ortions of the adjacent runners. In FIG. 1 the ceiling anels of a pair are so constructed that intersecting edges f the closure member formed by a pair of panels undere and conceal the adjacent runners, while the other two itersecting edges are constructed to merely overlie the operable flange of the adjacent runners. However, as ibsequently discussed, the panels may be so constructed iat the concealed edges are disposed along opposite sides f a cloure formed by two panels.

FIG. 4 illustrates two of the edge constructions of the anels, employed adjacent the runner element, while FIG. illustrates the construction of the abutting edges of each air of panels forming a closure for a single opening. onsequently, the cross section of FIG. 5 will represent ie abutting edges of each pair of such cooperable panels nd FIG. 4 will illustrate the cross section of adjoining anels along a runner element in any of the embodiments f the invention, depending, however, on the direction 1 which the section is viewed. Consequently, all of the anels illustrated will have edges corresponding to those ppearing in FIGS. 4 or 5. Referring to such figures the /pes of edges, in view of the different combinations inolved in the various panel embodiments, will be merely esignated by the letters A, B and C. In the A type, the anel edge is merely provided with a longitudinally exnding flange **13** which is proportioned to overlie the djacent flange portion **8** of the runner. Panel edge type is likewise provided with a corresponding flange **13** t the upper portion thereof, but in addition is provided /ith a flange **14** disposed along its lower portion and hav1g a length sufficient to completely underlie the lower face of the runner formed by the flanges **8** and thereby completely conceal such portion of the runner. The C type edge of the panels, in the embodiments of the invention illustrated in FIGS. 1 to 10, have a longitudinally extending flange **15**, which is illustrated as closely corresponding in proportions to the flange **13**, although not necessarily so, and is provided with a similar flange **16** along its lower portion, the upper flanges **15** being illustrated as being slightly shorter than the lower flanges **16** to insure adequate space for stiffening angles **17**.

In mounting the panels illustrated in FIGS. 1–3, the panel **12** of each pair would be initially mounted by disposing the end edge of type A, above the grid structure and engaging the opposite end of type B with an intermediate portion of the cooperable runner and when the flange **14** is disposed substantially in its operable position, the opposite edge of the runner may be pivoted downwardly to permit the flange **13** thereof to rest upon the flange of the cooperable runner thereat, following which the panel may be slid along the two engaged runners to bring the long edge of B type in its final operative position directly underlying the adjacent cooperable runners. When the panel **12** has been so moved into its final position the cooperable panel **11** may be disposed with its A type end edge positioned above the grid and its opposite B type edge engaged with the cooperable runner, and as the flange **14** approaches its final position, the opposite end of the runner may be dropped into its final position, the flanges **13** of the other two edges resting upon the respective flanges **8** and the adjoining edges of such pair disposed in abutting relation. Before mounting the panel **11**, reinforcing angles **17** may be disposed in the slots defined by the flanges **15** and **16** of the C type edge, which angles preferably are of a length to dispose their ends in overlying relationship with the adjacent runner flanges **8** and thus provide reinforcement along the entire abutting edges of the panels of a pair. As will be apparent from a reference to FIG. 1, it will be noted that in this construction the exposed portion of both panels of a pair and each pair is identical with any other pair.

The construction illustrated in FIG. 6 utilizes main runners **3** and cross runners **4**, similar to those illustrated in FIG. 1, the main runners extending parallel to one another but with the cross runners between successive pairs of main runners being alternately offset substantially the width of the lower face of the corresponding runner. The resulting grid structure thus defines grid openings of two different sizes with the distances between the main runners **3** being the same but the distance between cross runners of any horizontal row alternating in horizontal width and openings of like size alternating in both coordinate directions. In this construction all panels are of like construction insofar as their edge configurations are concerned, and the panels of each pair are of identical dimensions, each pair of panels being adapted to be disposed in the smaller grid openings being smaller than the panels of a pair adapted to close the larger grid opening. It will be apparent from a reference to FIG. 6 that the exposed portions of all panels have identical long dimensions, but the combined width of a pair of panels **21** is greater than the combined width of a pair of panels **22** by approximately twice the width of a runner.

In mounting the panels of FIG. 6, all panels are mounted in an identical operation in which the C type edge of each panel is disposed above the grid structure and the opposite B type edge engaged with the cooperable runner, following which the panel may be pivoted about the engaged edge into its final position, taking care to properly orient the panels of each pair.

The embodiment of FIG. 7 utilizes a grid structure of any suitable type which will provide uniform square grid openings and may be identical with the grid structure of FIG. 1, comprising main runners **3** and aligned cross runners **4**. This construction utilizes identical panels, both as

to edge configuration and dimensions, utilizing the same edge combination as the panels of FIG. 6, in which each panel has a type B long edge and a type C opposite edge, both end edges being of type A. As only one size panel is employed, and the combined length of the aligned end edges of a pair of panels is greater than the length of the long edge thereof, the pairs of panels are disposed with their abutting edges alternating at right angles in both coordinate directions. This arrangement, as will be apparent from FIG. 7, results in the formation of exposed squares, the size of which are equal in length to the width of a runner element and each such exposed opening may be concealed by small square blocks **31** which may be suitably secured by adhesive or other means to the adjacent runner structure, which squares may be utilized to achieve a novel decorative effect, as for example, by constructing such blocks in a contrasting color or different material from that of the panels **31**. As the panels of FIG. 7 are of generally the same edge construction, they are mounted by the utilization of like assembly operations corresponding to those described with respect to the panels of FIG. 6.

FIG. 8 illustrates a novel grid structure for use with panels of the type described, and enables the utilization of identical panels for all grid openings. In this construction the grid structure is formed from a plurality of identical runner elements **4'** which generally correspond to the cross runners **4** of the preceding grid structure. The runner elements **4'** are of identical construction and identically dimensioned. The runners are assembled with the end of four runners being disposed at a common junction point and the end of each runner abutting the side of the adjacent runner, as clearly illustrated in FIG. 10. In the embodiment illustrated, each runner **4'** has a transverse cross section of generally T-shape, corresponding to the runner illustrated in FIG. 4, each end of the web portion **6** of a runner being provided with a longitudinally extending tongue **42** having a horizontally extending slot **43** therein. The web portion **6** of each runner is also provided with a rectangular opening **44** therein suitably disposed to receive the tongue **42** of an adjacent runner as clearly illustrated in FIG. 9, the opening **44** having a height approximately equal to the vertical height of the tongue **42**, whereby vertical movement of one runner with respect to the interlocked runner is prevented. Cooperable with each tongue **42** is a generally U-shaped retaining clip **45** which extends over the upper edge of one runner, the horizontally extending leg portions **46** of the clip passing through the slot **43** in the tongue of the interlocked runner.

Under normal conditions the runners will be interlocked as illustrated in FIGS. 8–10. However, it will be noted that the opening **44** in the web of each runner is of a size to permit longitudinal movement of the tongue **42** in an axial direction away from the adjacent end of the runner containing the opening **44**. Consequently, in the event of the application to such a ceiling structure, as for example as the result of fire, and the longitudinal expansion of the runners as a result of such heat, the abutting end of each runner may, under such expansion, correspondingly laterally move the adjacent runner, with which it abuts, to accommodate such expansion. Obviously this can take place with all four runners interlocked at one joint, opposed only by the relatively lesser resistance exerted by the ceiling panels. It will be apparent that upon the application of such heat to a ceiling structure, the expansion will be distributed over the area involved and thus normally accommodated by a relatively large number of such joints, and as the expansion movement may be accommodated at both ends of each runner, considerable expansion would have to take place to completely destroy the supporting action of the grid structure and a correspondingly relatively great length of time would thus be required before rupture of the ceiling would take place. Obviously, in such a construction the panel would be at least fire-resistant.

Panels **41** employed with the grid construction of FIGS. 8–10 of identical edge construction and identically dimensioned, the long dimension of the exposed portion of a closure formed by a pair of panels being equal to the combined dimension of the two short end edges of such pair and the mounting of the panels **41** would take place in the same manner as previously described for the panels **21** or **31**, each pair of panels being rotated 90 degrees with respect to the adjacent pairs, whereby the orientation of the pairs alternates in both coordinate directions. Comparing the respective arrangements of FIGS. 1, 6, 7, and 8, it will be noted that the construction of FIG. 1 utilizes two different panels, the exposed portions of which are of identical dimesions but employ different combinations of each type, each pair of panels consisting of one panel of each type.

In the embodiment of FIG. 6 all panels employ identical combinations of edge types, but two differently sized panels are employed, the panels of each pair being identical.

The embodiments of FIGS. 7 and 8 employ identical panels and the panels of both embodiments employ identical combinations of edge types. However, in the embodiment of FIG. 7 the closure formed by a pair of panels is not square and the assembly requires an additional filler block to complete the ceiling, while in the embodiment of FIG. 8 the closure formed by a pair of panels is square and no additional elements are required. The embodiment of FIG. 8 also has the additional advantage that it is of fire-rated construction, making provision of the expansion of the runner members upon the application of heat thereto.

The embodiment of FIG. 11 employs two cooperable panels having different respective combinations of edge structures in which one panel is adapted to be permanently assembled in the ceiling grid at the time the latter is installed, with the other panel providing access above the ceiling structure. Consequently, in this form accessibility is limited to 50% of the ceiling area.

As the edges of the panels, in this embodiment of the invention, involve one or the other of the edge structures illustrated in FIG. 4, any edge of either panel may be readily identified as to construction by reference to the section designation appearing in FIG. 11, identifying the direction of view corresponding to the section of FIG. 4.

In this construction each panel is operative to form a closure for a respective grid opening, which in the illustrated embodiment are of approximately half the relative size of those illustrated in the previous figures, with the exposed portions of the respective panels **51** and **52** being of identical size. In this embodiment the continuously extending parallel main runners are connected by a plurality of cross runners which are disposed to form parallel rows with the runners of each row being aligned in a straight line which extends at right angles to the main runners. As will be apparent from a reference to the cross sections indicated in FIG. 11, the panel **51** is formed with three edges of type B construction, illustrated in FIG. 4 having an upper peripheral flange **13** adapted to overlie the runner at one side thereof and a lower flange **14** adapted to completely underlie the adjacent lower face of the runner, such three sides, in the embodiment illustrated, comprising both longitudinally extending edges and one end edge, with the opposite end edge being provided with a type A edge construction. The panel **52**, on the other hand, is provided with three edges of type A construction, likewise comprising the two longitudinal edges and one end edge, with the opposite end edge being of type B construction.

As will be illustrated from reference to FIG. 11, the panels are so disposed that alternate rows of the respective types of panels are produced, with the narrow end edges of like type panels being in abutting relation. Obviously, in this construction the panels **51** would be incorporated in the ceiling during the assembly of the grid

ucture, merely requiring positioning of the panels in oper position as the associated runner elements are eratively connected to one another. Thus, upon comple-n of the grid structure and associated panels, a plurality spaced rows of panels will be produced with open spaces tween each row of panels, with only the portions of the ain runners spanning such spaces being exposed as all naining elements have been concealed by the flanges **14** the panels **51** may then be readily placed in position by sposing it angularly above the grid structure and inter-cking the single type B edge with the adjacent exposed rtion of the main runner following which the panel may rotated into the plane of the panels **51** with the remain-g three peripheral edges of the panel **52** of type A, rest-g upon the adjacent runners.

It will be apparent from the above disclosure that the esent invention provides a ceiling construction in which e space above the ceiling is completely accessible at any cation along the ceiling structure and may be readily apted for substantially any of the known types of id structures as well as the particular structure illus-ated herein. Likewise it is believed apparent that the in-locking structure of the runners in any of the forms ustrated may be widely varied without effecting the iciency of a ceiling constructed in accordance with the vention.

I claim:

1. A ceiling structure with concealed supporting grid, oviding accessibility thereabove, comprising a plurality interconnected longitudinally and transversely disposed nner elements, each of a generally inverted T-shape in ansverse cross-section, having longitudinally extending nge portions, said runner elements being arranged to rm a panel-supporting structure having rectangular nel-receiving openings, defined by the flange portions cooperable runner elements, which openings are to closed by respective closure structures, each compris-g a pair of panels, each pair of which is operative to ose a single opening, the panels of a pair being disposed ith an edge of each in adjoining relation, each panel ving at least one edge which is of inverted L-shape in ansverse cross-section to provide an outwardly extend-g flange along its upper portion overlying the flange rtion of the adjacent runner element, and at least ne and not more than two edges having a kerf therein form a like flange and provided along its lower portion ith an extension forming a second larger flange of a ze to extend completely across the under face of the ljacent runner element, said adjoining edges being con-ructed to abut at least along their lower portions, at ast one edge of each panel intersecting the last-mentioned lge thereof being of inverted L-shape and at least one nel of each pair having only one edge constructed to nderlie the adjacent runner flange whereby such panel ay be pivoted upwardly about such edge to provide ac-ssibility thereabove, the respective edges being so dis-osed on the respective panels that the closure structure as two of its edge portions adapted to merely overlie ne flange portions of the adjacent runners, and the ther two of its edge portions adapted to completely nderlie the flange portions of the adjacent runners.

2. A ceiling structure according to claim **1**, wherein ne runner elements of said panel supporting structure efine square openings, aligned in coordinate directions, nd the exposed portions of each pair of ceiling panels orm an exposed square composite panel, one of said anels being provided with two intersecting edges having n inverted L-shape in transverse cross-section, and the ther panel being provided with two intersecting edges ormed with said second flange thereon.

3. A ceiling structure according to claim **1** wherein ne runner elements of such panel supporting structure efine rectangular openings having aligned edges in one oordinate direction, and alternately offset edges in the other coordinate direction, whereby the rectangular openings formed fall into two groups, the openings of one group being larger than the openings in the other group, with the openings of the respective groups alternating in both coordinate directions, the opposite edges of each panel intersecting the abutting edge thereof having an inverted L-shape in transverse cross-section, said panels falling into two groups, one comprising panels for the larger openings and the other panels for the smaller openings, the area of the exposed portion of panels of the first group being greater than that of panels of the second group.

4. A ceiling structure according to claim **1**, wherein the runner elements of said panel-supporting structure define square openings aligned in coordinate directions, said panels all being of like size and construction, each having opposite edges intersecting the abutting edge thereof of inverted L-shape in transverse cross-section and one edge therebetween formed with said second flange, the exposed portions of each pair of panels forming a rectangle with the long dimensions of the exposed portion being less than the combined width of the exposed portions of a pair of panels, said pairs of panels being disposed with their long dimension alternating in both coordinate directions, and a square filler block disposed in the opening formed at each intersection of four closure structures.

5. A ceiling structure according to claim **1**, wherein said panel-supporting structure comprises a plurality of runner elements of like length forming a grid with rectangular openings of like corresponding dimensions, with the ends of four such runner elements disposed at each corner of the respective openings and the end of each runner element thereat abutting the side of an adjacent runner element, said ceiling panels all being of like size and construction, with the exposed portions forming a square composite panel, each panel having opposite edges intersecting the abutting edge thereof, inverted L-shape in transverse cross-section and one edge therebetween formed with said second flange.

6. A ceiling panel structure for use with a concealed supporting grid, providing accessibility thereabove, said panel structure comprising a pair of cooperable panels which are operative to close a single grid opening, said panels being constructed for disposition with an edge of each in adjoining relation, each panel having at least one edge which is of inverted L-shape in transverse cross-section to provide an outwardly extending flange along its upper portion, and at least one and not more than two edges having a kerf therein to form a like flange, and provided along its lower portion with an extension forming a second flange extending outwardly beyond the first flange, said adjoining edges being constructed to abut at least along their lower portions, at least one edge of each panel intersecting the last-mentioned edge thereof being of inverted L-shape and at least one panel of each pair having only one edge with such a second flange whereby such panel may provide accessibility thereabove, the respective edges being so disposed on the respective panels that the panel structure has two of its edge portions provided with such flange along their upper portions, and the other two of its edge portions provided with such second flanges.

7. A ceiling panel structure according to claim **6**, wherein one panel of a pair is provided with two intersecting edges thereof formed with said second flange thereon, and the other panel of such pair is provided with two intersecting edges thereof having an inverted L-shape in transverse cross-section.

8. A ceiling panel structure according to claim **6**, wherein said panels are of like configuration, each of the edges intersecting the abutting edge of a panel having

an inverted L-shape in transverse cross-section, and the remaining edge being formed with said second flange thereon.

References Cited

UNITED STATES PATENTS

3,385,021	5/1968	Nys	52—495
3,032,833	5/1962	Stanley	52—586

FOREIGN PATENTS

220,213 2/1959 Australia.

FRANK L. ABBOTT, Primary Examiner

S. D. BURKE III, Assistant Examiner

U.S. Cl. X.R.

52—586, 592, 613