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[54] **SUSPENDED CEILING CONSTRUCTION**

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[52] **U.S. Cl.** **52/484,** 52/489, 52/496

[51] **Int. Cl.** **E04b 5/55**

[58] **Field of Search** 52/484, 489, 496, 495

[56] **References Cited**

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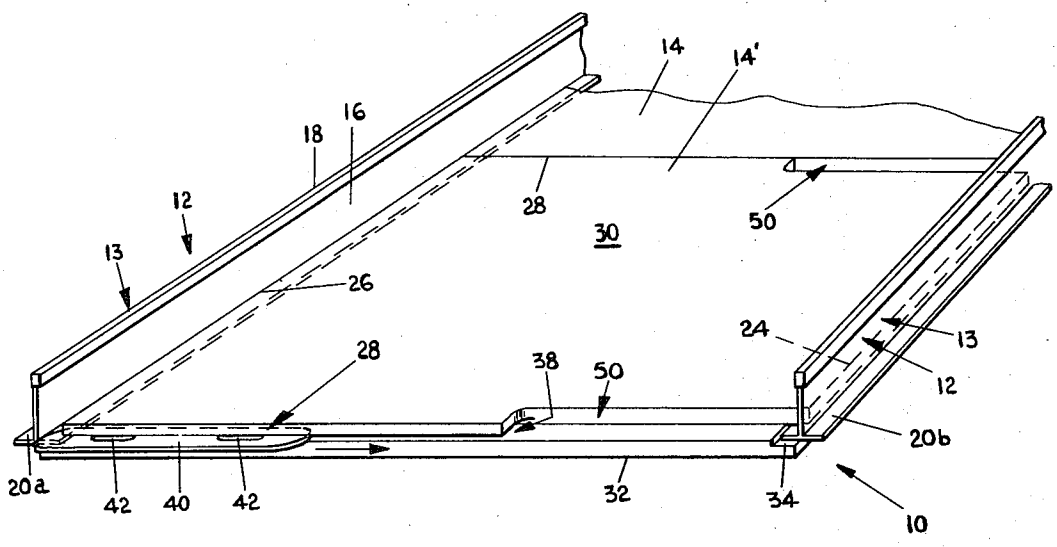
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Primary Examiner—Ernest R. Purser
Assistant Examiner—Carl D. Friedman
Attorney, Agent, or Firm—McGarry & Waters

[57] **ABSTRACT**

A suspended ceiling construction comprises a plurality of individual ceiling tiles suspended in rows between evenly spaced, inverted T-shaped support beams comprising vertical support members with flanges extending outwardly from each side of the bottom thereof. Each tile has a kerfed back edge that fits over a flange on a back support beam and an L-shaped front portion having a lower lip that fits under a flange on a front support beam. The side edges of each ceiling tile include longitudinal kerfs therein extending rearwardly from the front portion of the tile, with the kerfs being positioned above the lip on the front portion of the tile by a distance at least equal to the thickness of the flange on the front support beam. Locking splines fit into the kerfs in the sides of abutting ceiling tiles and are slidable from locked positions, wherein the splines engage the flange on the front support beam and hold the front portion of the tiles up against the front support beam, to a released position, wherein the splines are disengaged from the front support beam. At least one of the ceiling tiles is an access tile and comprises open sections above the kerfs on each side of the tile, such that the splines in that tile may fit through these open sections when the splines are in their released positions. These open sections permit the removal of the tiles from the ceiling for access to the space above the suspended ceiling.

6 Claims, 7 Drawing Figures



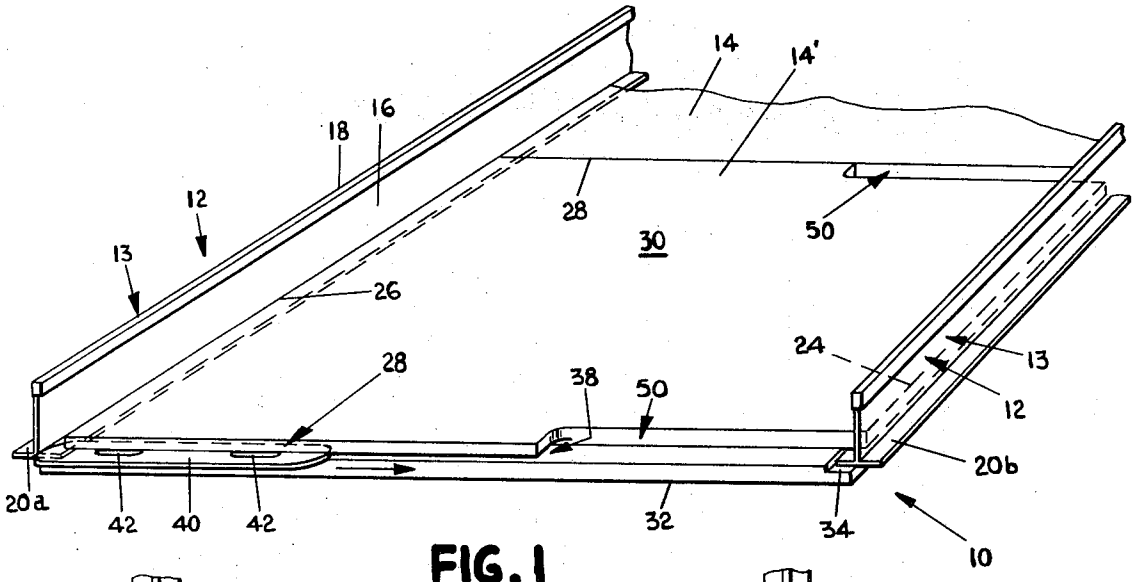


FIG. 1

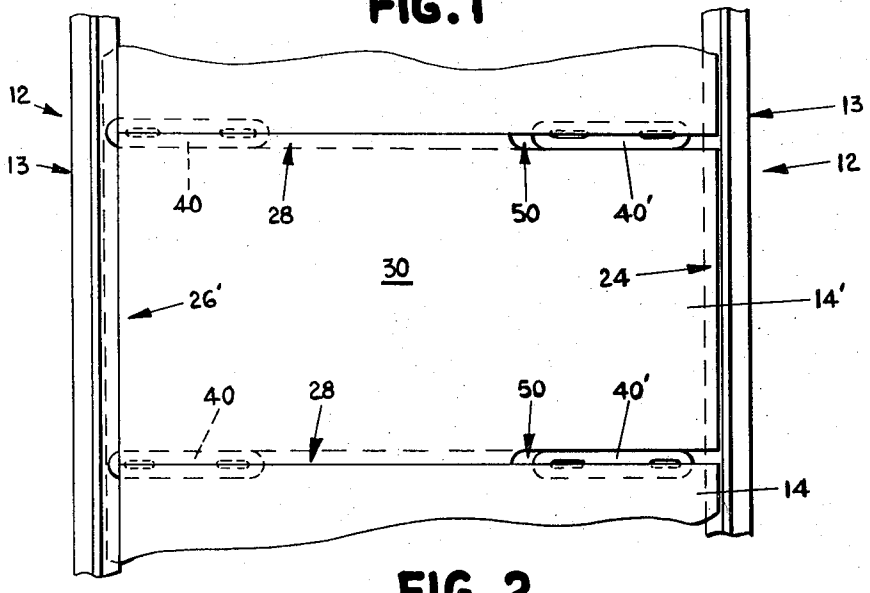


FIG. 2

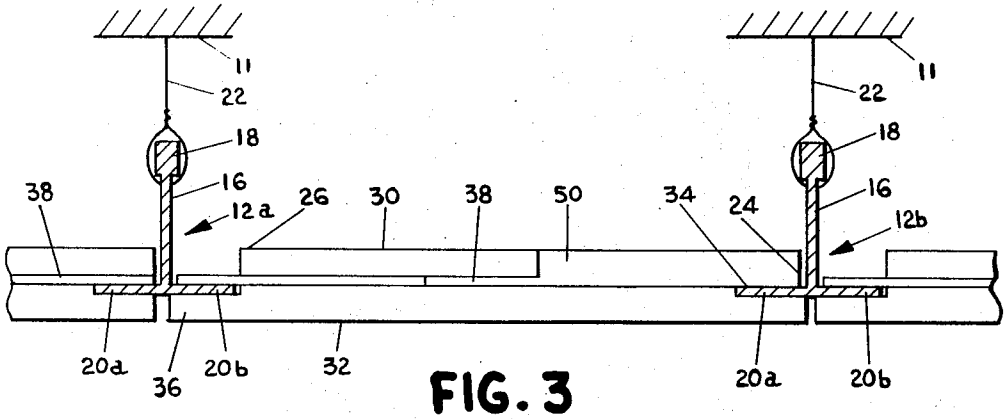


FIG. 3

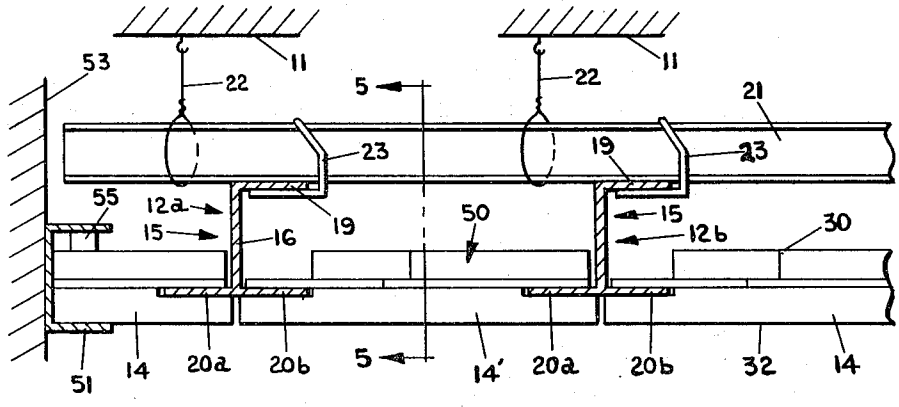


FIG. 4

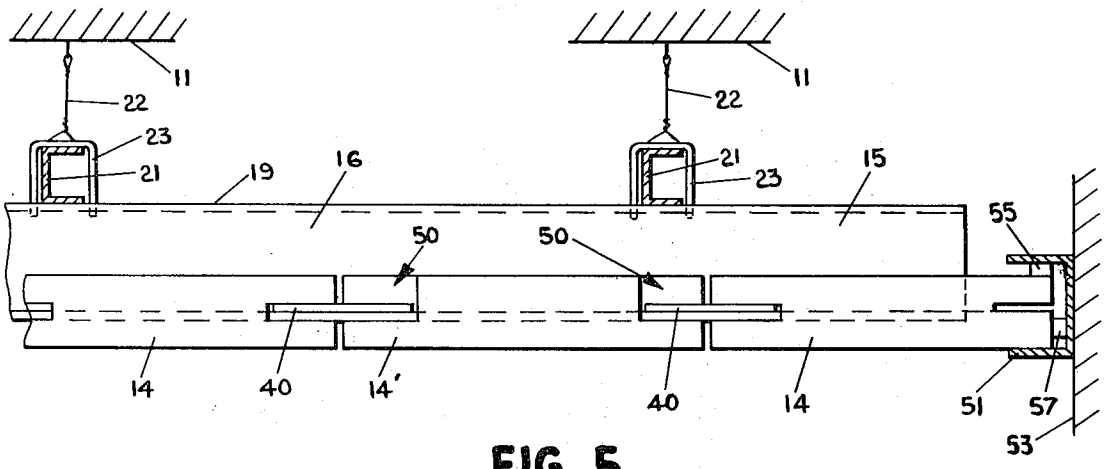


FIG. 5

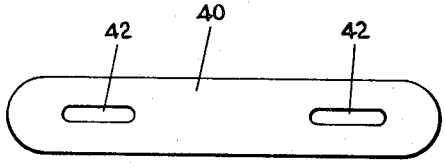


FIG. 6

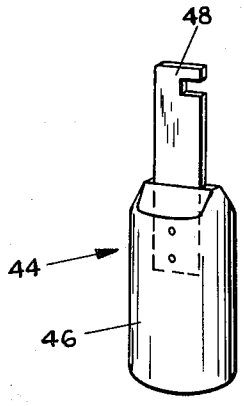


FIG. 7

SUSPENDED CEILING CONSTRUCTION

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to a suspended ceiling construction and more particularly to an improved suspended ceiling construction having a concealed support structure and easily removable access tiles.

2. Description of the Prior Art

Suspended ceilings are well known. In most typical suspended ceiling structures, evenly spaced suspension beams or support members are suspended from the ceiling or other structural members of the enclosure, and individual ceiling tiles of various sizes are suspended between adjacent support members. The support members may be concealed or visible from a position below the ceiling structure, with the concealed support structures involving more complex structural problems than ceilings with visible supports.

Two of the most common types of suspended ceilings in use today are "T-Bar" and "Z-Bar" type structures. In a T-bar grid structure, the support structure comprises a rectangular grid or matrix of inverted T-shaped members or T-bars suspended from the ceiling. The T-bar structure may be visible or concealed, depending on the ceiling tiles mounted in the grid. A visible T-bar system is called a "conventional grid" system, while a concealed T-bar system is called a "concealed grid" system.

In a conventional grid system, individual ceiling tiles rest on the upper surfaces of the horizontal flanges of the T-bars. In this type of construction, access to the space above the ceiling is provided by lifting the tiles upwardly out of the gridwork.

One problem with this type of system is that the flanges on the T-bars are fully visible from below the ceiling, thus impairing the aesthetic qualities of the ceiling and making it necessary to employ finished metal in the T-bars so that the visible portions will be as unobtrusive as possible.

Another problem with a conventional grid system is that the ceiling tiles must be lifted upwardly to gain access to the space above the suspended ceiling. This upward removal requres extra clearance between the suspended ceiling and any structure or ductwork above the suspended ceiling. Three inches of clearance may be necessary for reasonable access. In cases where this extra clearance is not possible or is omitted through poor installation procedures, it is quite difficult to gain access to the space above the tiles.

In concealed grid T-bar structures, the tiles have a kerf in the outside edges thereof and the tiles are fitted over the edges of the horizontal flanges on the T-bars. The grid members are concealed with this type of system, but the tiles are not removable and must be broken to gain access to the space above the suspended ceiling.

In a Z-bar type of structure, the support structure for the suspended ceiling is formed of evenly spaced parallel support members called Z-bars, which typically are suspended from C-shaped channel members (typically 1 ½ inch channel members) that are spaced evenly across the entire width of a room and run in a perpendicular direction with respect to the Z-bars. The channel members are suspended from the ceiling by suspension wire, and the Z-bars are suspended from the channel members by spring wire clips. The Z-bars are similar in cross sectional configuration to the T-bars of a concealed grid structure in that the Z-bars have a vertical support member with horizontal flanges extending outwardly from the bottom in an inverted T-shaped member. However, the Z-bars also have a horizontal flange extending outwardly from the top of the vertical support member, thus giving the member a roughly Z-shaped cross section. The flange at the top is designed to engage spring clips that hold the Z-bar to the transverse channel members.

The ceiling tiles conventionally employed in a Z-bar structure are twelve inch square tiles, with each tile having a continuous kerf in the side running around the entire tile. The kerf on the back edge of the tile fits over a flange on a back Z-bar, and the kerf on the front edge of the tile fits over a flange on a Z-bar in front of the tile, with the front Z-bar being fitted into position after a row of tiles has been fitted into engagement with the flange on the back Z-bar. "Breather splines," or thin metal plates, are inserted in the kerfs in side edges of adjacent tiles, in order to close the slots between the tiles and eliminate air flow through the slots.

One of the principal advantages of Z-bar ceilings is that the support structure is completely invisible when the ceiling is installed, and this is a very desirable feature. Accordingly, this type of ceiling has been installed in a high percentage of suspended ceiling installations over the past few years.

One of the principal drawbacks with a Z-bar type of ceiling structure is that, like a concealed grid T-bar ceiling, once the ceiling is installed, the tiles are permanently locked in place, and there is no way to gain access to the space above the ceiling without breaking and destroying a number of tiles. Reassembly of the ceiling structure after access has been provided similarly is a difficult task. Since it is important in many installations that access be provided to the space above the suspended ceiling (e.g., for repair of maintenance of lights, air conditioning, electric wiring or other utilities), the inaccessability of Z-bar ceiling structure is a serious deficiency with this type of system.

In order to overcome the problems of inaccessability of suspended ceilings having a concealed support structure, some attempts have been made to design removable access tiles for existing concealed grid T-bar and Z-bar systems, and other attempts have been made to develop new types of ceilings having access tiles. The problems with the access tiles for ceilings having concealed grids have been that the access tiles have been too complex and have employed expensive and complicated clips for holding the tiles in place. In addition, even with workable access tiles, convenient access to the space above the ceiling is still limited to the space immediately above each access tile, and other tiles still have to be broken away to provide an enlarged access area or access to areas where special access tiles are not located.

One of the principal problems with other types of ceiling structures having access tiles is that they do not employ Z-bar ceiling or T-bar support structures but employ special ceiling supports designed especially for that particular ceiling. Hence, in the vast majority of existing installations, wherein Z-bar or T-bar support structures are already in use, it would be necessary to remove and discard the entire support structure in order to switch over to a new type of ceiling. Other problems with these other types of ceiling structures

are that they frequently are difficult to install and remove.

The present invention obviates the foregoing deficiencies in the prior art and provides a simple and inexpensive suspended ceiling construction having concealed support members and simple downwardly removable access tiles that may be suspended from either a Z-bar or a T-bar support structure.

SUMMARY OF THE INVENTION

In accordance with the present invention, a suspended ceiling construction having concealed support members that is simple and easy to construct, yet provides easy access to the space above the ceiling, comprises a plurality of evenly spaced, coplaner, parallel support beams suspended from the ceiling, and a plurality of removable ceiling tiles suspended in rows between each pair of spaced front and back support beams.

Each support beam has back and front support means which support the front and back edges, respectively, of adjacent rows of ceiling tiles. Preferably, each support beam has an inverted T-shaped cross section and comprises a vertical support member comprising as back and front support means horizontal flanges extending outwardly from each side of the bottom of the support member. An existing T-bar or Z-bar support structure may be utilized in the suspended ceiling construction of the present invention.

The ceiling tiles each comprise a back edge having a longitudinal kerf therein that fits over and conceals the forward extending flange on the back support beam and an L-shaped front portion having a lower lip that fits under and conceals the rearward extending flange on a front support beam, with the space over the flange on the front support beam being open. The sides of the ceiling tiles comprise longitudinal slots or kerfs therein which preferably are spaced above the lip on the front portion of the ceiling tile. The distance between the lip and the kerfs should be at least equal to the thickness of the flange on the front support beam.

The front portions of the tiles are held in place against the flanges on the front support beams by locking means in the form of flat locking splines which fit in the kerfs in the sides of adjacent tiles and are concealed from view. Each spline is slidable from a locked position, wherein the spline extends over the flange on the front support beam and holds the adjacent tile in place, to a released position, wherein the spline is disengaged from the front support beam, thus releasing the front portion of the ceiling tiles from the front support beam.

The ceiling construction of the present invention includes at least one access tile, which comprises, in addition to the other features of the other ceiling tiles, open sections above the kerfs on each side of the ceiling tile, with the open sections being sufficiently large to permit the spline engaged in that ceiling tile to pass through the open section when the spline is placed in its released position. Thus, when the spline is in its released position, the access tile drops downwardly away from the splines on each side of it and may easily be removed from a row of ceiling tiles suspended between two support beams, the space opened up by the removed access tile makes it an easy job to remove any number of the other tiles in the row at the same time. Normally, every other tile in the suspended ceiling is an access tile, in order to maximize access to the space above the ceiling.

Each spline is a flat, plate-shaped element having rounded edges, and each spline is provided with a tool receiving means that is adapted to engage a flat disengaging tool inserted between adjacent tiles. The disengaging tool is used to slide the splines between their locked and released positions.

One of the important advantages of the ceiling construction is that conventional or pre-existing Z-bar or T-bar support systems can be used, yet the ceiling has none of the drawbacks of Z-bar or T-bar systems. The support structures are fully concealed but are easily removable in a downward direction to provide maximum access to the space above the ceiling. Because the access tiles are removable downwardly, (in contrast with the upward access of conventional grid systems) the suspended ceiling of the present invention can be placed immediately adjacent to the structure or ductwork above the ceiling without impairing the removability of the tiles or access to the space above the tiles.

Another advantage of the ceiling construction of the present invention is that the tiles and splines themselves are simple and inexpensive and easy to form, and the ceiling is easy to assemble and disassemble. The ceiling tiles may be formed of any conventional ceiling tile material, and the various cuts and removed sections of the tiles are easily formed by conventional manufacturing methods. Likewise, the splines are simple flat metal plates having openings in the center thereof for tool access. No interlocking metal parts having rivets and grooves or other such expensive and complicated parts are necessary in order to lock the ceiling tile of the present invention in position against the support beams.

These and other advantages and features of the present invention will hereinafter appear and, for purposes of illustration, but not of limitation, a preferred embodiment of this invention is described in detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a broken perspective view of a section of the suspended ceiling construction of the present invention.

FIG. 2 is a top plan view of a portion of the suspended ceiling construction of the present invention.

FIG. 3 is a broken sectional side view of the suspended ceiling construction of the present invention, showing the ceiling tiles suspended from a concealed grid support structure.

FIG. 4 is a partial sectional side view of the suspended ceiling of the present invention, showing the tiles suspended from a Z-bar support structure and showing the junction between the ceiling and a front wall.

FIG. 5 is a partial cross sectional view taken along line 5—5 of FIG. 4, showing the junction between the ceiling and a side wall.

FIG. 6 is a top plan view of a spline of the present invention.

FIG. 7 is a perspective view of a disengaging tool employed with the suspended ceiling construction of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Referring now to the drawings, a suspended ceiling

construction **10** according to the present invention comprises a plurality of inverted T-shaped support beams **12** suspended from the structure in which the suspended ceiling is being mounted (e.g., from a fixed ceiling **11**), and a plurality of removable ceiling tiles **14** suspended between adjacent parallel support beams. As shown in FIG. **1**, ceiling tiles **14** are suspended between adjacent support beams in even rows. For purposes of illustration, a single row will be described herein, with the adjacent support beams being identified as a front support beam **12***a* and a rear support beam **12***b*. Similarly, references to forward and rearward directions shall mean toward the left and right, respectively, according to FIG. **3** orientation. The tiles are mounted edge to edge along the side edges thereof and extend from one side of the structure to the other as shown in FIG. **5**.

Support beams **12** may be any type of inverted T-shaped support structure, including the commonly used structure referred to as T-bar and Z-bar structures. A T-bar structure **13** is shown in FIGS. **1–3**, and a Z-bar support structure **15** is shown in FIGS. **4** and **5**.

Each T-bar **13** preferably is formed of a rigid, light weight metal and comprises a vertical support member **16** having an enlarged rectangular runner **18** at the top thereof and horizontal front and rear flanges **20***a* and **20***b* extending outwardly from each side of the bottom thereof.

Z-bars **15** may be formed of the same type of material as T-bars **13** and also comprise inverted T-shaped members **16** and **20**, as described above. Instead of a runner **18** at the top, however, the Z-bars have an outwardly extending flange **19**. Outwardly extending flange **19** and runners **18** are employed for the purpose of suspending the support beams from the ceiling by different methods, as described below.

Since the inverted T-shaped support beams **13** and **15** operate in the same manner in suporting the ceiling tiles and differ only in the means by which they are supported from the ceiling, these support beams hereinafter will be referred to by the general reference numeral **12**, except where a specific property or function of one of the types of support beams is intended.

T-bars **13** typically are suspended from the ceiling **11** by means of cables **22** which are fastened to the ceiling and pass through openings (not shown) in vertical support members **16**. Z-bars **15**, on the other hand, usually are not suspended directly from the ceiling but are suspended from C-shaped channel members **21** that run transversely to the Z-bars and are evenly spaced across the room or other enclosure in which the suspended ceiling is mounted. Horseshoe shaped spring clips **23** fit over the channel members and under the flanges on the Z-bars in order to hold the Z-bars snugly to the undersides of the channel members.

It should be recognized that there are any number of different methods for suspending support beams from structural members, and any of these methods would be satisfactory means for suspending the support beams of the present invention.

Ceiling tiles **14** are rectangular or square in shape and have a substantially flat back edge **24** (the upper portion is relieved slightly to accommodate vertical member **16**), a stepped or L-shaped front portion **26**, and opposed side edges **28**. Each tile comprises parallel flat top and bottom surfaces **30** and **32**, respectively. Typically, in a T-bar construction, the tiles will be double tiles (FIGS. **1–3**), that is, two feet long and one foot wide, while one foot square tiles (FIGS. **4** and **5**) generally are used in Z-bar construction.

The back edge of each ceiling tile **14** is provided with a kerf or groove **34** between the top and bottom of the ceiling tile. This groove extends longitudinally the entire width of the tile and fits over front flange **20***a* of rear support beam **12***b*. The back edge **24** of ceiling tile **14** thus is supported by support beam **12***b* and conceals front flange **20***a* from view.

The front portion **26** of ceiling tile **14** is L-shaped and comprises a lower lip or flange **36** that extends outwardly below rear flange **20***b* on front support beam **12***a*, thus concealing it from view. The ceiling tile is open above flange **20***b*, so that the ceiling tile requires an additional retaining member engaging the top of flange **20***b* to hold the front of the ceiling tile in place against the front support beam.

The sides of ceiling tile **14** are provided with longitudinal kerfs or grooves **38** that extend from the front portion of the tile rearwardly toward the back edge of the tile. Kerfs **38** are positioned in the sides of the tile above the top of lower lip **36** by a distance at least equal to the width of flange **20***b*. The kerfs could conceivably be placed at other elevations, but that would eliminate the possibility of using the flat splines, which are described below.

Retaining means for holding the front edges of the ceiling tiles to flange **20***b* consists of a plurality of splines or locking members **40** which fit within the kerfs in the sides of adjoining ceiling tiles in the manner shown in FIGS. **1** and **6**. Splines **40** are flat, elongated metal members having rounded corners. The thickness of the splines is such that the splines will fit inside the kerfs **38** in the sides of the ceiling tiles. The splines are slidable between a locked position (i.e., the position shown in FIGS. **1** and **3** and by the solid figure in FIG. **2**) and a released position **40'** (i.e., the position indicated by the dotted figures shown in FIG. **2**.) In their locked positions, splines **40** extend over flanges **20***b* and engage the upper side of flange **20***b*, thus providing support for the front portion of the ceiling tiles. In their released positions, splines **40'** are disengaged from flange **20***b*, thus releasing the front portions of the ceiling tiles from the front support beam.

Splines **40** are provided with tool receiving means **42** in the form of elongated slots in the center thereof, with slots **42** being formed so that they will appear between the edges of adjacent tiles. These slots are adapted to receive a disengaging tool **44** of the type shown in FIG. **5**.

Disengaging tool **44** comprises a handle **46** and a hooked end **48**. In order to disengage a tile, disengaging tool **44** is slipped between adjacent tiles in a ceiling section and into slot **42** in a spline. A spline is then moved rearwardly to its released position, thus releasing the front edge of the tile.

With all of the tiles formed in the manner discussed above, movement of splines to their released positions will disengage adjacent tiles from the front support beam, but the tiles will still be suspended in the ceiling structure because of the continued engagement of splines **40** with the sides of adjacent tiles. In order to permit the complete removal of certain ceiling tiles, which will hereinafter be referred to as access tiles (e.g., tile **14'** in the drawings) the kerfs on the sides of the access tiles are provided with open sections **50** at

a point to the rear of the front of the tile. These open sections are formed such that when the splines engaging the kerfs in the sides of the access tile are moved back to their released positions, the splines not only become disengaged from flange **20***b* but also become disengaged from the upper surface of kerf **38.** In the released position shown by splines **40'** in FIG. **2,** the ceiling tile is not retained in place by either the splines or the front support beam and thus drops easily out of the ceiling structure, without affecting the position or suspension of adjacent tiles.

Since the removal of access tile **14'** provides an open space between an otherwise tight row of ceiling tiles, any additional number of ceiling tiles may be removed from this row simply by sliding the other ceiling tiles partially over into the space occupied by the removed access tile, thereby disengaging the splines in the sides of the tile from adjacent tiles. By disengaging the splines, the tiles may be pivoted downwardly out of the ceiling structure and disengaged from the flange on back support beam **12***a*. In order to avoid the removal of a large number of tiles to provide access to any one particular location, it is preferred that every other tile be an access tile.

The assembly of the ceiling of the present invention will be described in connection with the Z-bar embodiments shown in FIGS. **4** and **5.** The first step in the assembly involves mounting inwardly facing channel members **51** to the walls **53** at the level of the proposed ceiling all around the perifery of the room. These channel members hold the outer edges of the outer tile in each row. Spring clips **55** may be employed to hold the tiles down in place in the channels. Spring clip **57** at one end of each row resiliently holds the tiles tightly together in the row.

After the channels are installed, a first row of "half tiles" (i.e., tiles that have been cut in half so as to comprise a flat front edge and a kerfed back edge) are fitted into the channels one-by-one with splines being placed between each pair of tiles as each tile is installed. After the entire row has been fitted into the channel, a Z-bar is then fitted into the back edges of the tiles and clipped up to spaced C-shaped channel members running in a transverse direction across the room. These members usually are suspended from the room during original construction and do not have to be mounted by the ceiling installer.

After the first Z-bar is fitted, a second row of tiles is installed behind the Z-bar. The outer ends of the row of tiles are supported in the side channels and the front edges are suspended from the flange on the Z-bar by the splines fitted between each pair of tiles in the row. This lets the back edge sag somewhat.

The next step is to fit a second Z-bar into the kerfs in the backs of the tiles in the row and then clip the Z-bar up to the channel members. This same procedure is followed until the suspended ceiling covers the entire room.

As the foregoing indicates, the construction of the ceiling of the present invention is a relatively simple task. Removal of access tile is likewise a simple task. An access tool is fitted between the edges of an access tile and its adjacent tile and the splines are moved back to their released positions. The access tile then drops down and is slipped off the back flange and removed from the ceiling.

In order to provide maximum ease of assembly and access to the space above the ceiling tiles, it is desirable that each row of tiles include at least one access tile. Preferably, every other tile is an access tile, so as to permit free access to the space above the ceiling structure at any of the number of positions.

It should be understood that the embodiments described herein are merely exemplary of the preferred practices of the present invention and that various changes, modifications, and variations may be made in the arrangements, operations, and details of construction of the elements disclosed herein without departing from the spirit and scope of the present invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A suspended ceiling construction for a structure comprising:

a plurality of evenly spaced, parallel support beams mounted in the structure, each support beam comprising front and back ceiling tile support means on front and back sides thereof;

a plurality of removable ceiling tiles supported in rows between adjacent front and back support beams, each ceiling tile comprising:

a back edge having kerf means adapted to engage the front support means on the back support beam so as to hold the back edge in place on the back support beam;

a front portion adjacent the back support means on the front support beam, but being disengaged from supporting engagement with said back support means; and

opposing side edges that abut the side edges of adjacent tiles in the same row of ceiling tiles said side edges having longitudinal kerfs formed therein;

locking means slidably mounted in the kerfs in the abutting side edges of adjacent tiles, each locking means being slidable between a locked position, wherein the locking means engage the back support means of the front support beam and holds the front portions of the adjacent ceiling tiles in place against said front support beam, and a released position, wherein the locking means are disengaged from said back support means, thereby releasing the said front portions from the front support means; and

at least one access tile comprising a ceiling tile having an open section above the kerf on each side of the tile, said open section being formed so that the locking means in the sides of the access tile will fit through said open sections when the locking means are in their released positions,

whereby, access tiles may be removed by sliding the locking means therein to their released positions and then lowering the tile away from the locking means and disengaging the back edge of the tile from the back support beam.

2. A suspended ceiling construction as claimed in claim **1** wherein:

each support beam comprises a vertical support member with horizontal flanges extending outwardly from front and back sides thereof, said horizontal flanges constituting the front and back support means;

the front portion of each ceiling tile is L-shaped, with a lip on the front portion fitting under the back flange of the front support beam, the space above the back flange being open; and

the locking means each comprise a locking spline that fits over and engages the top of said back flange when the spline is in its locked position.

3. A suspended ceiling as claimed in claim **2** wherein:

the kerfs in the sides of each ceiling tile are formed at a position above the lip on the front portion of said tile, with the distance between the kerfs and the lip being at least equal to the thickness of the back flange on the front support beam; and

the splines are flat, elongated members that are enclosed within the kerfs in the sides of adjacent ceiling tiles, said splines having tool receiving means therein that are adapted to receive a disengaging tool inserted between the sides of said adjacent tile.

4. A suspended ceiling construction for a structure comprising:

a plurality of evenly spaced, coplaner parallel support beams suspended from the structure, each support beam having an inverted T-shaped cross section and comprising a vertical support member having front and back horizontal flanges extending outwardly from each side of the bottom of the support member;

a plurality of removable ceiling tiles supported in rows between adjacent front and back support beams, each tile comprising:

a back edge having a longitudinal kerf therein that fits over the front flange on a back support beam;

an L-shaped front portion that extends to the back flange on the front support beam, with a lower lip thereon fitting under said back flange and concealing it from view from a position below the suspended ceiling; and

parallel side edges abutting the side edges of adjacent tiles in the same row and extending between the first and second support beams, said side edges having longitudinal kerfs therein, said kerfs being positioned above the lip on the front portion of the tile by a distance at least equal to the thickness of the flange on the front support beam;

at least one ceiling tile being an access tile and comprising an open section above the kerf on each side edge thereof, said open section being spaced rearward of the front edge of the ceiling tile;

flat locking splines slidably mounted in the kerfs in the side edges of adjacent ceiling tiles, each said locking spline being slidable from a locked position, wherein the spline extends over the flange on the front support beam and holds the front portion of said adjacent tiles against the underside of the support beam, to a released position, wherein the spline does not engage the support beam and the front portion of said adjacent tiles are not held against the front support beam, said splines being formed so that the splines engaging kerfs in access tiles fit through the open sections therein when the splines are in their released positions, thereby allowing the access tiles to be removed from the ceiling for access purposes without disturbing other tiles, each spline further comprising a tool receiving means therein, said tool receiving means being adapted to engage a tool inserted between the edges of adjacent tiles so as to permit movement of the spline between its locked and released positions.

5. A suspended ceiling as claimed in claim **4** wherein the splines are elongated, flat, plate-shaped metal members, and the tool receiving means comprise at least one opening in each spline, said opening being positioned so as to be over the abutting side edges of the adjacent tiles in which the splines are mounted.

6. A suspended ceiling construction for a structure comprising:

a plurality of evenly spaced, parallel support beams mounted in the structure, each support beam comprising front and back horizontal flanges on front and back sides thereof;

a plurality of removable ceiling tiles supported in rows between adjacent front and back support beams, each ceiling tile comprising:

a back edge having a horizontal kerf that fits over the front flange on the back support beam so as to hold the back edge in place on the back support beam;

an L-shaped front portion having a lower lip that extends under the back flange on the front support beam but is disengaged from supporting engagement with said back flange; and

opposing side edges that abut the side edges of adjacent tiles in the same row of ceiling tiles, said side edges having horizontal kerfs formed therein, said kerfs being formed above the lip on the front portion by a distance at least equal to the thickness of the back flange on the front support beam; and

locking splines slidably enclosed in the kerfs in the abutting side edges of adjacent tiles, each locking spline being slidable between a locked position, wherein the locking spline protrudes over and engages the back flange of the front support beam and holds the front portions of said adjacent tiles in place against said front support beam, and a released position, wherein the locking spline is disengaged from said back flange, thereby releasing the said front portions from the front support means, each said locking spline being an elongated, flat member having at least one opening therein, said opening being positioned over the abutting side edges of the adjacent tiles in which the splines are mounted, and being of sufficient size to receive a disengaging tool inserted between the sides of the adjacent tiles.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,863,413 Dated February 4, 1974

Inventor(s) HENRY MOOMEY

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading of the patent the assignee's name is "Harvey J. Geute" and should be -- Harvey J. Beute --.

Signed and sealed this 22nd day of April 1975.

(SEAL)
Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents
and Trademarks

FORM PO-1050 (10-69)

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