# United States Patent

**Klugman**

[15] **3,645,510**

[45] **Feb. 29, 1972**


## [54] GRID MEMBER AND WALL FORMED THEREFROM


[72] Inventor: **Warren L. Klugman**, Middleburg Heights, Ohio

[73] Assignee: **Ceilcote Company**, Berea, Ohio



[22] Filed: **Mar. 4, 1970**

[21] Appl. No.: **16,470**

[52] **U.S. Cl.** ..... **261/94**, 52/667

[51] **Int. Cl.** ..... **B01f 3/04**

[58] **Field of Search** ..... 261/94–98, 112; 52/664, 667; 209/393; 55/233



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,428,230 | 9/1922 | Hess | 52/667 X |
| 3,189,335 | 6/1965 | Fuller et al. | 261/112 |
| 2,128,753 | 8/1938 | Lienhard | 52/667 |
| 2,162,742 | 6/1939 | Nagin | 52/667 X |
| 3,222,040 | 12/1965 | Eckert | 261/113 X |
| 3,118,957 | 1/1964 | Yerzley | 261/97 X |
| 3,324,630 | 6/1967 | Teller et al. | 55/233 X |

FOREIGN PATENTS OR APPLICATIONS

| | | | |
|---|---|---|---|
| 296,870 | 9/1928 | Great Britain | 52/664 |
| 454,677 | 2/1949 | Canada | 209/393 |
| 396,848 | 8/1933 | Great Britain | 52/664 |
| 383,338 | 12/1964 | Switzerland | 261/94 |



*Primary Examiner*—Tim R. Miles

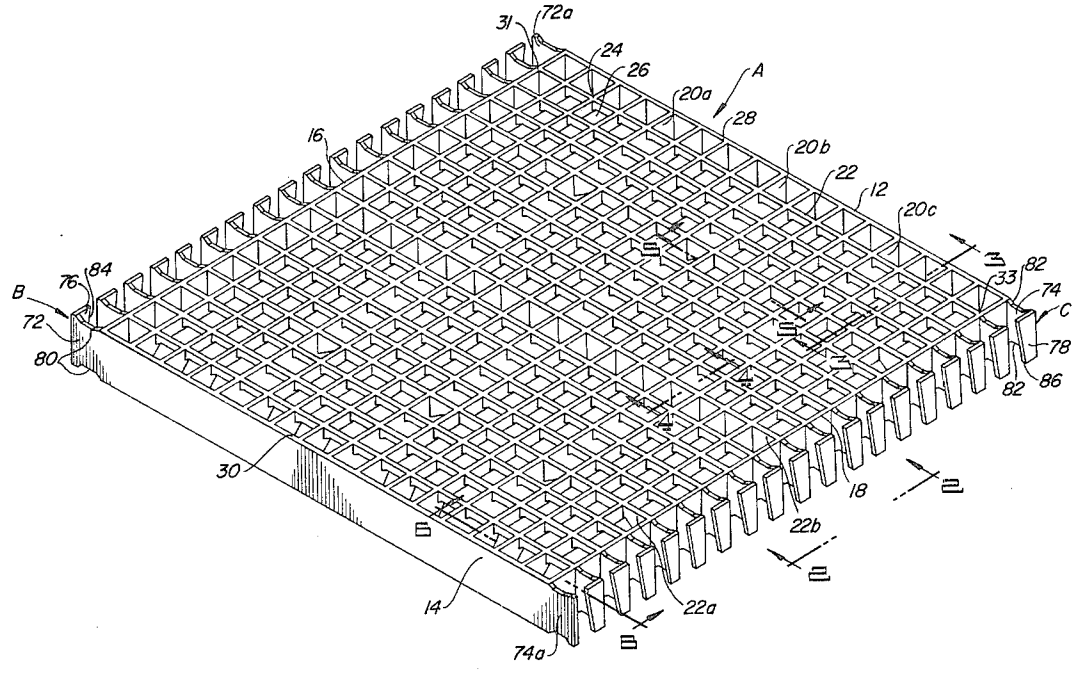
*Attorney*—Meyer, Tilberry and Body



[57] **ABSTRACT**

A grid member for supporting packings in liquid-gas contact apparatus is molded in one-piece of synthetic plastic material. The grid member is rectangular and has spaced-apart intersecting ribs which provide high-structural strength with a minimum of plastic material. The grid member includes interlocking projections extending outwardly from a pair of opposite side edges. A plurality of the grid members are assembled into a perforate grid supporting wall for supporting packings in liquid-gas contact apparatus.


**6 Claims, 13 Drawing Figures**



Patented Feb. 29, 1972 3,645,510

5 Sheets-Sheet 1

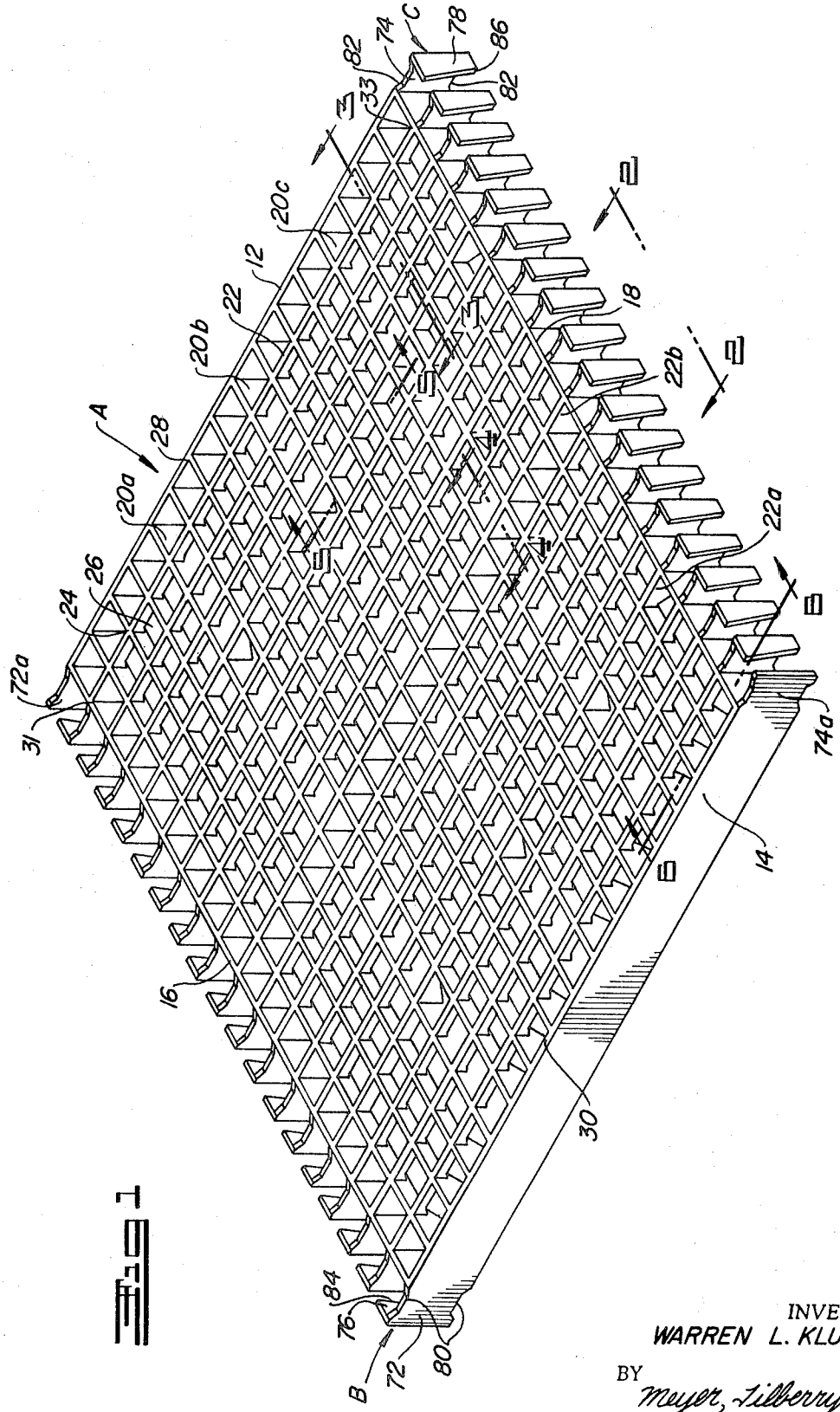



FIG. 1

INVENTOR.
WARREN L. KLUGMAN
BY
Meyer, Tilberry & Body
ATTORNEYS

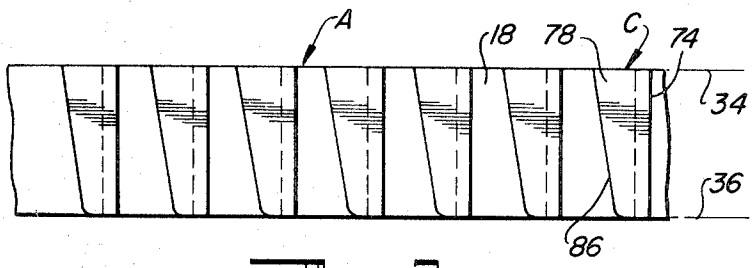



FIG. 2

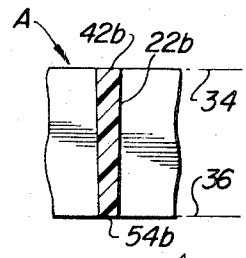



FIG. 4

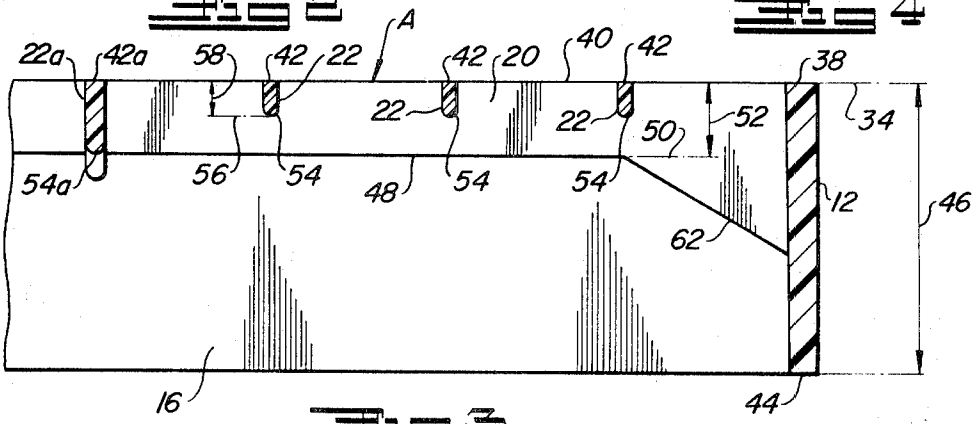



FIG. 3

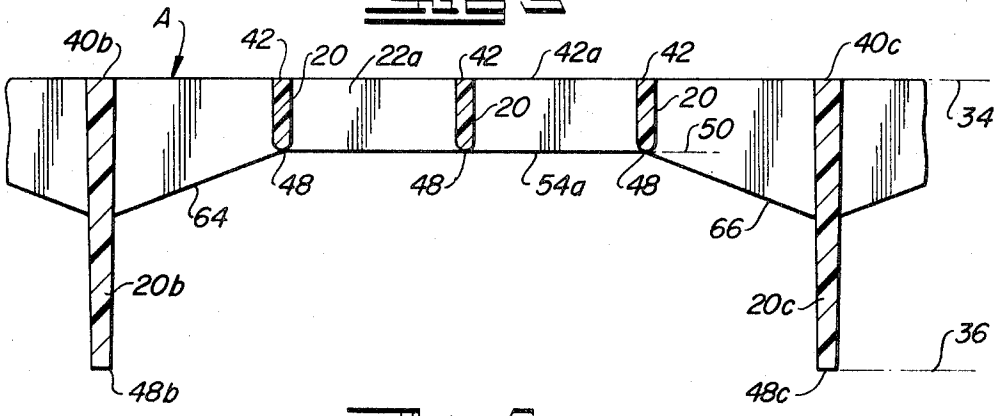



FIG. 5

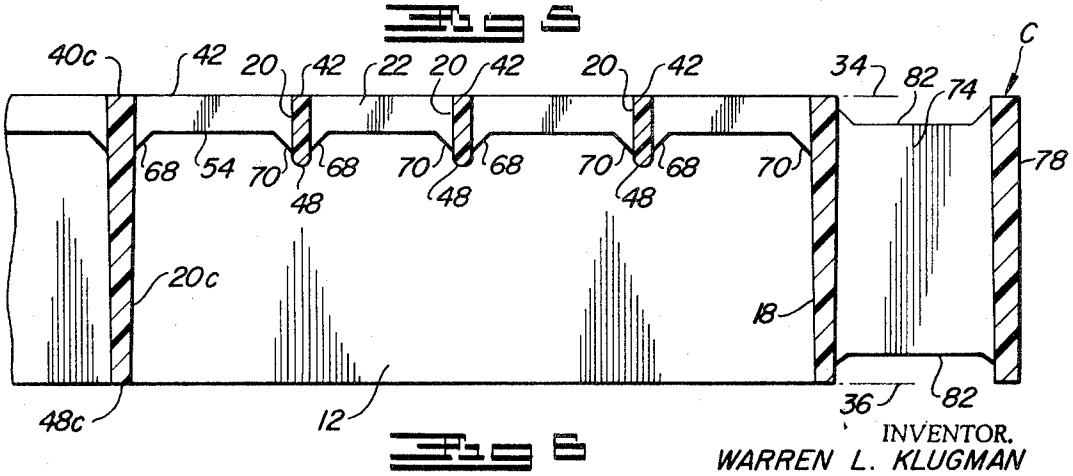



FIG. 6

INVENTOR.
WARREN L. KLUGMAN

BY
Meyer, Tilberry & Body

ATTORNEYS

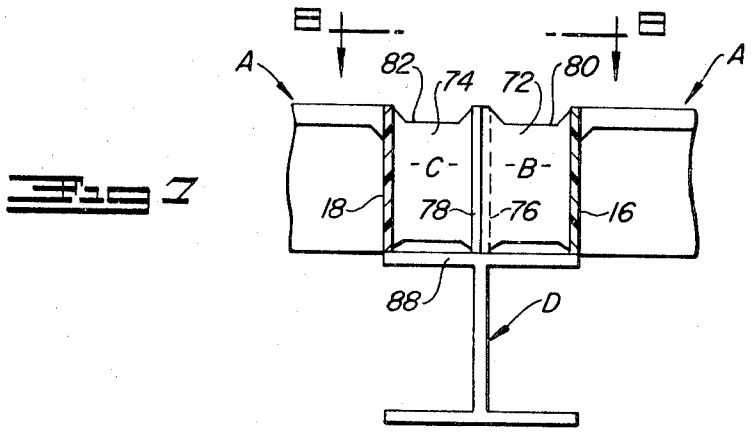



FIG 7

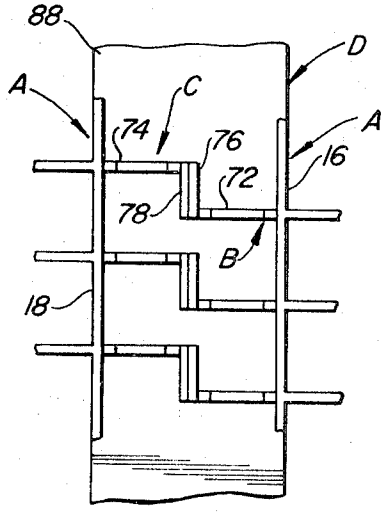



FIG 8

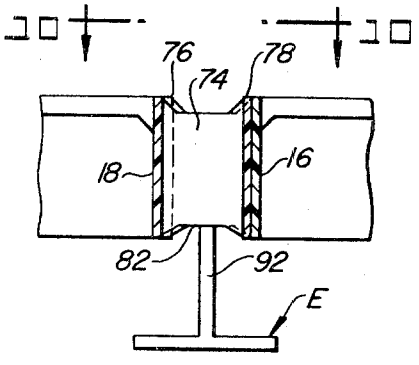



FIG 9

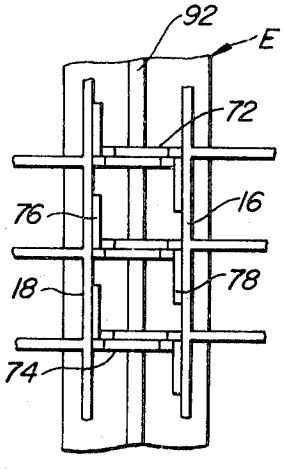



FIG 10

INVENTOR.
WARREN L. KLUGMAN

BY
Meyer, Tilberry & Body

ATTORNEYS

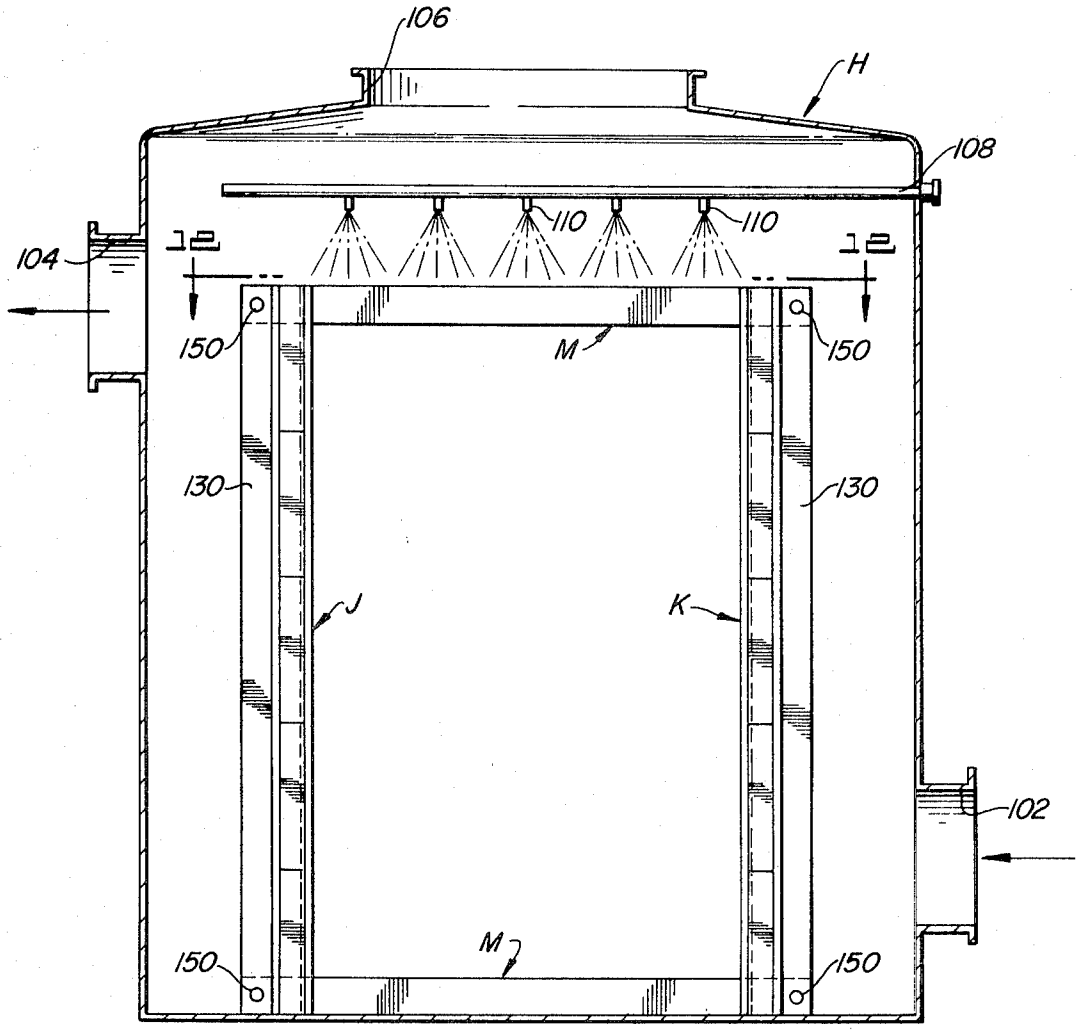



FIG 11

INVENTOR.
WARREN L. KLUGMAN

BY
Meyer, Tilberry & Body

ATTORNEYS

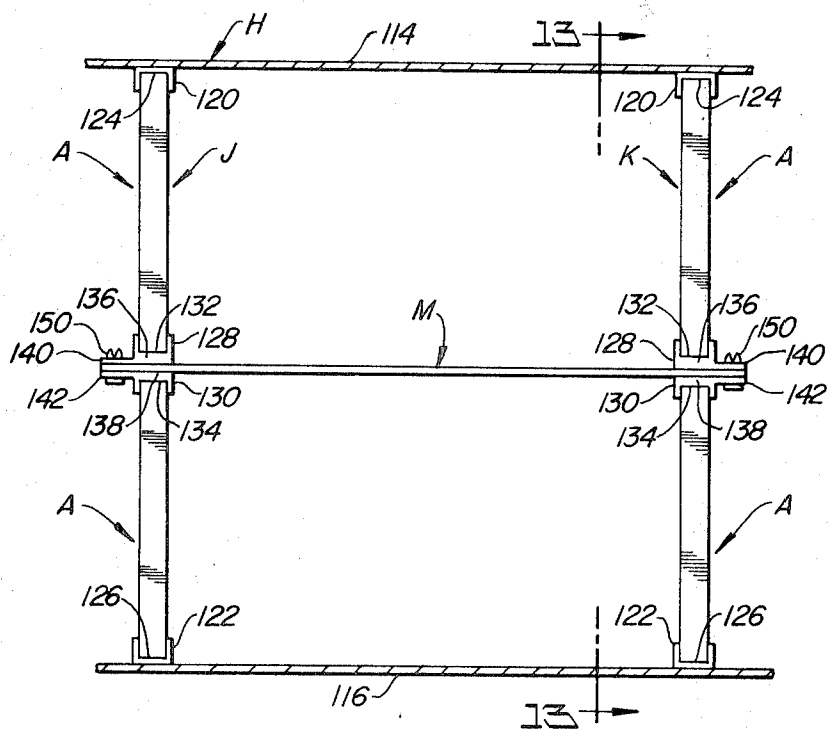



Fig 12

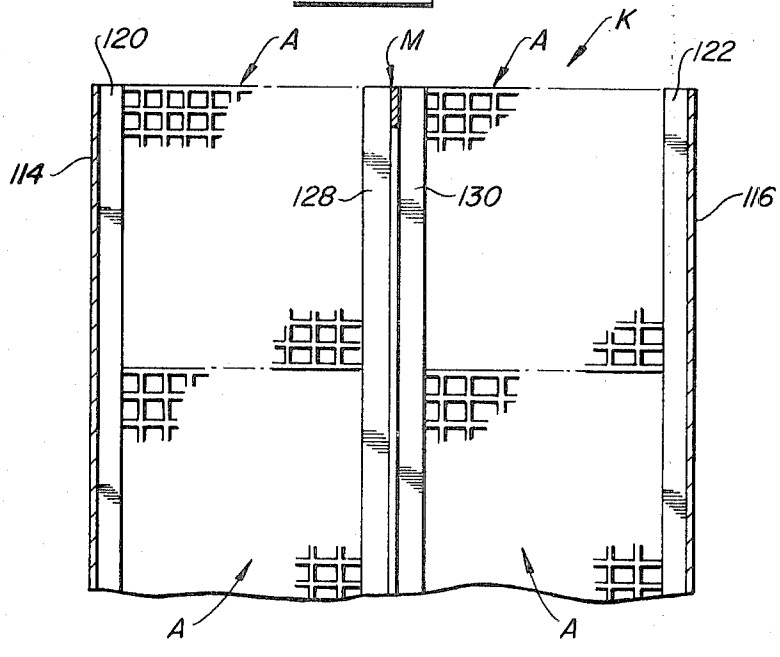



Fig 13

INVENTOR.
WARREN L. KLUGMAN
BY
Meyer, Tilberry & Body
ATTORNEYS

# GRID MEMBER AND WALL FORMED THEREFROM

## BACKGROUND OF THE INVENTION

This application pertains to the art of structural grid members and more particularly to structural grid members through which gas and liquid flow. The invention is particularly applicable to packing support grids and grid wall assemblies used in liquid-gas contact apparatus and will be described with particular reference thereto although it will be appreciated that the invention has broader applications and may be used in other environments.

Air pollutants commonly occuring in industrial areas include the following: noxious gases which normally exist in a vapor state such as chlorine or sulpher dioxide; liquid entrainment such as large size liquid particles created by sprays or bubbling; mists in the form of liquid particles resulting from condensation of molecules from the vapor state such as sulphuric acid vapor condensing to sulphuric acid mist; dusts of solid particles formed by grinding or disintegration of solid materials; fumes of solid particles formed by condensation, sublimation, or oxidation of metalic vapors such as zinc oxide fumes; and entrained particles of mists, liquids, dusts or fumes which are conveyed in an airstream through an exhaust ventilation system. Pollutants of the type described are commonly removed from an airstream through a liquid-gas contact apparatus. Such apparatus is commonly referred to as an air scrubber and includes a large receptacle containing packing such as the type described in U.S. Pat. No. 2,867,425, to Teller. Water or other liquid is sprayed on the packing and allowed to flow over it. Pollutants of the type described are absorbed or diffused into the liquid as the airstream passes through and around the packing which is wetted by the liquid. Packing elements for use in such liquid-gas contact apparatus may be in the form of ceramic cylinders or saddles, or special shapes of synthetic plastic material as described in the beforementioned Teller patent. Such packing elements must be supported by an open grid through which the airstream may freely flow. It is desirable that the grid support be formed of a noncorrosive material so that it will not rapidly deteriorate when contacted by pollutants in the airstream. It is also desirable that the grid support itself will not rapidly clog due to a buildup of pollutants thereon. In previous apparatus, grid supports for packing elements were specially constructed for each liquid-gas contact apparatus and were often of corrosive metal mesh or wire.

## SUMMARY OF THE INVENTION

In accordance with the present invention, a grid support for use in liquid-gas contact apparatus of the type described is defined by a rectangular grid member molded in one-piece of synthetic plastic material. In accordance with a preferred arrangement, a rectangular grid member has a first pair of parallel spaced-apart side flanges and a second pair of parallel spaced-apart side flanges perpendicular to the first pair. The flanges encompass a rectangular grid defining area and a first plurality of parallel spaced-apart ribs extend across the first pair of flanges. A second plurality of parallel spaced-apart ribs extend across the second pair of flanges and intersect the first ribs at a plurality of spaced-apart intersection points throughout the grid defining area. The first and second ribs encompass a plurality of rectangular grid openings within their intersection points. The grid member has first and second opposite faces with the flanges and ribs all having first edges lying in a common plane at the first face. With this arrangement, the first face of the grid member is completely smooth. The second face of the grid member is recessed and defines somewhat of a basket. This is accomplished by having the second edges of the flanges and ribs spaced varying distances toward the second face from the plane of the first face. In a preferred arrangement, a certain minor number of the first and second ribs are structurally larger than a majority of such ribs to improve the structural strength of the grid member. The grid member also includes a plurality of spaced-apart projections extending outwardly from one of the pair of opposite flanges. The projections include recessed upper and lower edges which may be positioned on a support member for supporting the entire grid member. In a preferred arrangement, the projections further include lateral extentions which help to interlock a pair of grid members or allow a pair of grid members to be abutted on a common support without shifting. The second ribs are preferably smaller than the first ribs so that they may be positioned horizontally in a wall formed from a plurality of the grid members. Positioning the smaller ribs horizontally substantially eliminates any problem with buildup of pollutant material on horizontal ribs.

In accordance with one arrangement, a substantially vertical perforate grid wall may be formed by utilizing parallel channel members having open channel portions facing one another. A plurality of grid members formed in accordance with the present invention have opposite side edges thereof received in the channels. In a preferred arrangement, intermediate channel members for forming such a perforate grid wall are substantially F-shaped so as to leave leg portions which may be secured to one another.

It is a principal object of the present invention to provide an improved grid member for use in liquid-gas contact apparatus.

It is also an object of the present invention to provide an improved grid member which achieves a high structural strength while utilizing a minimum of material.

It is a further object of the present invention to provide an improved grid member which is more economical to manufacture and to assemble in a liquid-gas contact apparatus.

It is an additional object of the present invention to provide a grid member having enhanced self-cleaning properties.

It is a further object of the present invention to provide an improved perforate grid supporting wall assembly for use in liquid-gas contact apparatus.

## BRIEF DESCRIPTION OF THE DRAWING

The invention may take physical form in certain parts and arrangements of parts, a preferred embodiment of which will be described in detail in this specification and illustrated in the accompanying drawing which forms a part hereof.

FIG. 1 is a perspective view looking down on the bottom face of the improved grid member of the present invention;

FIG. 2 is a partial elevational view looking in the direction of arrows 2—2 of FIG. 1;

FIG. 3 is a cross-sectional elevational view looking in the direction of arrows 3—3 of FIG. 1;

FIG. 4 is a cross-sectional elevational view looking in the direction of arrows 4—4 of FIG. 1;

FIG. 5 is a cross-sectional elevational view looking in the direction of arrows 5—5 of FIG. 1;

FIG. 6 is a cross-sectional elevational view looking in the direction of arrows 6—6 of FIG. 1;

FIG. 7 is a partial cross-sectional elevational view showing end portions of a pair of grid members constructed in accordance with FIG. 1 resting on a common support;

FIG. 8 is a top plan view looking in the direction of arrows 8—3 of FIG. 7;

FIG. 9 is a partial cross-sectional elevational view showing edge portions of a pair of grid members interdigitated and resting on a common support;

FIG. 10 is a top plan view looking in the direction of arrows 10—10 of FIG. 9;

FIG. 11 is a cross-sectional elevational view showing a liquid-gas contact apparatus having an improved supporting grid wall assembly utilizing the grid member of FIG. 1;

FIG. 12 is a top plan view looking in the direction of arrows 12—12 of FIG. 11; and

FIG. 13 is a side elevational view looking in the direction of arrows 13—13 of FIG. 12.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings wherein the showings are for purposes of illustrating the preferred embodiment of the invention only and not for purposes of limiting same, FIG. 1 shows a molded one-piece rectangular grid member A. Grid member A includes first and second spaced-apart parallel side flanges **12** and **14**; and third and fourth spaced-apart parallel side flanges **16** and **18** perpendicular to side flange **12** and **14**. A first plurality of parallel spaced-apart ribs, only one of which is referenced by numeral **20** in FIG. **1**, extend across first and second side flanges **12** and **14**. A second plurality of parallel spaced-apart ribs, only one of which is referenced by numeral **22** in FIG. **1**, extend across third and fourth flanges **16** and **18**. It will be recognized that side flanges 12–18 encompass a grid defining area in which ribs **20** and **22** are located. First and second ribs **20** and **22** intersect one another at a plurality of spaced-apart intersection points throughout the grid defining area encompassed by side flanges 12–18, and only one of such intersection points is referenced by numeral **24** in FIG. **1**. Intersection points **24** lie at the corners of rectangles, and first and second ribs **20** and **22** cooperate to define rectangular grid openings within each four intersection points, only one such grid opening being referenced by numeral **26** in FIG. **1**. It will be recognized that first ribs **20** also intersect first and second side flanges **12** and **14** as at intersection points **28** and **30**. Second ribs **22** also intersect third and fourth flanges **16** and **18** as at intersection points **31** and **33**, respectively.

In a preferred arrangement, as shown in FIG. **3**, grid member A has a bottom first face defined by a plane **34** and a front second face defined by plane **36**. Side flange **12** has a first edge **38** lying in plane **34** and it will be recognized that side flanges **14**, **16** and **18** also have first edges lying in a common plane, defined by plane **34**, with first edge **38** of flange **12**. Ribs **20** include first edges **40** while ribs **22** include first edges **42**. First edges **40** and **42** of ribs **20** and **22** also lie in a common plane defined by plane **34**. Side flange **12** has a second edge **44** lying in plane **36** and it will be recognized that side flanges **14**, **16** and **18** have corresponding second edges lying in plane **36**. Therefore, it will be recognized that all of side flanges 12–18, and ribs **20** and **22**, have first edges lying in a common plane defined by plane **34**. Flanges 12–18 also have second edges all lying in a first plane **36** at the front second face of grid member A. As best shown in FIG. **3**, first plane **36** is spaced a first distance **46** from common plane **34**. Ribs **20** also have second edges **48** lying in a common second plane **50**. Second plane **50** is spaced a second distance **52** from common plane **34** with second distance **52** being substantially less than first distance **46**. Second ribs **22** also have second edges **54** lying in a common third plane **56** which is spaced a third distance **58** from common plane **34**. Third distance **58** is substantially less than second distance **52**. While all of ribs **20** and **22** may have edge spacings as described, a preferred arrangement provides only a substantial majority of ribs **20** and **22** with such spacings while a substantial minority of such ribs, located in predetermined positions, are heavier to enhance the structural properties of the grid. For example, second ribs **22** include a pair of ribs **22*a*** having first edges **42*a*** which lie in common plane **34** and second edges **54*a*** which lie in second plane **50**. In addition to a minor number of stronger ribs **22*a***, second ribs **22** include a centrally located rib **22*b*** having first edge **42*b*** lying in common plane **34** and second edge **54*b*** lying in first plane **36**. It will be recognized that centrally located rib **22*b*** has the same dimensions as side flanges 12–18. In the arrangement shown, second ribs **22** total **17** in number. The fourth ribs **22*a*** spaced inwardly from each of side flanges **12** and **14** are larger than the majority of ribs **22** while central rib **22*b*** is even larger and of substantially the same dimensions as side flanges 12–18. With this arrangement, grid member A is structurally very strong and is capable of supporting a large number of packings without bending or breaking.

In addition to certain of second ribs **22** being stronger than other, certain of first ribs **20** are also stronger. In accordance with one arrangement, the fourth ribs **20*a*** and **20*c*** spaced inward from side flanges **16** and **18** are of the same dimensions as side flanges 12–18. As shown in FIG. **5**, enlarged ribs **20*b*** and **20*c*** include first edges **40*b*** and **40*c*** lying in common plane **34**, and second edges **48*b*** and **48*c*** lying in first plane **36**. Enlarged rib **20*a*** has corresponding first and second edges lying in the same plane. In the arrangement shown and described, there are 15 of first ribs **20**, and three of such ribs **20*a***, **20*b*** and **20*c*** are larger than the others. Therefore, a substantial majority of first ribs **20** are of the same size while a substantial minority are structurally larger. In a preferred arrangement, the smaller ribs slope upwardly at their intersection points with larger ribs or with the side flanges. For example, ribs **20** slope upwardly as at **62** out of second plane **50** toward the second face of grid member A as defined by first plane **36** in FIG. **3**. Rib **42** slopes upwardly as at **64** and **66** at its intersection with enlarged ribs **20*b*** and **20*c***. As shown in FIG. **6**, small second ribs **22** slope upwardly as at **68** and **70** when intersecting larger ribs **20**. This upward sloping of the smaller ribs at the intersection points with larger ribs or flanges increases the stiffness of the grid member while utilizing a minimum of material and presenting a minimal surface area for the major portion of the grid area.

In accordance with the preferred arrangement, side flanges **16** and **18** have a plurality of spaced-apart projections B and C extending outwardly therefrom. Each of projections B and C includes an outwardly extending portion **72** and **74**, and laterally extending leg portions **76** and **78**. Outwardly extending portions **72** and **74** are located in alignment with second ribs **22**. In addition, the spacing between the outer faces of flanges **16** and **18**, and the inner faces of lateral leg portions **76** and **78**, is the same as the spacing between opposed faces of first rib members **20**. Each lateral leg portion **76** and **78** extends perpendicular to outwardly extending portions **72** and **74** toward an adjacent outwardly extending portion, and terminates a predetermined distance therefrom which is greater than the thickness of outwardly extending portions **72** and **74**. Two opposite corners of grid member A include outwardly extending portions **72*a*** and **74*a*** which are formed without lateral leg portions. Outwardly extending portions **72*a*** and **74*a*** extend outwardly a slightly greater distance than portions **72** and **74** so that their outer edges lie in the same plane as the outer faces of leg portions **76** and **78**. With this arrangement, the outer surfaces of flanges **12** and **14**, along with the outer surfaces of leg portions **76** and **78**, define a grid member which is square. Since a square is merely a special form of rectangle, it will be understood that grid member A may be formed square as described, or with one opposed pair of flanges **12** and **14**, or **16** and **18**, longer than the other pair.

In accordance with a preferred arrangement, the upper and lower edges of outwardly extending portions **72** and **74** are recessed as at **80** and **82** so that supporting members for grid A may be positioned in such recesses. In addition, laterally extending leg portions **76** and **78** include terminal edges **84** and **86** which slope inwardly toward outwardly extending portions **72** and **74** in a direction from common plane **34** toward first plane **36** as best shown in FIG. **2**. With this sloping arrangement, interdigitating of projections B and C with corresponding projections on an adjacent grid member is more easily accomplished. It will be recognized that lateral leg portions **76** extend from outwardly extending portions **72** toward side flange **12**, while lateral legs **78** extend toward side flange **14** from outwardly extending portions **74**.

Those skilled in the art will be readily aware that the improved grid member of the present invention is particularly suited for manufacture in one-piece of synthetic plastic material by injection molding procedures. The grid member may be molded of various suitable materials such as linear polyethylene or polypropylene, or polypropylene filled with talc or glass. In addition, the improved grid member of the present invention provides an extremely high structural strength while utilizing a minimum of material. Forming all of the ribs and flanges with first edges lying in a common plane at

a first face of the grid member provides a smooth surface which is broken only by the open grid areas, while the second face is stepped. In the preferred arrangement, the thickness of ribs 20 and 22 is such that grid openings 26 define at least 75 percent of the area encompassed within the inner faces of side flanges 12–18. With the arrangement described, two grid members A may be positioned in side-by-side relationship with projections B and C of adjacent grid members supported on upper web 88 of I-beam D. The substantial lateral extent of leg members 76 and 78 allow their outer faces to contact one another and prevent adjacent grid members A from shifting away from one another. In addition, the open area encompassed within two adjacent outwardly extending portions 72 or 74, and a leg portion 76 or 78, is substantially the same as the area of grid openings 26 so that packing elements may be supported on projections B and C when adjacent grid members are abutted.

While a pair of grid members A are shown abutted in FIGS. 7 and 8 with projections B on one grid member contacting projections C on the adjacent grid member, the design of the projections is such that identical projections B or C on two adjacent grid members may be positioned in abutting relationship.

In accordance with another arrangement, projections B on one grid member A may be interdigitated with projections C on a second adjacent grid member A as shown in FIGS. 9 and 10. Sloping edges 84 and 86 on leg portions 76 and 78 assist in positioning leg portions 76 on one grid member between outwardly extending portions 74 on an adjacent grid member. With this arrangement, projections B and C define interlocking means for interlocking adjacent edges of a pair of grid members and also make it possible to support interlocked edges of a pair of grid members on a common support. Leg 92 of T-beam E is received in recesses 80 and 82 when projections B and C are interdigitated. Recesses 80 and 82 limit lateral shifting movement of a pair of adjacent grid members relative to a common support when such support includes a portion which is received in the recesses as shown in FIG. 9.

With the grid member of the present invention, supporting walls for packing elements may be readily constructed in a horizontal, vertical or sloping configuration. In one arrangement, as shown in FIG. 11, a liquid-gas contact apparatus includes a large receptacle H of a known type having an air inlet 102 and an air outlet 104. A suitable blower is provided for forcing air through receptacle H. A pair of supporting walls J and K are positioned within receptacle H and extend completely thereacross from one sidewall to the other thereof. The space between walls J and K is filled with packing elements in a known manner. Receptacle H includes a top opening 106 for this purpose and opening 106 is normally closed by a cover during operation of the device. A header pipe 108 is provided with a plurality of spray nozzles 110 opening downwardly for wetting the surfaces of the packing elements located between walls J and K with water or other liquid in a known manner. Suitable baffles, which are of a known type and not shown for simplicity of illustration, may be positioned inside of the top portion of receptacle H to force air through both of walls J and K, and the packing elements contained therebetween. The bottom portion of receptacle H is also provided with a separate outlet for liquid in a known manner. In the preferred arrangement, spaced-apart opposed sidewalls 114 and 116 of receptacle H have elongated channel members 120 and 122 secured to the inner surfaces thereof. Channels 120 and 122 may be extruded of polyvinyl chloride and may be attached to walls 114 and 116 by adhesive. Channels 120 and 122 include open channel portions 124 and 126 which open outwardly and face one another. Elongated intermediate channel members 128 and 130, of identical construction, include open channel portions 132 and 134. Each intermediate channel member 128 and 130 has a substantially F-shaped cross-sectional shape. Intermediate channel members 128 and 130 may also be extruded of polyvinyl chloride. Each such intermediate channel member 128 and 130 includes a main leg defined by a first portion 136 and 138 forming the bottom of open channel portions 132 and 134, and a second portion 140 and 142 extending laterally beyond the channel portions. Intermediate channel members 128 and 130 are positioned with the main legs thereof facing one another and with open channel portions 136 and 138 facing in opposite directions. Vertically spaced horizontal strut members M of rectangular cross-sectional configuration extend from support wall J to support wall K. Strut members M include end portions positioned between adjacent intermediate channel members 128 and 130. Second portions 140 and 142 of the main legs of intermediate channel members 128 and 130, along with the end portions of strut M, are provided with suitable holes through which fasteners 150 extend. Fasteners 150 may be of a known type molded of synthetic plastic material and including spaced-apart bifurcated legs having enlarged heads on the ends thereof. The bifurcated legs are bendable toward one another for insertion through the holes provided and spring outwardly so that their enlarged heads lock on one side of a hole while the enlarged head on the other end of the fastener itself abuts an element on the other side of the hole. It will be recognized that the manner of fastening struts M, and intermediate channel members 128 and 130 together may be accomplished in any desirable manner. Open channel portions 124 and 132 face one another in opposed spaced-apart parallel relationship to define a first guideway while open channel portions 126 and 134 face one another in opposed spaced-apart parallel relationship to define a second guideway. A plurality of grid members A, as described with reference to FIGS. 1–6, have projections B and C received in these guideways with adjacent flanges 12 or 14 on vertically adjacent grid members abutting one another. Perforate grid walls are then provided for supporting packing elements in a desirable configuration and such a perforate supporting grid wall offers little resistance to flow of air therethrough. In addition, any number of pairs of intermediate channel members 128 and 130 may be provided to extend such a supporting wall completely across a receptacle having opposed sidewalls positioned different distances from one another. With the arrangement described, it will be recognized that larger first ribs 20 will be vertical when projections B and C are received in the guideways defined by the open channel portions. It is common to provide water spraying against the outside surfaces of perforate grid walls J and K to wash pollutants of the type described from grid members A. Such water flows downward by gravity and thoroughly cleans larger first ribs 20 to prevent the buildup of pollutants thereon. Smaller second ribs 22, which have a much smaller surface area than ribs 20, are positioned horizontally in walls J and K. Due to the smaller surface area of ribs 22, they are less likely to develop a rapid buildup of pollutants than larger first ribs 20. Therefore, the reduced washing action on horizontal ribs 22 is still sufficient to remove the reduced pollutant buildup thereon. With the grid member of the present invention designed in the manner described, maximum structural strength is provided by the various sized ribs while permitting efficient washing of pollutants therefrom due to the horizontally positionable ribs being substantially smaller than the vertically positionable ribs. It will be recognized that channel members 120 and 122 may be defined as first and second end channel members. Open channel portions 132 of intermediate channel members 128 face open channel portions 124 of first end channel members 120 while open channel portions 134 of intermediate channel members 130 face open channel portions 126 of second end channel members 122. Grid members A may be positioned in the guideways defined by the open channel portions with either their first faces defined by plane 34, or their second faces defined by plane 36, facing inwardly. While walls J and K have been shown in a substantially vertical position, it will be recognized that such walls may be positioned in parallel spaced-apart relationship at an angle to the vertical.

While the invention has been described with reference to a preferred embodiment, it is obvious that modifications and al-

terations will occur to others skilled in the art upon the reading and understanding of this specification. The present invention includes all such equivalent modifications and alterations and is limited only by the scope of the claims.

Having thus described my invention I claim:

1. A perforate grid wall comprising; a pair of elongated spaced-apart parallel first and second end channel members having open channel portions facing one another, a pair of elongated parallel intermediate channel members extending parallel to said end channel members' each of said intermediate channel members being substantially F-shaped in cross section and including a main leg and a pair of parallel spaced-apart flanges extending outwardly therefrom to define an open channel portion, said main leg including a first portion defining a bottom wall of said channel portion and a second portion extending laterally beyond said channel portion, said intermediate channel members being positioned in opposed relationship with said main legs facing one another and said open channel portions thereof opening outwardly in opposite directions, said open channel portion on one of said intermediate channel members facing said open channel portion of said first end channel and cooperating therewith to define a first guideway, said open channel portion on the other of said intermediate channel members facing said open channel portion of said second end channel and cooperating therewith to define a second guideway, fastening means securing said second portions of said main legs of said intermediate channel members together, and a plurality of rectangular perforate grid members having spaced-apart opposite side edges received in said channel portions of said guideways.

2. The perforate grid wall of claim 1 wherein said wall defines a first perforate grid wall and further including a second grid wall substantially identical to said first grid wall positioned in substantially parallel spaced-apart relationship thereto, said second grid wall including intermediate channel members, and strut means interconnecting said intermediate channel members of said first grid wall with said intermediate channel members of said second grid wall.

3. A molded rectangular one-piece grid member having a first pair of parallel spaced-apart side flanges and a second pair of parallel spaced-apart side flanges perpendicular to said first pair of side flanges, said flanges encompassing a grid defining area, a first plurality of parallel spaced-apart ribs extending across said first pair of flanges, a second plurality of parallel spaced-apart ribs extending across said second pair of flanges, said first and second ribs intersecting one another at a plurality of spaced-apart intersection points throughout said grid defining area an encompassing a plurality of rectangular grid openings, said grid member having first and second opposite faces, said flanges and ribs having first edges lying in a common plane at said first face, said flanges having second flange edges spaced a first distance from said common plane and lying in a first plane at said second face, at least a majority of said first ribs having second edges spaced a second distance less than said first distance from said common plane and lying in a second plane at said second face, at least a majority of said second ribs having second edges spaced a third distance less than said second distance from said common plane and lying in a third plane at said second face, each of said majority of said first ribs having a width dimension substantially less than the distance from said common plane to said second plane, a plurality of spaced-apart projections extending outwardly from at least said third and fourth side flanges, said projections including laterally extending portions having edge portions sloping inward from said first face toward said second face.

4. A molded rectangular one-piece grid member having a first pair of parallel spaced-apart side flanges and a second pair of parallel spaced-apart side flanges perpendicular to said first pair of side flanges, said flanges encompassing a grid-defining area, a first plurality of parallel spaced-apart ribs extending across said first pair of flanges, a second plurality of parallel spaced-apart ribs extending across said second pair of flanges, said first and second ribs intersecting one another at a plurality of spaced-apart intersection points throughout said grid defining area and encompassing a plurality of rectangular grid openings, said grid member having first and second opposite faces, said flanges and ribs having first edges lying in a common plane at said first face, said flanges having second flange edges spaced a first distance from said common plane and lying in a first plane at said second face, at least a majority of said first ribs having second edges spaced a second distance less than said first distance from said common plane and lying in a second plane at said second face, at least a majority of said second ribs having second edges spaced a third distance less than said second distance from said common plane and lying in a third plane at said second face, each of said majority of said first ribs having a width dimension substantially less than the distance from said common plane to said second plane, a plurality of spaced-apart support projections extending outwardly from at least said third and fourth side flanges, said projections having outer edges spaced outwardly from said third and fourth side flanges, and recesses formed in said projections intermediate said outer edges and said third and fourth side flanges, said recesses opening outwardly toward at least one of said first and second opposite faces of said grid member.

5. The grid member of claim 4 wherein said recesses open outwardly toward both of said first and second opposite faces.

6. The grid member of claim 4 and further including lateral extensions projecting laterally from said outer edges of said projections in substantially parallel relationship to said third and fourth side flanges.

* * * * *