

June 10, 1958

F. FEKETICS
SHIELDING ENCLOSURES

2,838,592

Filed March 27, 1956

3 Sheets-Sheet 1

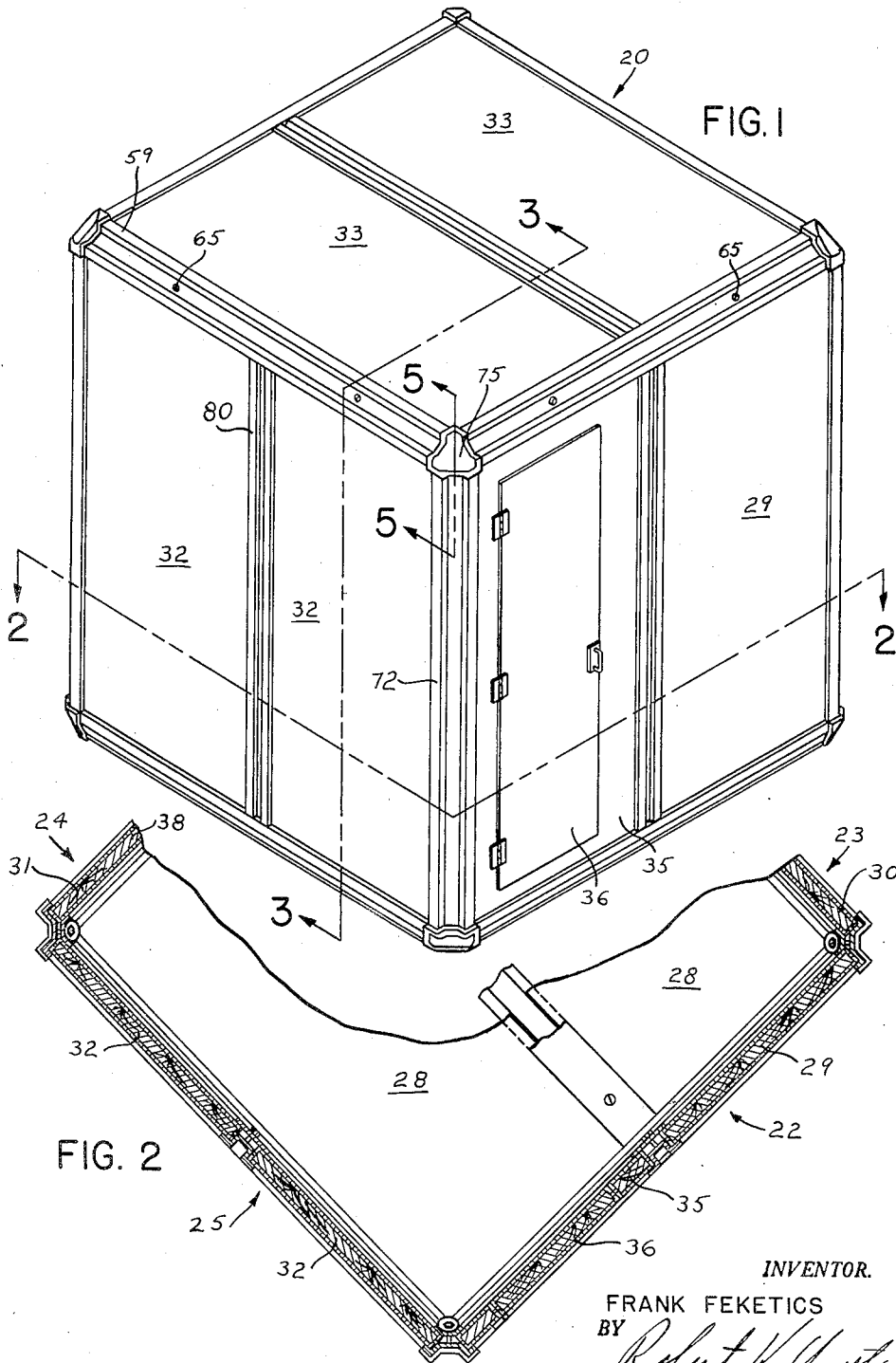


FIG. 2

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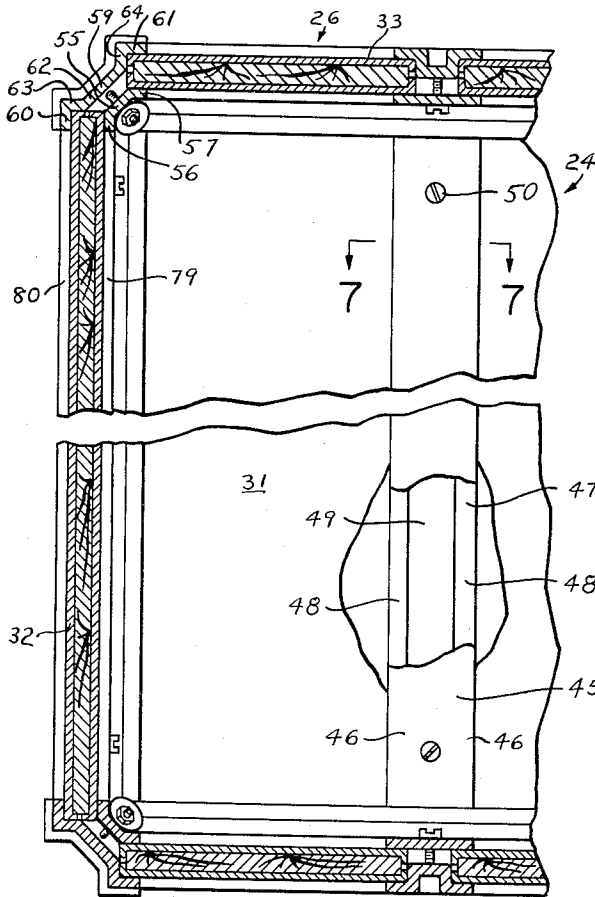


FIG. 3

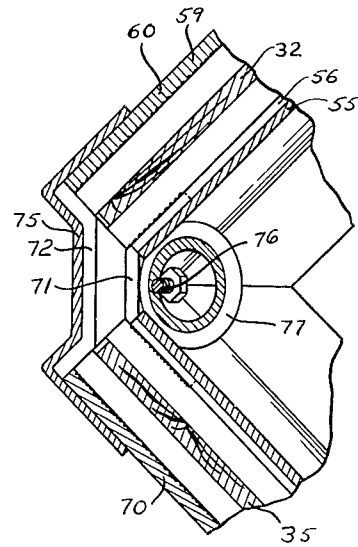


FIG. 6

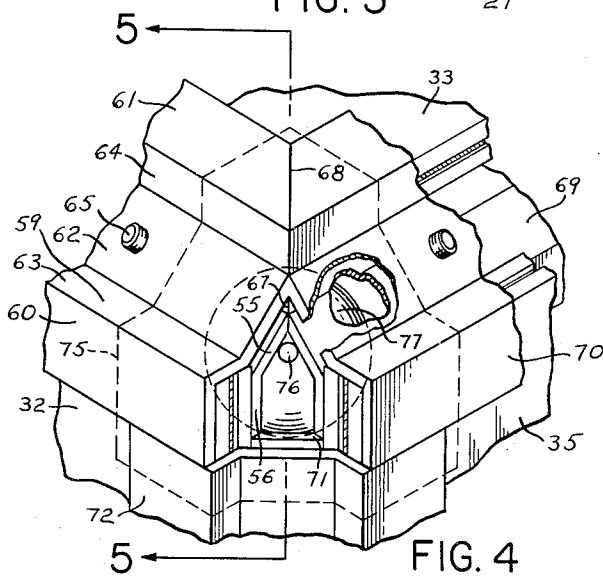


FIG. 4

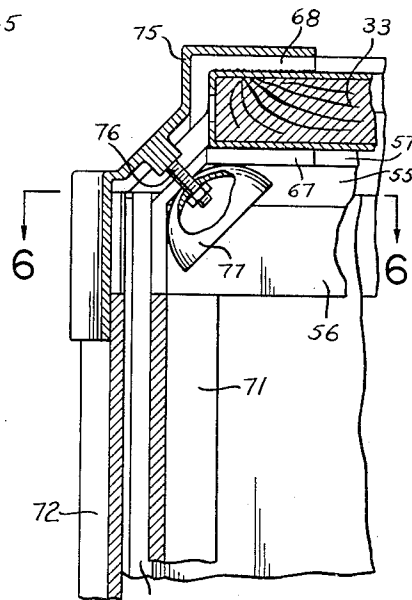


FIG. 5

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3 Sheets-Sheet 3

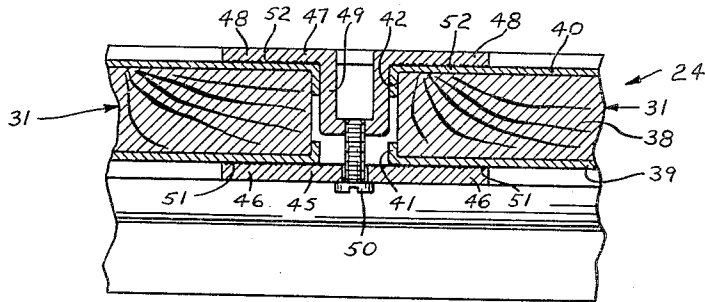


FIG. 7

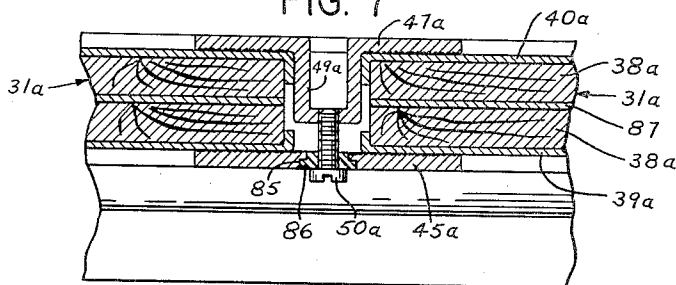


FIG. 8

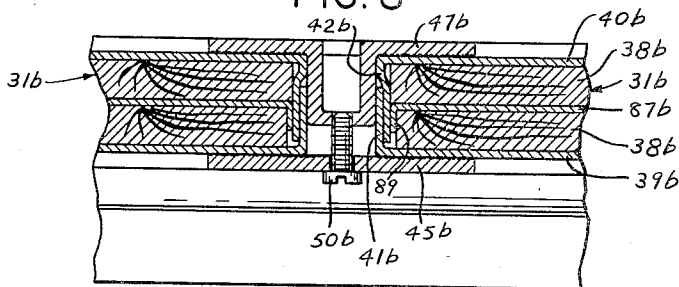


FIG. 9

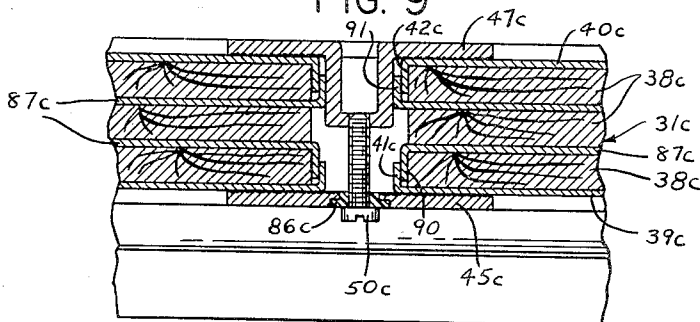


FIG. 10

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2,838,592

SHIELDING ENCLOSURES

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Application March 27, 1956, Serial No. 574,121

7 Claims. (Cl. 174—35)

This invention relates generally to radiation shielding structures, and is particularly directed to an improved, knock-down shielding construction of the general type disclosed in my co-pending patent application Serial Number 430,515 filed May 18, 1954, now abandoned, of which this application is a continuation in part. This instant invention also embraces a novel shielding joint construction for shielding panels.

The particular embodiment of the present invention, which is illustrated in the above drawings and which will be described hereinafter in greater detail, comprises generally at least a pair of shielding panels each having at least one face fabricated of electrically conductive material and adapted to be arranged in either aligned or angulated, edge to edge relation with respect to each other, and a pair of joining strips disposed on opposite sides of the panels and serving to clamp there between the adjacent marginal panel portions, at least one joining strip being electrically conductive for engagement with the conductive panel faces, so that the panels are thereby structurally and electrically connected together.

As is well known to those versed in the art, shielding structures may be classed in three broad categories, namely single-shielded, multiple-shielded and cell-type. The single-shielded structure consists of only one layer of conducting material, while the multiple-shielded structure consists of two or more spaced layers of conductive material. The cell-type shielded structure includes a pair of spaced conductive layers connected together about their peripheries to define a completely close unit or cell. While the relative merits of these various types of shielding arrangements are not completely settled, one or another may be preferred according to the particular operating conditions. In addition, the above mentioned types of radiation shielding may be combined in various ways, say by the combination of a single layer shield isolated from a cell-type shield, or otherwise as desired. Further, one or more "floating" shields may be employed in conjunction with any of the above types, wherein a layer of conducting material is arranged in spaced relation with respect to single, multiple or cell-type shielding, and is electrically isolated both from ground and the other shielding.

As the shielded enclosures of the prior art were each of one particular type, it was often necessary for a single establishment to employ several entirely separate enclosures for the various types of shielding desired. This, of course, involved considerable initial expense and required excessive space in use and storage, in addition to the cost of maintenance, and for labor in the erection and dismantling of shielding structures.

It is therefore one object of the present invention to provide a shielding structure which overcomes the difficulties mentioned in the foregoing paragraphs, is extremely versatile in use, capable of rapid conversion to any desired type of shielding, and which can be quickly and easily erected, converted to a different type of shield-

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ing or dismantled by persons of only average skill and without the use of special tools.

It is another object of the present invention to provide a shielding structure of the type described in which all panels are mutually interchangeable without modification thereof, and selectively disposable to provide a completely shielded enclosure or room, or any portion thereof, as desired, and wherein solid, and open or screen panels may be employed together in a single enclosure in any desired arrangement for purposes of privacy, ventilation, etc.

It is another object of the present invention to provide a shielding structure having the advantageous characteristics mentioned above, wherein the panel connecting means or joints afford greater strength and durability than was heretofore possible in knock-down shielding structures, serve to eliminate radiation leakage between the panels, are adapted for erection and dismantling either from inside or outside of an enclosure, and obviate the necessity for soldering and the like.

It is still another object of the present invention to provide a shielding structure of the type described which permits the use of relatively thin panels, so as to effect substantial reduction in the space occupied by a shielding device in its knocked-down condition, while affording superior strength and excellent insulation against heat and sound in its erected condition. Thus, the shielding construction of the present invention effects considerable economy in transportation and storage, and permits of more efficient use in relatively noisy shop areas and in conjunction with air conditioning systems.

It is yet another object of the present invention to provide a shielding structure of the type described in which a plurality of panels may be joined together to form a completely enclosed, shielding room which is rigid and durable in use, and wherein the panels may be of solid or open frame construction, or any combination thereof, as desired. For example, in the illustrated embodiment the panels are formed of relatively stiff sheet or plate material, such as plywood or the like, so that loading of the bottom wall or floor panels is limited only by the permissible loading of the supporting surface, and wherein all utilities and the like may be passed through any shielding panel at any selected point thereof. That is, the couplings necessary for the passage of water, air, radio frequency signals, etc., may be mounted and fully supported in a solid shielding panel at any desired point without the need for shrink fits, welded or soldered joints, or other laborious and costly processes; but rather, such coupling devices may be rigidly supported in firm electrical contact with the shielding panel by simple threaded fasteners or other abutment type securing means. Solid panel enclosures are also capable of use as dark rooms, and may be painted or otherwise coated with decorative material.

It is a further object of the present invention to provide a shielding structure having the advantageous characteristics mentioned in the foregoing paragraphs, which is extremely simple in construction, wherein the component parts are well-adapted for economical manufacture by mass production techniques, and wherein shielding panels of substantially all types are capable of use with the same panel connector means, to effect substantial economies both in manufacture and use.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construc-

tion hereinafter described, and of which the scope will be indicated by the appended claims.

In the drawings:

Figure 1 is a top perspective view showing a shielding room constructed in accordance with the present invention;

Figure 2 is a horizontal sectional view, partly broken away for conservation of drawing space, and taken substantially along the line 2—2 of Figure 1;

Figure 3 is a partial, vertical sectional view, taken substantially along the line 3—3 of Figure 1, and broken away for conservation of space and clarity of understanding;

Figure 4 is a partial, top perspective view showing in greater detail one corner of the room of Figure 1, with the corner cover plate removed;

Figure 5 is a sectional view taken substantially along the line 5—5 of Figure 4 or 5;

Figure 6 is a generally horizontal, fragmentary sectional view taken substantially along the line 6—6 of Figure 5;

Figure 7 is a partial sectional view taken substantially along the line 7—7 of Figure 3;

Figure 8 is a partial sectional view similar to Figure 7 but showing a slightly modified construction in accordance with the present invention;

Figure 9 is a fragmentary sectional view similar to Figures 7 and 8 but showing a further modification of the instant invention; and

Figure 10 is a fragmentary sectional view similar to Figures 7-9 but showing still a further modification of the present invention.

Referring now more particularly to the drawings, and specifically to Figures 1, 2 and 3 thereof, the embodiment of the invention illustrated therein comprises a generally rectangular shielding enclosure or room 20. The room includes a horizontally disposed bottom wall 21, upstanding side walls 22, 23, 24 and 25 extending along the side edges of the bottom wall, and a horizontally disposed top wall 26 spaced above the bottom wall and extending between the upper edges of the side walls. Each of the bottom, side and top walls is composed of at least one panel, which panels are substantially identical in construction, as will appear presently. For purposes of illustration, the walls are each shown as having two panels, the bottom wall panels being designated 28, the panels of the side walls 22, 23, 24 and 25 being designated, respectively, 29, 30, 31 and 32, and the top panels being designated 33. One of the side walls, such as 22, may be provided with a doorway panel 35, which is substantially identical to the other panel, with the exception of having a central opening provided with a door 36.

In the embodiment of Figures 1-7, at least a pair of shielding panels each having at least one face fabricated of electrically conductive material are adapted to be arranged in either aligned or angulated edge to edge relation with respect to each other. A pair of joining strips are disposed on opposite sides of an adjacent pair of panels and serve to clamp there between the adjacent panel margins. At least one of each pair of joining strips is electrically conductive for engagement with the electrically conductive panel faces to define a continuous shield.

As all of the panels are substantially identical, a detailed description of one will suffice. In Figures 3 and 7 it is seen that the side wall panels 31 are of flat, generally rectangular plate-like core or board 38, and electrically conductive inner and outer face sheets or layers 39 and 40, respectively covering the entire inner and outer faces or surfaces of the core plate. In addition to covering the inner and outer face surfaces of the plate 38, the face sheets 39 and 40 may have their peripheral margins 41 and 42 bent to extend closely along the peripheral edges of the plate. The plate or board 38 may be made of a suitably sturdy material, such as wood or the like,

and the face sheets 39 and 40 may be fabricated of any suitable electrically conductive material, such as iron or copper sheeting. In practice, highly satisfactory structural and electrical characteristics have resulted from the use of plywood core plates and galvanealed iron sheets permanently bonded to the plywood faces.

When two or more panels are employed in each side, top or bottom wall, the panels of each wall are disposed in spaced edge to edge, substantially aligned or coplanar relation, while the panels of one wall are disposed in spaced, edge to edge, angular relation with respect to the panels of the adjacent walls. In the illustrated embodiment, the panels of adjacent walls are arranged at 90° angles with respect to each other to define a generally rectangular hexahedron. But of course, enclosures of other shapes may be constructed in accordance with the present invention.

Securing each adjacent pair of panels together in their edge to edge spaced relation are a pair of inner and outer joining strips, which are adapted to be tied together by suitable means and firmly clamp there between the contiguous marginal portions of the adjacent panels. In particular, as best seen in Figures 3 and 7, a generally flat relatively stiff inner joining strip 45 is arranged on the inner side of the adjacent walls panels 31 and 31, and extends longitudinally along the adjacent edges thereof, having its longitudinal margins 46, 46 disposed in overlapping facing engagement with the adjacent marginal portions of the inner panel faces 39 and 39. On the outer side of the adjacent panels 31 and 31 and extending along the adjacent edges thereof is a relatively stiff electrically conductive outer joining strip 47. The strip 47 is formed with its longitudinal marginal portions 48 and 48 substantially flat and in coplanar alignment with each other, while the intermediate, longitudinal portion of the outer strip 47 is recessed to define a channel 49 extending longitudinally of the outer strip. It will be noted that the channel or recessed portion 49 is disposed in the space intermediate the adjacent panel edges with the bottom wall of the channel adjacent to but spaced from the inner strip 46 and the side channel walls providing stops or abutments for the panel edges. A plurality of fasteners, such as the threaded members 50 may be extended outwards through the longitudinally medial portion of inner strip 45 for threaded engagement in the bottom wall of the outer strip recess or channel 49. That is, the fasteners 50 are located in spaced relation between the adjacent panel edges and secured to the inner and outer strips 45 and 47 to tie the latter together.

Upon tightening of the fasteners 50, the strips 45 and 47 will be clamped firmly against the inner and outer faces, respectively, of the adjacent panels 31 and serve to rigidly maintain the panels in the desired edge to edge relation. Further, the marginal strip portions 46 have their outwardly facing, panel engaging surfaces knurled or otherwise roughened, as at 51, 51; and, the marginal strip portions 48, 48 have their inwardly facing, panel engaging surfaces knurled or roughened as at 52, 52, so as to provide intimate electrical contact between the panel joining strips and their respective adjacent panel faces, and a high frictional resistance to movement of the panels relative to their clamping strips. In practice, the panel connecting joint of the instant invention has been found to be of excellent mechanical strength capable of withstanding extreme conditions of vibration and shock and completely impervious to electro-magnetic radiation.

As all of the joints between aligned panels are substantially identical, the detailed description of the joining strips 45 and 47 is representative of all such joints.

The adjacent angularly disposed panels are connected together by joint constructions similar to that of the above described aligned panels. Such an angularly disposed panel joint connects the horizontal top wall panels 33 with the vertical side wall panels 32. This panel joint, as seen in Figure 3, includes a relatively stiff, electrically

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conductive inner joining strip 55 located on the inner side of and extending longitudinally along the adjacent marginal portions of the panels 32 and 33. The inner strip 55 has its longitudinal edge portions or margins 56 and 57 angulated inwards at approximately 45° with respect to the longitudinal intermediate portion, and thereby disposed at approximately 90° with respect to each other, for overlapping facing engagement with the adjacent marginal portions of the inner faces of panels 32 and 33, respectively.

A relatively stiff, electrically conductive outer joining strip 59 is located on the outer side of and extends longitudinally along the adjacent edge portions of the angularly disposed panels 32 and 33. The outer strip 59 has its longitudinal margins or edge portions 60 and 61 disposed at substantially 90° with respect to each other for overlapping engagement with the marginal portions of the outer faces of panels 32 and 33, respectively, while the intermediate longitudinal portion 62 of the outer strip is recessed to define a longitudinally extending channel interposed between the adjacent panel edges. Further, the side walls 63 and 64 of the outer joining strip channel 62 are disposed at substantially right angles with respect to their adjacent strip margins 60 and 61 and define stops or abutments in engagement with the adjacent edges of the panels 32 and 33, respectively. A plurality of preferably threaded fasteners, as at 65 in Figures 1 and 4, may be passed through the longitudinal medial portion of the inner joining strip 55, extending spacedly through the inter-panel space, and threaded into the channel bottom wall of the outer joining strip 59, to secure the inner and outer strips in firm clamping engagement against the inner and outer marginal face portions of the angularly disposed panels 32 and 33. The outwardly facing panel engaging surfaces of the inner strip margins 56 and 57, as well as the inwardly facing, panel engaging surfaces of the outer strip margins 60 and 61 may be knurled, serrated, or otherwise roughened for intimate contact and firm frictional engagement with the adjacent panel faces.

At the enclosure corner, as where three walls intersect, see Figures 4 and 5, the end edges of the angularly disposed panel joining strips 55 and 59 are partially beveled, as at 67 and 68, for a mitered fit with the end edges of the horizontally extending inner and outer joining strips 69 and 70, respectively. In addition, the upper end edges of the vertically extending inner and outer joining strips 71 and 72 are in abutting engagement with the adjacent lower edges of the horizontally extending inner strips 69 and 55, and outer strips 70 and 59.

Thus, as best seen in Figure 4, the joining strips meeting at a corner of the enclosure are in end to end abutting engagement with each other, and provide a through corner opening. A corner plate, cup or cap 75, fabricated of electrically conductive material, is arranged in covering relation over each enclosure corner, and may be configured, as illustrated, to conformably engage with the exterior surfaces of the several outer strips. A threaded tie member or bolt 76 extends from the corner plate 75 through the enclosure corner and into the interior of the enclosure, where a cup-like retaining member 77 is secured on the inner bolt end in abutting engagement with the inner surfaces of the inner joining strips. By this construction, the enclosure corners are effectively shielded against radiation.

As all of the enclosure corners are of substantially identical structure, the above detailed description of one corner will suffice.

In assembling the enclosure or room 20, it is only necessary to arrange each adjacent pair of panels in their desired aligned or angular relation, dispose the inner and outer joining strips on the inner and outer sides, respectively, of the adjacent panels extending along the contiguous panel edges, and secure the joining strips in firm abutting engagement with their adjacent panel faces, as by the illustrated threaded fasteners 50 and 65. In

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the illustrated embodiment, all fasteners are accessible from interiorly of the enclosure, which enable the enclosure to be erected in a minimum of space. However, the fasteners may also be accessible from outside of the enclosure by merely providing threaded holes in the inner joining strips rather than in the outer joining strips. Dismantling of the enclosure may be quickly and easily effected by loosening or removing the strip fasteners, so as to disengage the strips from their clamping action with the panels, and removing the panels from between the joining strips.

As best seen in Figure 3, the bottom wall panels 28 are separated from a supporting surface or floor (not shown) only by the thickness of material employed in the outer joining strips. This thickness is considerably exaggerated in the drawings for clarity of illustration, and in practice may be approximately 1/8". As the panels are preferably fabricated of 3/4" plywood, and may be 4' wide by 8' long, or considerably larger if desired, it is obvious that the bottom wall panels may deflect into engagement with the supporting surface, so that floor loads are not limited by the panel strength.

As the inner and outer joining strips at both the aligned and angularly disposed panel joints are all preferably fabricated of electrically conductive material, and as the inner and outer panel faces are also preferably fabricated of electrically conductive material, it will be appreciated that the outer joining strips cooperate with the outer panel faces to define a continuous outer shield, while the inner joining strips cooperate with the inner panel faces to define a continuous inner shield spaced from the outer shield.

In one form of the instant invention, the joining strip fasteners, such as 50 and 65, and the corner plate fasteners, such as 76, may all be fabricated of electrically conductive material, which effectively electrically connects the strips of each joint and plates or cups of each corner. Such an arrangement is equivalent to having the marginal edge portions of the inner and outer face sheets of each panel in electrical contact, so that each panel defines a shielding cell. By this construction, the enclosure 20 will provide a cell-type shielded room.

However, if the joining strip fasteners 50 and 65, and the corner cup fasteners 76 are fabricated of electrically insulating material, the above defined continuous inner and outer shields will be insulated from each other to provide an isolated, double-shielded construction. Of course, such an isolated shielded construction may be accomplished with electrically conductive fasteners each suitably insulated from one of the connected joining members, as will appear more fully hereinafter.

The above described structure may also provide a single-shielded enclosure, by fabricating one of the panel face sheets, say the inner face sheet of each panel, of non-conductive material or by eliminating the inner face sheets. In this case, it would only be necessary to fabricate of electrically conductive material a single joining member of each cooperating pair, namely the outer joining strips and outer corner cups in the stated example.

While the above described panels have been illustrated as formed with a solid inner core or plate, as at 36 in panel 31, it is appreciated that the panels may be formed of an open frame, and covered on one or both faces with electrically conductive mesh or screening, as for visual access and the like. Of course, one or more mesh panels may be employed conjointly with solid panels in a single enclosure to afford the combined advantages of both types of panels. That is, for maximum strength, extremely high thermo and sound insulation, use as a photographic dark room, privacy, and for other reasons, it may be desirable to employ all solid panels. However, for visual access, ventilation and the like, any number of mesh panels may be employed together with solid panels which serve to mechanically support utility lines and other equipment.

In addition to the above discussed high degree of versatility inherent in the instant structure, it is believed apparent that an enclosure or room of a single panel height may assume any desired rectangular floor plan by merely adding side wall panels in the desired arrangement. Further, the instant structure may be erected to provide rooms of two or more panels in height. This may be accomplished by securing a sturdy bar in the channels, such as the channel 49, of end to end vertically aligned outer joining strips. Such bars may be secured in the channels by the strip fasteners, if desired. Of course, aligned panel joining strips would be substituted for the angular panel joining strips, such as 55 and 59 to secure an upper level of side wall panels in vertically aligned edge to edge relation with the side wall panels 32. A relatively long enclosure top wall in the lengthwise direction of the panels 33, may also be rigidified by securing a sturdy bar in the channels of end to end, horizontally aligned outer joining strips.

Further versatility of shielding effects capable of being achieved with the instant structure shown in Figures 8, 9 and 10. While the modifications of these figures are illustrated in connection with an aligned panel joint, it is of course appreciated that these embodiments may also be employed in angularly disposed panel joints.

In Figure 8 as illustrated a panel joint including a generally flat electrically conductive inner joining strip 45a provided in its longitudinal intermediate portion with internally shouldered or countersunk through holes 85, each adapted to conformably receive a centrally apertured, externally shouldered annular member or insert 86. The cooperating outer joining strip 47a is substantially identical to the outer joining strip 47 of the first described form, and is provided in its longitudinal, intermediate portion with a longitudinally extending depression or channel 49a. The inner and outer joining strips 45a and 47a are secured or tied together by a plurality of suitable fasteners, such as the screw 50a extending through the insert 86 and threadedly received in the bottom wall of outer joining strip channel 49a.

Arranged in edge to edge, adjacent but spaced relation, and adapted to be releasably clamped between the facing, longitudinal marginal portions of the joining strips 45a and 49a are a pair of generally rectangular panels 31a, corresponding to the above described panels 31. However, the panels 31a each include two or more flat generally rectangular core members or plates 38a fabricated of wood or other suitable insulating material and arranged in parallel spaced relation with respect to each other. One or more conductive sheets 87 substantially congruent with the plate members 38a each snugly interposed and sandwiched between an adjacent pair of the plate members. In addition, inner and outer conductive face sheets 39a and 40a are secured in covering relation with respect to the non-facing surfaces of the plate members 38a, in the same manner as the face sheets 39 and 40.

When the inserts 86 and fasteners 50a of Figure 8 are fabricated of insulating material, it will be appreciated that the panel face sheets 39a and 40a coact with the secured joining strips 45a and 47a to define a cell-type shielded construction, similar to that described in connection with Figure 7. In addition, each of the panels 31a is provided with an intermediate, "floating" shield defined by the conductive sheet 87. Such construction may be readily converted from the cell-type having an intermediate floating shield to a double isolated shielded construction, also having a floating shield, by merely replacing the electrically conductive washer-like inserts 86 with similar inserts of insulating material. In this manner, the inner face sheets 39a and inner joining strips 45a will define a continuous inner shield, and the outer face strips 40a and outer joining strip 47a will define a continuous outer shield electrically isolated from the inner shield, while the intermediate sheets 87 will define floating

shields electrically isolated from the inner and outer shields and from each other.

In Figure 9 is shown a further modification of the instant invention, wherein inner and outer joining strips 45b and 47b, and strip fasteners or tie means 50b are substantially identical to the strips 45 and 47 and fasteners 50 of the first described embodiment. However, the panels 31b, which are of flat, generally rectangular configuration, each include a plurality of relatively stiff, parallel spaced core members or plates 38b (two being shown in the drawing) and an intermediate conductive sheet 87b sandwiched between each adjacent pair of plate members. Covering the non-facing surfaces of the plate members 38b are inner and outer face sheet 39b and 40b, respectively. It will be noted that the intermediate sheet 87b has its peripheral margin 89 extending beyond and bent to overlap the edge of one adjacent plate member 38b; and, that the peripheral margins 41b and 42b of the face sheets 39b and 40b, respectively, are bent to overlap the plate member edges, so that the peripheral margins of the inner, outer and intermediate sheets are in electrical connection with each other. By this construction is provided a multiple layer cell-type shield, wherein the use of a medal, electrically conductive fastener 50b is preferred, but not essential.

Still another shielded joint construction of the instant invention is illustrated in Figure 10, wherein inner and outer strips 45c and 47c, and fasteners 50c are substantially identical to the inner and outer strips 45a and 47a and fasteners 50a of Figure 8. However, the panels 31c of Figure 10 include a plurality of generally rectangular core or plate members 38c (three being illustrated in the drawing) arranged in parallel spaced relation. Snugly interposed or sandwiched between each adjacent pair of plate members 38c is an intermediate, electrically conductive sheet 87c, such sheets being two in number in the illustrated embodiment. Secured in covering relation with respect to the non-facing surfaces of the plate members 38c are electrically conductive inner and outer face sheets 39c and 40c, respectively. It will be observed that the peripheral margin 90 of the inner intermediate sheet 87c is bent to overlap the peripheral edge of the inner plate member 38c, so as to be in contact with the bent peripheral margin 41c of the inner face sheet 39c. Similarly, the peripheral margin 91 of the outer intermediate sheet 87c is bent into engagement with the bent peripheral margin 42c of the outer face sheet. Hence, the inner face sheet 39c combines with its adjacent intermediate sheet 87c to define an inner cell-type shield, while the outer face sheet 40c combines with its adjacent intermediate sheet 87c to define an outer cell-type shield.

When the inserts 86c of the inner joining strip 45c are fabricated of insulating material the inner and outer joining strips will cooperate, respectively, with the inner and outer cells of adjacent panels to define a continuous cell-type radiation shield, wherein the inner cells are isolated or electrically insulated from the outer cells. However, when the inserts 86c are made of electrically conductive material, the inner and outer cells will be peripherally electrically connected together, so as to provide a multi-layer, cell-type construction. In the illustrated embodiment, electrically conductive inserts 86c will result in a four layer cell-type shielded construction.

While the foregoing description is believed to have demonstrated a considerable degree of versatility of shielding in the instant invention, it is understood that additional types of shielded constructions may be produced in accordance with the invention, so that the various modifications described hereinbefore and illustrated in the drawings are intended for purposes of illustration and not in limitation.

From the foregoing, it is seen that the present invention provides a radiation shielding construction which

fully accomplishes its intended objects, and is well adapted to meet practical conditions of manufacture and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and scope of the appended claims.

What is claimed is:

1. In a knockdown radiation shielding structure, a pair of substantially identical shielding panels each formed of a stiff unbendable member having its opposite faces entirely flat and having at least one face fabricated of electrically conductive material, said panels being arranged in edge to edge spaced relation with their conductive faces on the same side, a flat inner strip having longitudinal margins and extending along the adjacent portions of said panels on the inner side thereof with its margins in flat facing engagement with the inner faces of respective panels, a stiff outer strip having entirely flat longitudinal margins and extending along the adjacent portions of said panels on the outer side thereof with its margins in flat facing engagement with the outer faces of respective panels, said outer strip having a depressed longitudinally extending medial portion defining a channel located in the space between and having its side walls abutting the panel edges, the channel side walls being of a depth less than the thickness of each of said panels, at least one of said strips being fabricated of electrically conductive material and in engagement with said electrically conductive panels faces to provide electrical continuity between adjacent panels, and bolts disposed in the space between said adjacent panel edges and each releasably connected to a laterally medial region of said inner strip and the bottom wall of said channel to firmly clamp said longitudinal strip margins in flat abutment with said panel faces.

2. A shielding structure according to claim 1, wherein the side walls of said channel are each substantially normal to the adjacent longitudinal margin of said outer strip for facing abutting engagement with the adjacent panel edge.

3. A shielding structure according to claim 1, wherein surface portions of said strips in engagement with said panel faces are relatively rough for increased holding

engagement and intimate electrical contact with said panels.

4. A shielding structure according to claim 1, wherein both faces of each of said panels are fabricated of electrically conductive material, and means insulating said bolts from at least one of said strips, whereby said structure defines isolated type shielding.

5. A shielding structure according to claim 1, wherein both faces of each panel are fabricated of electrically conductive material, and an electrically conductive sheet sandwiched in each of said panels and spaced from the electrically conductive faces of said panels to define a floating shield construction.

6. A shielding structure according to claim 1, wherein each of said panels has both its opposite faces fabricated of electrically conductive material, and at least one sheet of electrically conductive material sandwiched in each of said panels and having its peripheral margin in electrical contact with the peripheral margin of one of said panel faces.

7. A shielding structure according to claim 6, in combination with means insulating said bolts from at least one of said strips, to thereby define a combined cell and isolated type shielding construction.

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