United States Patent [19]

Bettinger

[11] **3,811,237**

[45] ***May 21, 1974**

[54] **RAISED FLOOR PANEL AND ASSEMBLY**

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[73] Assignee: **United Fabricating Company, Inc.,** Elkridge, Md.

[*] Notice: The portion of the term of this patent subsequent to Aug. 8, 1989, has been disclaimed.

[22] Filed: **Aug. 7, 1972**

[21] Appl. No.: **278,465**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 23,531, March 30, 1970, Pat. No. 3,681,882.

[52] **U.S. Cl.** **52/126,** 52/263

[51] **Int. Cl.** **E04b 5/43**

[58] **Field of Search** 52/122, 126, 263, 483, 52/173, 273

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Primary Examiner—Price C. Faw, Jr.

Attorney, Agent, or Firm—LeBlanc & Shur

[57] **ABSTRACT**

Disclosed is a raised floor panel and panel assembly for computer and similar installations. The panels are supported above a subfloor on pedestals and are easily installed and removed for later access to the space beneath the floor. Each panel comprises a core with or without strengthening metal sheets about which is wrapped a flexible and at least partially resilient floor covering, such as carpet or flexible tile material. In one form, the floor covering extends over the edges and for a short distance beneath each panel. In another form, a sheet metal pan underlies the core and has upturned flanges in contact with the outer face of the floor covering extending over the edges of the core.

13 Claims, 18 Drawing Figures

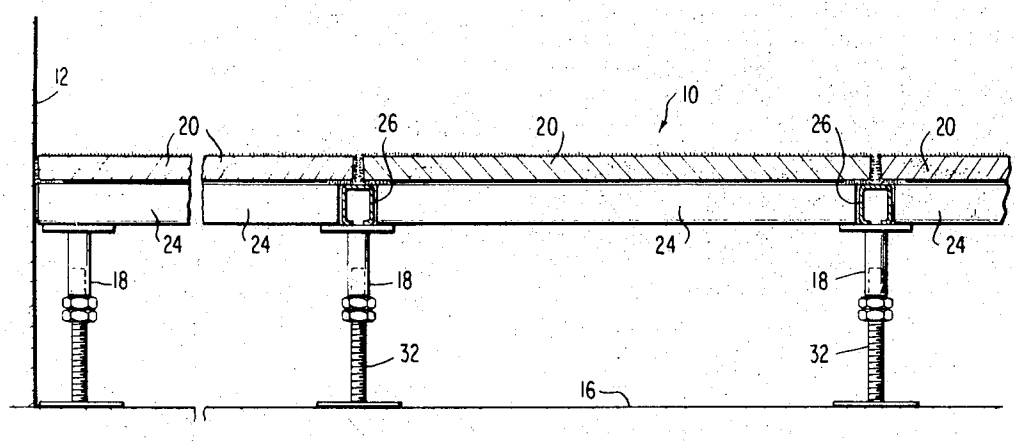


FIG. 1

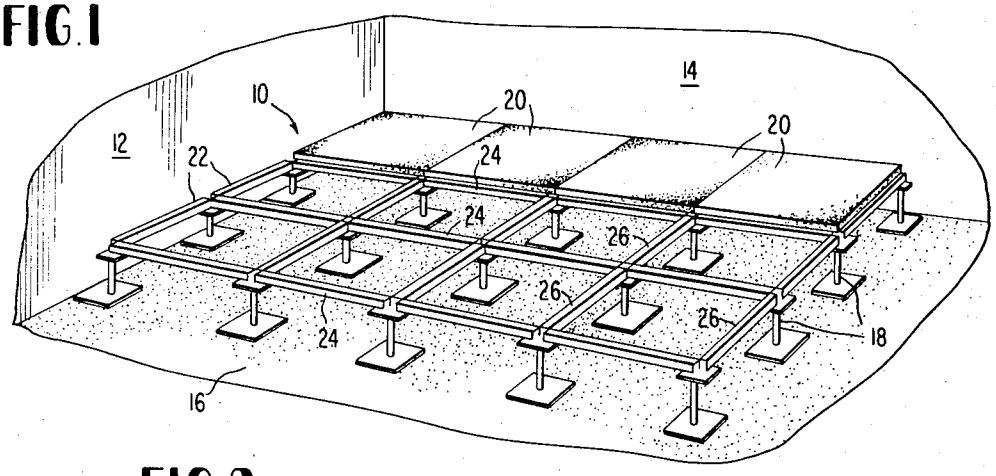


FIG. 2

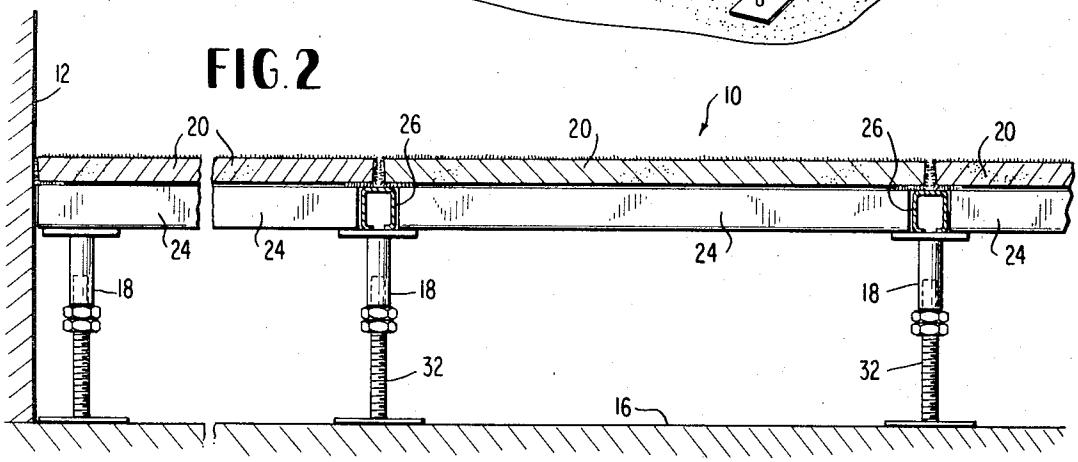


FIG. 4A

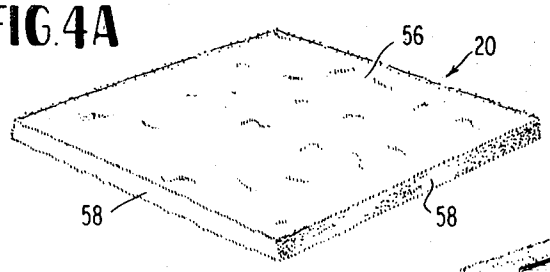
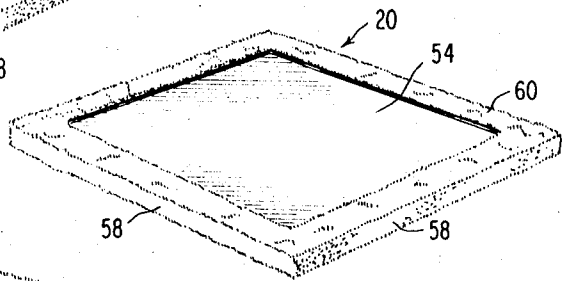


FIG. 4B



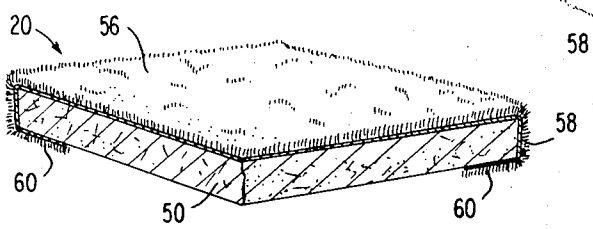


FIG. 5

FIG. 3

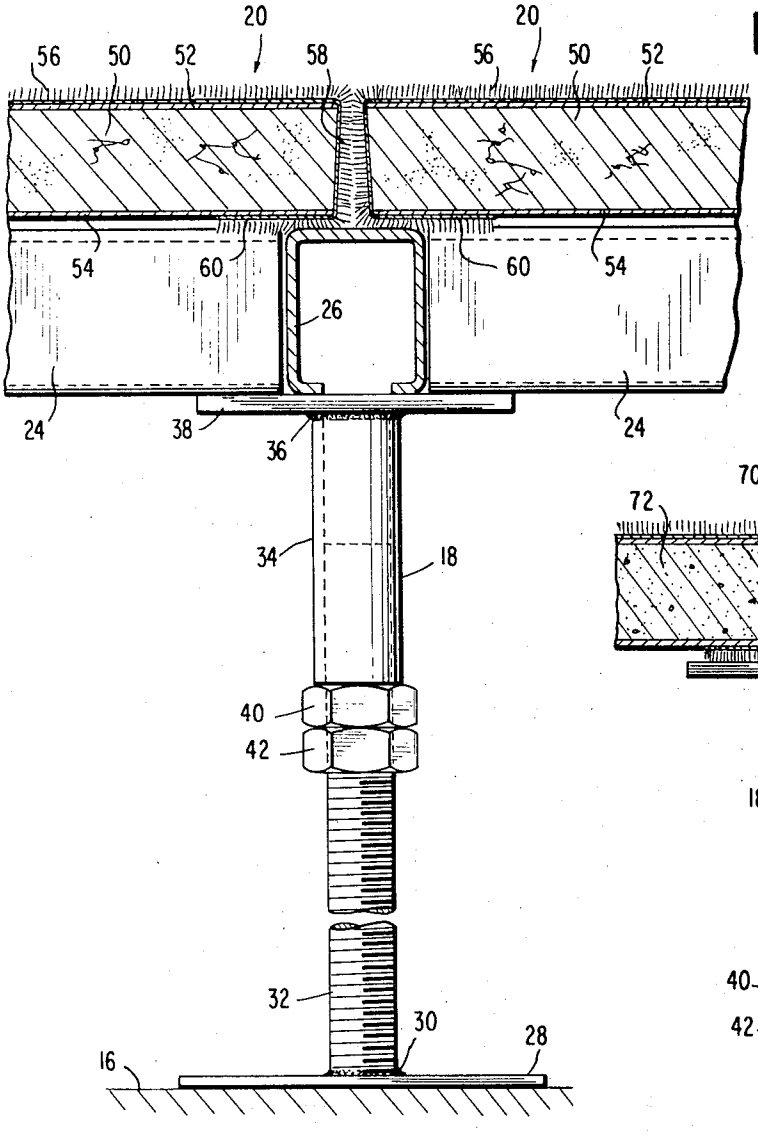
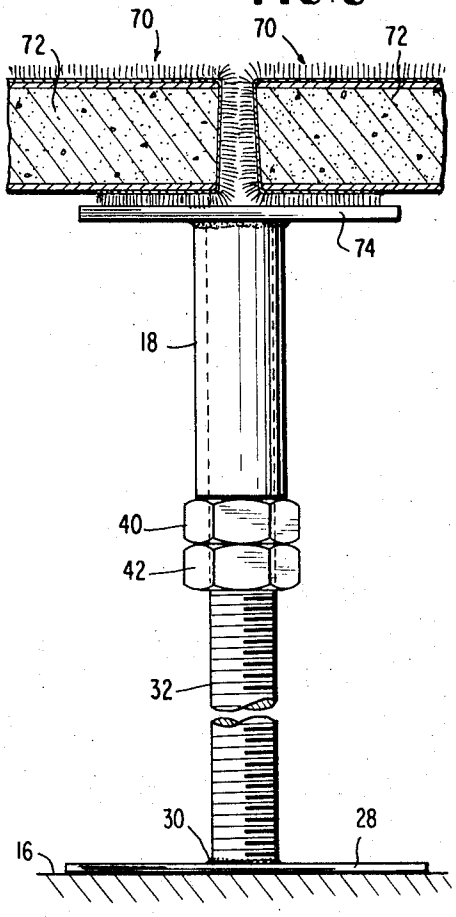


FIG. 6



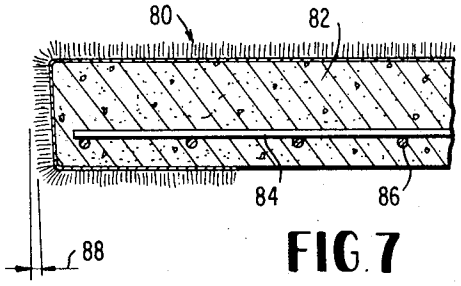
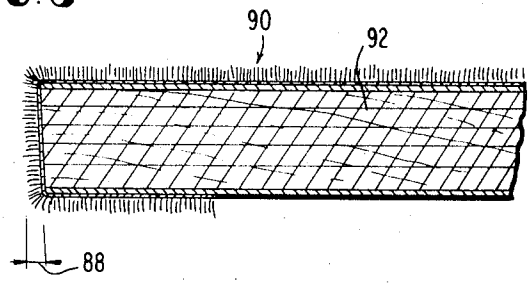


FIG. 7

FIG. 8


90
92
88

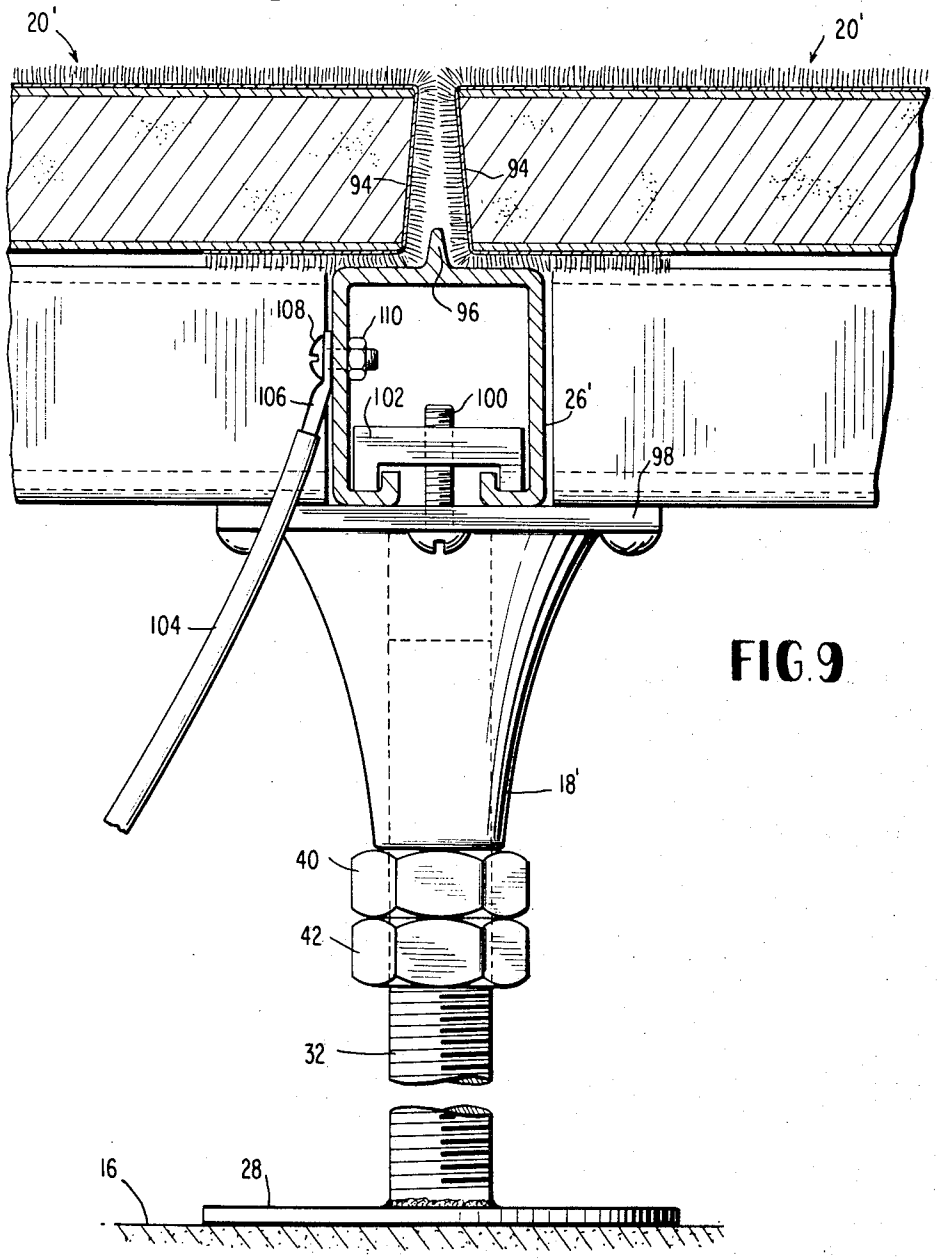

20'
20'
94
94
96
108
110
106
102
100
26'
98
104
18'
40
42
32
16
28

FIG. 9

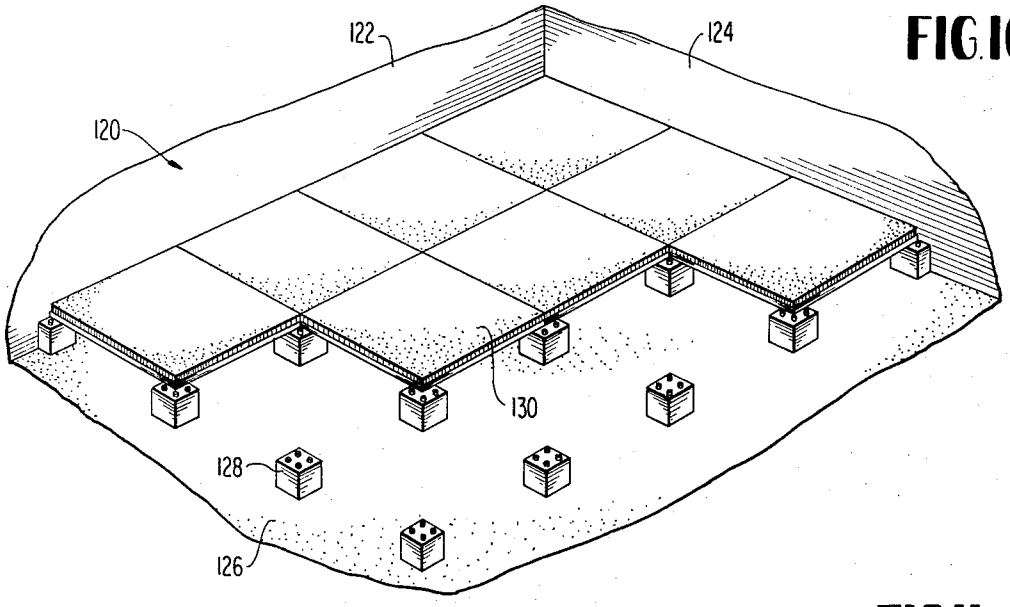


FIG.10

FIG.11

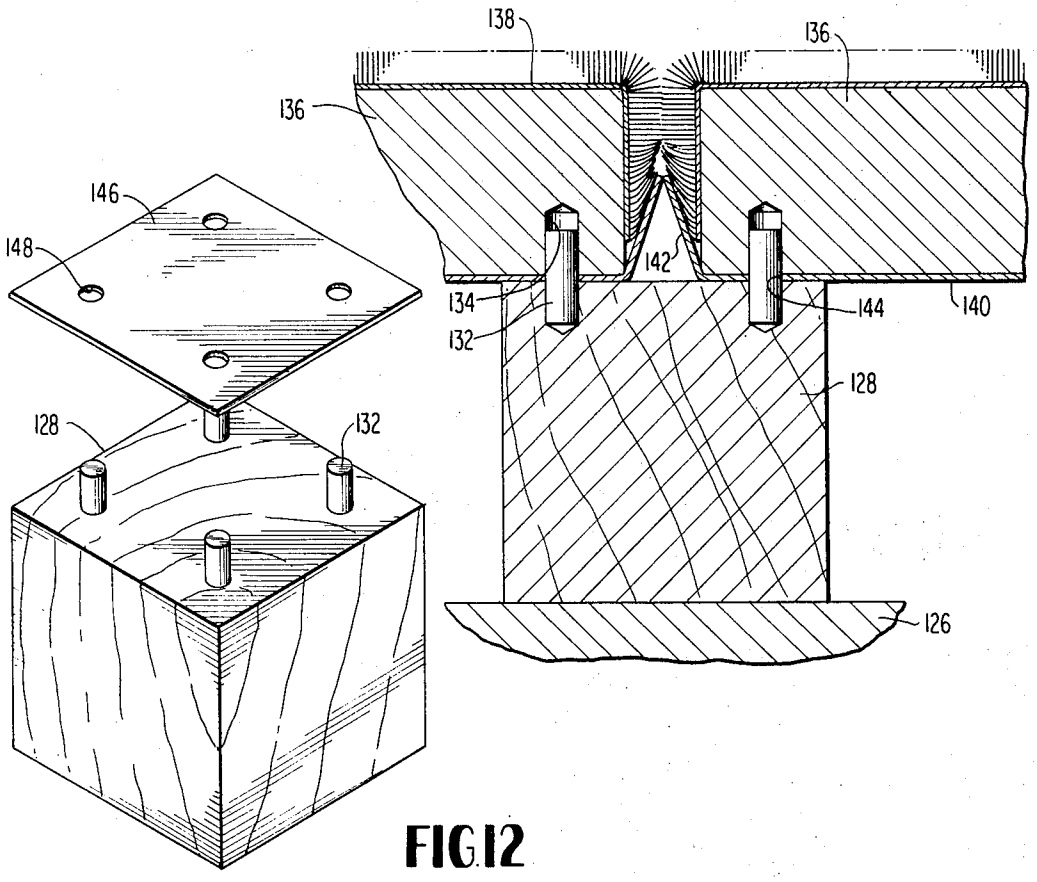


FIG.12

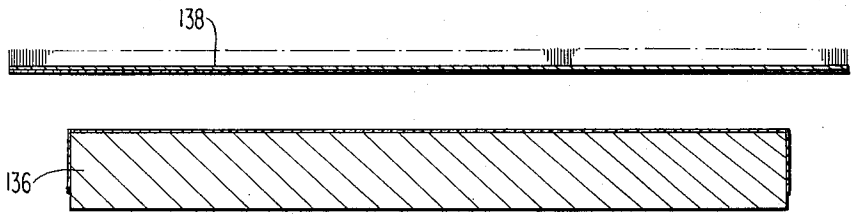


FIG.13

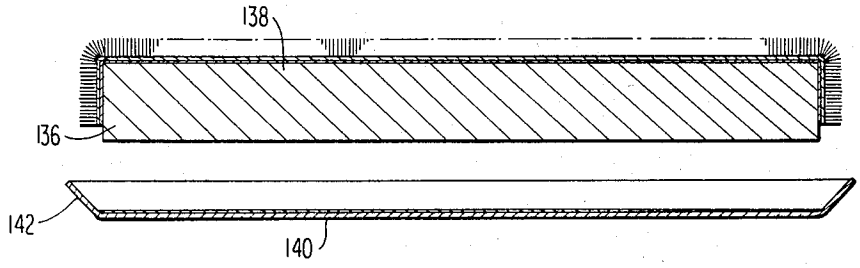


FIG.14

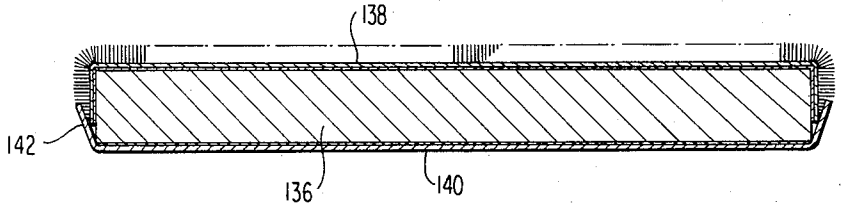
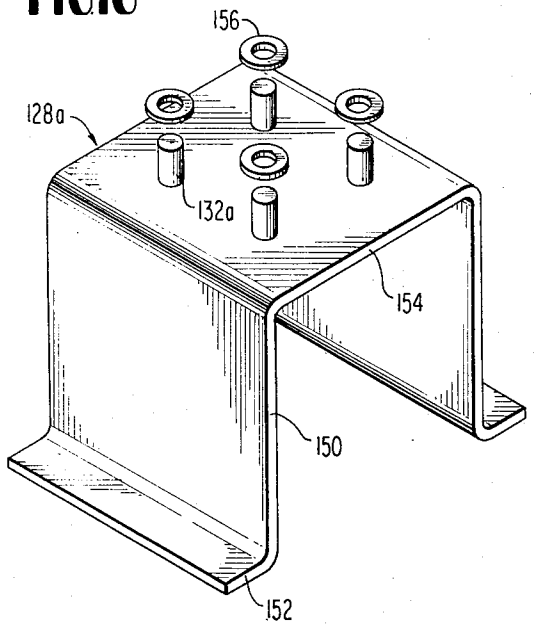


FIG.15

FIG.16



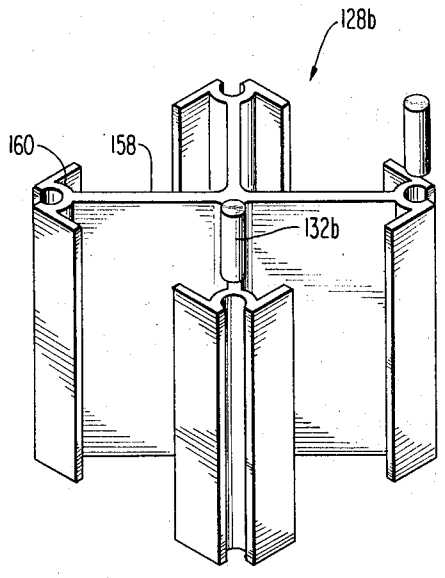


FIG.17

RAISED FLOOR PANEL AND ASSEMBLY

This application is a continuation-in-part of copending application, Ser. No. 23,531 filed Mar. 30, 1970, now U.S. Pat. No. 3,681,882.

This invention relates to raised floor panels and to raised floor panel assemblies, and more particularly to apparatus of this type of simplified and inexpensive construction which reduces the cost of manufacturing and assembling raised or elevated floors.

Modern computer installations employing advanced computer equipment require a carefully planned and completely coordinated environment. Today's sophisticated equipment must be provided with temperature and humidity control, air filtration, traffic and noise restrictions, and a wide variety of other flexible facilities for the machines and their operators. Provision must be made for future expansion, in the form of new or modified equipment.

For these and other reasons, many modern computer installations are provided with what are commonly referred to as raised or elevated floors. These floors generally take the form of removable rectangular floor panels or tiles supported in spaced relation above a suitable subfloor by a metal lattice of criss-crossing grids and supporting columns. Conduits, such as electrical cabling, air conditioning equipment, and the like, pass between the subfloor and the floor to the computer circuits and associated equipment. In some instances, the space between the two floors may be used as a plenum to supply conditioning air to various parts of the room. In all cases the removability of the panels provides great flexibility in making it possible to add additional cabling or to service the computer equipment as the need arises.

The present invention is directed to an improved panel and panel assembly for raised floors of this general type and is particularly directed to a construction which substantially lessens the cost of manufacturing and installing the floor. In the present invention, the customary floor tile covering for the panels and the accompanying lateral trim edge is replaced by a flexible and preferably at least slightly resilient floor covering material which not only extends over the top surface of the floor panels, but also along the edges and, in one form hereof, for a short distance along the underside of each panel. In the preferred embodiment, the floor covering takes the form of a carpet with sufficient resiliency that the abutting edges of adjacent panels form an air seal to define a plenum beneath the raised floor. An important feature resulting from the use of a flexible floor covering material extending over the top and side edges of the panels is that the panel cores need not be held to close tolerances and materials such as lightweight concrete may be used as the core. At the same time, the resiliency of the carpet material permits slight adjustment for variations in panel size from panel to panel and further provides for easy installation and removal of the panels due to the resiliency with which they abut. Additional advantages include the fact that the flexible and resilient nature of the carpeting material achieves a sound dampening and cushioning feature for the floor system by eliminating any metal-to-metal contact and the utilization of a continuous cover material eliminates static electricity buildup in the walking surface of each panel by allowing the static electricity buildup to follow a natural path to ground.

Since the wrap-around floor covering material is in contact with the metal understructure which is conventionally connected at spaced points to a central grounding system, all static electricity is conducted to ground.

In another form hereof, a sheet metal pan underlies the panel and has upturned flanges overlying the floor covering material along the edges of the panel. Adjacent panels are electrically coupled by electrically conductive pedestals or portions thereof or metal grids which interconnect and support the adjacent panels. Additionally, the plate flanges of adjacent panels lie in electrical contact further ensuring wide dissipation of the static electricity buildup in the floor covering material. The cores and attached pan and floor covering are supported by post blocks or pedestals which may be provided in wood, metal, plastic, concrete or other materials and in various configurations.

It is therefore one object of the present invention to provide an improved panel for raised floors.

Another object of the present invention is to provide an improved raised floor system of simplified and less expensive construction.

Another object of the present invention is to provide an improved panel and raised floor system which substantially reduces the cost of manufacturing and installing the floor.

Another object of the present invention is to provide an improved panel and floor panel assembly permitting the use of a wide variety of panel cores which need not be manufactured to close tolerances.

Another object of the present invention is to provide a raised floor panel and panel assembly in which the top surface and side edges of the panels are each covered by an integral layer of floor carpeting.

Another object of the present invention is to provide a raised floor panel in which a conventional pile carpet extends over the top, along each side edge, and for a short distance along the bottom and round the entire periphery of each panel.

Another object of the present invention is to provide an elevated or raised floor panel system in which each panel comprises a concrete core covered on at least all but one side by a flexible and resilient floor covering material, such as carpeting or the like.

A further object of the present invention is to provide a raised floor panel system in which each panel has an underlying sheet metal plane with upturned flanges providing improved electrical contact between the floor panels and the underlying support structure as well as between adjacent panels.

It is a related object hereof to provide a raised floor panel system wherein the panels are supported by post blocks or pedestals which are readily, easily and inexpensively manufactured and which readily interlock with the panels.

These and further objects and advantages of the invention will be more apparent upon reference to the following specification, claims, and appended drawings, wherein:

FIG. 1 is a perspective view of a portion of a raised floor assembly constructed in accordance with the present invention;

FIG. 2 is a partial cross section through the raised floor assembly or system of FIG. 1;

FIG. 3 is an enlarged view of a support pedestal, grid, and abutting panel junction in the system of FIGS. 1 and 2;

FIG. 4A is a perspective view showing the top and two side edges of a floor panel;

FIG. 4B is a similar perspective view showing the bottom and other two side edges of the panel of FIG. 4A;

FIG. 5 is a perspective view of a modified floor panel with parts cut away to show the carpet attached directly to the core;

FIG. 6 is a partial elevational view corresponding to that of FIG. 3 showing a portion of a raised floor assembly in which the metal gridwork is omitted;

FIG. 7 is a partial cross section through a modified floor panel constructed in accordance with the present invention;

FIG. 8 is a partial cross section through a further modified floor panel constructed in accordance with this invention;

FIG. 9 is a view similar to FIGS. 3 and 6 showing a still further modified elevated floor assembly;

FIG. 10 is a view similar to FIG. 1 and illustrates a further form of raised floor assembly constructed in accordance with the present invention;

FIG. 11 is an enlarged vertical cross-sectional view of a support pedestal, and abutting panel junction in the system illustrated in FIG. 10;

FIGS. 12, 16 and 17 are exploded perspective views of various forms of support posts or pedestals for use with the system illustrated in FIG. 10;

FIGS. 13 and 14 are elongated exploded cross-sectional views illustrating the manner of fabricating a panel for use in the system illustrating in FIG. 10; and,

FIG. 15 is a vertical cross-sectional view of a completed panel for use in the system illustrated in FIG. 10.

Referring to the drawings, a portion of a raised floor system constructed in accordance with the present invention is generally indicated at 10 in FIG. 1. The system is illustrated as under construction in a room including walls 12 and 14 and a subfloor 16. Adhesively secured or otherwise suitably attached to the subfloor are a plurality of pedestals 18 in the form of adjustable metal column supports for a plurality of identical rectangular floor panels 20. Some of the panels 20 in FIG. 1 are omitted to show the underlying support pedestals 18 and the overall metal grid generally indicated at 22. The grid 22 comprises longitudinal and transverse grid members or stringers 24 and 26 supported by and preferably attached to the heads or caps of each of the pedestals 18. Various pedestal and grid constructions are presently available and any of the well known structures may be used in the present invention. In the preferred embodiment, pedestals 18 are placed on 24 inch centers and the panels 20 are preferably square and approximately 2 feet on each side.

Referring in particular to FIGS. 2 and 3, pedestals 18 each comprise a base 28 welded, brazed, or otherwise suitably secured as indicated at 30 in FIG. 3 to one end of a threaded metal stud 32. The upper end of stud 32 is received in the hollow lower end of metal tube 34. The upper end of this tube is again welded, brazed, or otherwise suitably attached as at 36 to the underside of a pedestal cap or head 38. The telescoping relationship between stud 32 and tube 34 may be adjusted by a pair of metal leveling nuts 40 and 42 to vary and adjust the height of the pedestal 18. Base 28 of the pedestal is preferably attached to subfloor 16 with adhesive but must be secured in any desired manner. Likewise, cap 34 of the pedestal may be attached to the stringers 24 and 26 in any conventional manner. In some systems, the pedestal head includes projections over which the stringers are slidably received to secure and lock the stringers to the pedestal. In other constructions, the stringers are attached by bolts and nuts to the head of the pedestal. In the embodiment shown, the stringers 24 and 26 are preferably all of equal length, i.e., nominally 2 feet, and are slid over suitable projections on the head of the pedestal. It is understood that the present invention is equally applicable to other grid assemblies in which the stringers are bolted to the pedestals and in which individual integral stringer elements may span more than two adjacent pedestals, i.e., may be 4 feet or more in length.

Resting on the stringers 24 and 26 and forming an important part of the present invention are the novel floor panels 20. Each panel is identical in construction and preferably each is 24 inches on a side to have a square configuration on the order of 1 to 2 inches thick. As best seen in FIG. 3, each of the panels comprises a core 50 approximately 1 inch thick and made of suitable material, such as a high density particle board, i.e., compressed wood particles. Overlying the upper and lower surfaces of core 50 are flat rectangular sheets 52 and 54 preferably made of galvanized steel. Steel sheets 52 and 54 are preferably secured to the opposite surfaces of panel 50 by a suitable adhesive layer (not shown). Finally, the top or walking surface of the panel 20 is formed by a layer 56 of flexible and preferably somewhat resilient material, which by way of example only may take the form of a conventional all wool looped pile floor carpeting. The carpet extends integrally with the layer 56 over the edge of the panel as indicated at 58 and for a short distance along the panel bottom as indicated at 60. It is understood that the carpet 56 extends integrally over all four edges of the panel and includes a bottom portion 60 along each of these four edges, in all instances integral as illustrated in FIGS. 4A and 4B. The carpet is preferably secured to the metal plates and to the edges of the core by suitable adhesive (not shown). Adhesives which may be used to bond the steel sheets to the cores and to bond the carpet or other floor covering material to the remainder of the panels include conventional two-part epoxy adhesive and conventional rubber-base, two surface adhesives with contact bonding at both surfaces. In certain instances, where load requirements permit, the steel sheets 52 and 54 may be omitted and the carpet 56 bonded directly to the core 50.

While the covering material is preferably conventional floor carpet, it is apparent that other flexible and at least slightly resilient materials may be used, such as certain tiles and at least partially resilient vinyl materials possessing sufficient flexibility to be wrapped around the side edges and the bottom of the panels.

An important feature of the present invention includes the fact that the resiliency of the covering material 56 wrapped around the edges and the underside of the panels makes it possible to utilize a variety of core materials which were unsuited to prior raised floor panels due to the close panel tolerances which had to be maintained. That is, the resiliency of the covering ma-

terial at the abutting edges of adjacent panels **58** automatically compensates for variations in core sections **50** from panel to panel such that a variety of core materials may be used, some of which while having exceptional strength are difficult to manufacture in quantity within the tolerances previously necessitated by the metal edge and vinyl trim strip constructions of previous raised floor panels. For example, FIG. **6** shows a construction in which the floor panels **70** are of identical construction to the panels **20** previously described but with the exception that the cores **72** are made of lightweight and preferably expanded concrete. Because of the increased strength afforded by the concrete cores and where loading requirements permit, the grid assembly **22** can be omitted and the pedestals **18,** which in this case are provided with a flat cap or head **74,** directly support abutting panels **70.** The result is a substantial savings in the cost of manufacturing and assembling the raised or elevated floor.

FIG. **7** shows a modified panel **80** in partial cross section in all respects identical to the panel **70** of FIG. **6** with the exception that the concrete core **82** has embedded in it interconnected longitudinal and transverse strands **84** and **86** of metal reinforcing rods to provide added strength to the core and overall panel. FIG. **8** shows a still further modification and illustrates in partial cross section a panel **90** identical to the panels previously described but in which the core **92** is formed of several interconnected wood plies to form a plywood core of increased strength.

FIG. **9** shows a further modified panel and panel assembly with like parts again bearing like reference numerals. In the embodiment of FIG. **9,** the panels **20'** are in all respects identical to the panels **20** previously described with the exception that each of the edges has a very noticeable taper, as indicated at **94,** from the top to the bottom surface of the panel. The panels previously described are all preferably made with a slight taper from top to bottom to reduce the friction encountered when the panels are inserted and particularly when they are removed from adjacent panels. This taper has not been described in connection with the previous embodiments since it is fairly slight and in any event is obscured by the resilient nature of the floor covering material when the edges of two panels are in abutment. The slight taper is indicated generally at **88** in FIGS. **7** and **8.** In the embodiment of FIG. **9,** the taper **94** is much more pronounced to provide clearance for a rib **96** formed along the top edge of the stringers, such as the stringer **26'** illustrated. In this embodiment, the pedestal **18'** is also modified to include an outwardly flaring head **98** suitably apertured to pass four screws (only one of which is indicated at **100**) for securing a bracket or nut **102** to the end of the stringer **26'.** To attach the stringer to the head, the stringer is slipped into position with its lower flanges resting on head **98** but beneath nut **102.** Screw **100** is then tightened to clamp the stringer by the nut to the top of the pedestal head. It is understood that the other three stringers forming a corner junction for the assembly of FIG. **9** are similarly secured to the pedestal **18'.** A ground wire **104** is provided with a conductive eyelet **106** electrically connected to the metal stringer **26'** by a second screw **108** and nut **110,** screw **108** passing through a suitable aperture provided in the stringer. The other end of ground wire **104** is connected to the central building ground system and one such wire **104** is preferably provided for each 1,000 square feet of elevated floor area.

An important feature of the foregoing described embodiment resides in the resilient nature of the covering which makes it possible to readily insert and remove a panel in spite of small variations in size from panel to panel since the cushioning outer cover material along the panel edges tends to give as the panel is inserted and removed. In addition, the cushioning action of the covering material extending along the four edges at **60** on the underside of the panel provides a cushioning effect when the panel rests on the head **74** of FIG. **6** or on the stringers, such as the stringer **26** of FIG. **3,** so that there is no direct metal-to-metal contact between the stringer or head and the metal sheet **54.** At the same time, the resilient engagement of this lower edge **60** of the panel with the support member and the similar engagement of the side edge **58** with an adjacent panel provides a multiple seal acting to seal the air space between the panels forming the elevated floor and the subfloor **16** so that this space, which may vary from a few to several inches in height, may be used as a plenum for supplying air to various locations in the room. Also, the integral nature of the wrap-around floor material provides a natural path to ground through the floor carpet itself to eliminate static electricity buildup in the walking surface of each panel. By virtue of the wrap-around floor covering in contact with the metal under-structure, through lower edge **60** and the metal under-structure being connected at appropriate points to a central grounding system as illustrated at **104** in FIG. **9,** all static electricity tends to go to ground. This is an important consideration for many computer installations since static discharge is considered harmful to the low voltage equipment employed in these installations. If desired, the carpet material may be of the well known anti-static type so as to further reduce the likelihood of static buildup and discharge which might otherwise result from the motion of people, carts, furniture, etc., in contact with the floor covering material. Abrupt discharges of the static charges to metallic surfaces of other people can cause discomfort to personnel and may cause malfunction of the low voltage electronic equipment.

Referring now to the embodiment illustrated in FIGS. **10–15,** there is illustrated in FIG. **10** another form of raised floor system generally indicated **120** and, as in FIG. **1,** is illustrated as under construction in a room including walls **122** and **124** and a subfloor **126.** Disposed on floor **126** are a plurality of support posts or pedestals **128** for supporting a plurality of identical rectangular floor panels **130** at their corner junctures. In the simpliest form of support for the panels **130** in this system, the support posts or pedestals **128** are in the form of wooden blocks with each being provided with four outstanding pins **132** for engagement in openings or apertures **134** formed on the underside of the cores **136** of panels **130.** As in the previous embodiment, the pedestals **128** are placed on **24** inch centers and the panels **130** are preferably square and approximately **2** feet on each side.

Supported by pedestals **128** is another form of floor panel **130** having a core **136** approximately **1** inch thick and made of like materials as the core **50** of the previous embodiment. As noted previously, each core **136** is provided with an aperture **134** adjacent each corner for receiving an upstanding pin **132** of a support pedes-

tal **128.** The top or walking surface of panels **130** is provided with a layer **138** of flexible resilient material which may take the form of floor carpeting as in the previous embodiments. In the illustrated form, the carpeting extends integrally with the layer **138** and is secured along the top surface of core **136** and along its side edges by a suitable adhesive, i.e., the type of adhesive previously described. In this form, the carpet terminates short of the bottom surface of cores **136** along its side edges and a sheet metal plate or pan **140** is adhesively or otherwise secured along the bottom surface of core **136.** Pan **140** has lateral flanges projecting outwardly beyond the edges of core **136** and which flanges **142,** in the finished form of panel **130,** project upwardly to overlie the carpet edges secured along the edges of the core **136.** That is, the flanges **142** lie in engagement with the pile of the carpet and as noted hereinafter form an electrical contact therewith.

Referring to FIGS. **12–15,** the manner of forming panels **130** is illustrated. Referring particularly to FIG. **13,** the top surface of core **136** and the undersurface of layer **138** are provided with suitable adhesive and laminated one to the other with the edges of the carpet folded down and laminated to the edges of the core. Thereafter, the pan, which has been previously cut and formed such that the flanges **142** extend laterally at a shallow angle, i.e., about 45°, is similarly secured to the undersurface of core **136.** Adhesive is not, however, applied to the inside faces of upturned flanges **142.** Once the core **136** and pan **140** are laminated, the assembly is rolled or formed to bend the flanges **142** upwardly into overlying and engaged relation with the carpet edges overlying the edges of core **136.** Thus, the carpet edges are compressed bringing the metal pan into electrical contact with the conductive faces of the carpet yarns. Openings **144** are provided through the metal pan **140** adjacent each corner thereof, either in conjunction with the formation of apertures **134** in cores **136** after assembly of the core and metal pan, or prior to assembly thereof with the openings **144** lying in a registry with previously formed apertures **134.**

To install the raised floor system of this embodiment, the pedestals **128** are spotted along the subfloor **126** at appropriate locations and the cores are set over the pedestals. Particularly, the apertures **144** and **134** at the corners of each panel **130** receive a corner pin **132** on pedestal **138** and it will be appreciated that each pedestal supports the four-corner juncture of the panels **130** thereby interlocking the panels one to the other. An important feature of this embodiment, resides in the electrical contact between the carpet edges of adjacent panels when interlocked one to the other by the pedestals. Static electricity buildup is thereby avoided as the charge dissipates over this wider area. Also, flanges **142** of adjacent panels lie in electrical contact one with the other, thus increasing the effectiveness of the electrical contact between adjacent panels. To further enhance the dissipation of static electricity and also to provide a resilient support for panels **130,** a pad **146** (FIG. **12**) having an electrically conductive upper surface may be provided. The pad **146** has openings **148** adjacent its corners for receiving the upstanding pins **132** of the underlying pedestal **128** whereby the corner edges of pans **140** are supported along the upper face of pad **146.** Consequently, the pans **140** lie in electrical contact one with the other through the conductive coating on the pad which also serves to provide a resilient support for the panels **130.**

Referring to FIGS. **16** and **17,** there are disclosed two additional forms of support pedestals for supporting the raised flooring system illustrated in FIG. **10.** In FIG. **16,** the pedestal **128***a* comprises an inverted channel shaped member **150** having outwardly projecting flanges **152** along its lower end for supporting the pedestal on subfloor **126.** The base **154** of the pedestal carries a plurality of upstanding pins **132***a* about which are received resilient washer pads **156.** Pedestal **128***a* is utilized in a manner similar as pedestal **128** of the prior embodiment. The washers **156** are preferably formed of an electrically conductive material whereby electrical contact is maintained between the metal pan **140** and the metal pedestal **128***a.*

Referring now to FIG. **17,** there is disclosed a pedestal **128***b* which is preferably formed of extruded aluminum and in a cruciform. The walls **158** of the cruciform **128***b* terminate in sleeve portions **160,** which at their upper ends, are adapted to receive pins **132***b.* Pins **132***b* may be formed of metal thus providing electrical contact between the metal pan **140** and the aluminum pedestal **128***b.*

It will be appreciated that the panels **130** described in connection with the raised floor system illustrated in FIG. **10** may also be utilized in the prior system and supported on the disclosed grids or other supporting systems. Also, the entire system, the embodiment of FIG. **10,** is preferably grounded. Furthermore, the use of pins in this latter system interlocks the panel one to the other forcing them into electrical contact one with the other and with the pedestal block itself thereby maintaining electrical contact throughout the entire raised floor system and also forming a substantial air seal whereby the area between the subflooring and the panels can be utilized as an air plenum.

Important features of the raised floor system hereof include the provision of elevated floor panels in which a flexible and at least partially resilient floor covering material extends over the top of the panel, over the side edges, and in one form hereof, around the outer portion of the panel bottom. This makes possible the use of a variety of panel core materials since the resiliency and flexibility of the covering material, particularly about the abutting edges of adjacent floor panels, automatically compensates for variation in size of the core and makes possible the use of core materials which could not previously be economically manufactured to the required tolerances. In addition to the more conventional fiberboard and pressed wood particle board panels, the present invention makes possible the use of other core material, such as gypsum board core, lightweight and preferably expanded concrete, either reinforced or not reinforced, and laminated wood paneling cores or plywood cores may also be used. In the preferred embodiment, the panel covering material takes the form of a conventional pile carpet made of wool, nylon, or any of the other conventional carpet materials. Since stronger core materials, such as the newer lightweight concrete, may be employed, the floor panels of the present invention may be provided with increased strength in certain instances permitting the elimination of the conventional metal gridwork so that the panels are directly supported on pedestals as illustrated in FIGS. **6** and **10.** The panels are preferably of square configuration approximately 24 inches on a side

and may vary in thickness from approximately 1 to 2 inches or more, depending upon the panel size, panel material, and the loads to be supported. In certain instances, the covering material may be applied directly to the cores as in the embodiment illustrated in FIG. 11 but where additional strength is required, the panels may be provided with the upper and lower preferably galvanized metal sheets 52 and 54 as illustrated in FIG. 3.

This invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States letters patent is:

1. An elevated floor assembly comprising a subfloor, a support structure spaced about said subfloor, a plurality of floor panels supported by said support structure in spaced relation above said subfloor, each panel comprising a core having top and bottom surfaces joined by at least three edges, a flexible floor covering integrally overlying said top surface and having portions overlying the edges of said core, a sheet metal plate underlying each of said cores and having upturned flanges overlying both the covering portions overlying the core edges and the edges of said core, said flanges lying in electrical contact with the outer faces of said overlying covering portions, means for electrically coupling adjacent plates, said panel having a thickness providing sufficient strength for use as flooring in said elevated floor assembly, and static electricity discharge means coupled to at least one of said adjacent sheet metal plates for discharging static electricity in the floor covering through both said discharge means and the electrically coupled adjacent plates.

2. An assembly according to claim 1 wherein the flanges of adjacent plates lie in electrical contact one with the other.

3. An assembly according to claim 1 wherein each of a pair of said adjacent sheet metal plates lies in electrical contact with a part of said support structure whereby electrical contact between the covering between said pair of plates is established through said support structure.

4. An assembly according to claim 3 wherein said support structure comprises a plurality of spaced pedestals, at least portions of one of said pedestals being electrically conductive and lying in electrical contact with the adjacent pair of plates.

5. An assembly according to claim 1 wherein said support structure comprises a plurality of spaced pedestals each carrying upstanding pins, said core and said plate having registering openings for receiving the upper ends of said pins.

6. An assembly according to claim 5 wherein said pedestals comprise wooden blocks.

7. An assembly according to claim 5 wherein said pedestals comprise inverted U-shaped members.

8. An assembly according to claim 5 wherein each of said pedestals is substantially cruciform in horizontal section.

9. An assembly according to claim 1 wherein said support structure includes a plurality of spaced pedestals and a grid of metal stringers spacing said panels from said pedestals.

10. An assembly according to claim 1 wherein said covering comprises a carpet.

11. A floor panel according to claim 1 wherein said core is made from material selected from the group consisting of wood particle board, chips and board, plywood, lightweight concrete, and lightweight concrete including metal reinforcing.

12. An elevated floor assembly comprising a subfloor, a plurality of pedestals spaced about said subfloor, and a plurality of floor panels supported by said pedestals in spaced relation above said subfloor, each panel comprising a core having top and bottom surfaces joined by at least three edges, and a flexible one-piece continuous floor covering material overlying said top surface and said edges of said core, said material extending along said bottom surface of said core adjacent each of said edges and being permanently adhesively secured to said core along said edges and bottom surfaces thereof, said panel having a thickness on the order of 1–2 inches with sufficient strength for use as raised flooring.

13. In an elevated floor assembly, a plurality of floor panels, a plurality of support pedestals for said panels and a plurality of pins interconnecting said pedestals and said panels, each of said panels comprising a core having top and bottom surfaces joined by at least three edges, a flexible one-piece continuous floor covering material overlying said top surface and having portions overlying the edges of said core, said floor covering material being permanently adhesively secured to the core along said edges and said top surface thereof, a sheet metal plate underlying said core and having upturned flanges overlying both the carpet portions overlying the core edges and the edges of the core, and means for securing said core and said plate one to the other.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,811,237 Dated May 21, 1974

Inventor(s) James H. Bettinger

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

In Column 2, line 50, "plane" should read --plate--.
In Column 3, line 32, "elongated" should read --enlarged--; line 34, "illustrating" should read --illustrated--.
In Column 4, line 4, "must" should read --may--; line 33, "panel 20" should read --panels 20--.
In Column 6, line 42, "of other people" should read --or other people--.

Signed and sealed this 8th day of October 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents