Jan. 7, 1969 E. C. LISKEY, JR., ET AL 3,420,012

ELEVATED FLOOR SYSTEM

Filed Sept. 1, 1966 Sheet 1 of 3

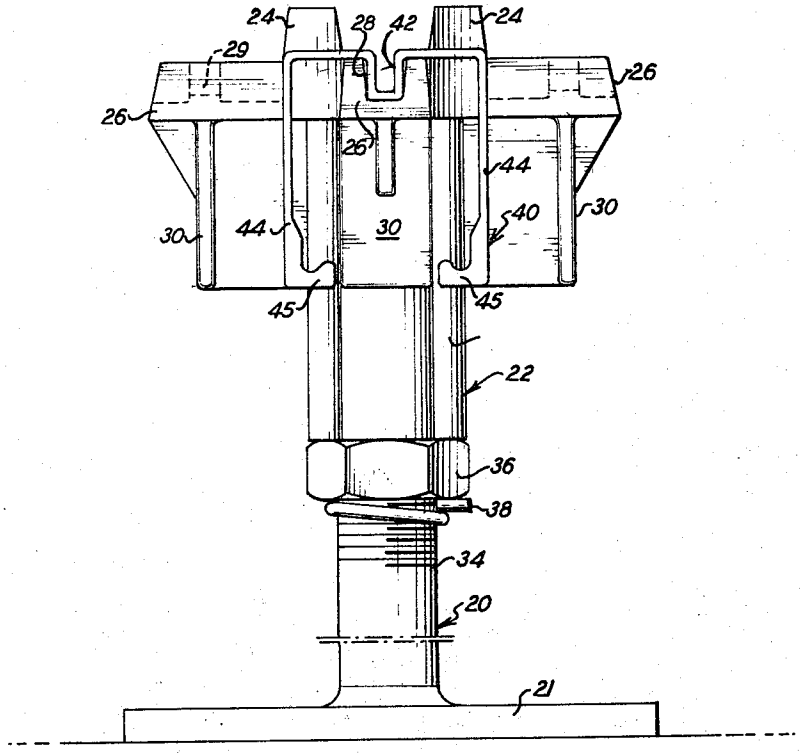


FIG. 1

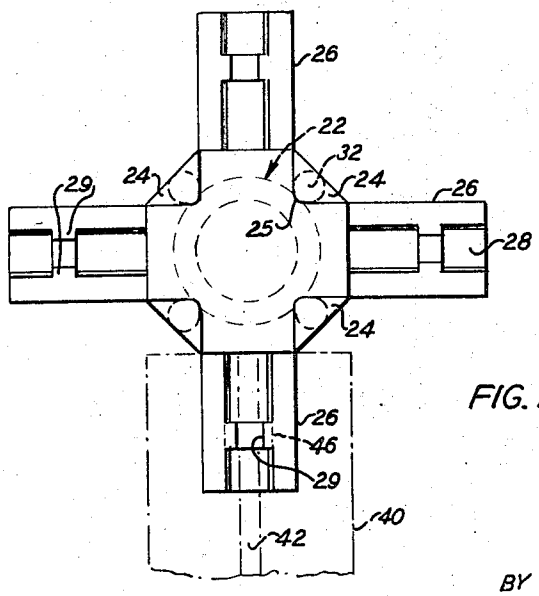


FIG. 2

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ELEVATED FLOOR SYSTEM

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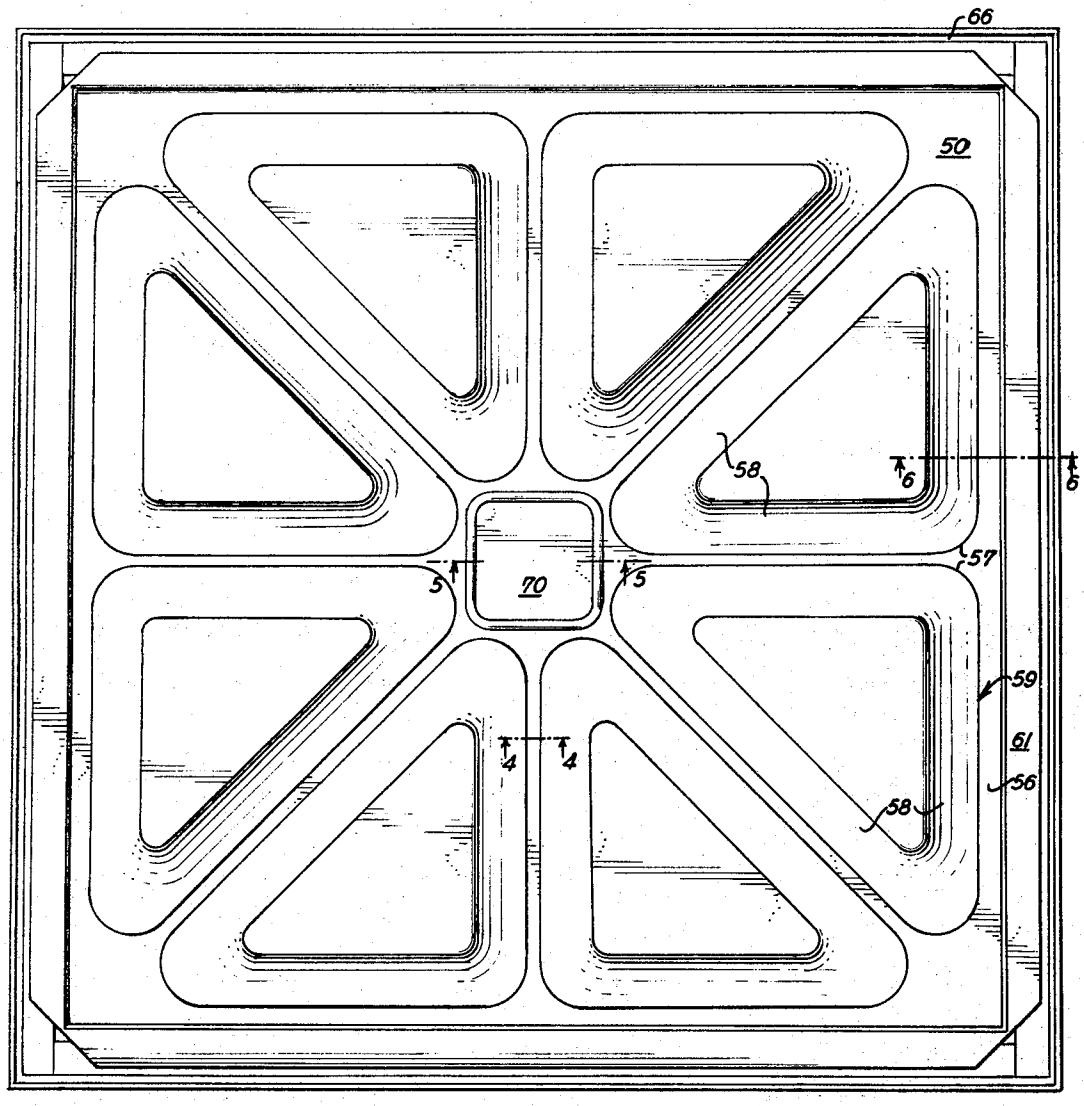


FIG. 3

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ELEVATED FLOOR SYSTEM

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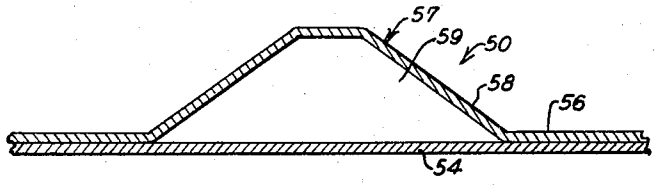


FIG. 4

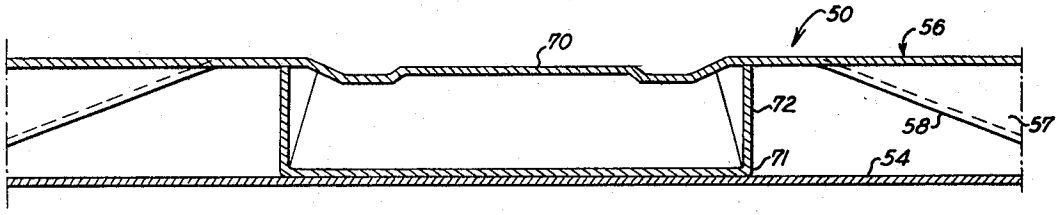


FIG. 5

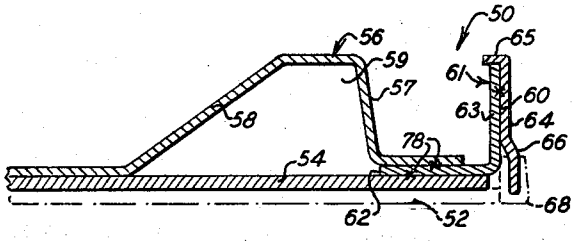


FIG. 6

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ELEVATED FLOOR SYSTEM

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U.S. Cl. 52—126 5 Claims
Int. Cl. E04g 15/18

ABSTRACT OF THE DISCLOSURE

An elevated floor has panels supported by pedestals. The panels can be supported at their corners by the pedestals or a reinforced assembly can be formed by stringers which bridge the pedestals and support the edges of the panels. The panels have an upper tread surface, an intermediate flat steel sheet and an embossed bottom plate which has alternate and depresssed portions. The sides of the panels are made of L-shaped bars sandwiched between the sheet and the plate.

The present invention relates to false or elevated floors of the type disclosed in U.S. Patent No. 3,150,748.

As set forth in Patent No. 3,150,748, elevated floors find application in the computer field. Computer machinery can be supported on a false floor with the maze of electric cables and wires being conducted between the original floor and the elevated floor.

The present invention is particularly concerned with a system using adjustable pedestal supports having a unique pedestal head construction so that an elevated floor can be rested on the pedestals with or without stringers being used to support the edges of the panels. The present invention is also concerned with a new panel of reinforced construction that enables the panels to be supported on pedestals without a latticework of stringers. Thus, even without stringers, these panels comprise a strong elevated floor capable of sustaining heavy loads. These and other objects will be apparent from the following description.

FIG. 1 is a side elevation of a pedestal showing a stringer in place.

FIG. 2 is a top plan view of the structure of FIG. 1

FIG. 3 is a plan view of the bottom of one of the panels.

FIG. 4 is a view taken along the lines **4**—**4** of FIG. 3.

FIG. 5 is a view taken along the lines **5**—**5** of FIG. 3.

FIG. 6 is a view taken along the lines **6**—**6** of FIG. 3.

As seen in FIGS. 1 and 2, the pedestal **20** is composed of a head or cap **22**, a bolt **20** and a base **21**. The pedestal cap **22** itself is an octagonal-shaped, hollow, flat head. The head has four vertical triangular-shaped projections **24** arranged symmetrically on the outer periphery of the head on every other side of the octagon with the apexes **25** of the triangle facing inwardly.

Four lateral arms **26** extend outwardly from the sides of the head on every other side of the octagon, alternate from the sides carrying the triangular projections. These arms can each support a stringer. The arms have upwardly facing channels **28** the inner sides of which are provided with opposing protuberances **29** adjacent the open ends of the channels. The arms **26** are provided with reinforcing webs **30** which are positioned beneath the channels. The webs **30** are fixed to a hollow member which comprises the body of the pedestal cap. A reinforcing rib **32** extends along the body of the cap between each arm **26**. The hollow cap receives the extended end of a pedestal bolt **34** as seen in FIGS. 1 and 2. Preferably, the cap loosely receives the bolt and the bottom of the cap rests on a nut **36** threaded on the bolt end so that any adjustment to the height of the cap can be made by simply raising and lowering the nut. In order to prevent displacement of the nut,

a second nut or preferably a retaining hose clamp **38** is positioned immediately beneath the nut.

The pedestal bolt is welded or otheriwse secured to a flat steel base plate **21** which itself can be held on the floor with an adhesive.

The stringer **40** is comprised by an elongated channeled metal member having a top with a groove **42** and solid vertical flanges or sides **44** which terminate in reinforcing ribs **45**. The groove **42** is formed centrally and longitudinally along the top of the stringer. Adjacent each end of the stringer a portion of the top is cut out so as to provide a hole **46** to receive the protuberances **29** of an arm of the pedestal cap when the stringer is supported on same. The reinforcing webbing **30** of the cap **22** is received within the channeled stringer between the sides **44** of the latter so that any appreciable tipping of the stringer is frustrated by the webbing **30** acting as a stop for each of the flanges of the stringer. This stringer can also be used to rest on the top of a pedestal cap such as that disclosed in U.S. Patent 3,150,748. In either case, a seal cushioning strip is fitted within the groove **42** in the same manner as disclosed in Patent No. 3,150,748. The stringer can be made of extruded aluminum and still afford adequate support because of the reinforcement provided by flanges.

The panel **50** is normally dimensioned to about two feet square with a tread surface **52** of tile, an underlying intermediate flat steel sheet **54** and a bottom plate **56** of stamped steel which has been embossed or cold drawn to provide a plurality of indented triangles **57** having angled sides **58** when viewed in plan. Where the bottom plate and intermediate steel sheet are contiguous, they have spot welds **78** and the panel forms a three-dimensional sandwich with a plurality of connected hollow spaces **59** between the plate and sheet.

The sides **60** of the panel are each formed with an L-shaped bar **61**, the horizontal leg **62** of which is retained between the peripheral edges of the bottom plate and the intermediate sheet by spot-welding same. The L-shaped bars are jig-welded to one another at their corners to form a square perimeter frame and an outer vertical side strip **64** is spot-welded to the vertical leg **63** of each L-shaped bars are jig-welded to one another at their corners to form **65** and an upper outwardly bent portion **66** which receives a channeled plastic filler strip **68** against which the tile **52** abuts when the panel is completely assembled. When a floor of these panels is assembled, the panels abut one another with the plastic strips of one panel in contact with the adjacent strips of the abutting panels. Thus each panel is insulated from abutting panels with resilient strips. If desired, the outer strip and L-bar can be fashioned from a single piece of metal and bent to the same configuration as that shown for the two piece side shown in the drawings.

It will be noted that at each corner of the panel, the bottom plate **56** is cut away at **57** leaving each corner clear of projections of protuberances. When a floor is formed by assembling the panels, the stringers can be omitted. With such an arrangement each triangular projection **24** of a pedestal cap will be placed at the corner of a separate panel and four panels will abut one another immediately above the flat surface of the head or cap **22**. It will be appreciated that each arm **26** of the cap is located slightly lower than the flat surface of the head. The difference in height is such that when a stringer is used, a panel resting on a stringer as well as the pedestal cap, will be positioned vertically at the same height as a panel without a stringer reinforcement.

The metal parts of the panel are preferably cold rolled steel with the intermediate sheet **54** and the L-bar **61** made of 14-gauge steel and the bottom plate **56** and outer strip **64** made of 16-gauge steel.

At the center **70** of the panel **50**, the sheet **54** and the plate **56** are separated over a sufficiently large area so

that a center reinforcing piece **71** can be placed between them. The reinforcing piece is a four-sided metal piece having its sides **72** bent at right angles to bear on the inner surfaces of plate **56**. The top surface of the reinforcing piece **71** can be welded to the inner surface of the sheet **54**.

The foregoing detailed description has been given for clearness of understanding only and no unnecessary limitations should be understood therefrom, for further modifications will be obvious to those skilled in the art.

We claim:

1. A floor panel assembly for use in an elevated floor system comprising a panel and a supporting pedestal, said panel including an upper tread surface, an intermediate flat steel sheet and a reinforcing bottom plate, said bottom plate being formed to have a plurality of undulations in which alternate raised and lowered horizontal flat surface portions are interconnected by generally vertical portions, the raised flat portions being secured to said flat intermediate sheet, the outer periphery of said plate being secured to said intermediate sheet, an L-shaped bar having a horizontal leg and a vertical leg, said horizontal leg being sandwiched between the peripheries of said sheet and said plate, the vertical leg of said bar comprising an outer side of said panel, said pedestal having a vertically adjustable cap for supporting said panel and said cap having vertical projections, one of which is received in a corner of said panel to retain same in elevated position, a channeled stringer for supporting one edge of the panel supported by said pedestal, said pedestal having a plurality of laterally extending arms with open channels therein, opposing protuberances being formed within each of said open channels, said stringer having a groove formed in the top surface thereof, said top having a portion cut out along said groove to provide an aperture to receive said protuberances whereby said stringer accommodates one of said arms and evenly rests on the top surface of same.

2. The assembly of claim **1**, wherein said cap has vertical projections, one of which is received in a corner of said panel to retain same in elevated position.

3. The assembly of claim **1**, wherein said pedestal is composed of a vertical screw-threaded bolt and said cap rests on a nut threaded on said bolt, a hose clamp secured to said bolt immediately below said nut to prevent same from being displaced.

4. A floor panel assembly for use in an elevated floor system comprising a panel and a supporting pedestal, said panel including an upper tread surface, an intermediate flat steel sheet and a reinforcing bottom plate, said bottom plate being formed to have a plurality of undulations in which depressed portions are interposed to interconnect rib-like portions, said sheet and said plate being spaced apart at the center area of said panel and also spaced apart to form said rib-like portions radiating from said center area to adjacent the peripheries of said panel, a center piece in said center area, said center piece comprising a hollow, plural sided element with substantially vertical sides which bear on the inner surfaces of said plate and sheet, said depressed portions being secured to said flat intermediate sheet and the outer periphery of said plate being secured to said intermediate sheet, an L-shaped bar having a horizontal leg and a vertical leg, said horizontal leg being sandwiched between the peripheries of said sheet and said plate, the vertical leg of said bar comprising an outer side of said panel, said pedestal having a vertically adjustable cap for supporting said panel.

5. A panel for use in an elevated floor, said panel having an upper tread surface, an intermediate flat steel sheet and a reinforcing bottom steel plate, said bottom plate being formed to have a plurality of undulations in which depressed portions are interposed to interconnect rib-like portions, said sheet and said plate being spaced apart at the center area of said panel and also spaced apart to form said rib-like portions radiating from said center area to adjacent the peripheries of said panel, a center piece in said center area, said center piece comprising a hollow, plural sided element with substantially vertical sides which bear on the inner surfaces of said plate and sheet, said depressed portions and the outer periphery of said plate being welded to said sheet, the sides of said panel being composed of L-shaped bars, one leg of which is sandwiched between the edges of said plate and said sheet.

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U.S. Cl. X.R.

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