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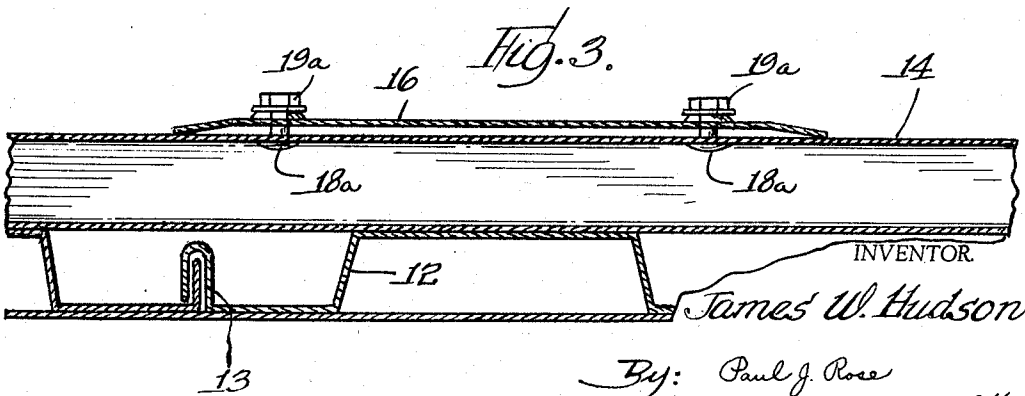
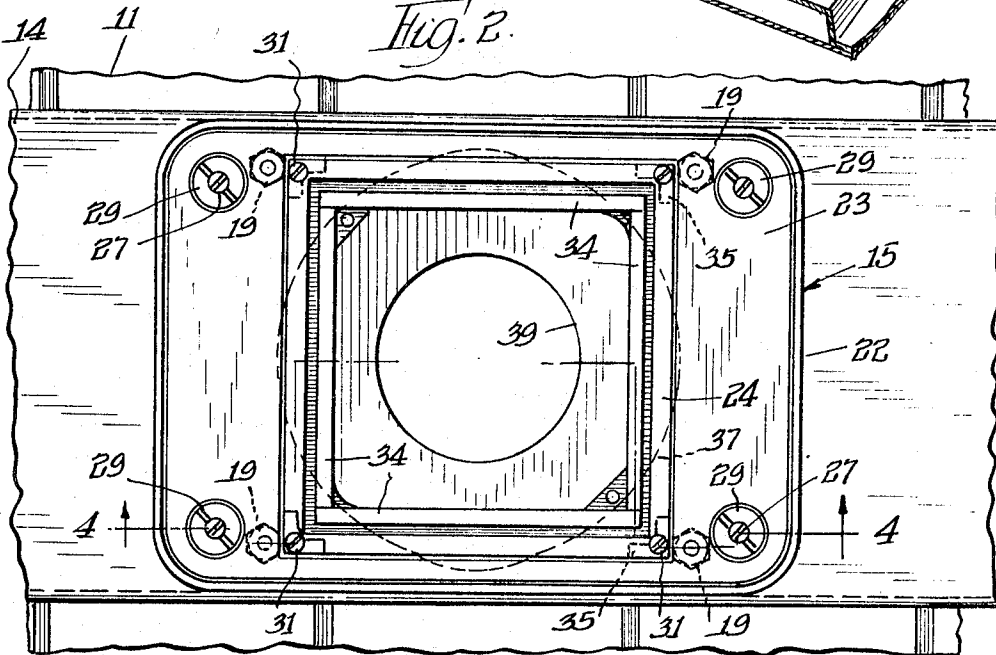
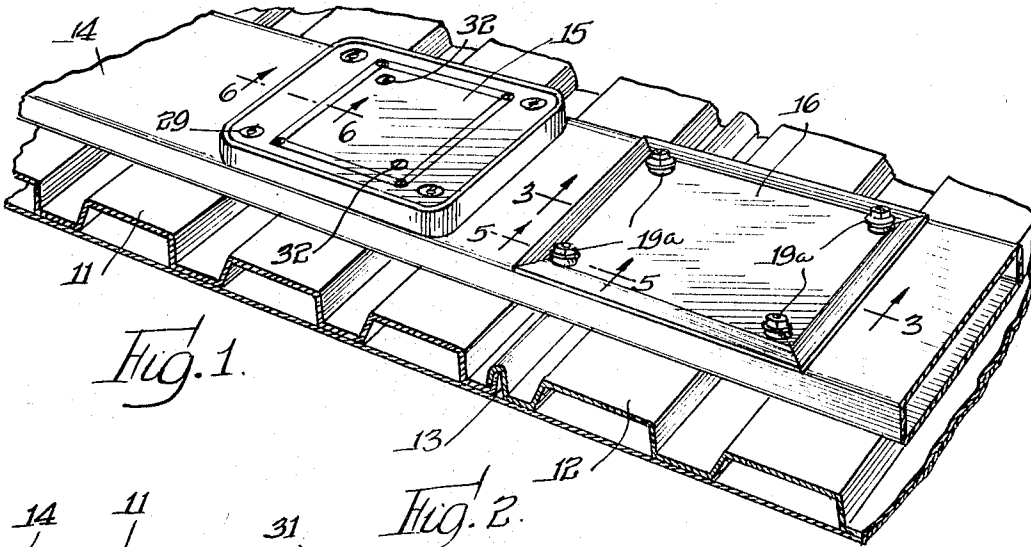
J. W. HUDSON

3,282,298

HEADERDUCT FOR CELLULAR FLOOR

Filed May 14, 1963

2 Sheets-Sheet 1



INVENTOR

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Att.

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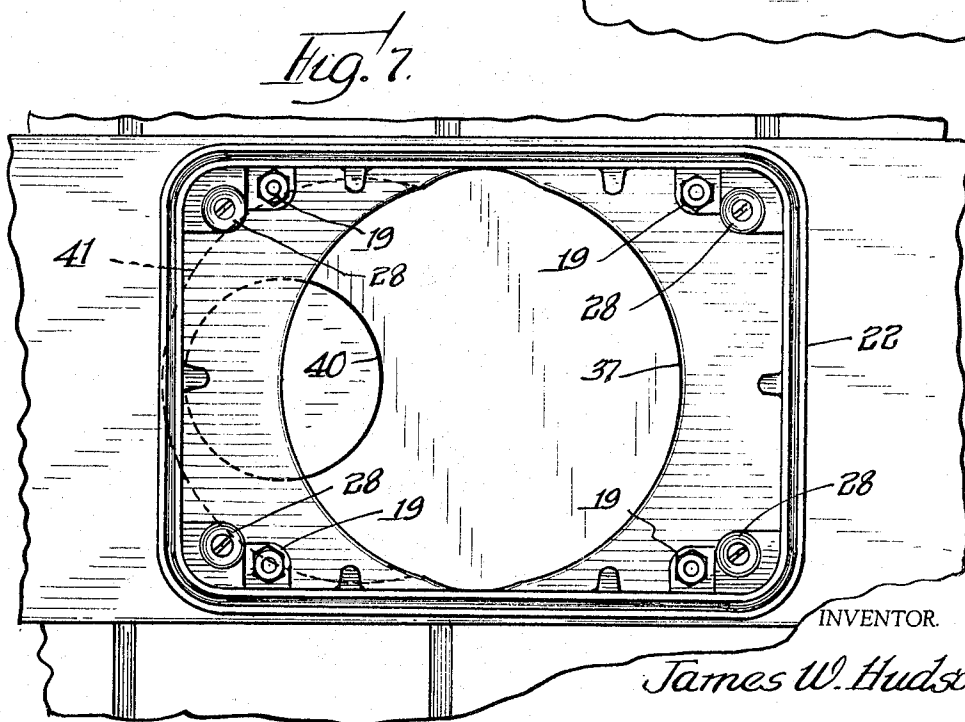
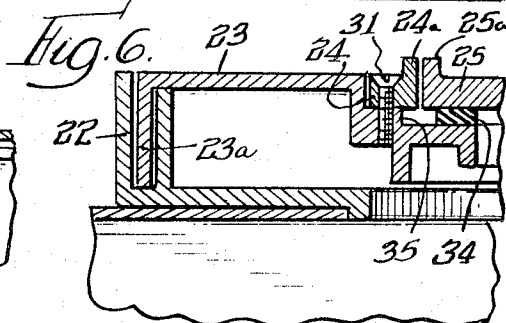
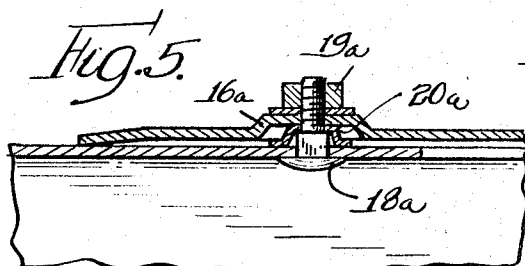
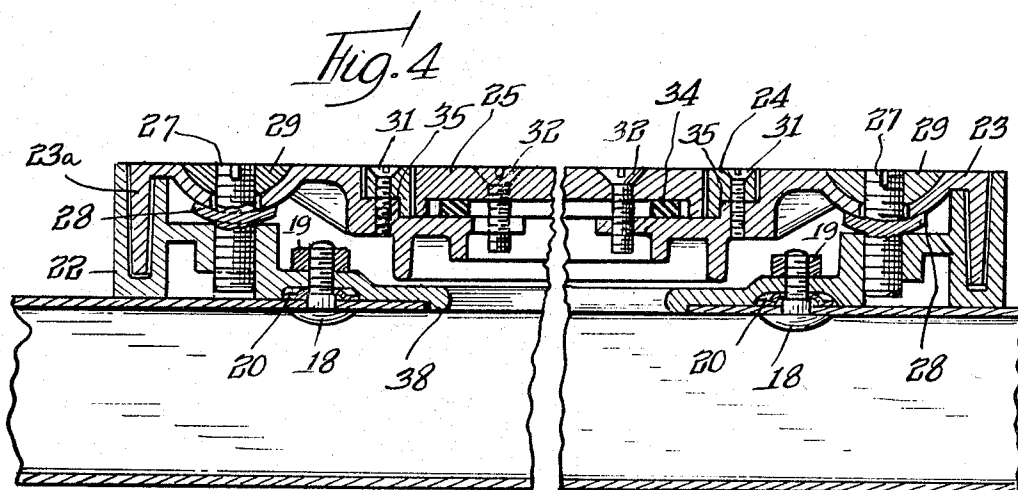
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HEADERDUCT FOR CELLULAR FLOOR

Filed May 14, 1963

2 Sheets-Sheet 2



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HEADERDUCT FOR CELLULAR FLOOR

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1 Claim. (Cl. 138-92)

This invention relates generally to underfloor wiring duct, and more particularly to headerduct for contiguous use with multicellular floors.

An object of the invention is to provide capped access openings for tubular headerduct in a less expensive manner than formerly.

Another object is to provide a simple means of field installation of an access unit at a place on a headerduct where no access unit or capped access opening has been provided.

Still another object is to provide means enabling easy field formation of relatively large holes through the bottom of a headerduct and the top of a floor cell contiguous therewith even though the particular access unit on the headerduct is unusually far out of line or off center from the floor cell.

Yet another object is to provide an improved headerduct and access unit construction wherein the access hole through the top of the headerduct is relatively large in relation to the width of the duct and can be made larger than the width of the duct with respect to the dimension thereof lengthwise of the duct and yet be covered by the access unit.

A further object is to provide an improved headerduct and access unit construction wherein the access unit is provided with storage space for spliced wire connections.

A still further object is to provide a headerduct with access openings capped by substantially flat plates which are respectively replaceable by access units securable to the headerduct by the same fastening means used to secure the flat plates.

Another object is to provide improved fastening means for securing access units or caps for access openings to a headerduct.

Still another object is to provide an improved access unit having a two-piece removable cover including an inner cover invertible to provide a tile edging and removable for normal servicing and an outer cover ring removable when necessary.

Other objects and advantages will become apparent when the following specification is considered along with the accompanying drawings in which:

FIGURE 1 is a fragmentary perspective view of a multicellular floor and a headerduct constructed in accordance with the invention;

FIG. 2 is a fragmentary plan view showing an access unit of the headerduct of FIG. 1 with the inner cover removed and showing an opening through the bottom of the headerduct and the top of a cell of the multi-cellular floor;

FIG. 3 is a fragmentary sectional view taken substantially along the line 3-3 of FIG. 1;

FIG. 4 is a fragmentary broken sectional view taken substantially along the line 4-4 of FIG. 2, but showing the inner cover in position;

FIG. 5 is a fragmentary sectional view taken substantially along the line 5-5 of FIG. 1;

FIG. 6 is a fragmentary sectional view taken substantially along the line 6-6 of FIG. 1, but showing the trim ring and inner cover inverted to form a tile edging; and

FIG. 7 is a plan view similar to FIG. 2 but with the outer cover ring removed and showing an off-center hole through the top of a cell of the multi-cellular floor.

FIG. 1 shows two sections 11 and 12 of multi-cellular steel floor loosely joined at a joint 13. Contiguous with

the top of the sections 11 and 12 of multi-cellular floor is a length 14 of headerduct constructed in accordance with the invention. For purposes of illustration, only one access unit 15 and one cover plate 16 for an access opening are shown, it being understood that a plurality of access units 15 and cover plates 16 capping access openings may be provided in the length 14 of headerduct.

As shown in FIGS. 2, 4, and 7, the access unit 15 is generally rectangular and is secured at its respective corner portions to the headerduct 14 by four bolts 18 and associated nuts 19. The bolts 18 are inverted with their heads inside the headerduct and are held captive by formed washers 20 (FIG. 4) which respectively engage the threads of the bolts above square shank portions thereof adjacent the heads. The square shank portions are respectively received in square holes in the headerduct to prevent the bolts from turning, as will be understood.

As shown in FIGS. 1, 3, and 5, the cover plate 16 for capping an access opening is rectangular and is secured to the headerduct 14 by four bolts 18a and associated nuts 19a arranged in identical fashion to the arrangement of the bolts 18 and nuts 19 securing the access unit 15 to the headerduct. The cover plate 16 is thus readily replaceable by another access unit 15.

The cover plate 16 is substantially flat, but is preferably beveled at the edges and is dished adjacent the four holes therein which receive the bolts 18a, as shown at 16a in FIG. 5, to provide room for the retaining washers 20a.

The access unit 15 includes a base portion 22 secured to the headerduct 14 by the bolts 18 and nuts 19, an outer cover ring 23, a trim ring 24, and an inner cover 25. The base portion 22 is provided with a generally U-shaped peripheral portion for receiving a downwardly extending peripheral flange 23a of the outer cover ring 23, as shown in FIGS. 4 and 6.

Four threadably adjustable support posts 27, one adjacent each corner of the base portion 22, are provided for supporting the outer cover ring 23. The posts 27 are respectively formed with integral, upwardly-concave collars 28 for engaging correspondingly shaped portions of the outer cover ring 23 which is held on the respective posts 27 by four specially-formed recessed nuts 29.

As shown in FIGS. 1 and 2, the trim ring 24 is substantially square and is secured at its respective corner portions to the outer cover ring 23 by four countersunk screws 31. The inner cover 25 is secured at two diagonally opposite corner portions to the outer cover 23 by a pair of countersunk screws 32 (FIG. 1). The trim ring 24 and inner cover 25 may be installed flush with the cover ring, as best shown in FIG. 4, or they may be inverted to provide a tile edging, as shown in FIG. 6, upstanding peripheral ribs 24a and 25a being provided respectively thereon for this purpose. The inner cover 25 is seated on four resilient sealing strips 34 (FIG. 2) adhesively secured to the outer cover ring 23, and the trim ring 24 is seated on four L-shaped corner ledges 35 provided on the cover ring 23.

The base portion 22 of the access unit 15 is provided with a large access hole defined by a rounded inner edge 37 (FIGS. 2 and 7) having a depending flange portion 38 (FIG. 4) which projects into an access opening formed in the top of the headerduct 14 and is substantially flush with the inner surface of the top of the headerduct. In accordance with the invention, the diameters of the access hole in the base portion 22 defined by the inner edge 37 and the corresponding access opening in the top of the headerduct 14 are at least seventy-five percent of the width of the headerduct itself. This is one of the many advantages afforded by the bolt-on method of attaching the access unit 15 to the headerduct.

FIG. 2 shows a circle 39 which represents a pair of

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concentric holes of identical size formed respectively in the bottom of the headerduct 14 and in the top of a cell of the section 11 of multicellular floor. As shown in FIG. 2, these holes 39 are also concentric with the access hole defined by the inner edge 37 of the base portion 22 of the access unit 15, and may thus be readily formed in the field with the access unit in place. A plurality of access units 15 would normally be provided along the length of the headerduct 14, and would be spaced in accordance with the spacing of the cells of a multi-cellular floor. However, because the joints such as the joint 13 between various sections of the cellular floor such as the sections 11 and 12 are loose, it is not improbable that occasionally an access unit 15 will be off center from a cell which it is desired to activate, or use as a wiring race-way, even though at a different point along the length of the headerduct 14 another cell of the cellular floor will be on center with an access unit 15.

FIG. 7 shows a circle 40 which represents a pair of concentric holes of identical size formed respectively in the bottom of the headerduct 14 and in the top of a cell of the cellular floor. These holes 40 are similar to the holes 39, but at their location along the length of the headerduct 14, the holes 40 are so far off center from the center of the access hole 37 in the base portion 22 of the respective access unit that they could not be formed with the access unit in place. When such a condition arises, the access unit of this invention may be easily removed and the access opening in the top of the headerduct corresponding to the access hole 37 of the access unit may be enlarged so as to increase its dimension lengthwise of the duct to over one hundred percent of the duct width, as by cutting the top of the headerduct away along the dotted line 41. The holes 40 may then be readily formed in the bottom of the headerduct and the top of the cell, after which the base portion 22 of the access unit may be secured back in position on the headerduct.

It will be seen that an improved headerduct of the type adapted to be mounted contiguously with steel cellular floor sections has been provided wherein holes may be readily formed through the bottom of the headerduct and the top of a floor cell even though the particular access unit is unusually far off center from the floor cell. Further, a contiguous headerduct has been provided on which an access unit may be easily mounted in the field at a place where no access opening has been provided at the factory, simply by forming the proper holes in the top of the headerduct. It will further be seen that a contiguous headerduct has been provided wherein the access hole through the top of the headerduct is relatively large in relation to the width of the duct and can be made larger than the width of the duct with respect to the dimension thereof lengthwise of the duct and still be covered by the access unit.

It will also be seen that an improved access unit for a contiguous headerduct has been provided having storage

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space for spliced wire connections and having a two-piece removable cover including an inner cover invertible to provide a tile edging. Also, improved fastening means have been provided for interchangeably securing access units and capping plates to a contiguous headerduct for multi-cellular floor.

Various modifications may be made in the structure disclosed without departing from the spirit and scope of the invention.

I claim:

In a multi-cellular underfloor duct system including a plurality of loosely-joined sections of multi-cellular floor, each section having a plurality of cells the centers of which are equally spaced from one another by a predetermined distance but the loose joining of said sections permitting cumulative errors over a plurality of sections in the spacing of the center of an end cell of one of said sections from the center of the adjacent end cell of an adjacent section as compared with said predetermined distance, the improvement comprising a tubular headerduct of generally rectangular cross section, said headerduct having a plurality of access openings in a top wall portion thereof, the centers of said access openings being equally spaced from one another longitudinally of said headerduct by an exact multiple of said predetermined distance, and an elongated substantially rectangular access unit secured to said headerduct over one of said access openings with the longer dimension thereof extending longitudinally of said headerduct, said longer dimension of said access unit being greater than the width of said headerduct, and said access unit being readily removable whereby said top wall portion of said headerduct may be cut away to enlarge said one of said access openings lengthwise of said headerduct to a dimension lengthwise of said headerduct greater than the width of said headerduct to compensate for said cumulative errors in the spacing of the centers of said cells due to said loose joining of said sections of multi-cellular floor and said access unit may then be secured back in position to cover said enlarged access opening.

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