July 13, 1948. J. W. WIESMANN 2,445,197

WIRE DISTRIBUTING APPARATUS

Filed Sept. 9, 1944 3 Sheets-Sheet 1

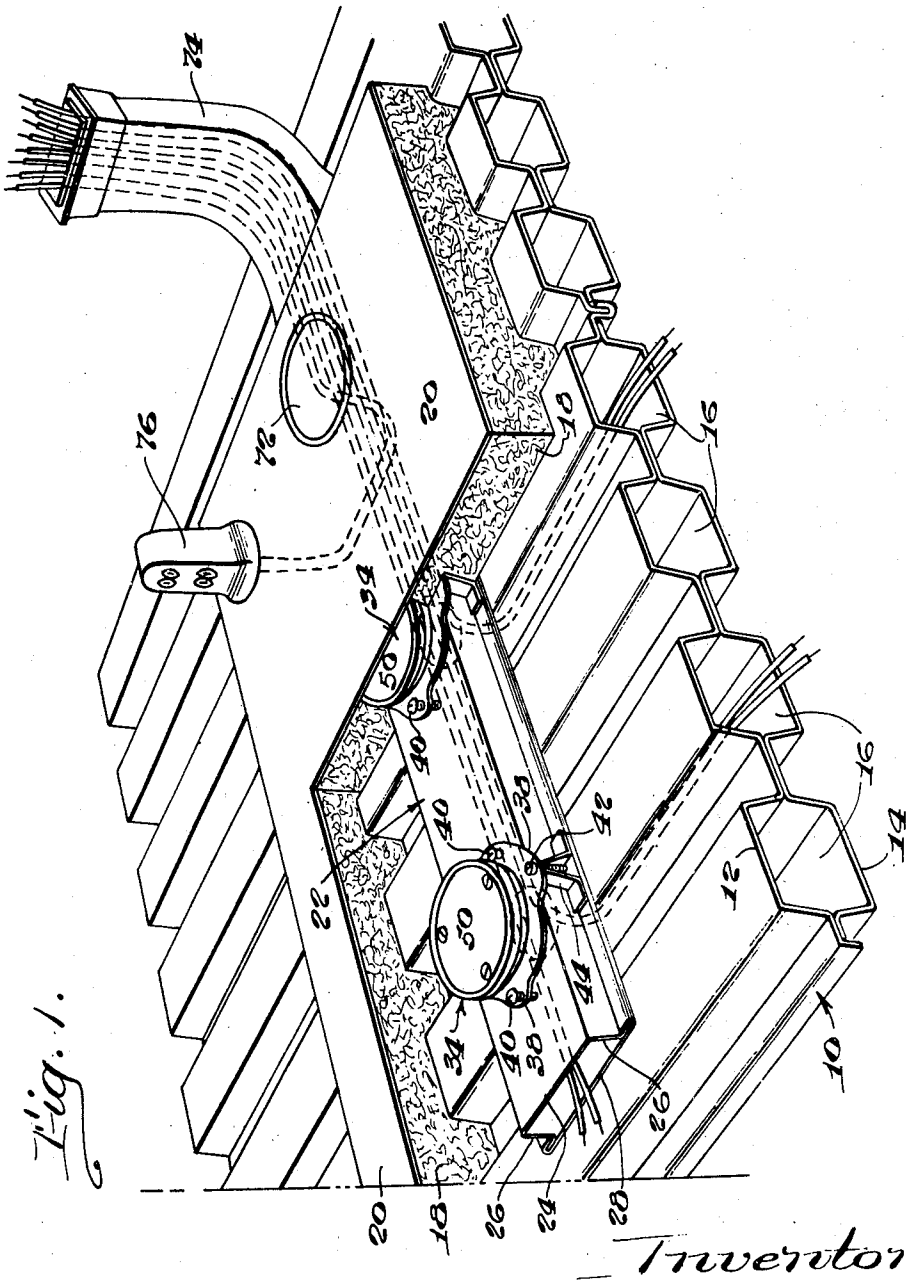


Fig. 1.

Inventor.
Joseph W. Wiesmann.
By J. Stanley Churchill
Atty.

July 13, 1948. J. W. WIESMANN 2,445,197

WIRE DISTRIBUTING APPARATUS

Filed Sept. 9, 1944 3 Sheets-Sheet 2

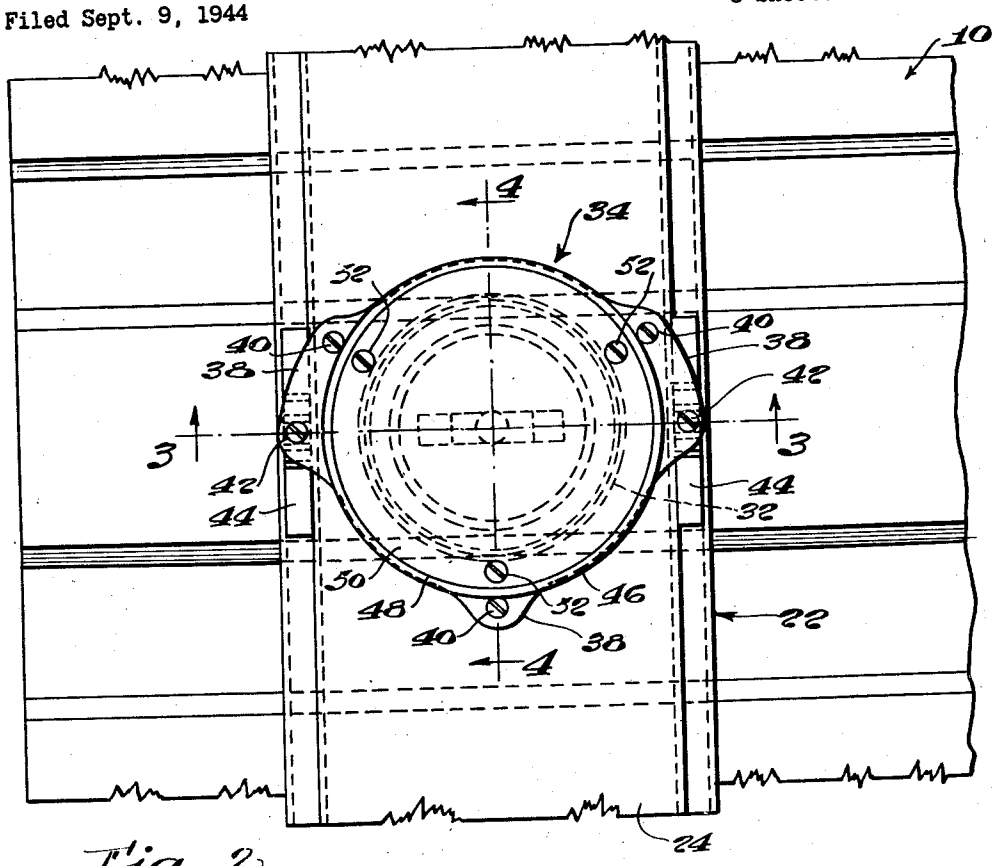


Fig. 2.

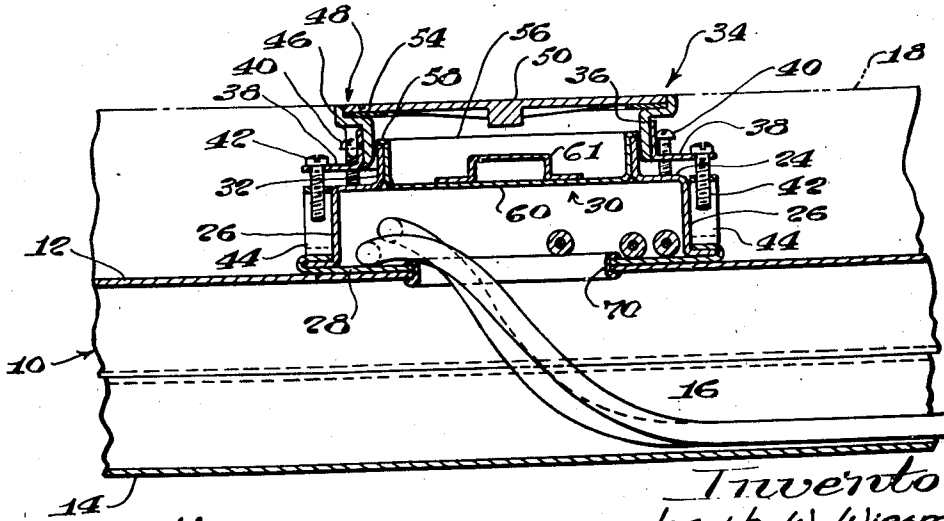


Fig. 3.

Inventor.
Joseph W. Wiesmann.
by J Stanley Churchill
Atty.

July 13, 1948. J. W. WIESMANN 2,445,197

WIRE DISTRIBUTING APPARATUS

Filed Sept. 9, 1944 3 Sheets-Sheet 3

Fig. 4.

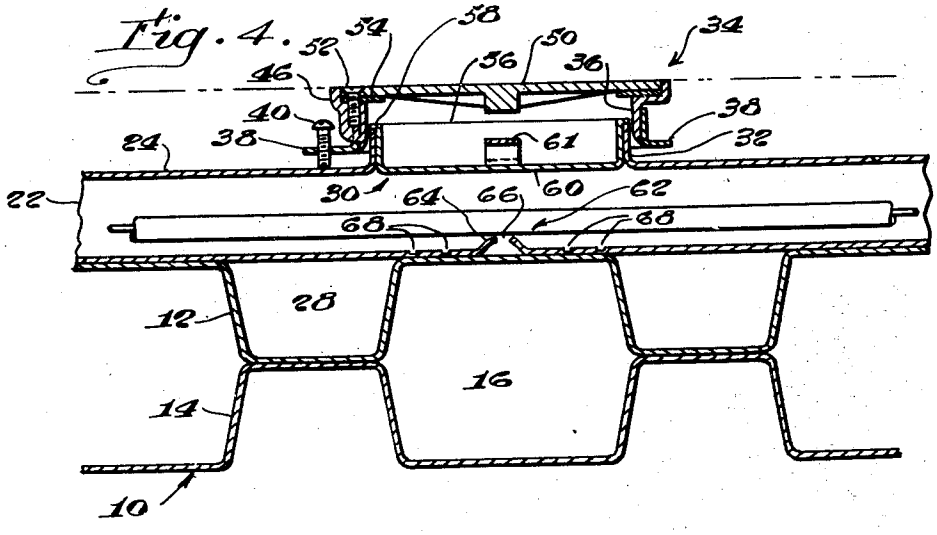
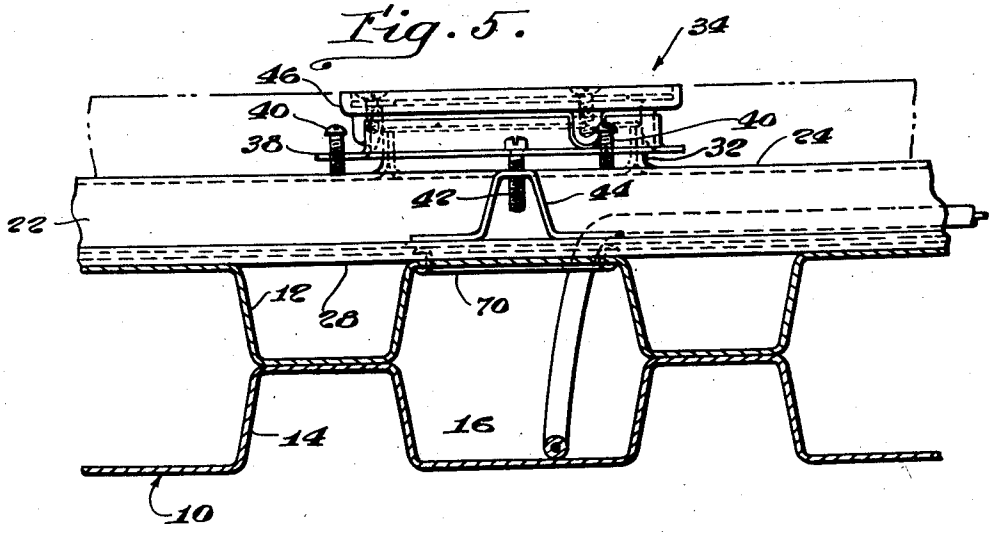


Fig. 5.



Inventor.
Joseph W. Wiesmann.
By J. Stanley Churchill
Atty.

Patented July 13, 1948 2,445,197

UNITED STATES PATENT OFFICE

2,445,197

WIRE DISTRIBUTING APPARATUS

Joseph W. Wiesmann, Pittsburgh, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa., a corporation of Pennsylvania

Application September 9, 1944, Serial No. 553,362

1 Claim. (Cl. 72—16)

1

This invention relates to wire distributing apparatus.

The invention has for an object to provide a novel and improved wiring duct embodying a plurality of junction units or access openings for communication with the cells of a wire distributing floor, and which are characterized by provision for adjusting and leveling the same to conform to the height of the top floor finish and to compensate for any deflection from the horizontal of the supporting structures for the duct whereby to assure a flush and level top floor surface.

With this general object in view and such others as may hereinafter appear the invention consists in the wiring duct and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a perspective view of a portion of a building showing a wiring duct embodying the present invention and with the floor broken away; Fig. 2 is an enlarged plan view showing the present adjustable junction unit for permitting communication between the duct and the floor cells; Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 2; Fig. 4 is a similar view taken on the line 4—4 of Fig. 2 and showing a closed unit available for future use; and Fig. 5 is a side elevation of the present wiring duct to be referred to.

In general, the present invention relates to an improved cross over wiring duct in a wire distributing flooring system, such as is disclosed in the United States patents to Sargent, No. 2,041,965 and to Young et al., No. 2,125,366. Such systems embody a multicellular metal flooring through which the wires may be drawn to provide electrical service to different parts of the building. The cross over ducts are mounted to extend transversely of and along the top of the multicellular metallic flooring and are provided with upwardly extending junction units comprising access openings to permit electrical service to be furnished selected of the flooring cells. Such junction units are designed to extend substantially flush with the subsequently applied floor fill and finish flooring. However, in practice, the floor fill and finish flooring may vary in height within limits thus causing the tops of the junction units to extend above or below the finish flooring, and it has also been found that due to deflection of the supporting beams and of the multicellular flooring upon which the wiring duct is supported, the tops of the junction units may be caused to be

2

disposed at a slight angle from the horizontal level of the floor so that the tops of the units may be tilted slightly with relation to the finish flooring thus causing an uneven top floor surface.

In accordance with one feature of the present invention, provision is made for adjustably extending the height of the junction unit to conform to the height of the finish flooring and also for adjusting the horizontal level of the tops of the junction units to compensate for any deflection from the horizontal of the supporting members whereby to assure a flush and level disposition of the tops of the units with relation to the subsequently laid finish flooring. Provision is also made in the preferred embodiment of the invention for locking the units in their adjusted positions.

Another feature of the present invention comprises the provision of a removable closure for the access opening adjacent the top wall of the wiring duct whereby to provide a smooth continuous surface flush with the interior of said wall so as to permit fishing of wires there past from other junction units without liability of fouling or snagging the fishing tape adjacent the access opening.

Referring now to the drawings 10 represents one type of cellular metal flooring used in the erection of buildings and which, as herein shown, comprises a plurality of units formed by assembling and uniting together an upper corrugated sheet 12 and a lower corrugated sheet 14 to form in effect a series of closely spaced parallel hollow beams or cells 16 upon the top of which a concrete fill 18 and finish flooring 20 is laid, as illustrated in Fig. 1. In practice, it is preferred to manufacture the cellular metal floor in units of varying lengths according to the steel fabrication of the building in which the floor is to be incorporated, and during the erection of the floor, the units are laid end to end so that the cells of one unit cooperate with and form extensions of the cells of a second unit to provide a plurality of continuous conduits extending across the building and through which wiring for electrical service of various types may be drawn.

As illustrated in detail in Figs. 2 to 5 the preferred form of the improved duct comprises an elongated, hollow, rectangular shaped conduit or duct 22 including an upper section having a top wall 24 and depending side walls 26 having their edges bent outwardly, and, a lower section 28 comprising the bottom wall having its longitudinal marginal edges turned upwardly and inwardly to embrace the outwardly bent edges of the side walls 26, as shown in Fig. 3, in which con-

dition the sections may be welded together to form an integral unit.

As herein shown, the top wall 24 is provided with a plurality of spaced junction units arranged in alignment with selected cells of the multicellular flooring, and, each junction unit includes an access opening 30 which is defined by a cylindrical wall 32 upstanding from the wall 24 and about which a cover member, indicated generally at 34 is adjustably mounted. Each cover member 34 comprises an intermediate annular section 36 having flange portions 38 at its lower edge provided with three radially arranged and equally spaced screws 40 threaded therein and which are arranged to engage the top wall 24 of the duct.

In operation, by adjusting the screws 40, the cover member 34 may be raised or lowered and also positioned horizontally with relation to the duct 22. In order to secure the cover member to the duct and to lock it in its adjusted position, two diametrically opposed screws 42 are provided which pass through drilled holes in the flange portions 38 and cooperate with threaded openings in inverted V-shaped brackets 44 which, as herein shown, may be welded to the laterally extended marginal edges of the duct. In practice, when assembling the duct in position on top and transversely of the multicellular flooring, the inverted V-shaped brackets 44, which define the center of a unit, may be used as centering guides to assist in aligning the center of a junction unit in alignment with the center of a cell.

As illustrated in Fig. 3 the upper portion of the annular section 36 of the cover member is provided with an outwardly and upwardly extended flange 46 forming a recessed opening 48 in the top thereof arranged to receive a circular closure member 50 held in place by screws 52. A gasket 54 may and preferably will be placed in the recess beneath the closure member 50. The access opening 30 is provided with a cup-shaped closure 56 arranged to fit snugly within the circular wall 32. The cup-shaped closure may and preferably will be of substantially the same height as the wall 32 and as herein shown is provided with a flange 58 at its upper end arranged to rest against the rim of the circular wall 32 to present the bottom 60 of the closure flush with the interior of the top wall 24 of the duct. Thus a flush continuous interior surface is provided at the access opening past which the wires leading to other junction units may be fished with minimum liability of fouling the fish tape. A handle 61 may be provided on the closure member 56 for convenience in removing and replacing the closure.

As shown in Fig. 4 the bottom wall 28 of the duct is provided with a plurality of prefabricated spaced pilots, indicated generally at 62, in alignment with the access openings and which are particularly adapted for the reception of a tool, such as a hole saw, to guide the tool when it is desired to complete an opening from the duct 22 into a cell positioned below. As illustrated herein, each pilot may comprise a raised portion 64, having a hole 66 in the center which serves as the centering point for the tool, and one or more grooved portions 68, concentric with the centering hole 66. The grooved portions 68 are of the same diameter as a circular saw portion of the hole saw so as to serve as a guide and to assist in completing an entrance of a specified size into the cell positioned below.

Only the necessary openings through the duct and into a cell are completed, the remaining pilots being available for future requirements, and as herein shown, when an opening is completed, it may be provided with the usual bushing such as a grommet 70 to provide a smooth edge around the opening and through which the wiring may be drawn without danger of injury to the wires. In practice, when preparing a wiring duct unit for shipment, the cup-shaped pan 60 may serve as a receptacle for a grommet to be used for bushing the opening to the underlying cell when completed so as to render it readily available for use.

From the above description it will be observed that the present cross over wiring duct may be adjusted to present the top of the access opening covers flush and level with the finish flooring in a single and convenient manner to assure a level and continuous floor line. In practice, after the cross over ducts have been properly positioned and secured to the multicellular flooring, the cover members are adjusted by turning the screws 40 to present the tops of the covers at the predetermined height of the floor fill or other covering and with the covers in a level position whereupon the fastening and locking screws 42 are rotated to lock the covers in their adjusted positions so that upon subsequent application of the finish flooring a level and continuous top floor surface will be obtained. Where it is desired, the top closure disc 50 may be removed and replaced by a circular piece of the floor covering, as indicated at 72 in Fig. 1 so as to preserve the continuous pattern of the floor covering. In practice, the transversely extended wiring ducts are connected by wall elbows 74 and extensions thereof to the usual panel and cabinet connections and the wires are fished through the duct to a selected junction unit and then through the adjacent cell of the flooring to a floor outlet 76 as illustrated in Fig. 1.

While the preferred embodiment of the invention has been herein illustrated and described it will be understood that the invention may be embodied in other forms within the scope of the following claim.

Having thus described the invention what is claimed is:

In a wire distributing system of the character described, a cross over duct comprising an elongated hollow rectangular member provided with an access opening in the top wall thereof defined by an upstanding tubular extension from said wall, an annular cover member telescopically fitted around the outside of said tubular extension and having an outwardly extended flange at its lower edge, a plurality of screws threaded through said flange and having the lower ends resting on said top wall for vertically and angularly adjusting said cover member with relation to the duct to vary the height and level thereof, and a second set of screws extending through said flange and threadedly engaged with brackets secured to said duct to secure the cover member to the duct and to lock it in its adjusted position.

JOSEPH W. WIESMANN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 17,290	Ashley, Jr.	May 7, 1929
1,531,113	Lovejoy	Mar. 24, 1925
1,824,571	Richardson	Sept. 22, 1931
2,063,569	Walker	Dec. 8, 1936
2,081,197	Goeller	May 25, 1937
2,125,366	Young et al.	Aug. 2, 1938