

May 26, 1936.

E. B. SARGENT

2,041,965

UNDERFLOOR WIRING CONDUIT SYSTEM

Filed June 24, 1932

2 Sheets-Sheet 1

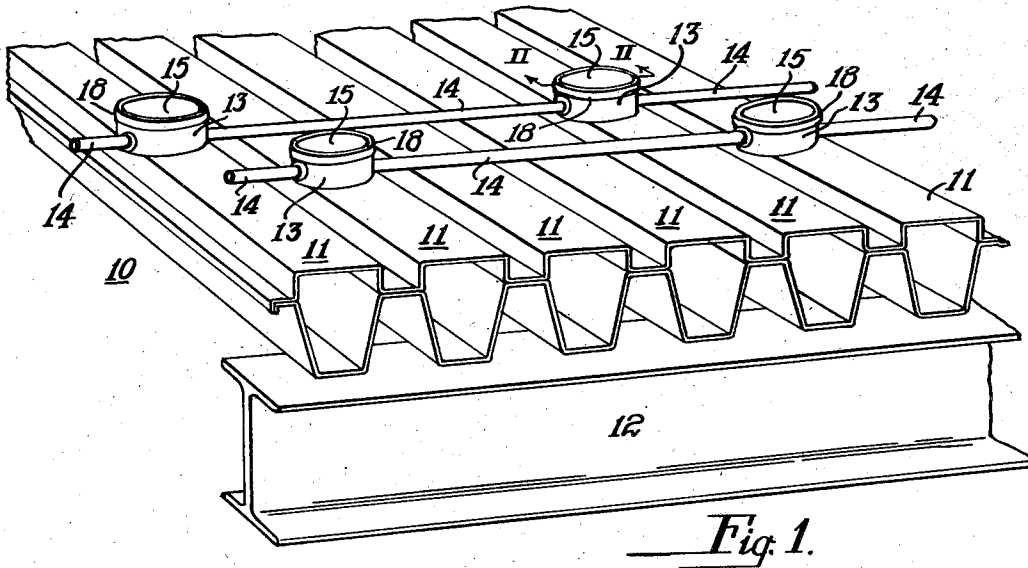


Fig. 1.

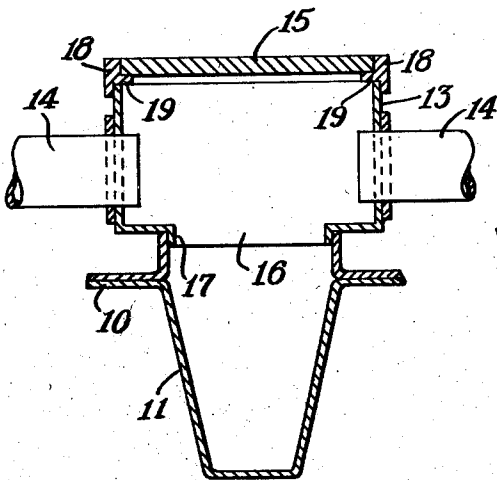


Fig. 2.

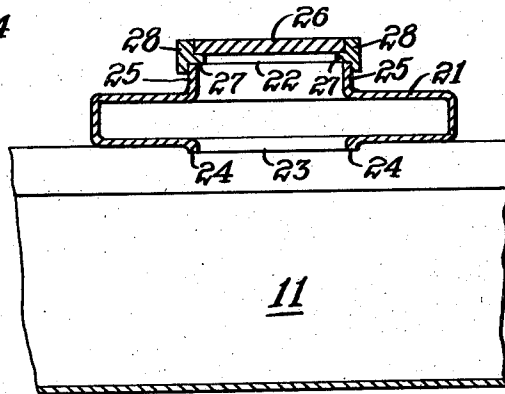


Fig. 4.

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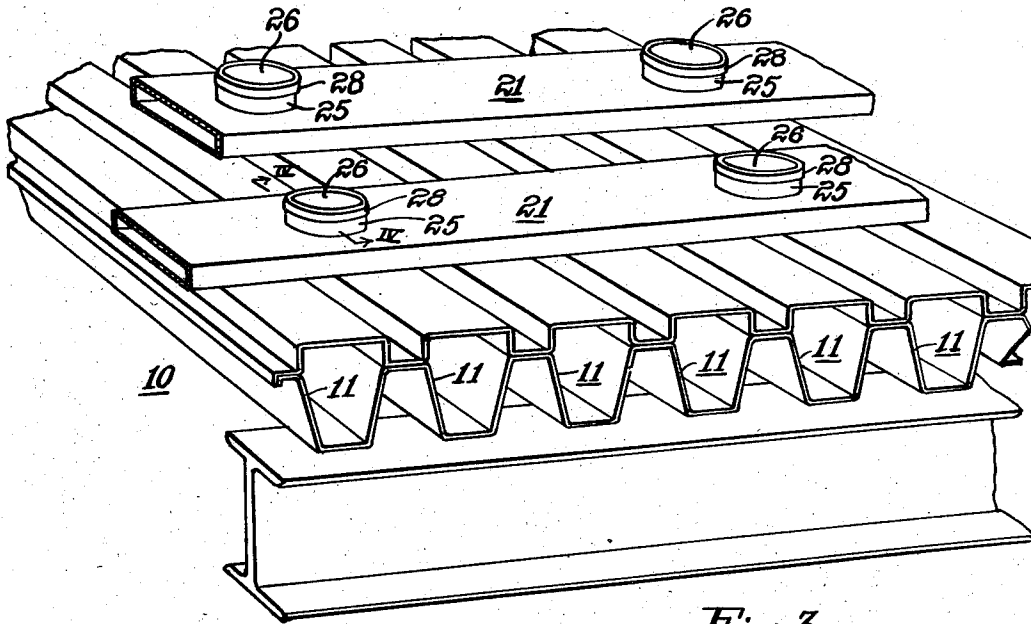


Fig. 3.

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UNITED STATES PATENT OFFICE

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UNDERFLOOR WIRING CONDUIT SYSTEM

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2 Claims. (Cl. 247—3)

This invention has for one of its objects to provide a wiring system for buildings having a multicellular floor in which selected hollow beams or cells of the floor may be utilized for supplying a plurality of different types of electric service and maintaining said types separated from one another so as to reduce to a minimum the danger arising from the proximity of wires carrying currents of different tension.

10 The invention has for another object to provide novel means which when combined with the hollow beams of a sheet metal base floor form an underfloor wiring conduit system for the building in which the selected cells of the base floor are accessible from above the floor. To this end, 15 the base floor has extended transversely thereof above the same, a crossover duct provided with upwardly extended hollow members which communicate with underlying cells of the floor, and are provided with removable covers for enabling 20 access to be had to the selected cells through said members from above the base floor and also above the finish floor. The accessible members may and preferably will be connected together by an intermediate member which is detachably 25 secured to the accessible members to enable the cross-over duct to be assembled on the job and adjusted to meet any changes in the wiring system which may be desired.

30 These and other features of the invention will be pointed out in the claims at the end of this specification.

35 Figure 1 is a view in perspective of a section of a hollow beam base floor having a fitting embodying one form of my invention attached thereto for making the interior of the beams accessible.

Fig. 2 is a view in vertical section taken on line II—II of Figure 1.

40 Fig. 3 is a view in perspective of a section of a hollow beam metallic base floor having a fitting embodying another type of my invention applied thereto and

Fig. 4 is a view in section taken on line IV—IV of Figure 3.

At the present time it is becoming more and more common in the erection of buildings to replace the tile or other types of sub-floors now in general use, on which the concrete or finish flooring is superimposed, with a pre-formed metallic base floor. These metallic base floors are generally formed in sections from metal sheets, and each section comprises a lower corrugated and an upper sheet which, when placed together,

form a series of closely spaced, parallel hollow beams or cells on which the finish flooring is laid.

In erecting the building, these sheet metal sections are supported directly on the steelwork thereof and are so arranged that the beams in one section open into the beams of the adjoining longitudinal sections and form a series of parallel passageways leading from one part of the building to another.

In general, the present invention contemplates 10 the provision of a hollow fitting for making accessible from above the base floor the interior of these hollow beams so that they may be used at some future time as conduits for electric or other 15 conductors. This fitting together with the beams to which it is applied, form an underfloor wiring system which is concealed within the finish floor supported on the beams and permit electrical service outlets to be established at any desired point in the floor surface without disturbing any 20 appreciable amount of the finish floor.

My improved fitting, which may take any number of forms and may be of any desired size and shape, is installed adjacent to the selected hollow beam or beams and has an opening or openings therein for establishing communication between the fitting and the interior of the beam or beams. One side of the fitting is removable and the fitting is so attached to the beam or beams that this removable side is readily accessible through either the finish floor after the latter has been laid or from above the base floor before the finish floor is laid.

So that access may be had to the interior of the fitting and thence into the beam or beams of the base floor without disturbing the finish floor when the fitting is disposed above the beams, the height of the fitting may be such that the side walls thereof terminate flush with the finish floor carried on the beams and the removable cover of the fitting forms a part of the floor.

A separate fitting may be applied to each beam selected for use as a conduit or the fitting may be in the form of a rectangular box or duct which extends transversely of the beams.

45 When a separate fitting is applied to each beam selected as a conduit, the fittings carrying one type of service are connected together by conduit pipes through which electrical conductors are introduced into the fitting and then into the beam. If more than one type of electrical service is desired in the building, a separate set of fittings must then be provided for each type of service and the fittings for each type of service should be positioned on beams separated by enough 50

beams to accommodate the required types of service. For example, if three different types of electrical service are desired the fittings carrying one type of service would be attached to every third beam while the fittings carrying the second and third types of service would be positioned on the intervening beams.

Referring to the drawings in detail, in Figs. 1 and 2, I have illustrated a section of a metallic base floor 10 fabricated from metal sheets shaped to form a series of collaterally arranged hollow beams or cells 11. These sheet metal sections which are supported on girders 12 of the steelwork of the building are so arranged that the interiors of the hollow beams 11 of longitudinally adjoining sections, are in alignment, thereby providing a series of continuous hollow beams or conduits extending across the building from one part to the other through which electrical conductors may be laid to provide electrical services at different portions of the floor. After the sheet metal sections comprising the base flooring have been laid and before the finish floor has been superimposed thereon, fittings 13 are secured to predetermined hollow beams 11 for facilitating the introduction of electrical conductors therein. These fittings 13 may be spaced apart so that access may be had into selected spaced beams 11 and the fittings adapted to supply the same type of electrical service are connected together by a conduit pipe 14 through which the conductors carrying the electric service are led from a suitable source of supply (not shown).

When more than one type of electrical service is to be supplied in the floor, other fittings of like character are provided which extend into other spaced selected beams for carrying the desired type of service.

As shown in the drawings, the fitting 13 comprises a hollow member of any sectional shape and provided with an opening in its top which is normally closed by a removable cover 15. The hollow member is provided with an opening 16 in the bottom thereof which is designed to register with a pre-formed opening in the top of a selected floor beam 11 upon which the member is mounted to provide communication between the fitting and the interior of the beam.

The edge of the opening 16 is turned down to form a lip 17 of sufficient size to extend into the pre-formed opening in the top of the floor beam and form a bushing for protecting the electrical conductors which are introduced into the interior of the beam 11. The lip 17 is of such a size that it fits snugly in the opening formed in the top of the beam 11.

The fitting 13 which may be welded to the top of the floor beam 11 to reestablish the full strength of the beam or secured thereto in any other suitable manner, is designedly made of such a height that when the finish flooring material has been superimposed on the beams 11, the top of the fitting 13 is flush with the upper surface of the finished floor material.

In order that the cover 15 may be readily secured in position on top of the member 13, a metallic ring 18 is secured to the top of the member and has an inwardly extending flange 19 on which the cover 15 is supported to form a smooth and tightly fitting closure for the top of the fitting. By removing the cover 15, access is afforded to the interior of the floor beam and to the conductors led through the conduits 14, thereby enabling desired electrical connection to be made between feed lines inserted in the hollow beam

and the electrical wiring extending through the conduits 14.

In Figs. 3 and 4 I have illustrated a modification of my fitting. As shown, the fitting comprises a duct 21 which extends transversely of the beams 11 and carries the electrical conductors from a suitable source of supply (not shown). The ducts 21 which are adapted to be placed across the floor beams before the concrete or finish flooring material is poured thereon have a series of spaced openings 22 in the upper surface thereof and a series of spaced openings 23 in the lower surface thereof directly opposite the openings 22 which register with pre-formed openings in the tops of spaced floor beams 11. The openings 23 in one of the ducts 21 are so spaced that they communicate with the interior of spaced floor beams and not with adjacent beams, so that the intervening beams may be used to carry different types of electric service. The beams carrying one type of service being connected together with one duct while the beams being accessible to another type of electric service are connected by another duct similar in all respects to the duct 21. The edges of the openings 23 in each of the ducts 21 are turned downwardly, to form lips 24 for fitting snugly within the openings in the top of the beam 11 and form a bushing thereon which will protect the conductors being led into the interior of the beams, while the edges of the openings 22 are turned upwardly to form an upstanding lip 25. Each of the openings 22 in each of the ducts 21 is closed by a removable cover plate 26 which is supported on an inwardly extending flange 27 of a ring 28 mounted on the lip 25.

From this construction it is readily apparent that, when electrical service is desired in any portion of the floor, feed lines may be readily led through the proper floor beam by removing the cover plate 26 and making a connection between the conductors carried in the duct 21 and the feed lines.

From the foregoing description, it is readily apparent that I have designed a duct extended transversely of the multicellular metal base floor above the same and provided with fittings which are spaced apart and communicate directly with selected cells of said base floor and have hollow members extended upwardly above the duct and provided with removable covers so as to render the selected cell of the base floor accessible from above the base floor, while the portions of the crossover duct between the accessible fittings communicate with the said fittings to complete the duct. It will further be observed that the portions of the crossover duct between the accessible fittings may be detachably secured to the said fittings after the manner represented in Fig. 1, so that the accessible fittings may be changed on the job to meet any change which it may be desired to make in the original plan or wiring system.

What I claim is:—

1. The combination with a multicellular floor provided with closely spaced hollow metal beams forming cells and covering the space between supporting members for said floor, of a crossover duct extended transversely of said multicellular floor and provided with fixtures spaced apart and forming part of said duct and capable of being arranged in said duct to have each fixture located above and communicate directly with any cell of said multicellular floor and thereby enable every cell of said floor between said sup-

porting members to be utilized as a wiring conduit.

2. The combination with a multicellular floor provided with closely spaced hollow metal beams forming cells and covering the space between supporting members for said floor, of a crossover duct extended transversely of said multicellular

floor and having openings capable of being arranged in said duct so as to communicate directly with selected cells of said multicellular floor, and enable every cell of the said floor between said supporting members to be utilized as a wiring conduit.

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