

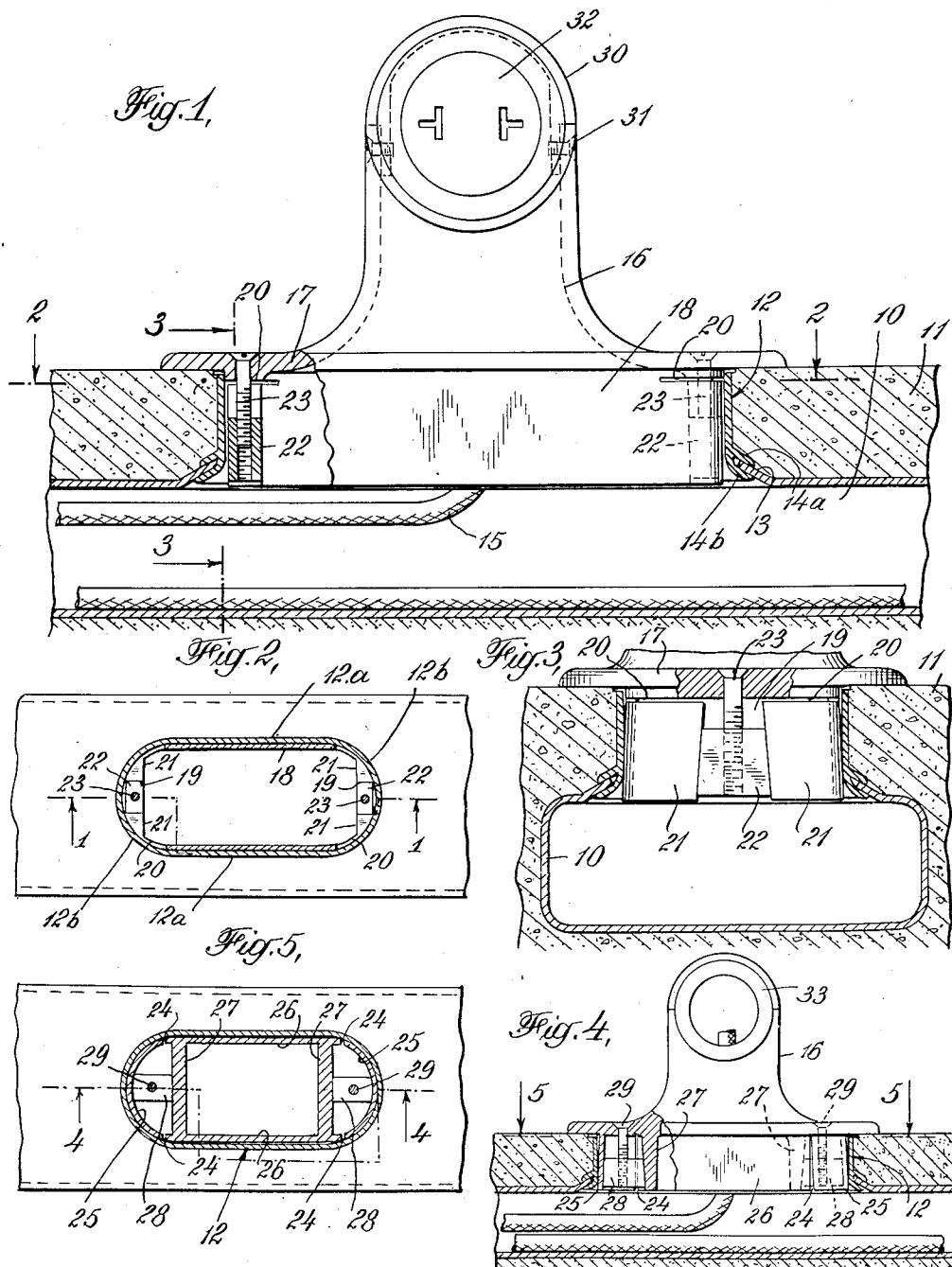
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FITTING

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## FITTING

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8 Claims. (Cl. 72-16)

This invention relates to outlet fittings, commonly referred to as standpipes, for use in underfloor duct systems, and is concerned more particularly with a novel standpipe which may be advantageously employed in the underfloor duct system disclosed in the co-pending application of Hervey S. Walker, Serial No. 389,380, filed April 19, 1941.

The ducts employed in the system of the Walker application are preferably metal tubes of generally rectangular horizontally elongated cross-section and have openings therealong at relatively closely spaced regular intervals. In each such opening is mounted an outlet, referred to as an insert, which extends up to the floor surface and is closed by a removable cap. The system includes junction boxes at the points where the runs of duct intersect and when electrical service is desired at a particular point, the cap of the nearest insert is removed and conductors are fished through the duct and outlet from the nearest junction box. Thereafter, the conductors are passed up through a standpipe which has a neck which can be mounted in the outlet, and the connection is completed by connecting the conductors either to a receptacle at the top of the standpipe or to the device to be supplied with energy.

In underfloor duct systems of the type used prior to the development of the system of the Walker application, the outlets were of circular cross-section and of a diameter less than the width of the duct. The standpipes used had necks of circular cross-section and the necks were commonly formed with radially movable parts which could be forced into firm contact with the inner wall of the outlet to hold the standpipe in place. In such a system, difficulties were encountered in pulling a conductor through a duct and out through an outlet because of the sharp turn that the conductor had to make in passing from the duct into the outlet. To overcome such difficulty, the outlets in the system of the Walker application are of non-circular cross-section and are elongated lengthwise of the duct so that a conductor may be drawn there-through by a pull applied at a low angle. With such an outlet, however, the standpipes previously used and having circular expansible necks can no longer be conveniently employed, since the neck of such a standpipe will not fill the entire outlet and a special cap and other expedient must be employed to close that part of the top of the insert not filled by the standpipe neck.

The present invention is, accordingly, directed

to the provision of a standpipe suitable for use with an outlet system of the type shown in the Walker application or any other in which the outlets from the duct are of non-circular cross-section. The new standpipe is provided with a connection of a cross-sectional shape such as to fill the non-circular outlet and the neck is provided with novel locking means by which it can be firmly secured in place within the outlet.

For a better understanding of the invention, reference may be had to the accompanying drawing in which

Fig. 1 is a longitudinal sectional view through a duct and outlet with the new standpipe installed, the latter being shown partly in elevation;

Figs. 2 and 3 are sectional views on the lines 2-2 and 3-3, respectively, of Fig. 1;

Fig. 4 is a view similar to Fig. 1 showing a modified construction and take on the line 4-4 of Fig. 5; and

Fig. 5 is a sectional view on the line 5-5 of Fig. 4.

In the accompanying drawing, there is illustrated in Fig. 1 a portion of an underfloor duct system of the construction shown in the Walker application, the system shown including a duct 10 embedded within the floor 11 below the surface thereof and wholly concealed by the floor material. The duct is a metal tube of generally rectangular cross-section which is provided with openings in its upper wall in which are mounted inserts 12 leading to the floor surface and providing outlets. The metal of the duct is dished up at 13 around each opening and each insert has upper and lower flanges 14a, 14b which grip the dished-up rim of the opening on its upper and lower faces, respectively. With this arrangement, the lower flange 14b may lie in the plane of the under surface of the top wall of the duct or above that plane, and the flange thus does not obstruct free movement of conductors through the duct.

The outlet 12 is non-circular in section and it is elongated lengthwise of the duct. Preferably it has parallel sides 12a and round ends 12b, although any other suitable form which is elongated lengthwise of the duct may be used.

The new standpipe, which is mounted in such an outlet whenever a conductor 15 is led out through the outlet to a device to be supplied with current, comprises a hollow body 16 of any suitable material, such as metal. At the lower end of the body is a flange 17 of such dimensions as to overlie the floor material around the upper end

of the outlet when the standpipe is in place. A neck 13 extends downward from the under surface of the flange and the neck has a cross-sectional shape generally similar to the interior of the outlet.

At opposite ends of the neck, portions are cut away to form cutouts 19 and horizontal cuts 20 through the neck lead from the opposite edges of each cutout at the top thereof. With this arrangement, the end portions 21 of the neck on opposite sides of the cutout may be sprung out to grip the wall of the insert and such movement of the end portions at each cutout is effected by a wedge 22 mounted in the cutout and movable by a screw 23 which is passed through an opening in the flange 17 and enters a threaded bore in the wedge.

In the construction shown, each wedge 22 has side faces converging upwardly and the vertical walls of its cutout 19 also converge upwardly. Accordingly, when the neck of the standpipe is mounted in place in the outlet and the screws 23 are turned to move the wedges 22 upwardly, the parts 21 are forced away from each other and into firm contact with the inner surface of the outlet at one end thereof. Whenever the standpipe is to be removed, the screws 23 are turned to force the wedges downwardly and the springiness of the metal used in the necks is such that the parts 21 approach each other and move away from the inner wall of the outlet.

Instead of forming the neck of the standpipe with cutouts and providing a wedge in each cutout, the construction illustrated in Figs. 4 and 5 may be employed. In this form, vertical cuts 24 are made in the neck at the ends of the curved end portions 25 thereof and the parallel portions 26 of the neck are then joined by spaced transverse integral bars 27. In the space between the outer face of each bar and the inner surface of the curved end portion 25 of each neck is mounted a wedge 28 which can be moved up and down in the space by means of a screw 29 which passes through an opening in the flange of the standpipe and enters a threaded bore in the wedge. As in the Fig. 1 construction, upward movement of the wedges 28 causes the outwardly movable end portions 25 of the neck to grip the curved ends of the outlet and the movable parts may be forced into sufficiently snug contact with the ends of the outlet to secure the standpipe rigidly in place.

The body 16 of the standpipe is hollow for the passage of conductors and a removable cap 30 is mounted on the upper end of the body by screws 31. The top edges of the opposite faces of the body of the standpipe are concavely formed so that an electrical receptacle 32 may be mounted between the top of the body and the cap. The conductors are then led through the standpipe to the terminals in the receptacle and service is obtained in the usual way by inserting the prongs of a plug in the receptacle openings. If desired, the receptacle may be dispensed with and, in that event, bushings 33 of insulating material may be mounted on the upper edges of the body and held in place by the cap. When bushings are used, the conductors are led out through the bushings to the device to which energy is supplied.

In both constructions shown, the neck of the standpipe is of non-circular section with parallel sides and rounded ends and such a standpipe is especially adapted for use with an underfloor system as shown in the Walker application. How-

ever, if the system has outlets of a different non-circular section, the neck of the standpipe will be formed accordingly, and the shape given the neck will be such that it may be readily inserted in the outlet and its end parts then moved outwardly to grip the inner wall of the outlet.

I claim:

1. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and being cut vertically adjacent its ends to form outwardly movable portions, movable elements positioned within the neck adapted when moved in one direction to apply an outward force to said portions to move them outwardly to grip the inner wall of said outlet, and means for so moving said elements.

2. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and being cut vertically adjacent its ends to form outwardly movable portions, movable elements positioned within the neck adapted when moved in one direction to apply an outward force to said portions to move them outwardly to grip the inner wall of said outlet, and means extending through and operable from a position above the flange to so move said elements.

3. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and being cut vertically adjacent its ends to form outwardly movable portions, wedges movable to force said portions outwardly to grip the inner wall of said outlet, and means for so moving the wedges.

4. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and having cutouts adjacent its ends forming outwardly

movable portions, wedges in the cutouts movable to force said portions outwardly to grip the inner wall of said outlet, and means for so moving the wedges.

5. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and having cutouts adjacent its ends forming outwardly movable portions, wedges in the cutouts movable to force said portions outwardly to grip the inner wall of said outlet, and means extending through said flange and operable from the upper face of the flange for moving said wedges.

6. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, each outlet being elongated lengthwise of the duct and having rounded ends, said fitting comprising a body, a flange near the lower end of said body, and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of the cutouts, said neck having a cross-section generally similar to that of an outlet and having cutouts adjacent its ends to form pairs of outwardly movable portions, a wedge in each cutout, and a screw passing through the flange and into each wedge, the screw being operable to move the wedge to force its associated portions of the neck outwardly to grip the inner wall of said outlet.

7. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and having vertical cuts adjacent its ends forming outwardly movable portions, a transverse bar within the neck adjacent each portion, a wedge between each of said outwardly movable portions and its bar movable to force said portion outwardly to cause it to grip the inner wall of said outlet, and means for so moving said wedge.

8. A fitting for use with an underfloor duct system which includes a duct embedded and concealed within a floor structure and having outlets leading from openings in the duct to the floor surface, said fitting comprising a body, a flange near the lower end of the body and encircling the same and adapted to rest upon and overlie the floor material around the upper end of an outlet, a neck projecting downwardly from the flange and substantially coaxial therewith and adapted to be received in one of said outlets, said neck being of elongated cross-section and having vertical cuts adjacent its ends forming outwardly movable portions, a transverse bar within the neck adjacent each portion, a wedge between each of said outwardly movable portions and its bar movable to force said portion outwardly to cause it to grip the inner wall of said outlet, and means extending through said flange and operable from the upper surface of the flange for moving the wedge.

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