United States Patent

[11] 3,603,048

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[54] **CARPET-UNDERFLOOR ADAPTER**
3 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **52/221,**
16/4, 220/3.8
[51] **Int. Cl.** **E04f 19/08**
[50] **Field of Search** 16/4, 7, 16;
52/220, 221; 138/92; 220/3.4, 3.5, 3.6, 3.7, 3.8;
174/48, 49, 101

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ABSTRACT: A unitary piece for mounting on the cover of an electrical underfloor access unit or the cover of a junction box unit. While the adapter permits floor carpet to be installed directly over the unit and thereby preserve carpet continuity, it nevertheless provides ready access to the cover for maintenance and/or conductor installation purposes.

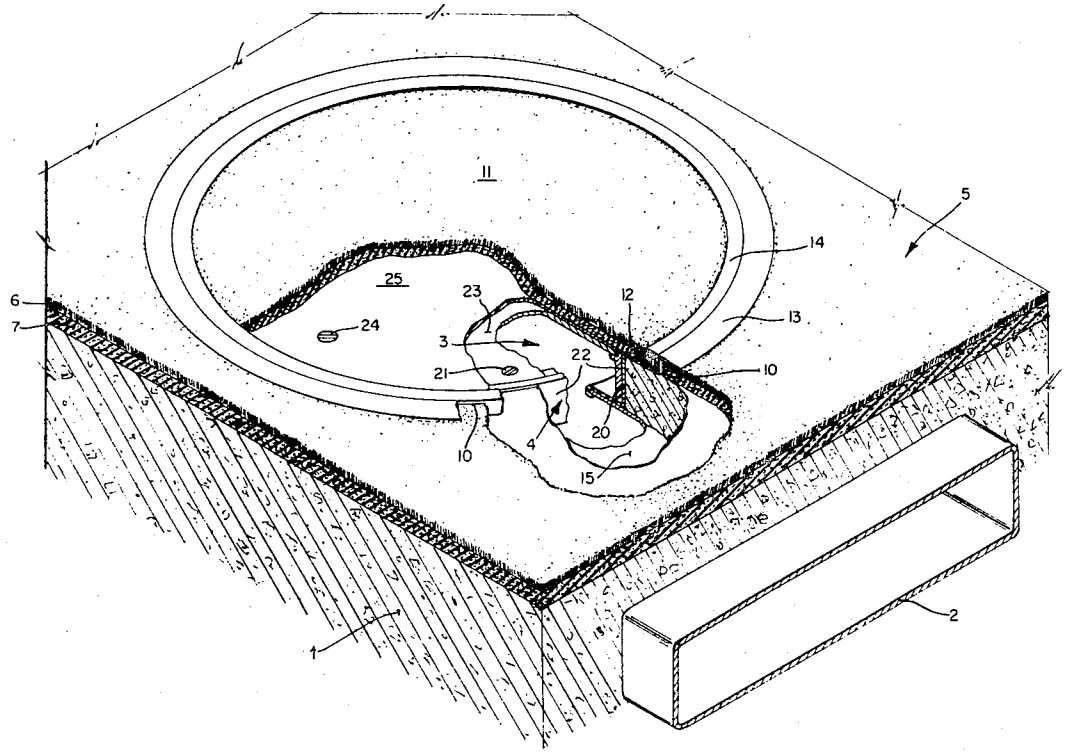
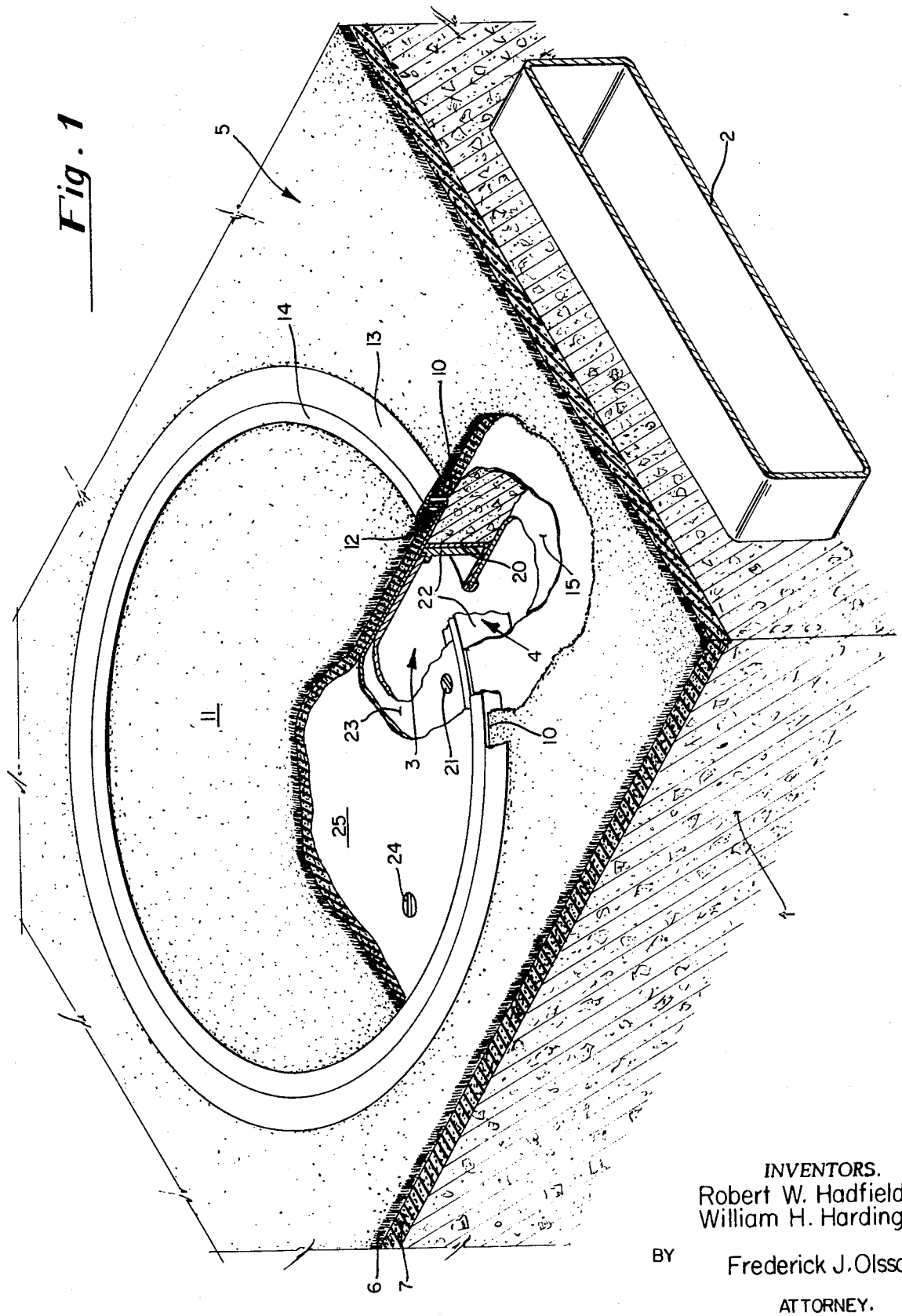


Fig. 1



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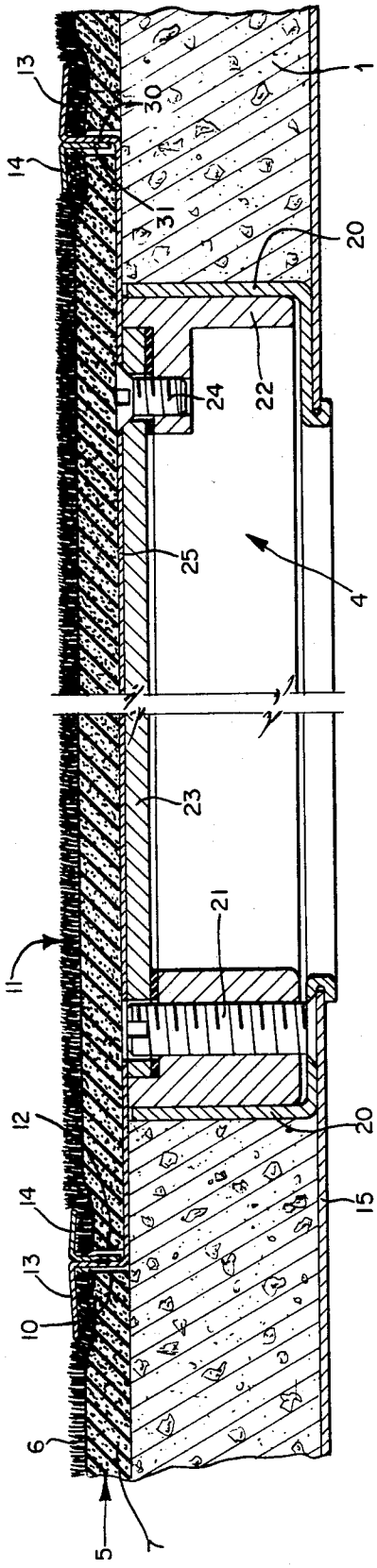


Fig. 3

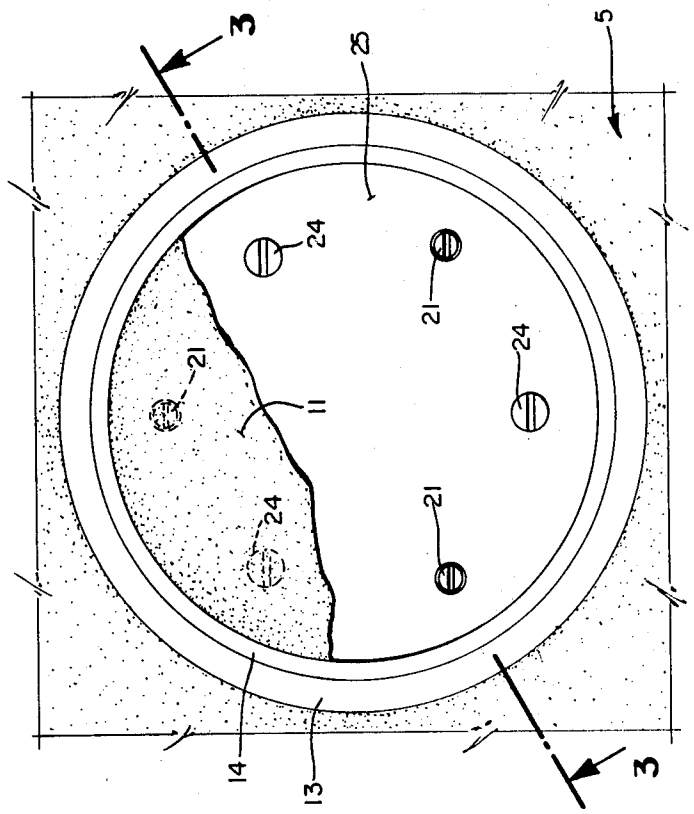


Fig. 2

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CARPET-UNDERFLOOR ADAPTER

This invention relates to an adapter for use with entrance means in an electrical underfloor distribution system buried in a floor having carpet-type covering.

The requirement for on-the-floor entrance means in underfloor distribution systems and the wide use of carpeting on such floors raises particularly nasty problems with respect to the installation of carpet and the maintenance of the condition of the carpet while providing for the entrance means, even though covered by carpet, to be readily accessible.

The invention contemplates an adapter which can be removably installed directly on the cover of the underfloor entrance means such as junction boxes and access units to provide means making carpeting on the floor and the underfloor system functionally and aesthetically compatible.

In its preferred form the invention contemplates a readily removable interface between the carpet and the underfloor entrance means by that the carpet is cut with a circular hole directly over the entrance means and then the removed circular piece of carpet installed in the adapter so that when the adapter is fastened to the entrance cover it functions to overlie the cut edges to protect and retain the same in position and maintain carpet continuity by presenting only a small, circular ring visible on the floor. Removal of the adapter provides an opening for access to the cover of the entrance means.

One of the objects of the invention is to provide an adapter of the kind in question which provides for carpet to be installed directly over the underfloor entrance means and thereby maintain carpet continuity but without sacrificing ready access to the cover of the entrance means.

Another object of the invention is to provide an adapter of the kind in question by which the edge of carpet installed on the floor and the edge of carpet on the cover of the entrance means are positively protected from foot traffic and other moving objects such as furniture and thereby does not become loosened or frayed or otherwise damaged.

Another object of the invention is to provide an adapter of the kind in question which is easily installed and removed from the cover of underfloor entrance means and which not only functions to maintain the integrity of the cut edges of the carpet and also to positively maintain the edges in installed position.

Another object of the invention is to provide an adapter of the kind in question adaptable for carpet of various types and thicknesses and by which the edges of carpet installed on the floor and installed on the cover of the entrance means are retained and protected irrespective of carpet type or thickness.

Another object of the invention is to provide an adapter of the kind in question which permits the carpet which is installed on the floor to be also installed on the entrance means and thereby enhancing the continuity of the carpet surface, the adapter presenting only a small annular ring on the carpet surface which presents a pleasingly circular decorative effect.

Another object of the invention is to provide an adapter of the kind in question which enhances the efficiency of carpet installation on a floor having an electrical underfloor distribution system and which requires no special skills or knowledge on the part of carpet installer.

FIG. 1 is a prospective view of a floor having a piece of conventional carpet which overlies a junction box or access unit which incorporates the adapter of the invention.

FIG. 2 is a plan view.

FIG. 3 is a sectional, elevational view taken along the line 3—3 of FIG. 2 and showing the adapter as installed on an underfloor entrance means such as a junction box or access unit, the entrance means being imbedded in a carpeted concrete floor.

In FIG. 1 a typical concrete floor 1 has a conventional electrical underfloor distribution system buried therein. A duct of the system is shown at 2. An entrance means for the system is partially shown as indicated at 3. The entrance means services the duct 2. The adapter 4 of the invention is mounted directly on the entrance means 3. A section of the floor carpeting is illustrated at 5.

The carpet 5 is of conventional form. A rubber resilient backing 6 is secured to the surface on floor 1 and a plastic material makes a dense, short pile fixed to the backing 6. While we have illustrated carpeting in the form indicated it will be understood as the description proceeds that the invention is fully applicable for the various other forms of carpeting such as the conventional weaves and piles.

The carpet 5 has a circular cutout providing an opening to accommodate entrance means 3. The annular edge of the opening is indicated at 10. The circular piece which is cut from the carpet is indicated at 11 and is carried by the adapter 4 directly over the entrance means 3. The edge of the cutout piece is indicated at 12.

The adapter 4 has a pair of lips 13 and 14 which overlie the respective edges 10 and 12 of the carpet. In the embodiment shown, the lips lie substantially flush with the carpet surface. The function of the lips is to maintain the edges down against the floor and to provide a protective shield for the edges and prevent the same from being contacted by the feet of persons walking over the carpeting and/or by the movement of objects such as furniture.

Headerduct is widely used for underfloor installations and typically in such systems the access units have covers each of about 6 inches in diameter. An adapter for such a cover is made larger or about 8 inches in outside diameter. The approximate lateral width of the two lips 13 and 14 is about three-fourths inch or less. The circular configuration of the lips flush with the surface of the carpet provides a neat, unobtrusive pattern which enhances the carpet appearance and is of a size such that the stretch of the carpet expanse is not objectionably interrupted.

The invention, of course, is used with entrance means of much larger diameter, for example, in the order of 15 or 16 inches. In such instances the lateral size of the lips does not change and thus the overall circular effect becomes less noticeable in the carpet expanse.

It is contemplated that the adapter be fabricated from stainless steel. This provides high strength and also avoids problems that might otherwise develop with water on the carpet. Also, it is contemplated that the adapter be furnished in the various decorator colors so as to blend with the color scheme of the carpeting. This is done preferably by a color coating on the top of surface of the lips.

Referring to FIGS. 2 and 3 details of the structure of the entrance means 3 and the adapter 4 will be described.

An outer ring 20 of the entrance means is fixedly secured to the plate 15. The foot of the outer ring 20 carries a plurality of adjusting screws 21 which mount an adjusting ring 22. The screws provide for the adjusting ring 22 to be moved up and down in a vertical direction within the fixed ring 20. The adjusting ring 22 carries the cover plate 23 which is secured down as by the holddown screws 24 threaded in the ring. As indicated in FIG. 3 there are three adjusting screws 21 and three holddown screws 24.

The entrance means as described above is of conventional form and may be the entrance means for a junction box or access unit. Thus, the plate 15 may be the top of a junction box or the top of a length of headerduct.

With reference to FIG. 2 it will be observed that the cover 23 is flush with the top surface of the concrete floor 1. This is done in the conventional way, i.e., when the concrete floor is poured and hardened, the adjusting screws 21 are manipulated to move the ring and cover in a vertical manner to level the cover with the floor surface.

The adapter 4 includes the flat annular base 25 which is installed directly on the top surface of the cover 23 and extends around its peripheral edge. In the embodiment as shown the base 25 is provided with apertures accommodating the cover holddown screws 24 which operate to secure the base 25 to the cover.

The base **25** has a diameter which is larger than the diameter cover plate **23** and fixed ring **20** and thus extends outwardly from the ring. In the outward portion, the base engages the surface of floor **1**. In the embodiment of the adapter as shown, the larger diameter is used in order that the inner lip **14** will not interfere with the manipulation of the cover holddown screws **24**. In those instances where the cover holddown screws are located more toward the center of the cover, the outside diameter of the adapter is commensurately reduced.

The base **25** carries an outer circular flange **30** which extends upwardly from the periphery of the base. The flange **30** rises above the floor level. The circular outer lip **13** is connected to the top of the flange **30** and extends outwardly away from the center of the base. An inner, circular flange **31** is secured to the inside surface of the outer flange. The circular inner lip **14** is connected to the top of the inner flange **31** and extends in a direction toward the center of the base.

Preferably the lips **13** and **14** are formed with a slight downward bias. The effect of this is to tend to compress the carpet and thereby enhance the retaining and protecting function.

It is pointed out that while we have shown the holddown screws **24** as being disposed underneath the carpet, in many instances certain installers may prefer to have the holddown screws go down through the carpet particularly where deep pile carpet is used.

For purposes of installation, the installer cuts a circular hold so that as the carpet is laid down on the floor there will be an open space to accommodate the adapter. The adapter is then placed in the opening and locked down on the cover by means of the cover holddown screws **24**. The circular piece of carpet which was previously cut from the carpet is then trimmed down in size to about the same as the inside diameter of the circular flange **31**. A section of the edge of the carpet is pushed underneath the inner lip **14** and the remainder of the edge then worked down. In those instances where the installer prefers that the holddown screws be inserted down from the carpet the holddown operation is effected after the carpet has been installed in the adapter.

From the foregoing it will be readily apparent that the adapter provides for quick and ready access to the cover of the entrance means. In cases where the holddown screws are located underneath the section of the carpet a simple tool such as a screwdriver can be inserted under the lip **14** and part of the edge of the carpet pried up and then the same peeled out of the adapter. This, of course, exposes the holddown screws so that the adapter can be removed and then the cover taken out. In those instances where the screws are turned down from the carpet side, all that is necessary to do is to remove the screws so that the adapter can be taken off and the cover is available. After the repairs or maintenance have been effected, the adapter can be put back on the entrance means and the carpet replaced in a manner as previously described.

With heavy foot traffic conditions, it is preferable to secure the section of carpet **11** in the adapter with a pressure sensitive adhesive which will hold the section in place, but also will permit the same to be removed. The adhesive can be in the form of a coating on the back of the carpet or double-sided pressure-sensitive tape.

With the adapter described above, with flanges **30** and **31** may be formed with a height between one-fourth and one-half inch. This range will accommodate the various conventionally used thicknesses of carpets in any of the various carpet types. Also, it is to be noted that while we have shown the base **25** to be in disclike form it will be understood that the base can be in ringlike form, i.e., with center section removed. The essential requirement in such a structure is that sufficient area remain in the base so that the function of the holddown screws is not impaired.

We claim:

1. A carpet-underfloor adapter for an underfloor entrance unit which has an outer ring forming an opening, a vertically adjustable ring in the opening and a cover plate mounted on the adjustable ring, the ring providing for the cover to be adjustable so as to be flush with the floor in which the entrance unit is installed, the adapter comprising:

a flat, annular base for engaging the top surface of a cover plate and extending around the peripheral edge thereof and for mounting a piece of carpet on the top of the cover;

means for securing said base to said cover;

a circular outer flange connected adjacent to the outer edge of said base and extending upwardly from the base, the outer flange being formed for use in extending above the floor when the adapter is mounted on the cover and the cover is adjusted flush with the floor;

a circular outer lip connected to the top of said flange and extending outwardly at an acute angle thereto in a direction away from the center of the base, the lip being for use in extending over the peripheral edge of carpet installed on the floor for retaining and protecting the edge;

a circular inner flange connected to said outer flange on the inside surface thereof; and

a circular inner lip connected to the top of said inner flange and extending inwardly at an acute angle thereto in a direction toward the center of the base, the inner flange being for use in extending over the peripheral edge of carpet installed on the base for retaining and protecting the edge.

2. A carpet-underfloor adapter for an underfloor entrance unit which has an outer ring forming an opening, a vertically adjustable ring in the opening and a cover plate mounted on the adjustable ring, the ring providing for the cover to be adjustable so as to be flush with the floor in which the entrance unit is installed, the adapter comprising:

a flat, annular base for engaging the top surface of a cover plate and extending around the peripheral edge thereof and for mounting a piece of carpet on top of the cover;

means for securing said base to said cover;

a circular outer flange connected adjacent to the outer edge of said base and extending upwardly from the base, the outer flange being formed for use in extending above the floor when the adapter is mounted on the cover and the cover is adjusted flush with the floor;

a circular outer lip connected to the top of said flange and extending outwardly therefrom in a direction away from the center of the base, the lip being for use in extending over the peripheral edge of carpet installed on the floor for retaining and protecting the edge;

a circular inner flange connected to said outer flange on the inside surface thereof; and

a circular inner lip connected to the top of said inner flange and extending inwardly therefrom in a direction toward the center of the base, the inner flange being for use in extending over the peripheral edge of carpet installed on the base for retaining and protecting the edge.

3. A carpet-underfloor adapter for use with an underfloor entrance unit of the kind which has an outer ring forming an opening, a vertically adjustable ring in the opening and a cover plate mounted on the adjustable ring, the ring provided for the cover to be adjustable so as to be flush with the floor in which the entrance unit is installed, the adapter comprising:

a flat, annular base for engaging the top surface of a cover plate and extending around the peripheral edge thereof and for mounting a piece of carpet on top of the cover;

means for securing said base to said cover;

circular flange means connected adjacent to the outer edge of said base and extending upwardly from the base, the flange being formed for use in extending above the floor when the adapter is mounted on the cover and the cover is adjusted flush with the floor;

a circular outer lip connected to the top of said flange means and extending outwardly in a direction away from the center of the base, the lip being for use in extending over the peripheral edge of carpet installed on the floor for retaining and protecting edge; and

a circular inner lip connected to the top of said flange means and extending inwardly therefrom in a direction toward the center of the base, the inner flange being for

use in extending over the peripheral edge of carpet installed on the base for retaining and protecting the edge.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,603,048 Dated September 7, 1971

Inventor(s) Robert W. Hadfield and William H. Harding

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 4

Line 22, cancel "flange" and substitute -- lip --.

Line 50, cancel "flange" and substitute -- lip --.

Column 5

Line 3, cancel "flange" and substitute -- lip --.

Signed and sealed this 19th day of February 1974.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

USCOMM-DC 60376-P69
* U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334.