United States Patent

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[15] **3,676,570**

[45] **July 11, 1972**

[54] MOUNTING FOR FIRE DETECTOR DEVICES

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[73] Assignee: **Fire Devices, Inc.,** Ivoryton, Conn.

[22] Filed: **Aug. 4, 1971**

[21] Appl. No.: **168,853**

[52] **U.S. Cl.** **174/61,** 245/343

[51] **Int. Cl.** **H02g 3/20**

[58] **Field of Search** ..... 174/48, 49, 52, 61, 62, 63, 174/64; 240/78 CF, 85 R; 248/343, 342

[56] **References Cited**

UNITED STATES PATENTS

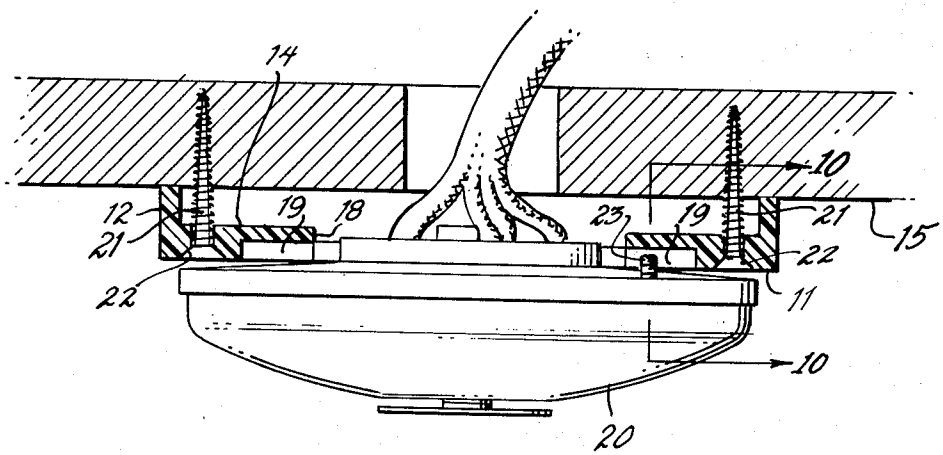
1,639,125	8/1927	Benjamin	248/343 UX
1,242,533	10/1917	Duck	174/64
3,137,763	6/1964	Jones	174/61
2,330,942	10/1943	Anderson	174/61
1,489,175	4/1924	Vandy	240/85 R

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Assistant Examiner—D. A. Tone
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[57] **ABSTRACT**

A mounting for fire detector devices is provided which comprises an adapter place of circular disc like shape with a plurality of spaced mounting holes and a rim extending from one face for flush mounting with said one face upwardly or on a junction box with said one face downwardly and for the attachment thereto of the fire detector device.

7 Claims, 12 Drawing Figures



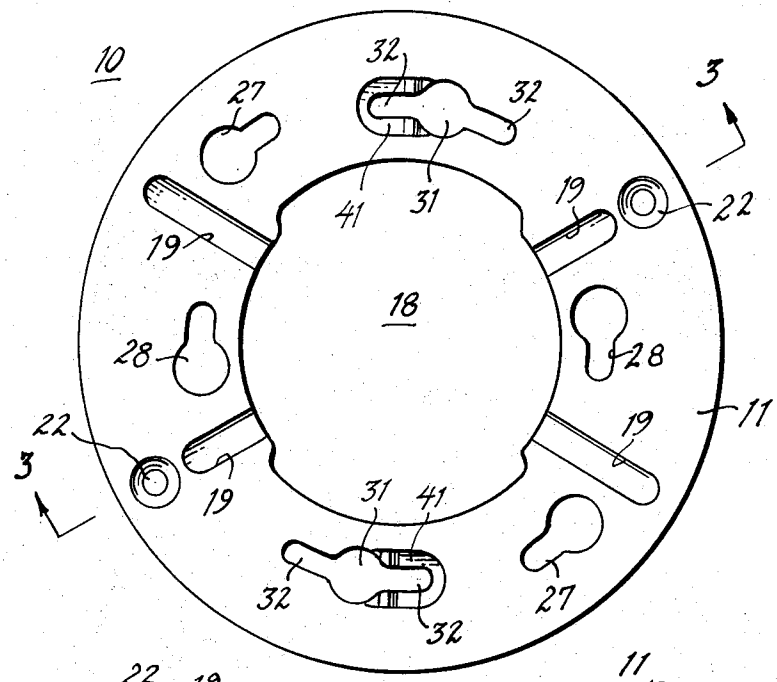


Fig. 1.

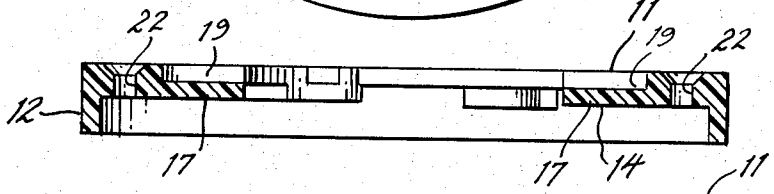


Fig. 3.

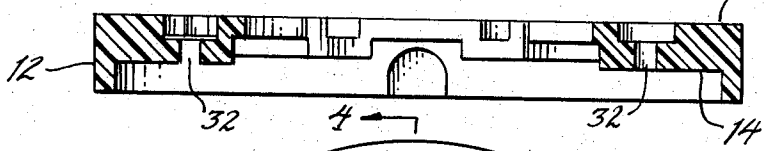


Fig. 4.

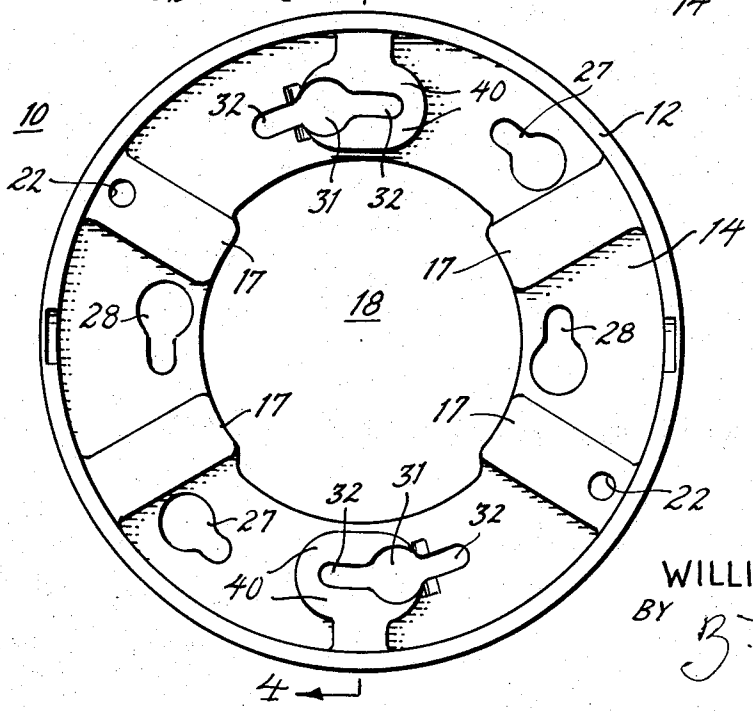


Fig. 2.

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Fig. 5.

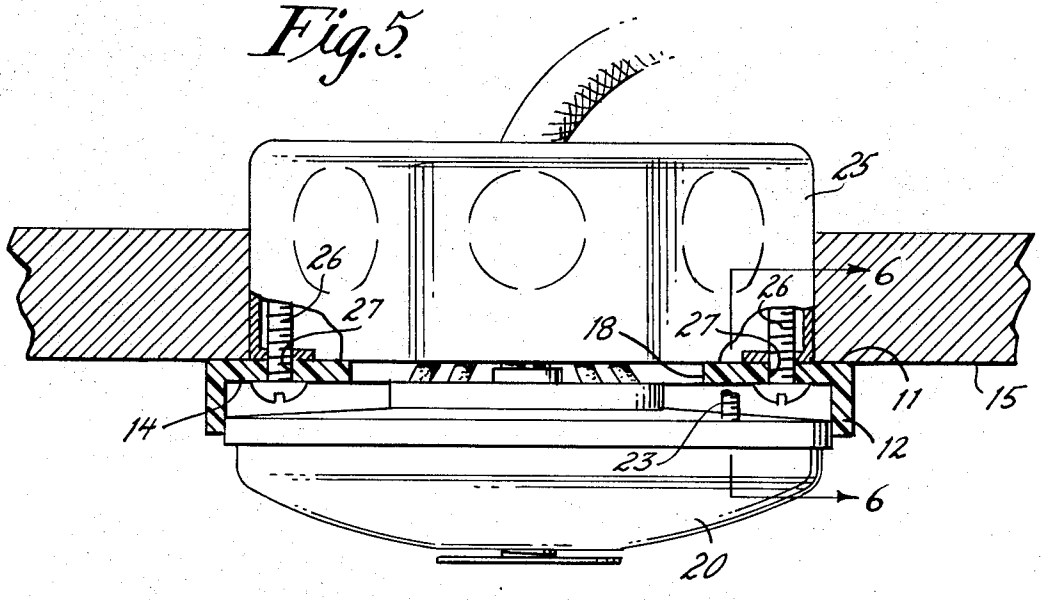
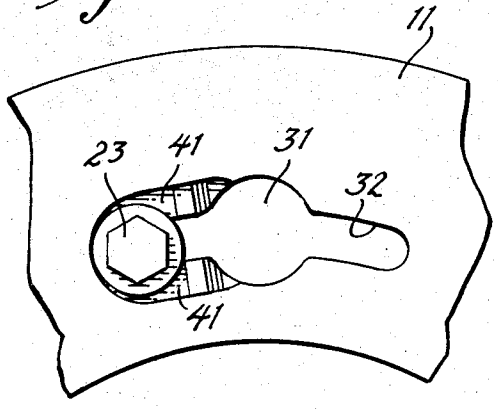


Fig. 8.



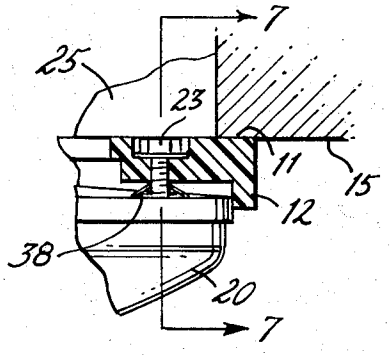


Fig. 6.

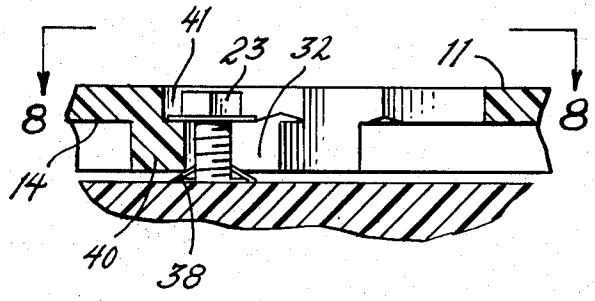


Fig. 7.

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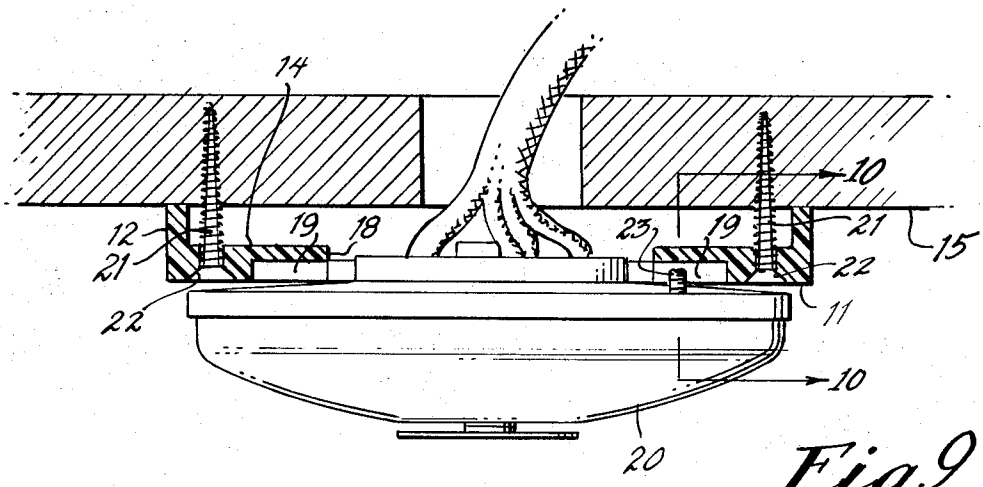
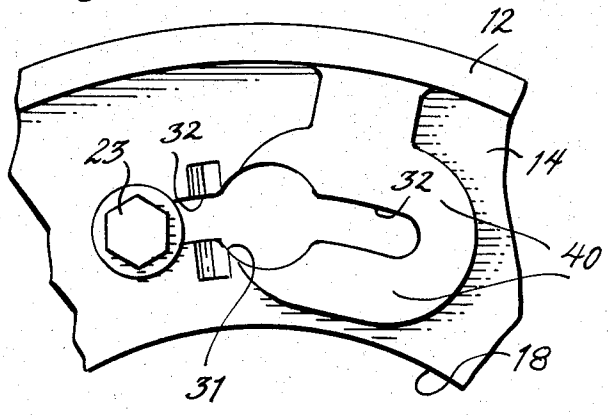


Fig. 9.

Fig. 12.



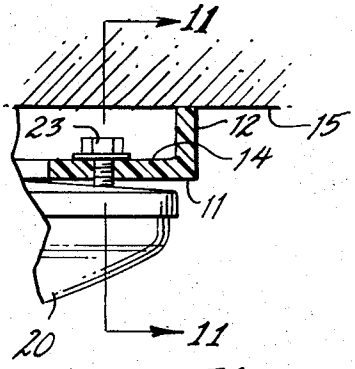


Fig. 10.

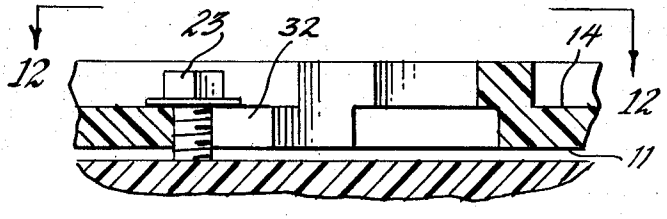


Fig. 11.

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MOUNTING FOR FIRE DETECTOR DEVICES

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a mounting for fire detector devices to a wall or other surface comprising an adapter plate which plate has spaced holes for mounting selectively on a wall or other surfaces or on a junction box in the wall, as determined by the requirements of the particular installation.

2. Description of the Prior Art

Fire detector devices are usually fixedly mounted on a ceiling or wall and have electric conductors connected thereto. Two wiring arrangements have been proposed which satisfy the Underwriters Laboratories fire and safety requirements.

The first arrangement uses a junction box to which the fire detector device is secured, the wiring being concealed behind the ceiling and running into the junction box. The second arrangement utilizes open wiring interiorly strung across the ceiling and which is limited in voltage and current capacity.

With open wiring the Underwriters Laboratories requires a clearance of one quarter of an inch from the ceiling with No. 14 wire which clearance most fire detector devices do not provide. Such devices have heretofore usually been mounted on junction boxes which increases the cost of installation considerably.

The present invention overcomes the difficulties heretofore encountered by utilizing an adapter plate which can be used satisfactorily with both types of wiring, mounted directly on the ceiling or mounted on different sizes of junction boxes, thereby simplifying and reducing the cost of installation.

SUMMARY OF THE INVENTION

A mounting for fire detector devices is provided comprising an adapter plate which permits of either mounting the device to a junction box or to a wall or other surface with clearance for wiring and which additionally has provisions for mounting on different diametrical sizes of junction boxes.

The principal object of the invention is to provide a mounting for fire detector devices comprising an adapter plate which can be mounted to a junction box or directly to a wall or other surface as required for a particular installation.

A further object of the invention is to provide a mounting plate which can be mounted to different sizes of junction boxes.

A further object of the invention is to provide a mounting plate which can be easily attached and detached from junction boxes.

A further object of the invention is to provide a mounting plate that is light in weight and from which the fire detector device can be removed for inspection.

Other objects and advantageous features of the invention will be apparent from the description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The nature and characteristic features of the invention will be more readily understood from the following description taken in connection with the accompanying drawings forming part thereof, in which:

FIG. 1 is a plan view of the mounting plate in accordance with the invention with its spacer rim downwardly disposed;

FIG. 2 is a plan view of the mounting plate of FIG. 1 as seen from the opposite side and with its spacer rim upwardly disposed;

FIG. 3 is a vertical sectional view taken approximately on the line 3—3 of FIG. 1;

FIG. 4 is a vertical sectional view taken approximately on the line 4—4 of FIG. 2;

FIG. 5 is a view partly in side elevation and partly in vertical section of a mounting plate and fire detection device in place on a junction box;

FIG. 6 is a fragmentary vertical sectional view taken approximately on the line 6—6 of FIG. 5;

FIG. 7 is a vertical sectional view, enlarged, taken approximately on the line 7—7 of FIG. 6;

FIG. 8 is a fragmentary horizontal sectional view taken approximately on the line 8—8 of FIG. 7;

FIG. 9 is a view partly in side elevation and partly in vertical section of a mounting plate and fire detection device in place mounted to a ceiling or like surface;

FIG. 10 is a fragmentary vertical sectional view taken approximately on the line 10—10 of FIG. 9;

FIG. 11 is a fragmentary vertical sectional view taken approximately on the line 11—11 of FIG. 10, and

FIG. 12 is a fragmentary horizontal sectional view taken approximately on the line 12—12 of FIG. 11.

It should, of course, be understood that the description and drawings herein are illustrative merely and that various modifications and changes can be made in the structure disclosed without departing from the spirit of the invention.

Like numerals refer to like parts throughout the several views.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawings the mounting plate 10 as illustrated is of disc shape with a generally flat surface on each of side faces 11 and 14. The side face 14 has a peripheral rim 12 extending therefrom. The rim 12 serves to space the side face 14 of the plate 10 from a ceiling or other surface 15 to provide a clearance for wiring to be attached to the fire detector device 20 as is illustrated in FIG. 9 or as an enclosing rim for a fire detector device 20 as is illustrated in FIG. 5.

The fire detector device 20 can be of any desired type with diametrically spaced mounting bolts 23 extending thereinto. The fire or heat detector device specifically illustrated is that shown in the application for patent of Fred A. Gloeckler filed June 17, 1971 Ser. No. 153,956 but the mounting plate 10 of the invention is not limited to use only with that device.

The plate 10 is preferably provided, on the face 14 with a plurality of radially extending stiffening ribs 17 which terminate at a central opening 18 and which have radial relief grooves 19 on the face 11.

As shown in FIG. 9 the plate 10 is secured to the exposed surface at ceiling 15 by screws 21 which are engaged in diametrically spaced countersunk mounting holes or openings 22 which pass through the body of the plate 10 at one aligned pair of ribs 17 beyond the grooves 19. The countersinking is on side face 11 and the rim 12 faces upwardly and bears against the lower surface of the ceiling 15.

In FIG. 5 the rim 12 had been turned downwardly so that the plate 10 can be mounted to a junction box 25 by bolts 26 passing through diametrically spaced box mounting openings 27 and bearing on side face 14. The openings 27 are of key hole shape to permit of the insertion of the heads of bolts 26, turning of the plate 10 relative to the junction box 25 and subsequent tightening of bolts 26.

Additional junction box mounting openings 28 are provided with a lesser diameter of spacing than between openings 27 and for particular embodiments the diametrical spacing for openings 27 and 28 having a diameter of three and one quarter inches or four inches, respectively, for three and one quarter inch or four inch octagonal junction boxes.

Detector device mounting openings 32, diametrically spaced, are provided between pairs of ribs 17 and so as to be clear of the junction box mounting openings 28.

The openings 32 have central enlargements 31 for insertion of the heads of the bolts 23 and for turning of the detector device 20 after insertion of the bolts 23.

The face 14 has offset portions 40 extending in the same direction along corresponding portions of the openings 32 and the face 11 opposite the offset portions 40 has slots 41 to accommodate the heads of the bolts 23 when they are disposed on the face 11.

The detector device 20 can thus be mounted and held against either face 11 or 14 as required and after the plate 10 has been secured in place.

If desired Belleville spring washers **38** are interposed between the plate **10** and detector device **20** on screws **30** to provide for tighter mounting.

I claim:

1. A mounting plate for the mounting of a fire detector device on a ceiling or the like which comprises

a disc shaped plate having a central opening,

a rim on one side face of said plate at the outer edge thereof,

said plate having diametrically spaced fastener receiving mounting openings for mounting of said plate in position for use, and

said plate having diametrically spaced bolt receiving mounting openings for mounting a detector device on either side face of said plate,

said last mentioned openings having a central enlargement for the insertion of the head of a mounting bolt.

2. A mounting plate as defined in claim **1** in which

said plate on the side face on which said rim is disposed has

a plurality of radially extending stiffening ribs.

3. A mounting plate as defined in claim **1** in which

said fastener receiving openings have countersunk portions on the other side face.

4. A mounting plate as defined in claim **2** in which

said fastener receiving openings extend through said ribs.

5. A mounting plate as defined in claim **1** in which said fastener receiving openings are of key hole shape.

6. A mounting plate as defined in claim **5** in which

an additional set of diametrically spaced fastener receiving openings is provided of different diametrical spacing from that of the first mentioned fastener receiving openings.

7. A mounting plate as defined in claim **1** in which

said bolt receiving mounting openings have a portion on one side of said central enlargement spaced from the other face of said plate.

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