May 15, 1962 F. C. JOHNSTON ET AL 3,034,753

BUSWAY HANGER

Filed May 26, 1958 2 Sheets-Sheet 1

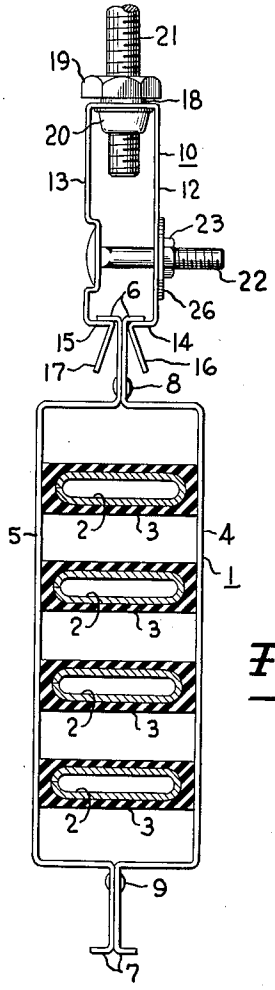


Fig. 1

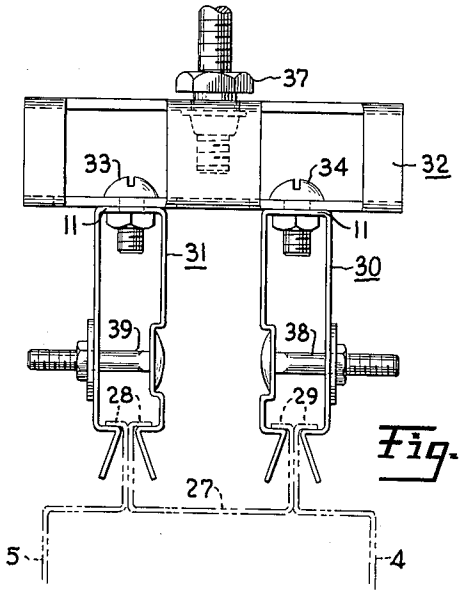


Fig. 3

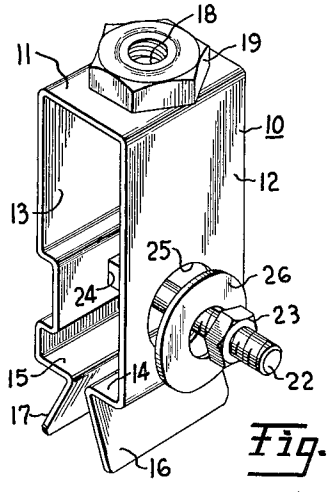


Fig. 2

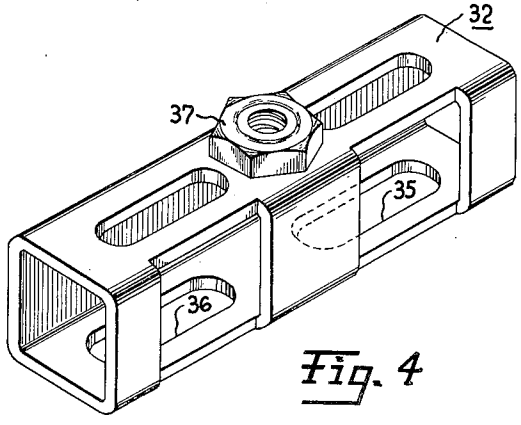


Fig. 4

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Fig. 5

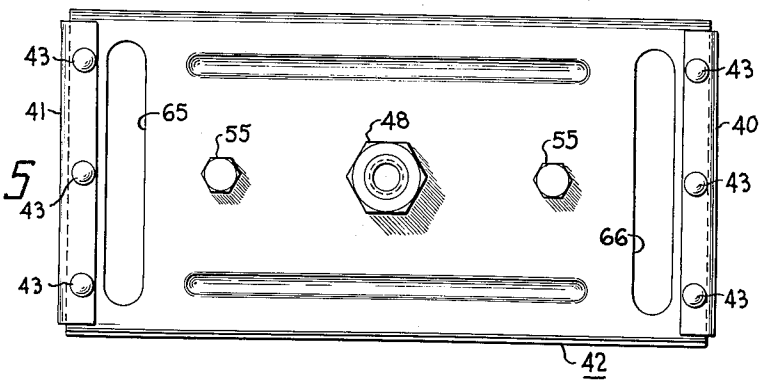


Fig. 6

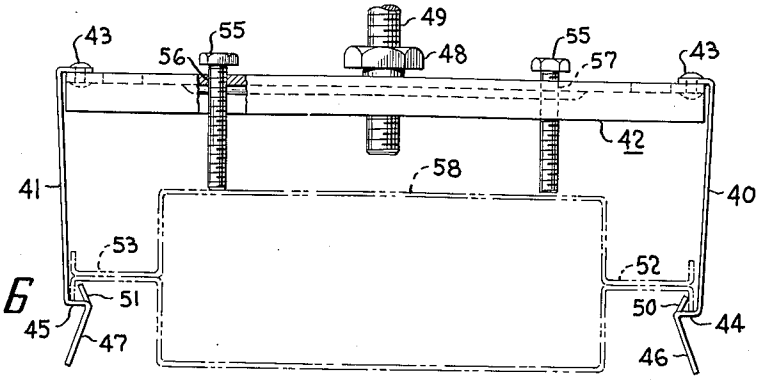
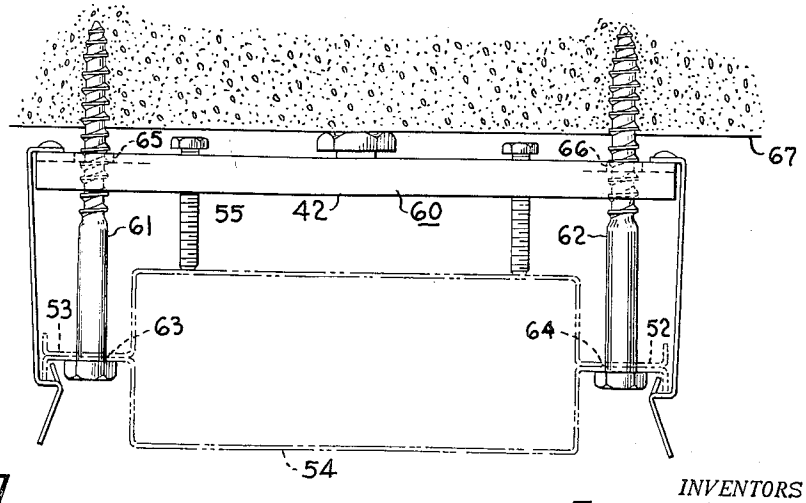


Fig. 7



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BUSWAY HANGER

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1 Claim. (Cl. 248—59)

Our invention relates particularly to hangers for supporting a bus bar type electrical distribution system or busway.

Important and often controlling factors in the choice of electric power busways are the relative ease and economy of installation thereof. Prior art busway hangers have often been a deterent to the use of busways because they required special tools for installation, auxiliary hardware to hold the busway, and could not be easily adjusted.

It is an object of the invention to provide a busway hanger which can be easily installed on a busway at any point on the busway length without the requirement of special tools or fittings.

It is another object of the invention to provide a busway hanger which is easily adjustable in relation to the supporting structure for the hanger thereby permitting easy leveling of the busway.

It is a further object of the invention to provide a busway hanger which can be easily and economically adjusted to accommodate various widths of busway and which can be utilized for edgewise mounting, flatwise mounting, and vertical mounting of the busway.

In one embodiment of the invention a busway hanger is provided having a pair of supporting legs extending in generally parallel opposed relation and resiliently movable relative to each other, each of said legs having a retaining abutment thereon and having outer end portions thereof inclined at an angle to each other to provide opposed cam surfaces for engaging portions of the busway housing so as to displace the supporting legs relative to each other to cause engagement of the retaining abutments with the busway by a snap-action, and mounting means for attaching the hanger to the supporting structure.

The features of novelty which characterize this invention will be pointed out with particularity in the claim annexed to and forming a part of this specification.

The construction and operation of the invention in one particular embodiment, however, will be clearly understood by reference to the following detailed description taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a sectional view of a busway assembly held in position by a hanger made in accordance with the invention;

FIGURE 2 is a perspective view of the busway hanger of FIGURE 1;

FIGURE 3 is an elevation view of another embodiment of the invention;

FIGURE 4 is a perspective view of the cross member utilized in the hanger of FIGURE 3;

FIGURE 5 is a top view of another embodiment of the invention;

FIGURE 6 is a sectional view of the bus duct hanger of FIGURE 5 used to support a horizontal run of busway, with the position of a bus duct indicated in dotted lines;

FIGURE 7 is a sectional view of the hanger of FIGURE 5 used to support a vertical run of busway, with the bus duct being indicated in dotted lines.

In FIGURE 1, the invention is shown as embodied in a hanger **10** used to support a section of busway comprising conductors **2** mounted in insulating material **3** between opposing side wall members **4** and **5**. Edge

flanges **6** and **7** are formed by riveting or otherwise joining housing side members **4** and **5** at points **8** and **9** along the length of busway **1**. The construction of busway **1** is intended to be illustrative of the class of structure that can be utilized with the hanger of this invention and is more fully disclosed in co-pending application Serial No. 737,954 assigned to the assignee of the present invention.

Referring now to FIGURES 1 and 2, the hanger shown generally at **10** has a mounting portion **11** with two supporting legs **12** and **13** extending therefrom in generally parallel opposed relation. The legs **12** and **13** have inwardly deformed portions forming coplanar retaining abutments **14** and **15** respectively and terminating in outwardly flared opposed cam surfaces **16** and **17** respectively. An aperture in the mounting portion **11** is used to trap threaded fastener **18**. Threaded fastener **18** includes a hexagonal nut portion **19** which is fixedly attached to a reduced portion of the member **20** so that the enlarged portions of members **19** and **20** are on opposite sides of the mounting portion **11** and the fastener is therefore rotatably trapped on the mounting portion **11**. Threaded mounting stud **21** is engaged by threads in member **20**.

Hanger **10** is preferably constructed so that mounting portion **11** and supporting legs **12** and **13** are formed from a single strip of spring steel. With such a construction, hanger **10** can be snapped into supporting engagement with flange **6** of busway **1** by forcing hanger **10** downward so that opposed cam surfaces **16** and **17** displace supporting legs **12** and **13** relative to each other thereby enabling retaining abutments **14** and **15** to pass over flange **6** and into supporting engagement with the busway housing. With threaded stud **21** affixed to a beam of a building or other supporting structure, the position of the busway **1** relative to the supporting structure can be adjusted by rotating the captive fastener **18**. This adjustment enables the busway run to be leveled after it has been hung.

To provide additional security for the mounting structure, bolt **22** is passed through apertures in supporting legs **12** and **13** and nut **23** is tightened thereon after hanger **10** has been snapped in place, thereby providing a positive locking action between hanger **10** and busway **1**. A non-circular aperture **24** is provided in leg **13** to receive a correspondingly shaped portion of bolt **22** to prevent bolt **22** from turning. An enlarged aperture **25** in leg **12** allows alignment freedom for bolt **22** and is covered by the washer **26**.

In the embodiment shown in FIGURES 3 and 4, a hanger assembly is provided for supporting a larger bus duct having wall members **4** and **5** separated by a spacer **27**, providing two longitudinal flanges **28** and **29**. The support members **30** and **31** are identical with the support member described for hanger **10** except that mounting portions **11** do not contain the trapped fastener **18**. Instead, mounting portions **11** are fastened to the cross member **32** by bolts **33** and **34**. As shown in FIGURE 4, cross member **32** is a rigid tubular member having slots **35** and **36** formed therein to accept the bolts **33** and **34**. The bolts **33** are slidable in slots **35** and **36** to permit the spacing between the support members **30** and **31** to be adjusted. A threaded fastener **37**, similar in construction to the threaded fastener **18** shown in FIGURES 1 and 2, is rotatably trapped in an aperture formed in the top of support member **32**.

The installation of the hanger shown in FIGURE 3 is the same as that described for the hanger of FIGURE 1 in that the support members **30** and **31** are snapped over the flanges **28** and **29** and the busway may be leveled by rotating the captive fastener **37**. Positive locking is provided by the bolts **38** and **39** in the same manner as

that provided by bolt 22. The bolts 33 and 34, in cooperation with slots 35 and 36, permit the spacing of support members 30 and 31 to be varied thereby accommodating a variety of sizes of busway in which the spacing between flanges 28 and 29 may vary.

In the embodiment of the invention shown in FIGURES 5, 6, and 7, resilient supporting legs 40 and 41 are joined to rigid mounting portion 42 by the rivets 43. Each supporting leg is made of spring steel, and has an inwardly deformed portion forming retaining abutments 44 and 45. The end portions of the legs 40 and 41 are flared outwardly to form the opposed cam surfaces 46 and 47. Mounting portion 42 has a central aperture in which a threaded fastener 48 is trapped. This threaded fastener can be identical with that disclosed for the hanger of FIGURE 1 and is dimensioned to accept the threaded mounting stud 49.

As shown in FIGURE 6, abutments 44 and 45 are notched out to form the projecting tabs 50 and 51. The hanger described in FIGURE 6 can be snapped over side flanges 52 and 53 of busway 54 (shown in dotted line) in the same manner as the hanger disclosed in FIGURE 1. That is, the opposed cam surfaces 46 and 47 engage flanges 52 and 53 when the clip is pushed down relative to busway 54 thereby forcing supporting legs 40 and 41 in an outward direction enabling retaining abutments 44 and 45 to engage flanges 52 and 53. Tabs 50 and 51 restrain outward lateral movement of supporting legs 40 and 41 relative to flanges 52 and 53 after the legs 40 and 41 have been snapped in place.

Additional positive locking of the hanger relative to the busway is provided by bolts 55 which engage in threaded openings 56 and 57 in mounting portion 42. When threaded fasteners 55 are advanced into engagement with upper surface 58 of busway 54, the hanger assembly is securely locked against movement relative to the busway 54.

The locking bolts 55 may be omitted if desired since the locking tabs 50 and 51 provide a high degree of security to the holding action of the hanger when the busway is in a horizontal position.

Removal of the busway from the hanger is also easily accomplished. To accomplish this, it is merely necessary to loosen the bolts 55 and deflect supporting legs 40 and 41 relative to flanges 52 and 53 so as to disengage abutments 44 and 45, enabling the busway to be withdrawn from the hanger. Of course, if threaded fasteners 55 are not utilized to provide positive locking, supporting legs 40 and 41 can be at once displaced relative to each other and to the busway.

The hanger disclosed in FIGURES 5 and 6 can be utilized to provide support and spacing for a vertical run of busway 54 relative to a supporting wall 67, as is shown in FIGURE 7. Hanger 60 is installed in the same manner as described in connection with FIGURE 6.

Threaded members 61 and 62 are inserted through appropriate apertures 63 and 64 in side flanges 52 and 53 of busway 54 and pass through slotted openings 65 and 66 (see FIGURE 5) in support member 42. By providing slots 65 and 66 rather than simple apertures, the position of support member 42 can be adjusted relative to apertures 64 and 63 in the flanges of the busway. If lag bolts are used as threaded fasteners 62 and 61, the busway can be directly fastened to the supporting wall and is effectively spaced therefrom by hanger 60.

It will be seen that we have provided a simple and effective busway hanger which can be easily snapped into supporting relationship with a busway, which provides easy leveling of the busway after installation, which can be utilized for edgewise, flatwise, or vertical mounting, which is economical to manufacture and install, and which requires no special tools for installation or loose parts during shipment. Although the invention has been described only as incorporated in specific embodiments, it will be apparent that many modifications thereof may readily be made. It is to be understood therefore that we intend, by the appended claim, to cover all such modifications as fall within the true spirit and scope of the invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

A busway hanger comprising an elongated rigid transverse supporting member, a pair of resilient strips each attached to a separate end of said supporting member and extending in a common direction, said resilient strips having portions adjacent their outer ends bent inwardly toward each other to provide retaining ledges, said inwardly bent portions lying in parallel planes and being spaced transversely of said strips to define a passage therebetween, each of said inwardly bent portions having a return bent extension to provide a pair of cam surfaces, said inwardly bent portions each having a retaining lug struck outwardly therefrom in a direction toward the other end of the strip, a pair of clamping bolts threadedly engaged in said transverse member extending toward said inwardly bent portions to clamp a retained member thereagainst, and a threaded fastener rotatably carried by said transverse member intermediate said clamping bolts for adjustably attaching said hanger to a threaded stud.

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