

[54] HINGED BRIDGING PLATES FOR LAY-IN WIREWAYS

[72] Inventor: Warren C. Rauhauser, Detroit, Mich.

[73] Assignee: Keystone Columbia, Inc., Warren, Mich.

[22] Filed: Feb. 4, 1971

[21] Appl. No.: 112,703

3,331,916	7/1967	George et al.	174/68 C
3,338,599	8/1967	Hallman	138/158 X
3,562,402	2/1971	Dwyer	174/35 GC
3,570,546	3/1971	Jackson	138/155

Primary Examiner—Laramie E. Askin

Attorney—Harness, Dickey & Pierce

[52] U.S. Cl. 138/155, 138/158, 138/164, 174/68 C, 174/101
 [51] Int. Cl. H02g 3/04, H02g 3/06
 [58] Field of Search 174/17 CT, 35 GC, 68 C, 101; 138/92, 155, 156, 157, 158, 164; 285/121

[56] References Cited

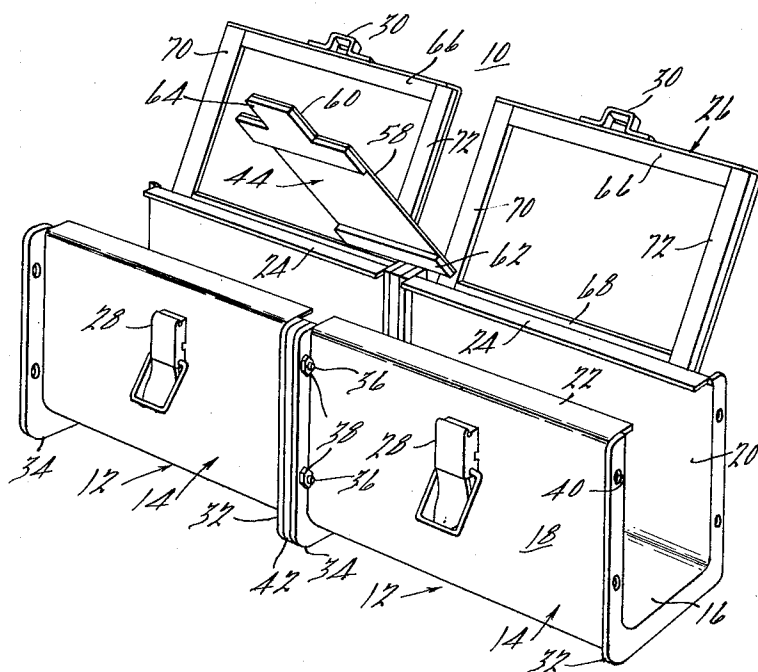
UNITED STATES PATENTS

3,003,794	10/1961	Burley	285/121
3,312,251	4/1967	Marks et al.	138/158

[57] ABSTRACT

This invention relates generally to a lay-in wireway comprising a plurality of hollow rectangular channel sections secured in end-to-end relation and provided with hinged covers which overlap similarly hinged bridging plates disposed therebetween. The bridging plates are provided with resilient gaskets which sealingly engage the open sides of the channel sections and the covers are similarly provided with gaskets which sealingly engage the tops of the bridging plates.

16 Claims, 5 Drawing Figures



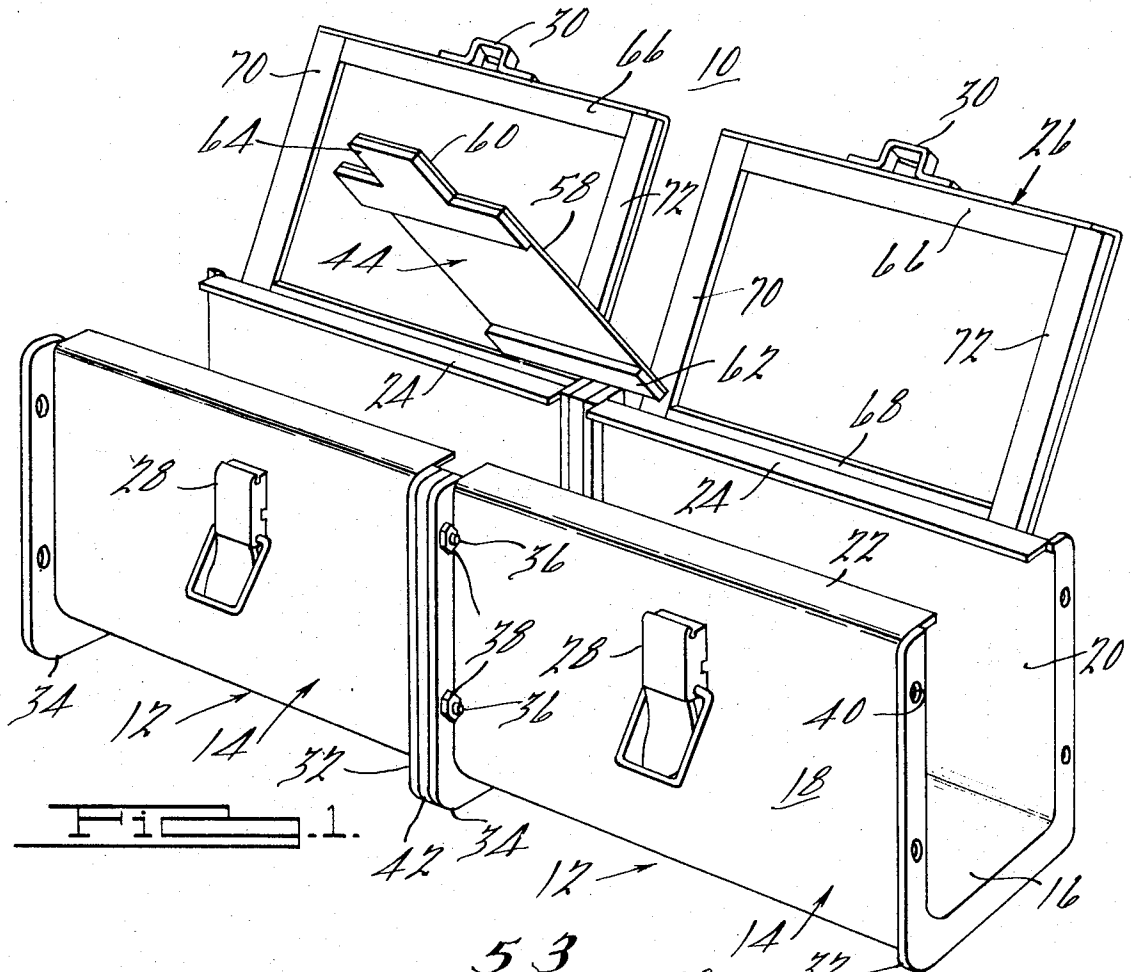


FIG. 1.

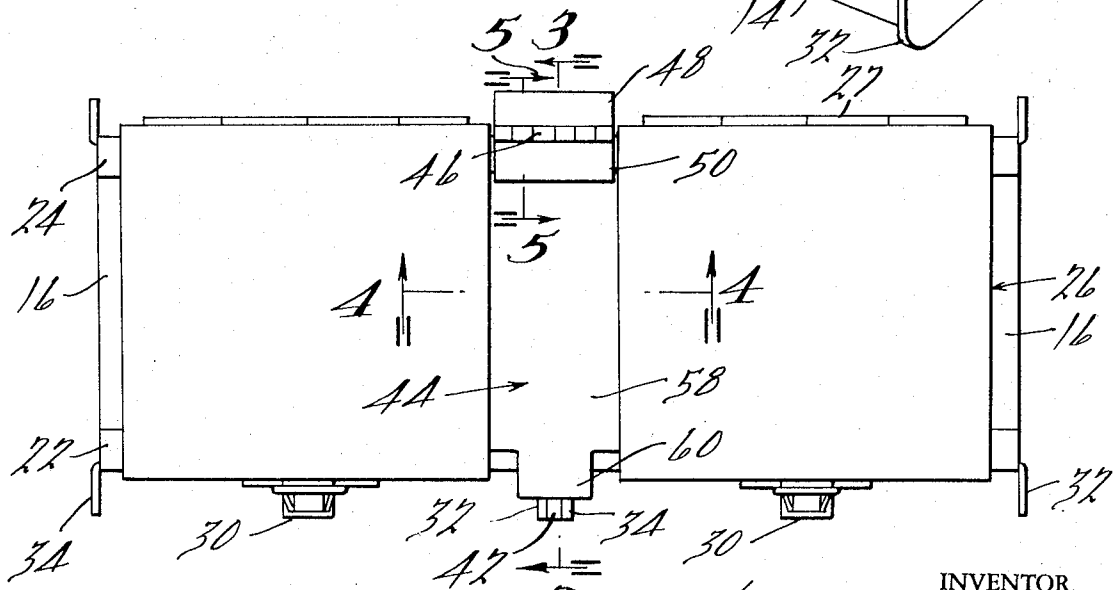
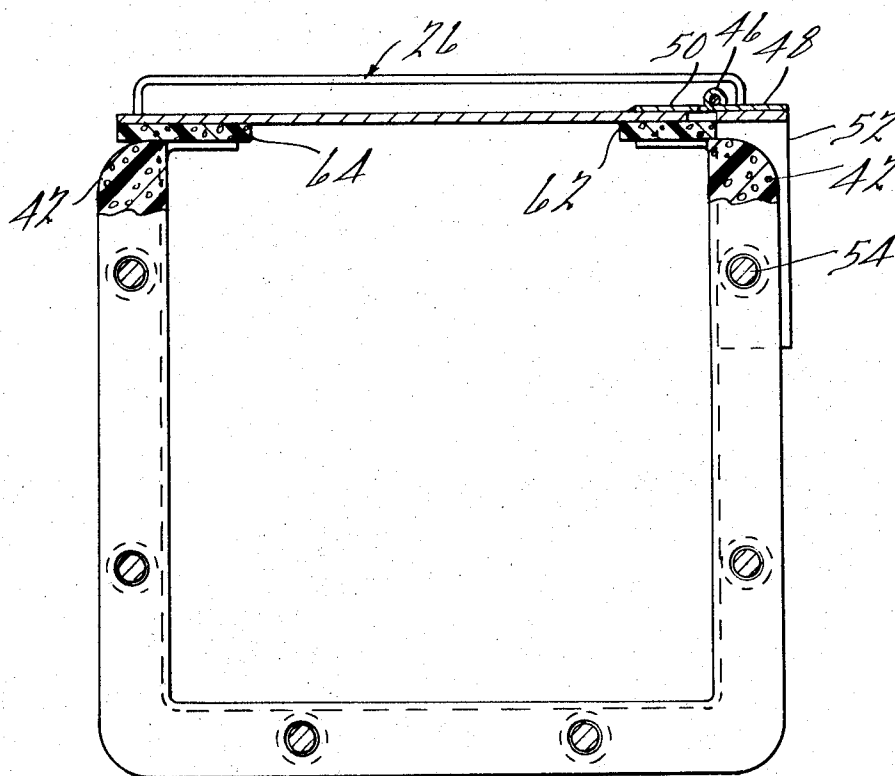
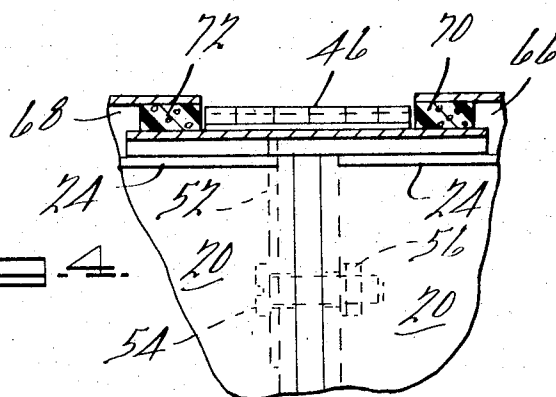


FIG. 2.

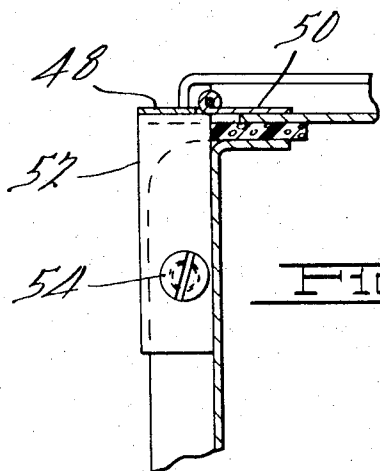
INVENTOR.
Warren C. Rauhauser
BY
Harness, Dickey & Paine
ATTORNEYS.



Fi 1.3.



4



FILE.S.

INVENTOR.
Warren C. Rauhauser
BY
Harness, Dickey & Pierce
ATTORNEYS.

HINGED BRIDGING PLATES FOR LAY-IN WIREWAYS

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates generally to an improvement in the lay-in wireway disclosed in the George et al. U.S. Pat. No. 3,331,916 which issued July 18, 1967 and is assigned to the assignee of the present invention. In that patent, a plurality of elongated wireway channel sections are shown connected in end-to-end relation for containing wiring, usually in the form of wiring harnesses. The open sides of the channel sections are provided with inwardly extending flanges and are closed by covers which are attached by hinges to the channel sections and sealingly engage the flanges. Bridging plates extending across the open sides of the assembled channel sections between adjacent covers are detachably connected by threaded fasteners to the undersides of the flanges. The undersides of the covers and the tops of the bridging plates are suitably gasketed to provide a fluidtight seal which protects and shields the wiring, for example, from dampness or fluids in the environment of the wireway. In this regard, it will be appreciated that a wireway is frequently installed in factories, photographic processing dark rooms, and like places where it is exposed to liquids such as lubricants and processing fluids which are harmful to wiring.

In the above construction, the bridging plates preferably are removed prior to insertion of wiring or wiring harnesses into the wireway. However, the bridging plates and fastening screws sometimes become lost or misplaced after removal requiring replacement of the lost parts and possibly leading to the temptation not to replace the bridging plates and consequently allowing liquid to enter at the resultant open joints. In film developing laboratories and the like where the room in which the wireway is installed is only dimly lit by red lights, the recovery of a lost or misplaced part is hampered so that the above problem is especially acute. Moreover, in some cases an effective fluid seal is not attained even if the bridging plates are replaced due to improper tightening of the screws which fasten the bridging plates.

The lay-in wireway construction of the present invention improves on the foregoing construction by providing bridging plates which are permanently hinged to the wireway channel sections so they cannot be inadvertently or intentionally left out of the assembly and which have no loose fasteners that may be lost or misplaced. Moreover, the bridging plates are hinged at the same side of the opening as the section covers and the plates underlie the covers so that they are self-closing upon closing of the covers. As a further advantage, the bridging plates are openable with minimal effort by lifting to expose the entire channel of the wireway such that the wiring does not have to be threaded under each bridging plate, and consequently, wiring may be readily laid without damage. According to this invention, sealing means or gaskets are provided between the adjacent ends of the wireway channel sections and the latter are sealingly engaged by the end sealing strips on the bridging plates. Similarly, the closed bridging plates and the adjacent flange portions of the body sections are sealingly engaged by gaskets of resilient material at the ends of the covers to effect a complete fluidtight seal between the adjacent sections. A sealing force is provided for the seals by clamps which retain the covers in the closed position. Accordingly, not only is the wireway of this invention convenient to use, but it is relatively foolproof in operation since closing and securing the covers also automatically closes and secures the bridging plates to provide a continuous, fully sealed wireway.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing a pair of wireway channel sections joined in end-to-end relation and equipped with a hinged bridging plate according to the teachings of this invention;

FIG. 2 is a top plan view of the wireway shown in FIG. 1;

FIG. 3 is an enlarged, transverse sectional view taken on the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary, longitudinal sectional view taken on the line 4—4 of FIG. 2; and

FIG. 5 is a fragmentary, longitudinal sectional view taken on the line 5—5 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 an exemplary lay-in wireway 10 is illustrated which embodies the present invention and which includes a plurality of standard channel sections 12. Each of the channel sections 12 includes a body 14 having a bottom 16 and a pair of upstanding sides 18 and 20 having inwardly turned flanges 22 and 24 respectively at the top thereof so as to form a U-channel which is substantially completely open on the top. The open top of each channel section 12 is adapted to be closed by a cover 26 which is pivotally mounted at the side 20 by longitudinal hinges 27; and each cover 26 is releasably secured in the closed position by a latch 28 which is mounted on the side 18 in cooperative association with a keeper 30 on the cover. The channel sections 12 are also provided with radially outwardly extending three sided end flanges 32 and 34; and adjacent channel sections 12 are secured in end-to-end relation by bolts 36 and nuts 38 which pass through openings in the flanges 32 and 34. A generally U-shaped resilient rubberlike sealing member or gasket 42 of neoprene or the like is disposed between the confronting flanges 32 and 34 of adjacent channel sections 12 with the bolts 36 extending through the sealing member 42 to seal the joints between the flanges. The gasket 42 preferably is slightly oversize so that it is squeezed and extended slightly radially outwardly of the flanges 32 and 34 and slightly above the top flanges 22 and 24 of the adjacent channel sections 12 when the nuts 38 are tightened on the bolts 36.

In accordance with the present invention, a transverse bridging plate 44 is pivotally mounted on the channel sections 12 at the same side as and between each pair of adjacent covers 26. To this end, each bridging plate 44 is provided with a longitudinal piano hinge 46 having integral hinge plates 48 and 50. This arrangement of the bridging plate 44 positions it to close and seal the joint between the flanges 32 and 34 and to bridge the space between adjacent flanges 22 and 24. In the preferred construction here shown, the hinge plate 48 is secured to the end flange 32 of one channel section 12 by an L-shaped bracket 52 as best seen in FIGS. 3-5. The L-shaped bracket 52 has one leg secured to the flange 32 by a bolt 54 and nut 56 and its other leg is permanently affixed to the hinge plate 48 as by welding. The bridging plate 44 has a rectangular main portion 58 which is formed with an integral rectangular extension 60. Secured to the underside of the bridging plate 44 near its hinged end is a resilient rectangular sealing strip 62; and a resilient sealing strip 64 with a configuration generally conforming to the projection also is secured to the underside of the plate 44 at the swinging end thereof. Each of the sealing strips 62 and 64 may be of the same material as the gasket 42. As best seen in FIG. 3, when the bridging plate 44 is closed, the sealing strip 62 makes a good sealing engagement with the upper flanges 24 of adjacent channel sections 12, with the protruding end of the gasket 42 and with the ends of the flanges 32 and 34. The other sealing member 64 similarly seats on and sealingly engages the flanges 22, the protruding end of the gasket 42 and the adjacent ends of flanges 32 and 34.

Each cover 26 is provided with a pair of resilient sealing strips 66 and 68 which are secured to the underside of the cover at opposite sides thereof; and a pair of resilient sealing strips 70 and 72 are secured to the underside and at opposite ends of the cover. As best seen in FIG. 4, adjacent covers 26 overlap the intermediate bridging plate 44 so that the transverse sealing strips 70 and 72 engage the upper surface of the bridging plate 44 substantially along their full length while the side sealing strips 66 and 68 engage the upper surface of the bridging plate 44 at their extreme ends. The longitudinal sealing strips 66 and 68 further engage and seal the upper surfaces of the flanges 22 and 24 continuously between the strips 70

and 72. The sealing strips 66 and 68 are sufficiently resilient to accommodate and conform to the offset between the upper surface of the bridging plate 44 and the flanges 22 and 24.

It will be appreciated that a sealing relationship is established between the bridging plates 44, the flanges 22 and 24 of the channel sections 12, and the covers 26 whereby to provide and assure an effective continuous seal along the entire length of the wireway. Further, when the covers 26 are open, the bridging plates 44 also can be folded back to expose the wireway along its entire length for easy insertion of wiring and wiring harnesses. All bridging plates 44 remain attached to the assembly by the hinges 46 so that they cannot be misplaced or lost. After the wiring has been placed in the wireway, the bridging plates 44 are closed automatically when the covers 26 are closed and they are automatically sealingly locked in position when the latches 28 are engaged with the keepers 30. A wireway construction according to the present invention assures an effective fluidtight seal along its entire length and is a significant advance in this art.

What is claimed is:

1. In a lay-in wireway, a pair of channel members connected end-to-end and having corresponding open sides through which wiring is placed in said members; covers hingedly connected to said channel members disposed to close the open sides of their respective channel members; a bridging plate hingedly connected to at least one of said channel members adapted to extend transversely across the open sides of said channel members at the connected ends thereof and in overlapping relation to said covers; and means for sealing the joints between said channel members and said bridging plate, and the joints between said bridging plate and said covers when said bridging plate and said covers are closed, said covers and said bridging plate adapted to be opened to permit unobstructed placement of wiring in said channel members and said covers adapted to engage and close said bridging plate automatically as said covers are closed.

2. The combination as set forth in claim 1 wherein said sealing means comprises a first sealing gasket means disposed between the connected ends of said channel members and extending at least slightly above the open sides of said channel members and second sealing gasket means on the underside of said bridging plate engageable with the channel members and simultaneously with said first sealing gasket means when said bridging plate is closed.

3. A lay-in wireway according to claim 1 wherein the hinge connection for said bridging plate is attached to said channel members adjacent to the open sides thereof for pivotal opening and closing movement about an axis extending longitudinally of said wireway.

4. An apparatus according to claim 3 wherein the hinge connections for said covers are disposed at the same side of said channel members as the hinge connection for said bridging plate and similarly adapted for pivotal opening and closing movement about axes extending longitudinally of said wireway.

5. An apparatus according to claim 4 wherein said covers overlap said bridging plate and wherein said bridging plate and said covers are mounted for pivotal closing movement in the same direction so that said bridging plate is engaged and closed automatically by said covers upon closing of said covers.

6. An apparatus according to claim 5 further including fastening means for securing said covers tightly in closed positions, whereby securing of said covers in a closed position also secures said bridging plate in a closed position.

7. An apparatus according to claim 1 wherein at least a portion of said sealing means is secured to said bridging plate.

8. An apparatus according to claim 1 wherein at least a portion of said sealing means is secured to said bridging plate and is cooperative with a second portion of said sealing means disposed between the connected ends of said channel members to seal said wireway.

9. An apparatus according to claim 1 wherein at least a portion of said sealing means is secured to said covers.

10. In a lay-in wireway, a pair of channel members disposed end-to-end having outwardly extending radial flanges at the adjacent ends thereof and corresponding open sides, inwardly turned longitudinal flanges extending along the open sides of said channel members, sealing means disposed between said radial flanges at the adjacent ends of said channel members, fastening means securing said radial flanges and said channel members together, a bridging member adapted to span a portion of the open sides of said channel members and to overlay said radial flanges and having resilient sealing means on the underside thereof, hinge means connecting said bridging member to a side of said channel members for pivotal movement about an axis extending longitudinally of said wireway, whereby said bridging member can be opened to expose the open sides of said channel members at the adjacent ends thereof or closed to cover said open sides at the adjacent ends of the channel members, said resilient sealing means engaging said inwardly turned flanges on either side of said radial flanges in the closed position of said bridging member, a cover member for each of said channel members extending substantially the full length of the latter and overlapping said bridging member, said cover members having resilient sealing means on the undersides thereof engageable with the upper side of said bridging member upon closing of said cover members, and fastening means for said cover members operable to press the resilient sealing means of said cover members against said bridging member and to press the resilient sealing means of said bridging member simultaneously against said inwardly turned flanges to provide a sealing engagement therebetween, whereby said wireway is sealed at the adjacent interconnected ends of said channel members when said bridging member and said covers are closed.

11. An apparatus according to claim 10 wherein each of said cover members includes a hinge mounting said cover member for pivotal opening and closing movement about an axis extending longitudinally of said wireway.

12. An apparatus according to claim 11 wherein said bridging member has an extension opposite its hinge means with said resilient sealing means in part secured to the other underside of said extension for engaging said radial flanges.

13. An apparatus according to claim 12 further including bracket means mounting said bridging member hinge to one of said radial flanges.

14. An apparatus according to claim 13 wherein said bracket means is an L-shaped member having one leg secured to said bridging member hinge and another leg secured to said one radial flange.

15. An apparatus according to claim 14 wherein said bridging member hinge is a piano hinge having a pair of integral hinge plates with one of said hinge plates secured to said bridging member and another of said hinge plates secured to said one leg of said bracket.

16. An apparatus according to claim 10 wherein said hinge is a piano hinge having a pair of integral hinge plates with one of said hinge plates secured to said bridging member and another of said hinge plates secured to one of said radial flanges.

* * * * *