United States Patent [19]

Casto

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[45] **May 22, 1973**

[54] **TRENCH DUCT END CLOSURE**

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[21] Appl. No.: **217,898**

[52] **U.S. Cl.** **52/220,** 174/48, 220/3.4

[51] **Int. Cl.**.....**E04b 5/48,** E04f 17/08

[58] **Field of Search**.....52/220, 221, 127; 220/3.3, 3.5, 3.7, 3.8; 174/48, 49, 101

[56] **References Cited**

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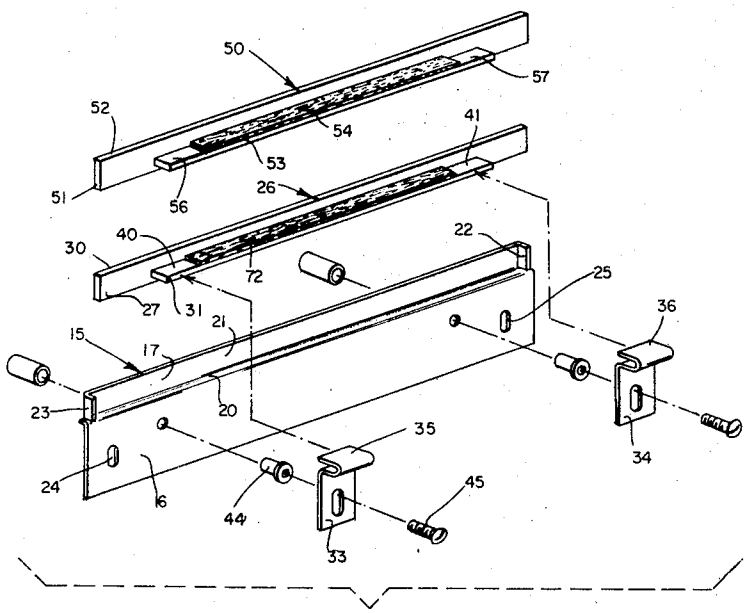
Primary Examiner—John E. Murtagh

Attorney—Frederick J. Olsson

[57] **ABSTRACT**

A member which extends across the end of a trench duct and closes off the same so as to secure the interior against the entry of concrete during a pour, the top of the member having a pocket which carries alternatively a filler piece during shipment or tile or carpet trim when the trench is installed.

4 Claims, 10 Drawing Figures



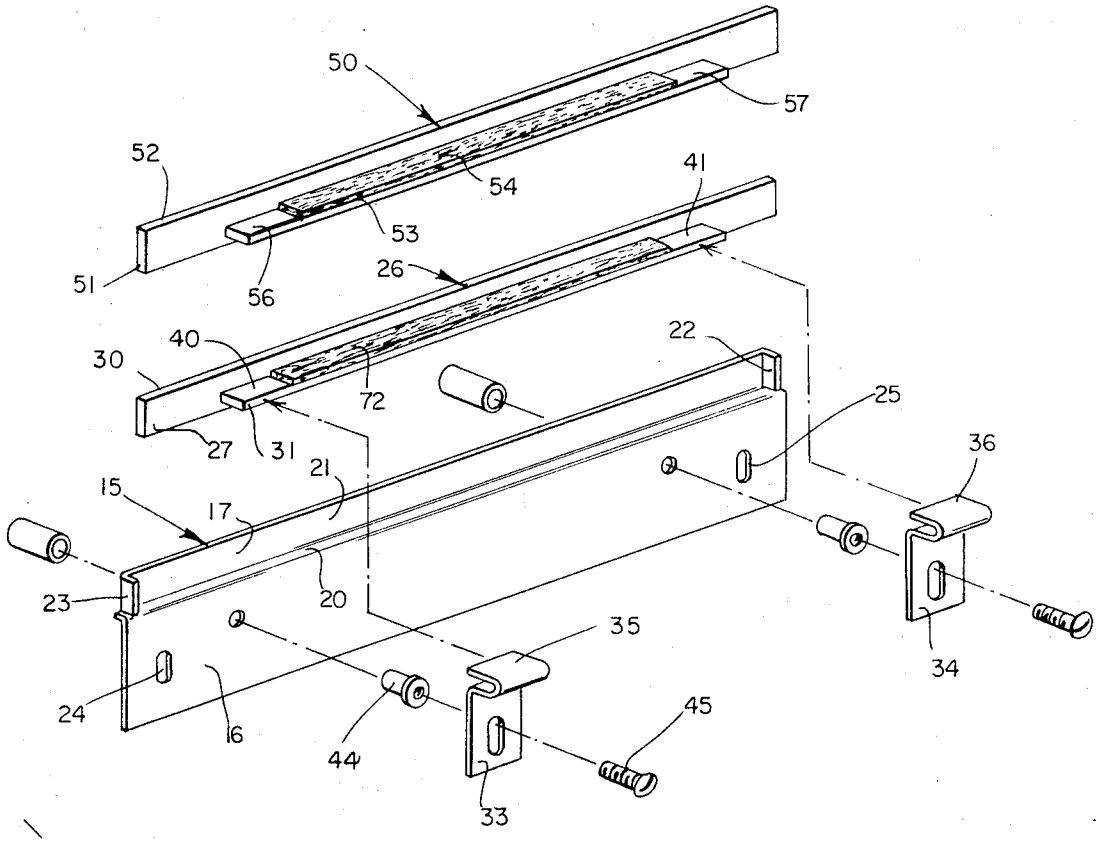


Fig. 2

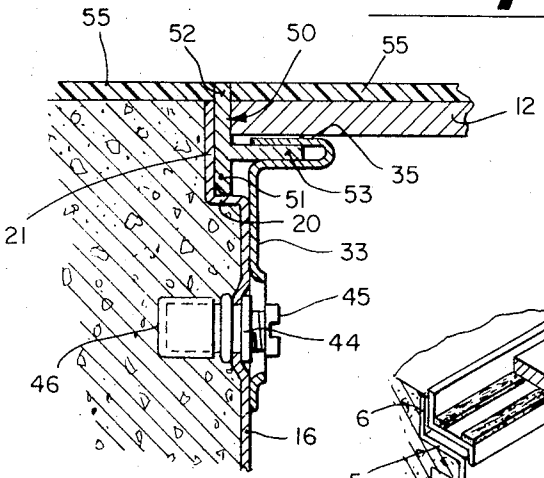


Fig. 4

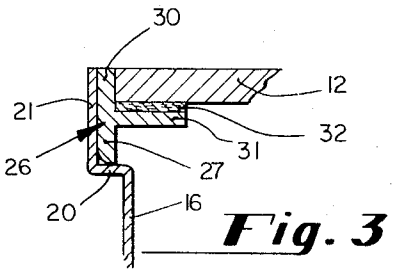


Fig. 3

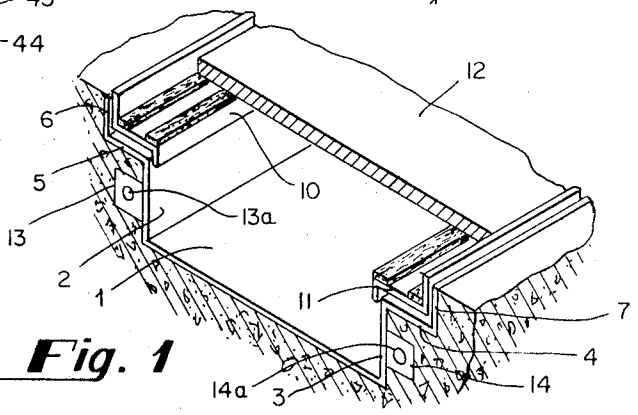


Fig. 1

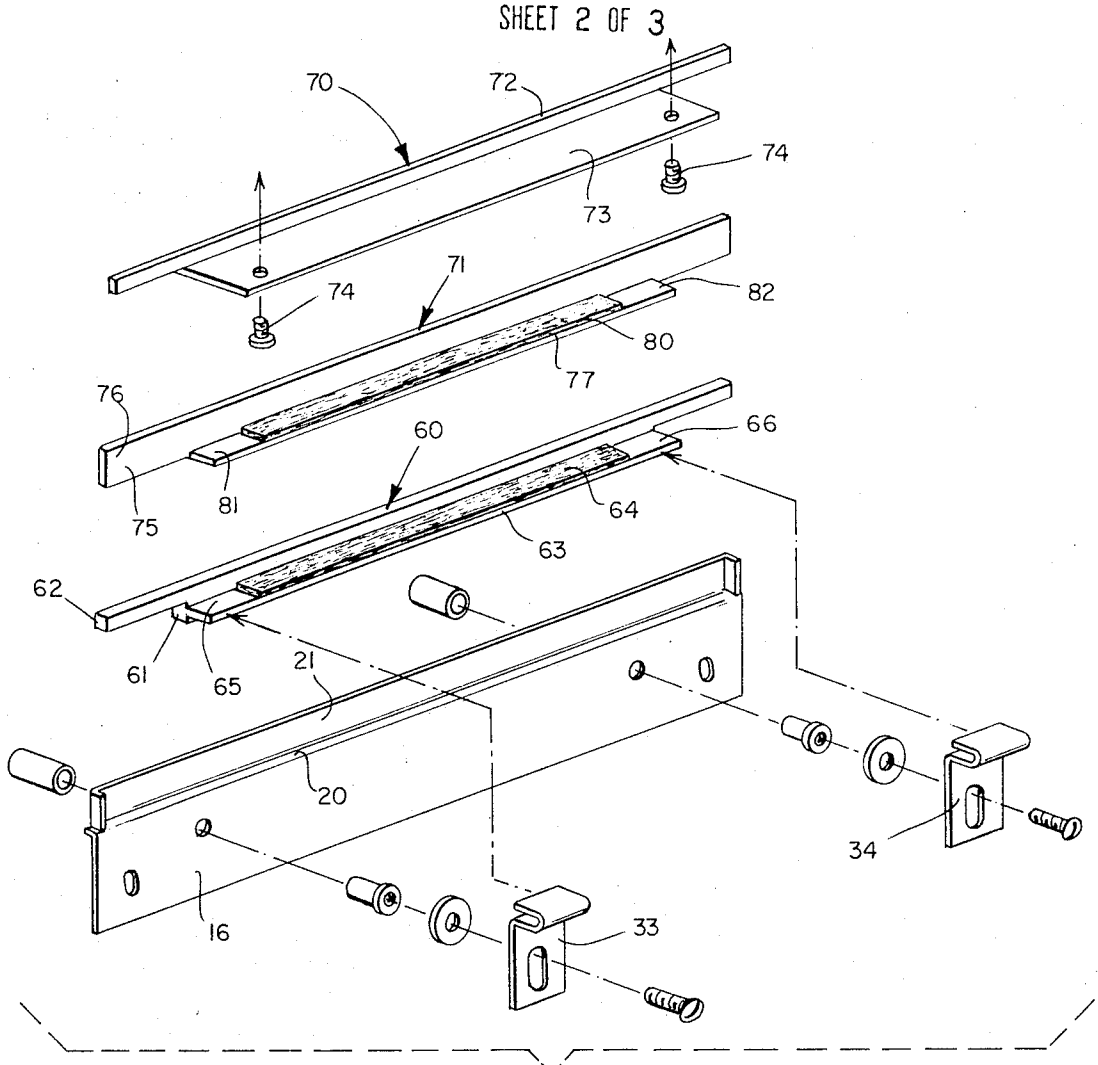


Fig. 5

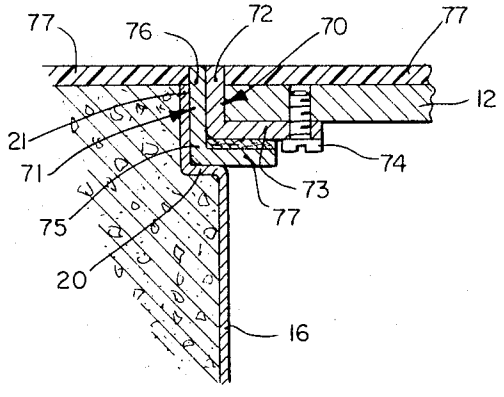


Fig. 7

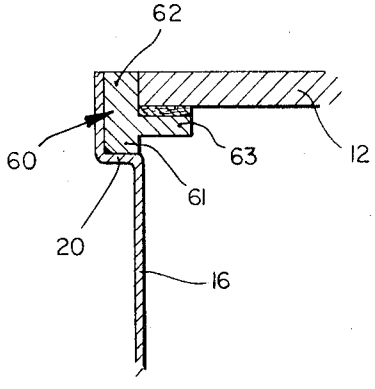


Fig. 6

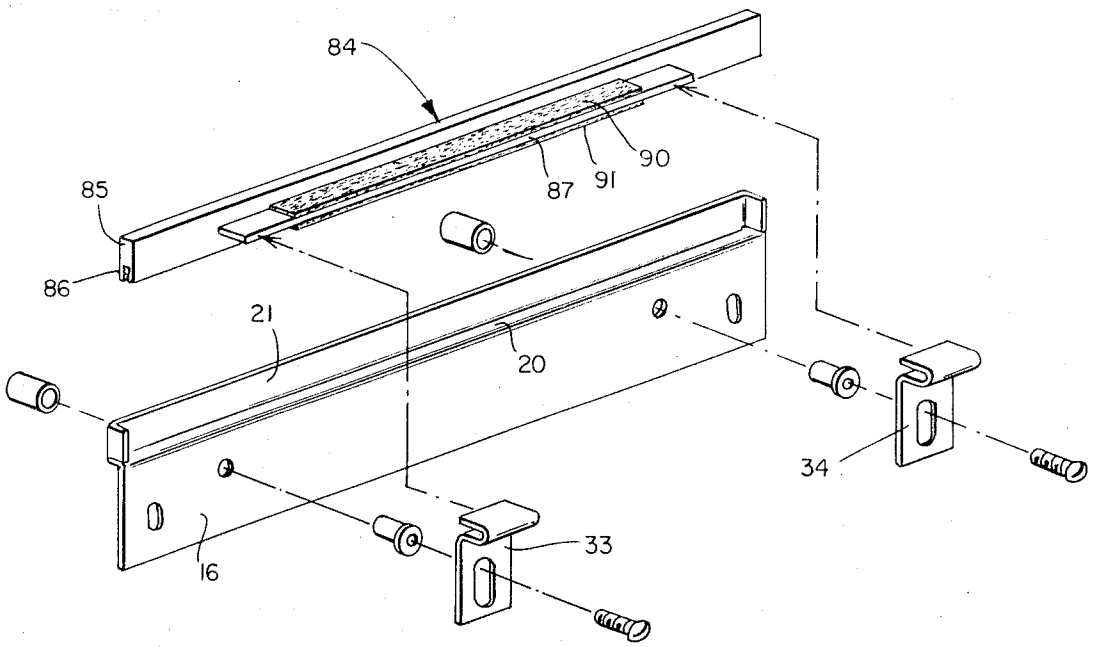


Fig. 8

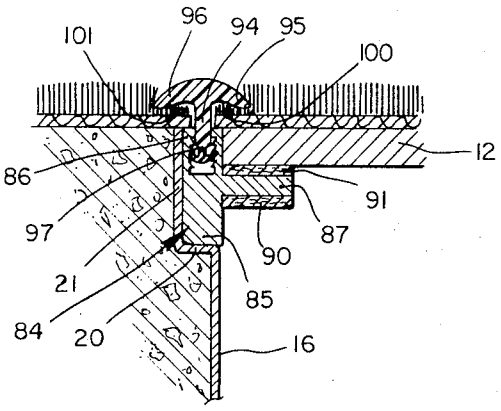


Fig. 10

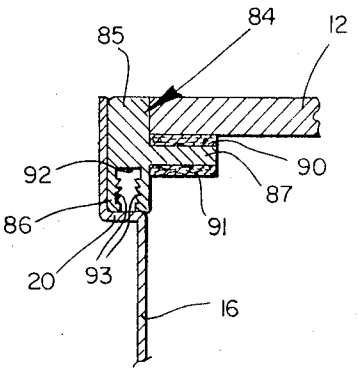


Fig. 9

TRENCH DUCT END CLOSURE

This invention relates to improvements in trench duct for use in electrical underfloor distribution systems and in particular relates to a closure device to close off the end of the duct and secure the interior against entry of concrete during a pour.

The principle object of the invention is to provide a trench duct end closure which, with slight modifications, is applicable for use with the various kinds of commonly used trenches such as single-adjust and double-adjust, double trim and the like.

Another object of the invention is to provide a trench duct end closure which can be installed on the end of a trench without modifying or cutting back the trench cover or the divider partition.

Another object of the invention is to provide a trench duct end closure of the kind in question which is easy and economical to fabricate and which requires only minimal skills for installation.

Another object of the invention is to provide an end closure which will eliminate the use of special trench sections on the end of trench runs.

Another object of the invention is to provide a trench duct end closure of the kind in question which permits utmost flexibility in making changes in the location of the ends of the trench runs either as necessitated by the construction conditions or as last minute changes specified by the contractor or by the architect.

The invention will be described below in connection with the following drawings wherein:

FIG. 1 is a fragmentary perspective view of the end of a conventional single-adjust trench duct embedded in a concrete floor;

FIG. 2 is an exploded perspective view of an end closure of the invention which is particularly suitable for closing off the end of the trench of FIG. 1;

FIG. 3 is a fragmentary sectional elevational view of the end closure of FIG. 1 as mounted on the end of a trench when the same is shipped;

FIG. 4 is a fragmentary sectional elevational view of the end closure of FIG. 1 as mounted on the end of a trench embedded in concrete with the tile protective means in position;

FIG. 5 is an exploded perspective view of an end closure of the invention which is especially adaptable for a double-trim type trench;

FIG. 6 is a fragmentary sectional elevational view of the end closure of FIG. 5 as mounted on the end of a trench when the same is shipped;

FIG. 7 is a fragmentary sectional elevational view of the end closure of FIG. 5 mounted on the end of a trench embedded in concrete with the tile protective means in position;

FIG. 8 is an exploded perspective view of an end closure of the invention and especially adaptable for a trench used on floors having carpeting;

FIG. 9 is a fragmentary sectional elevational view of the end closure of FIG. 8 installed on the end of the trench for shipping; and

FIG. 10 is a fragmentary sectional view of the closure of FIG. 8 mounted on end of the trench embedded in concrete with the trim protecting the carpet edges.

In FIG. 1 the trench T has a horizontal bottom 1, vertically extending side walls 2 and 3 respectively carrying the horizontal cover support flanges 4 and 5 and the vertically extending screed flanges 6 and 7. The tile trim pieces 10 and 11 are mounted on adjusting screws

(not shown) and respectively carry the cover 12. The foregoing structure is conventional. The apertured clips 13 and 14 are respectively mounted on the side walls for use in securing the end closure to the trench. In lieu of the clips the trench may be provided with devices such as those shown in U.S. Pat. Ser. No. 3,577,863.

The closure plate 15 has a vertically oriented lower section 16 and a top section 17 comprising the horizontally oriented trim support flange 20 and vertically oriented screed flange 21. When mounted on the end of the trench, the lower section 16 extends between the side walls 2 and 3 with the trim support flange 20 being aligned with the cover support flanges 4 and 5 on the trench. The ends of the screed flange 17 are turned in as indicated as 22 and 23 so as to be in alignment with the trench screed flanges 6 and 7. The trim support flange 20, the screed support flange 21 and the turned in sections 22 and 23 form a pocket. The lower section 16 has apertures 24 and 25 which are aligned with the apertures 13*a* and 14*a* in the trench clips 13 and 14 and nut and bolt arrangements (not shown) fasten the same together.

When the trench is shipped from the factory the end closure is secured to the end of the trench and the pocket carries a flush mounted holder. The pocket being off-set from the lower section, eliminates the necessity of cutting back the trench cover to make room for the holder. This is explained below.

The trim holder 26 is in the form of a throw-away piece the general shape of which is seen in FIG. 2. The holder includes a support means or leg 27 which extends over and supports the holder on the flange 20, a trim piece or shipping head 30 and a horizontally oriented cover support arm 31. The support arm extends underneath and supports the cover 12 by way of the gasket 32. The shipping head 30 extends between the screed flange 21 and the edge of the cover with the top of the shipping head being flush with the top surface of the cover. This prevents debris from getting inside the trench through the space between the screed flange and the cover edge.

The retainer means 33 and 34 have bent ends 35 and 36 which receive the free ends 40 and 41 of the support arm 31. The retainers 33 and 34 are secured to the lower section 16 by the respective Riv-Nut assemblies 42 and 43. Each assembly comprises the nut 44, the screw 45 and the plastic thread protector 46. The Riv-Nut assembled and secured to the lower section 16 is shown in FIG. 4.

After the installation has been completed and the floor is ready for tile, the trench cover is taken off and the filler piece or trim holder 26 removed and trim holder 50 is substituted. The holder 26 can be thrown away. The holder 50 has means for protecting the tile as will be explained below.

The configuration of the holder 50 is very similar to that of the holder 26. The holder 50 includes the support means or leg 51 which supports the holder on the trim support flange 20, the trim piece or head 52 and the horizontally oriented cover support arm 53. The cover support arm extends underneath the cover and supports the same via the gasket 54. The trim head 52 extends above the surface of the cover 12 so that it is flush with the floor tile 55 when the same is installed. The retainers 33 and 34 engage the free ends 56 and 57 of the support arm 53.

The end closure structure described above is suitable for use in a double-adjust type trench such as shown in U.S. Pat. No. 3,550,336.

By means of change of holders in the pocket the end closure is adapted for use with double-trim type trench. Such an arrangement is shown in FIG. 5 through FIG. 7.

The closure plate and retainer means are identical to the corresponding parts in FIGS. 2 through 4 and are identified by the same numerals in FIGS. 5 through 7.

For shipping purposes, the holder or throw-away piece **60** is mounted in the pocket and includes the support means or leg **61** which supports the holder on the flange **20**, the trim piece or shipping head **62** and the cover support arm **63**. The shipping head extends between the screed flange **21** and the edge of the cover with the top surface of the head being flush with the cover surface.

The cover support arm **63** extends horizontally underneath the cover and supports the same via gasket **64**. The free ends **65** and **66** are engaged by the retainers **33** and **34**.

For tile installation the filler **60** is removed and replaced by the inner holder **70** and outer holder **71**.

The inner holder **70** has an inner trim head **72** and a cover support arm **73**. The support arm is fastened to the cover by the screws **74**. The outer holder **71** has a support leg **75** and inner trim head **76** and a cover support arm **77**. The cover support arm **77** extends below the arm **73** and engages the same via the gasket **80**. The free ends **81** and **82** of the support arm **77** are engaged by the retainers **33** and **34**.

The heads **72** and **76** extend above the surface of the cover **12** and function to protect the tile **77** as noted in FIG. **7**.

For trench installations in floors which are carpet covered the invention provides the arrangement shown in FIGS. **8** through **10**.

The closure plate and retainers are identical as previously described and are identified by the same numbers.

In the embodiment of FIGS. **8** through **10** the invention contemplates a single holder **84** which is reversible in the closure plate pocket as between a shipping position and an installation position. The shipping position is shown in FIG. **9** and the installation position is shown in FIG. **10**.

The holder **84** has a shipping head **85**, a trim head **86** and a cover support arm **87**.

In the shipping position (FIG. **9**) trim head **85** supports the holder on the flange **20** while the support arm **87** extends underneath the cover and supports the same via the gasket **90**. The shipping head extends along between the screed flange **21** and the edge of the cover **12**. The top of the head **85** is flush with the cover surface.

For tile installation, the holder **84** is reversed in position in the pocket as is shown in FIG. **10**. In this position the head **85** extends over and supports the holder on the flange **20** while the head **86** extends along between the flange **21** and the edge of the cover. The support arm extends horizontally underneath the cover and supports the same via the gasket **91**.

The head **86** provided with a slot **92** having serrations **93** along its opposite walls. The slot is adapted to receive a flexible trim piece **94**. The base **95** of the piece fits into the slot **92** and is held by the serrations while the trim head **96** is upwardly oriented so that its flanges **97** and **98** respectively cover the edge of the carpet on the cover and the edge of carpet on the floor. The type of flexible trim piece mentioned above is described in copending application Ser. No. 228,838 filed Feb. 24, 1972, and entitled CARPET AND TILE TRIM, said application being assigned to the same assignee as the present application.

In cases where the tile trim pieces **10** and **11** are adjusted vertically upwardly to accommodate floor conditions, the invention provides that in each of the embodiments described, the holder can also be adjusted vertically so that the top surface of its trim head is flush with the top surface of the tile trim.

The retainer **33** and **34** provide for the holder to be vertically positioned. The screws **45** are loosened and the retainers approximately positioned to attain the flush condition. The screws **45** are tightened up to lock the retainers and the holder in position. It will be understood, of course, that when a holder is positioned upwardly, its support leg extends over the support flange in spaced relation thereto.

I claim:

1. Trench duct end closure means for a trench duct which has a horizontally oriented bottom, a pair of side walls extending vertically upwardly from opposite edges of the bottom and disposed on the top portion of each side wall a horizontally oriented cover support flange and a vertically oriented screed flange, the trench duct end closure comprising:

closure plate means to be mounted on the end of the trench duct to close off the same and secure the interior against the entry of concrete during a pour, the plate means including a vertically oriented lower section and a horizontally oriented trim support flange and a vertically oriented screed flange both last said flanges being disposed on the top of the lower section, the screed flange having its opposite ends turned inwardly over the trim support flange so as to be in alignment with the trench screed flange when the plate means is installed and the trim support flange and the plate screed flange forming a pocket;

holder means mounted on the pocket and including support means for supporting the holder on the trim support flange;

trim piece means connected to the holder means and extending along the plate screed flange so as to be disposed between the plate screed flange and the cover of the trench when the closure plate means is mounted on the trench; and

horizontally oriented cover support arm connected to the holder means for extending underneath the cover of the trench for supporting the same when the closure plate means is mounted on the trench.

2. In combination trench duct end closure means and a trench duct which has a horizontally oriented bottom, a pair of side walls extending vertically upwardly from opposite edges of the bottom and disposed on the top portion of each said wall a horizontally oriented cover support flange and a vertically oriented screed flange, the end closure means comprising:

closure plate means mounted on the end of the trench duct to close off the same and to secure the interior from entry of concrete during a pour, the plate means including a vertically oriented lower section and a horizontally oriented trim support

flange and a vertically oriented screed flange both last said flanges being disposed on top of the lower section, the screed flange having its opposite ends turned inwardly over the trim support flange in alignment with the trench screed flange and the trim support flange and the plate screed flange forming a pocket;

a throw-away filler piece mounted in said pocket and including a support leg, a shipping head and a cover support arm, the support leg supporting the filler piece on said trim support flange, the shipping head extending along between the plate screed flange and the edge of the cover with its top surface flush with the cover surface and the cover support arm extending underneath the cover and supporting the same;

a trim holder for use in being mounted in said pocket when the throw-away piece is removed, the holder including a support leg, a trim head and a cover support arm and when the holder is mounted in said pocket the support leg extending over the plate screed flange, the trim head extending between the plate screed flange and the edge of the cover with its top surface above the cover surface and the cover support arm extending underneath the cover and supporting the same; and

a pair of retainers vertically, adjustably mounted on the closure plate means for engaging alternatively either the throw-away filler piece or the trim holder whichever is installed in the pocket, the retainers being vertically adjustable for vertically positioning the trim holder in the pocket and retaining the holder in such position.

3. In combination, trench duct end closure means and a trench duct which has a horizontally oriented bottom, a pair of side walls extending vertically upwardly from opposite edges of the bottom and disposed on the top portion of each side wall a horizontally oriented cover support flange and a vertically oriented screed flange,the end closure means comprising:

closure plate means mounted on the end of the trench duct to close off the same and secure the interior from entry of concrete during a pour, the plate including a vertically oriented lower section and a horizontally oriented trim support flange and a vertically oriented screed flange both last said flanges being disposed on top of the lower section, the screed flange having its opposite ends turned inwardly over the support flange so as to be in alignment with the trench screed flange and the trim support flange and the plate screed flange forming a pocket;

a throw-away filler piece mounted in said pocket and including a support leg, a shipping head and a cover support arm, the support leg supporting the filler piece on said trim support flange, the shipping head extending along between the plate screed flange and the edge of the cover with its top surface flush with the cover surface and the cover support arm extending underneath the cover and supporting the same;

an inner trim holder for use in being connected to the cover when the throw-away piece is removed, the inner trim holder including an inner trim head and a cover support arm and when the inner trim holder is connected to the cover, the inner trim head extending along the edge of the cover with its top surface above the cover surface and the cover support arm extending underneath the cover and fastened thereto;

an outer trim holder for use in being mounted in said pocket when the throw-away piece is removed, the outer holder including a support leg, an outer trim head and a cover support arm and when the outer trim holder is mounted in said pocket the support leg extending over the plate screed flange, the outer trim head extending between the plate screed flange and inner trim head with its top surface flush with the inner trim top surface and the cover support arm extending underneath the inner trim cover support arm and supporting the same; and

a pair of retainers vertically, adjustably mounted on the closure plate means for engaging alternatively either the throw-away filler piece or the outer trim holder whichever is installed in the pocket, the retainers being vertically adjustable for vertically positioning the trim holder in the pocket and retaining the holder in such position.

4. In combination, trench duct end closure means and a trench duct which has a horizontally oriented bottom, a pair of side walls extending vertically upwardly from opposite edges of the bottom and disposed on the top portion of each side wall a horizontally oriented cover support flange and a vertically oriented screed flange, the end closure comprising:

closure plate means mounted on the end of the trench duct to close off the same and secure the interior against the entry of concrete during a pour, the plate including a vertically oriented lower section and a horizontally oriented trim support flange and a vertically oriented screed flange both last said flanges being disposed on the top of the lower section, the screed flange having its opposite ends turned inwardly over the trim support flange so as to be in alignment with the trench screed flange and the trim support flange and the plate screed flange forming a pocket;

trim holder means mounted in said pocket and having a shipping head, a trim head and a cover support arm, the trim head supporting the holder on the trim support flange and the shipping head extending between the closure plate screed flange and the edge of the trench cover with its top surface flush with the cover surface and the cover support arm extending underneath the trench cover and supporting the same; a slot formed in the trim head;

a flexible trim piece having a trim head for use in being inserted in the slot, the trim holder means being reversible in position in the pocket and when in the reversed position the shipping head extending over the trim support flange, the trim head extending between the closure plate screed flange and the edge of the cover with the flexible trim being inserted in said slot with its trim head extending above the cover surface and the cover support arm extending underneath the trench cover and supporting the same; and

retainer means vertically, adjustably mounted on the closure plate means and engaging said cover support arm when the holder is in either of said positions in the pocket, the retainers being vertically adjustable for vertically positioning the trim holder means in the pocket and retaining the holder in such position.

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