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CONCRETE WALL FORM PANEL ATTACHMENT FOR THE PRODUCTION OF A DECORATIVE WALL SURFACE EFFECT

Filed Sept. 7, 1967 2 Sheets-Sheet 1

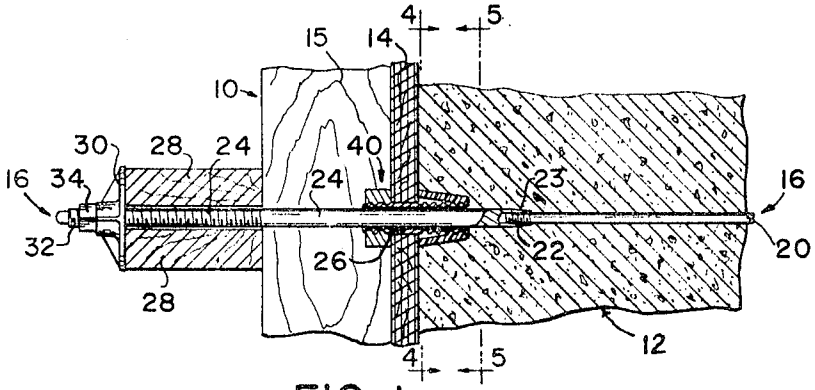


FIG. 1

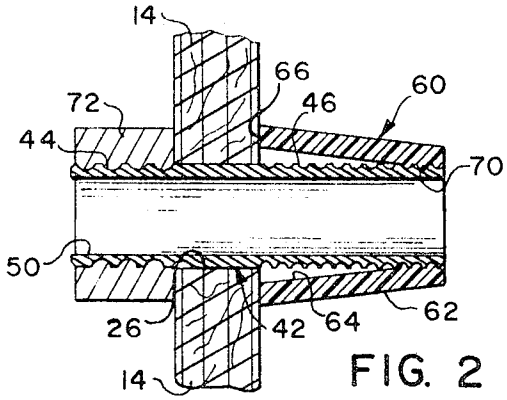


FIG. 2

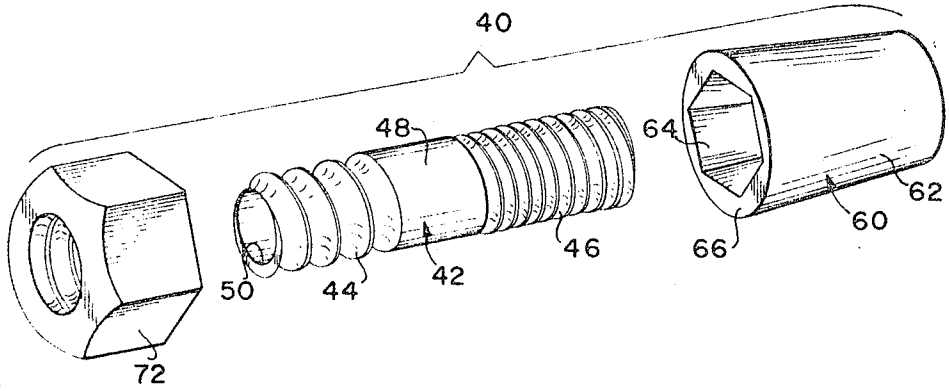


FIG. 3

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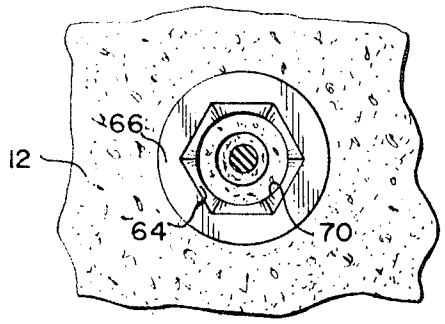


FIG. 4

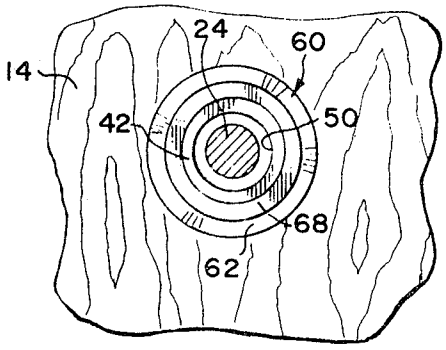


FIG. 5

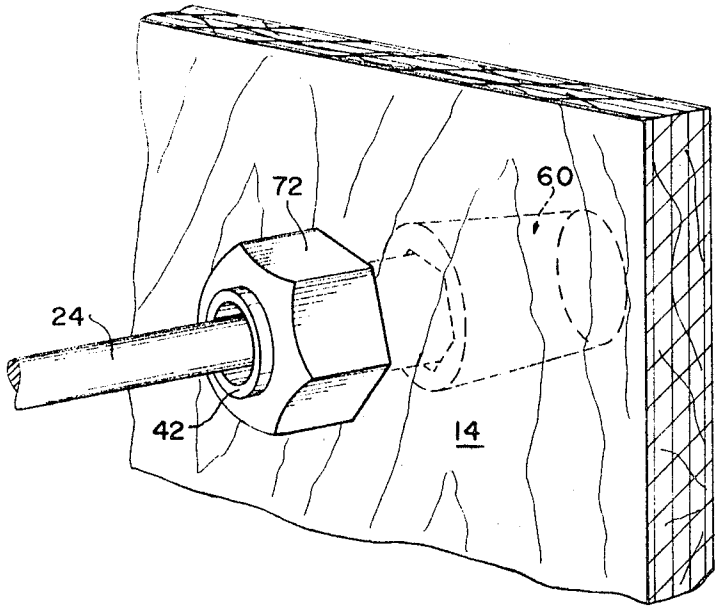


FIG. 6

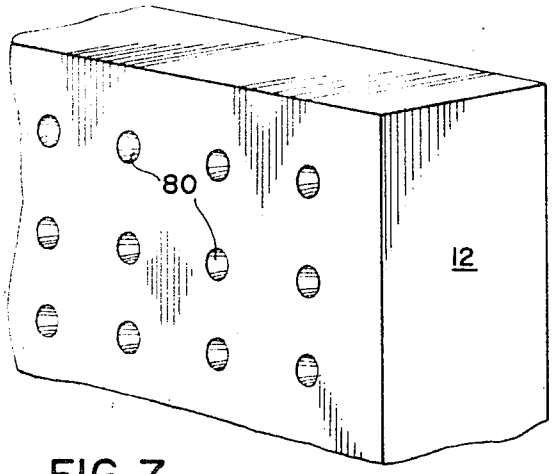


FIG. 7

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3,464,667

CONCRETE WALL FORM PANEL ATTACHMENT FOR THE PRODUCTION OF A DECORATIVE WALL SURFACE EFFECT

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Int. Cl. E04g 9/10, 17/08
U.S. Cl. 249—190 5 Claims

ABSTRACT OF THE DISCLOSURE

A separable concrete wall form panel attachment which, in conjunction with similar attachments and when applied to a concrete wall form panel, leaves a decorative design in the wall surface after the poured concrete has hardened and the panel is removed. The attachment may be left on the panel for the future production of a similar decorative effect, or it may be moved for reuse on another panel for producing a different decorative effect.

The present invention relates generally to a concrete wall form and has particular reference to a panel attachment which is capable, along with other and similar attachments, of being removably applied to the plywood facing of a conventional or standard concrete wall form panel, the application of the attachment to the panel and the application of the other and similar attachments to said panel or other panels of the concrete wall form being made either before or after the panels are erected to form the concrete wall form, but, in any event, before the concrete is poured into the form for wall-forming purposes. Panel attachments involving the invention are such that, after the concrete has been poured into the form and has become hardened or set to form the wall and the various panels with their attachments in place are removed, the portions of the attachments on the inner sides of the panels leave in the side surfaces of the formed concrete wall series of depressions which collectively establish a desired decorative effect or design.

According to the present invention, the panel attachments above referred to constitute elements of respective she-bolt assemblies in that, apart from their decorative function, they cooperate with the she-bolts to establish guides for the latter both during installation and removal of the she-bolts, it being understood that the she-bolt assemblies serve with clamping brackets to hold the oppositely disposed spaced apart sides of the form in fixed relation during concrete pouring. Furthermore, because the attachments are applied to the concrete wall form panels at regions where the she-bolt assemblies project through the panel facings, the impressions which the attachments leave in the side surfaces of the hardened concrete wall are precisely in register with the voids which ordinarily are left in the concrete by removal of the removable parts of the she-bolt assemblies so that such voids are substantially concealed and require no patching or other attention after the panels of the concrete wall form have been removed.

The provision of a concrete wall form panel attachment such as has briefly been outlined above and possessing the stated advantages constitutes the principal object of the invention. Further objects and advantages of the invention will become readily apparent as the nature of the invention is better understood from a consideration of the following detailed description or specification.

In the accompanying two sheets of drawings forming a part of this specification, one illustrative embodiment of the invention is shown.

In these drawings:

FIG. 1 is a sectional view taken substantially centrally and longitudinally through a portion of a concrete wall form panel in the immediate vicinity of one of the panel attachments of the present invention, the panel being operatively installed in, and forming a part of a conventional concrete wall form;

FIG. 2 is an enlarged section of a portion of the structure which is shown in FIG. 1;

FIG. 3 is an exploded perspective view of the three-piece panel attachment constituting the present invention;

FIG. 4 is an enlarged transverse sectional view taken on the line 4—4 of FIG. 1;

FIG. 5 is an enlarged transverse sectional view taken on the line 5—5 of FIG. 2;

FIG. 6 is a fragmentary perspective view of a portion of the plywood facing of a conventional concrete wall form panel, such view showing one of the panel attachments of the present invention operatively installed thereon; and

FIG. 7 is a fragmentary perspective view of a portion of a decorative concrete wall and illustrating the design which has been applied thereto by application of a number of the panel attachments of the present invention to the plywood facings of the wall form panels prior to concrete pouring operations.

Referring now to the drawings in detail and in particular to FIG. 1 wherein one side of a concrete wall form is disclosed, a portion of a panel constituting one of many similar parts of the form is designated in its entirety by the reference numeral **10** and is shown as assuming its position of contiguity with the poured concrete of a wall **12**. The panel **10** is comprised of a plywood facing **14** to which there is marginally-applied reinforcing studding **15**. The panel is adapted to be positioned in edge-to-edge relation with similar panels to form one side of the concrete wall form and has associated therewith a series of conventional tie rod assemblies, one of which is designated by the reference numeral **16**. Various forms of tie rod assemblies are capable of being used in connection with the present panel attachment, the only essential being that the tie rod assembly be of the heavy-duty she-bolt type wherein an inner tie rod proper cooperates at each end thereof with an outer she-bolt to which it is threaded in end-to-end alignment, the tie rod proper being an expandable item which remains embedded in the hardened concrete of the wall, while the protruding outer she-bolt is extracted from the wall by unthreading it from the adjacent end of the concrete-embedded inner tie rod proper. In the illustrated form of tie rod assembly **16**, the tie rod proper **20** is of elongated cylindrical design and its left-hand end as viewed in FIG. 1 is externally threaded at **22** in order removably to fit within an internally threaded socket in the inner tapered end **23** of a conventional she-bolt **24**, the latter being of larger diameter than, and in axial alignment with, the tie rod proper **20**. The she-bolt **24** of the tie rod assembly **16** extends through an opening (circular hole) **26** in the plywood facing **14** of the panel **10** and projects outwardly beyond the studding **15** a sufficient distance to accommodate the application to the studding of a pair of horizontally disposed walers **28** between which the outer end portion of the she-bolt **24** passes. A conventional waler-clamping bracket **30** is threadedly received over the threaded outer end **32** of the she-bolt **24** and a nut **34** is received on the threaded end **32** and serves effectively to clamp the bracket and walers hard against the reinforcing studding on the marginal portion of the plywood panel facing **14** of the panel **10** as well as to apply tension to the tie rod assembly **16**. It will be understood that at the other side of the concrete wall form there will be a similar series of edge-to-

edge panels, and similar walers and supporting and clamping hardware in order to complete the form to the end that concrete in wet form may be poured into the form for wall-forming purposes, as well understood in the art.

The arrangement of parts thus far described is conventional and its illustration and description herein is merely to provide an exemplary environment for the present invention. No claim is made herein to any novelty in such an arrangement of parts, the novelty of the invention residing rather in the provision of the particular panel attachments by means of which impressions are left in the side surfaces of the concrete wall **12**. Such attachments or one in particular will now be described in detail and subsequently claimed.

The aforementioned panel attachments are in the form of three-piece structures, only one of which appears in FIG. 1 and it is designated in its entirety by the reference numeral **40** (see also FIG. 2). Each attachment includes or comprises a sleeve **42** which is provided with an external contour screw thread **44** at its outer end and a similar external contour screw thread **46** at its inner end. The medial region **48** of the sleeve is cylindrical, the longitudinal extent of such cylindrical region being very slightly less than the thickness of the plywood facing **14** of the panel **10**. The diameter of the opening **26** in said plywood facing **14** is somewhat greater than the diameter of a conventional opening which is formed when the attachments of the present invention are not used, and the sleeve **42** of the panel attachment **40** projects through the opening **26** with a snug fit so that the two screw threads **44** and **46** overhang the opposite side faces of the plywood facing **14**. The sleeve **42** is provided with an internal smooth bore **50** of a diameter very slightly greater than the diameter of the left-hand she-bolt **24**, the latter projecting loosely through the bore as clearly shown in FIGS. 1, 2 and 5.

The panel attachment **40** further includes or comprises a generally frusto-conical nut-like element or pattern member **60**, the latter being located adjacent to the inner end of the sleeve **42** and closely resembling a conventional spreader cone such as is employed for assimilating any inward thrust which may be applied to the adjacent side of a concrete wall form before the concrete is poured into the space between the sides of the form. This pattern member **60** presents a smooth frusto-conical outer surface **62** and a hexagonal frusto-pyramidal inner surface **64**, a large diameter end face **66** at its large base, and a small diameter end face **68** at its small base. Said pattern member tapers inwardly and normally surrounds the inner end of the sleeve **42** of the attachment **40**. A limited region of the bore **50** extending inwardly from the small base of the cone (inner end face **68**) is internally threaded as at **70** for threaded reception on the screw thread **46** on the inner end of the sleeve **42** as best illustrated or shown in FIG. 2. With the pattern member **60** thus threaded on the sleeve **42**, the large base or outer end face **66** bears against the inner side face of the plywood facing **14** of the panel **10**.

The third element of the three-piece attachment **40** is in the form of a hexagonal nut **72** which is threadedly received on the screw thread **44** on the outer end of the sleeve **42** and bears inwardly against the outer side face of the plywood facing **14**, thus drawing the pattern member **60** hard against the inner side face of the facing and placing the sleeve **42** under tension so as securely to lock or clamp the attachment **40** as a whole in proper position on the plywood facing **14**.

In effecting an original concrete wall form installation embodying the panel attachments **40** of the present invention, the required number of openings **26** are initially formed in each of the panel facings **14**, the location and number of the openings being dependent upon the particular pattern or design which is to be created in the sides of the finished concrete wall. The openings may conveniently be made by a drilling operation and such drilling may be conducted at the factory or in the field prior to form setting-up operations. However, if desired, the concrete wall form may be completely erected on the basis of only a few openings **26** being made in the panel facings **14** adequate only to maintain the panels in position, after which hole or opening drilling operations may be conducted on the erected panels in situ to avoid the cumulative errors of opening placement which might arise when the panels **10** are drilled before erection thereof.

With the panel facings **14** properly drilled to provide the various openings **26**, the three-piece attachments **40** are then installed in the drilled openings **26** and tightened in the manner previously described, the pattern members **60** being disposed on the inside of the facings and the nuts **72** on the outside of the facings. After the attachments **40** are thus in position, the tie rod assemblies **16** are installed in the usual manner of tie rod installation, the various she-bolts **24** being projected through the bores **50** of the associated sleeves **42** and caused to threadedly receive the adjacent ends of the inner tie rods proper **20**, and the outer threaded ends of the she-bolts being passed between the walers **28** and caused to receive thereover the clamping brackets **30** and the nuts **34**. The wall form assembly is thus completed.

The presence of the panel attachments **40** in no manner affects dismantling of the concrete wall form after the concrete has been poured between the opposite sides of the form and has become hardened or set. Dismantling may take place in the usual manner by first removing the nuts **34**, the clamping brackets **30**, the walers **28** and the she-bolts **24** of the tie rod assemblies **16**, after which the panels **10** may be pulled from the hardened concrete wall with the panel attachments **40** still applied thereto. In thus pulling the panels from the wall, care must be taken to shift them laterally away from the wall in a uniform manner without tilting them unduly so that the various pattern members **60** of the attachments **40** will move out of the sockets or depressions **80** which they create in the concrete simultaneously and in a coaxial manner without binding in the sockets or chipping the rims thereof. The sockets or depressions **80** which are lift in the concrete wall are shown in FIG. 7, the particular pattern of depressions being, of course, dependent upon the number and placement of the panel attachments **40** on the plywood facings **14** of the individual panels **10**.

If desired, the various panel attachments **40** may be left in place on the panels for use in connection with a future concrete wall form installation which is to embody the same ornamental pattern in the finished concrete wall. Alternatively, the various panel attachments may be removed from the panel facings and the openings or holes **26** plugged or otherwise filled to restore the panel facings to their original condition. Removal of the panel attachments **40** from the plywood facings **14** is readily effected by the simple expedient of unscrewing the nuts **72** from the outer threaded ends of the sleeves **42** of the attachments **40** and then sliding the sleeves endwise from the openings **26** in the panel facings **14**.

The frusto-pyramidal inner surface of the pattern member **60** of the panel attachment **40** enables the member to be used independently of the other parts (**42, 70**) of the attachment in the manner of a conventional spreader cone which, after wall form dismantling operations have been effected, requires removal from the adjacent side surface of the finished concrete wall. Such removal may be facilitated by operatively inserting into the frusto-pyramidal inner surface of the pattern member an extraction tool having a complementary frusto-pyramidal torque head and applying torque to the pattern member so as to break the surrounding concrete bond and thus permit the member to be easily lifted out of the socket in which it has become embedded.

Various materials are suitable for constructing the three elements of the herein described panel attachment. Preferably, the nut **72** and sleeve **46** are of cast or die cast

metal construction, while the pattern member **60** is formed of molded plastic material having a low coefficient of friction with respect to the concrete within which it is embedded. Irrespective, however, of the particular materials employed, the essential features of the invention remain the same.

The invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in this specification as various changes in the details of construction may be resorted to without departing from the spirit or scope of the invention. For example, although the inner surface of the pattern member **60** is illustrated and described herein as being of frusto-pyramidal configuration, other out-of-round tapered configurations are contemplated if the member is to be used independently of the other parts of the panel attachment **40** of the present invention. If such a separate use for the pattern member is not contemplated, then the same may have a frusto-conical inner configuration. Another contemplated change involves forming the nut **72** as an integral part of the other end of the sleeve **42**. Therefore, only insofar as the invention is particularly pointed out in the accompanying claims is the same to be limited.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. In a concrete wall form installation, the combination with an upright panel having a vertically disposed facing presenting an inside surface against which wet concrete is adapted to be poured in the production of a concrete wall, and, in addition, an outside exposed surface, said facing being provided with an opening therein for tie rod reception purposes, a tie rod assembly including an outer tie rod section in the form of a she-bolt projecting through said opening, and an inner section in the form of a tie rod proper adapted for embedment in the concrete wall and having the end thereof that is nearer the facing threadedly received in the inner region of the she-bolt, and releasable means extending between the outer end of the she-bolt and the panel facing for assimilating the outward thrust of the poured concrete against the inside surface of the facing, of a panel attachment for producing a decorative depression in that side surface of the concrete wall that is in abutment with the inside surface of said facing, said attachment comprising a guide sleeve loosely surrounding the she-bolt, projecting through said opening in the facing, and provided on its inner end region with an external screw thread, an enlarged head-like member mounted on the outer end region of the sleeve and adapted to abut against the outside surface of the facing, and a nut-like element threadedly received on the inner end region of the sleeve, bearing against the inside surface of said facing, and adapted when tightened to clamp the opening-defining portion of the facing between it and said head-like member, thus placing the sleeve under longitudinal tension and serving fixedly to secure the attachment in position on the facing, said nut-like element constituting a pattern member which leaves a complementary decorative impression on the adjacent side surface of the concrete wall when said releasable means is released, the she-bolt is removed, and the panel is withdrawn from the hardened concrete of the wall with the attachment in position thereon.

2. In a concrete wall form installation, the combination set forth in claim **1** and wherein the outer end region of the sleeve is provided with an external screw thread and the enlarged head-like member is in the form of a nut-like element and is mounted on said external screw thread on the outer end region of the sleeve.

3. In a concrete wall form installation, the combination set forth in claim **1**, wherein the nut-like element which constitutes the pattern member presents a uniformly tapered outer surface configuration to facilitate lateral shifting of the facing away from the concrete wall and consequent withdrawal of the pattern member from the depression created thereby in the adjacent side surface of the concrete wall.

4. In a concrete wall form installation, the combination set forth in claim **1** and wherein the nut-like element which constitutes the pattern member is in the form of a hollow generally frusto-conical shell the wall of which is of small slant angle and the large base of which bears against the inside surface of the facing, and a limited region of said shell extending inwardly from the small base thereof is internally threaded and threadedly received on the threaded inner end region of the guide sleeve.

5. In a concrete wall form installation, the combination set forth in claim **4** and wherein the outside surface of the shell is of smooth frusto-conical configuration and the inside surface of the shell is of frusto-pyramidal configuration to facilitate extraction of the shell from the surface of a concrete wall.

References Cited

UNITED STATES PATENTS

2,116,597	5/1938	Colt	249—42 X
2,190,748	2/1940	Williams	249—217

FOREIGN PATENTS

213,079	7/1956	Australia.

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U.S. Cl. X.R.
249—177, 217