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PILASTER-FORM AND CLAMP

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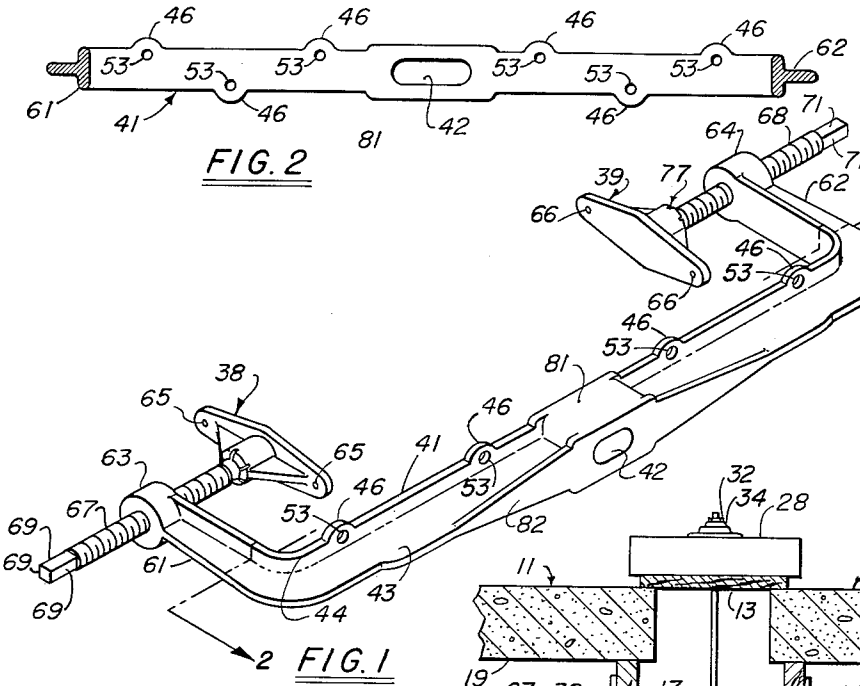


FIG. 1

FIG. 2

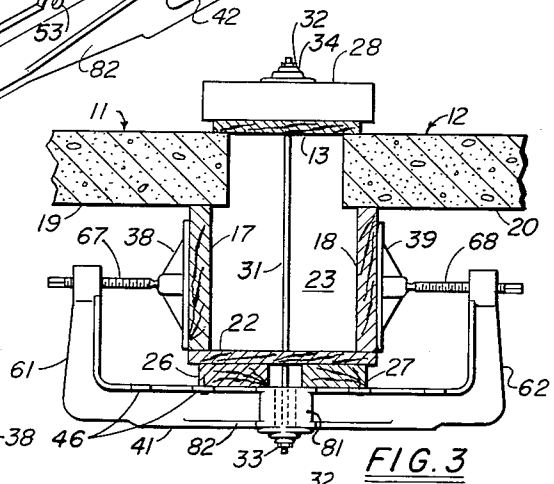


FIG. 3

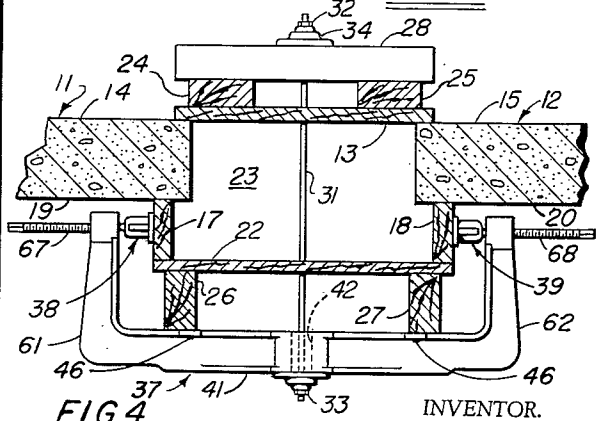


FIG. 4

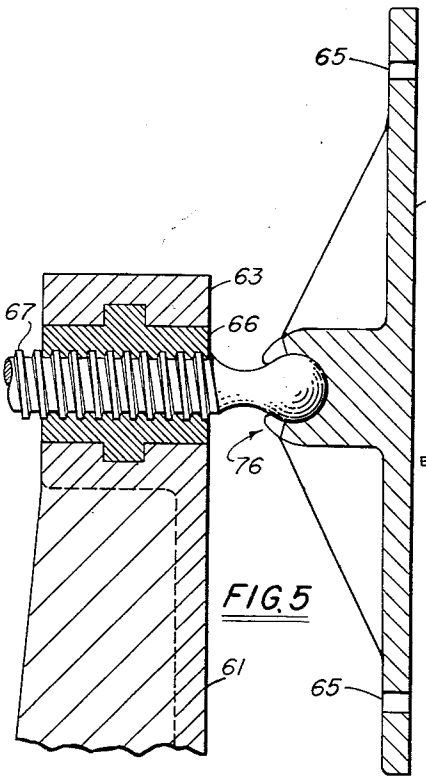


FIG. 5

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PILASTER-FORM AND CLAMP

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This invention relates to forms for pouring concrete pilasters in tilt-up concrete-wall building construction, and particularly to assembly means for such forms.

An object of this invention is to provide a re-usable clamping apparatus for temporarily joining together the panels of a pilaster-form for molding a concrete pilaster between two adjacent up-tilted concrete-wall sections of a building, the clamping apparatus being arranged to clamp the form panels securely together and to the wall sections in an integrated structural enclosure for forming the pilaster.

Another object is to provide a clamping apparatus of the character described and having a minimum number of parts cooperating together for clamping the form panels upon all four sides at once and requiring considerably fewer non-reusable metal tie-rods and short-lived wooden waler elements thus effecting a substantial saving in material as well as in time, labor and labor costs, both in the assembly of the form and in permitting earlier stripping and re-use of the form.

A further object of the invention is to provide clamping apparatus of the character described that is light in weight and easy to handle and install, and simple and inexpensive in construction and manufacture.

The invention possesses other objects and features of advantage, some of which of the foregoing will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of this specification. It is to be understood however, that variations in the showing made by the said drawing description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings (one sheet):

Figure 1 is a perspective view of a pilaster-form clamp constructed in accordance with the present invention.

Figure 2 is a cross-sectional view of the clamp taken substantially on the plane of line 2—2 of Figure 1.

Figure 3 is a cross-sectional plan view of the clamp, on a somewhat reduced scale and shown in operative assembled relation on a pilaster form.

Figure 4 is a cross-sectional bottom view similar to Figure 3, but showing a different orientation of the clamp parts for a different size pilaster form.

Figure 5 is an enlarged fragmentary cross-sectional view of a portion of the clamp.

The pilaster form clamp of the present invention has been particularly designed for use in tilt-up concrete wall building construction in the forming of a concrete pilaster between two adjacent, spaced apart, upright, concrete wall slabs, such as slabs 11 and 12 shown in the accompanying drawing. The pilaster form is assembled as a first form panel 13, covering co-extensive main vertical faces 14 and 15 of the slabs 11 and 12 and the space therebetween, second and third form panels 17 and 18 disposed flanking the space between the slabs and extending from the opposite main vertical faces 19 and 20 of the slabs, and a fourth form panel 22 covering the extended sides of the panels 17 and 18, the four panels

and the intervening two slabs defining a pilaster-form enclosure 23 into which the concrete for the pilaster is to be poured.

The clamp of the present invention consists briefly of spaced apart clamping jaws 38 and 39 which may be disposed enclasping the second and third panels 17 and 18 and an intermediate portion 41 bearing against the panel 22; a tie rod 31 extending from the first panel 13 and through the enclosure 23 and the fourth panel 22 to the clamp; and means 33 securing the tie rod to the intermediate portion 41 of the clamp for clamping action on the form in both transverse directions and for clamping the form to the slabs simultaneously. If desired a pair of vertical walers 26 and 27 may be mounted between the form panel 22 and the intermediate portion 41 of the clamp, and a cross waler 28 may be mounted at the exterior side of panel 13 for connection, as by nut 32 and washer 34 of opposite end of the tie rod 31.

The general cross-sectional configuration of the foregoing form enclosure is illustrated in Figure 3 and it will be understood that the transverse clamping means is repeated at regular vertical intervals over the heighth of the pilaster. The rod attaching means 33 may be composed of a nut and washer as here illustrated or a conventional type tie rod wedge may be used, the significant feature being that the tie rod 31 is placed in tension thereby locking the form parts on the adjacent walls 11 and 12 in a rigid and very strongly supported enclosure for the pilaster.

Preferably the clamp is composed of a generally C-shaped body including the intermediate portion 41 and a pair of offset ends 61 and 62, the latter being used to demountably and adjustably support the jaws 38 and 39. The intermediate portion 41 has a passage 42 formed therethrough in the plane of the jaws 38 and 39 for receiving the tie-rod 31, and preferably the opening 42 is elongated in the direction of the jaws 38 and 39 for accommodating the clamp to different pre-set positions of the tie-rod 31. Preferably intermediate portion 41 of the clamp is formed as a flanged-web beam, the web portion 43 defining the plane of the C-shape and the flange portion 44 being formed on the re-entrant side of the C-shaped web in planes perpendicular to the plane of the web. To assist in the initial installation of the clamp 37, there are formed on the intermediate portion 41 and particularly extending from the flange portion 44 thereof, a plurality of ears 46, extending in the plane of the flange, and each having a nail hole 53 formed therein and extending generally parallel to the plane of the intermediate portion 41 and the jaws 38 and 39. Thus when the clamp 37 is initially placed into position around the pilaster-form, it can be temporarily secured to the form as by tacking nails. The jaws 38 and 39 may also be provided with nail holes 65 and 66 for similarly temporarily supporting the clamp during the assembly of the form and clamp.

In accordance with the present invention and as a principal feature of the clamp, the jaws 38 and 39 are adjustably and demountably mounted on the offset ends 61 and 62 of the clamp body so as to readily adapt the clamp to various sizes, width and depth, of the pilaster column such as illustrated in Figures 3 and 4, and additionally the jaws 38 and 39 are fashioned of elongated form and provided with a swivel mounting so as to permit rotative orientation on the side panels 17 and 18 for relatively narrow panels as seen in Figure 4 or relatively wide panels as seen in Figure 3. The means of connection of the jaw members here includes a pair of tubular internally threaded insert members 66, see Figure 5 mounted in and extending through enlarged end hub portions 63 and 64 on the offset ends 61 and 62 and aligned on a common axis generally par-

allel to the intermediate portion **41**; a pair of screw stems **67** and **68** threadedly mounted in the insert members **66** and are aligned on the axis of the insert members, the stems **67** and **68** being formed at their outer ends with wrench grip flats **69** and **71** and dimensioned for passage through the internal bores of the insert members for removal of the stems therefrom, as for replacement or repair; and ball and socket swivel means **76** and **77** connecting the inner ends of the stems with the jaws **38** and **39**.

A desirable construction is obtained by casting the body of aluminum for strength and lightness in weight with the insert members **66** cast integrally therein, and in the formation in the body section of a central boss **81** for housing the elongated opening **42**, the boss **81** being further detailed with a rear flange **82** forming a bearing surface for the rod cinching means **33**.

The flanged strongback form of the body section of the clamp and the elongated web reinforced jaws provide an unusually strong and rigid construction permitting the elimination of the use of conventional blocking and waler reinforcing of the form. When desired of course additional blocking or waler reinforcement is readily obtained as depicted in Figures 3 and 4 where vertical blocking or walers **26** and **27** are inserted between panel **22** and the intermediate portion **41** of the clamp; and as shown in Figure 4 where similar blocking **24** and **25** is illustrated between the tie rod waler **28** and panel **13**. Thus the elimination of many waler and snap tie parts in the construction of the pilaster form by the use of the clamp of the present invention and techniques herein discussed is very substantial considered per pilaster or even greater when considered for an entire building constructed with many pilasters. In addition other and important savings are realizable in enabling the contractor to strip the form and re-use the clamp and form panels days prior to the time when the concrete is normally required to harden sufficiently to permit twisting off of tie rods, etc. used in conventional pilaster form construction.

We claim:

1. In a tilt-up concrete-wall building construction, a pilaster form comprising, two adjacent spaced-apart upright concrete wall slabs; a first form-panel covering coextensive main vertical faces of said slabs and the space therebetween; second and third form-panels disposed flanking said space and extending from the opposite main vertical faces of said slabs and the space therebetween; a fourth form-panel covering the extended sides of the second and third panels, the four panels and the intervening two slabs defining the pilaster-form enclosure; a clamp having an elongated body and a pair of jaws carried thereby with at least one of said jaws being laterally adjustable on said body, said body and jaws providing a C-shape and being clamped against said second and third panels with an intermediate portion of said body bearing against and supporting said fourth panel; said intermediate portion being formed with an opening therethrough; and a tie rod connected to said first panel and extending therefrom through said enclosure and said fourth panel and through said opening and being secured to the outer side of said intermediate portion for clamping said first and fourth panels against said slabs and second and third panels thereby cooperating with said jaws to simultaneously support said enclosure and to clamp said panels to said slabs.

2. In a tilt-up concrete-wall construction, a pilaster form comprising, two adjacent spaced-apart upright concrete wall slabs; a first form-panel covering coextensive main vertical faces of said slabs and the space therebetween; second and third form-panels disposed flanking said space and extending from the opposite main vertical faces of said slabs; a fourth form-panel covering the extended sides of the second and third panels, the four panels and the intervening two slabs defining the pilaster-form enclosure; a clamp having a C-shaped body and a pair of jaws carried thereby for lateral adjustment and being clamped against said second and third panels with an intermediate portion of said body bearing against and supporting said fourth panel; said intermediate portion being formed with an opening therethrough in substantially the plane of said jaws and approximately mid-way laterally therebetween, said opening being laterally elongated to maintain its mid-way position with lateral adjustment of said jaws into clamping engagement with said second and third panels; a tie rod connected to said first panel and extending therefrom through said enclosure and said fourth panel and having an end projecting through said opening; and means secured to said rod end and being adjustable thereon and bearing against the outer side of said intermediate portion for clamping said first and fourth panels against said slabs and said second and third panels thereby cooperating with said jaws to simultaneously support said enclosure and to clamp said panels to said slabs.

3. A pilaster form as characterized in claim 2 wherein said clamp is composed of a cast body of light weight metal, a pair of tubular internally threaded insert members cast integrally with said body and aligned on a common transverse axis, and a pair of threaded stems connected to said jaws and mounted in said insert members to provide for lateral adjustment of said jaws, said stems being formed with wrench grip flats dimensioned for passage through said insert members for removal of said stems and connected jaws therefrom.

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