My invention relates to improvements in forms for erecting structures of concrete or similar plastic materials, so as to produce straight and even surfaces such that no plastering will be required.

I propose to provide an improved form, which includes a series of panels of relatively small weight in comparison to surficial area. The panels are locked together at their edges by simple and effective means operating to retain them in a flush and aligned relation, and to provide for expeditious assembling of the panels when setting them up or taking them down.

The panel construction provides a knock-down feature, not requiring any welded connections in the panel frames, so that the panels may be easily assembled, and taken apart for repair or renewal of parts. Then, too, the panels are properly shaped and reinforced to keep their molding surfaces flat and unwarped, and the front edges of the panels are made to protect the edges of the molding plates.

Further objects and advantages of my invention will more fully appear from the following detailed description taken in connection with the accompanying drawing which illustrates several embodiments thereof, and in which:

Fig. 1 is a rear elevation of a wall panel with a fragmentary portion of an adjacent panel and the associated clamping mechanism;

Fig. 2 is an enlarged sectional view taken on the line 2—2 of Fig. 1, looking in the direction indicated by the arrows;

Fig. 3 is a horizontal fragmentary sectional view of two adjoining wall panels, taken on the line 3—3 of Fig. 1, looking in the direction indicated by arrows;

Fig. 4 is a vertical fragmentary section taken on the line 4—4 of Fig. 3, looking in the direction indicated by the arrows; and

Fig. 5 is a horizontal fragmentary sectional view of side member for a filler panel.

The forms are identically the same for both sides of a wall. Therefore, it is believed the drawings and description for one side will suffice for both sides.

Referring now to the drawings in detail, like reference numerals designate similar parts through the several views. Now first, I shall describe in detail the panel, which may be used for both walls and ceilings. The panel as shown in Figs. 1, 2 and 3, comprises a molding plate 2, which may be of plywood or other suitably material fastened to the wooden cleats 3. The ends 8 of the cleats 3 are wedge shaped to conform with the side members 5, which are bent on an incline 6 so that together with the flange 7 they form pockets for receiving the ends 8 of the cleats 3. The front edges of the side members 5 extend outwardly to form supports 9 for the edges of the molding plate and are then bent at right angles to form metal edges 10 for protecting the edges of the molding plate. The side members 5 are tied together against the ends 8 of each cleat 3 by a tie-bar 4 disposed along such cleat and extending over the rear edge 11 of the cleat 3 and along opposite faces of such cleat and through the side members 5 where the tie-bar 4 is tightened by nuts 12. The tie-bar 4 serves to hold the side members 5 in position and also acts to produce a reinforcing or trussing effect on the corresponding cleat 3. Since the cleats 3 are disposed in a slanting direction across the panel, the tie-bars 4 fastened to the side members 5 at opposite sides of the cleats 3, the cleats are prevented from moving sidewise, thereby being wedged in place. A U-shaped lug 13 is welded onto each end of each side member 5. These lugs 13 form pockets for receiving and holding the ends of the upper and lower cleats 14 severally in place. The side members 5 are provided with slots 15 through which extend the wall ties 25. The molding plate 2 may be made up of two laminations or sheets are shown of which laminations the bottom one is preferably a stiff board or the like, serving the purpose of supporting a thin molding plate 21 which presents a suitable molding surface. The molding plate 21 is fastened to the plate 20 or to cleats 3 by small nails 22, so when the exposed surface is worn out the molding plate can easily be reversed. Thus both sides thereof can be used, or the molding plate may be replaced by a new one.

Figs. 1, 3 and 4 show two adjoining wall panels. A wall tie 25 is also shown for connecting the panels of one wall form with those of the adjacent wall form. As the panels on both such wall forms are identical I have only shown the complete panels for one wall form. The wall ties 25 and locking wedge 26 as shown are conventional clamping devices. To obtain a perfect alignment of the molding surfaces at the joints of adjoining panels, holding brackets 27 each having two legs 40 and 41 have been provided. Each of these is positioned over a wall tie 25 and guided by the same and between the rear edges 28 of the side members 5. Thus such bracket 27 is held in position at right angles to the molding surface so that when the clamping wedge 26 is put in place and driven tight the adjoining edge portions 10 are pressed into alignment between the metal washer 29 on the wall tie 25, and front edge 30 of the holding bracket 27, the rear portion of the holding bracket 27 being provided with two arms 31 and 32 which engage the rear flanges 7 of the side members 5.

In Fig. 5 I have shown the cross section of a side member for a filler panel, which may be used to fill up small spaces of special sizes. In such case the member 5 is replaced by a metal section 5' identical with the corresponding side member 5 of the panel as shown in Fig. 2, except that the U-shaped lug 13 has been eliminated. Then said metal section 5' has fastened to its inside face a wood strip 33 to which a molding plate 2' may be nailed as shown at 34.

While I have herein shown and described only certain embodiments of the features of my present invention, still I do not intend to limit myself thereto except as I may do so in the claims.

I claim:

1. In a form for concrete construction, a pair of adjoining panels, each having a front edge and a rear edge, said front edges being in close contact and provided with slots through each of which a wall tie is passed, a holding bracket positioned over said wall tie, the rear edges of said panels being spaced apart to lock the holding bracket against sidewise movement between both rear edges of said panel to hold the same perpendicular to the molding surface, the rear end of said holding bracket being formed with arms engaging the rear flanges of said panels.

2. In a form for concrete construction, a pair of adjoining panels, each having a front edge and a rear edge, said front edges being in close contact and provided with
slots through each of which a wall tie is passed, a holding bracket having two legs of which a leg is positioned on each side of said wall tie and bears against the back of both adjoining panel edges, the rear portion of said holding bracket being held in position against side wise movement between the rear edges of said adjoining panels, a wedge positioned on the end of one said tie, members, said side members being shaped to form longitudinally wedge shaped pockets to receive the end portions of said cross cleats which end portions are complementary to said pockets, each cross cleat having a length greater than the distance between said side members and being mounted to form an obtuse angle at each end to the adjacent side member, each tie-bar being located adjacent to the corresponding cleat and having its central portion extending over the cleat and its two end portions adjacent to the opposite faces of such cleat, and means to secure such tie-bar end portions to the proximate side members adjacent to the apices of said obtuse angles to thereby lock said cleat in its position between said side members.

4. In a form for concrete construction, a panel comprising a molding plate supported by side members, cross cleats and tie-bars extending between said side members, each side member being provided with wedge shaped pockets to receive the end portions of said cross cleats which end portions are complementary to the wedge shaped pockets, each cross cleat having a length greater than the distance between said side members and each end of such cross cleat being proximate portion of the side member being of form to provide an obtuse angle between such end of the cross cleat and the proximate side member, each tie-bar having its central portion extending over the cleat and its two end portions adjacent to the opposite faces of such cleat, and means to secure such tie-bar end portions to the proximate side members adjacent to the apices of said obtuse angles to thereby lock said cross cleat in position between said side bars.

5. In a form for concrete construction, a panel comprising a molding plate supported by side members, cross cleats and tie-bars extending between said side members, each side member being of Z-shaped cross section and one arm of such Z comprising a supporting element supporting the proximate edge of said molding plate, the central portion of such Z extending rearwardly at an obtuse angle to the molding plate and the other arm of such Z extending at an acute angle to the body of such Z to establish a longitudinally extending wedge shaped pocket to receive the end portions of said cross cleats, said cleat end portions being complementary to such wedge shaped pocket, each tie-bar having its central portion extending over the corresponding cleat and with its ends at opposite faces of such cleat and locking such cleat in position between said side members, together with means to secure the end portions of each tie-bar to the proximate side members, said securing means including tie-bar tensioning means.

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