Aug. 27, 1935. L. J. SAROSDY 2,012,590

FORM CONSTRUCTION

Filed April 14, 1934 2 Sheets-Sheet 1

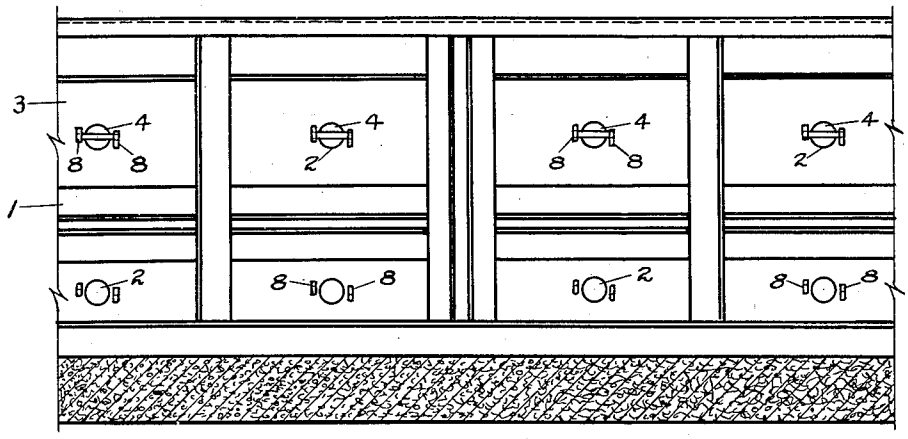


FIG - 1

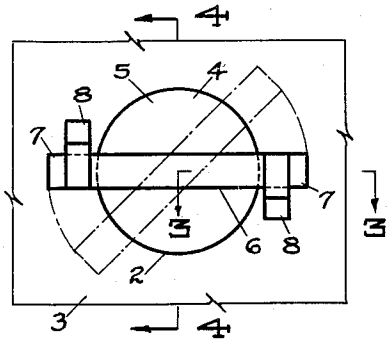


FIG - 2

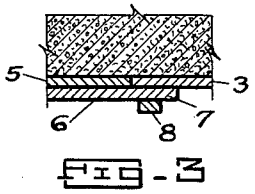


FIG - 3

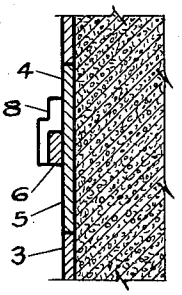


FIG - 4

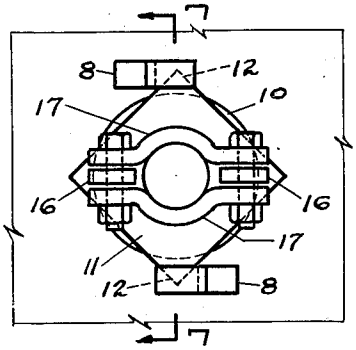


FIG - 5

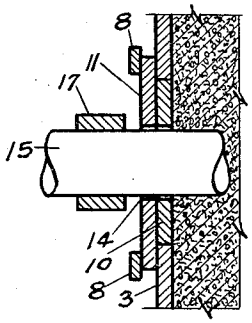


FIG - 7

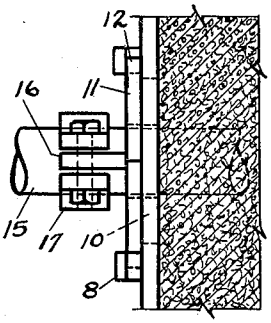


FIG - 6

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FORM CONSTRUCTION

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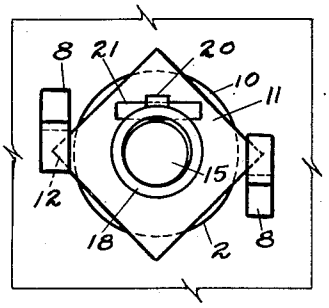


FIG-8

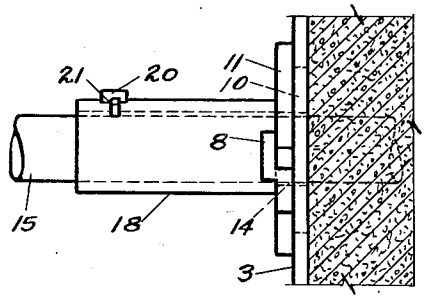


FIG-9

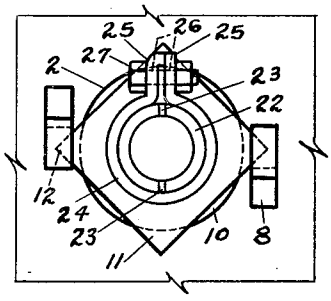


FIG-10

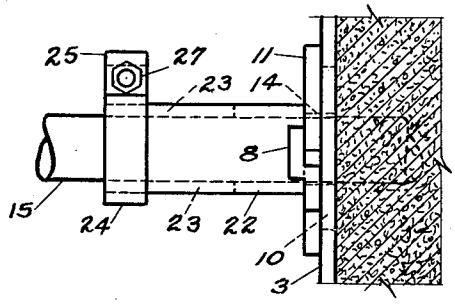


FIG-11

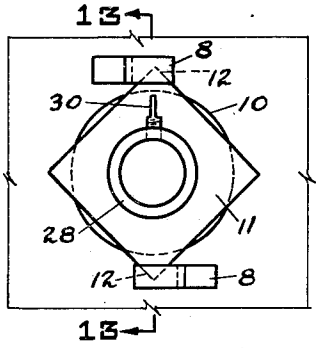


FIG-12

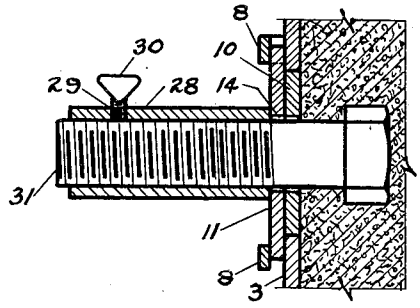


FIG-13

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Patented Aug. 27, 1935 2,012,590

UNITED STATES PATENT OFFICE

2,012,590

FORM CONSTRUCTION

Louis J. Sarosdy, Beaver Falls, Pa., assignor to Koppel Industrial Car and Equipment Company, Koppel, Pa., a corporation of Pennsylvania

Application April 14, 1934, Serial No. 720,578

9 Claims. (Cl. 25—131)

The invention pertains to wall forms adapted to receive plastic concrete and more particularly to means for closing open holes in the forms, thereby retaining all of the material within the confines of the forms, and means to prevent misalignment or movement of adjacent sections of the form.

In the building of concrete walls or sewers it is a frequent practice to apply dowels or rods between one concrete wall section and the immediate adjacent wall section to prevent misalignment or the movement of the form for one section in relation to another section and means must be provided in the bulkhead or wall forms to hold these rods in position while the concrete is being poured. Further, these rods must be held in readily releasable engagement with the form so that after the concrete has set sufficiently to permit the removal of the forms the rod can be released and the forms may be removed without disturbing the rods. It has been found that the rods are to be located in different positions relative to the form, therefore provision must be made to plug the apertures that are not to be used and still permit the wall to have an even finish, free from indentures or projections.

An object of the invention is the provision of means to plug open holes in the skin plates of a wall form.

Another object of the invention is to provide a plug with means for rigidly holding a rod within the form.

Another object of the invention is to arrange the plugs so as to be easily removable.

A further object of the invention is to so form the plug that it will form a continuation of the skin plate thereby leaving no indentures in the surface of the wall when the forms are removed.

These and other objects will become apparent to one skilled in the art from the following description.

In the accompanying drawings which form a part of the present specification, Fig. 1 indicates an elevation of a section of a wall form or bulkhead panel; Fig. 2 is an enlarged view showing in elevation a plug secured to the panel; Fig. 3 is a sectional view taken along the lines 3—3 of the plug shown in Fig. 2; Fig. 4 is a sectional view taken along the lines 4—4 of the plug shown in Fig. 2; Fig. 5 is a view in elevation of a plug used in connection with a rod to prevent misalignment of two adjacent sections of the form; Fig. 6 is a side view of the plug shown in Fig. 5; Fig. 7 is a sectional view taken along the line 7—7 of Fig. 5; Fig. 8 shows in elevation another means of using a plug in connection with a rod; Fig. 9 is a side view of the plug shown in Fig. 8; Fig. 10 is a modification of the plug shown in Fig. 8; Fig. 11 is a side view of the plug shown in Fig. 10; Fig. 12 shows a plug used in connection with an anchor bolt; and Fig. 13 is a side view of the plug shown in Fig. 12.

Referring now in detail to the drawings wherein like numerals refer to like parts, the reference character 1 indicates a wall form or bulkhead panel having two rows of round apertures 2 spaced at intervals along the skin plates 3 of the form panel 1. The upper row of apertures being closed by plugs 4 and the lower row of apertures are for the insertion of tie rods or other means and are shown free of closing plugs. The plug 4 is formed by a plate 5 which is preferably the same thickness as the skin plate 3 allowing a smooth, even surface to the inside face of the panel and having the same contour as the aperture 2 so as to allow the plug to revolve with the aperture. The transversely extending bar 6 secured to the plate 5, by means of welding or any other suitable means, has wing-like portions 7 extending beyond the limits of the plate 5. Plates 8 preferably formed as Z-shaped clips and secured to the skin plate adjacent the apertures 2 are of sufficient height to allow the entrance of the wing-like portions 7. When it is desirable to close an aperture 2 in the skin plate a plug 4 is inserted in the aperture with the portions 7 of the bar 6 in the position shown by dot-and-dash lines in Fig. 2 and then by revolving the plug in a counterclockwise motion the portion 7 of the bar 6 will become engaged by the clips 8 and prevent the plugs displacement by the force of the concrete against the plug. It will be noted that the plug 4 forms a continuation of the skin plates 3 and that when the forms are removed the walls will present a smooth surface.

If it is desirous to hold the form against misalignment and the use of rods is introduced, the area of the aperture 2 being greater than the cross sectional area of the rod it will be observed that the forms can easily be stripped from the walls allowing the forms a vertical or horizontal movement without disturbing the rods. The aperture 2 is then closed by the plug 9 which is formed by a plate 10 having the same thickness of the skin plate 3 and of the same contour as the aperture 2. Secured to plate 10 is an additional plate 11 of any desirable thickness having portions 12 extending beyond the limits of the plate 10. The portions 12 lie against the face of the

skin plate 3 thereby preventing the plug from falling within the form. An opening 14 is centrally located through the plate 10 and plate 11 to permit the insertion of the rod 15. Projecting from the plate 11 and located adjacent the opening 14 are lugs 16. Clamps 17 are so formed as to engage the rod 15 and detachably secured to the lugs 16 by bolts or any suitable means. Diagonally disposed adjacent the aperture 2 clips 8 are secured to the plate 3 and adapted to receive the portions 12 to prevent the plug from becoming dislodged outwardly of the form. It will be observed that in this manner a bolt can be positively held in a readily releasable engagement within the form.

Fig. 8 shows another means of clamping a rod 15 within a form. The plug is formed by employing the plates 10 and 11 having the hole 14 centrally disposed. Portions 12 of the plate engage the clips 8 to aid in retaining the plug in position. Sleeve 18, secured to the plate 11, is aligned with the hole 14 to receive the rod 15. Adjacent the extremity of the sleeve 18 is a transverse slot 19 with the top portion of the slot covered by a plate 20 forming a hood over the slot. Pin 21 is inserted into the slot wedging the rod 15 against the lower portions of the sleeve thereby retaining the rod within the plug until after the concrete has set sufficiently to warrant the removal of the form from the wall.

Figs. 10 and 11 show another modification of holding the rod in position while the forms are being filled with concrete. The usual clips 8, plate 10 and plate 11 are employed, the plates 10 and 11 having the centrally aligned opening 14 therein. The sleeve 22 has longitudinally extending slots 23 preferably oppositely disposed although it is understood that any number of slots may be employed. The slots 23 extend substantially beyond the center of the sleeve, and are used to diminish the inside diameter of the sleeve 22. Clamps 24 are detachably secured to the extremity of the sleeve 22 and have extensions 25 projecting outwardly therefrom. The extensions 25 having aligned holes 26 are arranged to have a space between their adjacent faces. Bolt 27, inserted into the holes 26, draws the extensions 25 together thereby diminishing the inner diameter of the sleeve 22 and clamping the sleeve about the bolt 15.

A further modification of anchoring rods or bolts to be cast into the concrete wall with portions extending through the wall forms is shown in Figs. 12 and 13. The plug 10 is made to fit the aperture 2 and having secured thereto plate 11 engaging clips 8. The sleeve 28 projecting from the plate 11 and being aligned with the hole 14 has, adjacent the extremity thereof, a tapped hole 29 permitting the application of a winged set screw 30. The bolt 31 is inserted through the plug 10, plate 11 and into the sleeve 28, the end of which extends beyond the hole 29. The set screw 30 is then turned until the bolt is clamped within the sleeve 28.

It will be observed from the present description that due to the cross sectional area of the bolt being smaller than the area of the aperture considerable variation is allowed to the form with respect to a finished wall while the form is being removed without disturbing an embedded rod or bolt. It will also be noted that the rod or bolt will be held securely within the form while the forms are being filled and may be readily released from the form upon the completion of the wall.

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

1. In a wall form panel, a plate, an aperture in the plate, a plug adapted to fit within said aperture, a rod projecting through the aperture and plugs, lugs extending from the plug adjacent the rod and means engaging the lugs and rod.

2. In a wall form panel, a plate, an aperture in the plate, a plug adapted to fit within said aperture, clips secured to the plate adjacent the aperture engaging said plug, a rod projecting through the aperture and plug, lugs extending from the plug adjacent the rod and means engaging the lugs and rod.

3. In a wall form panel, a plate, an aperture in the plate, clips secured to the plate, a plug adapted to fit within the aperture and to engage said clips, a sleeve secured to the plug, a rod projecting through an aperture in the plug and sleeve and means secured to the sleeve engaging the rod, thereby holding the rod in a rigid position.

4. In a wall form panel, a plate, an aperture in the plate, a plug adapted to fill the aperture, a rod having its cross sectional area less than the area of the plug, said rod projecting through a central opening in the plug, and means removably secured to the plug engaging the rod.

5. In a wall form in combination, a metal panel having a plurality of spaced apertures therein adapted to receive form ties, clips secured to the panel at opposite sides of the apertures, a plug for selective insertion in one of said apertures and means extending outwardly from the plug to engage beneath the clips to secure the plug in position to fill the aperture.

6. In a wall form in combination, a metal panel having an aperture therein adapted to receive a form tie, a plug for selective insertion in the aperture to retain the wall forming material and present a smooth inner face on the wall form panel, locking clips at opposite sides of the aperture and means secured to the plug for engagement beneath the clips to retain the plug fixed in position.

7. In a wall form in combination, a metal panel having an aperture therein to receive a member to be embedded in the wall to be formed, a plug having a close fit within the aperture and having a centrally disposed opening to receive the said member, and means engaging the plug and metal panel to limit the movement of the plug within the aperture.

8. The combination with a wall form having an aperture therein, of a plug fitting within the aperture, laterally projecting portions on the plug engaging the wall form to limit movement of the plug within the aperture, an aperture in the plug to receive a member to be embedded in the wall to be formed, and means secured to the plug forming a support for the member.

9. In a panel for a wall form, a plate having an aperture therein, clips secured to the plate at opposite sides of the aperture, a plug fitting within the aperture, lugs on the plug engaging the clips to secure the plug to the plate, a sleeve secured to the plug, an aperture in the plug and sleeve to admit a rod into the form, and means securing the rod within said sleeve.

LOUIS J. SAROSDY.