

Jan. 17, 1950

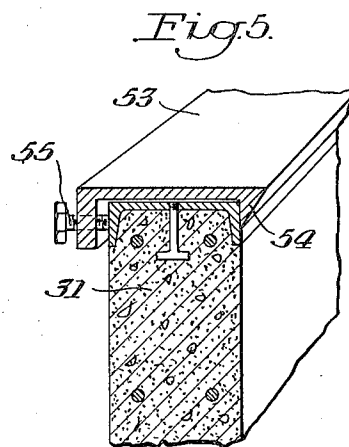
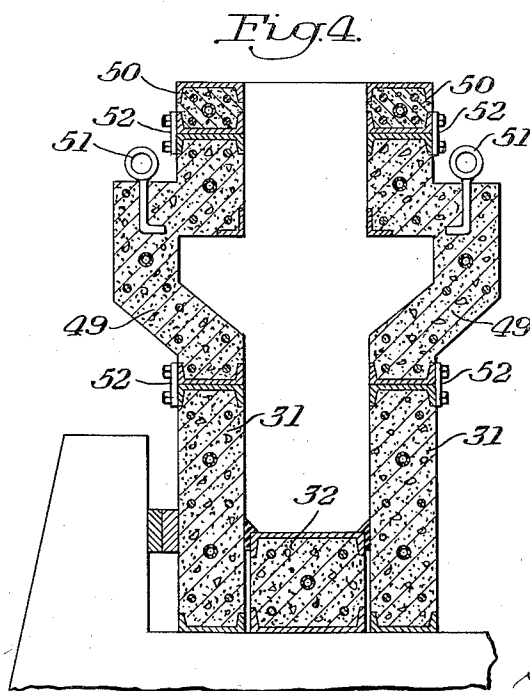
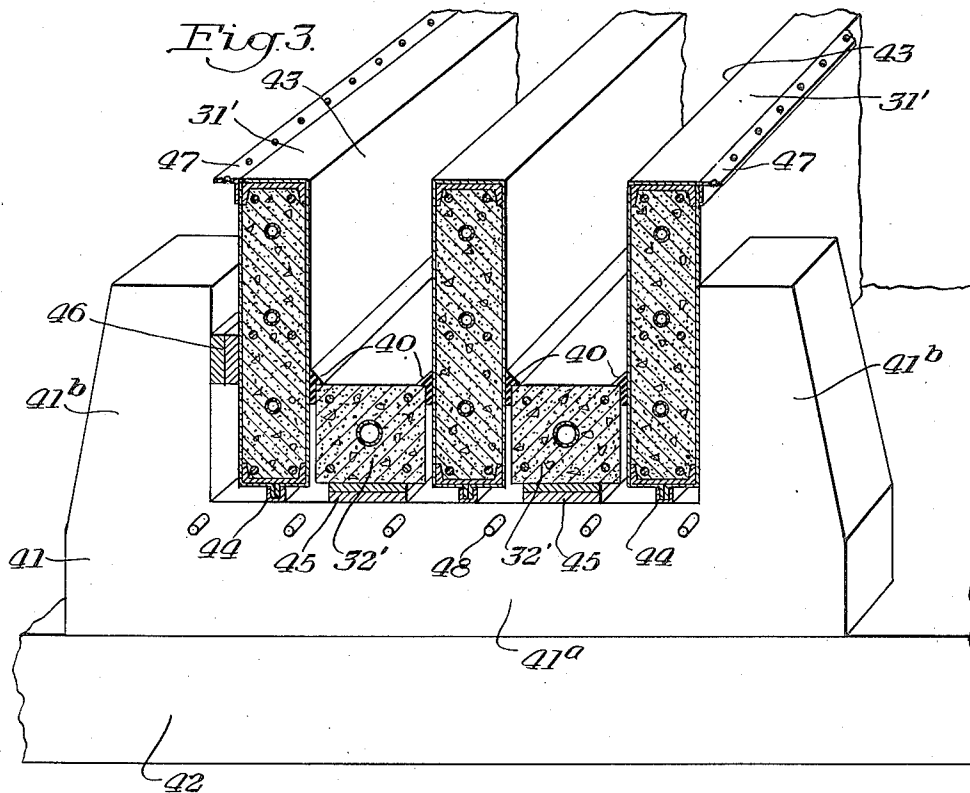
A. HENDERSON

2,495,100

APPARATUS FOR MAKING PRECAST CONCRETE UNITS

Filed March 27, 1946

4 Sheets-Sheet 2



INVENTOR

Albert Henderson
by his attorneys
Stebbins, Blank & Webb

Jan. 17, 1950

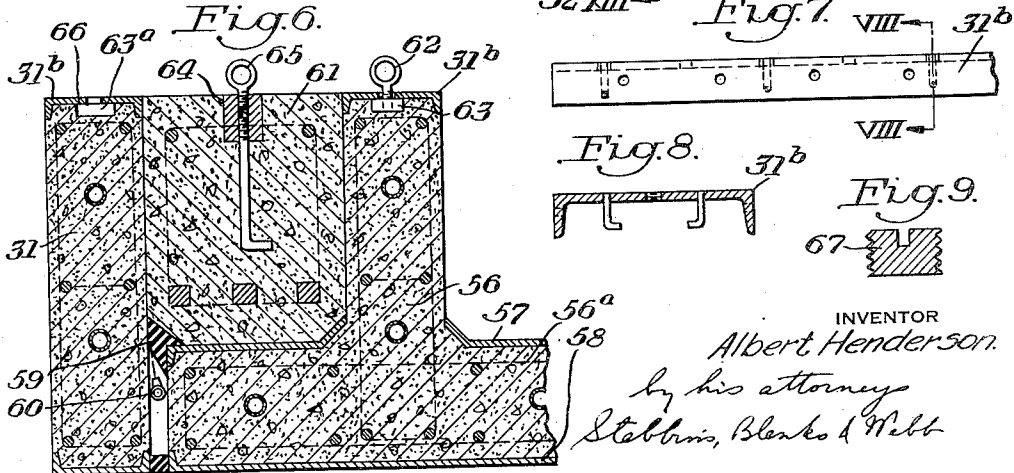
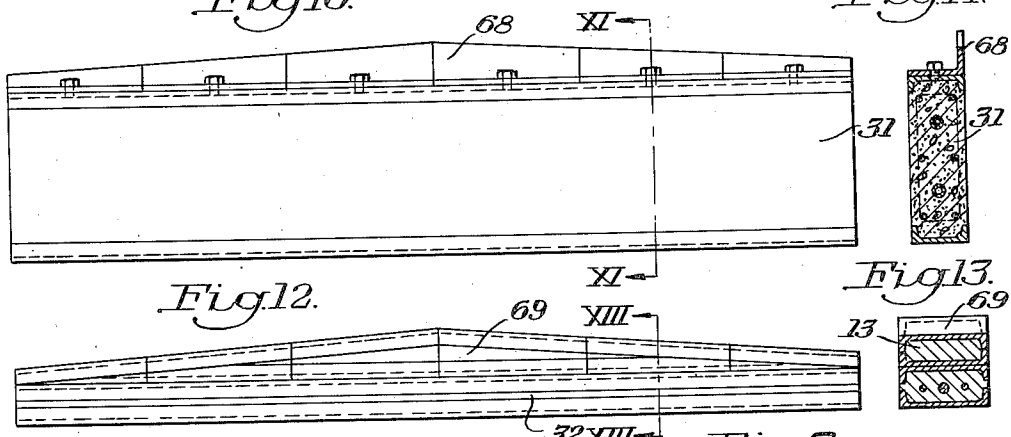
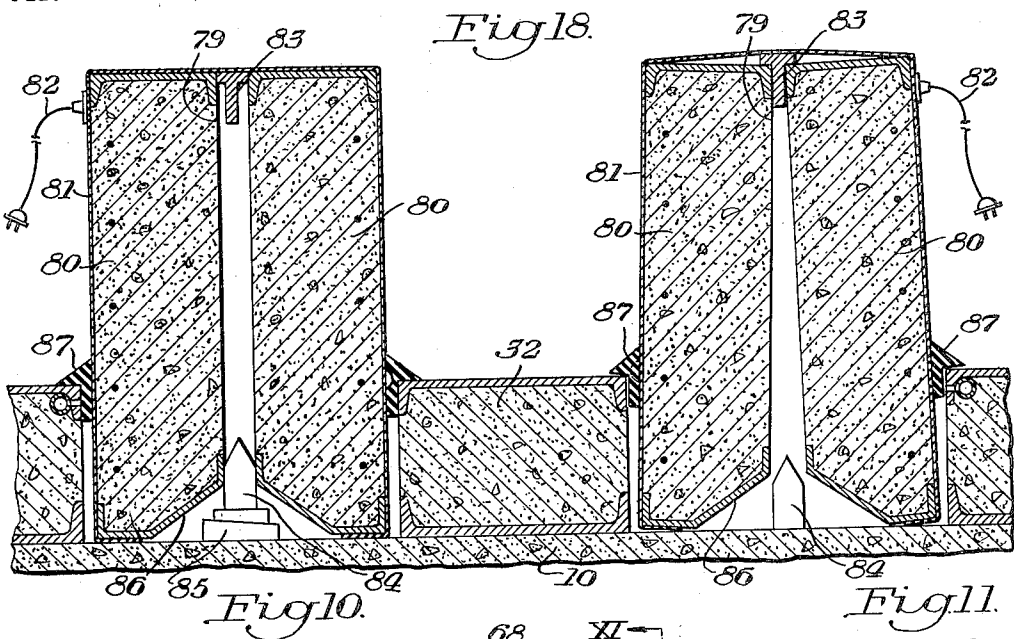
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APPARATUS FOR MAKING PRECAST CONCRETE UNITS

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4 Sheets-Sheet 3



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APPARATUS FOR MAKING PRECAST CONCRETE UNITS

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4 Sheets-Sheet 4

Fig. 19.

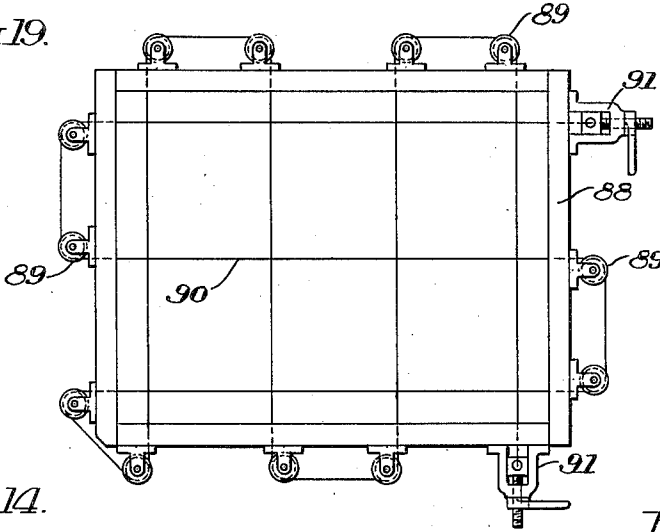


Fig. 14.

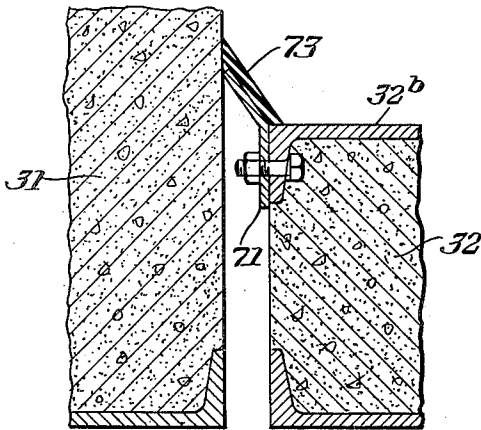


Fig. 16.

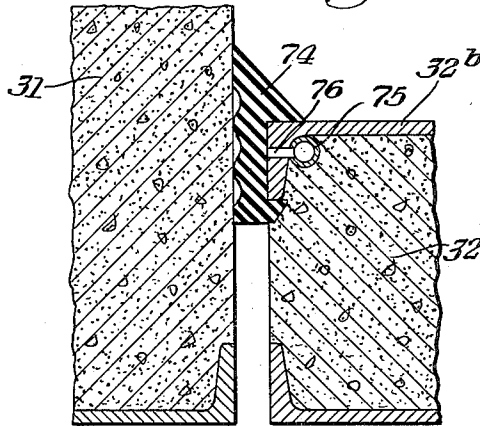


Fig. 17.

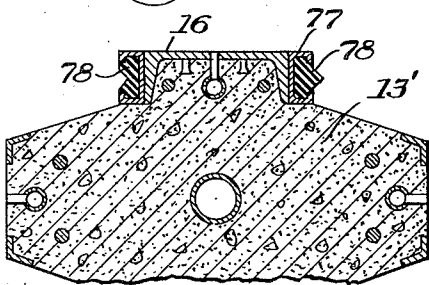
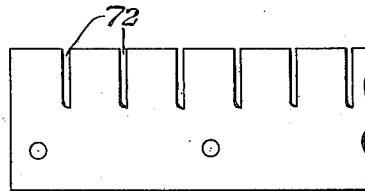


Fig. 15.



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UNITED STATES PATENT OFFICE

2,495,100

APPARATUS FOR MAKING PRECAST
CONCRETE UNITS

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Application March 27, 1946, Serial No. 657,497

12 Claims. (Cl. 25—121)

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This invention relates to the manufacture of precast concrete units for use in building construction and, in particular, to a gang mold providing a plurality of mold cavities whereby a number of units may be cast at one time.

It has not been possible heretofore to achieve the economies of mass production in the manufacture of precast concrete structural units, for several reasons. In the first place, the mold walls required for making units such as panels having heights as great as 10' and lengths as great as 50' are so heavy that it is difficult to handle them in placing them in and removing them from the mold and to keep them plumb therein. This handling difficulty makes the operation slow and costly and increases the likelihood of damage to green concrete units. The handling of the units themselves, when cast, furthermore, requires numerous overhead cranes of long span and large capacity which are quite costly.

I have invented a novel apparatus for molding concrete units whereby the aforementioned objections are overcome or minimized. In a preferred embodiment, I provide elongated gang molds with small, low mobile cranes straddling them, each crane having hoist means adapted to lift the side walls and pallets or bottom walls forming the molds and the units cast therein. The cranes travel along the molds and the hoist means travel along the cranes. The mold members may thus be suspended from the crane pendulumwise. This facilitates control and handling of the mold walls to keep them plumb. The mold walls may also be easily clamped together while they are suspended. The pendulum action of the suspended walls facilitates removal of the products made in the molds since it permits the walls to swing clear of the molded concrete units. This is of particular importance where the mold wall forms are of the height and length above-mentioned and where reinforcing must be placed between adjacent mold walls when making relatively thin panels such as those having a thickness of 3". In such a case, the mold walls must be moved apart to permit the reinforcing to be properly set between adjacent walls. The mold walls, furthermore, have to be cleaned and oiled. These operations are materially simplified by suspending the mold side walls and pallets by the mobile cranes.

I employ mold side walls of precast reinforced concrete having prestressed reinforcing. This avoids the difficulty of maintaining sectional forms of steel, for example, in proper relation and alinement. The prestressing of the reinforcing

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makes the mold walls flexible and prevents cracks since the concrete is in compression as a result of the prestressing. This allows the form to bend slightly, if desired, without cracking so that warping caused by heating means embedded in the walls will not damage them. In fact, such walls may be cast in relatively great widths and lengths without danger of injurious warping and their cost is considerably less than that of steel molds for such large sizes.

I make special provision for sealing the joints between the side walls and pallets or bottom walls of the molds. Leakage through these joints is a serious problem because of the height of the column of concrete which is quite fluid when first poured. I provide a sealing gasket including a stainless steel spring strip and a rubber contact strip secured to one mold member and extending toward a cooperating member, the contacting strip extending beyond the spring strip. The spring strip has slits closely spaced therealong whereby the portions between adjacent slits act as spring fingers to press the contacting strip into engagement with the adjacent mold wall.

I also provide camber-forming members removably attached to the mold side walls and to the top of the mold bottom walls for the purpose of making members having a depth varying from point-to-point along the length thereof. I also provide on the upper, outer corners of the mold side walls a metal member having holes spaced therealong. Cross ties may be secured to these members by bolts for securing bolts, pipe lengths, nuts or the like to be embedded in the concrete members. The metal members also serve for removably securing bevel-forming strips attachable to the upper edges of the mold side walls and the camber-forming members referred to above. Certain precast concrete units such as columns have all four corners beveled while in the case of beams, the bottom corners only are beveled. Both types of members may easily be made in the same molds by means of the aforementioned detachable bevel-forming strips.

The mold side walls and pallets are disposed on a casting bed having prestressed reinforcing and heating means embedded therein as well as means for clamping the mold walls and pallets together. Instead of a casting bed, I may employ spaced cradles for supporting the pallets and mold walls with suitable clamping means for securing them thereto.

It is desirable to prestress the reinforcement of certain structural units such as thin wall panels to prevent cracking. For this purpose, I provide a

frame having spaced detachable and slidable pulleys adapted to be placed on or about a mold so that a wire may be passed back and forth over the pulleys and tensioned uniformly throughout before being embedded in the concrete.

A complete understanding of the invention may be gained from the following detailed description which refers to the accompanying drawings illustrating a preferred embodiment and modifications. In the drawings,

Figure 1 is a partial transverse section through a gang mold composed of a casting bed and spaced side walls disposed thereon;

Figure 2 is an end elevation showing one of the mobile cranes cooperating with the casting bed and the pallets and mold walls thereon;

Figure 3 is a perspective and transverse sectional view showing mold walls and pallets supported in spaced cradles;

Figure 4 is a partial section similar to Figure 3 showing supplemental mold walls adapted for the formation of a girder having shelves along both sides thereof;

Figure 5 is a partial section and perspective view of a mold side wall having a bevel-forming strip detachably secured to the upper edge thereof;

Figure 6 is a partial transverse section through a mold having its interior side walls integral with the pallets thereof;

Figure 7 is a partial elevation of a channel adapted to serve as armor for the upper edges of the mold walls;

Figure 8 is a transverse section therethrough taken along the plane of line VIII—VIII of Figure 7;

Figure 9 is a central section through a plug adapted to be threaded into holes in the channel of Figures 7 and 8;

Figure 10 is an elevation of a mold wall having camber-forming means secured to the upper edge thereof;

Figure 11 is a transverse section therethrough taken along the plane of line XI—XI of Figure 10;

Figure 12 is an elevation of a camber-forming means adapted to be disposed on a pallet;

Figure 13 is a transverse section therethrough taken along the plane of line XIII—XIII of Figure 12;

Figure 14 is a partial transverse section through a pallet and mold side wall to enlarged scale showing the sealing strip closing the joint therebetween;

Figure 15 is a partial elevation of the metal spring strip forming part of the sealing means;

Figure 16 is a view similar to Figure 14 showing a modified construction;

Figure 17 is a partial transverse section through a mold wall similar to those shown in Figure 1 with a modified form of mounting for the strips forming the tongues and grooves in the edge faces of the units;

Figure 18 is a partial section similar to Figure 1 showing a further modified form of mold side wall; and

Figure 19 is a diagrammatic elevation showing an arrangement of pulleys on a supporting frame for prestressing reinforcing wire to be embedded in a unit such as a panel.

Referring in detail to the drawings and, for the present, to Figure 1, a precast concrete casting bed 10 has prestressed reinforcing bars 11 embedded therein and a pipe 12 for conveying a heating fluid or receiving an electric heating cable.

Spaced reinforced concrete mold walls 13 rest on the bed 10 and have prestressed reinforcing bars 14 embedded therein and a pipe 15 for conveying a heating fluid or receiving an electric heating element. The walls have integral, laterally projecting core portions 13a. Metal channels 16 are anchored to the top and bottom of the walls 13 to provide armor for the concrete and metal angles 17 are secured to the exposed corners of the core portions 13a for the same purpose.

It will be apparent that the walls 13 and their core portions 13a are shaped for the molding of precast concrete structural units of H shape. End walls 18 are positioned between the walls 13 at desired intervals. The end walls are simply lengths of H-shaped structural units of sufficient weight to withstand the end thrust applied, when clamped between the walls 13 by means shortly to be described. The walls 13 have upper and lower rubber strips 19 and 19' shaped to form tongues and grooves along the edges of the flanges of the H-shaped units cast between the walls. A metal plate 19a secured to the upper channel 16 extends over the edges of the strips 19 to protect them. The lower strips 19' have bevel-forming projections at the foot thereof. These strips are so dimensioned that they extend below the bottom channels 16 when the wall 13 is lifted from the bed 10. Thus, when the wall is lowered onto the bed, the strips 19' are compressed to form a gasket seal.

The pipe 15 and armoring channels 16 and angles 17 of the mold walls may be prestressed as well as the reinforcing bars 14. This makes the walls more flexible and lessens the danger of cracking in case the walls are wedged or clamped together slightly out of parallelism. It also prevents cracks which might otherwise result from repeated heating and cooling of the walls or the wetting thereof to prevent dehydration of the units, or the shrinkage which occurs in concrete members in the early stages of their life.

A plurality of the walls 13, when properly placed on the bed 10, with end walls 18 therebetween, may be clamped by screws 20 threaded through posts 21 extending upwardly from the bed. The bed has armoring channels 22 along its side edges and the posts 21 are secured thereto by anchor bolts 23 set in the bed. Water pipes 24 are embedded in the walls along the tops thereof. Nozzles 25 are spaced along the pipes to discharge water onto the units cast between the side walls to prevent dehydration as curing proceeds. Additional pipes 26 are embedded in the core portions 13a of the walls 13 and have nozzles 27 spaced therealong adapted to discharge jets of air or water under pressure to assist in breaking the bond between the walls 13 and the units cast therebetween when it is desired to remove the latter from the mold. A similar pipe 28 having nozzles 29 spaced therealong delivers jets of air or water under pressure between the walls 13 and the bed 10 to lift the walls slightly should it be desirable to move them by hand in adjusting them to the proper position on the bed. Connections are made to the pipes 15, 24, 26 and 28 by flexible hose. Yokes 30 extend through the plate 19a and upper channel 16 and have their ends embedded in the walls 13, to receive crane hooks for lifting the walls.

Figure 2 shows the bed 10 equipped with spaced mold side walls 31 and shorter length pallets 32 therebetween. Mobile cranes 33 straddle the bed, the mold walls, and the curing or storage area. Each crane comprises legs 34 having wheels

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traveling along rails 35 and spaced cross beams 36 and 37. Hoisting means 38 for the side walls 31 travel along the beam 36 while hoisting means 39 for the pallets 32 travel along beam 37. Usually it will be found convenient to employ a pair of cranes, or even more, with at least one adjacent each end of the gang mold. The hoisting means 38 may conveniently take the form of turnbuckles while the hoisting means 39 are preferably chain blocks. Both types of hoisting means engage eye-bolts 31a extending through the upper armoring channels 31b and 32b of the walls and pallets. Power-driven hoisting means may, however, be used instead of manually operated means. The hoisting means 39 preferably have detachable links 39a for lifting the pallets 32. These links are removed when the hoisting means are employed for lifting the structural units cast in the mold.

The walls 31 are of precast reinforced concrete, the reinforcing being prestressed, and have armor at the top and bottom in the form of metal channels. They also have pipe lengths embedded therein for conducting a heating fluid. The pallets 32 are of generally similar construction. Members of various depths may be molded by blocking up the pallets to the desired height. Rubber strips 40 carried by the pallet serve the double function of sealing the joints between the pallet and mold walls and forming a bevel at each bottom corner of the units cast in the mold.

It will be understood that the side walls 31 need be raised only slightly from the bed 10 to permit them to be moved sidewise. The units made in the mold, however, have to be lifted above the level of the top of the side walls if they are to be moved sidewise. The walls, pallets or mold units, however, may be shifted longitudinally as well as transversely, when lifted, by moving the cranes along the rails 35 or by moving the hoists along the cross beams 36 and 37.

In the case of wall-panel units having a height of as much as 10', it is desirable to remove them endwise from the molds because of their considerable height when cast on edge. In stripping such units from the mold, one side wall is first removed by lifting it slightly with the hoisting means 38. When suspended pendulumwise, the walls are easily moved sidewise to release a plurality of units at one time. Instead of leaving the units in the mold until fully hardened, I may strip the mold walls from the units while they are still green and carry them away on the pallets, thereby freeing the mold for use with additional pallets.

The cranes 33 may have water-spray means mounted thereon for wetting down the units or the molds. Similarly, oil-spray means may be mounted on the crane for oiling the molds. The cranes may also provide support for magnets for lifting the mold walls, vibrators, screeds, trowels, vacuum-lifting means for removing the hardened units and a hopper for distributing concrete evenly along the length of the molds.

In removing the units made in the molds, the mold walls and pallets may be lifted all at once or individually or a separate hoisting means may be employed for removing the concrete units from the molds. The mold walls are preferably clamped together while suspended just sufficiently to swing clear of the bed. Concrete may be poured into the molds while they are thus suspended and clamped together. If desired, the cranes may travel on rails transverse to the length of the molds instead of parallel thereto. This

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would permit sidewise removal of the cast units to a position laterally of the bed for further curing or storage.

Figure 3 shows a precast concrete cradle 41 resting on a foundation 42. The cradle comprises a horizontal portion 41a and side posts 41b. A plurality of such cradles in spaced relation support spaced mold walls 31' and are straddled by cranes such as that shown at 33. The walls 31' are similar to the walls 31 but are provided with a sheathing 43 of stretched thin stainless steel bent therearound under tension and having its edges secured together by a channel 44 and its ends secured to the ends of the mold walls. Pallets 32' generally similar to those shown at 32 are disposed between the side walls and are spaced upwardly from the cradle by blocks 45 for molding units of desired depth. The side walls and pallets are clamped together by wedges 46 driven between one of the side posts of the cradle and the adjacent side wall.

Angle bars 47 having holes spaced therealong are secured to the outside mold walls adjacent their upper edge. Bevel-forming strips, camber-forming elements and other associated elements may be secured in proper relation to the mold walls by bolts inserted through the holes in the angle bars 47. Pins 48 projecting from the cradle provide fulcrums for bars employed to raise the side walls and pallets of the molds.

Figure 4 shows a pair of supplemental side walls 49 adapted to be connected to side walls 31. The side walls 49 are shaped to form a girder having a shelf along each side thereof. Additional supplemental side walls 50 resting on the side walls 49 permit the height of the girder above the shoulder to be varied as desired. Eye bolts 51 are embedded in the laterally projecting shoulder-forming portions of the side walls 49 to facilitate the handling thereof by the cranes 33. The side walls 49 are secured to the walls 31 by splice plates 52 secured by screws to the channels armoring the meeting edges of the walls. The supplemental side walls 50 are similarly secured to the walls 49.

Figure 5 shows a side wall 31 provided with a bevel-forming member 53 extending along the upper edge thereof. The bevel-forming member is a channel having one flange shaped as at 54 to form a bevel at the upper corner of the unit cast against the wall 31. Clamping screws 55 extend through the other flange of the channel and grip the armor channel on the upper edge of the side wall. It will be understood that one of the bevel-forming members 53 is applied to each side wall of a mold in which is to be cast a unit having all its corners beveled.

Figure 6 shows a mold composed of an outer side wall 31 and an inner member including a side wall 56 and a pallet having portions 56a extending outwardly from both sides of the wall. The pallet portions 56a of the wall 56 have armor plates 57 thereon and an armor plate 58 extends over the entire bottom thereof. A rubber gasket and bevel-forming strip 59 seals the space between the wall 31 and the adjacent pallet portion 56a. A pipe 60 is disposed in said space with nozzles adapted to direct jets of air between the structural unit 61 cast on the pallet and the side wall 31, while the concrete is still plastic or during the actual filling of the mold, to remove surplus air and water accumulating on the side walls as a result of vibrating the mold, which would otherwise leave pin-holes in the surface of the unit. When air under pressure is admitted

to the pipe 60, the jets therefrom displace the free edge of strip 59 slightly and flow upwardly along the side walls 31, thus sweeping upwardly any air or water accumulating adjacent these walls. The jets cause slight separation of the freshly poured concrete from the mold walls sufficient to release air and water trapped in pockets therein.

The unitary pallet and wall member 56, 56a makes possible the removal of a pair of concrete units from the mold at the same time. Eye bolts 62 are threaded into nuts 63 for this purpose. The nuts are disposed in a slot 63a in the upper edge of the walls 31 and 56. The eye bolts are inserted through holes in the upper armoring channel of the walls. By this arrangement, the cranes may be attached to the side walls at any point therealong. The unit 61 has coupler nuts 64 spaced therealong and threaded onto anchor bolts embedded therein to accommodate eye bolts 65 for lifting the member. The nuts 64 may be tapered to permit their removal for further use. Figure 6 also shows the slot 66 in the upper edge of the side wall 31 to accommodate nuts for receiving eye bolts.

Figures 7, 8 and 9 show the armoring channel 31b for the side walls having holes in its flanges for the screws securing the splice plates 52, and holes in its web for admitting the eye bolts 31a and 62. These holes are normally closed by plugs 67 threaded therein. The channel also has anchor bars extending downwardly therefrom adapted to be embedded in the side walls 31.

Figures 10 and 11 show camber-forming members 68 in the nature of flash-boards secured to the upper edge of a side wall 31. These flash boards permit the molding of members having a depth which decreases from a maximum at the center toward each end. The flash boards are sectional and are secured to the mold wall by screws threaded into the holes in the webs of the armoring channels 31a, 31b. The flash-boards 68 may be of such shape as to permit the molding of units having a steep slope toward each end. For example, a beam 50' long may be made 36" deep at the middle and only 18" deep at each end. This provides a beam of reduced weight without sacrificing its load-carrying capacity.

Figures 12 and 13 show a supplement pallet 69 adapted for molding a member having a depth increasing from a minimum at the center toward each end. This pallet is generally similar to the pallet 32 and is adapted to be laid thereon but slopes downwardly toward each end from a high point in the middle. The supplemental pallet 69 is formed in sections like the flash boards 68.

Figures 14 and 15 show a modified form of gasket for sealing the joint between a mold side wall 31 and pallet 32. It comprises a strip 71 of metal bent to an angle and slotted along its length as at 72 providing spring fingers to which is cemented a rubber sealing strip 73. The strip 71 is secured to the pallet 32 by bolts fastened to the flange of the upper armoring channel 32b thereof. The outer edge of the strip 73 engages the surface of the wall 31. In addition to sealing the joint, the strip 73 acts as a bevel-forming means.

Figure 16 shows a modified sealing gasket and bevel-forming member comprising a deformable rubber strip 74. A pipe 75 embedded in the pallet 32 is adapted to admit fluid under pressure behind the gasket through holes 76 in the flange of the armoring channel 32b. When fluid pressure is thus applied, the gasket is forced into

sealing contact with the adjacent surface of the wall 31.

Figure 17 shows a modified side wall 13' having channels 77 secured to the flanges of the upper armoring channel 16 to accommodate removable tongue-and-groove-forming strips 78. This construction permits easy removal and replacement of the strips 78 when worn or damaged.

Figure 18 shows a further modified form of mold wall 79. Each mold wall comprises a pair of concrete slabs 80 with a rubber sheet 81 disposed therearound. This sheet may be thick enough to have electric heating elements embedded therein for connection to a suitable source of current by a cable 82. Concrete sticks to cold rubber covers but will not stick to a hot rubber cover. The slabs 80 are separated by an upper spacer 83 of T-section and spreader pins 84 forced upwardly between the slabs by wedges 85 resting on the bed 10. The lower edges of the slabs 80 slope inwardly and upwardly as at 86 whereby the slabs tend to tilt toward each other about their lower edges when the spacer 80 is raised and the wedges 85 removed as indicated at the right-hand side of Figure 18. Gasket strips 87 may be removably disposed between the pallets and side walls by hand or may be cemented to the pallets and side walls.

Figure 19 shows a means for prestressing a reinforcing wire adapted to be embedded in a molded concrete unit such as a wall panel. A frame 88 is adapted to be disposed on or around the mold for the concrete unit and is provided with pulleys 89 spaced along the sides and ends thereof. A reinforcing wire 90 is trained over the pulleys 89 and is looped back and forth crosswise and longitudinally of the frame, the ends being secured to tensioning means 91. A single tensioning means will suffice, however, if one end of the wire is fixed to a suitable anchorage or both ends of the wire may be secured to one tensioning means. By tightening up one or both tensioning means, the reinforcing wire may be stressed to the desired value. The concrete is then cast in the mold, embedding the criss-crossed portions of the wire, and after the concrete has set sufficiently to develop a firm bond with the wire, the exposed portions thereof are cut off.

It will be apparent from the foregoing that the invention is characterized by numerous advantages over methods and apparatus previously known for making precast concrete units. The molds may be kept suspended and clamped together and filled and vibrated while suspended but I prefer to set the gang mold side walls on the casting bed. If the gang mold side walls have pallets disposed therebetween, I prefer to set the gang molds on spaced cradles and suspend the mold side walls only during the removal of the concrete units from the molds. Alternatively, I may suspend both the mold side walls and the pallets, as well as the concrete units during the removal of the concrete units from the molds.

During the unloading operation, I may unhitch the gang mold side walls and hook onto the concrete units and move the crane or cranes with the concrete units suspended thereon to a dipping pool or storage area. I may unhitch the pallets with the green concrete units resting thereon and move the crane or cranes having suspended therefrom the gang mold side walls to another casting area so that they can be used

more frequently. I may unhitch the gang mold side walls and move the crane or cranes with the suspended pallets and the green concrete resting thereon away from the side walls for further curing of the green concrete units adjacent the molds and under the mobile cranes or elsewhere. Other pallets may then be placed between the side walls when the pallets previously used are engaged by the green concrete units remaining thereon for curing. I may use vacuum cups to lift the concrete units instead of the eye bolts.

The hoisting means attached to the pallets are used to raise and lower them so that blocking can be inserted under them to any depth required of the mold. I use precast concrete for the end walls of the mold and their great weight, with the clamping of the mold walls, assures that they will not move during the casting operation.

I may attach a hopper, vacuum lift means, vibrators, or a screed and trowel to one of the mobile cranes, then unhitch the hoisting means from the gang mold members and use the mobile crane to fill the molds with a concrete mix. The vibrator serves to compact the concrete uniformly and the screed and trowel provide means for smoothly levelling off the concrete at the top of the gang molds. I may use internal vibration in which case spaced vibrators attached to the mobile crane could easily be lowered into the molds and give an accurate and definite vibration at every inch along the interior of the concrete while it is being poured into the gang molds. Interior vibration is best on large heavy precast concrete structural units. I may attach to the travelling or mobile crane a water sprinkling means for wetting the concrete units in the molds, and I may attach an oil-spraying means to the mobile crane for applying oil to the interiors of the molds. This assures complete oil coverage of the mold walls. The mobile crane with a hopper, vibrator, screed and trowel, vacuum-lift means, water and oil-spraying means attached thereto may be the subject of a separate patent application.

The mobile cranes straddle the gang molds and run on rails parallel to the gang molds. The cranes may be wide enough to unload the concrete units beside the gang molds or they can move beyond the gang molds to a curing or storage area. Furthermore, by making the crane wide enough, I can remove the mold side walls to a position beside and parallel to the mold for reuse while the green concrete units molded between the side walls are left where cast for quicker curing. Then, while the sets of side walls are in use, the mobile crane can be used to remove the cured concrete units.

The concrete mold members are armored to prevent chipping and have embedded therein means for wetting the concrete units cast therein. Means are provided for breaking the bond of the units to the molds. The mold members have pipes embedded therein for conveying a heating fluid, and I may dispose therein electric heating cables. In a modification, I cover the mold walls with a rubber sheet having electric heating wires embedded therein, and I may cover the rubber sheet with a layer of material to absorb the surplus water and air from the concrete mix in the molds so that dense uniform attractive surfaces are formed on the precast concrete units. The removal of the air and water also removes pin and air holes which mar the surfaces of precast concrete units.

In a further modification, I stretch stainless

steel sheets across the faces of the mold walls and clamp the sheets to the walls under great tension to remove all kinks therefrom.

I also provide rubber gaskets and means for pressing them against the mold walls to seal the joints therebetween. In one form I cement a rubber gasket to two mold walls at their joints so that a perfect leakproof joint is assured.

The wire placed under tension while in the mold may be vibrated during the casting operation. The vibrating of the stretched wire sets up a remarkable action which helps in settling the concrete and also allows the cement particles to settle around the wires more densely, thereby providing a better bond between the concrete and the wire. This dense cement cover protects the thin wires against rusting.

I claim:

1. Apparatus for making cementitious structural units comprising a mold having spaced side walls and a bottom wall disposed therebetween, gaskets for sealing the joints between said spaced mold side walls and said bottom wall, each comprising a sheet metal strip secured to said bottom wall, the sheet metal strip projecting beyond the said mold bottom wall, the projecting portion of said sheet metal strip having a series of closely spaced slits therein, and a strip of resilient material secured to the top of said slit portion of said metal strip, said strip of resilient material pressing against a mold side wall.

2. Apparatus for making cementitious structural units comprising a mold having spaced walls and a camber-forming member detachably secured to the top of each of said mold walls, each of said camber-forming members being of gradually increasing height from an end thereof toward the mid-portion thereof and being sectional, each section thereof being tapered in height with the higher end of one section matching the shorter end of an adjacent section so that by appropriate selection of sections camber-forming members of desired length may be formed.

3. Apparatus for making cementitious structural units comprising a mold having spaced walls and a bottom wall disposed therebetween, and a camber-forming member detachably secured to said mold bottom wall, said camber-forming member being of gradually increasing height from an end thereof toward the mid-portion thereof and being sectional, each section thereof being tapered in height with the higher end of one section matching the shorter end of an adjacent section so that by appropriate selection of sections a camber-forming member of desired length may be formed.

4. Apparatus for making cementitious structural units comprising a mold having a wall, and means embedded in said wall terminating at the mold surface for wetting the cement units molded against said wall.

5. Apparatus for making cementitious structural units comprising a plurality of mold side walls, means for suspending said mold side walls, a plurality of mold bottom walls disposed in side-by-side relationship and between said mold side walls and means for suspending said mold bottom walls.

6. Apparatus for making cementitious structural units as defined by claim 5 characterized by a support for said mold walls having means for clamping said mold side walls against said mold bottom walls.

7. Apparatus for making cementitious structural units as defined by claim 5 characterized by

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a frame on which said mold walls are suspendable movable parallel to said mold walls and on which said mold walls are movable sidewise.

8. Apparatus for making cementitious structural units as defined by claim 5 characterized by said bottom mold walls being attached to some of said mold side walls.

9. An apparatus for making cementitious structural units comprising a mold having spaced vertical side walls and a bottom wall and means embedded in and terminating at the surface of one of the walls for forcing a fluid between the bottom wall and one of the said side walls.

10. Apparatus for making cementitious structural units comprising a mold having spaced side walls and a bottom wall, said side walls being separable from said bottom wall, a gasket for sealing at least one of the joints between the side and bottom walls, said gasket comprising a sheet metal strip secured to and projecting from one of said walls, the projecting portion of said strip having a series of closely spaced slits therein and a strip of flexible material secured to the top of said portion of said metal strip, said flexible material pressing against an adjacent mold wall.

11. Apparatus for making cementitious structural units comprising a mold having spaced side walls and a bottom wall and camber-forming means detachably secured to the mold, the camber-forming means constituting part of the molding surface of the mold, being of gradually increasing height from an end thereof toward the mid-portion thereof and being sectional, each section thereof being tapered in height with the higher end of one section matching the shorter

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end of an adjacent section so that by appropriate selection of sections camber-forming means of desired length may be formed.

12. Apparatus for making cementitious structural units comprising a plurality of mold side walls, means for suspending said mold side walls, a plurality of mold bottom walls disposed in side-by-side relationship and between said mold side walls and means for suspending said mold bottom walls, at least some of said means including adjustable means to enable varying of the relative elevations at which said mold side walls and said mold bottom walls are suspended.

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