

Sept. 5, 1933.

P. F. PANDOLFI

1,925,733

CONCRETE BLOCK MOLD

Filed Feb. 11, 1930

3 Sheets-Sheet 1

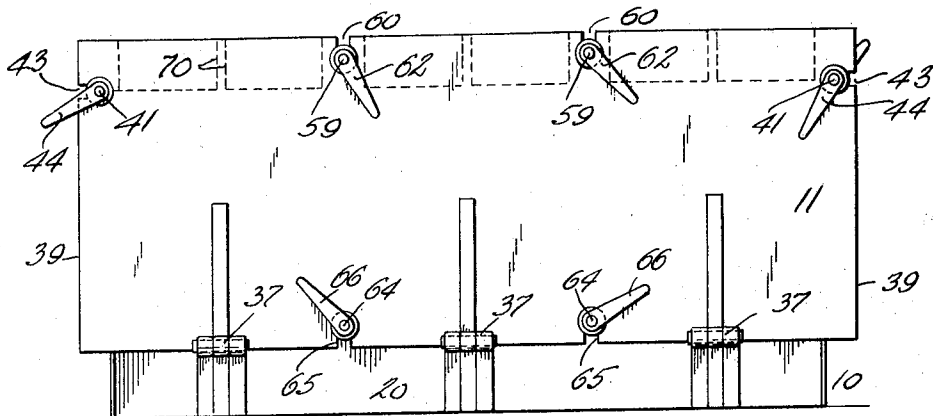


Fig. 1.

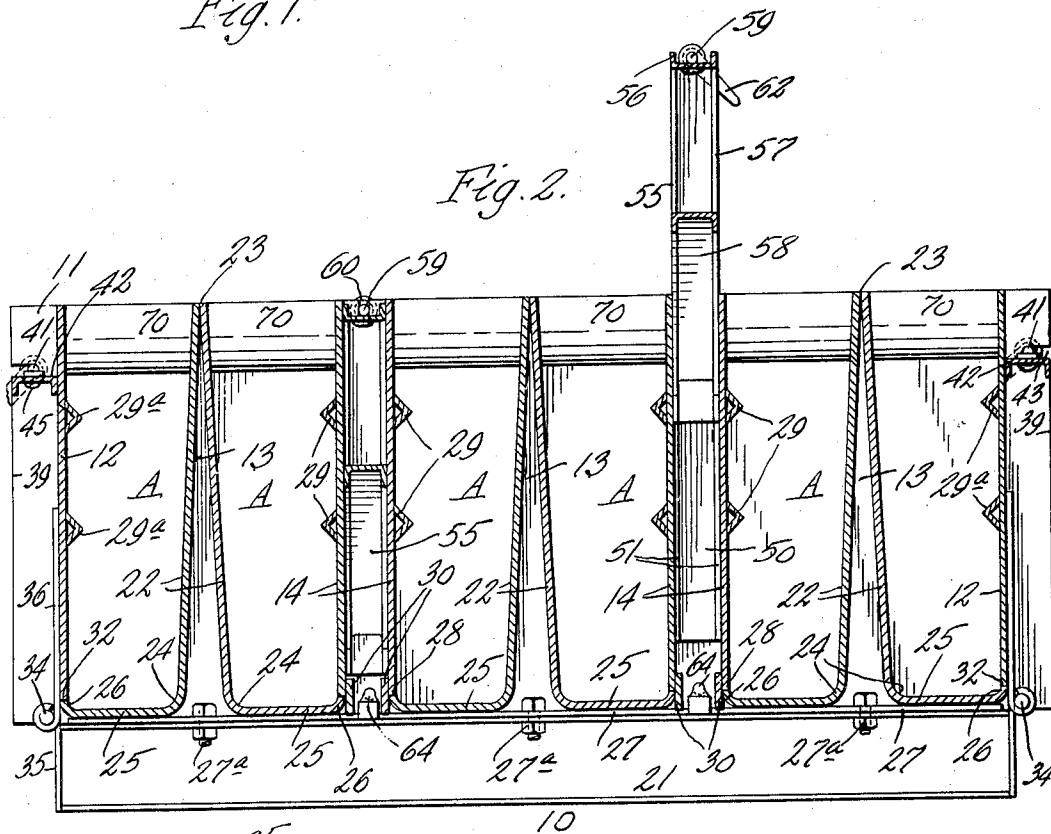


Fig. 2.

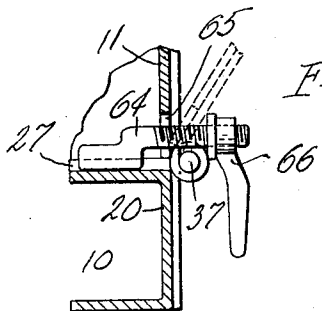


Fig. 3.

INVENTOR.
Paolo Franco Pandolfi
 By *Parker & Rocknow*
 ATTORNEYS.

Sept. 5, 1933.

P. F. PANDOLFI

1,925,733

CONCRETE BLOCK MOLD

Filed Feb. 11, 1930

3 Sheets-Sheet 2

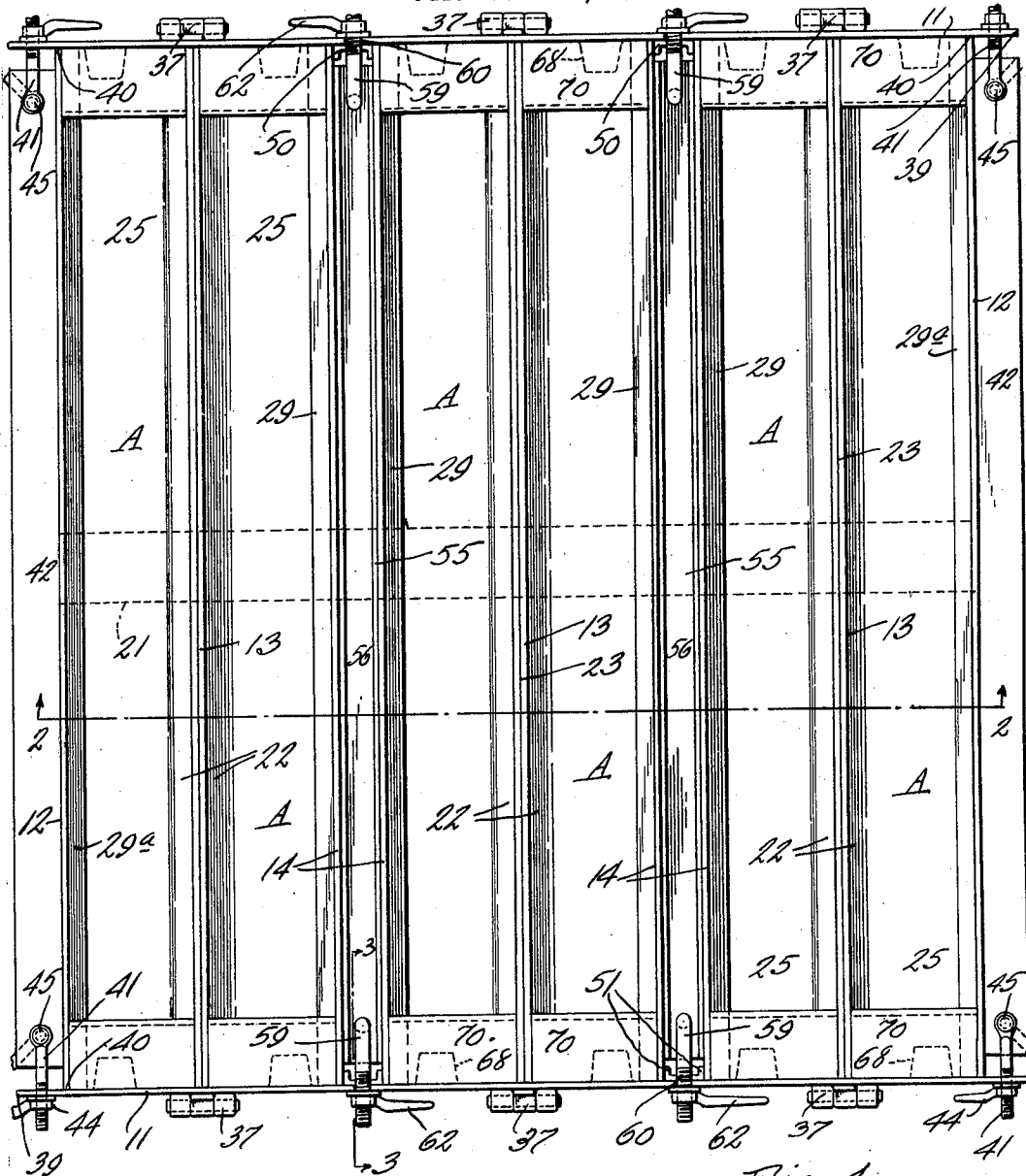


Fig. 4.

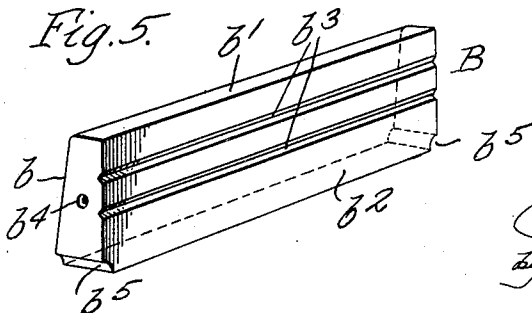


Fig. 5.

INVENTOR.
Carlo Franco Pandolfi
 by *Parker & Prochnow.*
 ATTORNEYS.

Sept. 5, 1933.

P. F. PANDOLFI

1,925,733

CONCRETE BLOCK MOLD

Filed Feb. 11, 1930

3 Sheets-Sheet 3

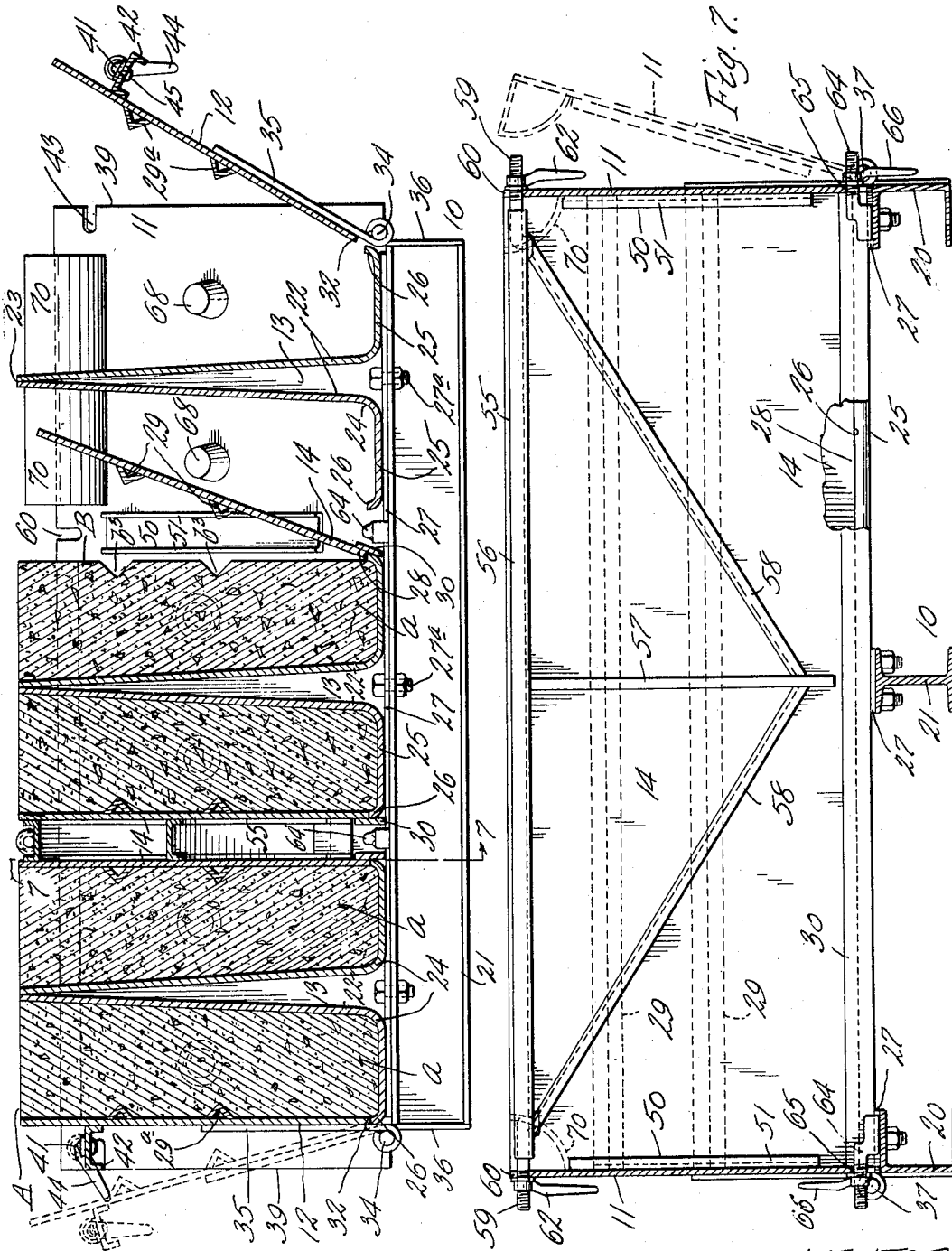


Fig. 6.

Fig. 7.

INVENTOR:
Paolo Franco Pandolfi,
 By *Parker & Rockwood,*
 ATTORNEYS.

UNITED STATES PATENT OFFICE

1,925,733

CONCRETE BLOCK MOLD

Paolo Franco Pandolfi, Buffalo, N. Y.

Application February 11, 1930. Serial No. 427,495

7 Claims. (Cl. 25—121)

This invention relates to a mold or form for casting or molding blocks or bodies from plastic material, such as concrete.

The objects of this invention are to provide
 5 an improved mold or form for casting concrete or other blocks or elements, which is constructed of relatively few parts and is of strong, rugged and durable construction, and which permits the rapid introduction of the concrete or other
 10 material and the removal of the finished blocks; also to provide a mold in which a plurality of blocks or elements may be cast at one time, and which is constructed so as to permit access to and removal of the blocks, when set, by the
 15 detachment of the minimum number of parts of the form; also to construct a form for this purpose, which, while permitting a number of blocks to be formed therein at one time, nevertheless, occupies a minimum of floor space; also
 20 to provide a mold of this character which, while being constructed to permit several blocks to be cast at one time, nevertheless, is so arranged that by a few simple, quick manipulations access is afforded to all of the blocks to permit
 25 their removal.

Other objects are to provide a concrete block mold having movable outer walls, and a plurality of alternating, intermediate stationary and
 30 movable partitions or members forming compartments in which the concrete or other material can be deposited and the blocks formed, and whereby the blocks, when set, can be removed by the release of the movable outer walls and the removal of the movable inner partitions
 35 or members; also to provide novel means for bracing or supporting said movable intermediate or inner members against bulging or deformation in use; and also to improve and simplify the construction of molds or forms for the
 40 purpose stated, in other respects hereinafter set forth and claimed.

In the drawings:

Fig. 1 is a side elevation of my improved mold or form for casting concrete or other blocks,
 45 showing the mold with the parts assembled, and in position for casting the blocks therein;

Fig. 2 is a vertical, transverse section thereof, on an enlarged scale, on line 2—2, Fig. 4, with
 50 one of the removable bracing frames or reinforcing members partially withdrawn;

Fig. 3 is a fragmentary, vertical section, on an enlarged scale, on line 3—3, Fig. 4, showing
 55 a part of one of the movable end plates or walls in released position;

Fig. 4 is a plan view of the mold or form;

Fig. 5 is a perspective view of a concrete block produced in said mold;

Fig. 6 is a transverse, vertical section of the mold, on line 2—2, Fig. 4, with the movable end
 60 plates or walls, one of the outside back plates

or members, and one of the intermediate back plates or members in released position;

Fig. 7 is a vertical section of the mold, on line 7—7, Fig. 6.

In the illustrated embodiment of the invention, the mold or form is constructed to produce blocks or sections of concrete curbing, such as shown in Fig. 5, but it should be understood that the invention is not limited to molds for forming curb blocks, since molds embodying the several features of this invention may be used for molding or casting concrete or other blocks of various forms.

As shown in the drawings, my improved block mold or form comprises a base or support 10, a pair of opposite, transverse end plates or walls 11, one of which is movably arranged and mounted at each end of the base 10, a pair of opposite longitudinal, outer back plates or members 12, also arranged in spaced relation at right angles to the end plates or walls 11, and are also preferably movably mounted at the opposite sides of the base 10. Disposed between the outer back plates or members 12 is a plurality of longitudinal partitions or double face plates or walls 13 rigidly or stationarily secured by lateral bottom walls or portions to and upon the base 10, and alternating with and in spaced relation to pairs of removable upright inner or intermediate partition members or back plates 14, also extending longitudinally of the mold.

When the parts of the mold are in operative position, the end plates or walls 11 and the outer back plates or members 12 extend with their upright edge or corner portions in contact to form a rectangular enclosure with the opposite upright ends or edges of the stationary partitions or double face plates or walls 13 and removable back plates 14 engaging the inner faces of the end walls 11. In this manner, a plurality of separate, parallel, longitudinal compartments A, closed at the bottom and open at the top, are provided into which concrete *a*, for example, can be poured or introduced, see Fig. 6, and which, when set, results in the formation of a plurality of inverted concrete curb blocks B of the form shown in Fig. 5.

The base 10 can be of any suitable construction, that shown comprising a pair of opposite, parallel, outer channels or members 20, and an intermediate I beam or member 21 disposed between the channels 20. These channels and the I beam extend transversely from end to end of the structure.

Each of the partitions or double walls 13, in the construction shown, preferably comprises a pair of metal plates or sheets forming upright walls 22, which, in the present instance, converge towards each other and engage and are welded together along or adjacent the top edges. The

lower portions of these plates are curved at 24 and extend thence in opposite directions to form horizontal bottom walls or portions 25, the edges of which preferably are turned upwardly to form narrow flanges 26 extending parallel with the plate portions 22. The portions 22 and 25 of the double face plates produce in the finished blocks B, the faces *b* and *b'* respectively of said blocks.

To maintain the two parts of each face plate 13 in correct relation, flat strips or members 27 are secured, as by welding, to the bottom faces of the horizontal portions 25 of a double face plate and extend across the space between and connect these portions. There are preferably three of these strips on each double face plate 13, spaced so as to engage upon the top faces of the base channels 20 and base I beam 21.

The partitions or face plates 13 are preferably releasably but rigidly held in correct position relatively to the base and to the members 11 and 12 by bolts or other fastening devices 27a passing through the strips 27 and through the top flanges of said base members 20 and 21.

While the face plates shown are formed of two spaced members 22 having the bottom walls 25 integral therewith, these face plates can be formed of a single upright member and separate bottom walls rigidly connected, the form of these parts depending upon the contour of the blocks required.

Another face *b*² of each block is formed by the aforementioned outer and inner back plates or members 12 and 14, which are of appropriate construction to provide the desired configuration to this face *b*² of the block. In the construction illustrated, each inner back plate or member 14 consists of a flat plate, the lower edge 28 of which engages and rests upon a flange 26 of one of the bottom walls, and extending horizontally between the upper and lower edges of this plate, there is secured, as by welding or otherwise, a pair of angle bars 29 which form in said face *b*² of the finished block longitudinal V-shaped recesses or grooves *b*³ into which grouting or other material may extend when the block is placed in use.

In order to hold the lower edges 28 of the inner back plates 14 in correct alinement and in engagement with the flanges 26 of the bottom walls 25, each of said plates 14 is provided with an offset depending flange or edge portion 30, which, in the present instance, is formed by a separate strip secured to the outer face of the plate adjacent said lower edge and which abuts against the outer face of said flange 26, as shown in Figs. 2 and 6.

The outer movable back plates or members 12 at the opposite ends of the structure are somewhat similar to the intermediate back plates or members 14, each being formed of a flat plate provided with longitudinal parallel angle bars 29a, and the lower edge 32 of which plate is adapted to engage and rest upon the flange 26 of the bottom walls adjacent said members 12. These members 12, however, are preferably connected at their lower edges to the base so as to swing to and from upright position, as shown in Fig. 6, for which purpose hinges 34 are provided, the respective pivotally connected portions 35 and 36 of which are welded or otherwise secured to the plates 12 and the adjacent ends of the base channels 20 and I beam 21.

The transverse end plates or walls 11 are preferably similarly connected at their lower edges by hinges 37 to the upright webs of the channels

20 at the opposite ends of the structure, so as to swing to and from upright position, as indicated in Figs. 3, 6 and 7.

The hinges for the end plates 11 and the outer back plates 12 can, however, be omitted and the said members made entirely removable, if desired.

In order to support the outside walls or plates 11 and 12 of the structure rigidly and securely in upright position, the upright side edges 39 of the plates 11 extend laterally beyond the corresponding edges 40 of the plates 12 so that said edges 40 can engage the inner faces of the plates 11 at the corners of the structure, and means are preferably provided for detachably connecting said plates together. For this purpose, each plate 12 is provided at each end thereof, preferably near the top with a longitudinally extending, horizontal threaded finger or rod 41, preferably pivoted at 45 to the adjacent end of a horizontal channel bar or brace 42 fixed to the outer face of the plate 12. The free end of each finger 41, when the plates 11 and 12 are moved to upright position, is received in a horizontal notch or recess 43 formed in the adjacent edge 39 of the plate 11, and the bottom of which forms a stop to arrest the finger and locate the plate 12 in its intended vertical position. To secure the plates together, clamping nuts or members 44 are provided and operatively engage the threaded ends of the fingers 41, and which, when turned in appropriate direction, abut against the outer faces of the plates 11, thus securely clamping the plates 11 and 12 together. To permit the plates 11 and 12 to be released and moved outwardly from their upright positions, the nuts or clamping members 44 are turned in an opposite direction, and the fingers 41 disengaged from the notches 43 by swinging them horizontally about their pivots 45, thus disconnecting the plates one from another.

As shown in Figs. 4, 6 and 7, each of the movable end plates or walls 11 has secured to its inner face upright spaced channels or members 50, the opposite, inwardly extending flanges 51 of which form locating or position stops for the removable inner back plates or partitions 14.

When assembling the form for the purpose of casting the blocks or other elements B therein, the outer walls or plate members 11 and 12 are moved approximately to their upright positions and loosely connected by the fingers 41 and clamping members 44, before described. The removable inner back plates or partitions 14 are now placed in position with their lower edges 28 and lower retaining strips or members 30 engaging the edges and outer faces respectively of said flanges 26, and with the outer or unobstructed faces of the plates 14 engaging at opposite ends of the plates against the outer faces of the flanges 51 of the channel stop members 50 on the end plates 11, thus correctly positioning the plates 14 in proper operative relation to the other parts of the mold.

In order to support the back plates 14 against warping or bulging outwardly from the pressure exerted by the weight of the concrete or material in the compartments A, removable means in the form of skeleton frames 55 are provided, and which are inserted vertically between and in engagement with the opposed outer or unobstructed faces of the back plates 14 and act as braces or reinforcing members to prevent such

displacement or distortion of the plates. These frames or members 55 can be of any suitable construction.

Each member 55, in the construction illustrated, comprises a horizontal top channel 56, an intermediate upright I bar 57 secured to and depending therefrom midway between its ends, and a pair of diagonal struts 58 of channel or other cross section each of which is rigidly secured to an outer end of the top channel 56 and to the lower end of the upright I bar 57. Each reinforcing or bracing member 55 is provided with fixed, longitudinal threaded fingers or projections 59 which are secured to and extend outwardly beyond the ends of the top channel member 56, and which, when a member 55 is inserted between a pair of back plates 14, are received in slots or notches 60 formed in the upper edge of each of the end plates 11 above and in line with the fixed channels or stop members 50 thereon.

After the removable, inner back plates or members 14 and the bracing members 55 have been placed in correct upright position, as just described, the fingers and clamping members 41 and 44 at the four corners of the structure are now tightened up so as to force the inner faces of the plates 11 into firm contact with the opposite upright edges of the outer and inner back plates or members 12 and 14 and the corresponding edges of the stationary double face plates or members 13.

Clamping nuts or members 62, having screw threaded engagement with the fingers 59 may now be turned up so as to bear against the outer faces of the plates 11 and securely hold the members 55 in place. This procedure also acts to hold the intermediate, upper parts of the plates 11 against bulging.

Fingers or projections 64 fixed upon the top flanges of the base members 20 and projecting outwardly through slots 65 in the lower edges of the end plates 11 and having clamping members 66, may be provided for the purpose of similarly exerting pressure upon the intermediate lower portions of the plates 11 to prevent bulging thereof, see Fig. 3.

The mold or structure is now ready to receive the concrete or other material in the compartments A.

When molding or casting relatively large blocks or members, the end plates 11 may be provided with inwardly extending, fixed projections or blocks 68 for the purpose of forming pockets or recesses b^1 at opposite ends of each block into which tongs or other suitable lifting devices may be engaged, after the blocks have set, for lifting the blocks out of the mold.

It will be readily seen from Figs. 2 and 6 that after all of the parts have been securely positioned and fastened together, the concrete can be easily and quickly poured into the several compartments A to form the desired blocks or elements, and after the latter have set, the outer walls 11 and 12 of the structure can be readily lowered or moved to an inoperative position, as indicated in Fig. 6. The reinforcing and retaining members 55 can now be removed, and the inner back plates or members 14 detached from the blocks by lightly tapping them in a lateral direction to disengage them from the back faces b^2 thereof and permit their removal from the mold. If preferred, these back plates 14 may be left attached to the blocks until after the latter have been lifted out of the

mold, and the back plates 14 then detached from the blocks.

If desired, when forming concrete curb blocks, the movable end plates or walls 11 may be provided with curved plates or members 70 secured thereto adjacent their upper edges so as to extend between and engage the opposed faces of the inner face plates 13 and of the back plates or members 12 and 14, when the parts are assembled. Thus there is formed at each lower transverse corner of a block B, a recess b^5 . When the curb blocks B are placed upon the concrete or grouting where they are to be used, and are pushed or shifted about thereon the correctly align them one with another, grouting will enter into the adjacent recesses b^5 of a pair of blocks, instead of intruding between the adjacent end faces thereof, and thus enable proper positioning or spacing of the blocks one with another.

A mold or form constructed in accordance with this invention, while enabling a considerable number of blocks or elements to be cast at one time by providing the necessary compartments, is, nevertheless, compact and occupies a minimum of space, since blocks of the kind illustrated can be formed on edge. Moreover, the movable side and end walls do not have to be lowered to a horizontal or recumbent position, since it is only necessary to swing them about their hinges to an angular position in which the inner back plates can clear the stops 50, and also the curved plates 70, when such are used.

It should be obvious that various minor changes can be made in the mold without departing from the scope of the invention. For example, the face plates may be formed to produce faces on the blocks or elements of other contours than the inclined face b of the block B illustrated, as long as such plates do not prevent the blocks from being withdrawn. The removable inner back plates and the hinged or movable outer back plates can also be formed to produce back faces of different contours.

The positioning and stop means and the securing devices for the various movable parts of the mold enable the mold to be easily and quickly assembled or taken apart.

I claim:

1. In a form for molding concrete blocks, and the like, spaced end walls, spaced partitions extending from one to another of said end walls, bottom walls extending laterally at opposite sides of and from the lower ends of said partitions and each terminating in a free edge spaced from the free edge of an adjacent bottom wall, back plates disposed with the bottom edge of each engaging the free edge of a bottom wall and with its opposite ends engaging said end walls, thereby forming a plurality of separate compartments for the reception of the material, and means engageable with said back plates and said end walls for bracing said plates and walls against bulging due to pressure of the material thereagainst.

2. In a form for molding concrete blocks and the like, removable spaced end walls, partitions extending from one to another of said end walls, pairs of removable back plates alternating and extending parallel with said partitions, bottom walls extending between the lower ends of said partitions to an opposed back plate so as to thereby form a plurality of compartments for the material, inwardly facing fixed abutments on each

of said end walls which extend between so as to engage and locate the back plates in operative position when said form is assembled, and which when said end walls are removed, permit the individual plates of each pair of back plates to be moved towards each other and out of engagement with the molded blocks to enable the blocks to be lifted out of said mold.

3. In a form for molding concrete blocks and the like, removable spaced end walls, partitions extending from one to another of said end walls, pairs of removable back plates alternating and extending parallel with said partitions, bottom walls extending between the lower ends of said partitions to an opposed back plate, so as to thereby form a plurality of compartments for the material, a removable brace member formed to extend between and engage the adjacent faces of each of said pairs of back plates to prevent distortion thereof due to pressure of material in the compartments, said brace members being connected at their ends to and acting to brace said end walls when the form is assembled and when disconnected therefrom are removable from the mold, and inwardly facing fixed abutments on each of said end walls which extend between so as to engage and locate the end walls in operative position when said form is assembled, and which when said end walls are removed, permit the individual plates of each pair of back plates to be moved towards each other and out of engagement with the molded blocks to enable the blocks to be lifted out of said mold.

4. In a form for molding concrete blocks and the like, a stationary base, a pair of spaced, end walls movably connected thereto, partitions stationarily mounted upon said base in spaced relation to each other and having their opposite ends engaging said end walls, a plurality of removable back plates alternating and extending parallel with said partitions, stationary bottom walls extending from the lower ends of said partitions to the lower ends of said back plates and then extending upwardly to form rests for the bottom edges of said back plates with the faces of said back plates and rests disposed flush with one another and said bottom walls forming with said back plates, partitions and end walls a plurality of separate parallel compartments for the reception of the material, and said back plates having parts engaging said upturned parts of said bottom walls for releasably retaining said back plates in operative, flush relation to said rests and which permits said back plates to be disconnected and moved relatively to said stationary base, said bottom walls and said partitions to permit the molded blocks to be removed from the form.

5. In a form for molding concrete blocks and the like, a pair of spaced, movable end walls, a pair of spaced, movable outer back plates extending from one to the other of said end walls, partitions disposed between and extending parallel with said outer back plates and engaging said end walls, bottom walls extending laterally at opposite sides of and from the lower ends of said partitions, a plurality of pairs of spaced, parallel and removable inner back plates alternating with and in spaced parallel relation to said partitions and resting at their lower ends upon said bottom walls and having their oppo-

site ends engaging said end walls, thereby forming a plurality of separate parallel compartments for the reception of the material, removable bracing members of trussed formation one of which is insertable between and engages the opposed faces of each pair of back plates for bracing the same and which are supported at their ends upon said end walls for preventing distortion of said back plates, releasable means for securing the intermediate portions of said end walls against distortion, and means for releasably connecting said end walls and said outer back plates together so that these members may be disconnected to permit said inner back plates and the molded blocks to be removed from the mold.

6. In a form for molding concrete blocks and the like, a pair of spaced, movable end walls, a pair of spaced, movable outer back plates extending from one to the other of said end walls, partitions disposed between said outer back plates and engaging said end walls, bottom walls extending laterally at opposite sides of and from the lower ends of said partitions, a plurality of pairs of spaced, parallel and removable inner back plates alternating and extending parallel with and in spaced relation to said partitions and engaging at their lower ends with said bottom walls and having their opposite ends engaging said end walls, thereby forming a plurality of separate, parallel compartments for the reception of the material, removable means extending from one to another of said end walls and supported thereby and which extend between so as to engage and brace said inner back plates from distortion due to pressure of the material thereagainst, means for bracing said end walls and outer back plates for a like purpose, and which means are releasable for permitting disconnection of said end walls, and means for releasably connecting said end walls and outer back plates so that these members may be disconnected to permit said inner back plates and the molded blocks to be removed from the form.

7. In a form for molding concrete blocks and the like, spaced movable end walls and means for locking the same in upright operative position, an upright partition extending from one to another of said end walls, bottom walls extending laterally at opposite sides of and from the lower end of said partition, a back plate at each side of said partition and engageable at its lower edge with the free edge of one of said bottom walls and at its opposite ends with said end walls thereby forming separate compartments for the reception of the material, an offset part on each of said back plates abutting against said free edge of the adjacent bottom plate to prevent inward movement of said back plate relatively to said bottom plate, bracing means at the outer side of said back plate for forcibly retaining said offset part in abutting relation to said bottom plate, and fixed stop members on said end walls against which said back plates are also held by said bracing means when said end walls are in operative position, and said bracing means being removable so that upon moving said end walls said back plates may be removed to enable the molded blocks to be taken from said form.

PAOLO FRANCO PANDOLFI.