J. C. VREELAND.

MOLD FOR MAKING HOLLOW BUILDING BLOCKS.

APPLICATION FILED JAN. 22, 1910.

973,323.

Patented Oct. 18, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

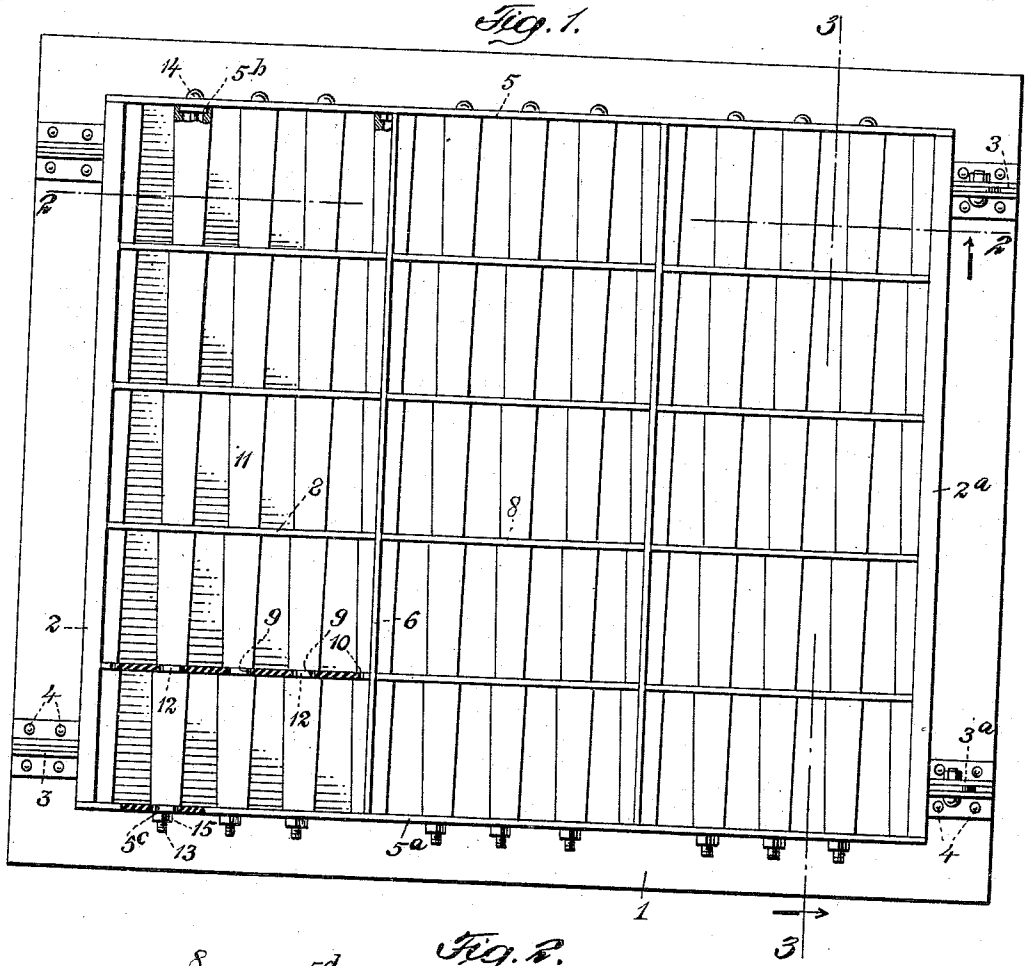


Fig. 2.

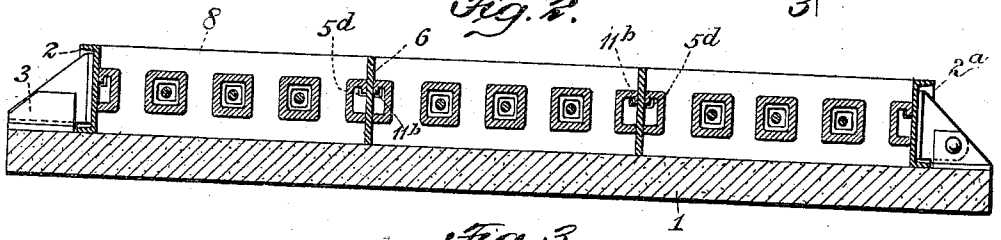
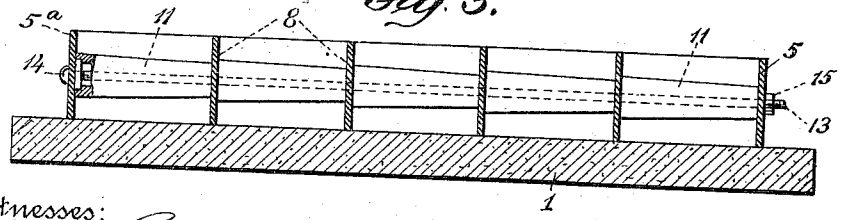


Fig. 3.



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3 SHEETS—SHEET 2.

Fig. 4.

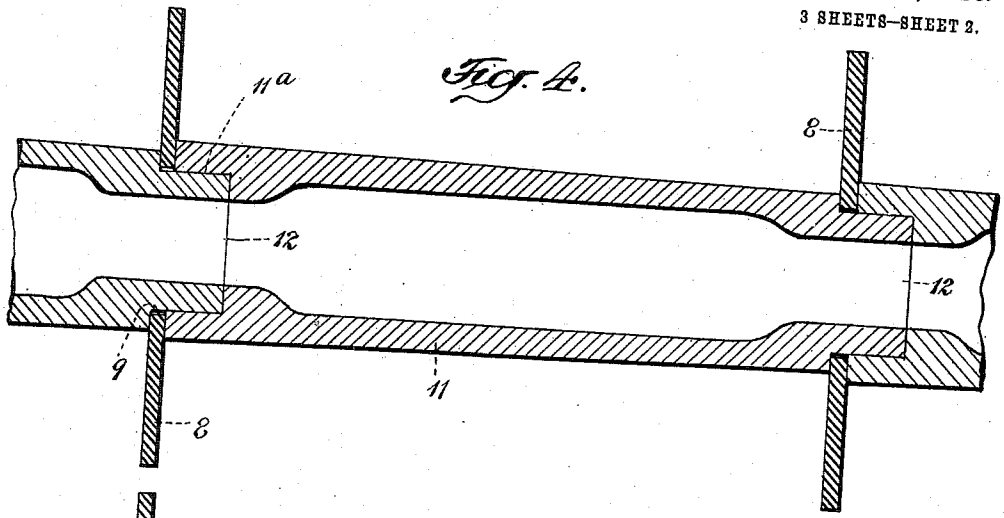


Fig. 5.

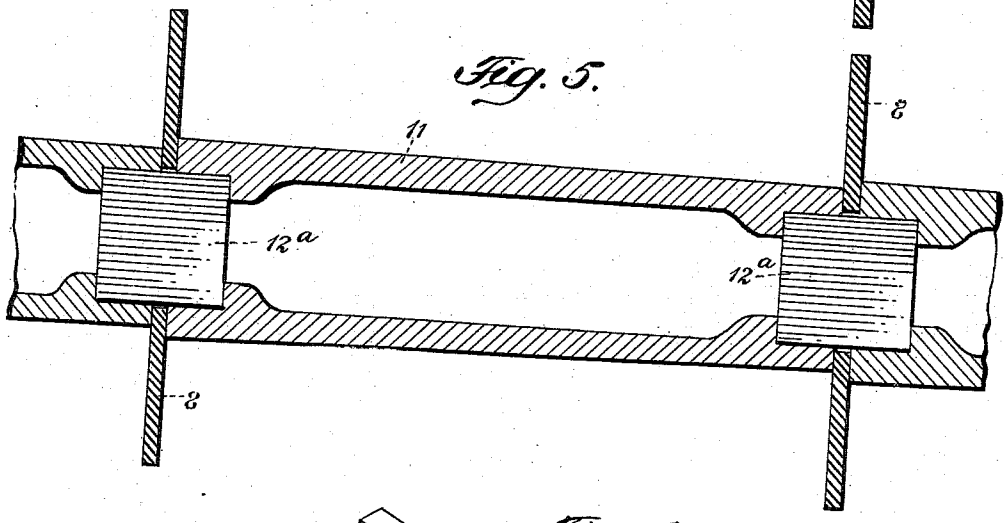
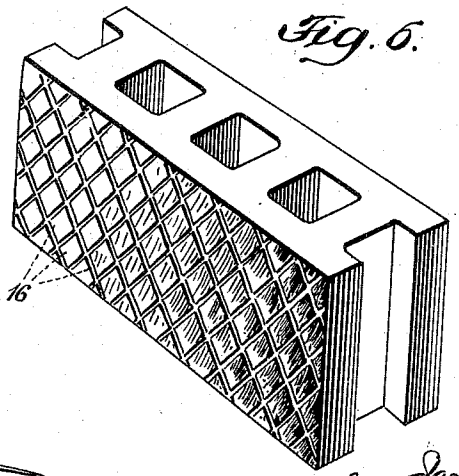


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 7.

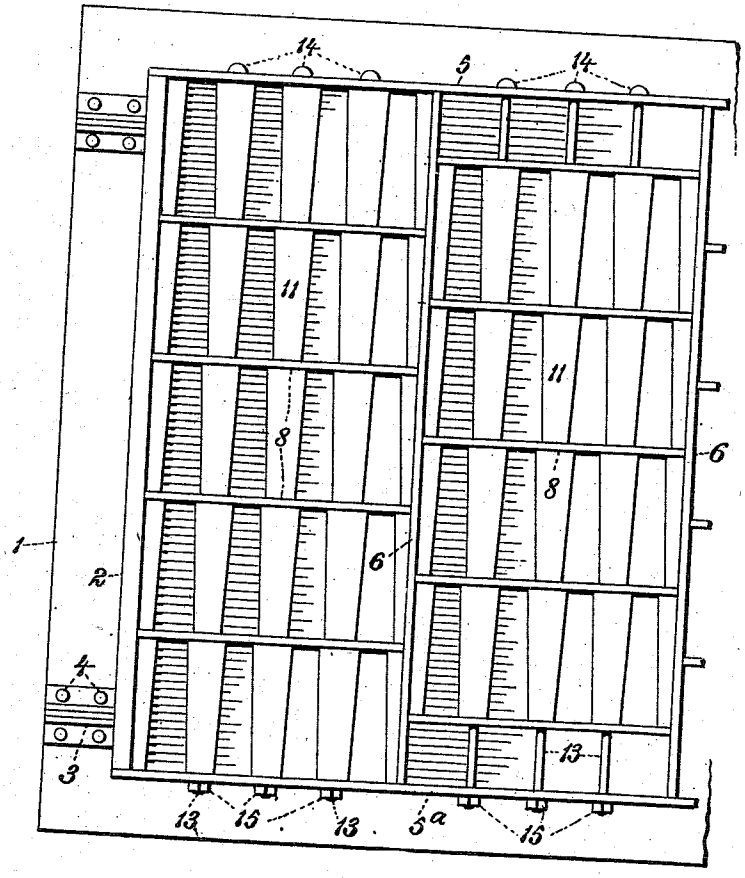
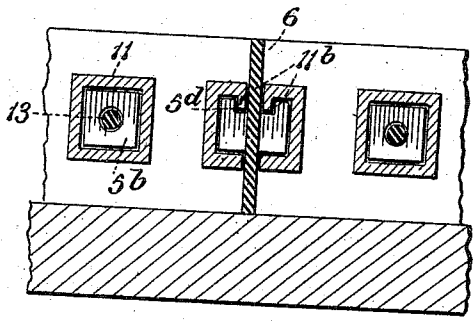


Fig. 8.



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JACOB C. VREELAND, OF NEW YORK, N. Y.

MOLD FOR MAKING HOLLOW BUILDING-BLOCKS.

973,323. Specification of Letters Patent. Patented Oct. 18, 1910.

Application filed January 22, 1910. Serial No. 539,574.

To all whom it may concern:

Be it known that I, JACOB C. VREELAND, a citizen of the United States, and resident of the borough of Bronx, city, county, and State of New York, have invented certain new and useful Improvements in Molds for Making Hollow Building-Blocks, of which the following is a specification.

My invention relates to molds for making hollow blocks of concrete or similar material for building purposes and has for its object to provide a mold comprising sections which may be readily assembled and which are easily separated after the blocks have been formed to permit the finished blocks to be removed.

My improved mold is so constructed as to permit of the formation of a number of blocks simultaneously and to permit its capacity to be increased or diminished as desired without interfering with the effective operation of the mold.

My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a plan view of my improved mold; Fig. 2 is a sectional view thereof on the line 2—2 of Fig. 1; Fig. 3 is a similar view in the line 3—3 of Fig. 1, Fig. 4 is an enlarged sectional view taken longitudinally through one of the cores and showing parts of the two adjacent cores and partitions; Fig. 5 is a similar view of another form of my invention; Fig. 6 is a perspective view of a finished block. Fig. 7 is a partial plan view of another arrangement of my invention and Fig. 8 is an enlarged cross-section substantially on the line 2—2 of Fig. 1.

In the drawings 1 represents the bed of concrete or other suitable material on which the mold is supported and which forms the bottom thereof. A channel iron 2 is maintained in position on said bed by means of braces 3 which are secured to the bed 1 by bolts or rivets 4 or any other suitable fastening devices. A similar channel iron 2^a is removably supported by means of bolts on similar braces 3^a at a point on said bed opposite to the iron 2. These channel irons 2 are arranged parallel to and with their straight faces toward each other and form the extreme side walls of the mold. End plates 5 and 5^a extend from the channel iron 2 to the channel iron 2^a adjacent to the opposite ends thereof and form the extreme end walls of said mold and are preferably both removable although one of said plates if desired may be permanently secured to the ends of either iron 2 and 2^a. At intervals the mold is provided with partition plates 6 arranged parallel with each other and with the channel irons 2 and 2^a and extending from one end plate 5 to the other. These plates 6 are maintained in position by means of cross plates 8 which together with said plates 6 separate the mold into a series of small compartments corresponding to the size of the block intended to be manufactured. The cross plates 8 are formed with spaced apertures or perforations 9 and end recesses 10, the perforations and recesses of all the plates in one series, that is between the channel irons and the next adjacent plates 6 or between two adjacent plates 6, being in alinement with each other.

Preferably hollow cores 11 are arranged between the plates 8 and are provided with reduced end portions 12 adapted to extend through the perforations 9 so as to project slightly beyond plates 8, a half core being similarly located with respect to the recesses 10. These cores are arranged in groups in each compartment and have their opposite ends provided with recesses 11^a adapted to extend over the reduced end portions of the cores in the next adjacent compartment as clearly shown in Figs. 2 and 4. Thus the cores of one group are supported at one end by one of the partitions or plates 8 and at the other or opposite ends by the reduced end portions 12 of the next adjacent group of cores 11, which project into the recesses 11^a. The recessed ends 11^a of the cores forming the groups located in the end compartments adjacent to the end plate 5 are supported by means of blocks 5^b secured to said plate 5 at proper intervals in alinement with the apertures 9. The reduced end portions of the cores forming the groups located in the opposite end compartments adjacent to the opposite end plate 5^a extend through apertures 5^c similar to the perforations 9 of the plates 8 so as to be supported by said end plate 5^a in the same manner as the intermediate series of cores are sup-

ported at one end by the plates 8. The combined cores also serve as a means for maintaining the cross plates 8 in upright position which plates are otherwise free relatively to the adjacent parts of the mold. As will be seen from an inspection of Fig. 4 the said cores 11 are tapered toward the reduced end portions 12 so that a slight pressure from the large toward the reduced end of the cores will easily remove the finished blocks therefrom. The danger of breakage due to an excessive pressure in forcing the blocks from said cores is thus reduced to a minimum.

Tie rods 13 having heads 14 extend at intervals through the cores 11 from one plate 5 to the other, being secured in position by means of nuts 15, and serve to draw the two end plates 5 toward each other against the ends of the channel irons 2 to lock or fasten the structure together in the nature of a rigid frame.

In operation the end plate 5 if removable is first set against the ends of the channel irons 2 and the longitudinal plates 6 are introduced in proper relation to each other. After this has been done the first series of cores is placed in position in the space between the one channel iron 2 and the first plate 6 with the large ends of said cores extending over and supported by the blocks 5^b on the end plate 5. The first cross plate 8 is now moved into position so as to bring the reduced end portions 12 of the first group of cores into the apertures 9 and recesses 10. The enlarged or recessed ends of the second group of cores in this series are now slipped over the projecting portions of the reduced end portions 12 of the first group of cores after which the second cross plate 8 is slipped over the reduced ends 12 of the second group of cores. This operation continues until finally all the plates 8 and cores 11 have been set up whereupon the end plate 5^a is placed in position on the end portions 12 of the extreme right hand groups of cores and the tie rods are introduced through said cores with their screw threaded ends extending through suitable apertures in said plate 5^a ready to receive the nuts 15. These nuts 15 are screwed up against the end plate 5^a to draw said plates 5 and 5^a together as before explained and thus firmly secure the parts in position. The said tie rods may extend through only two series of cores one near each end of the mold or a rod may be provided for each series of alining cores as desired the preferable arrangement being one rod for each series. These cores are made hollow for the sake of lightness and also so as to readily fit together and are arranged in series in alinement and in adjacent parallel groups as clearly shown in Fig. 1 of the drawings. After the parts have been secured together in the manner above described the material or mixture for instance wet concrete of which the blocks are to be made is introduced into the mold so as to fill the spaces between adjacent plates and to completely surround the cores. This material is leveled off by means of suitable implements and then permitted to set and dry. After the said material has become hard the nuts 15 are first removed from the rods 13 and the end plate 5^a is slipped from said rods and from the ends of the cores 11. All the blocks formed in the lower compartments adjacent to the plate 5^a are now free to be removed from the cores, this removal being readily accomplished with little danger of breakage owing to the tapered form of said cores. After all of the first adjacent rows of blocks have been removed the first series of cores and cross plates 8 are taken away thus leaving the second row of blocks free to be taken from the second series of cores and so on until the mold is emptied. All the blocks and cores of one division may first be removed before the blocks and cores of the next division are taken away or the first series of each division may all be carried from the mold and then the second series and so on as desired. To facilitate this removal of the finished blocks the channel iron 2^a may also be taken away by removing the bolts which secure it to the braces 3^a. The cross plates 8 in one row are preferably staggered with relation to the plates in adjacent rows as shown in Fig. 7 so as to distribute the pressure of the material as the blocks are being formed over a greater area and more suitably brace the parts against such pressure. In other words with the cross plates 8 and consequently the compartments in alinement as shown in Fig. 1 the longitudinal pressure of the material of which the blocks are being made is combined and exerted against a single part or two opposite parts of the mold. If however the plates 8 are staggered as shown in Fig. 7 the plates in one row will engage the longitudinal plates 6 at points between the points engaged by the cross plates 8 of the next row will consequently effectively brace these otherwise unprotected portions against any pressure of the material. A maximum of effectiveness is thus secured with a minimum number of parts which may be readily assembled and disassembled for any purpose. The parts are preferably covered with a lubricant so as to prevent binding of the blocks thereon.

Instead of making the cores 11 with reduced end portions 12 adapted to project through the apertures 9, these portions 12 may be omitted in which case the cores in the intermediate compartments between the plates 5 and 5^a are supported by means of pins or blocks 12^a. These pins or blocks 12^a

may be made of any suitable material such as wood, metal etc. and extend through the apertures 9 into the ends of the adjacent cores 11 as clearly shown in Fig. 5. Furthermore while I have shown and described the cores 11 as being hollow, the said cores may be made solid with recesses or depressions at opposite ends to receive either the reduced portions 12 or the pins or blocks 12[a].

My improved mold may be constructed of any suitable material to make any number of blocks simultaneously and if desired only a part of said mold may be used at one time. Also different size blocks may be made either simultaneously or otherwise by simply adjusting the relative positions of the various partition plates.

My improved mold is particularly adapted for the use of what is commonly known as wet concrete, a mixture usually composed of Portland cement, sand and gravel or broken stone in proper proportions. This mixture produces a very tough block particularly adapted for heavy building purposes, and which can be readily reinforced with bars, metal lath and wire embedded in the wet material. The exterior surface of the block which is the upper or exposed surface while the block is being molded, may be cross scratched as shown at 16 in Fig. 6 forming a perfect bond for applying finished stucco, or it may be finished in any manner as to color, texture or character.

To prevent the half cores which have their one end supported on the blocks 5[b] from slipping from the respective supporting blocks, I form each of the blocks intended to support one end of a half core with a depression or recess 5[a] and provide each cooperating half core with a projection 11[b] adapted to fit in said recess. A relative movement between the said block and the core in a lateral direction is thus impossible and said half cores are firmly held in position and prevented from slipping from the supporting blocks.

Changes in the specific construction shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. A mold for making hollow blocks comprising walls, removable lateral partitions arranged to divide said mold into compartments and provided with an aperture, and a core having a recessed end located in each compartment and having its one end extending through the apertures in one of said partitions into the recessed end of the core in the next adjacent compartment.

2. A mold for making hollow blocks comprising walls, removable lateral partitions arranged to divide said mold into compartments and provided with an aperture, and a core having a recessed end located in each compartment and having its one end extending through the apertures in one of said partitions into the recessed end of the core in the next adjacent compartment, said cores being tapered toward one end.

3. A mold for making hollow blocks comprising walls, removable lateral partitions arranged to divide said mold into compartments and provided with an aperture and a core located in each compartment and having a recessed end and a reduced end portion, the reduced end of the core in one compartment extending through the aperture in one of said partitions into the recessed end of the core in the next adjacent compartment.

4. A mold for making hollow building blocks comprising walls, removable lateral partitions arranged to divide said mold into compartments and provided with an aperture, and a core located in each compartment and having a recessed end and a reduced end portion, the reduced end of the core in one compartment extending through the aperture in the one of said partitions into the recessed end of the core in the next adjacent compartment, said cores being tapered toward said reduced end portion.

5. A mold for making hollow building blocks comprising walls, removable lateral partitions dividing said mold into compartments and provided with apertures, and a series of recessed cores in each compartment having a portion extending through the apertures in said partitions into the cores of the next adjacent compartment.

6. A mold for making hollow building blocks comprising walls, lateral partitions dividing said molds into compartments and each provided with an aperture, removable cores having recessed ends and means connected with one core and extending through said aperture into the recessed end of the next adjacent core for supporting said cores on said partitions.

7. A mold for making hollow building blocks comprising walls, lateral partitions dividing said mold into compartments, removable cores and single means engaging said partitions for supporting the adjacent ends of different cores in operative position.

8. A mold for making hollow building blocks comprising walls, lateral partitions forming therewith a compartment, one of said partitions being provided with an aperture, a projection on the other partition and a core having a recessed end arranged to engage said projection and a reduced opposite end adapted to project through said aperture.

9. A mold for making hollow building blocks comprising walls, lateral partitions dividing said mold into compartments, removable cores, single means engaging said partitions for supporting the adjacent ends

of different cores in operative position, and means for securing said walls, partitions and cores together in a single structure.

10. A mold for making hollow building blocks comprising walls, lateral partitions forming therewith a compartment, removable cores, projections on some of said partitions for supporting one end of said cores in position and means for preventing lateral displacement of said cores from said projections.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JACOB C. VREELAND.

Witnesses:

WM. PROSNITZ,

JOHN A. KEHLENBECK.