Feb. 17, 1925. 1,526,667

S. FLAM

MOLD FOR CASTING BLOCKS

Filed Aug. 23, 1922

FIG. 1.

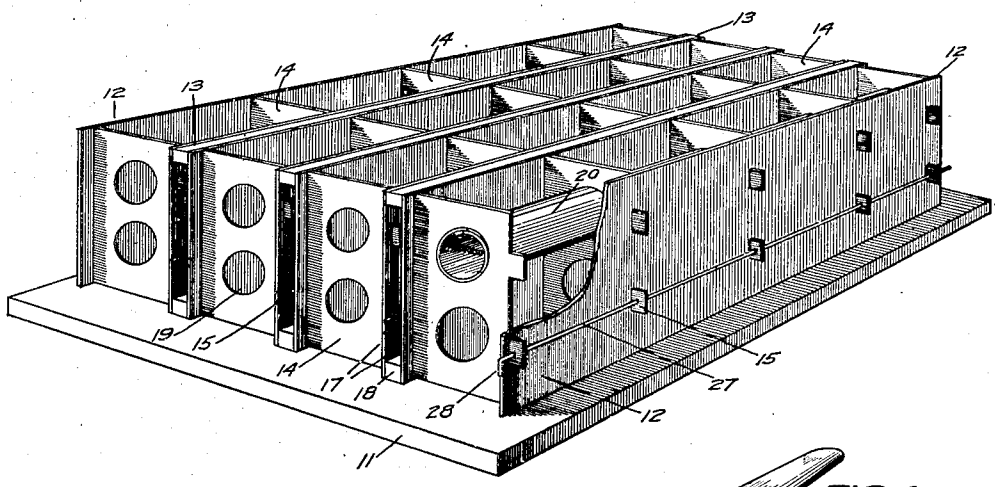


FIG. 4.

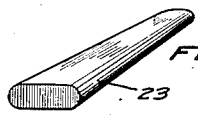


FIG. 2.

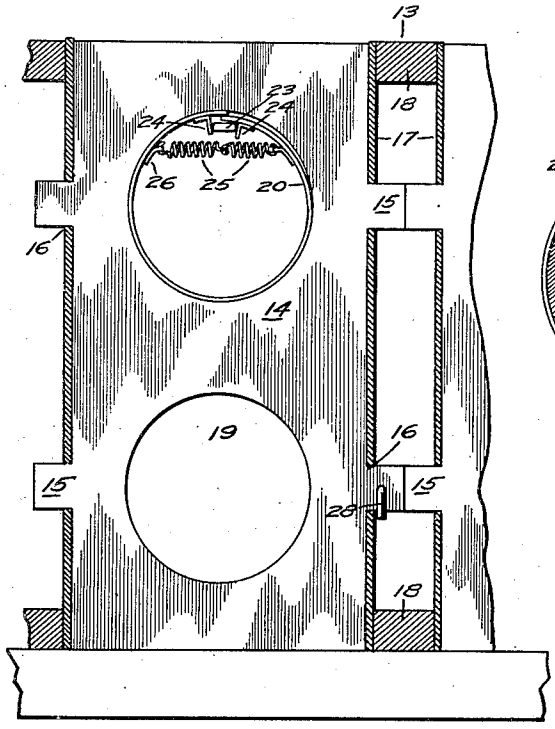


FIG. 3

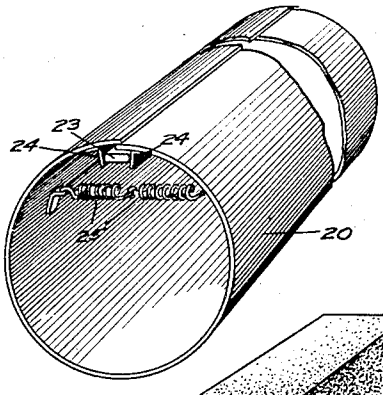
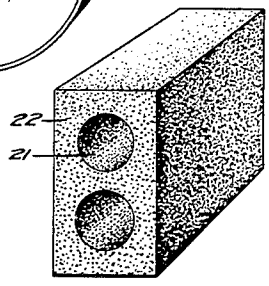


FIG. 5.



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UNITED STATES PATENT OFFICE.

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MOLD FOR CASTING BLOCKS.

Application filed August 23, 1922. Serial No. 583,738.

To all whom it may concern:

Be it known that I, STEPHEN FLAM, a citizen of the United States, and residing in the city of Glendale, in the county of Los Angeles and State of California, am the inventor of certain new and useful Improvements in Molds for Casting Blocks, of which the following is a specification.

My invention relates to the casting of blocks in collapsible molds from plastic materials, such as concrete. More particularly my invention relates to a multiple collapsible mold, arranged to be taken apart after the product is sufficiently hardened so that it does not require further support.

Collapsible molds of this character may be poured quite rapidly from such material as wet concrete. After the blocks are cast it is necessary to allow them to set for a relatively long period, such as a half day or a whole day. To accommodate all these blocks while they are being dried a comparatively large space is required. The more efficient the plant is as regards speed of casting the more important it is to acquire more and more space for accommodating the drying product. The problem of providing sufficient space is still more acute where kiln drying is used. It is one of the objects of my invention to provide a multiple collapsible mold so arranged that a minimum of space is required for its accommodation both before and after pouring.

It is customary to assemble the multiple mold upon the flat top of a movable car, which may be positioned below the discharging spout of a concrete mixer. It is possible with the aid of my invention to utilize most economically the top surface of the car; that is, it is possible to cast a great many more blocks on one car with the aid of my invention that has been done heretofore.

Another important result that I accomplish with the aid of my invention is that the product is more homogeneous and is generally of a better grade.

Blocks of plastic material are now used quite considerably for walls that are papered on the inside, as in ordinary dwellings. When blocks as heretofore manufactured are used, it is essential to provide a coating of plaster before applying the paper, due to the irregularity of the block surface. With the aid of my invention, this irregularity is obviated entirely, and it is quite feasible to apply the wall paper directly to the block surface without the necessity of using a coating of plaster.

It is still another object of my invention to provide a collapsible mold that may be very quickly assembled.

My invention possesses other advantageous features which will be pointed out in the following description, and claimed specifically in the appended claims. Although I have shown in the drawings but one embodiment of my invention, it is evident that it may take many forms, and I do not desire to be limited to the form shown.

In the drawings:

Figure 1 is a perspective view, partly broken away, of a mold as assembled and ready for pouring, except that only a few of the cores are shown;

Fig. 2 is a detail view illustrating the manner of assembling the parts of the mold;

Fig. 3 is a perspective view of a core which may be used in the mold;

Fig. 4 is a perspective view of the wedge for holding the core in place and for expanding it so that it fits the apertures provided for it snugly; and

Fig. 5 is a perspective view of a block as manufactured by the mold.

The mold may be used either with or without cores, but in the present instance the cores are shown for completeness. The mold is assembled on a flat bottom plate 11 which may be the top surface of a car. In general the mold includes a series of flat parallel members 12 and 13, and a series of flat parallel separating plates 14 having their planes substantially perpendicular to those of members 12 and 13. The plates 14 are provided with flaps or projections 15 which are adapted to enter into appropriate narrow slots or apertures 16 in the members 12 and 13. These plates may readily be formed by stamping from flat sheets of steel or iron or the like. By the aid of the projections 15, the plates 14 are properly supported between the members 12, 13.

Those flat members 13 which do not form the outer plates of the series are preferably made up of two thin plates 17 separated by thin spacer bars 18 which may be permanently attached in any appropriate manner, preferably near the top and bottom of the plates 17 either to one or both of these adjacent plates 17. In this way the members 13 have sufficient thickness so that they may accommodate abutting projections 15, as

clearly shown in Fig. 2. The end members 12 may be each formed of a single thin plate as indicated on the drawing.

In the present instance two projections are shown on each edge of a separating plate 14, but it is of course evident that as many of the projection may be used as is necessary for maintaining sufficient rigidity of the mold. I have shown the mold so arranged that the plates 12, 13, and 14 form four walled rectangular compartments corresponding to the shape of the blocks to be cast. The four walls of each compartment have a height corresponding to the longest dimension of the block, and in this way plastic material is made to have a maximum depth in the mold. Since this vertical dimension may be somewhat large, the projections 15 are purposely made numerous enough or long enough to perform their fuctions properly. The support of the plates 14 is due solely to the engagement of these projections in the slots 16. It is not essential that these plates 14 form continuous lines as shown, but it is preferable to place them that way for the sake of uniformity.

The casting of the product with its length vertical gives rise to many advantages. For example, the quality of the blocks is greatly improved, due to the action of gravity upon the material while it is still plastic. Furthermore all shrinkage in the process of setting is taken up in the length of the block, and the width or thickness is maintained uniform. In prior systems the shrinkage is taken up in one of the other dimensions, with the result that uniformity in the wall thickness could not be obtained. The width of the blocks in the present system is accurately determined by the spacing of members 12 and 13. When laid in a wall, the inner surface may be maintained true without the necessity of plastering, and the wall paper may be directly applied to the surface. This results in a great saving in cost. Another advantage is that more blocks may be accommodated in the same space, with an attendant saving of car space and kilns. In so far as this feature of the invention is concerned, it forms the subject matter of an earlier filed application in my name, Serial Number 463,258, filed April 21, 1921, and entitled "Mold for casting blocks." The present application is a continuation in part of this earlier application.

It is customary, in order that the blocks be as light in weight as practicable, to provide cores for the mold, so that one or more holes 21 may be produced in the block 22 after casting, as shown in Fig. 5. The blocks, if made light enough, or with large enough holes, may be termed hollow tile products, but herein the term "block" is used to denote any form of building material, whether solid or cored. In my mold I provide appropriate apertures 19 in one of the series of parallel members, for example in plates 14, for the reception of cores 20. In Fig. 1 I show but one core 20 in place but it is to be understood that before pouring more cores are to be inserted to fill all of the apertures 19. The cores 20 are of tubular form and preferably made of a single overlapped strip of sheet metal, capable of being expanded to fill the apertures 19 snugly.

In order to expand the cores use is made of wedges such as 23, which may be driven between two depending vanes 24 at each end of the core, attached to the inside of the core 20 and on opposite sides of the overlapped seam. These depending vanes may be conveniently formed from angle irons. The free diameter of cores 20 is such that they may be easily inserted in the apertures 19, and afterward expanded. When the cores are to be removed after the blocks have been poured and they have set sufficiently, the wedges 23 are driven out, and the cores contract due to the resilience of the material from which they are made. It is then a simple matter to remove the cores. In order to enable the cores to contract more easily and separate from the blocks, I prefer to use a plurality of springs 25 at each end of the cores which are placed in tension when the wedges 23 are driven in place, and act to contract the core. These springs are linked to each other, and at the end that is not linked they are anchored as by means of the hooks or eyes 26 to the inside of the core 20. These springs are preferably so designed that there is no appreciable tension placed on them when the cores 20 are in their free condition, but are placed in tension as soon as the core is expanded, and act with considerable force to separate the core from the block while the wedges are being driven out. A pair of springs are placed at each end of the core to secure uniformity in the contraction of the core. This spring construction assists in speeding up the assembly of the mold and separating it from the cast material. Furthermore since it is unnecessary to resort to hammering or the like for removing the cores, these do not deteriorate appreciably even after continued use.

In order to facilitate the assembly of the mold, I provide for a locking arrangement of the plates 14 in the members 12 and 13. This arrangement in the present instance is shown as a long rod or wire 27 having handle portion 28, engaging apertures in one of the flaps 15 of each plate 13. The insertion of the rod 27 makes it impossible for the flaps 15 on plates 14 to be pulled out of the slots 16. The rod is inserted by hand into the aperture of each plate 14 as it is

assembled with the members 12 and 13, and ordinarily these plates are assembled in succession one behind the other in the same row, so that each of the rods 27 may be inserted through all the flaps which cooperate with it before another rod need be manipulated.

The manner of use of my invention is readily understood from the foregoing description. Due to the vertical arrangement of the mold compartments, a great saving in space is effected while pouring the product, as well as while it is in the "setting" period within the mold. A homogeneous, dense product is obtained, due to the depth of casting. This is of especial importance in wet concrete casting, since in the ordinary forms where the concrete has a depth the equivalent of the height of the block, air or water holes are apt to occur. With the present arrangement such occurrences substantially never amount to serious defects. Another great advantage resides in the possibility of obviating the need of applying plaster to the inside of the wall before the wall paper is placed thereon. The spring construction at the ends of the cores 20 makes it possible to separate the cores quickly from the blocks. The use of the rods 27 for holding the plates 14 to the members 12 or 13 renders the liability of displacement of the plates during assembling extremely small. The entire mold is especially suited for rapid assembling and collapsing.

I claim:

1. In a collapsible mold for forming blocks from plastic material, a plurality of flat parallel plates, a plurality of flat separating plates having a plurality of projections on each edge entering into apertures in the parallel plates, and a plurality of cores extending through the separating plates, the separating plates and parallel plates having a height corresponding to the length of the block and forming vertical rectangular compartments through which the cores extend in a horizontal direction, there being at least two cores in each compartment arranged one above the other.

2. In a collapsible mold for forming blocks of plastic material, a series of flat parallel members forming a plurality of rows, and separating plates in the rows, each of the parallel members comprising a pair of thin plates and spacing strips between the plates, whereby projections formed on the edges of the separating plates may enter slots formed in the thin plates into the space formed between the pair of plates.

3. In a mold for forming blocks of plastic material, a series of flat parallel plates forming a plurality of rows, spacers for providing a space between those members that form the sides of adjacent rows, separating plates in the rows having projections entering into the space provided by the spacers, and passing through apertures in the parallel plates, and means for holding the parallel plates and separating plates together.

In testimony whereof, I have hereunto set my hand.

STEPHEN FLAM.