

July 21, 1942.

B. LEACH

2,290,339

BLOCK MOLD

Filed Oct. 26, 1938

2 Sheets-Sheet 1

FIG. 1.

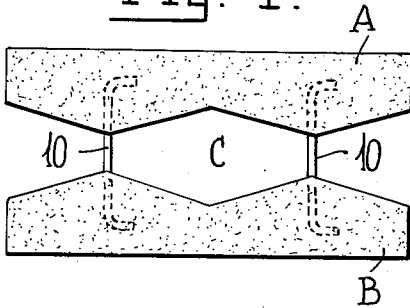


FIG. 2.

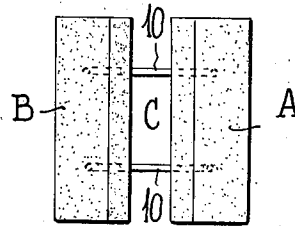


FIG. 3.

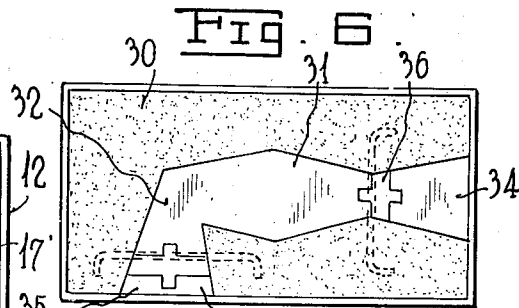
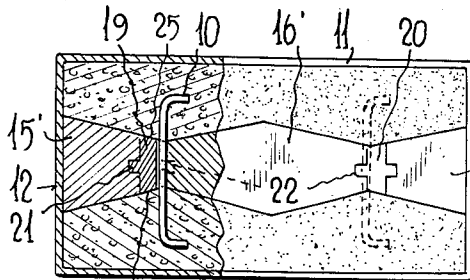


FIG. 4.

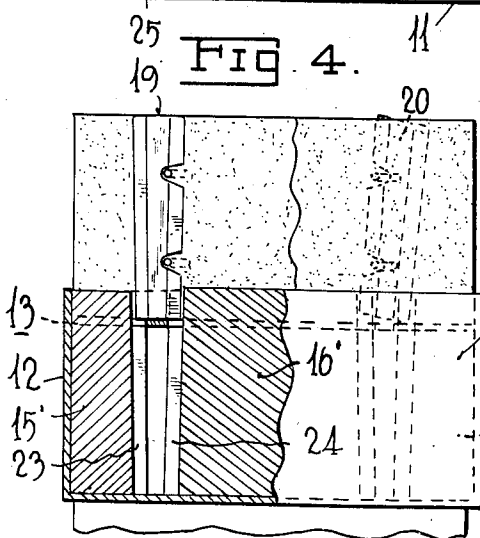


FIG. 7.

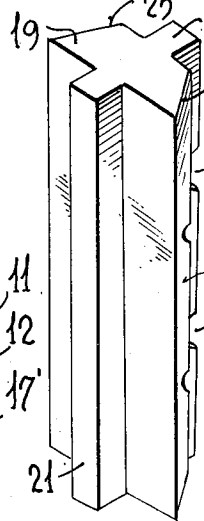


FIG. 8.

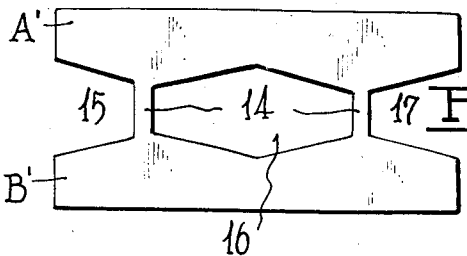
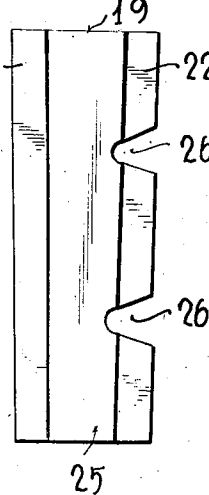


FIG. 5.

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Fig. 9.

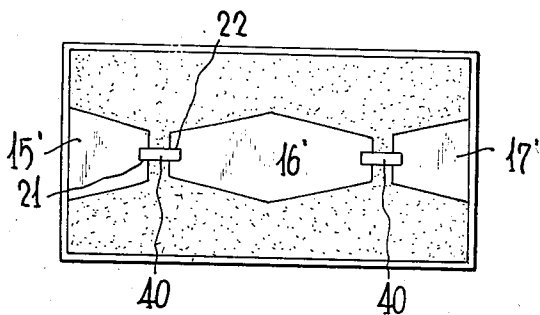


Fig. 11.

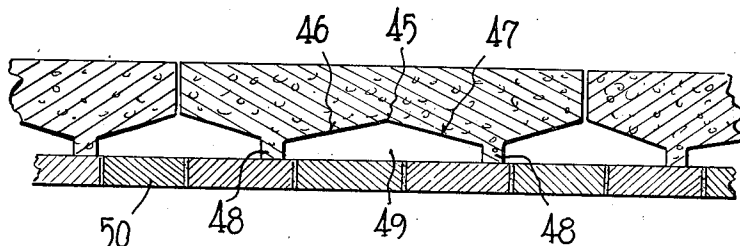
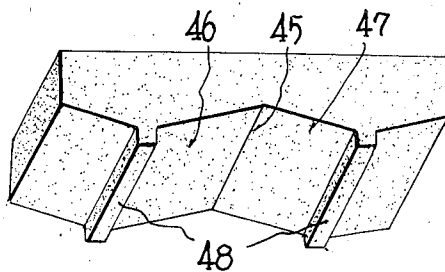


Fig. 10.



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## UNITED STATES PATENT OFFICE

2,290,339

## BLOCK MOLD

Bruce Leach, Lemoyne, Pa.

Application October 26, 1938, Serial No. 237,120

6 Claims. (Cl. 25—121)

This invention relates to the manufacture of concrete blocks and has particular reference to an improved method and an apparatus for making such blocks.

Molded concrete blocks, such as used for building walls, have been made for many years and usually consist of a rectangular shaped block of predetermined size having a plurality of apertures extending vertically therethrough. These apertures not only save material and make the block lighter in weight but also provide dead air spaces in the wall built therefrom, and to some degree lessen the absorption of moisture through the wall. Due however, to the integrally formed and transversely extending webs between the apertures, these blocks are not entirely waterproof, as rain can seep from the outer face of the block through these webs to the inner face, thus making the interior of the building damp.

In order to overcome the aforementioned difficulty, an improved type of block has been devised which is devoid of transversely extending webs of a moisture transmitting character. This improved form of block consists of what might be termed two half blocks which are separated transversely by a longitudinally extending air space, and the two half blocks are tied together by a plurality of metal rods embedded therein when the block is molded. A wall constructed with this improved type of block is absolutely dry on the inner surface as the metal tie rods will not transmit the moisture from the outer half block to the transversely separated inner half block.

While this improved type of block is vastly superior to the old style block, it is also more expensive to manufacture, as the mold faces must be dropped or swung away from the block in order to release the block from the mold. Hence considerable time is wasted in dropping and reassembling the mold for each block that is molded and this adds measurably to the production cost.

It is the primary object of the present invention to provide an improved form of mold for manufacturing the aforementioned concrete blocks and a method of making the blocks whereby the sides of the mold need not be moved or disturbed in order to release the block from the mold.

Another object is to provide an improved form of mold utilizing stationary cores and movable strip cores together with a pallet whereby when the pallet is elevated from the mold, the movable strip cores will be elevated above the sta-

tionary cores to permit them to be easily and quickly removed so that the molded block may be readily released from the mold.

Another object is to provide a mold of the aforesaid character which may be easily and quickly operated to assemble the parts for receiving the concrete mix, or release the molded block from the mold, thereby permitting the blocks to be easily and quickly manufactured in a minimum time.

A further object is to provide a mold of the aforesaid character which shall consist of few parts that are simple in construction, inexpensive to manufacture, and which are sturdy in construction and not apt to be injured during the molding operation.

A still further object is to provide a novel form of backing block for a building wall which shall be easy to place in position by the mason and which shall effectively prevent the transmission of moisture from the facing to the interior of the wall.

With the foregoing and other objects in view, the invention may be stated to consist in the various novel features of construction and arrangement or combination, and the method of making the block, all of which will be fully described hereinafter and pointed out in the appended claims.

In the drawings accompanying and forming a part of this application,

Figure 1 is a top plan view of a block made in a mold of my improved construction and according to my method;

Figure 2 is an end elevation thereof;

Figure 3 is a top plan view with parts broken away of the block in the mold and ready for removal therefrom;

Figure 4 is a side elevation with parts broken away showing the block elevated from the mold and in a position to remove the stripper cores;

Figure 5 is a plan view of the pallet;

Figure 6 is a top plan view of a corner block in the mold;

Figure 7 is a perspective view of one of the stripper cores;

Figure 8 is a side elevation thereof;

Figure 9 is a top plan view of two backing blocks in a mold;

Figure 10 is a perspective view of one of the backing blocks; and

Figure 11 is a horizontal sectional view through a wall employing my improved backing block.

Referring to Figures 1 and 2 wherein the improved form of building block is illustrated, it will

be noted that this type of block comprises two half blocks A and B which are laterally separated by a continuous air space C and tied together by metal rods 10 embedded in the concrete. This type of block is in demand in the building trades as a wall constructed therefrom is absolutely moisture proof on the inside due to the air space C entirely separating the two concrete halves and the non-moisture conducting tie rods 10 unite the two halves into a rigid type of block. Furthermore, a wall constructed with this type of block is an excellent thermal barrier because of the continuous air space C between the inner and outer surfaces. The effect is a wall within a wall which is separated by a continuous air space that is devoid of inter-connecting concrete webs.

While this type of concrete block is a decided improvement over the old style having integral concrete webs instead of the metal rods, the improved block is more expensive to manufacture, as the block cannot be released from the mold without removing one or more mold walls. The additional time required for breaking down and reassembling the mold slows up production and adds to the cost of manufacture.

With my improved type of mold and method of making these blocks, the mold walls need not be removed and the blocks may be made with substantially the same speed as other less desirable types of blocks and therefore at a great saving over present methods.

A mold for carrying out my invention comprises the usual or any approved rectangular mold box having side walls 11 and end walls 12. Arranged within the bottom of the mold is a pallet 13 of the shape illustrated in Figure 5. It will be noted that this pallet, which may be made of wood, metal or other suitable material, is of substantially the same shape as the finished block in top plan view. The sides A' and B' correspond to the concrete halves of the block and these are tied together by integrally formed webs 14 that are located beneath the removable stripper cores to be referred to hereinafter. The cut-out portions 15, 16 and 17 of the pallet receive the stationary cores also to be described hereinafter.

Within the mold box are located three stationary cores 15', 16' and 17' and to removable stripper cores 19 and 20. When these five core elements are assembled in the mold, they define a continuous core of the shape of the air space C of the finished block as will be apparent from Figure 3.

In order to accurately locate the stripper cores with respect to the stationary cores, I provide interengaging portions on these parts. As shown particularly in Figures 7 and 8, these interengaging portions may be in the form of vertically disposed ribs 21 and 22 formed on opposite surfaces of each stripper core and which engage in complementary shaped grooves 23 and 24 formed in the abutting end walls of the adjacent stationary cores. In this manner, the sloping or angularly disposed side walls 25 of the stripper cores will be flush with, and form unbroken continuous surfaces with respect to the side walls of the stationary cores 15' and 17'.

The inner wall and web 22 of each stripper core is notched at 26 to receive a pair of vertically spaced metal tie rods 10. As shown particularly in Figure 8, the inner wall defining each of these notches is preferably rounded to conform to the cross-sectional shape of the tie rod and the

upper and lower walls defining the entering portion of each aperture 26 diverge outwardly to provide clearance when removing the stripper cores as will be described hereinafter. It will also be noted from Figures 4 and 8, that each stripper core is preferably tapered from top to bottom to provide the usual clearance when withdrawing the cores from the mold.

The method of making this type of concrete block in my novel mold will now be described. It will be assumed that the mold box with stationary cores 15', 16' and 17' are in position. A pallet 13 is first placed in the bottom of the mold over the stationary cores. A tie rod 10 is then slipped into each of the notched apertures 26 of each stripper core 19 and 20. These stripper cores are then inserted into position in the mold box with the ribs 21 and 22, engaging the vertical recesses 23 and 24 respectively in the stationary molds. The concrete mix is then poured into the mold and tamped in the usual manner, thereby forming the block. When the block has been formed, it is elevated from the mold box and stationary cores by upward pressure on the pallet in any suitable manner well known to those skilled in the art. As the concrete block is elevated on the pallet, the webs 14 thereof will also elevate the stripper cores 19 and 20 with the block. When the block is elevated to a position substantially as shown in Figure 4, the stripper cores 19 and 20 may be easily and quickly removed by tilting the top of each core outwardly as shown in dotted lines in this figure. Each stripper core is thus released from the stationary cores by reason of the clearance due to the taper of the core bodies, and from the tie rods 10 by reason of the diverging walls of the apertures 26. After the stripper cores have been removed, the molded block may be transferred to a drying room or other place on the pallet. Another pallet is used with the same stripper cores for molding the next block.

In Figure 6, I have illustrated a corner building block 30 having a centrally located stationary core 31 that is formed with an end portion 32 arranged substantially at right angles thereto. The other stationary cores 33 and 34 are similar to the stationary cores 15' and 17' previously described except that the core 33 is of less depth due to the right angle formation of the central core 31. The stripper cores, indicated at 35 and 36, are also similar to stripper cores 19 and 20 previously described except that core 35 is slightly wider than core 36 due to the aforementioned right angle construction. A pallet, not shown, is also used with the mold and such pallet follows the shape of the concrete portions of the corner block with webs located beneath the stripper cores 35 and 36 as described in connection with the pallet 13. The corner block is molded in the manner previously described in connection with the block and mold illustrated in Figures 3 and 4.

In Figures 9-11, I have illustrated a backing block which may be also made in the molds previously described.

Referring to Figure 9, it will be seen that instead of stripper cores 19 and 20, I insert a pair of plain rectangular cores 40 in the grooves 21 and 22 of the stationary cores 15' and 16' and also between cores 16' and 17'. This arrangement of cores 15', 40, 16', 40 and 17' divides the mold in half and results in two individual backing blocks being molded simultaneously. A suitable pallet similar to that illustrated in Figure 5,

for example, is used and when the molded block is ejected from the top of the mold, the rectangular removable core pieces 40 may be easily and quickly withdrawn. The resulting product is two individual blocks, each shaped as shown in Figures 10 and 11.

A backing block such as illustrated in Figure 10, is particularly favored by the mason laying the wall for several reasons. One of the prime reasons is that he can easily and quickly ascertain the central portion of the backing block by the line 45 and thus grasp the block from the top edge over the line. Thus when he places the block in position on the wall in the bed of mortar, it will be horizontally disposed and require a minimum of trueing up. Another important reason is that due to the angularly disposed inner surfaces 46 and 47 and the projecting ribs 48, a pocket or aperture 49 is provided for the hand of the mason when the block is positioned against the facing wall 50. Thus there is no danger of mashing his fingers, or having to release his hold on the block before it is in position. It is thus evident that backing blocks of this shape can be accurately laid in a minimum of time and effort.

In addition to the above features, the block provides a substantially waterproof inner wall as the only points of contact between the backing blocks and the face of the wall are the ribs 48. If, due to extreme climatic conditions, it is desired to prevent the small absorption which may occur at these points, this may be easily accomplished by dipping or painting the ribs 48 with hot tar or other water proofing material.

While the present invention is adapted primarily for blocks molded from concrete, it is obvious that it could be applied equally well to blocks molded from other materials such as glass or any of the plastics or similar materials.

What I claim is:

1. A mold for a block of the type that has a longitudinally extending air space, said mold including stationary cores arranged in longitudinal spaced relation in the mold, and stripper cores interposed between the stationary cores, said stripper cores being tapered inwardly toward the bottom of the mold to facilitate their removal from the mold with the molded block.

2. A mold for a block of the type that has a longitudinally extending air space, said mold including a centrally positioned stationary core and stationary cores arranged at opposite ends of the mold, a stripper core interposed between each end core and said central core, said stripper cores and said stationary cores having interengaging portions to accurately position said stripper cores

with respect to said stationary cores, said stripper cores being removable from the mold with the molded block.

3. A mold for a block of the type that has a longitudinally extending air space, said mold including a centrally positioned stationary core and stationary cores arranged at opposite ends of the mold, a stripper core interposed between each end core and said central core, said stripper cores each having notched apertures adapted to receive and position tie rods to be embedded in the block intermediate the ends of the mold, and interengaging means between said stripper cores and said stationary cores to accurately position said stripper cores in the mold, said stripper cores being removable from the mold with the molded block.

4. A mold for a block of the type that has a longitudinally extending air passage and tie rods extending transversely of said passage, said mold including a centrally positioned stationary core and stationary cores arranged at opposite ends of the mold, stripper cores interposed between said stationary cores, interengaging portions on the stationary and stripper cores to accurately position the latter, said stripper cores having notched apertures adapted to receive and position transversely extending tie rods to be embedded in the block intermediate the ends thereof, and a pallet adapted to seat in the bottom of the mold and having apertures adapted to receive the stationary cores and web portions located beneath said stripper cores whereby when the pallet and molded block is raised from the mold, the stripper cores will be elevated with the molded block.

5. A mold for a block of the type that has a longitudinally extending air space, said mold including a centrally positioned stationary core and stationary cores arranged at opposite ends of the mold, and stripper cores interposed between the stationary cores, each of said stripper cores having notched apertures adapted to receive and position transversely extending tie rods to be embedded in the block at points substantially equidistant from the center and each end of said block.

6. A mold for a block of the type that has a longitudinally extending air space, said mold including stationary cores arranged in longitudinally spaced relation in the mold, and stripper cores interposed between the stationary cores, said stripper cores being tapered longitudinally of the mold to facilitate their removal from the molded block.

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