Aug. 28, 1928. 1,682,359

F. J. STRAUB

METHOD OF MAKING CONCRETE BUILDING BLOCKS

Filed Nov. 16, 1926 2 Sheets-Sheet 1

Fig. 1.

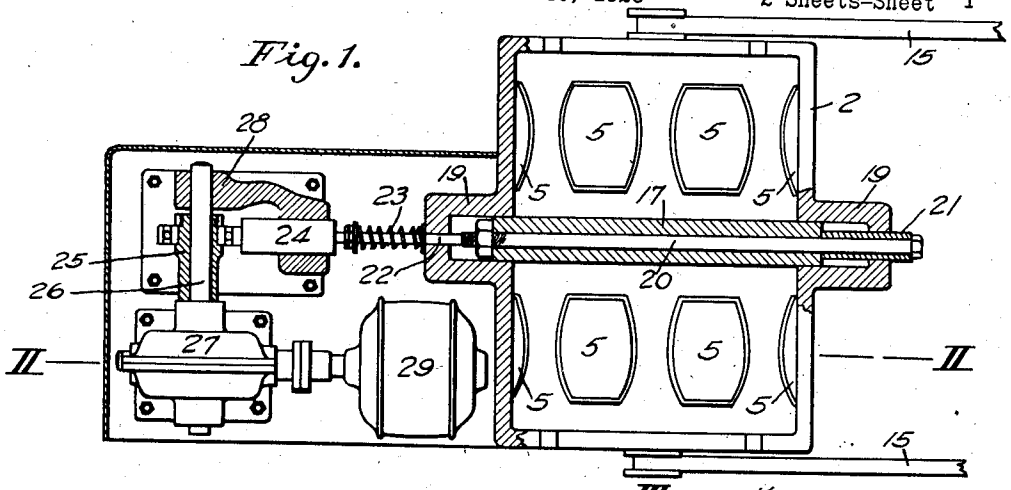
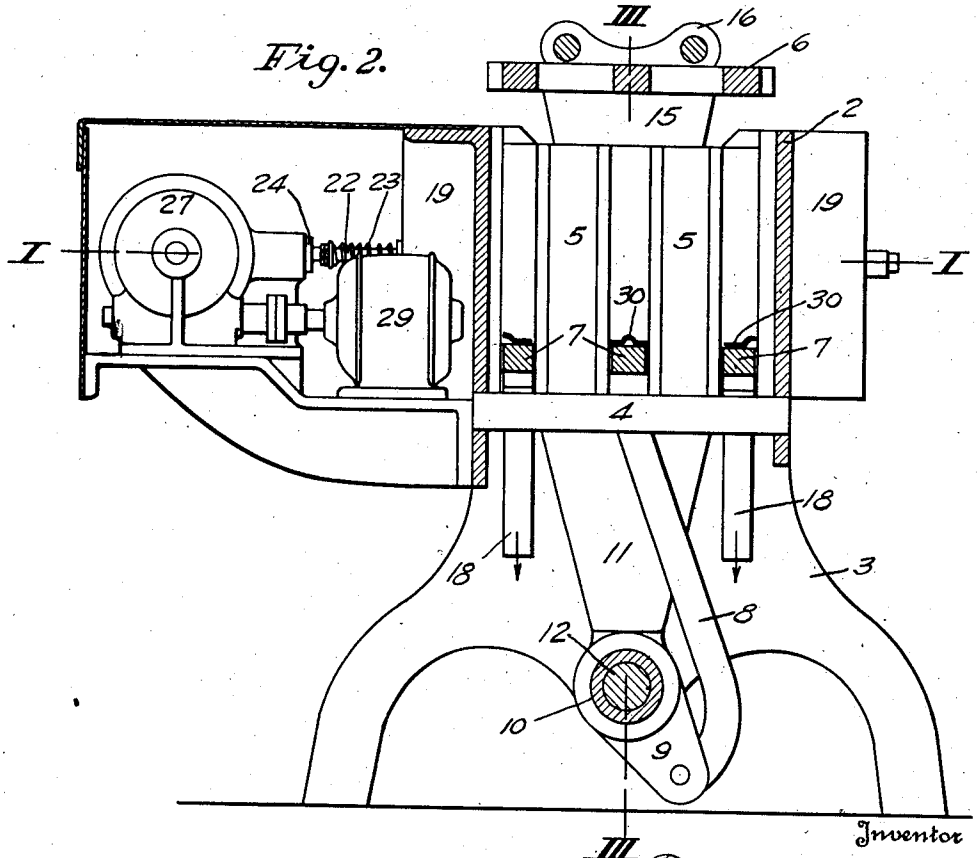


Fig. 2.



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Fig. 3.

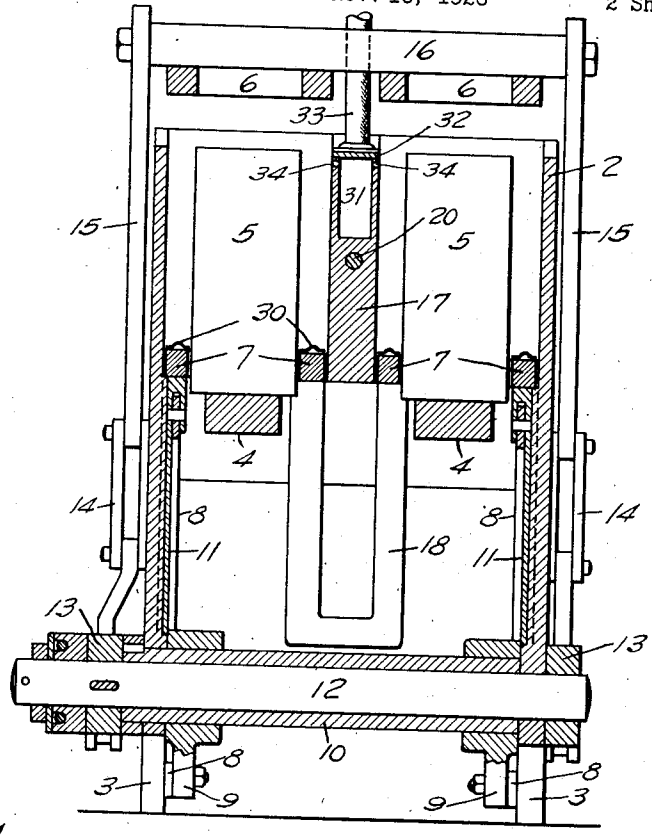


Fig. 4.

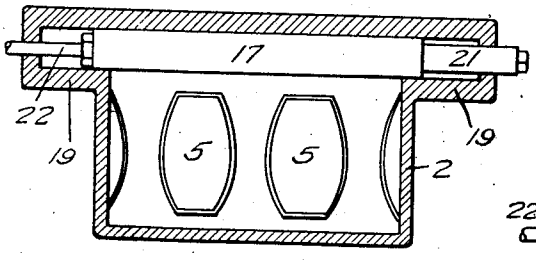


Fig. 5.

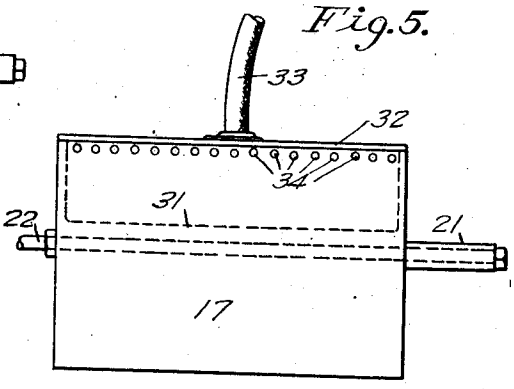
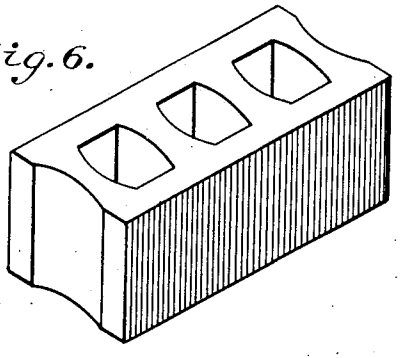


Fig. 6.



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Patented Aug. 28, 1928. 1,682,359

UNITED STATES PATENT OFFICE.

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METHOD OF MAKING CONCRETE BUILDING BLOCKS.

Application filed November 16, 1926. Serial No. 148,677.

My invention consists of an improved process or method of making concrete aggregate building blocks and the like.

It has for its object to effect, in connection with a finishing or smoothing action on the face of the block in formation, an impregnation into and partially through one of the faces of the block, of a waterproofing or filling liquid or substance, whereby to provide for increased weather resistance and at the same time improve the surface appearance.

The object in view is accomplished by means of a relatively movable plate or wall member of a molding machine, adapted to be oscillated or reciprocated during the formation of the block within the mold, and to furnish to such face a supply of impregnating liquid under pressure, across the entire area of one or more sides of the block, while leaving the other faces as ordinarily made.

In the drawings illustrating the invention, in connection with a standard multiplex block machine, I provide a special smoothing and liquid applying wall forming a partition in a double block machine, or at one side in a single block machine. It will be understood, however, that the invention is not specifically limited to any particular machine, design or construction, the invention consisting in a block having an impregnated smoothed surface, and in the method or process of securing such result.

Referring to the drawings:

Fig. 1 is a part plan part horizontal section on the line I—I of Fig. 2, showing a machine adapted to produce the improved block;

Fig. 2 is a longitudinal sectional view on the line II—II of Fig. 1;

Fig. 3 is a vertical cross section on the line III—III of Fig. 2;

Fig. 4 is a partial view like Fig. 1, showing a modified construction of fluid supply wall in a single block machine;

Fig. 5 is a face view in elevation of the fluid supply wall;

Fig. 6 is a perspective view of a block embodying the invention.

The mold 2 of the machine is mounted on frame 3 and is provided with the usual core bridge 4, cores 5 and pressing plate 6 of standard construction, except as to the modification in the mold, hereinafter described.

Bottom plates 7 move upwardly and downwardly around the stationary cores 5 by means of links 8 and cranks 9 of hollow actuating shaft 10, the bottom plates having the usual supporting pedestals 11. The presser plates 6 are actuated by inner shaft 12, cranks 13, and connections 14 and 15 supporting the vertically movable and laterally swinging cross head 16 for the plates, as is generally understood.

Bottom plates 7 are connected at each side of the middle reciprocating wall or plate 17 by depending stirrups or yokes 18 which connect the inner edges of the bottom plates together so that they move up and down as one unit.

In general construction and operation, the machine is of usual standard construction, except that the partition plate 17 is usually stationary, in a double block machine.

In my improved machine I preferably mount the partition plate 17 so that it may be alternately moved back and forth during the molding, pressing, and ejecting operations. For such purpose the plate is mounted in end extensions 19 of the mold casing and a shaft 20 extends centrally through the plate, having a guide sleeve 21 at one end and an actuating terminal 22 at the other.

Said terminal is retracted by a spring 23 and is alternately pushed inwardly by a plunger 24 under the impelling action of a cam or eccentric 25. Said element, with suitable ball bearings and proper lubrication, is mounted for rotation on shaft 26, extending from gear box 27 to bearing 28 for the outer end of the shaft and for plunger 24.

A motor 29 transmits movement through its shaft and worm or other suitable gearing in gear box 27 at the desired speed to shaft 26 and the eccentric. Such movement effects rapid alternating or reciprocatory motion to plate 17 during operation of the motor.

The resulting effect is to impart to the face of the block a trowelling action by the vibration of the plate, tending to effect greater density of the aggregate by collecting the particles and effecting flow of the liquid in the same manner as is generally practiced in trowelling mortar. The desired result is enhanced by continuing the reciprocation of the partition plate during upward ejection of the blocks, so that upon arriving at the raised position they may be carried away on the usual pallets 30 for drying and storage.

In Fig. 4 I show a modified construction in which the casing 2 of the machine is for a single block manufacture, with the reciprocating wall 17 substituted in place of the usual side wall of the mold. In such case the oper-

ation of the machine as to its various parts is the same, together with reciprocation of the movable side wall, producing the same densification of the block at such side.

Plate 17 is provided at its upper portion with a reservoir 31, having a covering top 32 and a supply conduit 33, flexibly connected with a supply reservoir, containing the waterproofing fluid or other material to be supplied to the face of the block.

At the upper portion of plate 17 are series of ports or openings 34, through which the liquid is distributed across the contacting face of the block after its formation, and as the finished block is ejected from the machine by elevation of the bottom plates 7. During such ejecting movement the reciprocation of plate 17 will effect a thorough and complete distribution of the liquid across the entire area of the block from top to bottom and from one end to the other.

The liquid in cavity 31 being under pressure will be exuded through the openings 34 onto and through the surface of the block as it moves upward past the holes. The liquid is not only forcibly impressed against the surface of the block, but will be forced into and through the pores for a considerable depth, dependent upon the porosity of the block, the fluidity of the substance, and the pressure to which it is subjected. Such pressure may be readily controlled and the extent of impregnation easily regulated by the operator to suit the conditions required.

It will be understood that the pressure will be cut off during the making of the block, and turned on as by a valve in the supply line 33 for application during ejection only. Such pressure control may be either manual or otherwise, as preferred.

The resulting block emerges from the machine with its entire face thoroughly soaked and charged with the waterproofing material, so that when the block is hardened, such substance will be permanently retained, together with the added advantage of a finished attractive surface.

It will also be understood that the fluid substance may be of any desired color, and that by such means the block may be colored or tinted at its exposed face within a wide range and variety.

It will also be understood, of course, that the treatment may be given to one face of the block in a single block machine, as in the modification shown in Fig. 4. Also that one side face and one end face may be similarly treated in a single block for use in building corners.

The construction and operation of the invention will be readily understood and appreciated from the foregoing description by all those familar with this class of mechanism.

Upon lowering of the usual bottom plates 7, the pallets 30 are placed thereon after which the mold cavities are filled with aggregate, preferably through a superimposed hopper, not shown. During such filling operation the usual filling hopper or other filling device is adjusted, the pressing plate 6 is thrown outwardly beyond the machine by its connecting arms 15, as in Fig. 1, and the mold cavity is filled with aggregate. Thereupon the material is pressed by lowering the pressing plate, and the bottom plates 7 are then finally raised, removing the finished block. The partition plate 17 during such operation is actively reciprocated, so that the contacting faces of the blocks also receive the desired smoothing and condensing treatment.

The resulting blocks, when hardened, present a comparatively smooth, dense, and hard surface, well adapted for outside exposure in building a wall or the like, while the remaining portions of the block are of the usual rough porous consistency.

The advantages of the invention will be readily understood and appreciated by all those accustomed to the use and making of concrete blocks, either of the usual aggregate or of any special mixture, as cinders and ashes, like that of my prior Patent No. 1,212,840.

What I claim is:

1. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing fluid while moist and under pressure.

2. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing waterproofing fluid while moist and under pressure.

3. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing waterproofing fluid under pressure.

4. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing coloring fluid while moist and under pressure.

5. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing fluid applied across its face during ejection of the block from the mold while moist and under pressure.

6. The method of making a concrete building block consising in compressing the block in a mold and then impregnating one of its faces with an investing fluid under pressure and while confining said face during ejection of the block from the mold.

7. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing fluid under pressure

while confining said face with accompanying smoothing thereof during ejection of the block from the mold.

8. The method of making a concrete building block consisting in compressing the block in a mold and then impregnating one of its faces with an investing fluid applied across the face of the block in co-operation with an alternating smoothing action and during ejection of the block and movement thereof in a direction transverse to the smoothing action.

In testimony whereof I hereunto affix my signature.

FRANCIS J. STRAUB.