May 10, 1949. A. H. HAWES 2,469,599

APPARATUS FOR MOLDING BUILDING BLOCKS

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FIG. 1

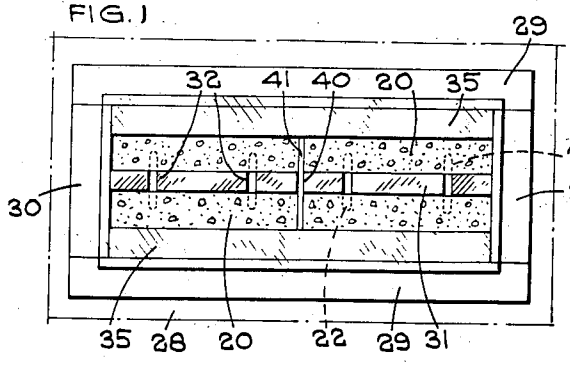


FIG. 3.

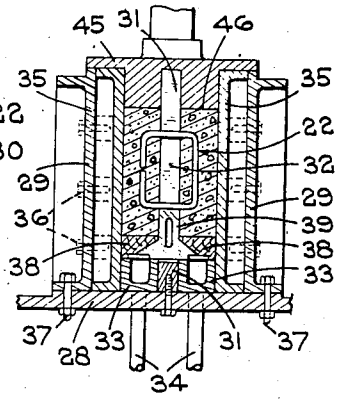


FIG. 2.

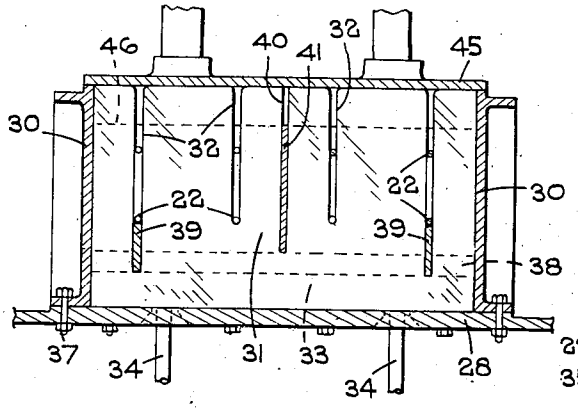


FIG. 4.

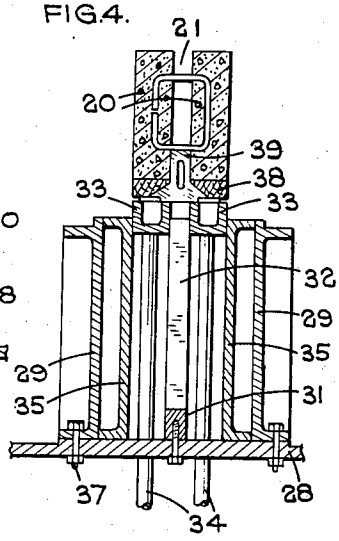


FIG. 6.

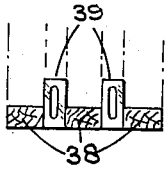


FIG. 5.

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FIG. 7.

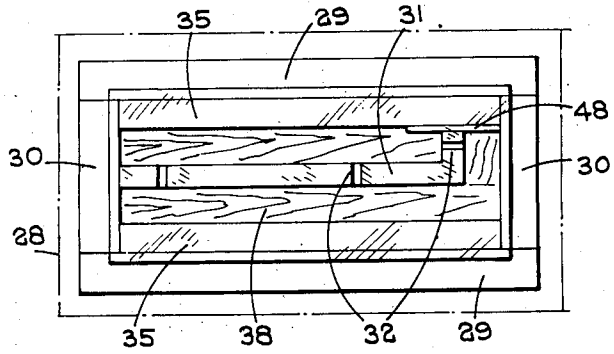


FIG. 8.

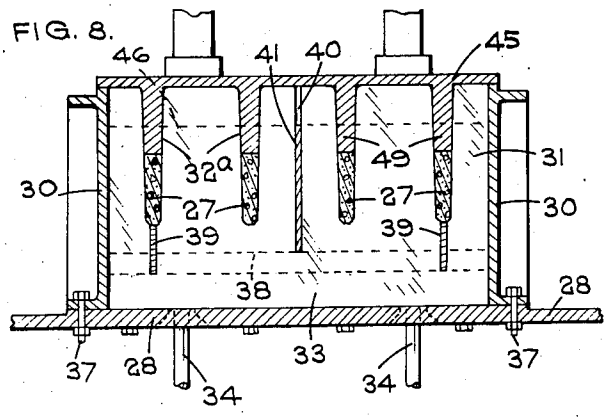
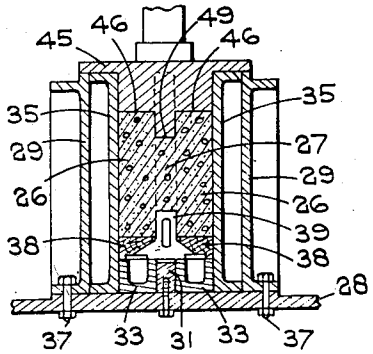


FIG. 9



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APPARATUS FOR MOLDING BUILDING BLOCKS

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In Great Britain January 17, 1945

8 Claims. (Cl. 25—41)

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This invention relates to apparatus for moulding building blocks from concrete, breeze or the like, which blocks are of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, which transverse block portions may comprise, for example, wire ties or web portions integral with the wall members of the block.

Apparatus for moulding building blocks of the above type has already been proposed wherein the mould is provided with one or more hinged side walls which after moulding are displaced away from the block to permit of same being removed from the mould.

The primary object of the present invention is to provide an improved construction wherein such hinged side walls to the mould are avoided so that a simpler and stronger construction of mould can be used.

A further object of the present invention is to provide a generally improved construction of mould which enables an improved building block of the above type to be produced.

Other objects of the invention will become apparent from the following description and claims of the specification, in the accompanying drawings of which—

Figure 1 is a plan view of the upper portion of a machine arranged for production of one form of block of the type specified.

Figure 2 is a sectional side elevation of the same, whilst

Figures 3 and 4 are transverse sectional views of the machine, showing the moulded block during tamping and after ejection, respectively.

Figure 5 is a perspective view of a preferred form of pallet, and

Figure 6 is an end view of a modified pallet for use with a multiple core.

Figure 7 is a plan view of the mould employed for the production of an angle or corner blocks of the type specified.

Figures 8 and 9 are views corresponding to Figures 2 and 3 respectively, but showing the mould modified for the production of a further form of block of the type specified.

The present invention is applicable to the manufacture of cavity building blocks of the type hereinbefore specified, in which the transverse block portions comprise wire ties, or alternatively integral, concrete webs extending transversely across the central cavity between the wall members of the block.

Figures 1 to 4 illustrate the improved moulding apparatus as arranged for manufacturing a building block of the type specified, and consisting of two moulded wall members 20 spaced apart to provide a cavity 21 therebetween by means of transverse block portions in the form of wire tie members 22, each wire tie member being in the form of a rectangular frame comprising two horizontal limbs and two vertical limbs, which latter become embedded in the concrete or other cast material, as shown in Figures 3 and 4.

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The moulding box illustrated in Figures 1 to 4 consists of a stationary base 28, two lateral walls 29, and two end walls 30, the base having fixed thereto a core member 31 in which are a number of vertical slots 32 each adapted to receive one of the rectangular wire frames 22 aforesaid.

Within the moulding box is a movable base or ejector 33 formed in two parts which extend between the end walls 30 at opposite sides of the core member 31 and are acted upon by suitable mechanism such as the push-rods 34, this mechanism, one operation of a manual or other control, causing the base 33 to be raised from the position shown in Figure 3 to that shown in Figure 4.

The mould proper may be bounded by the walls of the box and/or by liners 35 associated with some or all of such walls, the walls 29, 30 being fixed to the base 28 and the liners 35, if used, also remaining stationary when the movable base 33 is raised, being preferably secured by screws 36 to the walls 29, 30 which in turn are bolted at 37 to the base 28.

The movable base 33 carries a pallet 38 consisting of two spaced longitudinal members of wood or other material on which the wall members 20 are moulded, these members being connected by two or more bridge-pieces 39 extending through the core slots 32 beneath the tie members 22 supported therein.

The particular arrangement illustrated is intended for the simultaneous production of a pair of cavity blocks, and for this reason the core member 31 is formed with a central vertical slot 40 extending down to the upper surfaces of the pallet members 38 and receiving a partition member 41 which divides the mould proper into two equal parts. At each side of this partition the core member 31 is formed with two of the slots 32 aforesaid, and the endmost of these slots are made deeper than the others to accommodate the pallet bridge-pieces 39.

Conveniently each such bridge-piece 39 com-

prises a vertical sheet metal plate, which may be apertured as at **42** and which is provided at its ends with attachment portions **43** adapted to be secured to the undersides of the pallet members **38**. The central portion of the bridge-piece preferably includes an upstanding tongue **44** having a width corresponding to the thickness of the core **31** which fits the associated slot **32**.

In practice the parts are placed in the position shown in Figure 4, the rectangular wire tie frames **22** are dropped into the core slots **32** and the mould is filled with concrete or the like while the base **33** is being vibrated by suitable means, the moulded material being then tamped by a cover member **45** having spaced downward projections **46** which engage the material at each side of the core **31**. This member **45** is raised and lowered by suitable mechanism under the control of the operator until the concrete or the like is sufficiently compressed, after which the cavity block is lifted clear of the mould by the push rods **34** aforesaid, and is carried away on the pallet **38**, the latter if desired being removed for re-use when the block has set sufficiently for direct handling.

It will be appreciated that the tongues **44** on the pallet bridge-pieces **39** support the tie-members **22** during moulding ejection and drying of the block.

Obviously the mould may be arranged to produce a single block, or (by the use of partitions such as **41**) to produce any desired number of blocks in end-to-end relationship, and furthermore, as illustrated in Figure 6, the pallet **38** may be formed with three or more longitudinal members, the gaps between which accommodate the parts of a multiple core, so that the resultant block has two or more parallel cavities and a central longitudinal web or webs united to the transverse portions of the block.

The core **31** may terminate short of one end of the mould, so that the two wall members **20** of the block are integrally united at that end, or angle or corner blocks may be formed with an L-shaped cavity as shown in Figure 7. This figure also indicates the use of an additional mould liner **48** whereby one side of the block is moulded with a recess which accommodates the end of the adjacent block.

For producing cavity blocks of the type specified in which the wall members **26** are connected by transverse block portions in the form of webs **27** integral with the wall members, as shown in Figures 8 and 9, the mould is modified as shown in these figures by the provision of wide slots **32***a* in the core **31**, the endmost slots having narrower downward extensions which accommodate the pallet bridge-pieces **39**.

The transverse webs **27** connecting the wall members **26** of this latter form of block are moulded in the slots **32***a*, and preferably the tamping member **45** is provided with tongues **49** which enter the slots, so that the moulded webs are subjected to a greater compression than the wall members **26**.

I have found that this method of tamping by increasing the density of the concrete or other material constituting the webs **27**, results in the latter becoming substantially impervious to water, so that the moulded blocks may be used without risk of passage of moisture from the outer to the inner surface of the cavity wall.

With moulding apparatus constructed in accordance with the present invention, when the cavity block is lifted clear of the mould in the

manner described, the walls of the mould remain stationary, being connected rigidly to the stationary base **28**, and with the present invention a practical simple construction of mould is employed.

The absence of a hinged side wall to the mould ensures that all the walls of the mould are in their proper relative position during moulding so that the block is always moulded externally to the proper shape and has a good finish.

What I claim then is:

1. Apparatus for moulding building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base and extending completely between an opposed pair of mould walls, said core being adapted to form between the wall members of the block a similarly extending cavity, a movable base formed in two parts disposed each at opposite sides of said core, pallet members on each of said movable base parts extending correspondingly to said core completely between the said opposed mould walls, said core having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces being adapted each to support one of the said transverse block portions, and means for raising said movable base and pallet members thereon to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

2. Apparatus for moulding building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base and extending completely between an opposed pair of mould walls, said core being adapted to form between the wall members of the block a similarly extending cavity, a movable base formed in two parts disposed each at opposite sides of said core, wooden pallet members on each of said movable base parts extending correspondingly to said core completely between the said opposed mould walls, said core having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, sheet metal bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces being adapted each to support one of the said transverse block portions, push rods extending through the stationary base of said mould to said movable base, and said push rods being adapted to raise said movable base, to bring the pallet and moulded block clear of the mould walls leaving the latter and the core stationary.

3. Apparatus for moulding simultaneously a plurality of building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and tamping member cover, a core projecting from said stationary base and ex-

tending completely between an opposed pair of mould walls, said core being adapted to form between the wall members of the block a similarly extending cavity, pallet members on each of said movable base parts extending correspondingly to said core completely between the said opposed mould walls, said core having transverse vertical slots extending downwardly from its upper edge, some of said slots being adapted to receive said transverse block portions, a partition member located in another of said slots dividing said mould into a plurality of compartments, bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces being adapted each to support one of the said transverse block portions, and means for raising said movable base and pallet members thereon to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

4. Apparatus for moulding building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base for forming the cavity between the wall members of the block, a pair of movable pallet members disposed one on each side of said core, the latter having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces being adapted each to support one of the said transverse block portions, and means for raising said movable pallet members to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

5. Apparatus for moulding building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base for forming the cavity between the wall members of the block, a pair of movable pallet members disposed one on each side of said core, the latter having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, sheet metal bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces being adapted each to support one of the said transverse block portions, and means for raising said movable pallet members to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

6. Apparatus for moulding blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base and extending completely between an opposed pair of mould walls, said core being adapted to form between the wall members of the block a similarly extending cavity, a pair of movable pallet members disposed one on each

side of said core, the latter having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces being adapted each to support one of the said transverse block portions, and means for raising said movable pallet members to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

7. Apparatus for moulding building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base for forming the cavity between the wall members of the block, a pair of movable pallet members disposed one on each side of said core, the latter having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces projecting above the upper face of said pallet members and being adapted each to support one of the said transverse block portions, and means for raising said movable pallet members to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

8. Apparatus for moulding building blocks of the type comprising a pair of wall members connected together so as to provide a cavity therebetween by means of transverse block portions, said apparatus, comprising a mould including a stationary base and side walls, and movable tamping member, a core projecting from said stationary base and extending completely between an opposed pair of mould walls, said core being adapted to form between the wall members of the block a similarly extending cavity, a pair of movable pallet members disposed one on each side of said core, the latter having transverse vertical slots extending downwardly from its upper edge, said slots being adapted to receive said transverse block portions, bridge pieces connecting said pallet members at opposite sides of the core extending through said slots, said bridge pieces projecting above the upper face of said pallet members and being adapted each to support one of the said transverse block portions, and means for raising said movable pallet members to bring the moulded block clear of the mould walls leaving the latter and the core stationary.

ALBERT HENRY HAWES.

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