

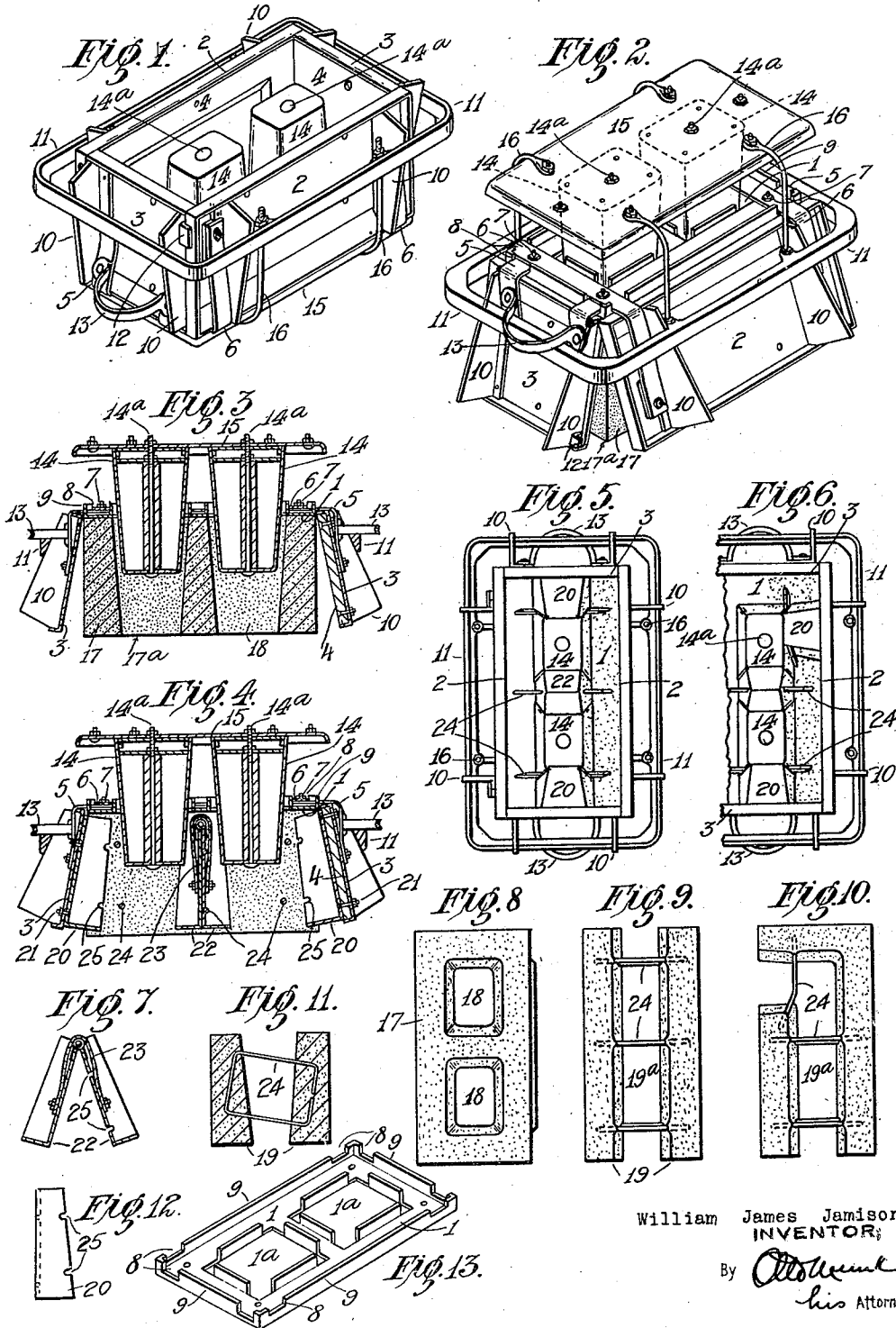
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MOLD FOR MAKING CONCRETE ARTICLES

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UNITED STATES PATENT OFFICE.

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MOLD FOR MAKING CONCRETE ARTICLES.

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To all whom it may concern:

Be it known that I, WILLIAM JAMES JAMISON, a citizen of the United States of America, residing at Seaford, in the State of Victoria, Commonwealth of Australia, have invented certain new and useful Improvements in Molds for Making Concrete Articles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to molds for making structural articles of suitable plastic material or materials, including the making of hollow or solid plain or duplex concrete building blocks, of any predetermined forms and sizes. All suitable plastic material is for brevity hereinafter called concrete.

One object of my invention is to provide a handy mold, having movable fittings all of which can be metal, and with which a concrete block can be made in a fraction of a minute.

A further object of the invention is to so construct the mold that the block when made can be promptly discharged, and thus allow the mold to be quickly reused. The edges, corners, and faces of the finished blocks will, under correct working conditions be free from breaks and deformation, and will therefore have sharp angles where desired. Other features of the invention will become apparent as this specification is perused.

In the drawings herewith my tested construction is shown, but there could be modifications of minor features, within the scope of my claims.

In these drawings Figure 1 is a perspective view of an empty mold ready to receive concrete.

Figure 2 is a perspective view of the mold inverted and opened, and containing a concrete block (a corner of which is visible) which is about to be discharged.

Figure 3 is a longitudinal section of the inverted opened mold containing a block.

Figure 4 is similar to Figure 3, except that the mold is fitted with members to form a duplex block.

Figure 5 is a plan of a mold fitted with members to form a duplex block, some of the concrete being shown filled in.

Figure 6 is a fragmentary plan of a mold

having fittings to form a duplex corner block, some of the concrete being shown filled in.

Figure 7 is a side sectional elevation of a mold fitting having limbs which being unrestricted are shown sprung open.

Figures 8, 9 and 10 are plans of, respectively, an apertured block, a duplex block, and a duplex corner block, all of known forms. Apertured blocks may have one or more holes.

Figure 11 is an end sectional view of a duplex block.

Figure 12 is a side view of another mold fitting.

Figure 13 is a perspective view of the mold bottom.

The mold has a bottom 1, sides 2, and ends 3, each part being rigid, with which in view I flange them, the flanges on bottom 1 being marked 9. Any interior surface or surfaces of the mold is or are fitted with a patterning plate 4, or is or are patterned, so that the concrete block surface shall be of predetermined design. Interchangeable patterning means could be used at will, but patterning devices are not part of this invention.

To retain the sides and ends in proper relative positions when the mold is closed as in Figure 1, I provide, on ends 3, projections 12 between which the sides fit. The sides are held at and above their bases in working positions relatively to the mold bottom, for which purpose strips 6 are connected to the sides and also to the bottom; and the ends 3 are held at and above their bases in working position relatively to the mold bottom by strips 5 which are connected to the ends and to the bottom.

The strips are springy, and rivets 7 are shown passing through the mold bottom and the strip intersections. In the flanges 9 on bottom 1 I provide gaps 8 the strips extending through the gaps and being there protected against displacement. The spring tendency of each strip is to swing the side (or end) of the mold to which it is connected into the open position shown in Figure 2.

Externally of the mold sides and ends I provide members 10, hereinafter termed wedges, and relatively thereto a draw frame 11, which embraces the wedges loosely or

tightly according to its position. The position of the frame will be, in the case illustrated, regulated by hand.

When drawn toward the wider ends of the wedges the frame forces them inwardly, causing the mold to close, as in Figure 1, in which position the spring strip tension is increased.

When the frame is drawn toward the narrow ends of the wedges, the sides and ends, owing to the action of the spring strips, diverge so as to open more widely the mouth of the mold, and so as to move away from the side and end surfaces of the concrete block.

Draw frame movement in each direction is limited—thus the wedges are limits as to one direction, and as to the opposite direction, stops, shown as mold lifting handles 13 on ends 3 act as limits.

For forming an apertured block, the bottom 1 is apertured; and assuming that the block to be made is that marked 17 the bottom has openings 1^a,—shown flanged in Figure 13. These openings permit of insertion and retraction through them of cores 14, which are carried by a plate 15 hereinafter termed the mold floor, which is connected to the draw frame 11, the connecting means shown being straps 16 see Figures 1 and 2. The cores are suitably fastened to the floor, one suitable means being the bolts 14^a.

When a mold contains a newly formed block 17, the mold will be inverted by the operator, so that the block face 17^a will rest on a suitable support, and the operator will then move the draw frame 11, see Figure 2, so that the mold sides and ends will diverge from the block by spring influence. This motion of the draw frame also raises the floor thus withdrawing cores 14, the sides of which are tapered to facilitate such withdrawal.

Upon the operator then lifting the whole mold to facilitate which handles 13 are provided, the block is discharged. Block 17 contains holes 18, but it is obvious that cavity blocks could be made each containing only one aperture. It is also obvious that to make a solid block cores would be dispensed with, and the surface of bottom 1 instead of having holes 1^a would be continuous or be fitted with a false bottom.

The duplex block 19 has a known form its opposed sections being separated by an air space 19^a, but being tied together, metal ties 24 being shown. To make block 19 it suffices to insert suitable cores or fittings in the mold.

Thus end cores 20 are secured to and extend from the mold ends, fastening bolts 21 being shown, and 22 is a middle core, which is shown as having a spring 23 the function of which is to spread opposite portions or

limbs of this core apart, as in Figure 7, so far as the space in the mold allows, as when core 22 is inserted between cores 14 the space available is limited as seen in Figures 4 to 6.

When the mold is occupied—in order—from end to end by cores 20, 14, 22, 14, and 20, there will result an air space 19^a between block sections 19 of Figure 9. In each core 20 and 22 I provide recesses 25 to receive and temporarily support metal ties 24, parts of which, when the concrete is added, become embedded in the latter as illustrated by Figure 11, intermediate parts of the ties crossing the air space 19^a.

The block shown in Figure 10 is of known form. It has an angular section, and to mold it cores will be located according to Figure 6, so that one end core 20 becomes a bridge which extends from a main core 14 to a mold side 2.

It is obvious that instead of using the series of cores illustrated in Figures 5 and 6 there could be one large core, for example, as a mechanical equivalent. It is also obvious that a plurality of blocks could be simultaneously moulded by modifying the core devices; and that relatively thin blocks could be moulded at will for use as tiles or slabs.

For brevity, in the claims, mold sides and ends are termed walls, as they are not necessarily dissimilar in form and size and they are all alike in being enclosing means.

I claim:—

1. For concrete article making, a mold having a base, movable walls extending from the base, means to draw the walls into closed positions, the said means being capable of retraction, and spring means to locate the walls in divergent positions when such retraction is effected, the spring means comprising strips which cross under the base, cross one another, extend outside the walls, and are connected to the base and walls.

2. For concrete article making, a mold having a base which is flanged, apertured, and gapped, movable walls extending from the base, means to draw the walls into closed positions, the said means being capable of retraction, and spring means extending through the gaps and being connected to the base, to locate the walls in divergent positions when such retraction is effected.

3. For concrete article making, a mold having a base, movable walls extending from the base, means to draw the walls into closed positions, the said means being capable of retraction, spring means to locate the walls in divergent positions when such retraction is effected, a floor adjacent to the base, and, attached to the floor, connections to the retractable means.

4. For concrete article making, a mold

having a base, movable walls extending from the base, means to draw the walls into closed positions, the said means being capable of retraction, spring means to locate the walls in divergent positions when such retraction is effected and at least one core extending into the mold and connected with the retractable means so that retraction of the latter will retract the core or cores.

5. In a concrete article making mold, movable walls, means to close the walls into moulding position, means to diverge the walls, a base, apertures in the base, movable cores of tapering form extending through the apertures, a central core between the movable cores said central core formed of opposed parts, and spring means which urge the opposed parts apart.

6. For concrete article making, a mold having a base, side and end walls, wedges on each wall exterior, means which connect the walls movably to the base, a draw frame enclosing the wedges and which will close the walls together by sliding along the wedges, the draw frame being retractable to free the walls from the concrete article, spring means to move the walls into divergent positions when the walls are freed, a floor carrying a core or cores extending through the base into the mold, and connections from the draw frame to the floor to cause the core or cores to be retracted at the same time as the walls are diverged.

7. In a mold for concrete blocks, the combination with an apertured base and divergable walls, of cores removably projecting through said apertures, and means carried by said cores for holding said walls in closed parallel position when said cores are in position.

8. In a mold for concrete blocks, the combination with an apertured base and divergable walls, of cores removably projecting through said apertures, resilient means carried by said walls for normally holding them in diverged position, and means carried by said cores and cooperating with said first-named means for allowing simultaneous withdrawal of the cores and divergence of the walls to discharge a finished block.

9. A mold for concrete blocks, as claimed in claim 6, including complementary cores adapted to form with said first-named cores

a continuous core extending from one wall to another.

10. A mold for concrete blocks, as claimed in claim 6, including complementary cores adapted to form with said first-named cores a continuous core extending from one wall to another, certain of the complementary cores being carried by said walls.

11. A mold for concrete blocks, as claimed in claim 6, in which said walls are provided with resilient means for normally holding them in diverged position.

12. A mold for concrete blocks as claimed in claim 6, including resilient strap members comprising a body portion attached to the base and upwardly extending normally divergent end portions attached to said walls to normally hold said walls in divergent position.

13. A mold for concrete blocks as claimed in claim 6, in which said walls are provided with wedges, and in which said means comprises a draw-frame encircling the walls and engaging with said wedges.

14. A mold for concrete blocks as claimed in claim 6, in which said walls are provided with wedges, and in which said means comprises a draw-frame encircling the walls and engaging with said wedges, and including handle members on opposite walls adapted to limit the movement of said draw-frame.

15. A mold for concrete blocks as claimed in claim 6, in which said walls are provided with wedges, and in which said means comprises a plate carried by said cores, and a draw-frame carried by said plate and encircling said walls and engaging with said wedges.

16. A mold for concrete blocks as claimed in claim 6, in which said walls are provided with wedges, and in which said means comprises a plate carried by said cores, and a draw-frame carried by said plate and encircling said walls and engaging with said wedges, said plate being parallel to, and substantially of the same dimensions as, the base.

In witness whereof I have hereunto set my hand.

WILLIAM JAMES JAMISON.

Witness:

GEORGE G. TURRI.