

B. SCRUBY AND G. K. HARKNESS.

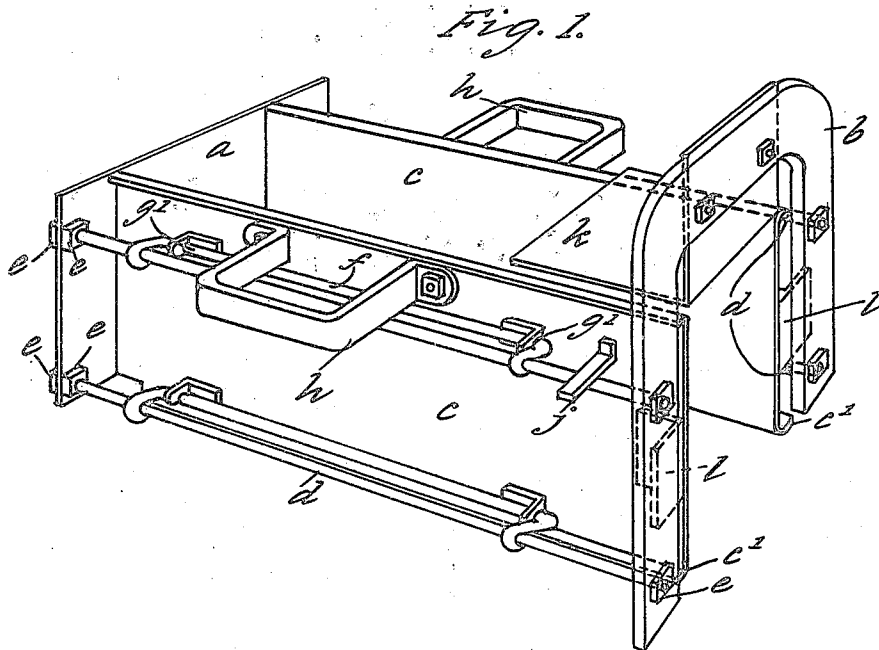
MOLD FOR USE IN BUILDING WALLS, MAKING BLOCKS, SLABS, TILES, OR BRIQUETTES.

APPLICATION FILED APR. 6, 1920.

1,423,461.

Patented July 18, 1922.

3 SHEETS—SHEET 1.



Inventors  
Basil Scruby,  
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Attorney

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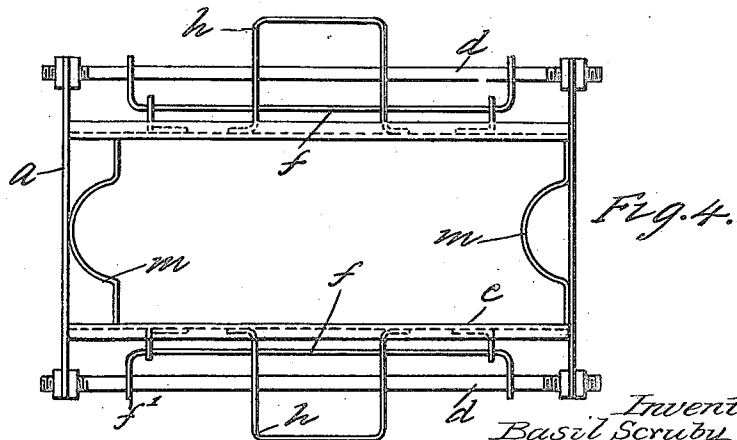
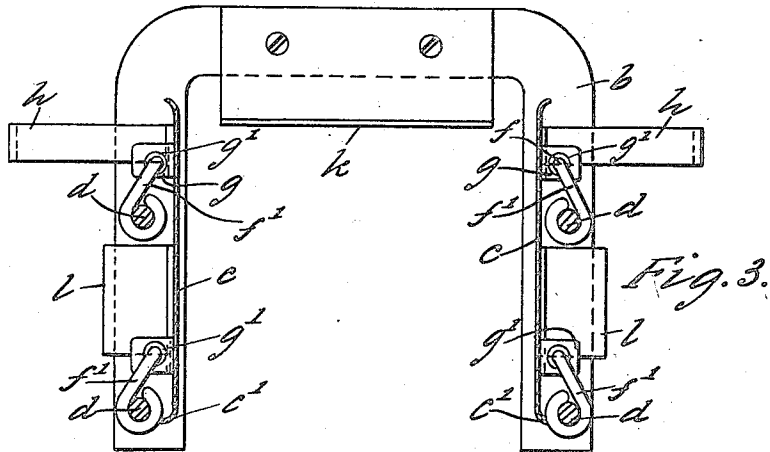
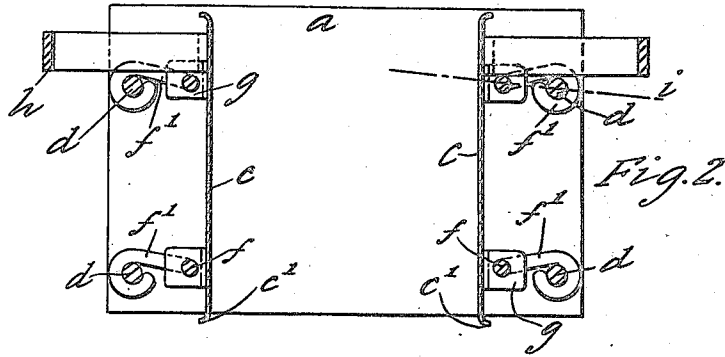
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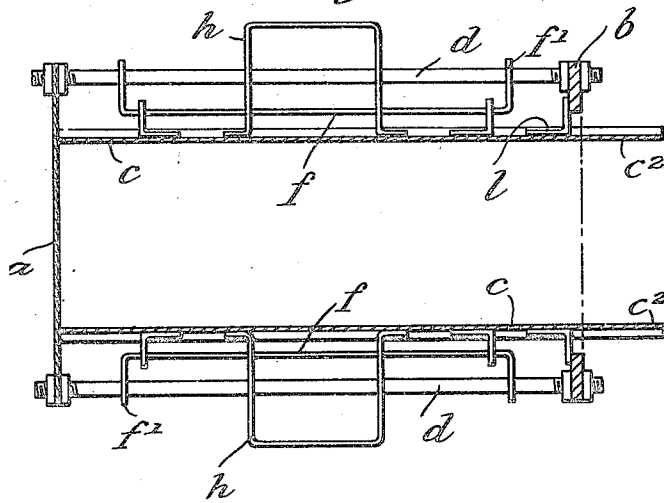
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3 SHEETS—SHEET 3.

Fig. 5.



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# UNITED STATES PATENT OFFICE.

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MOLD FOR USE IN BUILDING WALLS, MAKING BLOCKS, SLABS, TILES, OR BRIQUETTES.

1,423,461.

Specification of Letters Patent.

Patented July 18, 1922.

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To all whom it may concern:

Be it known that we, BASIL SCRUBY and GEORGE KETTELWELL HARKNESS, both subjects of the King of Great Britain, both residing in Harlow, England, have jointly invented certain new and useful Improvements in or Relating to Molds for Use in Building Walls, Making Blocks, Slabs, Tiles, or Briquettes, of which the following is a specification.

This invention relates to bottomless molds for moulding concrete or other plastic materials in building walls in situ contiguously by section and course by course or in making separate blocks, slabs, tiles and the like, the molds being of the kind that comprise each two end members and two side mold plates, and means whereby the side plates can be moved in directions away from or towards the central longitudinal plane of the mold, without change of their upright or moulding position, for the purpose of expanding or of closing the mold and so that on completion of a moulding operation an operator can, after the side plates have been thus withdrawn from engagement with the moulded material, readily lift the mold and leave the sides of the moulded material or a moulder block free.

The invention consists in an improved form of the above type of mold as hereinafter described with reference to the accompanying drawings.

In the improved mold the two side mold plates are so arranged that when they are operated to expand the mold they have a combined upward and outward movement and when they are shifted for the purpose of closing the mold they have a combined inward and downward movement.

The improved mold comprises a frame, consisting of two end members held apart by rigid connecting pieces, the two side mold plates being mounted on or hinged to the said frame.

The end members of the frame are the end members of the mold and they may be so formed that the mold has either two closed or two open ends, or is closed at one end and open at the other. Stops, linings, partitions, or cores of any suitable known description may, when desired, be placed in the mold to produce any required design of block.

The invention will be further described with reference to the accompanying draw-

ings, in which Fig. 1 is a perspective view of one form and construction of the improved mold, one end thereof being closed and the other open; Fig. 2 is a cross section of the mold in Fig. 1 looking in the direction of the closed end, the sides being in the normal or closed position. Fig. 3 is a section looking in the direction of the open end of the mold, the sides being in the expanded or open position. Fig. 4 is a plan of a mold with two closed ends, a liner or plate for forming a key being arranged in the mold at each end. Fig. 5 is a plan view showing a modified form of side members, said members being shown in closed position.

In the drawings *a* represents an end member of the outer frame having a form or shape adapted to close in an end of a mold, and *b* indicates an end member which is adapted to leave one end of a mold open. The side mold plates are denoted by *c*. In constructing the improved mold two end members are placed at any desired distance apart and are held rigidly in position by means of suitable rigid connections, such as the bars *d* which are shown secured to the end members *a* or *b*, by pairs of nuts *e*.

The side plates *c* are mounted or supported on the frame in any convenient manner, but so that they can be made to approach or recede from one another according as the mold is to be closed laterally or be opened or expanded. In the mold illustrated in Figs. 1 to 3, the side plates *c* are hinged to the connecting member *d* by means of wire rod pieces *f* which are supported in eyes *g'* provided in brackets or lugs *g* on the side plates *c*, with their cranked ends *f'* embracing the members *d*.

The lugs *g* are arranged at such heights that when the sides of the mold are in the normal, closed or moulding position, the axis of each of the wire rods *f* will be substantially level or dead central with the axis of the adjacent member *d*. So long as the said axes occupy these positions, and the terminal portions of the wire rods *f* do not move away from the dead centre lines, such as line *i* Fig. 2, the sides will remain locked and unmovable under the action of any direct pressure transmitted thereto by material deposited in the mold. By raising the sides so that the rods move away from the dead centre, the sides can be retracted or expanded so far as the connecting member

$d$  will allow, and leave the two sides of the block that has been formed in the mold free.

The sides  $c$  are provided with means to prevent them moving below the dead centre; such means may consist of stops  $j$  attached to the sides, and adapted to engage with the member  $d$  when the portions  $f'$  lie in the dead centre lines.

For raising or manipulating the sides  $c$ , handles  $h$  are fixed thereto. These handles may be so positioned that when the side plates  $c$  are in the normal or operative position, the handles will rest upon the upper members  $d$  and thereby serve to prevent the sides from passing below the dead centres. In such case the stops  $j$  referred to above may be dispensed with.

The top edges of the sides  $c$  when these are in normal or operative position, would be level with the top edge of the closed end member or ends  $a$  of the mold. The bottom edges of the sides  $c$  may be level with the bottom edges of the end member  $a$  or they may, as is customary, extend lower down, as shown at  $c'$  in Figs. 1, 2 and 3, so that when the mold is used to mould a block of material placed on the top of a block or layer already formed, such extended portions will engage with or embrace the sides of the previously formed block or layer, if it be of the same width.

In this way the side surfaces of the superposed blocks or layers will be thus kept plumb.

To guide the side members  $c$  in their movement when an open end member  $b$  is used, as in Fig. 1, angle pieces  $l$  may be attached by one of their limbs to the side member, and in such a manner that their other limb will bear upon the inner face of the end member.

If desired, sides  $c$  may, as shown in Fig. 5, be made longer than is required for forming the block or portion of wall of a given length, in order that the side extensions may, in cases when the block to be moulded is to be placed end on to a block or part already formed, embrace the sides of the latter. In this case the mold would have one closed end  $a$  and one open end member  $b$  as indicated in Fig. 5, in which the sides  $c$  are shown as having longitudinal extensions  $c^2$ . In order that the said already formed block or part may not be damaged by the weight of the end member  $b$  bearing on it, the weight of the member may be distributed over a larger area on that block or part, by providing the said end member with a weight-distributing plate  $k$ .

If it be desired to form blocks which, when placed end-on in a row, will be keyed together, a loose key plate or lining may be placed at each end of a mold as shown in Fig. 4. The key plates  $m$  may have the form shown in Fig. 4, so that blocks with a pro-

jection at one end and a recess at the other can be moulded. The linings may, however, be of other shapes for keying and other purposes. Partitions may be placed inside the mold to form half, quarter or other sized blocks. The end member  $a$  of a mold may, instead of being flat, be joggled or otherwise shaped as circumstances require.

When the improved mold is required for forming separate blocks or articles, it is provided with two closure ends  $a$  Fig. 4, and is placed upon a flat surface with its sides  $c$  in normal or closed position, the concrete or other plastic material is deposited in it, levelled off and if necessary tamped. When it is desired to remove the mold from the freshly moulded part or article, then by means of the handles  $h$  the sides  $c$  are raised, whereupon the cranked ends  $f'$  of the rods  $f$  are lifted out of the dead centre lines so that the sides can be then moved outwardly, turning upon their hinges. As soon as the sides are clear of the sides of the block or article, the mold can be lifted bodily upwards. The end key or other lining plates, if any be used, can then be removed or pushed away, and the block left exposed to set hard and dry.

If the sides  $c$  of the mold used for forming separate blocks are provided with the depending extensions  $c'$  above mentioned, sand or the like can be placed upon the flat surface on which the blocks are to be moulded, the said extensions being pressed into the sand until the bottom edges of its ends  $a$  are flush with the surface of the layer of sand. Alternatively, a wooden or other sole piece, of a width to fit between the two extensions of the mold when the sides  $c$  are in normal position, may be used.

In building a wall a mold with one closed end  $a$  and one open end  $b$  is used. The commencement or end portion of every layer to be moulded to form the wall may consist of a separately moulded block. When such end block is in position the open end  $b$  of the mold with its sides in normal position is placed end on to it and in a manner to overlap the block more or less. Concrete or other material is then placed in the mold, being thereby moulded on to the end of the block. This done, the mold is expanded and lifted off the newly moulded portion and placed in position to mold another portion end-on to the last said portion. In this way portions are added in succession along the length of the wall until the layer is complete. The terminal portion of the layer may consist of a separately formed block similar to the commencing portion of the layer. When the layer is sufficiently dry or hard to bear the weight of the superposed layer, this superposed layer can be proceeded with in the same manner.

The improved mold can be used in form-

ing lintels or other parts of a wall or in moulding blocks or joists that are reinforced with longitudinally directed rods. In such cases the end or ends *a* would be provided with holes through which the rods would pass. Where the rods are continuous, entering the open end *b* of a mold and traversing the holes in the closed end *a*, the mold can be slid along the rods into successive positions to form a continuous lintel or other reinforced part.

Having thus described the nature of the said invention and the best means we know of carrying the same into practical effect, we claim:—

1. A bottomless mold of the class described, comprising two end members suitably spaced apart, rigid longitudinally disposed pieces connected at their opposite ends directly to said end members and holding said end members relatively immovable, a pair of movable side mold plates, and connecting arms pivoted to the movable side plates and to the rigid connecting pieces, said movable side plates being adapted to swing upward and outward about the axes of the rigid connecting pieces from an operative position into an inactive position.

2. A bottomless mold of the class described, comprising an open arched end member and a closed end member suitably spaced apart, rigid longitudinally disposed pieces connected at their opposite ends directly to said end members and holding said end members relatively immovable, a pair of side mold plates, and connecting arms pivoted to the movable side plates and to the rigid connecting pieces, said movable side plates being adapted to swing upward and outward about the axes of the rigid connecting pieces from an operative position to an inactive position.

3. A bottomless mold of the class described, comprising a pair of end members suitably spaced apart, longitudinally disposed pieces rigidly connecting the two end members and adapted to hold them relatively immovable, a pair of side mold plates, connecting arms pivoted to the movable side plates and to the rigid connecting pieces,

said movable side plates being adapted to swing upward and outward about the axes of the rigid connecting pieces from an operative position to an inactive position, and means carried by the side plates and adapted when the plates are in operative position to engage the rigid connecting pieces and limit the descent of said connecting arms below said axes, as and for the purpose described.

4. A bottomless mold of the class described, comprising a pair of end members suitably spaced apart, longitudinally disposed pieces rigidly connecting the two end members and adapted to hold them relatively immovable, a pair of movable side mold plates, connecting arms pivoted to the movable side plates and to the rigid connecting pieces, the said movable side plates being adapted to swing upward and outwardly about the axes of the rigid connecting pieces from an operative position to an inactive position, and handle parts carried by the side plates for swinging the latter about said axes, said handle parts adapted when the plates are in operative position, to engage the rigid connecting pieces and limit the descent of said connecting arms below said axes, as and for the purpose described.

5. A bottomless mold of the class described, comprising an open arched end member and a closed end member suitably spaced apart, longitudinally disposed pieces rigidly connecting the two end members and adapted to hold them relatively immovable, a pair of movable longitudinally arranged side mold plates extending from one end member to the other and having parts extending through and beyond the open end member, and connecting arms pivoted to the movable side plates and to the rigid connecting pieces and adapted to swing upward and outwardly about the axes of the rigid connecting pieces from an operative position into an inactive position.

In testimony whereof we have signed our names to this specification.

BASIL SCRUBY.

G. KETTELWELL HARKNESS.