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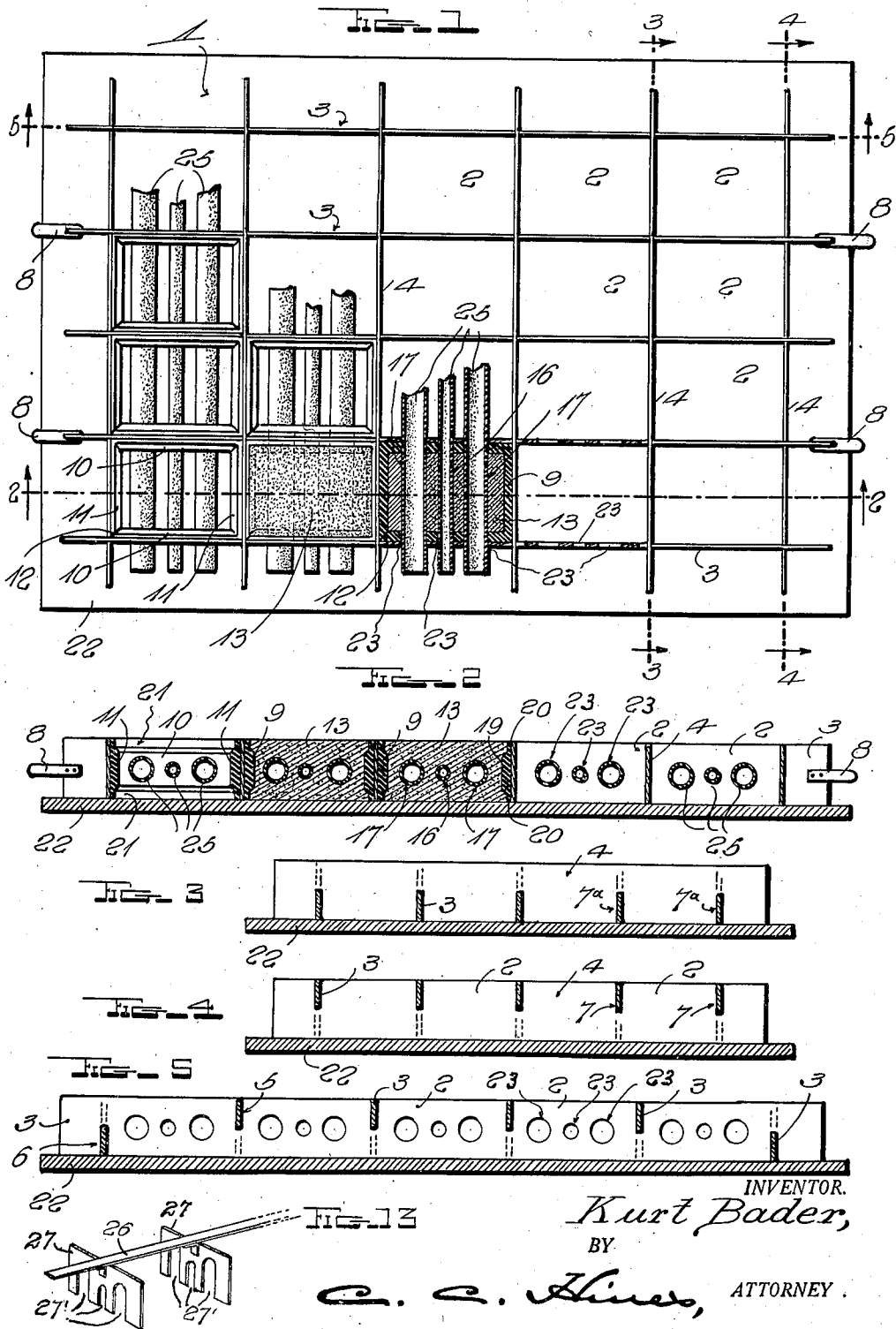
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MOLD FOR MAKING CONCRETE BLOCKS

Filed Nov. 18, 1925

2 Sheets-Sheet 1



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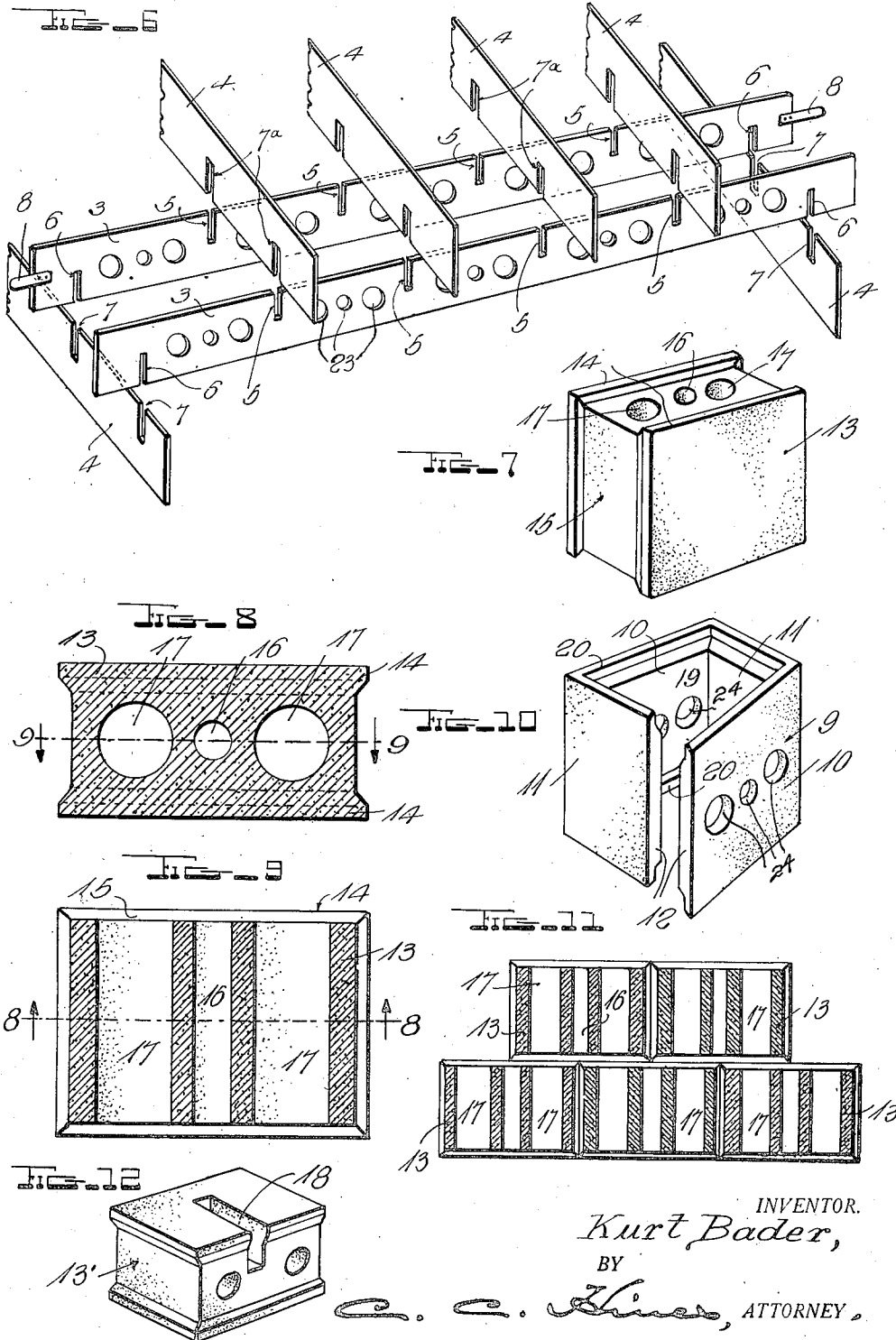
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2 Sheets-Sheet 2



INVENTOR.
Kurt Bader,

BY

A. C. Kline, ATTORNEY.

UNITED STATES PATENT OFFICE.

KURT BADER, OF BROOKLYN, NEW YORK.

MOLD FOR MAKING CONCRETE BLOCKS.

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This invention relates to certain new and useful improvements in mold for use in making blocks or other building elements of concrete or other plastic materials.

5 One object of the invention is to provide a knock-down mold for the production of a plurality of blocks or other building units at each operation, which mold may be readily and conveniently set up for use and
10 as readily and conveniently taken down or disassembled for the removal of the formed units, for cleaning and repairs, for storage or shipment or for other purposes.

Another object of the invention is to
15 provide a type of mold having cells or chambers and formed of a framing of rigid material, together with a former or liner of rubber in each cell or chamber and backed by the walls thereof, such rubber former
20 or liner being readily insertable and removable and operating to give a fine finish to the surface of the formed article.

Still another object of the invention is to provide a rubber former or liner which,
25 by reason of the nature of the material of which it is composed, will not stick to the plastic element formed thereby and which may be stripped from the formed article in a ready and convenient manner and without marring the finish thereof.

Still another object of the invention is to provide a mold having transverse openings in the walls of its cells or chambers and rubber cores adapted to be extended through
35 said openings for the production of openings in the formed building unit, whereby a building unit may be produced having vertical openings for bonding connection with other openings in a wall or other structure produced by an assemblage of such units
40 together.

Still another object of the invention is to provide a mold which is simple of construction, inexpensive of production, efficient in operation, and adapted to be readily and
45 conveniently handled so that a maximum number of building blocks or units may be formed within a given period of time.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and
50 claimed, reference being had to the accompanying drawings, in which:—

55 Figure 1 is a top plan view of a mold constructed in accordance with my inven-

tion, showing only some of the cells or chambers fitted with the formers or liners and cores.

Figure 2 is a vertical longitudinal section
60 on line 2—2 of Figure 1.

Figure 3 is a vertical transverse section on line 3—3 of Figure 1.

Figure 4 is a vertical transverse section on line 4—4 of Figure 1.

Figure 5 is a vertical longitudinal section
65 on line 5—5 of Figure 1.

Figure 6 is a perspective view of a portion of the mold frame showing some of the longitudinal and some of the transverse elements separated from each other but arranged in proper relationship, and showing
70 the construction thereof.

Figure 7 is a perspective view of one of the building blocks or units produced by the
75 mold.

Figure 8 is a horizontal longitudinal section thereof on line 8—8 of Figure 9.

Figure 9 is a vertical longitudinal section on line 9—9 of Figure 8.

Figure 10 is a perspective view of a
80 former or liner removed from the frame.

Figure 11 is a view similar to Figure 9 of blocks of two laid courses, illustrating the bonding action.

Figure 12 is a view of a slightly modified
85 form of building block or unit.

Figure 13 is a view of a holding device.

In carrying my invention into practice, I provide a mold frame 1 of rectangular or oblong rectangular form and formed to provide any desired number of similarly shaped
90 mold cells or chambers 2 arranged in horizontal and transverse rows. The frame 1 is of knock-down type and comprises longitudinal frame strips or plates 3 and transverse frame strips or plates 4. The strips
95 3 and 4 are provided at regularly spaced intervals with vertical transverse slits extending approximately one-half of their depth and opening through one or both of
100 their longitudinal edges, to wit, through either their upper or lower edges, or both. As shown in the present instance, some of the strips 3 have slits 5 opening through
105 their upper edges and others slits 6 opening through their lower edges, and one or more of said strips 3 are provided with slits 5 and 6 opening through both edges, while some of the strips 4 have slits 7 opening through
110 their upper edges and other of said strips 4

have slits 7^a opening through their lower edges. These slits adapt the strips 3 and 4 positioned as shown in Figure 6 so as to be readily and conveniently assembled and
 5 locked together to provide a frame of the construction and having the cells or chambers described, and also adapt the strips to be as readily and conveniently disassembled for taking down the mold. The
 10 ends of one or more of the strips 3 may be provided with handles 8 adapting the frame as formed to be readily conveyed or shifted from place to place as desired or required in use. It will be seen that, with a frame
 15 of this construction, when the strips 3 and 4 are disassembled they may be readily and conveniently laid upon one another and tied in stacks or piles of convenient size for ready and compact handling, storage or
 20 transportation. In practice, the strips may be made of sheet steel of suitable gage to give required rigidity, the structure, however, being light enough in weight to adapt a formed frame of a size having a large
 25 number of cells or chambers to be handled or carried from place to place by two men. Each cell or chamber 2 is of proper dimensions for the formation of the block or building unit of a prescribed size therein.
 30 A former or liner 9 is provided to fit within each cell or chamber 2, such former constituting a shaping and surfacing element for producing the desired block or unit. This former fits snugly against the
 35 walls of the cell 2 and is provided with side walls 10 and end walls 11 conforming to the similar walls of the cell. The former or liner 9 is made of comparatively soft rubber, molded into shape, three of the corner
 40 portions of the body integrally uniting the adjacent sides, while at the fourth corner portion the body is split from top to bottom, as indicated at 12, thus adapting the former to be opened and closed on its
 45 intact resilient corner portions. The edges of the walls at the split corner portion 12 are beveled or otherwise suitably shaped so as to provide a closed lap joint when the former is fitted into a cell for use, in order
 50 to seal the split against leakage of the plastic material at that point. The construction of this former or lining of rubber is of great advantage, as I have discovered that a surface of rubber will give a fine, smooth
 55 and delicate finish to the surface of the article formed, and furthermore that such material is inherently repellent to absorption of moisture or of concrete, cement or other plastic material, in other words, that such
 60 materials will not cling or stick thereto. When a block or other article formed in a mold cell is removed, the former or liner, which will adhere simply by suction to the faces of the block or article which it en-
 65 closes, may be removed in a rapid and

cleanly manner by simply grasping one of the ends of the former at the split point 12 and stripping or peeling the former linearly off the article. This entirely obviates the
 70 necessity of oiling or greasing the surfaces of the mold and the manifold objections incident thereto.

The mold constructed as shown is adapted for the production of regular building blocks or units 13 of the form disclosed. As shown,
 75 each of these blocks is provided with marginal flanges 14 bounding its front and rear sides and forming grooves or channels 15 in the top, bottom and end edges of the block. Each block is further provided with
 80 a series of three openings, a central opening 16 and a pair of larger openings 17 disposed between the same and the end edges of the block, said openings 16 and 17 extending between the top and bottom surfaces
 85 of the block and intersecting the said channels 15. In the use of such blocks in the formation of a wall or other structure, the blocks are arranged in courses, the blocks of the several courses bearing joint with each
 90 other, so that the central opening 16 of a block of one course will overlie the channel 15 between the adjacent ends of the blocks of an underlying course, while the openings 17 of the first-named block will register
 95 with corresponding openings in the adjacent ends of the underlying blocks. By this means a binder of cement or like material may be employed to fill the channels between the surfaces of the blocks to bind them
 100 together and to fill the end channels and registering openings of adjacent blocks of courses so as to bind or interlock the blocks of the several courses together, enabling a wall construction of great strength and
 105 durability to be built. In the formation of walls with corner or other angles, blocks of suitable angular form for use at such points may be made. Also blocks 13' of the slightly modified form shown in Figure 10
 110 may be used at proper points, each having a recess 18 to receive a floor joist or beam or other support.

The provision of a former or liner 9 for producing blocks or building units of the
 115 character described, the former is molded with a thickened body portion 19 and top and bottom marginal flanges 20, which flanges lie flush with the outer faces of the sides and ends of the former whereby re-
 120 cesses or rabbets 21 are formed at the top and bottom of the lining, the structure thus being such that the body portion of the former or lining will produce the grooved or
 125 channeled body of the block and the flanges and recessed or rabbeted portions thereof the flanged edges of the block. The formers or liners are coextensive in depth with the cells or chambers in which they
 130 fit and the cells or chambers are therefore

normally open at top and bottom. The cells or chambers may be closed at the bottom in any suitable manner, either by the use of a separate pallet or bottom plate for each of them, or, as shown, in the drawings, they may rest upon a single base plate or pallet 22, common to all of them. The tops of the cells or chambers may be left open, if desired, in which event the filled in plastic material may be smoothed down and shaped at the top in any suitable manner, or separate top plates for each of the cells or a common top plate for all of them may be used. For the purpose of forming the openings 16 and 17 in the blocks the sides of each mold chamber and the sides of each former or liner are provided respectively with registering core receiving openings 23 and 24. The cores 25 employed are threaded transversely of each transverse row of mold chambers through these openings, and these cores may be made of rubber tubing or hose pipe. I have found in practice that when the cores are formed of rubber or present a rubber or rubberized surface they will not stick to the plastic material or, in case they happen to slightly adhere, will easily pull loose and, as a result of their resiliency, will detach themselves without injury to them or to the walls of the cores in the blocks.

In the operation of employing a mold of the construction described, the mold frame is set up, the liners or formers fitted in the cells or chambers thereof, and the cores then threaded through, after which the plastic concrete, cement or other plastic material is filled into the mold chambers and allowed to remain until sufficiently set or hardened. The formed blocks or units may then be conveniently removed from the mold chambers, after withdrawal of the cores, with the formers or liners and the formers or liners may then be stripped from the blocks in the manner before described. The mold elements are then ready for use again without preparatory cleansing, oiling, greasing or other treatment, except such slight cleansing as may be needed to free the exposed surfaces of the frame elements from particles of the plastic material which may adhere thereto.

In threading cores 25 through the openings in the formers and walls of the cells it is desirable to provide some means to prevent inward displacement of the sides of the flexible formers while the cores are being threaded, particularly when the cores fit the openings snugly. To this end, I provide a holding device (see Figure 13) composed of a handle bar 26 carrying blades or plates 27, each having slots 27' therein corresponding in number and arrangement with the core openings in the cell walls. The bar 26 is shown as carrying two such blades or plates 27 to fit within a single cell, but in

practice the bar may be provided with pairs of plates equal in number to a transverse row of cells, one pair of plates for each cell, so as to adapt the device to be applied to hold all perforated walls of the liners of a transverse row of cells from deflection while the cores are being inserted. The slots 27' open at their lower ends through the lower edges of the plates, so that the plates may be slidably inserted from above to bear upon the inner faces of the perforated liner walls, holding said walls from inward movement during the insertion of the cores, after which the holding device may be removed. The plates 27 may be equal in depth with the cells, so that the bar 26, when the plates are fully inserted, will contact with the upper edges of the strips 3, thus ensuring accurate registration of the slots 27' with the openings.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of use and advantages of my improved mold will be readily understood and appreciated without a further and extended description, and it will be seen that a structure is provided whereby building blocks or units of a superior type may be rapidly and economically produced. While the structure disclosed is preferred, it will, of course, be understood that changes in the form, proportions and details of construction may be made within the scope of the appended claims, without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus fully described my invention, I claim:—

1. In a mold, a mold chamber of rectangular formation, and a removable lining therefor comprising a continuous strip of soft rubber having wall portions conforming to the wall portions of the mold chamber, said strip being split from top to bottom at a point in its length, whereby said lining may by its flexibility be stripped from the surface of a formed article.

2. In a mold, a mold chamber, and a forming surface of soft rubber disposed in the mold chamber and providing a liner around the walls thereof, said liner being removable from the mold chamber and divisible so as to render it capable of being linearly stripped from the formed article.

3. In a mold, a mold chamber, and a removable soft rubber lining for the mold chamber extending around the walls of said chamber so as to envelop the article to be formed therein, said lining being split whereby upon its removal with the formed article from the mold chamber it may be stripped from the said formed article.

4. In a mold, a mold chamber, and a soft rubber lining extending around the walls of the mold chamber and removable there-

from, said lining having a body portion of major thickness and having its upper and lower edges rabbeted.

5 5. In a mold, a mold chamber, and a soft rubber lining for the mold chamber split at one side, said lining having a body portion of major thickness and having its upper and lower edges rabbeted.

10 6. In a mold, a mold chamber, and a removable soft rubber lining for the mold chamber having sides conforming to the walls of the mold chamber and hinged by the resiliency of the material to each other, said lining being split at a point to adapt it to be linearly peeled or stripped from the
15 formed article.

7. In a mold, a mold chamber, and a removable lining for the mold chamber comprising a continuous molded strip of soft
20 rubber split at a point to permit it by its flexibility to be linearly stripped from the formed article.

8. In a mold, a mold chamber, and a removable lining for the mold chamber comprising a continuous molded strip of soft
25 rubber split at a point to permit it by its flexibility to be linearly stripped from the formed article, said lining having a body portion of maximum thickness and flanges forming rabbets at its upper edges, at least
30 two of the sides of said lining being provided with registering core receiving openings.

9. A mold having a molded forming surface comprising a body of soft rubber and
35 split at one point to adapt it to be opened up and stripped linearly from a formed article.

40 10. A mold having a molded forming surface comprising a body of soft rubber and split at one point to adapt it to be opened up

and stripped linearly from a formed article, said body being formed with core receiving openings at opposite sides thereof.

11. In a mold, a soft rubber forming surface, a frame enclosing said surface and
45 having walls rigidly backing the same, the forming surface and walls having registering core receiving apertures at opposite sides thereof.

12. In a mold, a soft rubber forming surface, a frame enclosing said surface and rigidly backing the same, the forming surface and frame having walls provided with
50 registering core receiving apertures, and apertured holding plates engageable with said apertured walls of the forming surface to prevent their relative displacement in a
55 core threading action.

13. In a mold, the combination of a mold frame provided with mold cells or chambers
60 having core receiving openings in opposed walls thereof, removable formers or liners of rubber fitted in said cells or chambers and provided with similar openings registering with the openings first-named, and
65 cores of rubber adapted to be threaded through said openings.

14. In a mold, a mold frame comprising interfitted and detachably connected longitudinal and transverse bars forming cells
70 or chambers, and a removable lining for each of said chambers formed of rubber.

15. In a mold, a mold frame comprising longitudinal and transverse bars provided
75 with interengaging slits whereby they are detachably connected, said bars forming cells or chambers between adjacent portions thereof, and a removable liner of rubber in
80 each cell or chamber.

In testimony whereof I affix my signature.
KURT BADER.