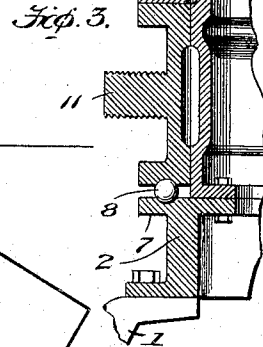
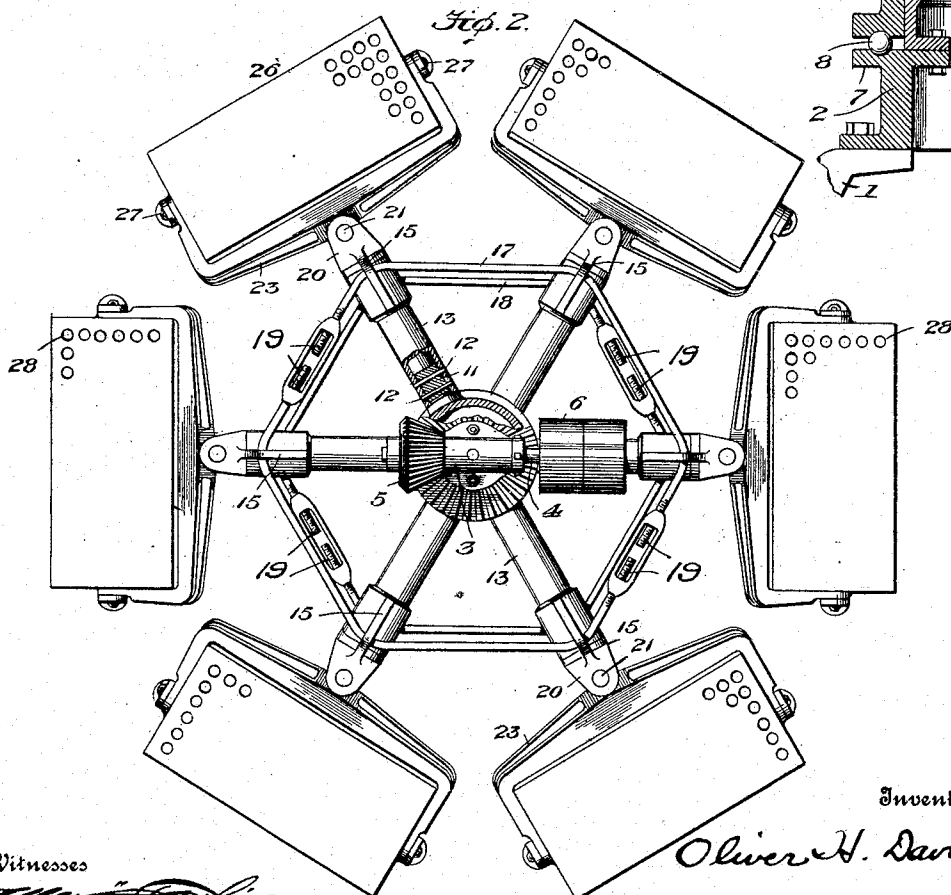
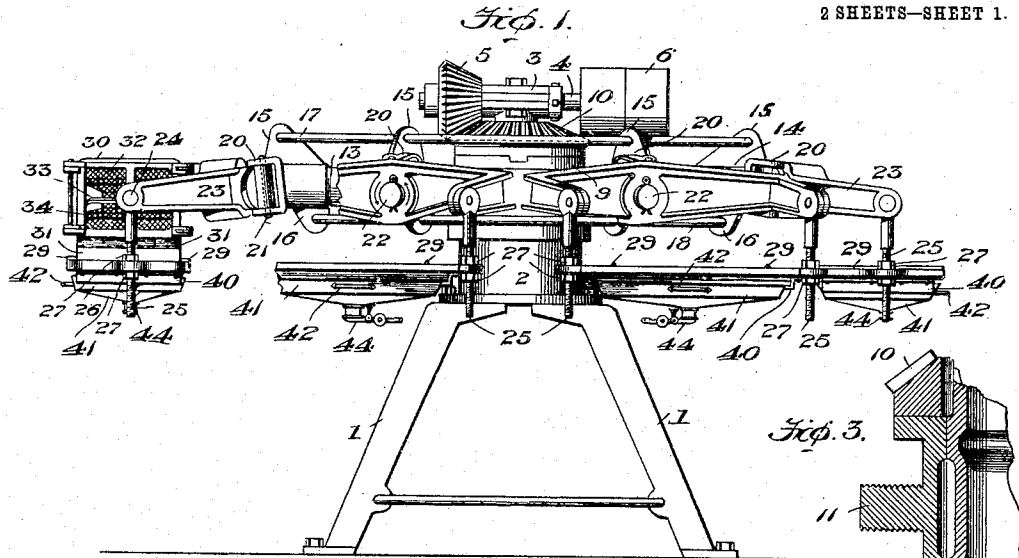


O. H. DAVIS.
CONCRETE BLOCK MACHINE.
APPLICATION FILED FEB. 27, 1908.

939,225.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses

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Inventor

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By

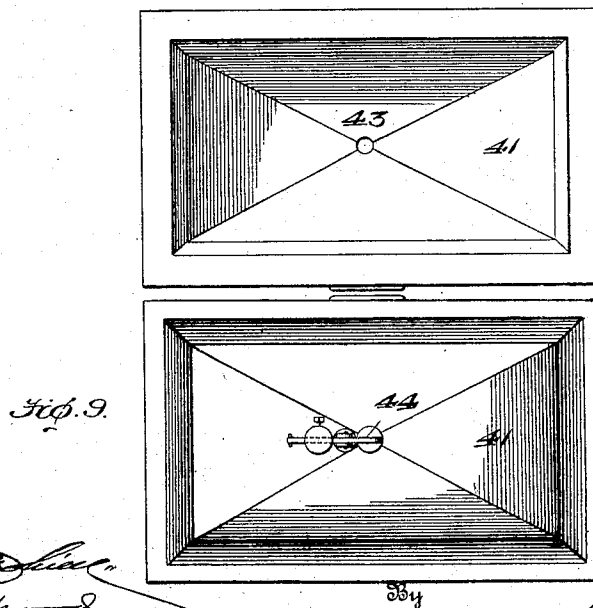
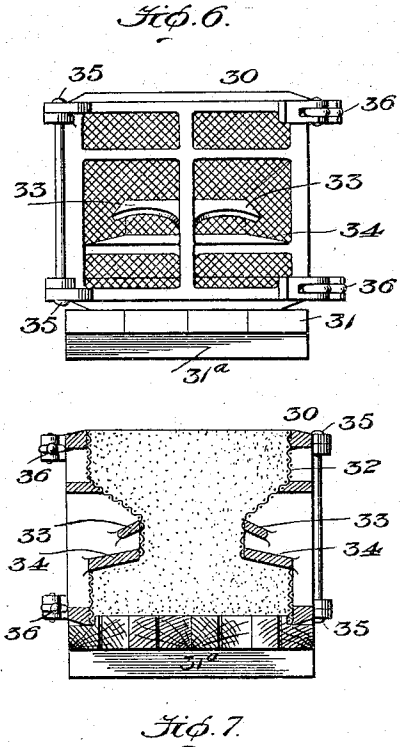
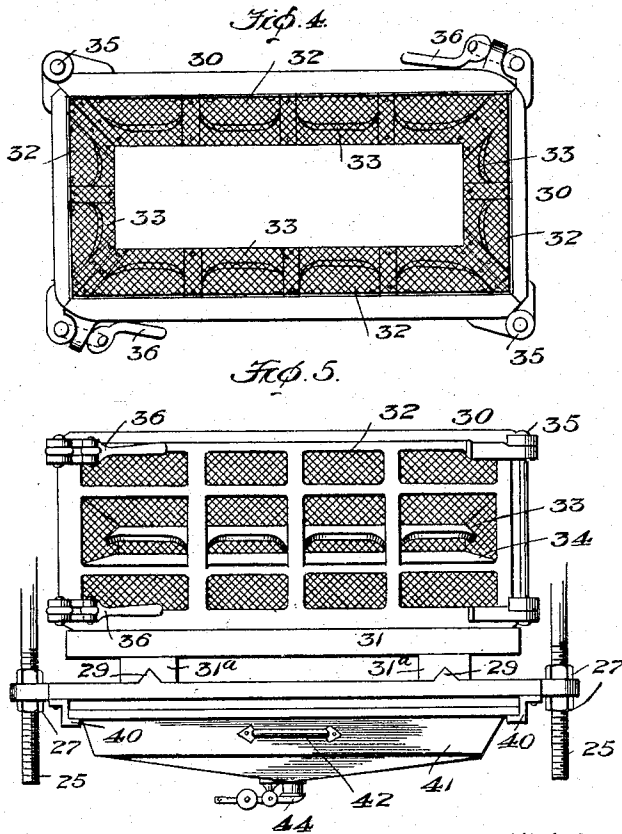
J. H. Hamilton
Attorney

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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

OLIVER H. DAVIS, OF BUFFALO, NEW YORK.

CONCRETE-BLOCK MACHINE.

939,225.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed February 27, 1908. Serial No. 418,089.

To all whom it may concern:

Be it known that I, OLIVER H. DAVIS, a citizen of the United States, residing at Buffalo, county of Erie, and State of New York, have invented certain new and useful Improvements in Concrete-Block Machines, of which the following is a specification.

My invention relates to concrete block machines.

10 The present invention has for its objects the provision of a machine for forming concrete blocks and uniting a veneer thereto by the utilization of the principle of centrifugal action and in such machine to provide a
15 rotary structure carrying one or more cradles or supports for the molds, such cradles or supports being swingingly mounted to move automatically in accordance with the action of the machine so that under all circumstances the molds will assume the correct position under the centrifugal action to obtain the best effects thereof; to provide an
20 adjustment for the cradles or supports for the accommodation of molds of different heights; make provision for the elimination and collection of the water and free cement ejected from the block being molded; and brace the rotary structure of the machine so that the centrifugal effects will balance
25 themselves and dangerous strains be eliminated.

30 A further object is the provision of a centrifugal concrete block machine having open molds, whereby a hollow concrete block is formed; and to provide molds of novel form having screened openings for the elimination of the water.

35 A still further object of this invention is the provision of a novel mold for concrete blocks.

40 The invention, in the most perfect embodiment which I have at this time devised, is set forth fully hereinafter and disclosed in the accompanying drawings, the novel features of the invention being set forth in the appended claims.

45 In the accompanying drawings:—Figure 1 is a side elevation with certain parts broken away; Fig. 2, a plan view; Fig. 3, a detail section showing the manner of mounting the rotary structure; Fig. 4, a detail plan of one of the molds; Fig. 5, a side elevation thereof, showing the mold on its cradle, and the water collector; Fig. 6, an end
50 elevation of the mold and its pallet; Fig. 7, a cross-section of the same; Fig. 8, a top

plan of the water collector; and Fig. 9, a bottom view thereof.

The frame of the machine has suitably braced legs 1, to which is pivoted, or otherwise properly secured, a tubular head 2 which carries a bearing 3 in which a jack-shaft 4, carrying bevel gear 5 and pulleys 6, is journaled.

The frame has an annular table 7 provided with a ball race in which are balls 8.

Resting on the balls 8 and journaled on the head 2 is a sleeve 9, to which is secured a gear 10 which meshes with gear 5, the sleeve being provided with radial screw-threaded stub-shafts 11, to which are screwed and connected by rivets 12, radial tubular arms 13, to the outer ends of which are screwed and riveted heads 14 having upper and lower ears 15 and 16, through which the tie-rods 17 and 18 pass, two of which are provided above and below the arms 13 and whose ends are connected by turn-buckles 19. The rotating structure thus provided is thus made extremely rigid and strong.
80 Were the tie-rods 17 and 18 not used, the weight of the cradles and molds at the outer ends of the arms 13 would tend to bend them. By thus strengthening or tying the rotary structure, I am enabled to use hollow arms 13 which will be light and yet well adapted to the different peculiar strains to which such parts are subjected owing to the employment of the cradles and the manner in which they are mounted or hung.

90 The heads 14 have ears 15 to which a knuckle 20 is pivoted on a pin 21 inclined to the horizontal and which lies substantially in the vertical plane of the longitudinal axis of the arm 13, said knuckle 20 having a gudgeon 22 in the same plane as pin 21 and on which is pivoted, in each instance, a yoke 23. Pivoted to the ends of the yoke members at 24 are depending screw-threaded rods 25 which carry the cradles 26, the latter having ears through which the rods 25 pass, nuts 27 being provided on the rods 25 above and below the cradles, whereby these cradles may be adjusted to different heights, according to the depth of the molds which are to be used on the cradles at the time.
100 This is necessary as the centers of gravity of the molds should not be above the pivotal points 24 in order that the requisite swinging or pendulum action of the cradles on pivots 24 may be obtained. The cradles may be perforated or slotted in any desired man-
105
110

ner to let the water through, in the present instance, holes 28 being provided for this purpose. The inclination and disposition of the pins 21 and knuckles 20 cause all the
 5 cradles to assume a radial position relative to the machine when it is stopped, rather than to assume various positions offset laterally from the arms 13, and insure convenience of manipulation of the molds
 10 by the operator.

It is not necessary to provide any means for retaining the molds on the cradles as their weight, with that of the contained concrete or cement, is, under the centrifugal
 15 action, sufficient to prevent them from slipping on the cradles, but in order that they may be properly centered, it is desirable to provide some means for this purpose, and, in the present instance, I have shown tracks
 20 29 on the cradles which coöperate with corresponding ways on the molds, as will appear presently.

The molds 30 have removable, perforated or plain pallets 31 on which they rest, said
 25 pallets having ways 31^a which receive the tracks 29. The molds may be of wood or of metal, preferably the latter. The molds are of rectangular form with fenestrated sides and ends covered with wire netting 32
 30 of suitable mesh, the intermediate fenestrations being bridged by bowed parts 33 over which that particular part of the wire netting is stretched, the sides and ends being provided with an inwardly projecting ledge
 35 34. Thus the molded block will be of contracted form at its longitudinal center, and across its ends, so that it will have external air channels. The sides and ends are, respectively, hinged together at 35 and are
 40 also provided with clamps 36. The mold has no bottom or top, the cradle and pallet serving as a bottom for the mold when it is placed on the cradle after filling. The hinged construction of the sides and ends
 45 permits the mold to be opened out to enable the pallet and molded block to be removed after the molding operation has been finished.

The cradles 26 have depending flanges or
 50 tracks 40 which support the flanges of rectangular water collectors 41 (Figs. 5, 8, 9) having a suitable handle 42, the collectors being of hopper formation with an outlet
 55 43 in their bottoms controlled by automatically closing counterweighted valves 44 which will not wear by the action of grit and may be quickly opened. These collectors catch the water and grit thrown off
 60 by opening the valves or slid out on their trackways 40 and cleansed of any sediment they contain.

The molds are first placed on their pallets and then filled with a mixture of cement,
 65 sand and aggregate sufficiently wet to admit

of puddling with a stick or trowel so that all corners of the mold may be easily filled and a great density secured. The top of the mold is then slicked off and a thin veneer
 70 of facing material spread over it. The pallets and molds are then lifted and the cradles centered on the cradles by placing the ways 31^a on the tracks 29, the cradles having been previously adjusted so that the
 75 centers of gravity of the molds will not be above the pivots 24. The machine is then started, whereupon the cradles swing outward on the pivots 24 and turn on the pins
 80 21 and gudgeons 22 according to the rate of rotation, weight of the parts, etc., the centrifugal action throwing the water off through
 85 the fenestrations of the molds and through the pallets and cradles, and the machine is run until sufficient water is removed that the faces of the blocks are firm to the touch,
 90 such operation taking but a few minutes. The machine is then slowed down and the molds and pallets removed, the molds opened, and the mold blocks removed and set away. By employing a hopper, a num-
 95 ber of the molds may be filled at the same time and the time required to compact the blocks reduced to that required to tamp a single mold by ordinary methods. While the machine is running, the operator may be
 100 filling other molds in order that the output may be enhanced.

By utilizing the centrifugal principle in molding, I am enabled to employ a mold of
 105 the novel form shown, which provides for perfect air circulation within the wall when the completed blocks are used in building operations, such form of mold being practically impossible to satisfactorily tamp by
 110 the ordinary methods, and the centrifugal action brings about a union of the veneer and body of the block which cannot be obtained by ordinary molding operations. The centrifugal action also brings about the
 115 most satisfactory elimination of the water and insures rapid setting of the block.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a centrifugal concrete block machine,
 120 the combination with a rotarily mounted frame, of mold supporting cradles pivoted to said frame for both outward and lateral swinging relative to said frame.

2. In a centrifugal concrete block machine,
 125 the combination with a rotarily mounted frame, of mold supporting cradles adjustably supported by said frame, whereby the molds may be positioned at different heights.

3. In a centrifugal concrete block machine,
 130 the combination with a rotarily mounted frame, of mold supporting cradles having adjustable pendent hangers pivoting them to the frame.

4. In a centrifugal concrete block machine,

the combination with a rotarily mounted
frame, of mold supports and hangers there-
for which are adapted to permit swinging
of the mold supports in a general vertical
5 plane and pivotal connections between said
hangers and the frame which are disposed
in general upright arrangement at an angle
to the horizontal whereby the mold supports

will assume a general radial relation to the
machine when it is at rest.

In testimony whereof, I hereunto affix my
signature in presence of two witnesses.

OLIVER H. DAVIS.

Witnesses:

CHAS. B. MURPHY,
HEMAN C. CLEVELAND.