Jan. 25, 1949. A. G. CARLSEN 2,460,167

CONCRETE BLOCK MAKING MACHINE

Filed April 2, 1947 3 Sheets-Sheet 1

Fig 1

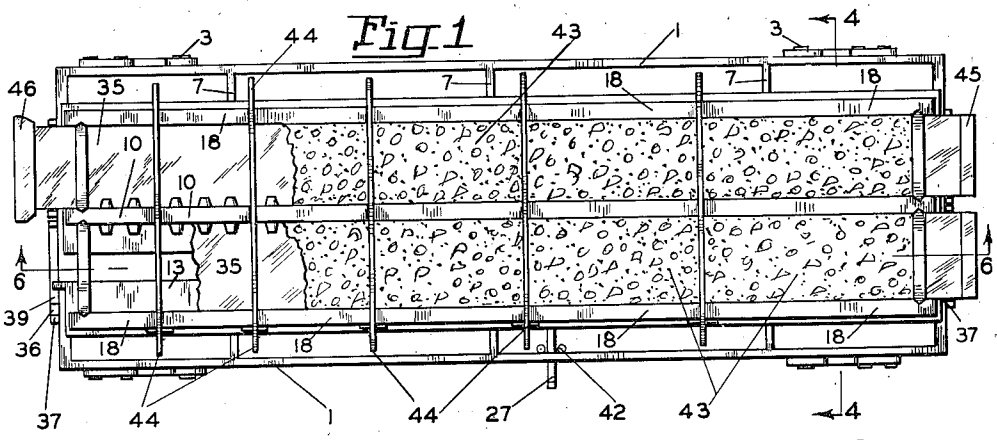


Fig 2

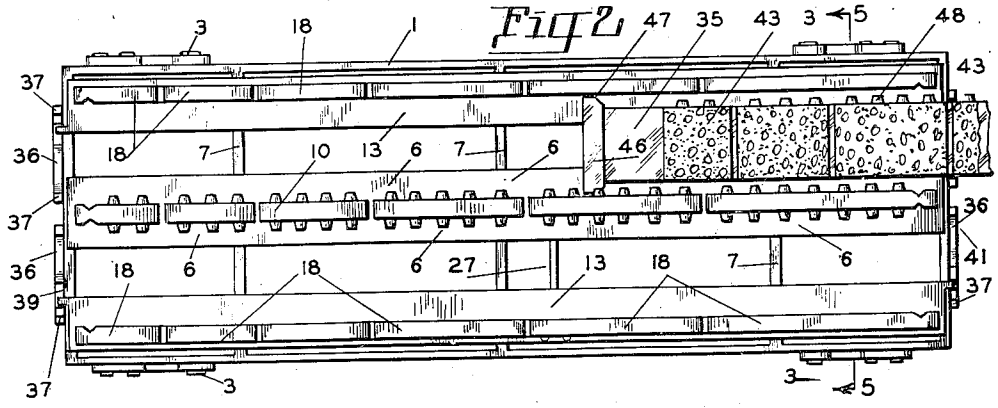
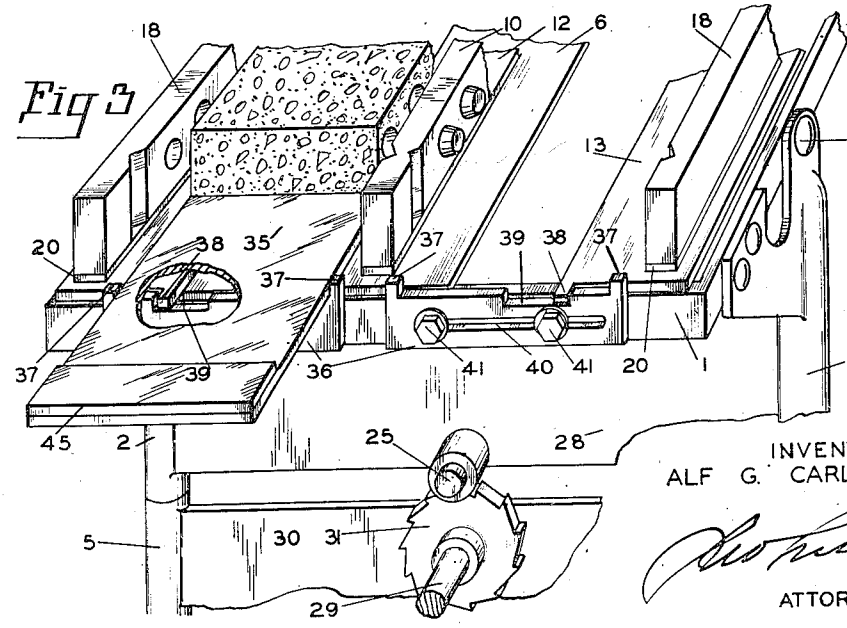


Fig 3



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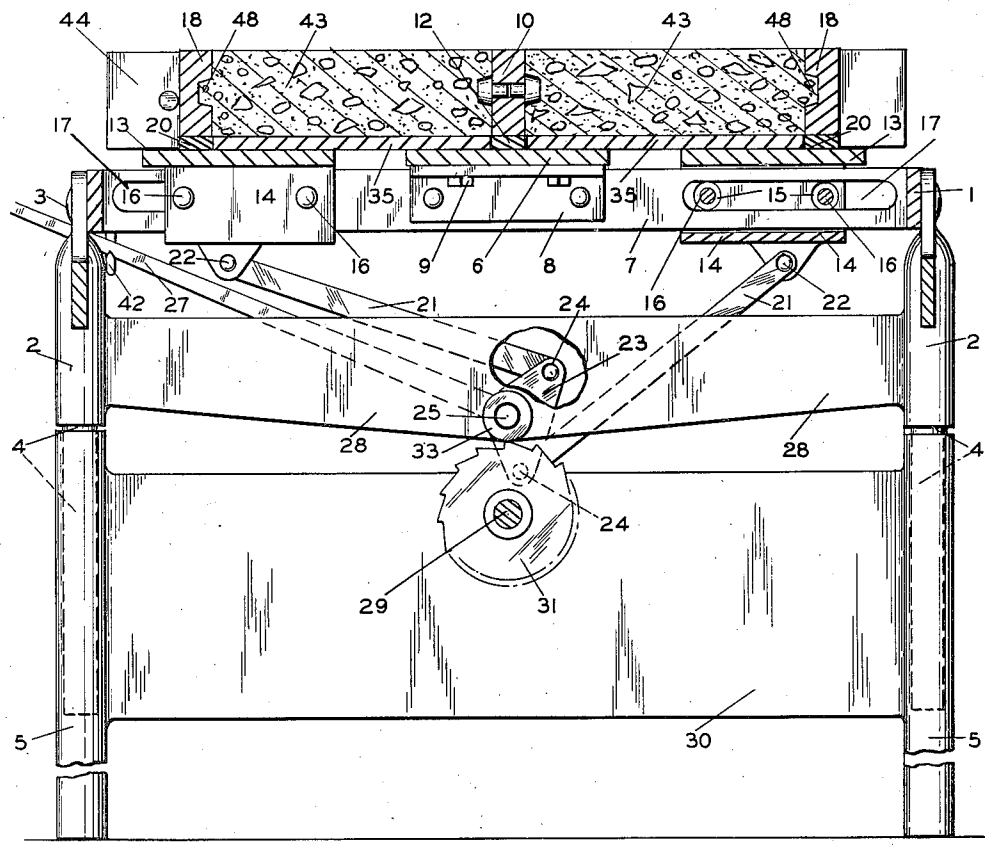


Fig 4

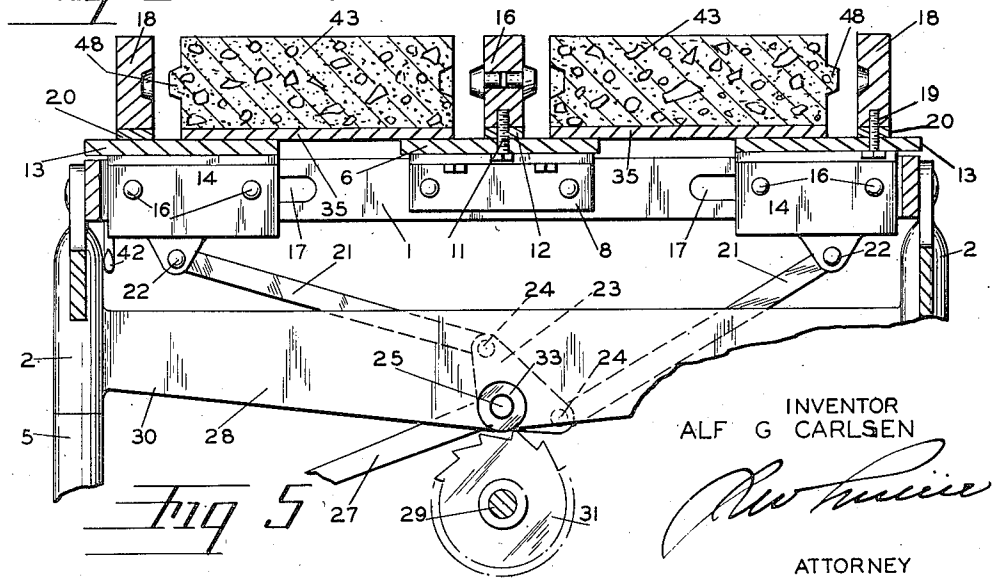


Fig 5

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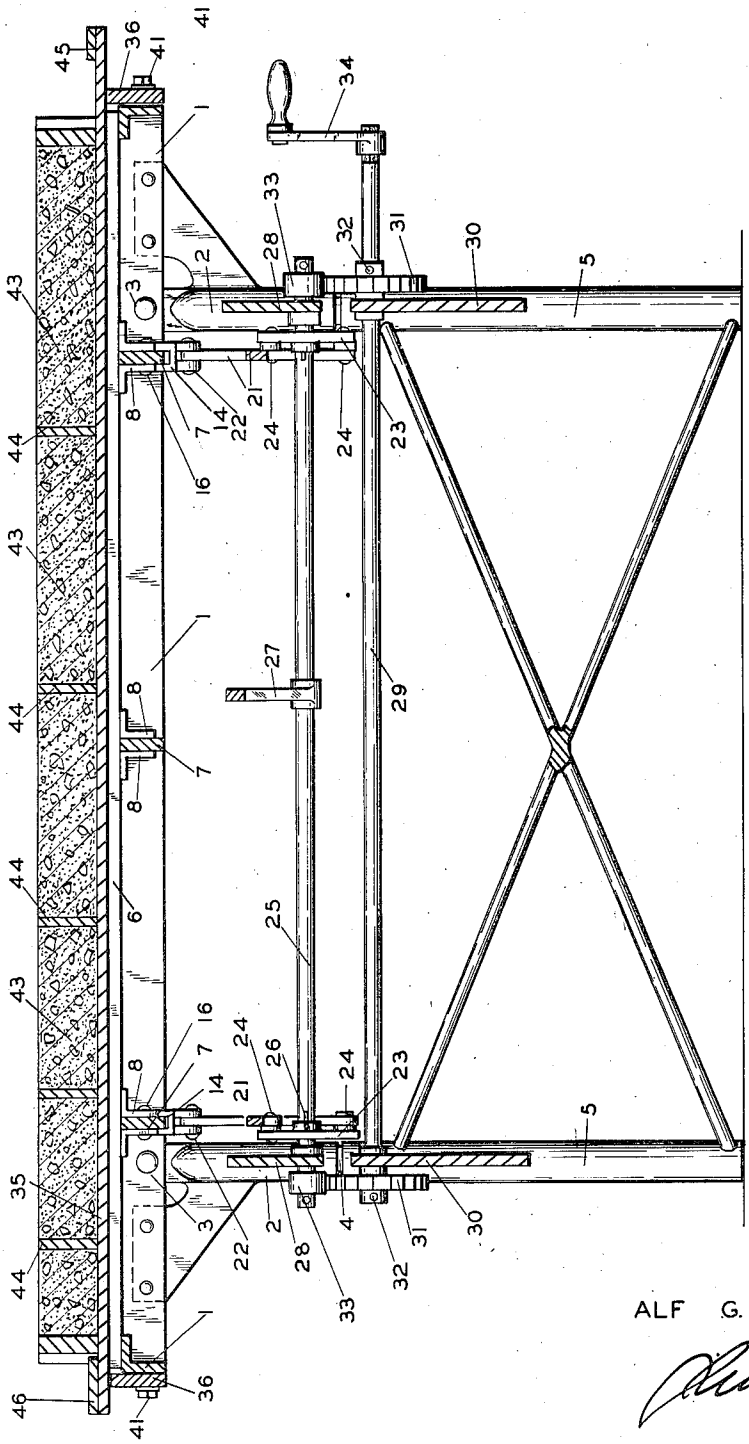


Fig. 9

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CONCRETE BLOCK MAKING MACHINE

Alf G. Carlsen, Tacoma, Wash.

Application April 2, 1947, Serial No. 738,772

9 Claims. (Cl. 25—41)

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This invention relates to concrete block making machines and is particularly adapted to be operated by an operator without the use of outside power.

The primary object of the invention is to provide a form for making concrete blocks, said form lying on a horizontal plane so that the blocks may be molded on their sides.

A further object of my invention is the provision of mold members so arranged they may be separated to readily remove the concrete formed blocks.

A further object of the invention is the forming of the blocks on removable pallets, said pallets providing the bottoms of the forms while the block is being formed.

And a still further object of my invention is to provide means for removing the pallets longitudinally of the mold members after they have been expanded so that the blocks will not be injured while removing the same from the molds.

A further object of my invention is the provision of a hand operated vibrating mechanism for vibrating the molds while making the concrete blocks.

These and other incidental objects will be apparent in the drawings, specification and claims.

Referring to the drawings:

Figure 1 is a plan view of my new and improved concrete block making machine illustrating the molds closed or in molding position, parts of the concrete and pallets being broken away for convenience of illustration.

Figure 2 is a plan view as shown in Figure 1, wherein the molds have been expanded and illustrating how the pallets and the blocks are to be removed from the molds.

Figure 3 is an enlarged fragmentary perspective view of one end of the block making machine, parts broken away for convenience of illustration.

Figure 4 is an end sectional view taken of the block making machine, illustrating the molds in closed position, this view being taken on line 4—4 of Figure 1.

Figure 5 is a fragmentary end sectional view taken on line 5—5 of Figure 2, illustrating the molds expanded so that the blocks may be removed therefrom.

Figure 6 is a side sectional view of the machine taken on line 6—6 of Figure 1.

In the drawings:

My new and improved concrete block making machine consists of a frame 1, having downwardly extending legs 2 secured thereto at 3. The legs 2 are relatively short and consist of tubular construction having a reduced extension 4 extending down into the tubular legs 5, the object and purpose of which will be later described.

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Fixedly secured to the upper surface of the frame 1 is a longitudinal support 6. This support is secured to the cross members 7 by way of suitable brackets 8, the support being secured to the brackets by any suitable fastening means, as bolts 9. The support, as stated before, is fixedly mounted to the frame and has fixed mold members 10 secured thereto by suitable fastening means, as bolts 11. A shim 12 extends longitudinally of the support 6 raising the mold members slightly above the support to allow for thickness of pallets, to be later described.

Movable longitudinal supports 13 running parallel to the fixed support 6 are mounted to the cross members 7 by way of the guides 14. The guides 14 move lengthwise of the cross members and are secured thereto through the rollers 15, which are journalled to the cross shafts 16 fixedly secured within the guides, said rollers running within the slots 17 of the cross members 7, best illustrated in Figure 4 where one of the guides is broken away to illustrate the same.

Mold members 18 are fixedly secured to the movable supports 13 by the bolts 19 and upon the shims 20, best illustrated in Figure 5. The position of the movable supports 13 is governed by the connecting links 21, which have one of their ends pivotally connected at 22 to the guides 14 and their opposite ends pivotally connected to the crank 23 at 24. The crank 23 is fixedly connected to the shaft 25 by any suitable means, as by the key 26.

An operating lever 27 is fixedly secured to the shaft 25. When the lever is in the position illustrated in Figures 1, 4 and 6 the molds are closed, but while it is shown in the position of Figure 2 and Figure 5 the longitudinal supports 13 are located adjacent the outer edge of the frame expanding the mold movable as best illustrated in said views. The shaft 25 is journalled in bearings within the cross frames 28, these said frames forming part of the downwardly extending legs 2.

A second longitudinal shaft 29 is journalled within the cross frames 30, forming part of the lower legs 5. A pair of ratchet wheels 31 are fixedly mounted to the shaft 29 by suitable locking keys 32. The shaft 25 is extended beyond the cross frames 28 and has rollers 33 mounted thereon. These rollers rest upon ratchet wheels 31. A crank 34 is secured to the shaft 29 and when revolved raises and lowers the main frame 1 caus-

ing a vibration for settling the concrete being molded within the molds.

Pallets 35 rest upon the longitudinal supports 6 and 13. These pallets also rest upon the movable guide bars 36 located on either end of the frame. The guide bars 36 have upwardly extending guide members 37 which contact either side of the pallets 35. Extending beyond and forming part of the supports 13 are operating fingers 38 for moving the guide bars 36. These fingers operate in the cut-out portion 39 of the guide bars. The guide bars are mounted to the frame 1 through a slot 40 formed therein and working over the holding bolts 41, which are fixedly secured to the frame.

I will now describe the operation of my new and improved concrete block making machine. First the operating lever 27 is brought to the position shown in Figures 1 and 4 and is held there by the hook 42, which is secured to the frame 1. This causes the connecting links 21 to pull the guides 14 towards the center of the machine. This pulls the mold members 18 towards the center mold members 10. The spacers 12 and 20 are the same thickness as the pallets 35, therefore, the finished block 43 will be the same thickness as the molds when molding is completed. The length of the individual mold members 10 and 18 may vary in length as indicated on the drawings, and they are spaced apart transversely by the removable cross members 44 as illustrated in Figure 1.

In the molding of the concrete blocks one or more methods may be employed. The concrete is poured and tamped down by hand being levelled at the same time. Where desirable it may be vibrated by rotating the crank 34 which rotates the ratchet wheels 31 slowly raising the frame 1 on the inclined surface of the ratchet, then dropping said frame over the end of the ratchets. I do not wish to be limited to any particular method of molding blocks, but I have provided means of varying this method in the making of the blocks.

After the molding operation is finished the lever 27 is lowered to the position shown in Figure 5. This forces the guides 14 outwardly together with the mold members 18 for a predetermined distance away from the molded blocks. On further progress outwardly of the guides 14 and the mold members 18 the fingers 38 of the plates 13 engage the end of the slot 39 of the guide bars 36, which moves the pallets 35 and the molded blocks away from the center mold members 10 to the position shown in Figure 2. When this is done the ends 45 of the pallets may be grasped and pulled lengthwise.

A guide member 46 is fixedly secured to the opposite end of the pallet and is guided between the mold members 10 and 18 as illustrated at 47, Figure 2, preventing contact of the blocks 43 with the sides of the mold members while removing the same lengthwise of the machine. The guide members 37 of the guide bars 36 also guide the pallets in this operation. The spacing of the pallets between the mold members is especially important where knobs 48 are being formed on the blocks, thus preventing breaking the same off as the same are being removed from the machine.

I have not illustrated where the pallets are removed to after taken from the machine, but they come out onto a suitable receiving table or conveyor and are removed to a drying rack where the blocks are dried and cured.

I do not wish to be limited to the exact mechanical construction as other mechanical equivalents may be substituted still coming within the scope of my claims, as the primary object of my invention is the molding of the blocks and then moving the sides of the mold members away from said blocks so that the blocks may be removed from the machine.

I claim:

1. A machine for molding plastic material such as concrete and which comprises a support, a mold member fixed on said support, a second support, a second mold member on said second-mentioned support in spaced relation from said fixed mold member and movable with said second support for movement relative to said fixed mold member, a pallet mounted on said supports by and between said mold members for supporting the molded plastic material, and means for moving said movable mold member and its support relative to said pallet and said fixed mold member and simultaneously moving said pallet relative to said fixed mold member to free the pallet and the molded objects thereon from between said mold members.

2. A machine as set forth in claim 1, wherein the means for moving the mold member and pallet also includes means for vibrating said mold members and said pallet as a unit to compact the plastic material on said pallet between the mold members.

3. A machine as set forth in claim 1, wherein said second-mentioned support is movably mounted on a base and the means for moving the mold member and pallet includes an element for cooperating with a vibratory member mounted on said base for vibrating said supports to compact the plastic material on said pallet and between said mold members.

4. A machine as set forth in claim 1, wherein the means for moving the mold member support and pallet comprises a crank and a link connected to said mold member, a crank and a delayed action connection between said movable mold member and said pallet.

5. A machine as set forth in claim 1, wherein the moving means includes a crank connected with the support for the mold member and mounted on a shaft, and a vibratory member in vibratory relation with said shaft for vibrating the shaft so that the vibrations will be transmitted to compact the plastic material.

6. A machine for molding plastic material such as concrete and which comprises a support, a mold member fixed on said support and centrally thereof, opposed second movable supports in spaced relation on opposite sides of said fixed support opposed mold members mounted on the movable supports for movement relative to said fixed mold member, pallets supported by and between said fixed mold member and said movable mold members, for supporting the molded plastic material, and means for moving said second-mentioned supports and movable mold members in opposite directions and relative to their respective pallets and said fixed mold member and simultaneously moving said pallets in opposite directions and relative to said fixed mold member to free the pallets and the molded objects thereon from said mold members.

7. A machine as set forth in claim 6, wherein the means for moving the movable supports and mold members and pallets also includes means for vibrating said movable supports and movable mold members and said pallets as a unit to com-

pact the plastic material on said pallets between the mold members.

8. A machine as set forth in claim 6, wherein the means for moving the movable supports and mold members and the pallets comprises a bell crank including an extended arm forming an operating handle and oppositely extending crank arms, links connecting said crank arms with said movable supports, and delayed action connections between each of said movable supports and movable mold members and their respective pallets.

9. A concrete block making machine comprising a frame, a centrally disposed longitudinal support fixed to said frame, a series of mold members, spaced apart end to end, fixed to said fixed support, movable supports spaced from the fixed supports and running longitudinally on opposite sides of said fixed support, spaced apart mold members mounted on said movable support and arranged longitudinally of the frame, removable cross members disposed transversely of and between the said mold members, removable pallets lying longitudinally of the frame and on said fixed and movable supports, means for moving said movable supports and the mold members mounted thereon towards and away from said fixed support and fixed mold members.

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