

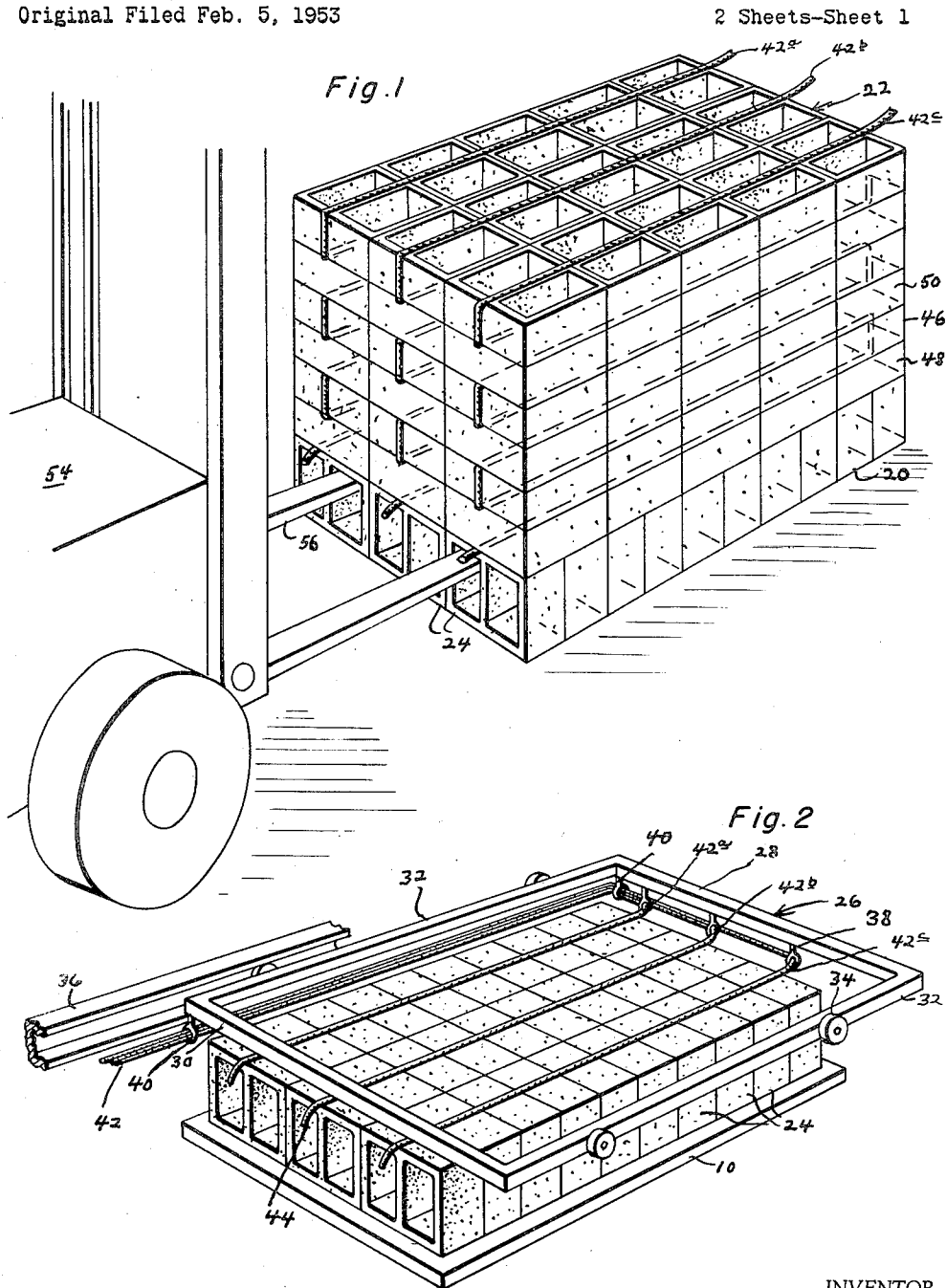
Sept. 3, 1957

P. M. THOMAS

2,804,980

STACK OF BUILDING BLOCKS

Original Filed Feb. 5, 1953



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2 Sheets-Sheet 2

Fig. 3

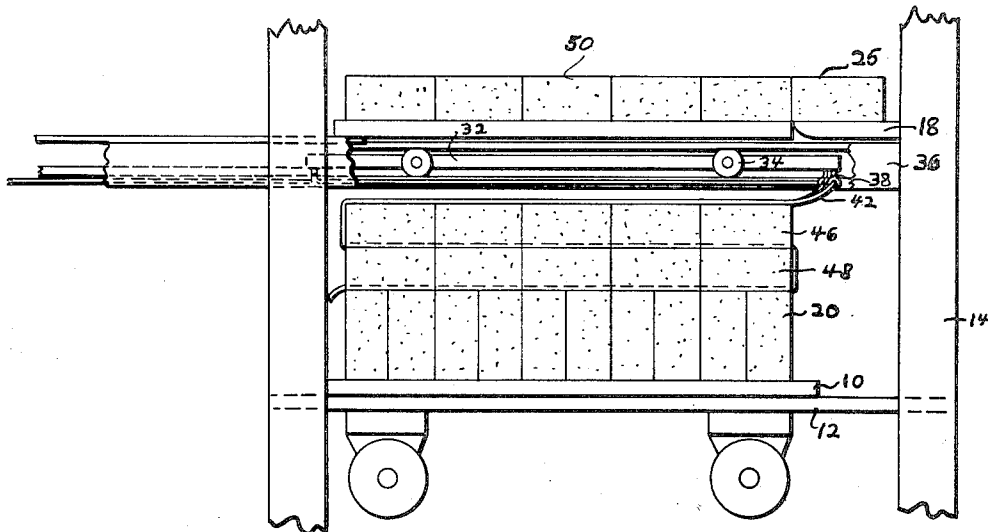
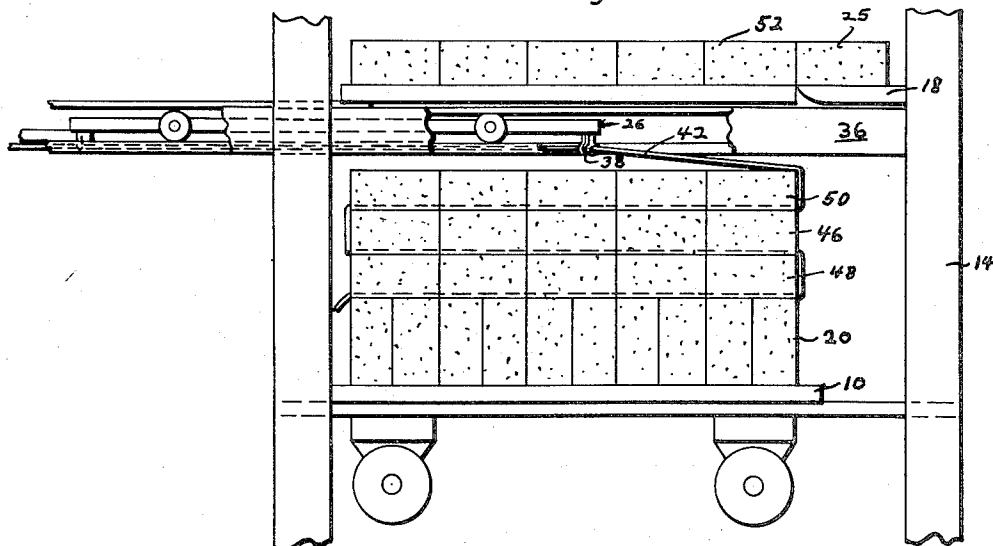


Fig. 4



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STACK OF BUILDING BLOCKS

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Original application February 5, 1953, Serial No. 335,187.
Divided and this application June 7, 1954, Serial No. 434,819

1 Claim. (Cl. 214—10.5)

This invention appertains to a method of forming a stack of building blocks or similar articles and to a pile or stack of such blocks and is a divisional application of my copending abandoned application, Serial No. 335,187, filed February 5, 1953.

In the making and handling of concrete building blocks, which are formed with vertical air openings, it is an established practice to manually remove the blocks from drying racks and manually stack or pile them to form piles or stacks for loading and transport. In my copending application, I provide a machine for automatically removing the blocks from drying racks and stacking them in piles or stacks of cube form. One of the features of such machine is a means for positioning the bottom layer of the stacks so that the openings in the blocks can receive the tines of the lifting fork of a small industrial truck. Thus, the bottom layer of the stacks is made up of blocks set on edge so that their openings are horizontally arranged and the subsequent upper layers are composed of blocks set flatwise with their openings vertically arranged. The stack, when formed, thus consists of a bottom layer of blocks placed on edge and upper layers consolidated into vertical tiers. The lateral stability of such a stack is adequate but the stack lacks adequate fore and aft stability, that is, forwardly and rearwardly, axially of the aligned openings in the blocks of the bottom layer.

Therefore, the primary object of this invention is to provide a method of forming such a stack so that it possesses fore and aft stability and so that the layers or tiers are so intersupported as to resist any movement fore and aft of the stack.

Another object of this invention is to provide a method of forming such a stack by interlacing flexible elements back and forth around the layers in a fore and aft direction of the stack, the flexible elements preferably being applied S-wise or zig-zag between the layers as the stack is being built up.

A further object of this invention is to provide a stack of such building blocks, which stack consists of interlaced layers that possess fore and aft stability, as well as lateral stability and which stack can be picked up by the lifting forks of a truck without any shifting or sliding of the layers and without any undue relative movement of the blocks of any of the layers.

The foregoing and ancillary objects are attained by this invention, the preferred form of which is set forth in the following description and illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a stack, shown in final condition for being picked up and moved by the fork lift truck.

Fig. 2 is a perspective view of the first step in forming the stack and shows a stringer member which strings the twine or similar elements over the layers of blocks in the stack;

Fig. 3 is an end elevational view of a fragmentary portion of a stacking apparatus, as disclosed in my co-

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pending application, and shows the stack in side elevation and in the process of being formed;

Fig. 4 is a view, similar to Fig. 3, and showing the stack after another layer has been added thereto.

In my copending application, I disclose a stacking apparatus for receiving layers of blocks from horizontal trays of a tray elevator cage, the layers of blocks having been automatically placed on the trays from the pallets of a drying and curing device. Such apparatus includes a vertically movable stacking table 10 which is supported laterally on lifting rails 12 which are elevatable on vertical slides 14. A stacking plate 16 operates within the stacking apparatus and together with a turn-over trough 18 receives the layers of blocks from the trays of the elevator cage. Such structure is fully disclosed in my copending application and only is disclosed generally herein for the purpose of clearly describing the method of forming the stack.

The bottom layer 20 of the stack 22 consists of blocks 24 which have been turned on edge by the turn-over trough which is a part of a turn-over mechanism (not shown herein but disclosed in my copending application). Such blocks are flat and rectangular. The blocks have core holes or openings with parallel sides which extend through the tops and bottoms of the blocks. Of course, such blocks are merely exemplary of the type of blocks with which this invention is particularly intended to deal. The bottom layer 20 is composed of such blocks 24, which are placed on end so that the openings are horizontally disposed and the openings in the blocks of one row are all in alignment. The bottom layer is formed by the turn-over mechanism which acts on the last row 25 (Fig. 3) of each layer coming from each of the elevator trays.

In the initial step in forming the stack 22, the bottom layer is formed by depositing the blocks from the turn-over mechanism onto the stacking table 10, as disclosed in my copending application. After the bottom layer 20 is formed on the table 10, a stringing member or rack 26 is moved horizontally to a position overlying the bottom layer. As shown in Fig. 2 and more fully disclosed in my copending application, the stringing rack 26 has longitudinally spaced parallel inner and outer end bars 28 and 30 which are joined by longitudinal slide bars 32. The slide bars carry rollers 34 which slide on channel rails 36. Three laterally spaced guide eyes 38 depend from the outer end bar 30 and gathering eyes 40 depend from the left slide bar 32. Suitable flexible elements or lacing material, such as the twine 42 are provided. There are three twine strands 42a, 42b and 42c and such strands commonly run through the gathering eyes 40 from suitable sources (not shown but such as balls disposed remotely of the rack). The twine strands then individually pass through guide eyes 38 and extend longitudinally in parallel reaches between the slide bars 32.

After the bottom layer is formed on the table 10, the stringing rack is moved rectilinearly to a position overlying the bottom layer, as shown in Fig. 2. During such movement the free ends 44 of the twin strands are manually held to play out the reaches of the twine strands over the bottom layer. The twine lacings are carried back and forth alternately from the front to rear of the stack being built up and are thereby placed in zig-zag manner between the layers of the stack. In other words as shown in Figs. 3 and 4, wherein the lacings are slightly exaggerated in diameter to show the manner of placement thereof, the lacings are applied S-wise between the layers as the stack is built up.

For a clearer understanding of this, attention is directed to Figs. 3 and 4. In Fig. 3, the layer 46 has been placed on the layer 26 and the rack 26 has been moved to a position overlying the layer 46 and bringing the twine lacings over the upper face of the layer 46. The twine lacings are played out over the layer 46 as the rack is

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moved forwardly to a position where the front and rear end bars are forward and rearward of the stack being built up. In this respect, it should be noted that the internal area of the rack is greater than the cross-sectional area of the stack. Thus, the next layer 50 is let down from the stacking plate 16 onto the twine lacings overlying the layer 46, the layer 50 passing down through the rack and seating on the lacings. The stacking table 10 is then moved down or lowered the distance of the thickness or height of the layer 50. The rack is then moved rearwardly or to the left, as shown in Fig. 4 and the lacings are pulled rearwardly across the top of the layer 50. The rack is moved rearwardly until the outer or front end bar 28 clears the stack. The next layer 52 of Fig. 4 is then let down from the plate 16 onto the layer 50 and seats on the twine lacings which extend across the top thereof.

It will be noted that there are three twine strands or lacings provided which number is governed by the number of blocks forming the width of the stack 22. In the drawings the stack is composed in width of three blocks so that it is three blocks in width. Therefore, three lacings or strands are provided. If the stack were four blocks in width, then the rack would be wider and another guide eye for another twine lacing would be provided.

In using the terminology "fore and aft" in the foregoing description and in the claim what is meant is the direction axially of the core holes or openings of the blocks of the bottom layer 20 of the stack 22. The lacings are disposed across the front ends of alternate layers and across the rear ends of intermediate layers so that the lacings are applied in an S-wise or zig-zag fashion fore and aft of the stack. The rear end of the stack is the end which faces the truck 54, the fork 56 of which moves into the aligned openings of the blocks in the bottom layer to locate the stack thereon. Due to the twine lacings, the stack is compact and firm and can be easily moved by the truck 54.

While the stack has been described and shown during its building-up process, as moving downwardly, while the rack only reciprocates in a horizontal plane, it is possible for the rack to also move in a vertical plane about the stack during the stringing operation. Also, while it is preferred that a machine be used, the stringing could be

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carried out by hand, if necessary, though it would be a tedious and cumbersome operation.

Thus, while the best known form and method of practicing this invention has been shown in the drawings and described therein, such is merely by way of example and other forms and methods of practicing the invention may be realized as come within the scope of the appended claim.

I claim:

A cubical stack of hollow cored hole concrete blocks arranged for handling and transporting including a first row of upturned blocks positioned with the axes of the core holes horizontally arranged in parallel, a series of parallel stabilizing cords extending over the top surface of said upturned row of blocks and parallel to the axes of said cored holes thereof, a second layer of blocks lying flatwise on top of said cords and in abutment contact with the top surface of said first upturned row, said blocks in said second row being in sidewise abutment contact, said cords extending vertically upward over one end of said second row and horizontally over the top surface of said second row to the other end thereof and parallel to said axes of said cored holes of said first row of blocks, subsequent rows of flatwise arranged blocks each row respectively positioned on said cords in abutment contact with the top surface of the blocks of the row below and in sidewise abutment contact with each other, said cords extending vertically upwardly over alternate ends of each successive row to the top of said cubical stack and parallel to said axes of said cored holes of the first row of blocks.

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