



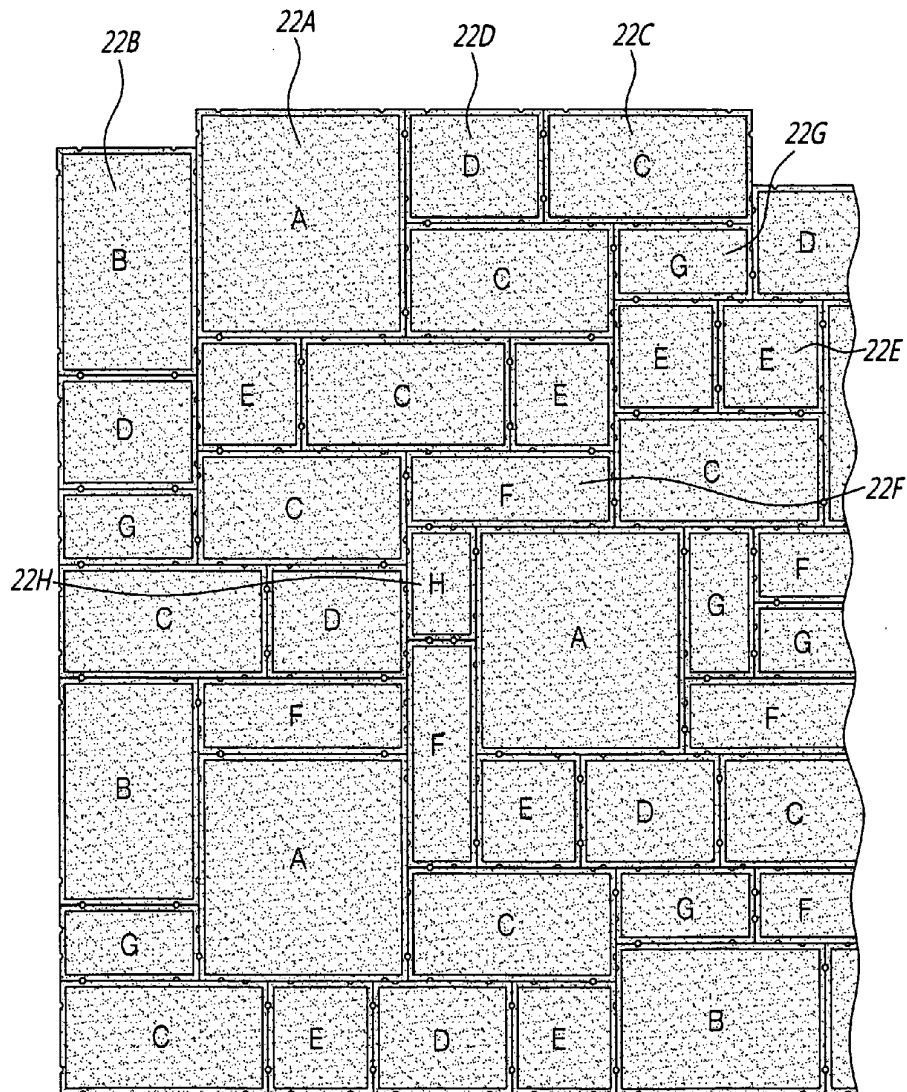
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(19) **United States**(12) **Patent Application Publication**
Leach et al.(10) **Pub. No.: US 2011/0162309 A1**(43) **Pub. Date: Jul. 7, 2011**(54) **THIN WALL VENEER BRICK AND
MANUFACTURING ASSEMBLY THEREFOR****Publication Classification**(75) Inventors: **Keith Leach**, Abbotsford (CA);
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St-Basile-Le-Grand (CA)(51) **Int. Cl.**
E04F 13/21 (2006.01)
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E04F 13/14 (2006.01)(73) Assignees: **ACP Manufacturing Ltd.; Slab
Innovation Inc.**(52) **U.S. Cl. 52/415; 52/578**(21) Appl. No.: **12/925,969**(57) **ABSTRACT**(22) Filed: **Nov. 3, 2010**

A brick having a peripheral shoulder defining a flange allowing fasteners to be inserted therein when two adjacent bricks have facing indentations is described herein. The peripheral shoulder of the bricks allows mortar to be inserted therein to create a conventional brick look and to hide the fasteners. The shoulder is optionally provided with indentations allowing fasteners therethrough. Also described herein is a machine to manufacture such bricks.

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Nov. 3, 2009 (CA) 2,684,277



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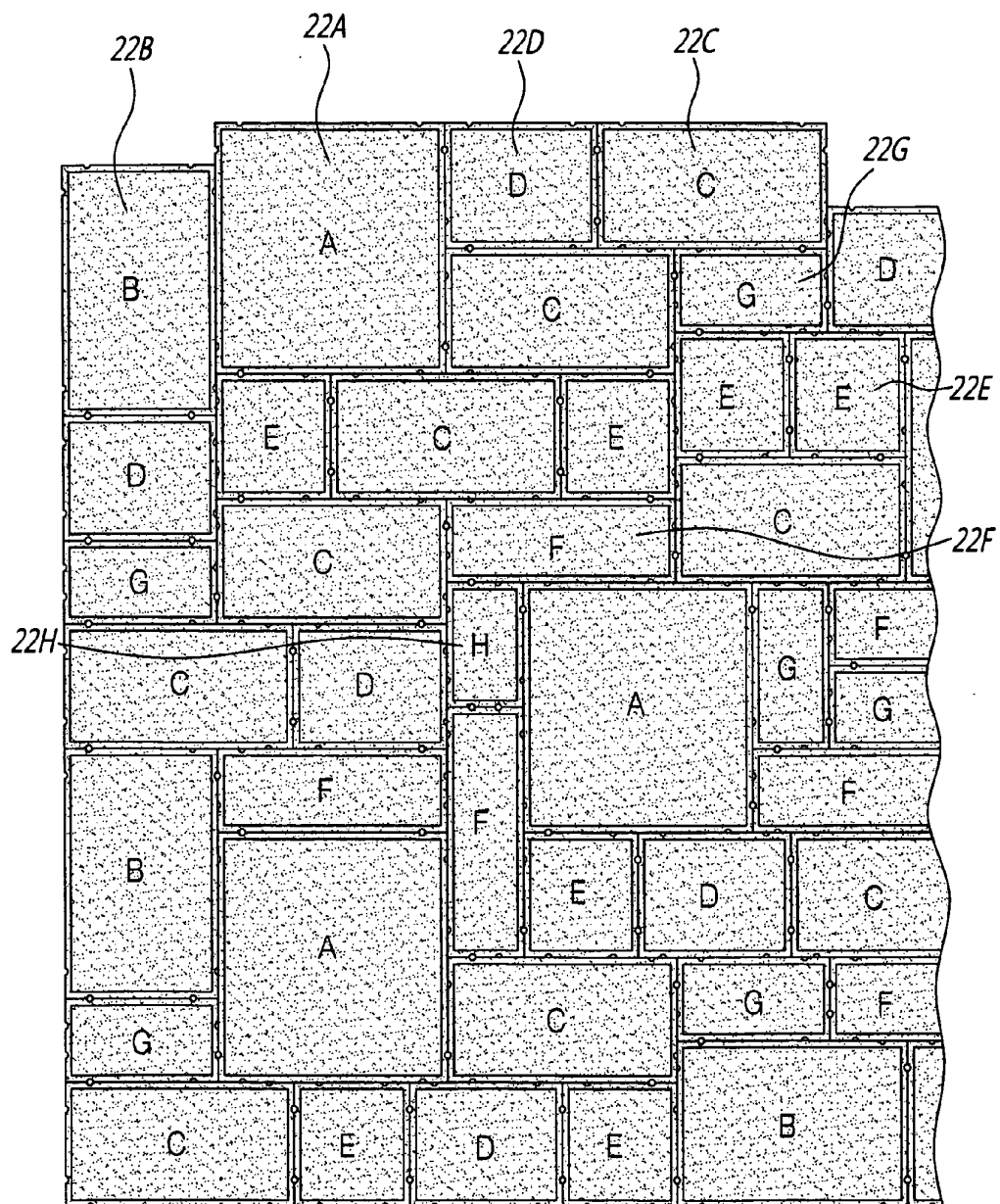
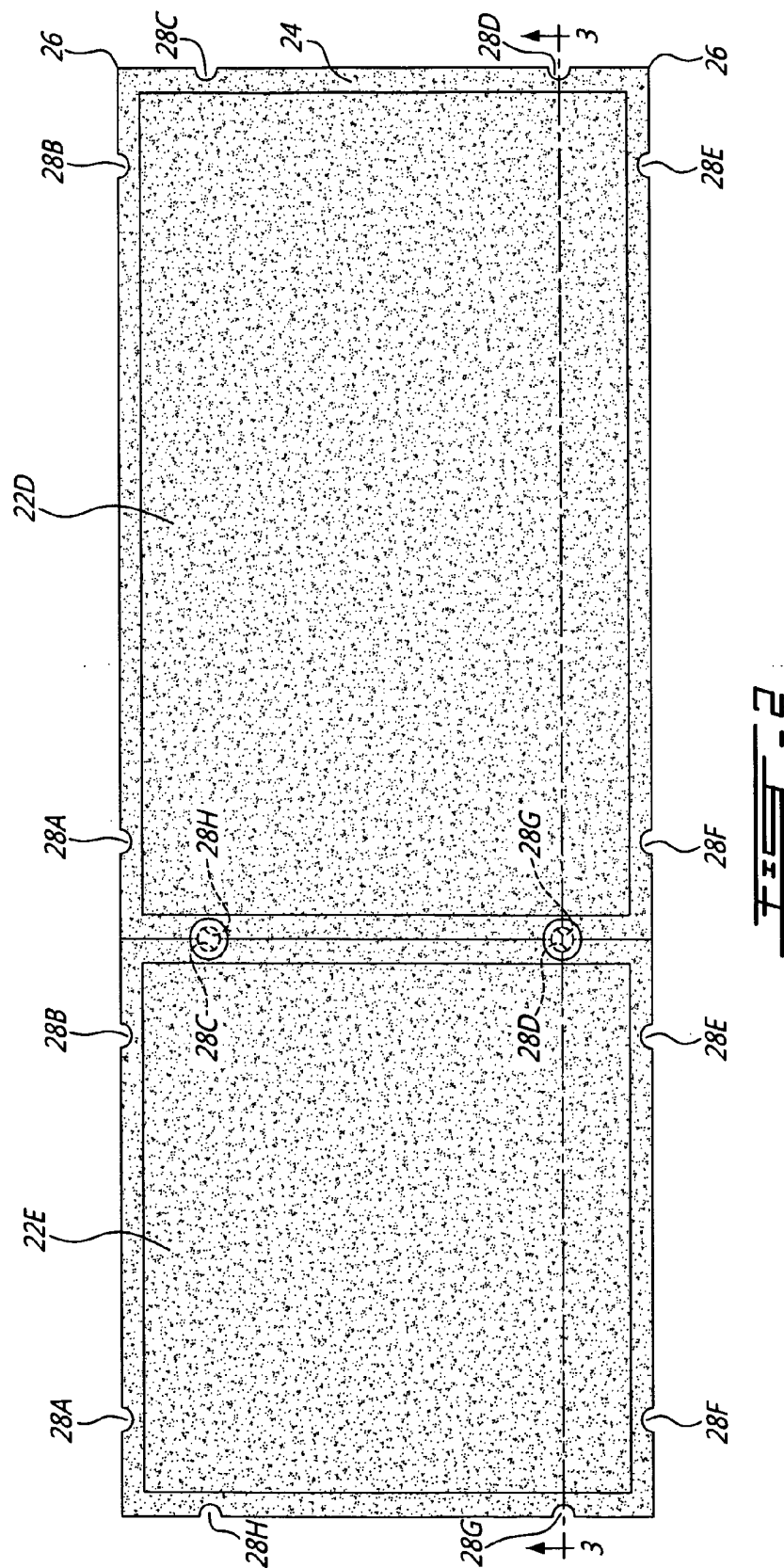
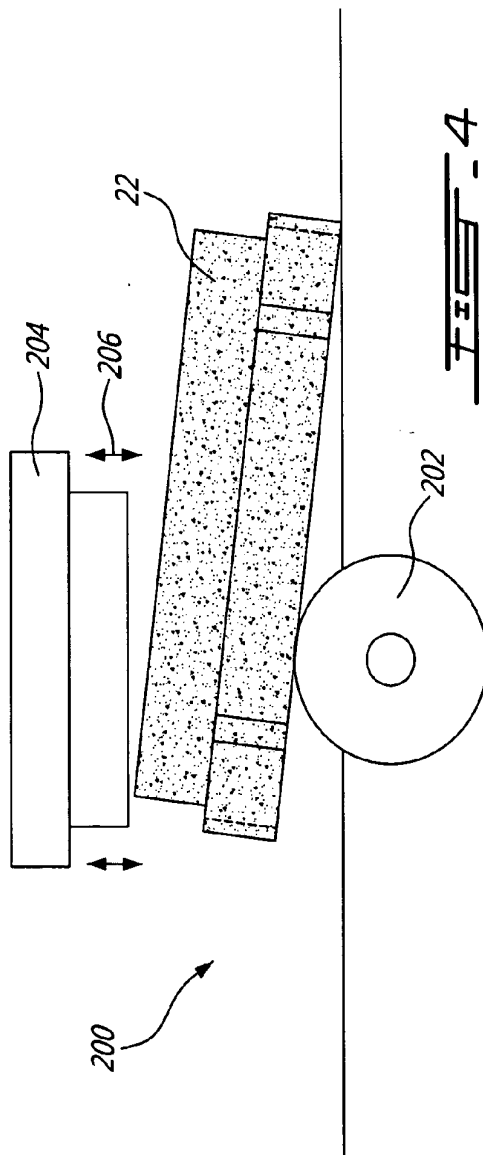
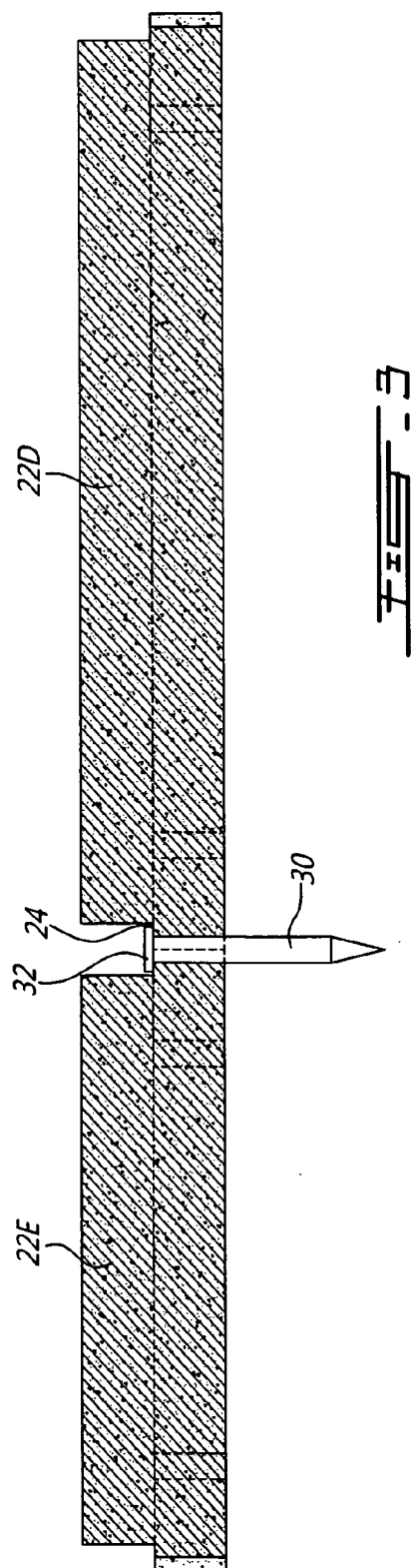
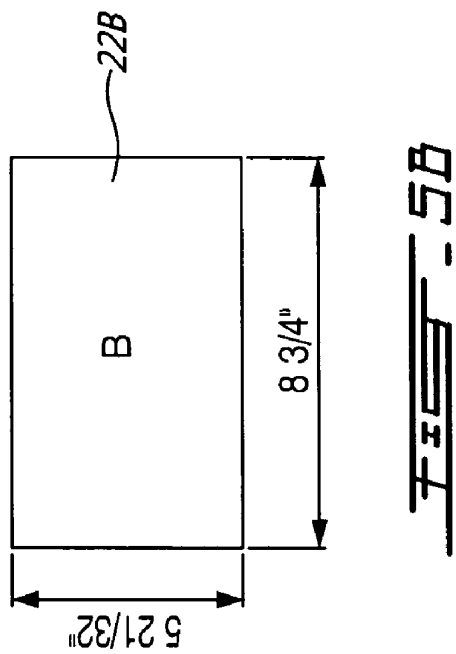
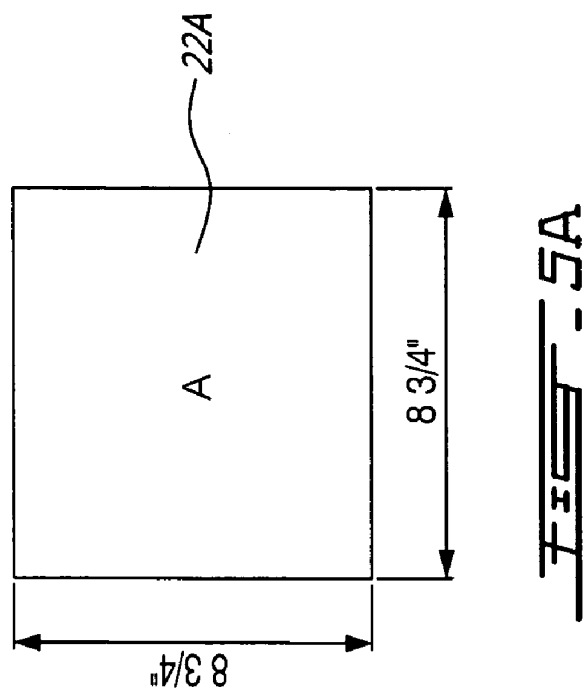


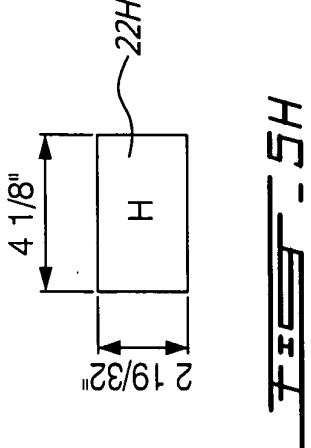
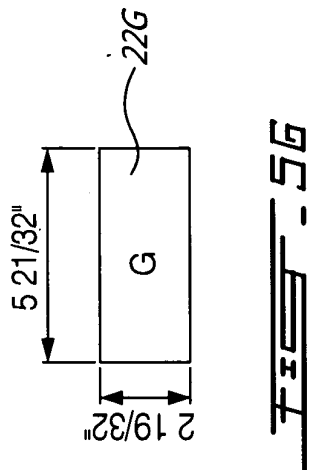
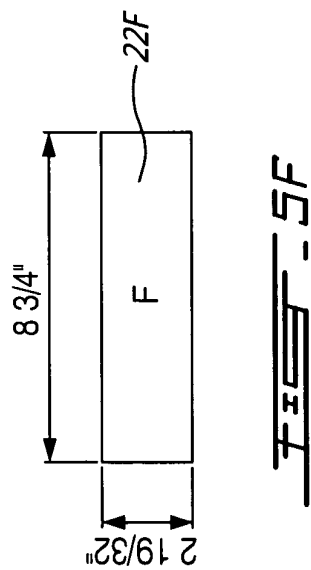
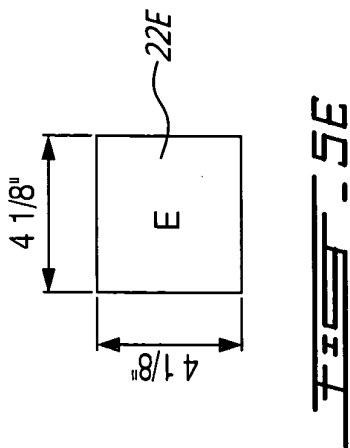
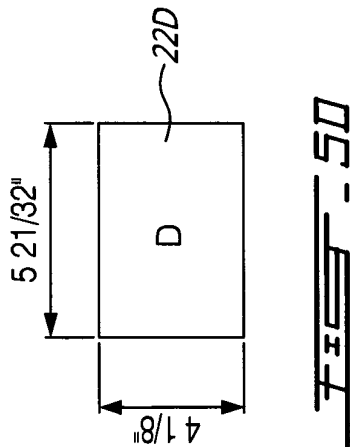
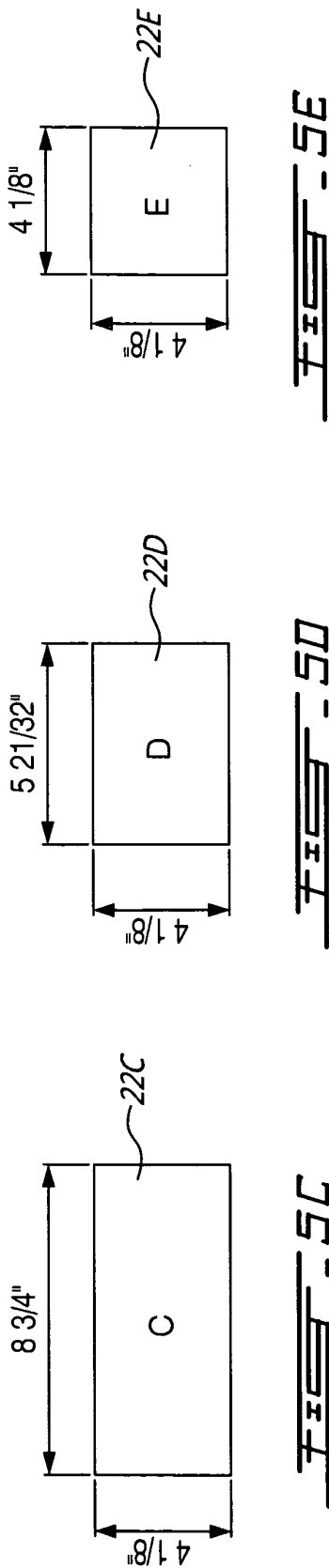
FIG. 1

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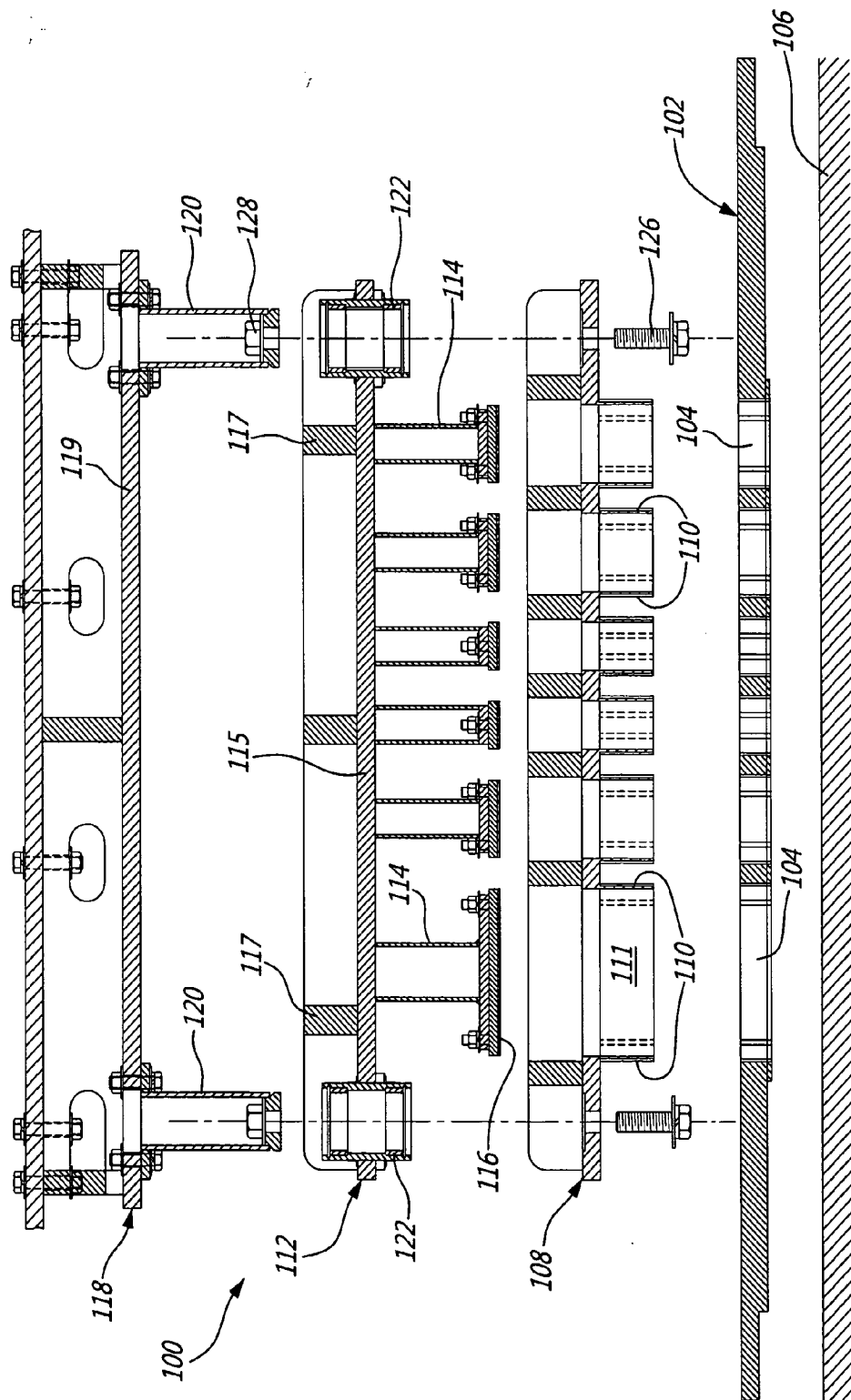


FIG. 6

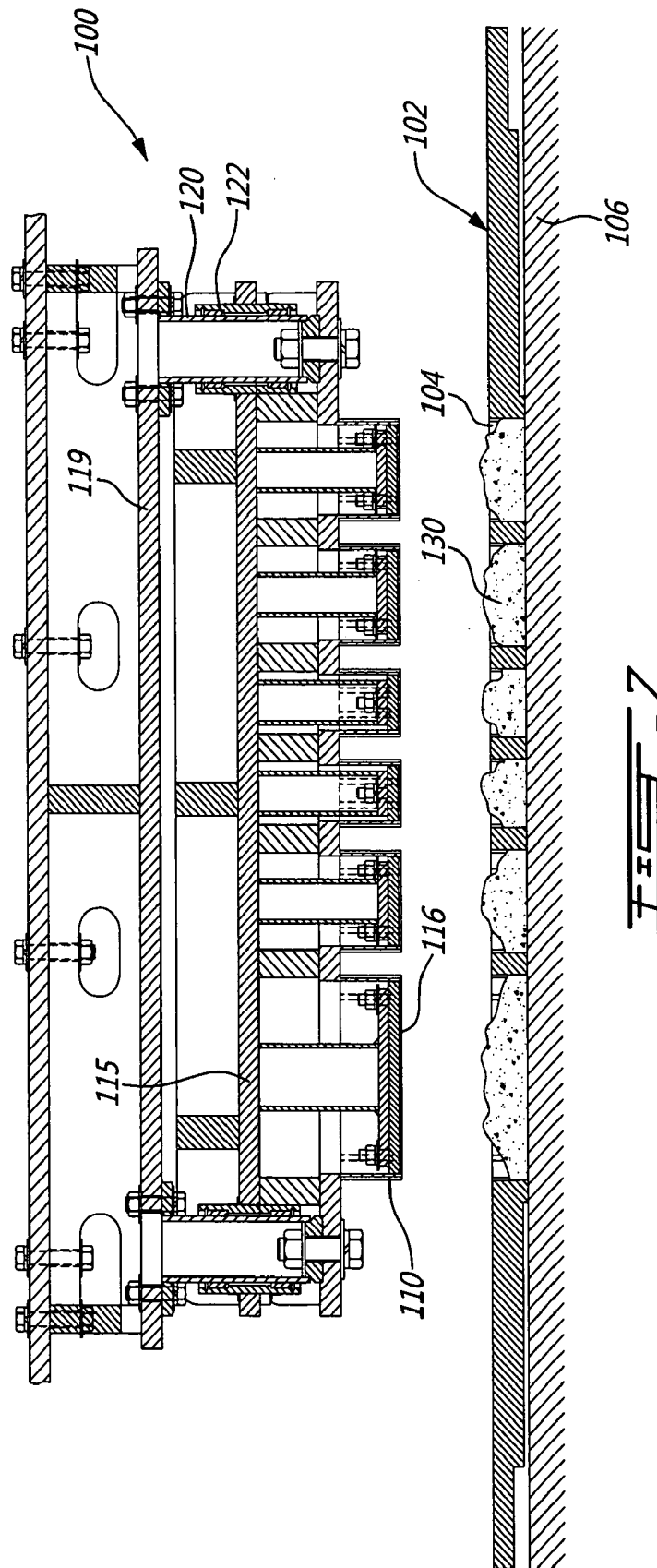
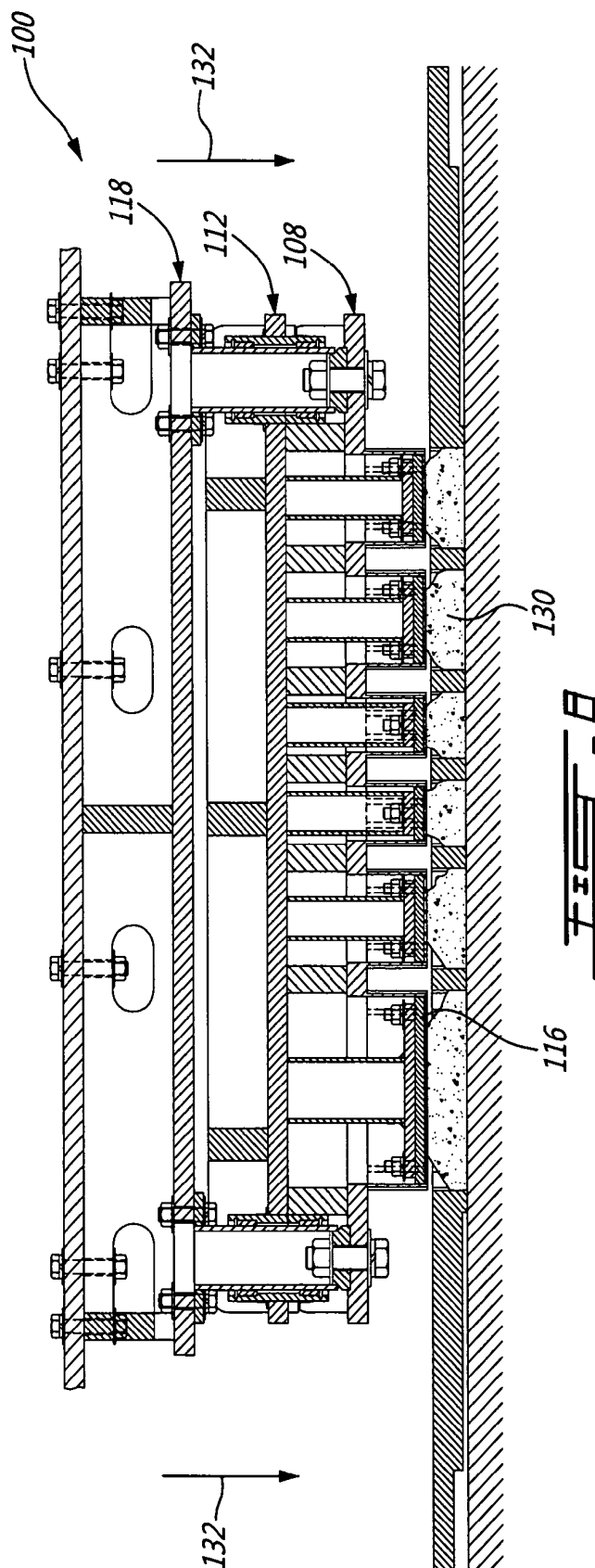
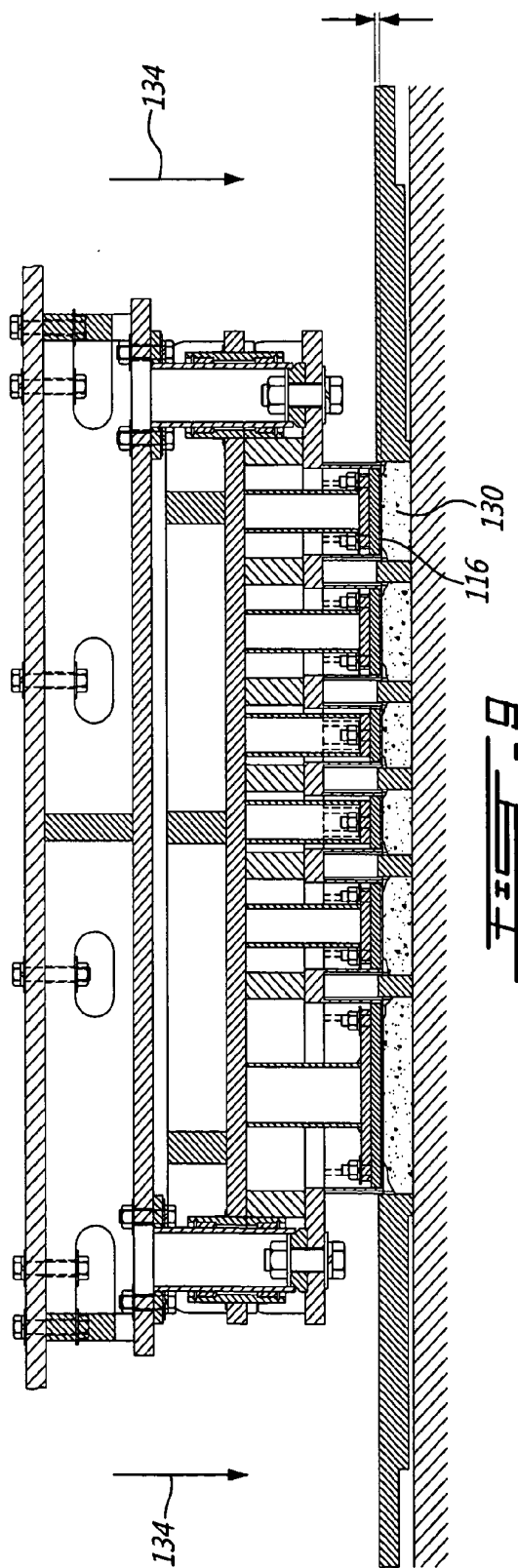
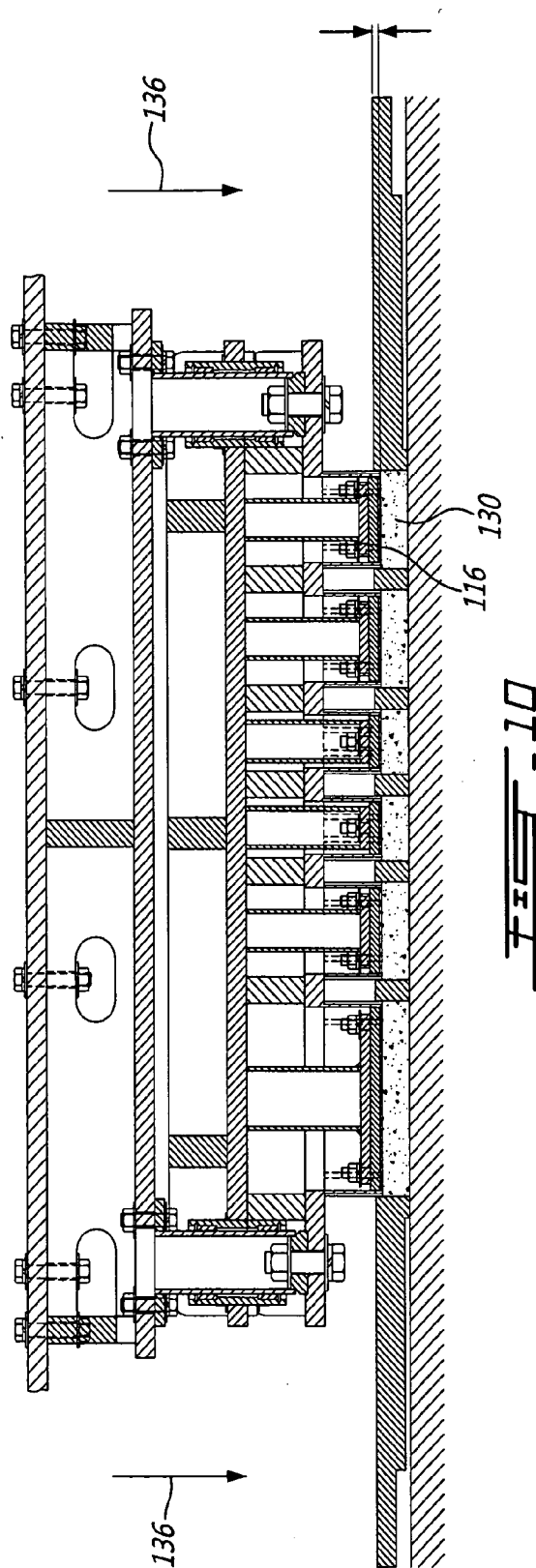
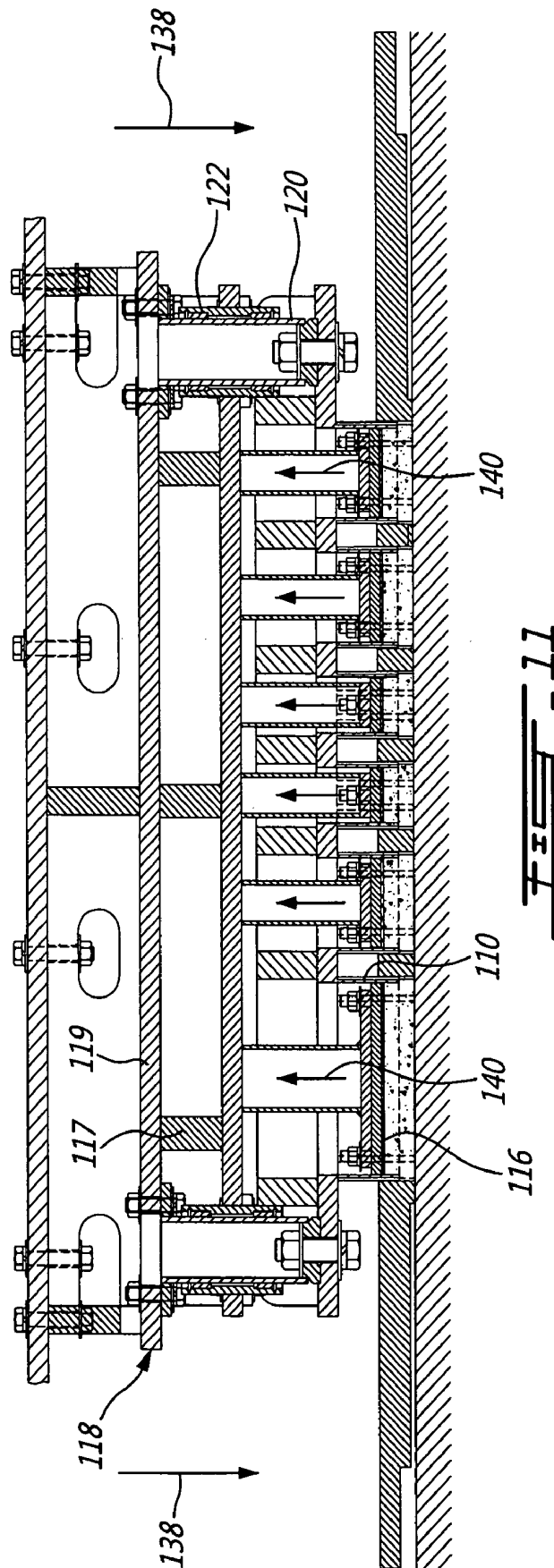


FIG. 7









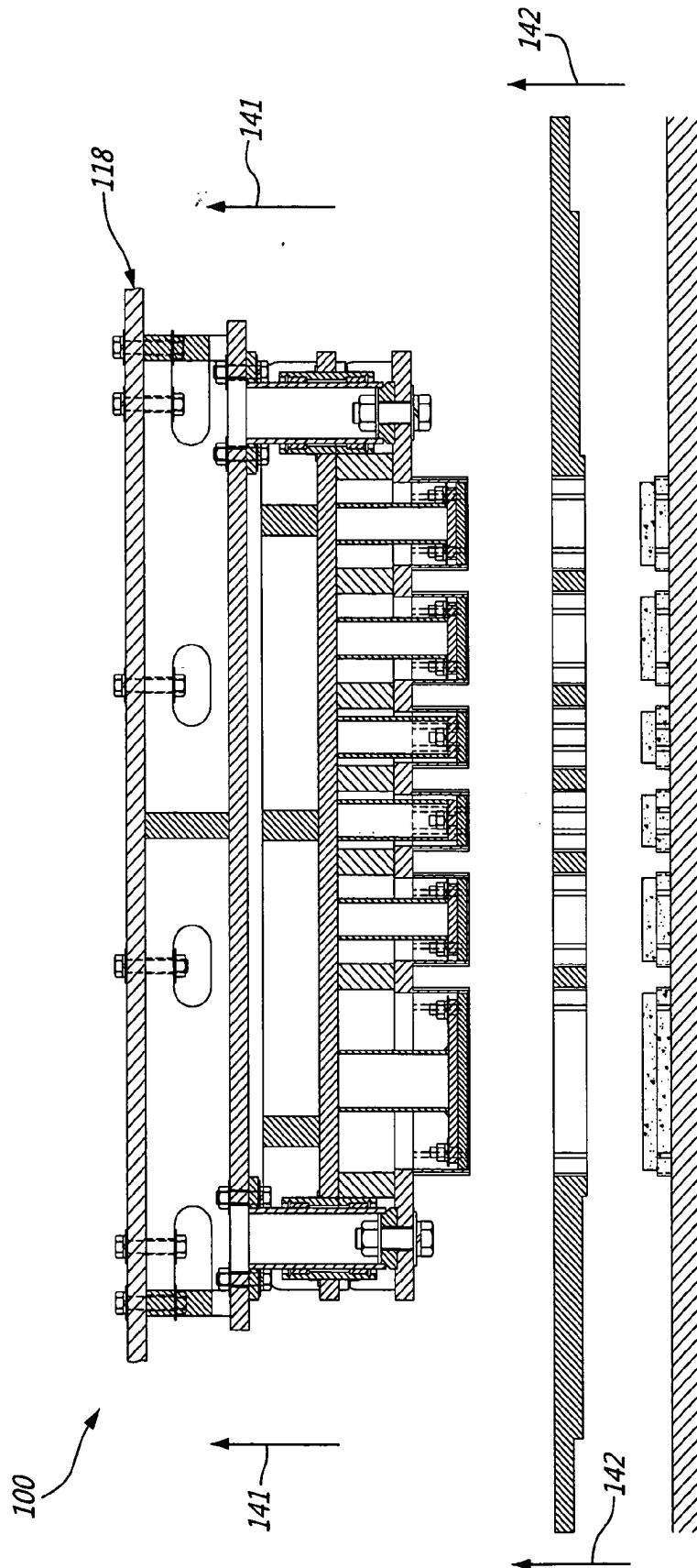


FIG. 12

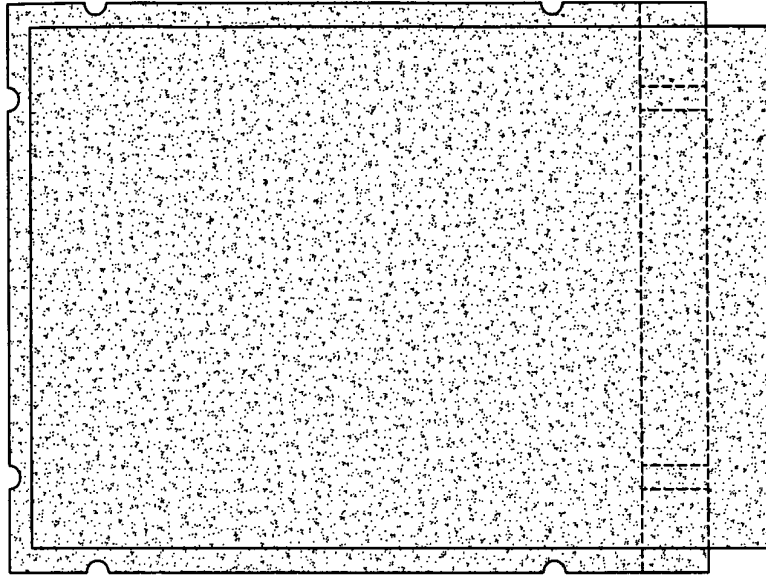


FIG. 13B

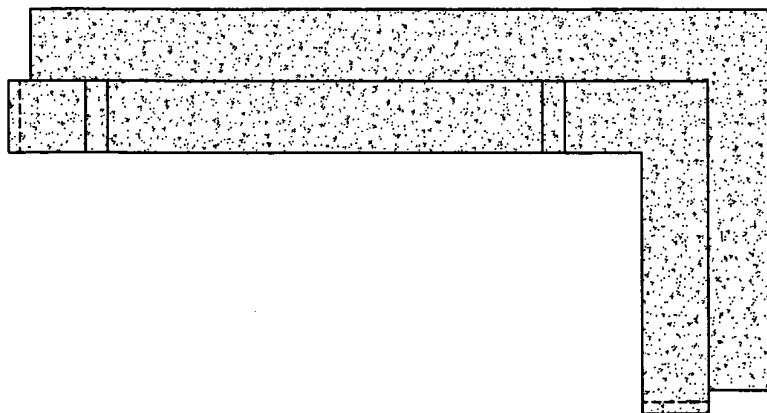
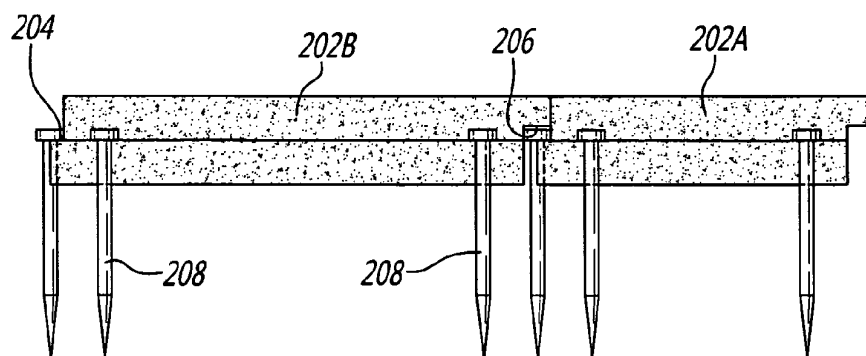
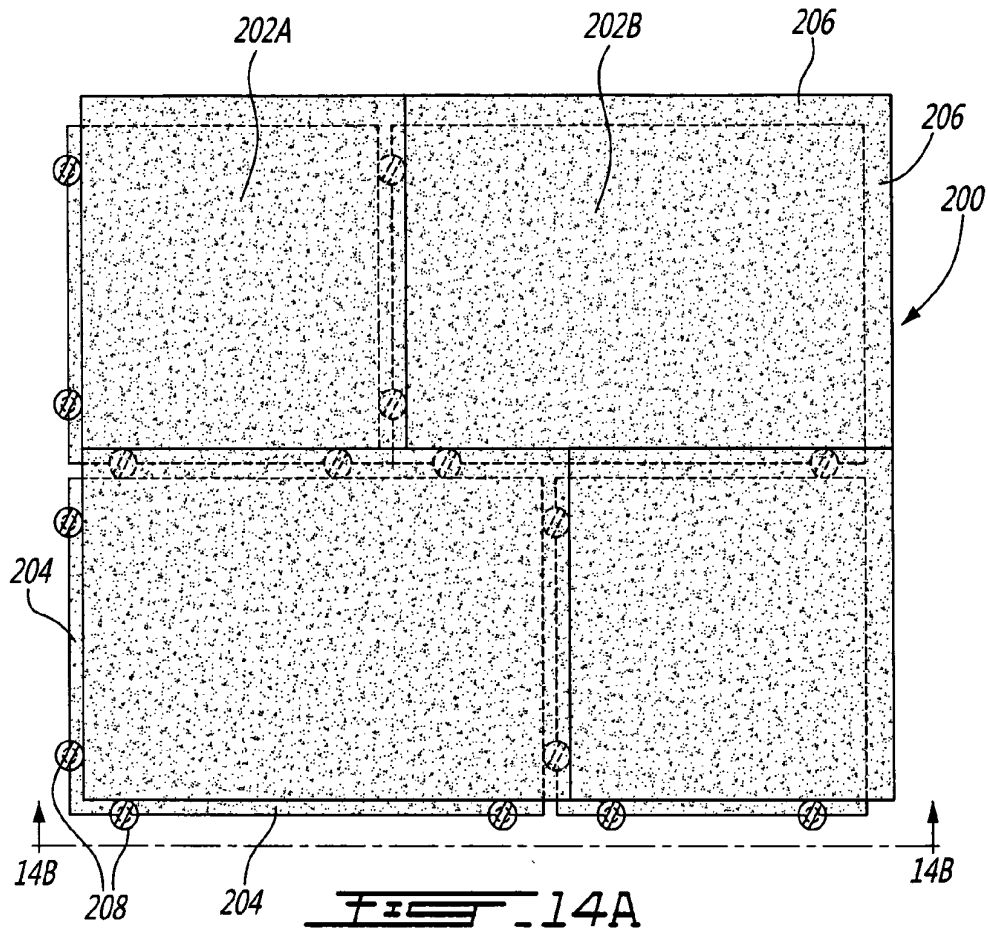
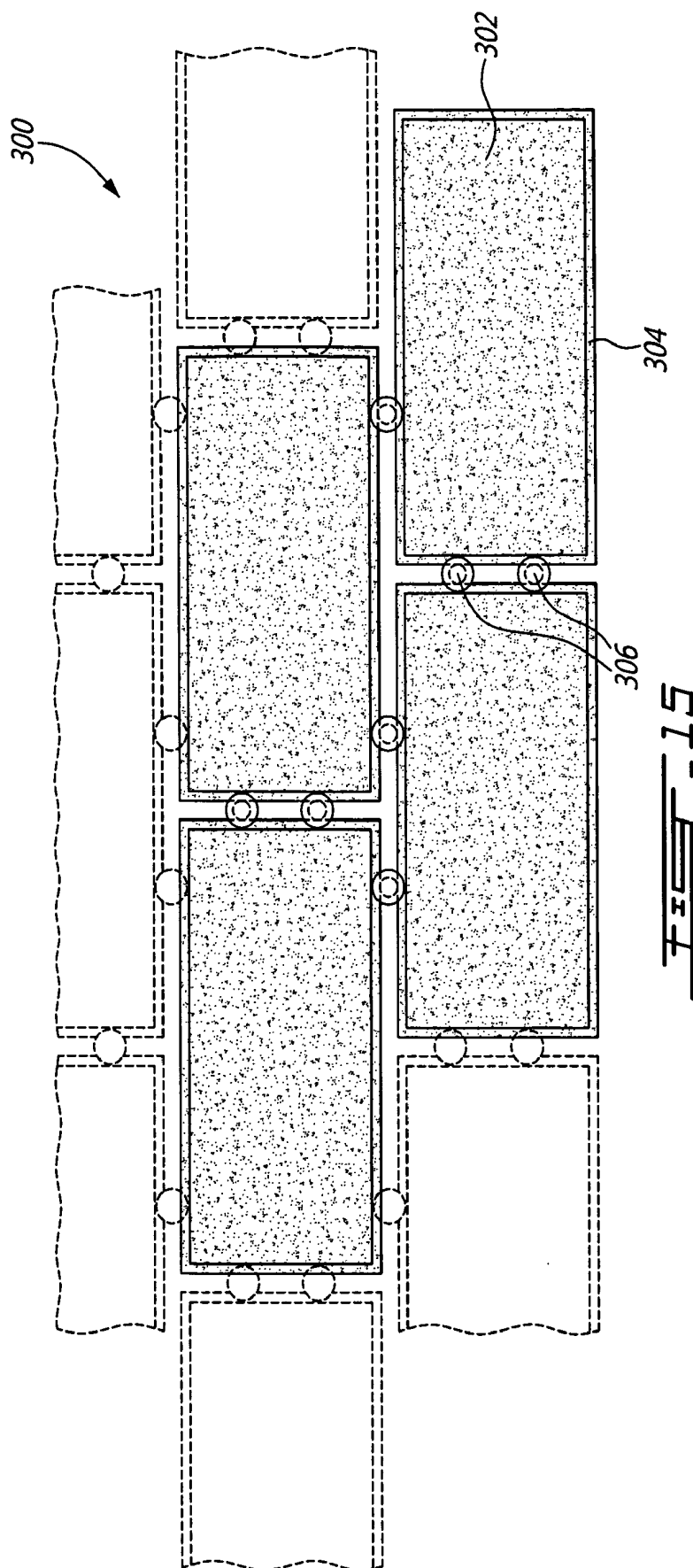


FIG. 13A





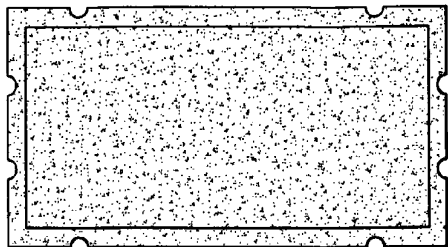


FIG. 16A

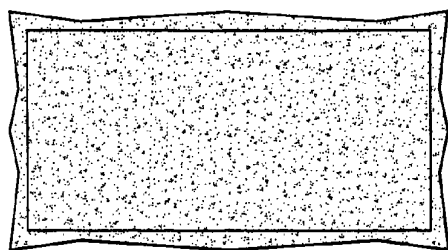


FIG. 16B

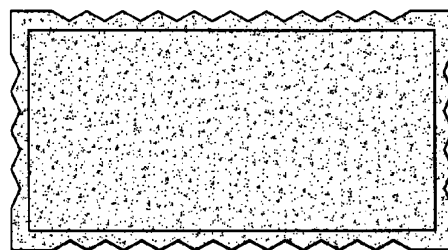


FIG. 16E

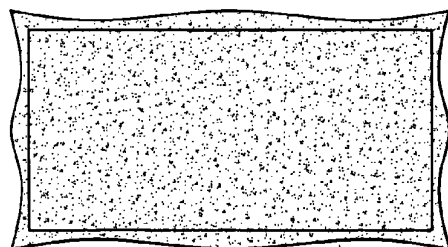


FIG. 16C

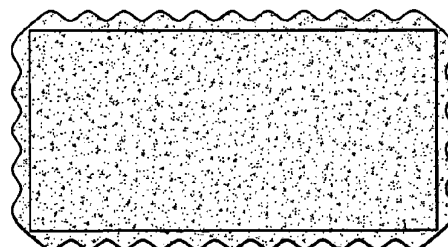


FIG. 16F

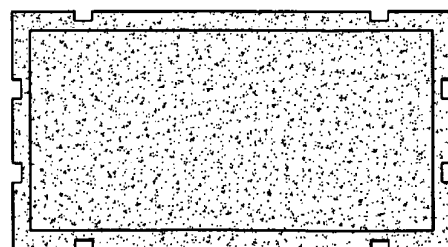


FIG. 16D

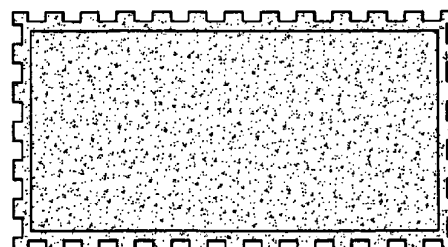


FIG. 16G

THIN WALL VENEER BRICK AND MANUFACTURING ASSEMBLY THEREFOR

BACKGROUND

[0001] Thin Wall veneer brick constructions are well known in the art of exterior and interior wall covering. Conventional bricks are generally laid with mortar provided between adjacent bricks and between adjacent brick rows. This may be viewed as a drawback since it is difficult to keep brick rows level. Furthermore, the task of laying out bricks with mortar is time consuming, costly and labour intensive.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] In the appended drawings:

[0003] FIG. 1 is a front elevation of a brick wall made with different sizes of thin wall veneer bricks according to illustrated embodiment of the present invention;

[0004] FIG. 2 is a close-up view of two adjacent thin wall veneer bricks of the brick wall of FIG. 1;

[0005] FIG. 3 is a sectional view taken along line 3-3 of FIG. 2;

[0006] FIG. 4 is a schematic side elevation of part of a brick edge aging machine illustrated in the operation of aging a brick according to an illustrated embodiment;

[0007] FIGS. 5A to 5H illustrate the dimensions of the bricks used in the brick wall of FIG. 1;

[0008] FIG. 6 is an exploded side elevation of an assembly for manufacturing thin wall veneer bricks according to illustrated embodiments;

[0009] FIG. 7 is a side elevation of the assembly of FIG. 6 ready to mold bricks of different sizes;

[0010] FIG. 8 is a side elevation similar to FIG. 7, illustrating the assembly when it contacts the concrete provided in the molds;

[0011] FIG. 9 is a side elevation similar to FIG. 7, illustrating the assembly partially compressing the concrete provided in the molds;

[0012] FIG. 10 is a side elevation similar to FIG. 7, illustrating the assembly totally compressing the concrete provided in the molds;

[0013] FIG. 11 is a side elevation similar to FIG. 7, illustrating the assembly when the brick shoulders are formed;

[0014] FIG. 12 is a side elevation similar to FIG. 7, illustrating the assembly when the newly formed bricks are released therefrom;

[0015] FIGS. 13A and 13B are respectively side elevation and top plan views of a thin wall veneer corner brick according to an illustrated embodiment;

[0016] FIG. 14A is a front elevation of a brick wall made with different sizes of bricks according to another embodiment of the present invention;

[0017] FIG. 14B is a sectional view taken along line 14B-14B of FIG. 14A;

[0018] FIG. 15 is a front elevation of a brick wall made with identical bricks according to another embodiment; and

[0019] FIGS. 16A-16G are front elevations of bricks provided with different peripheral flange configurations according to embodiments of the present invention.

DETAILED DESCRIPTION

[0020] In accordance with an illustrative embodiment, there is provided a thin brick comprising:

[0021] a generally rectangular body having a first thickness; the rectangular body defining four sides; and

[0022] a flange provided on at least two of the four sides of the generally rectangular body and integral therewith for receiving at least one fastener for mounting the brick to a wall substrate; the flange having a second thickness smaller than the first thickness to allow the flange and the at least one fastener to be covered.

[0023] The use of the word "a" or "an" when used in conjunction with the term "comprising" in the claims and/or the specification may mean "one", but it is also consistent with the meaning of "one or more", "at least one", and "one or more than one". Similarly, the word "another" may mean at least a second or more.

[0024] As used in this specification and claim(s), the words "comprising" (and any form of comprising, such as "comprise" and "comprises"), "having" (and any form of having, such as "have" and "has"), "including" (and any form of including, such as "include" and "includes") or "containing" (and any form of containing, such as "contain" and "contains"), are inclusive or open-ended and do not exclude additional, unrecited elements or process steps.

[0025] The term "about" is used to indicate that a value includes an inherent variation of error for the device or the method being employed to determine the value.

[0026] Other objects, advantages and features will become more apparent upon reading of the following non-restrictive description of illustrative embodiments thereof, given by way of example only with reference to the accompanying drawings.

[0027] Generally stated, illustrative embodiments are concerned with concrete bricks having a shoulder defining a peripheral flange configured for receiving the heads of fasteners used to mount the concrete bricks to a wall substrate. Optionally, the peripheral flange is provided with indentations allowing fasteners to be inserted therein when two adjacent bricks have aligned indentations. The peripheral flange of the bricks, which is thinner than the body of the concrete brick, allows mortar, or other covering material, to be inserted thereonto to create the conventional brick look while hiding the fasteners. Another aspect is concerned with an assembly to manufacture such concrete bricks.

[0028] Turning now to FIGS. 1 to 3 of the appended drawings, a wall 20 covered with thin bricks according to an illustrative embodiment will be described. The wall 20 is covered with thin concrete bricks defining eight brick sizes 22A-22H.

[0029] FIG. 2 illustrates two adjacent bricks 22D and 22E. As can be seen from this figure, each brick is generally rectangular, thereby provided with four corners 26, and includes a peripheral shoulder defining a peripheral flange 24 provided with eight semi-cylindrical indentations 28A-28H. Each indentation 28A-28H is located at the same distance from a corner 26 of the brick. Accordingly, since the bricks 22D and 22E are of the same height, the two indentations 28C and 28D of brick 22E are respectively aligned with the two indentations 28H and 28G of brick 22D. Fasteners 30 are driven through the aligned indentations to enter the wall substrate (not shown) to mount the bricks 22D and 22E to the wall. As can be better seen from FIG. 3, the fasteners 30 include a head portion 32 abutting the flanges 24 to adequately mount the bricks to the wall. The width of the flanges 24 define the distance separating the brick faces since the flanges of one brick abuts the flanges of adjacent bricks.

[0030] Once the bricks are mounted to the wall via fasteners 30, mortar can be used to cover the flanges 24, hiding the fasteners 30, to give the brick wall a conventional look.

[0031] FIGS. 5A to 5H give illustrative dimensions for the bricks 22A to 22H. As can be seen from FIG. 1, given those brick dimensions, each brick has four of its eight indentations aligned with indentations of adjacent bricks therefore allowing four fasteners 30 to contact the flange of each brick to adequately mount the bricks to the wall.

[0032] It is to be noted that the dimensions of FIGS. 5A to 5H are given for illustration purpose only. Similarly, the number of different size bricks may also vary. Alternatively, all the bricks could be the same as will be discussed hereinbelow.

[0033] Turning now to FIGS. 6 to 12 of the appended drawings, an assembly 100 for manufacturing thin wall veneer bricks will be described.

[0034] The assembly 100 is shown in an exploded side view in FIG. 6.

[0035] The assembly 100 includes a mold 102 provided with cavities 104 each having a brick dimension and defining an aperture through the mold 102. The mold 102 is designed to be pressed against a flat surface 106. Each cavity 104 is so shaped as to define the eight indentations of the particular brick size.

[0036] The assembly 100 also includes a flange making assembly 108 including flange sized walls 110 configured and sized to enter the cavities 104 to shape the flanges 24 as will be described hereinbelow. It is to be noted that the walls 110 also define apertures 111 in the assembly 108 to allow the brick pressing elements therethrough as will be described hereinbelow.

[0037] A brick pressing assembly 112 is also part of the assembly 100. The pressing assembly 112 includes plungers 114 each provided with an adequately sized brick pressing element 116 that may pass through a corresponding apertures 111 in the flange making assembly 108. The plungers 114 are mounted to a plate 115 that includes stoppers 117 the purpose of which will be described hereinbelow.

[0038] Finally, the assembly 100 includes a pressure applying assembly 118 that can be powered by a hydraulic press (not shown), for example. The pressure applying assembly 118 includes a plate 119 provided with four projecting posts 120 (only two shown) configured and sized to allow sleeves 122 mounted to the plate 115 of the brick pressing assembly 112 thereunto.

[0039] The projecting posts can be replaced by any other interconnecting assembly (not shown).

[0040] To assemble the assembly 100, the brick pressing assembly 112 is mounted to the pressure applying assembly 118 by sliding the sleeves 122 onto the posts 120. The flange making assembly 108 is then mounted to the posts 120 via bolts 126 and nuts 128.

[0041] The assembled assembly 100 is shown in FIG. 7. As can be seen from this figure, the sleeves 122 are about midway on the posts 120. It is also to be noted that the brick pressing elements 116 are level with the walls 110.

[0042] Turning now to FIGS. 7 to 12 of the appended drawings, the operation of the assembly for manufacturing thin wall veneer bricks 100 will be described.

[0043] FIG. 7 illustrates the assembly 100 when the mold 102 is applied against the flat surface 106. Concrete 130 is provided in each cavity 104 of the mold 102.

[0044] Then, in FIG. 8, the pressure applying assembly 118, to which the brick pressing and shoulder making assem-

blies are mounted, is lowered (see arrows 132) so that the brick pressing elements 116 contact the concrete 130 provided in the cavities 104.

[0045] FIGS. 9 and 10 illustrate the compression of the concrete 130 by the continued movement of the brick pressing elements 116 (see arrows 134 and 136). FIG. 10 shows the final position of the pressing elements 116, i.e. when the concrete 130 completely fills the cavities 104.

[0046] FIG. 11 shows the position of the assembly 100 following the relative displacement of the walls 110 with respect to the brick pressing elements 116 (arrow 138). This displacement is limited by the stoppers 117 that abut against the plate 119 of the pressure applying assembly 118, preventing further relative displacement therebetween. The stoppers 117 therefore limit the depth of the shoulders and therefore the thickness of the flanges 24 of the bricks.

[0047] It is also to be noted that the brick pressing elements 116 are slightly raised (see arrows 140) to the final thickness of the brick by the displacement of the concrete by the walls 110.

[0048] FIG. 12 illustrates the disengagement of the assembly for manufacturing thin wall veneer bricks 100 from the newly formed bricks 22. To do so, the pressure applying assembly 118 and the mold 102 are moved away from the flat surface 106 (see arrows 141 and 142).

[0049] It is to be noted that the brick pressing elements 116 may have a textured surface to form texture faced bricks.

[0050] It is also to be noted that the assembly 100 could be used to form bricks that are thicker than the final desired thickness to allow for post-treatment of the bricks in view of enhancing its aesthetics. For example, thicker bricks could be subjected to splitting, pitching or other enhancement treatments.

[0051] To allow forming thicker bricks 22, the posts 120 and stoppers 117 are sized accordingly. According to another embodiment of the assembly for manufacturing thin wall veneer bricks, cylinders or other means are provided to adjust the mounting distance between the brick pressing assembly 112 and the pressure applying assembly 118.

[0052] FIG. 4 of the appended drawings, which illustrates the process of aging a brick 22, illustrates how the configuration of the brick 22 allows edging the edges and/or top surface thereof by any known edging process, while preserving intact the peripheral edge 24 thereof.

[0053] FIGS. 13A and 13B illustrate a corner brick to be used with any of the bricks 22A to 22H in constructing a wall (not shown).

[0054] It is to be noted that the brick arrangement illustrated in FIG. 1 is for illustration purpose since a plurality of brick patterns can be created using some or all of the eight sized of bricks disclosed herein. Furthermore, the brick sizes are also given for illustration purpose since any brick size is possible.

[0055] Turning now to FIGS. 14A and 14B of the appended drawings a dry-stack wall 200 covered with thin bricks according to another illustrative embodiment will be described. The wall 200 is covered with thin concrete bricks defining two brick sizes 202A-202B.

[0056] As can be seen from FIG. 14A, the bricks 202A and 202B have flanges 204 on two contiguous sides (shown as the left and the bottom sides in the appended figures) and overhangs 206 on the other two contiguous sides. Accordingly, this allows fasteners 208 to mount the bricks to a wall substrate (not shown) via the two sides provided with flanges 204

while hiding the fasteners with the overhangs of adjacent bricks. Accordingly, no mortar is required to hide the fasteners **208** and the flanges **204**, thereby creating a dry-stack wall **200**.

[0057] Of course, one skilled in the art will be in a position to dimension the flanges and overhangs so as to create an adequate dry-stack wall while allowing fasteners to adequately mount the bricks to a wall substrate.

[0058] The expression “dry-stack wall” should be construed herein as including any wall construction wherein the veneer bricks or more generally the wall elements are assembled without using mortar or another similar compound.

[0059] Turning now to FIG. **15** of the appended drawings a wall **300** covered with thin bricks according to another illustrative embodiment will be described. The wall **300** is covered with thin concrete bricks defining a single brick size **302**.

[0060] As can be seen from this figure, the peripheral flanges **304** of the bricks **302** have no indentations to receive the fasteners. Accordingly, the spacing between adjacent bricks and adjacent row of bricks is determined and maintained by the shank of the fasteners **306** provided therebetween. Accordingly, the distance between the adjacent installed bricks is not determined by the width of the flange **304**. Again, once the bricks **302** are mounted to the wall substrate (not shown) via the fasteners **306**, mortar (not shown) can be used to hide the peripheral flanges **304** and the fasteners **306**.

[0061] FIGS. **16A** to **16G** illustrate examples of shapes that can be imparted to the peripheral flanges.

[0062] It is to be noted that even though the bricks have been shown herein as being mounted to a wall, the same bricks could be used on other surfaces such as a floor.

[0063] One skilled in the art will understand that when an indentation is present in the peripheral flange of the bricks, the shape of the indentation is not critical, as long as two aligned indentations allow passage of a fastener therein.

[0064] It is also to be noted that should appropriately smaller fastener (not shown) be used, these smaller fastener could be inserted in any indentation of the bricks, not only in the indentations aligned with another indentation of an adjacent brick. Thin Wall veneer bricks according to embodiments of the present invention can be used in constructing any well-known types of wall, including ashlar pattern, herring-bones, etc.

[0065] The manufacturing process of wall veneer bricks according to embodiments of the present invention as described herein may further include any well-known secondary process such as aging, splitting and pitching.

[0066] While concrete has been described herein as the material of choice to make bricks as described herein, other materials could be used.

[0067] Similarly, while nails are illustrated as the fastener entering the indentations, other types of fasteners could be used such as, without limitations, screws with washers.

[0068] It is to be noted that while the peripheral flange has been shown as being at right angle, other angles could be used.

[0069] It is also to be noted that while bricks and corner bricks have been illustrated and described herein, other standard masonry elements such as lintel, for example, could be made according to the general principles described herein.

[0070] It is finally to be noted that while the flanges are shown as having 90 degrees edges, a chamfer could be provided thereon. When this is the case, flat head or oval head screws, or any other fastener having a countersunk head bottom, can be used to mount the bricks to the wall substrate. Alternatively, a triangular washer matching the chamfer could be used.

[0071] It is to be understood that the invention is not limited in its application to the details of construction and parts illustrated in the accompanying drawings and described hereinabove. The invention is capable of other embodiments and of being practiced in various ways. It is also to be understood that the phraseology or terminology used herein is for the purpose of description and not limitation.

What is claimed is:

1. A thin brick comprising:

a generally rectangular body having a first thickness; the rectangular body defining four sides; and

a flange provided on at least two of the four sides of the generally rectangular body and integral therewith for receiving at least one fastener for mounting the brick to a wall substrate; the flange having a second thickness smaller than the first thickness to allow the flange and the at least one fastener to be covered.

2. A thin brick as recited in claim 1, wherein the flange is provided on the four sides of the generally rectangular body.

3. A thin brick as recited in claim 2, wherein the flange is so configured as to be covered by mortar.

4. A thin brick as recited in claim 1, wherein the flange is provided on two contiguous sides of the four sides of the generally rectangular body, the thin brick further comprising an overhang provided on the other two contiguous sides; the overhang being so configured and sized as to cover the flange of adjacent bricks when mounted to a wall substrate.

5. A thin brick as recited in claim 1, wherein the flange includes at least one indentation so configured and sized as to receive a fastener therein.

6. A thin brick as recited in claim 5, wherein the at least one indentation includes two indentations on each of the at least two of the four sides of the generally rectangular body.

7. A thin brick as recited in claim 6, wherein the generally rectangular body has four corners and wherein each indentation is located at the same distance from a respective corner of the generally rectangular body.

8. A thin brick as recited in claim 1, wherein the flange has a width and wherein the distance between adjacent installed bricks is defined by the width of the flange.

9. A thin brick as recited in claim 1, wherein the flange has edges provided with a chamfer.

10. A thin brick as recited in claim 1, wherein the thin brick is made of concrete.

11. A thin brick as recited in claim 1, wherein the generally rectangular body includes a textured face.

* * * * *