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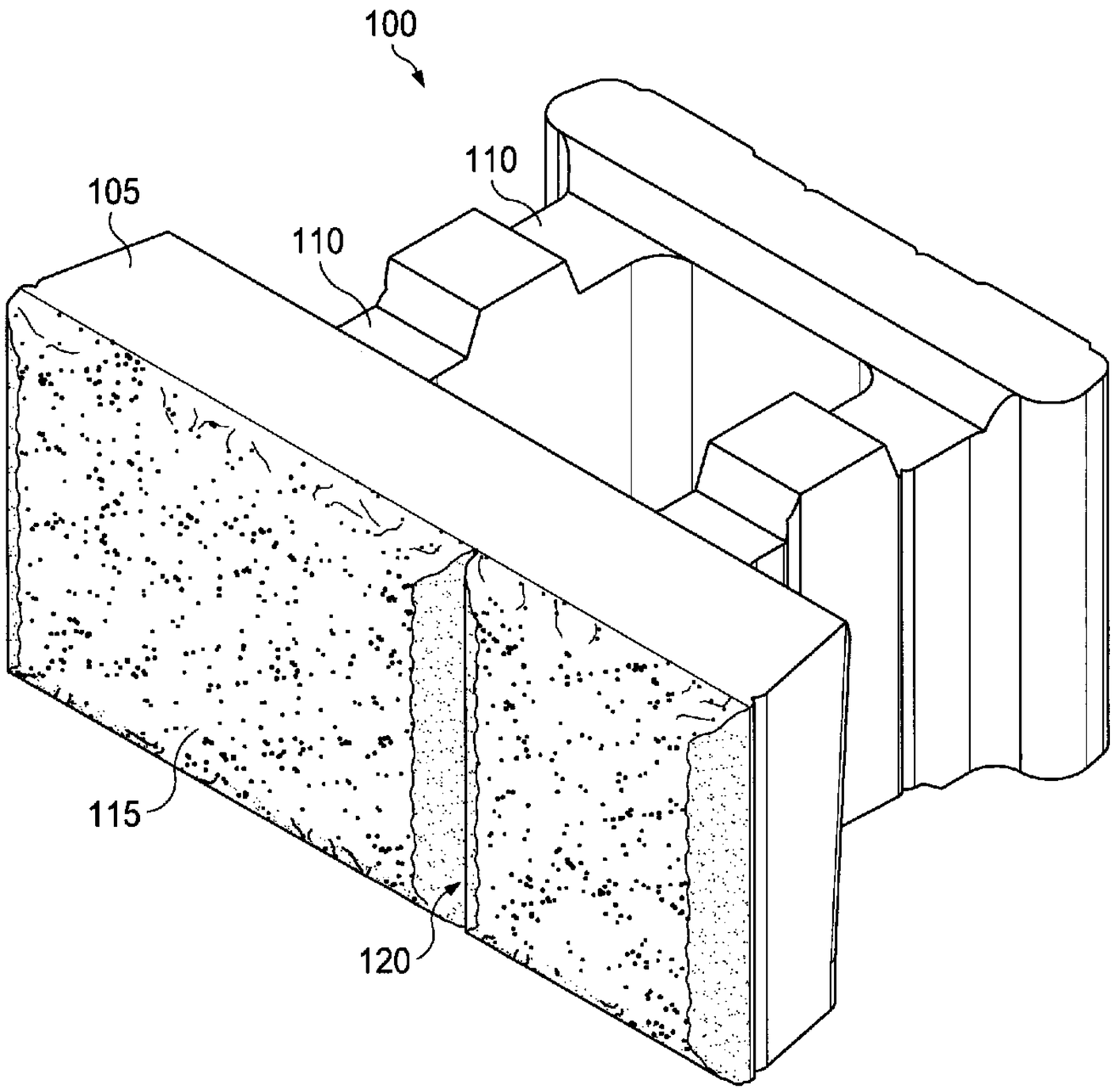


(57) Abrégé/Abstract:
A system of retaining wall blocks, a method of assembling a retaining wall block assembly, and a mold for manufacturing retaining wall blocks having adjustable engagement configurations.

ABSTRACT

A system of retaining wall blocks, a method of assembling a retaining wall block assembly, and a mold for manufacturing retaining wall blocks having adjustable engagement configurations.

ADJUSTABLE LOCATOR RETAINING WALL BLOCK AND MOLD APPARATUS

TECHNICAL FIELD

[0001] The present disclosure relates to retaining wall blocks, and more specifically to a retaining wall having adjustable positioning engagements and a mold for manufacturing such.

BACKGROUND

[0002] Retaining wall blocks can be manufactured and arranged in a variety of different ways.

SUMMARY

[0003] A system of retaining wall blocks, a method of assembling a retaining wall block assembly, and a mold for manufacturing retaining wall blocks having adjustable engagement configurations.

[0004] In one aspect then, there is provided a system of retaining wall blocks, the system comprising: a plurality of retaining wall blocks, each block comprising: a front face having a textured surface; a first surface having a forward engagement cavity and a rear engagement cavity; and a second surface having at least one engagement protrusion, wherein the at least one engagement protrusion of a first retaining wall block are configured to engage the forward engagement cavity of an adjacent retaining wall block; and a first course of retaining wall blocks engaged with a second course of retaining wall blocks below; and wherein

each course comprises block modules having width W and a first height H1, and each block module comprises two or more blocks of width W and different heights H2 and H3.

[0005] In another aspect, there is provided a method for assembling a retaining wall assembly, the method comprising: selecting a first retaining wall block having a forward engagement cavity a rear engagement cavity and at least one engagement protrusion; selecting a second retaining wall block having a forward engagement cavity and at least one engagement protrusion; depositing the first retaining wall block onto a surface of the second retaining wall block, wherein the forward engagement cavity of the first retaining wall block engages with the at least one adjustable engagement protrusion of the second retaining wall block to define a retaining wall assembly setback configuration; and assembling a plurality of courses of block modules having width W and height H1 where each block module comprises two or more blocks of width W and different heights H2 and H3.

[0006] In a further aspect, there is provided a concrete retaining wall block comprising: a front member having a textured front surface and a rearward facing engagement surface; a rear member oriented substantially parallel to the front member in plan view; and two transverse web members connecting the front member to the rear member and forming a core therebetween, the transverse web members oriented substantially perpendicular to the front and rear members in plan view, such that stacking multiple courses of the concrete retaining wall block in an overlap running bond causes the transverse web members of a first block to substantially superpose transverse web members of a second

block, each transverse web portion comprising: an integrally-formed engagement protrusion located on a bottom surface adjacent to the front member, the sides of the engagement protrusion being substantially coplanar with the sides of the transverse member; and an engagement cavity located on a top surface adjacent to the front member, the engagement cavity having an engagement surface coplanar with the engagement surface of the front member.

[0007] Other systems, methods, features, and advantages of the present disclosure will be or become apparent to one with skill in the art upon examination of the following drawings and detailed description. It is intended that all such additional systems, methods, features, and advantages be included within this description, be within the scope of the present disclosure, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0008] Aspects of the disclosure can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views, and in which:

[0009] FIGURES 1A through 1C are diagrams of a retaining wall block in accordance with in accordance with an exemplary embodiment of the present disclosure;

[0010] FIGURES 2A through 2C are diagrams of retaining wall blocks in accordance with in accordance with an exemplary embodiment of the present disclosure;

[0011] FIGURES 3A through 3B are diagrams of retaining wall blocks in accordance with in accordance with an exemplary embodiment of the present disclosure;

[0012] FIGURES 4A through 4B are diagrams of a mold shoe in accordance with an exemplary embodiment of the present disclosure;

[0013] FIGURE 5 is a diagram of a mold shoe in accordance with an exemplary embodiment of the present disclosure; and

[0014] FIGURE 6 is a flow chart of a method for manufacturing a retaining wall with an adjustable incline angle, in accordance with an exemplary embodiment of the present disclosure.

DETAILED DESCRIPTION

[0015] In the description that follows, like parts are marked throughout the specification and drawings with the same reference numerals. The drawing figures might not be to scale and certain components can be shown in generalized or schematic form and identified by commercial designations in the interest of clarity and conciseness.

[0016] **FIGURES 1A through 1C** are diagrams of a retaining wall block 100 in accordance with an exemplary embodiment of the present disclosure. Retaining wall block 100 can be formed from masonry, concrete or other suitable materials, using a wet cast process, a dry cast process or other suitable processes. As shown in FIGURE 1A, retaining wall

block 100 includes a top face 105, engagement cavity 110, and textured front face 115. Textured front face 115 can be formed by splitting retaining wall block 100 from a second retaining wall block 100, as discussed in greater detail below. As shown in FIGURE 1B, which is a front view of retaining wall block 100, front face 115 includes a false joint 120 for aesthetic purposes.

[0017] As shown in FIGURE 1C, which is a side view of retaining wall block 100, retaining wall block 100 further includes bottom surface 125 having at least one engagement protrusion 130. Engagement protrusion 130 is configured to interface with engagement cavity 110 of an underlying retaining wall block 100. Furthermore, the front engagement cavity 110 is offset from the location of engagement protrusion 130, so as to result in a staggered incline as successive rows of retaining wall blocks 100 are formed. In one embodiment of the present disclosure, the incline of successive rows of retaining wall blocks 100 is generally vertical with no staggering.

[0018] **FIGURES 2A through 2C** are diagrams of two engaged retaining wall blocks 100 and 200, in accordance with an exemplary embodiment of the present disclosure. As shown in FIGURE 2A, retaining wall blocks 100 and 200 include top faces 105 and 205, respectively, engagement cavities 110 and 210, respectively, and textured front faces 115 and 215, respectively. As previously discussed, retaining wall blocks 100 and 200 can also have false joints 120 and 220, respectively, for aesthetic purposes, as shown in FIGURE 2B. Likewise, other suitable false joints can also or alternatively be used.

[0019] In one embodiment of the present disclosure, first retaining wall block 100 is disposed onto a top surface 205 of a second retaining wall block 200. As shown in FIGURE 2C, first retaining wall block 100 can positioned so that engagement protrusions 130 align with and fit into engagement cavity 210 of second retaining wall block 200.

[0020] In one embodiment of the present disclosure, the angle and configuration of engagement notches 110 and 210 and engagement members 130 and 230 can be varied to allow the blocks 100, 200 to be assembled with an offset. In one exemplary embodiment of the present disclosure, the angle of engagement notches 110 and 210 can be between about 30 degrees and about 90 degrees. Likewise, the angle of engagement members 130 and 230 can be between about 30 degrees and about 90 degrees.

[0021] **FIGURES 3A and 3B** are diagrams of retaining wall blocks 302A, 302B and 302C, in accordance with an exemplary embodiment of the present disclosure. FIGURE 3A shows an overhead view of retaining wall blocks 302A, 302B and 302C, with block 302A centered over blocks 302B and 302C. In addition, internal support 304A of block 302A is aligned with internal support 306B of block 302B, and internal support 306A of block 302A is aligned with internal support 304C of block 302C.

[0022] FIGURE 3B shows an underside view of retaining wall blocks 302A, 302B and 302C. As can be seen, the blocks are H-shaped, and each include engagement cavities on a top surface and engagement protrusions on a bottom surface that can interlock with the engagement cavities at the top of underlying blocks. The location of the engagement cavities and engagement protrusions is

adjustable, as previously described, so as to allow the angle of incline for the wall to be selected.

[0023] **FIGURE 4A through 4B** are diagrams 400A and 400B of a mold for manufacturing retaining wall blocks, in accordance with an exemplary embodiment of the present disclosure. The mold can be formed from steel or other suitable materials, and can be configured to handle masonry, cement or other suitable materials.

[0024] As shown in FIGURES 4A through 4B, the mold includes a base portion 402 having a ridge 404, which is used to form the notch at the top of the block. The body 406 of the mold is placed on top of the base portion, and a shoe 408 with adjustable inserts 410 and 412 are provided that can be used to create blocks with different angles of incline, such as to allow a wall designer to specify an angle of incline. Inserts 410 and 412 interlock with shoe 408, such as by using a mechanical interlock device, screws or in other suitable manners.

[0025] **FIGURE 5** is a diagram of a mold shoe 500 in accordance with an exemplary embodiment of the present disclosure. Mold shoe 500 includes body 502 and insert channel 505 that can be used to change the location of the at least one engagement protrusion. For example, by using insert A 510, the location of the at least one engagement protrusion is farther back than when using insert B 515. The location of the at least one engagement protrusion defines the incline of the wall, such as to allow the incline to be adjusted based on design specifications.

[0026] **FIGURE 6** is a flow chart of a method for manufacturing a retaining wall with an adjustable incline angle, in accordance with an exemplary embodiment of the

present disclosure. Method 600 begins at 602, where an inset associated with a selected angle of incline is selected and incorporated into a mold. In one exemplary embodiment, the inset can be configured to interlock with a shoe of a mold assembly, such as by using a mechanical interlock, can be secured using screws or can otherwise be attached to the mold assembly. The method then proceeds to 604.

[0027] At 604, the mold is filled with masonry, cement or other suitable materials.

[0028] At 606, the shoe is used to compress the material into the mold and the shoe and mold is then removed.

[0029] At 608, the material is allowed to harden.

[0030] It should be emphasized that the above-described embodiments are merely examples of possible implementations. Many variations and modifications may be made to the above-described embodiments without departing from the principles of the present disclosure. All such modifications and variations are intended to be included herein within the scope of this disclosure and protected by the following claims.

WHAT IS CLAIMED IS:

1. A system of retaining wall blocks, the system comprising:

a plurality of retaining wall blocks, each block comprising:

a front face having a textured surface;

a first surface having a forward engagement cavity and a rear engagement cavity; and

a second surface having at least one engagement protrusion, wherein the at least one engagement protrusion of a first retaining wall block are configured to engage the forward engagement cavity of an adjacent retaining wall block; and

a first course of retaining wall blocks engaged with a second course of retaining wall blocks below; and

wherein each course comprises block modules having width W and a first height H1, and each block module comprises two or more blocks of width W and different heights H2 and H3.

2. The system of claim 1, wherein the at least one engagement protrusion of a retaining wall block in the first course of retaining wall blocks is configured to engage with the forward engagement cavity of a retaining wall block in the second course of retaining wall blocks below.

3. The system of claim 1 or 2, wherein the forward engagement cavity of a retaining wall block in the first course of retaining wall blocks is configured to engage

with the at least one engagement protrusion of a retaining wall block in the second course of retaining wall blocks below.

4. The system of any one of claims 1-3, wherein neighboring block modules alternate a block with H2 over a block with H3, and each block has an H shape.

5. The system of any one of claims 1-4, wherein the engagement protrusion forms an angle of approximately 30 degrees relative to the second surface.

6. The system of any one of claims 1-5, wherein the forward engagement cavity and the rear engagement cavity each have a wall that forms an angle of approximately 30 degrees relative to the first surface.

7. The system of any one of claims 1-5, wherein each block in a block module comprises a false joint on its face.

8. The system of any one of claims 1-5, wherein each block in a block module comprises a false joint on its face and the false joints of the blocks in the first course do not align with the false joints of the blocks in the second course.

9. The system of any one of claims 1-5, wherein each block in a block module comprises a false joint on its face and the false joints of the blocks do not align.

10. The system of any one of claims 1-9, wherein H1 equals H2 plus H3.

11. A method for assembling a retaining wall assembly, the method comprising:

selecting a first retaining wall block having a forward engagement cavity a rear engagement cavity and at least one engagement protrusion;

selecting a second retaining wall block having a forward engagement cavity and at least one engagement protrusion;

depositing the first retaining wall block onto a surface of the second retaining wall block, wherein the forward engagement cavity of the first retaining wall block engages with the at least one adjustable engagement protrusion of the second retaining wall block to define a retaining wall assembly setback configuration; and

assembling a plurality of courses of block modules having width W and height H1 where each block module comprises two or more blocks of width W and different heights H2 and H3.

12. The method of claim 11, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks with a block of height H2 over a block of height H3.

13. The method of claim 11, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks with a

block of height H2 over a block of height H3 and then a block of height H3 over a block of height H2.

14. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks, wherein at least one block has a false joint on a face.

15. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks, wherein each block has a false joint on a face.

16. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks, wherein each block has a false joint on a face and the false joints do not align.

17. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks, wherein each block has a false joint on a face and the false joints of a top course do not align with the false joints of a bottom course.

18. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of

blocks, wherein the joints of each block of a top course align with the joints of each block of a bottom course.

19. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks, wherein the joints of each block of a top course do not align with the joints of each block of a bottom course.

20. The method of any one of claims 11-13, wherein assembling a plurality of courses of block modules having width W and height H1 comprises assembling a sequence of blocks, wherein each block has a false joint on a face, the joints between blocks of a top course do not align with the joints between blocks of a bottom course, and the false joints of a top course do not align with the false joints of a bottom course.

21. A concrete retaining wall block comprising:

a front member having a textured front surface and a rearward facing engagement surface;

a rear member oriented substantially parallel to the front member in plan view; and

two transverse web members connecting the front member to the rear member and forming a core therebetween, the transverse web members oriented substantially perpendicular to the front and rear members in plan view, such that stacking multiple courses of the concrete retaining wall block in an overlap running bond causes the transverse web members of a first block to substantially

superpose transverse web members of a second block, each transverse web portion comprising:

an integrally-formed engagement protrusion located on a bottom surface adjacent to the front member, the sides of the engagement protrusion being substantially coplanar with the sides of the transverse member; and

an engagement cavity located on a top surface adjacent to the front member, the engagement cavity having an engagement surface coplanar with the engagement surface of the front member.

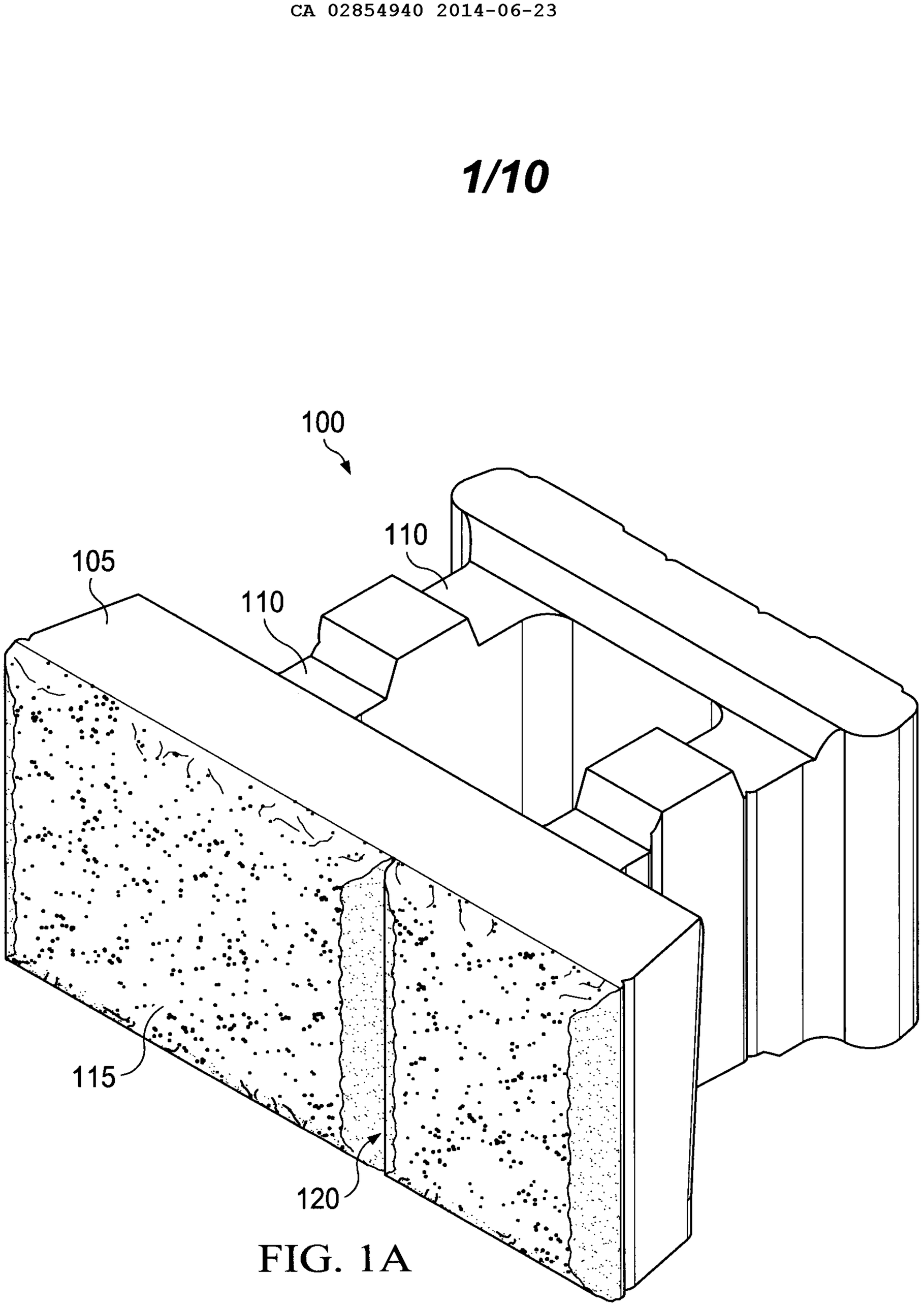


FIG. 1A

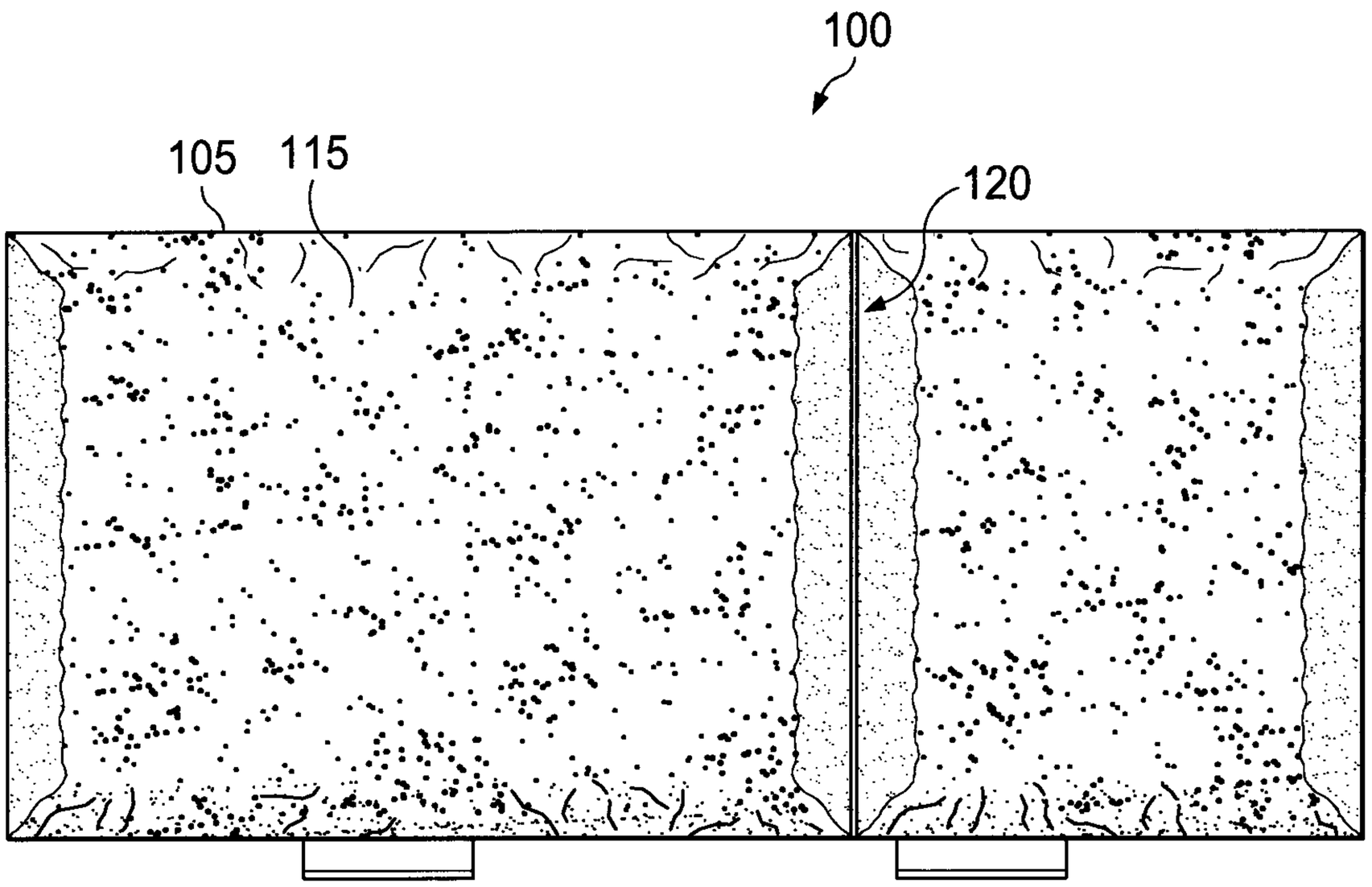


FIG. 1B

FIG. 1C

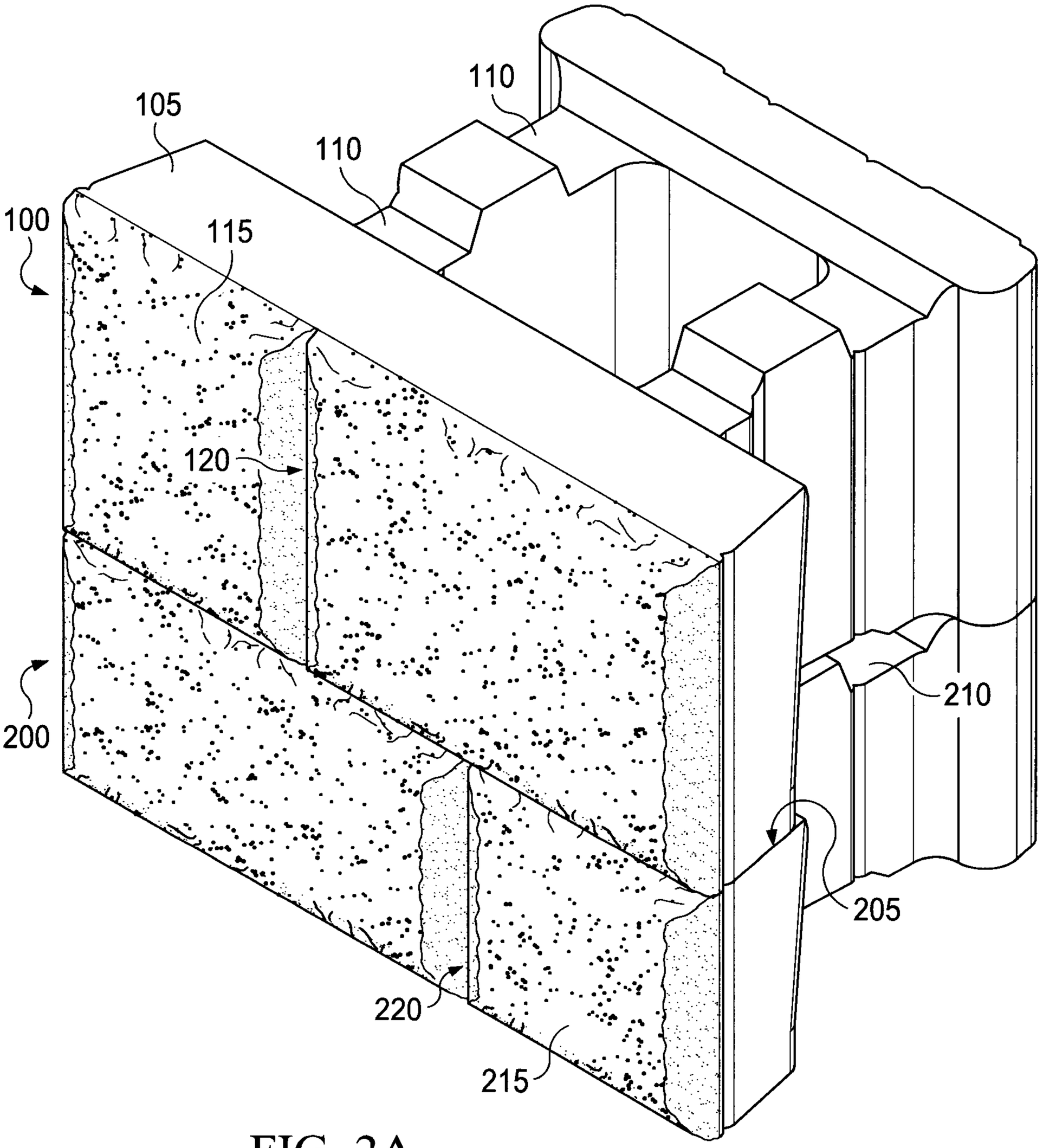


FIG. 2A

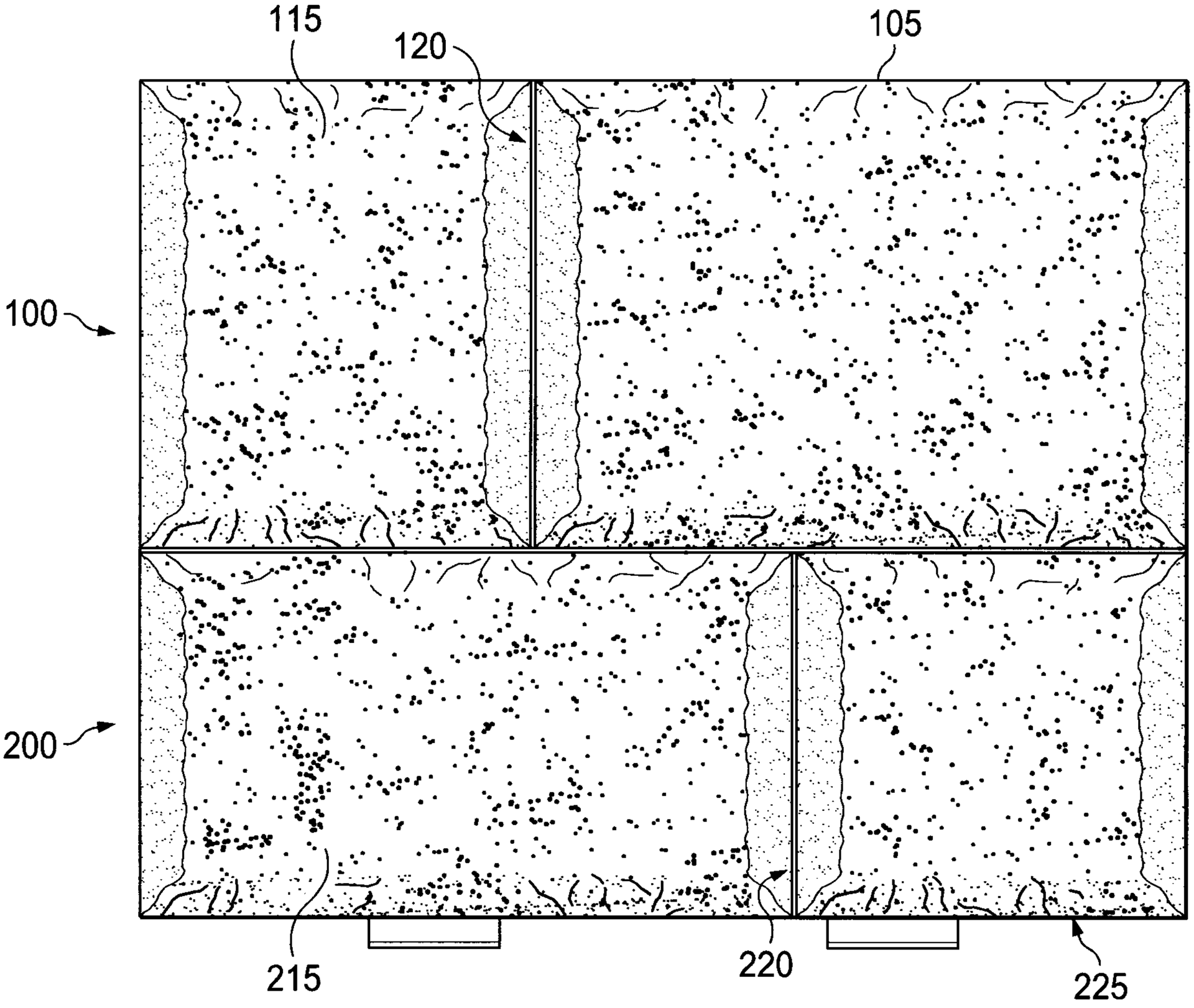


FIG. 2B

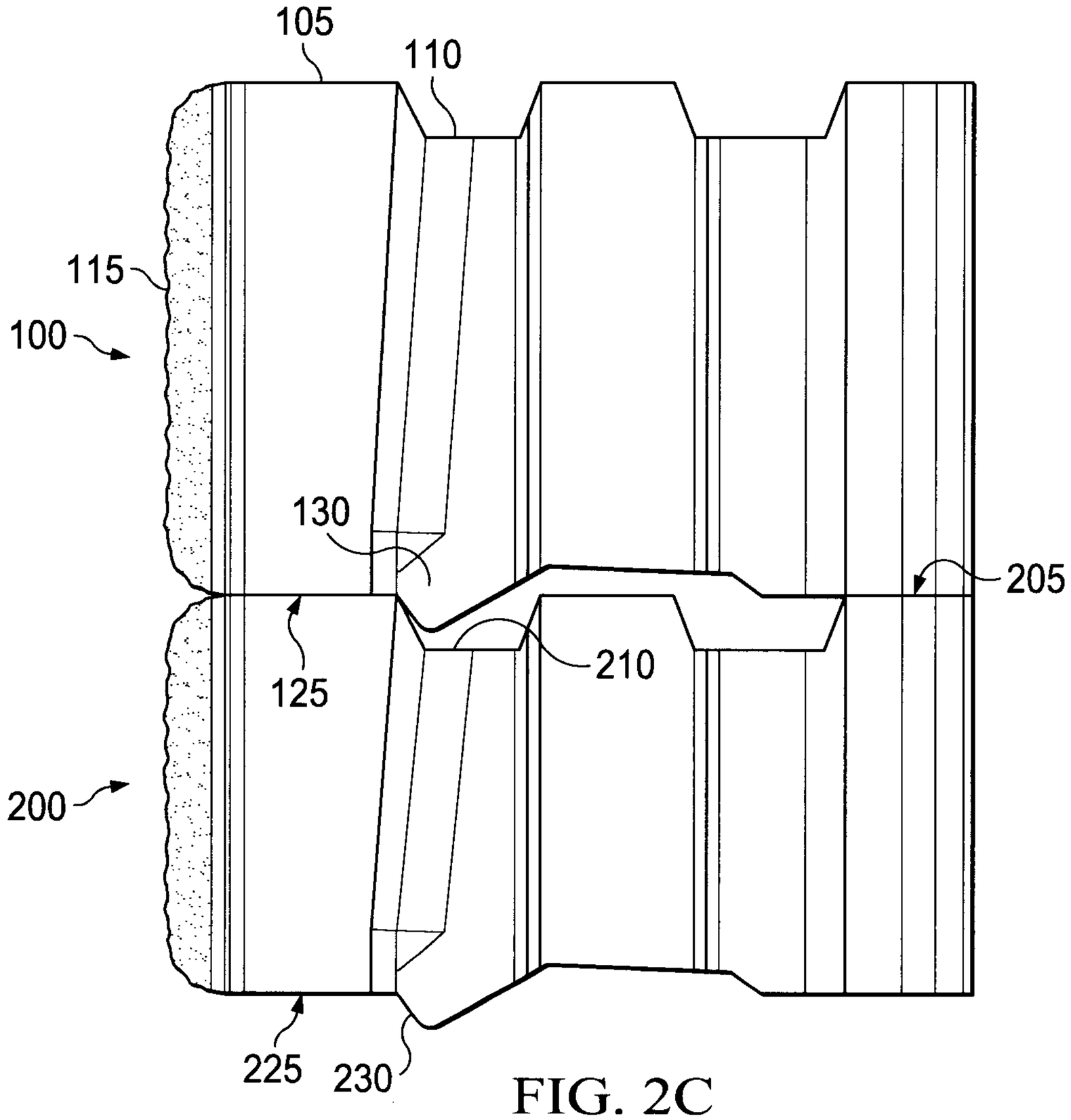


FIG. 2C

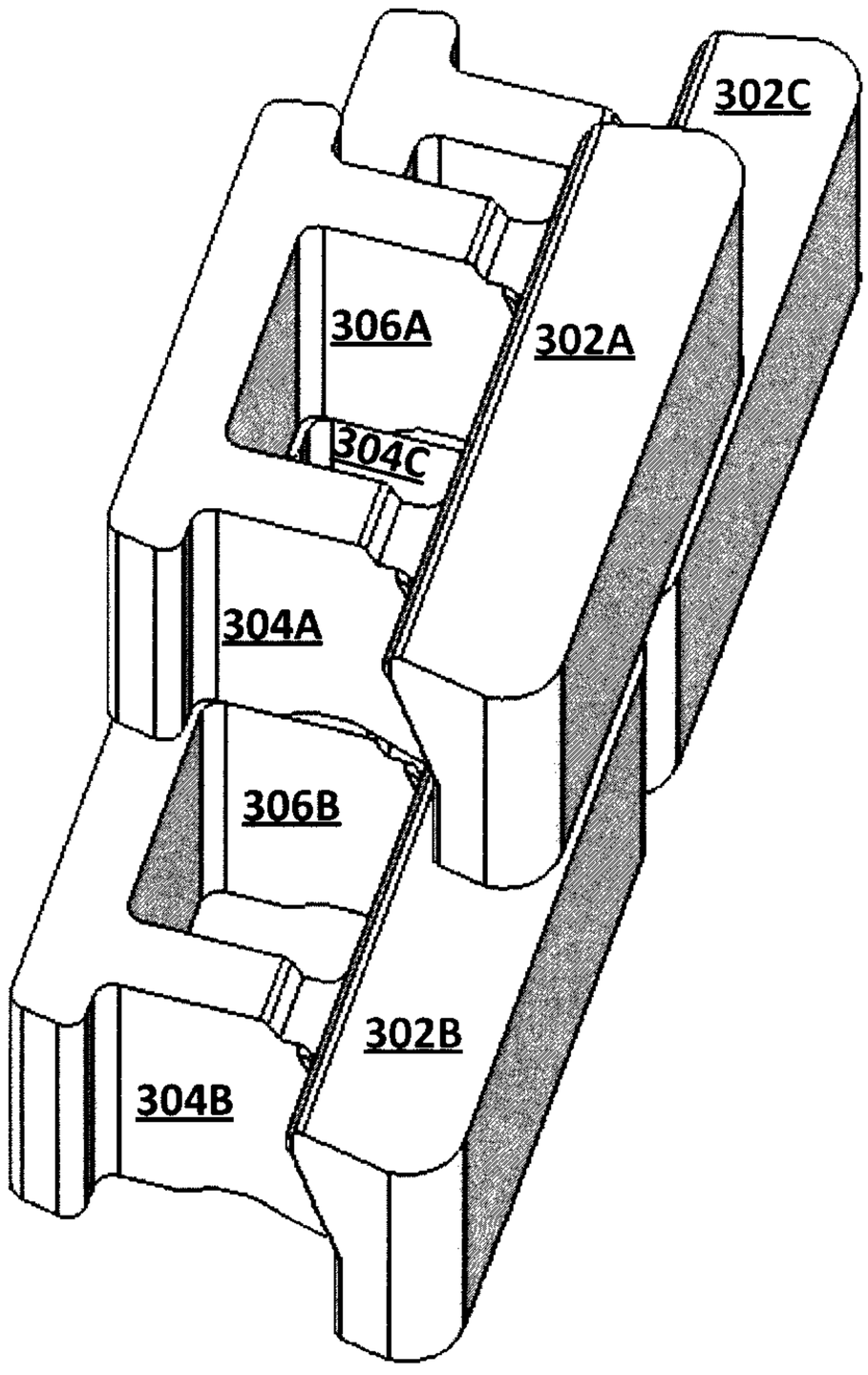


FIGURE 3A

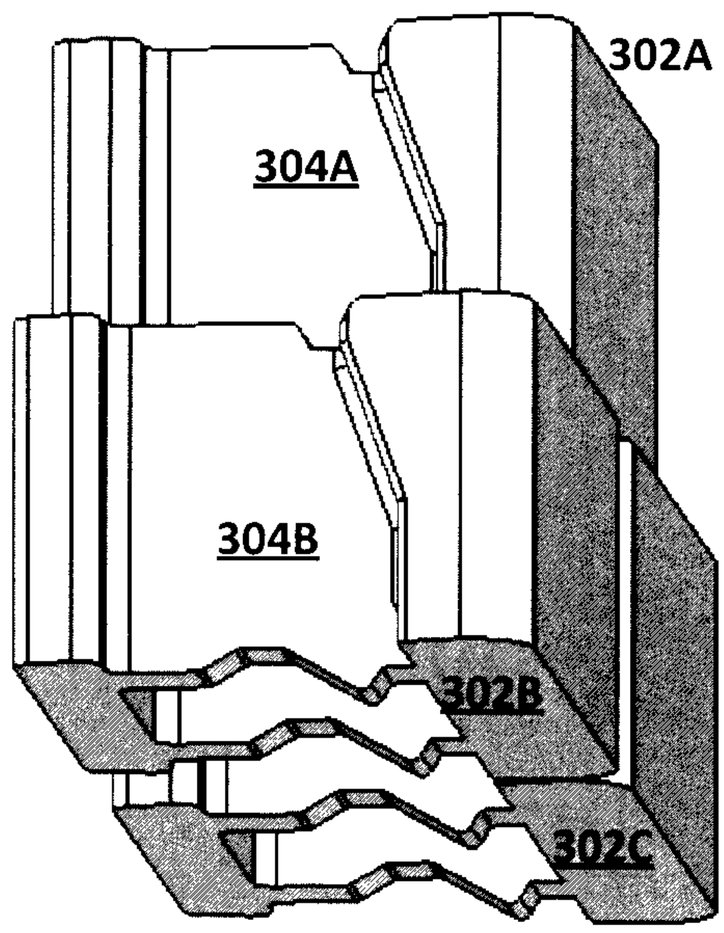


FIGURE 3B

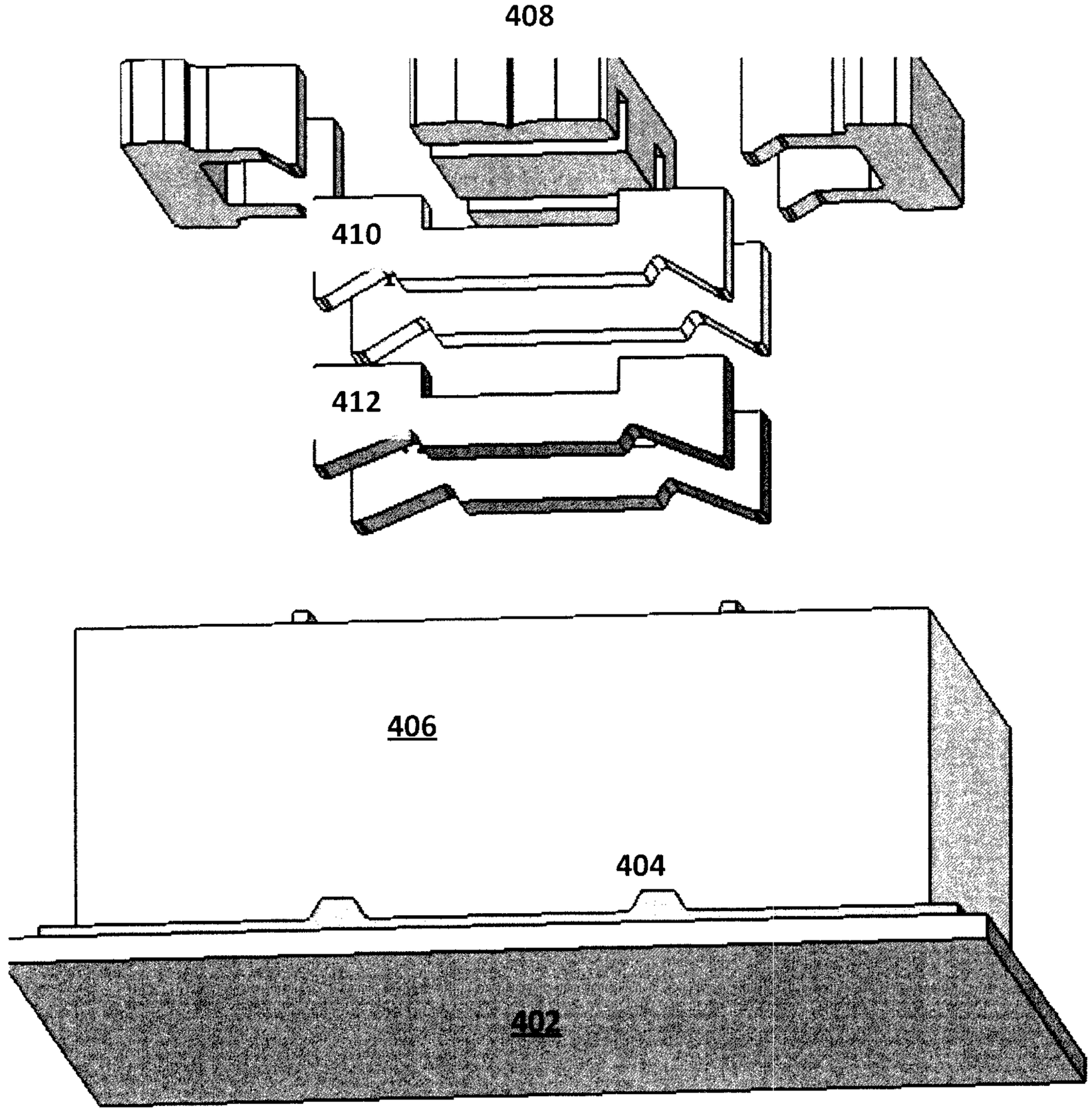


FIGURE 4A 400A

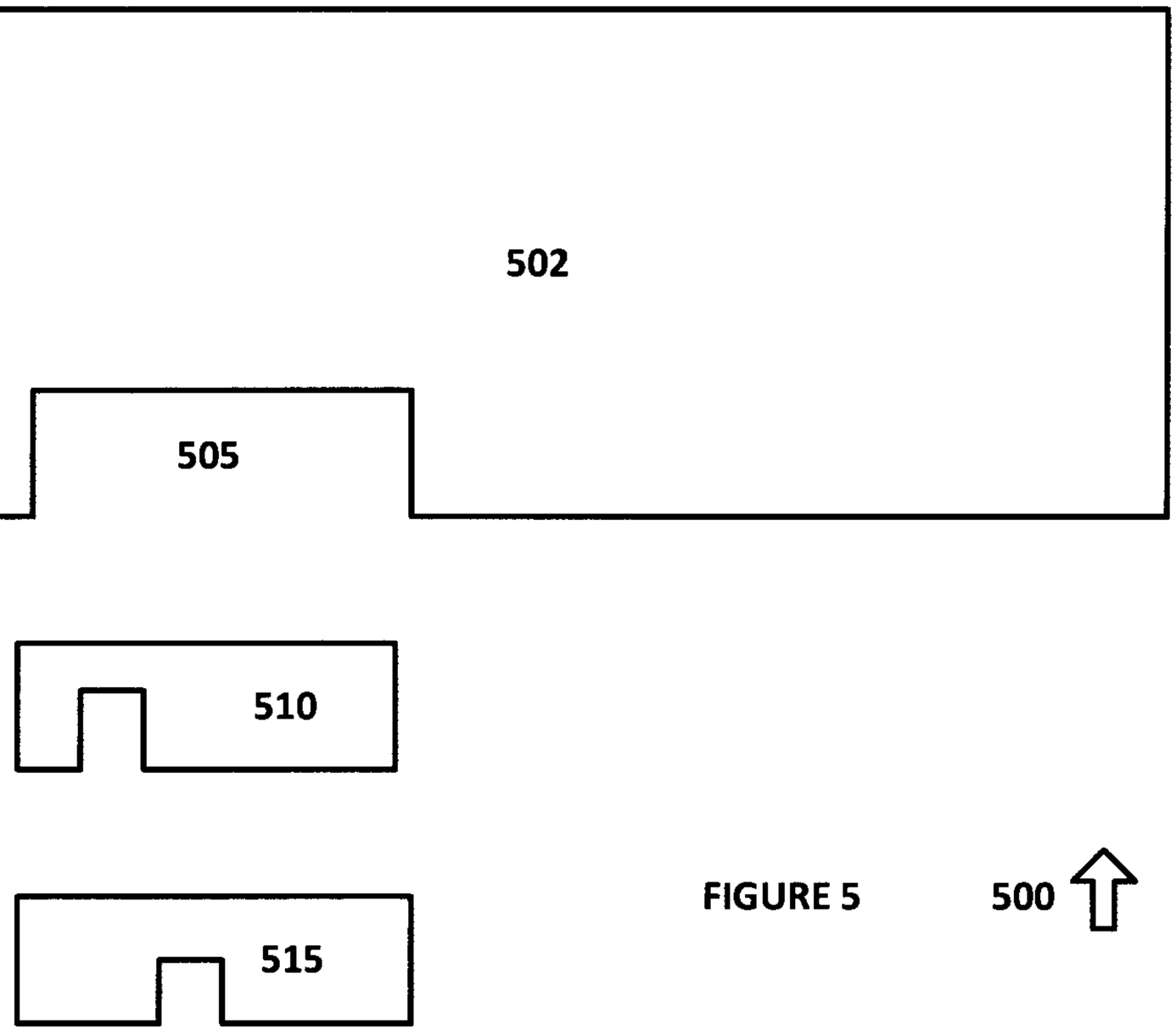


FIGURE 5

500

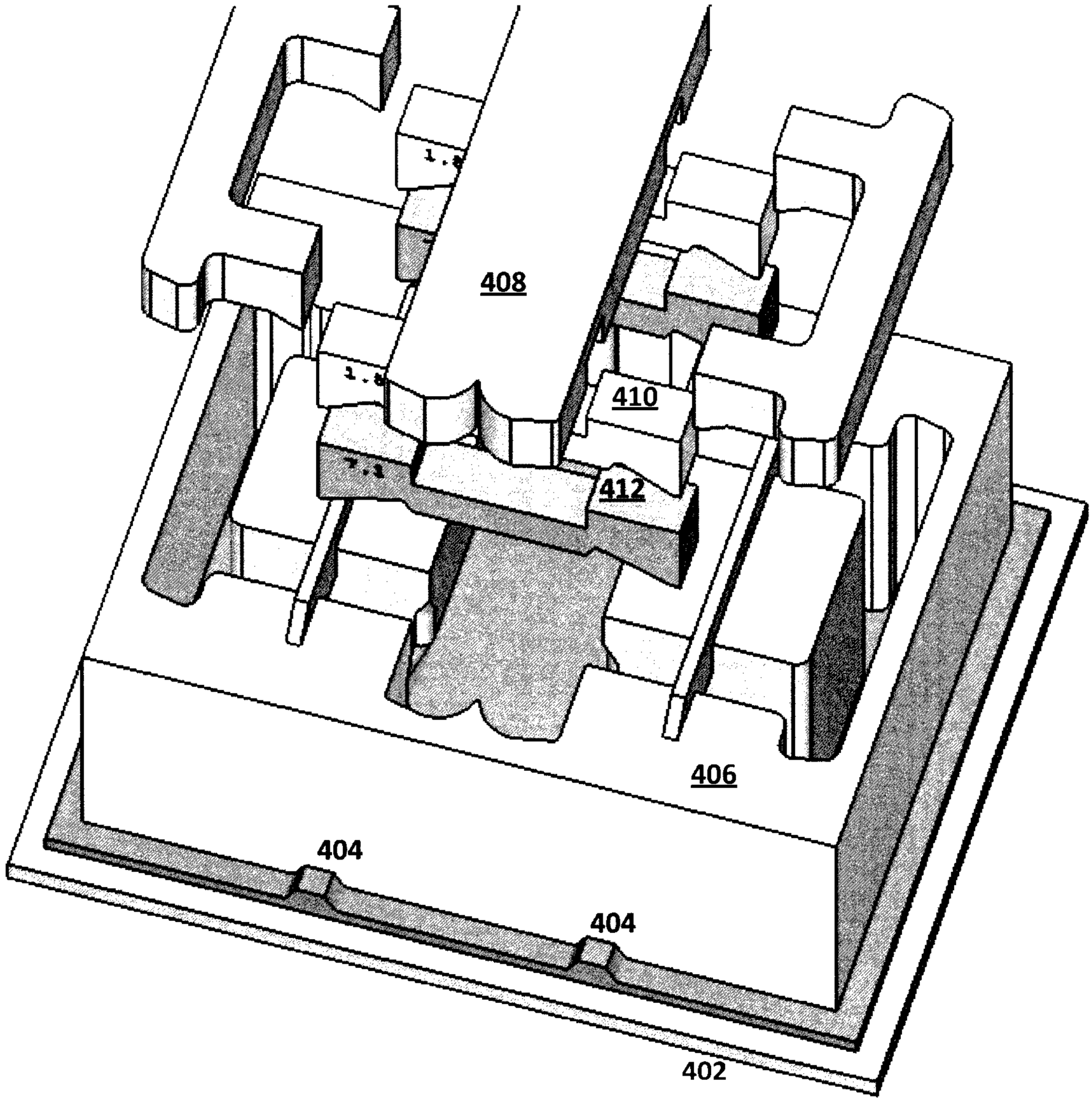


FIGURE 4B

400B

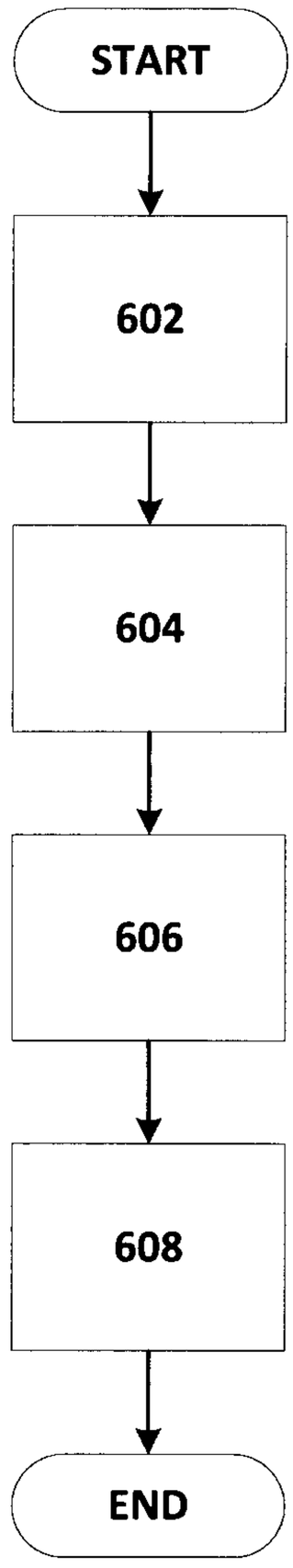
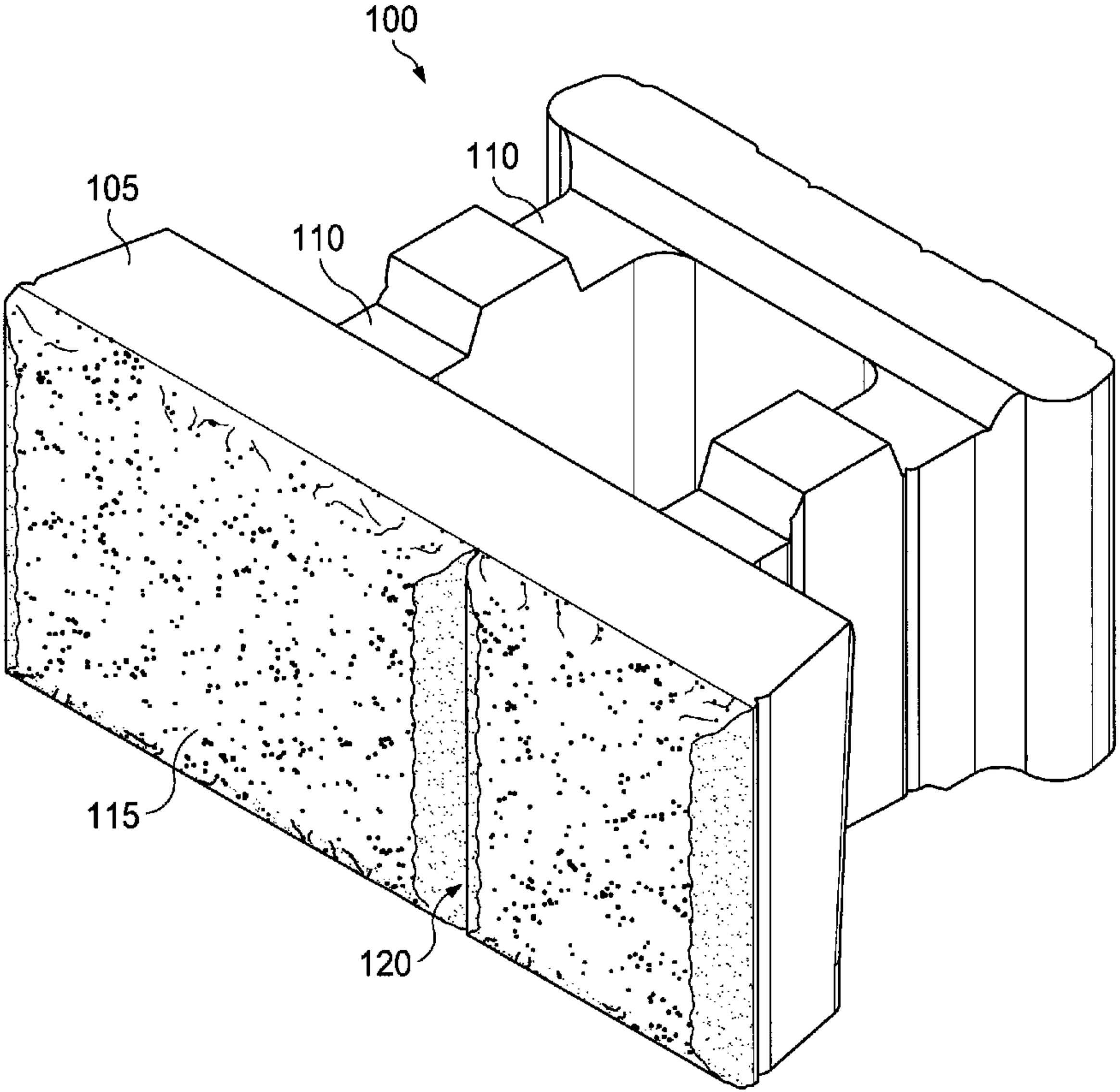


FIGURE 6

600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