Sept. 7, 1965 A. PERRETON 3,204,381

COMPOSITE INSULATED BUILDING BLOCK AND WALL STRUCTURE

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Fig. 1.

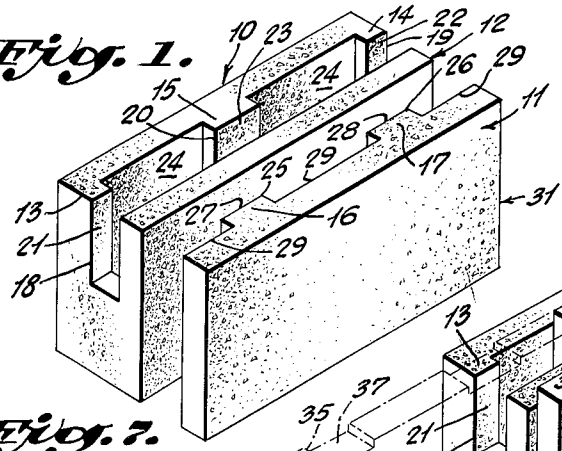


Fig. 3.

Fig. 7.

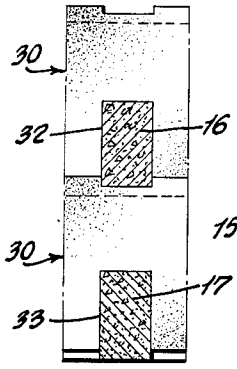


Fig. 4.

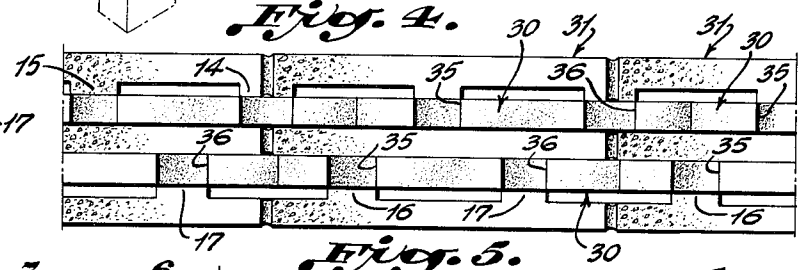


Fig. 6.

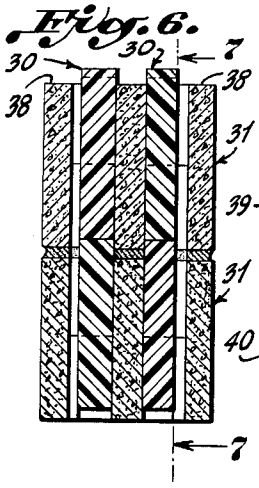
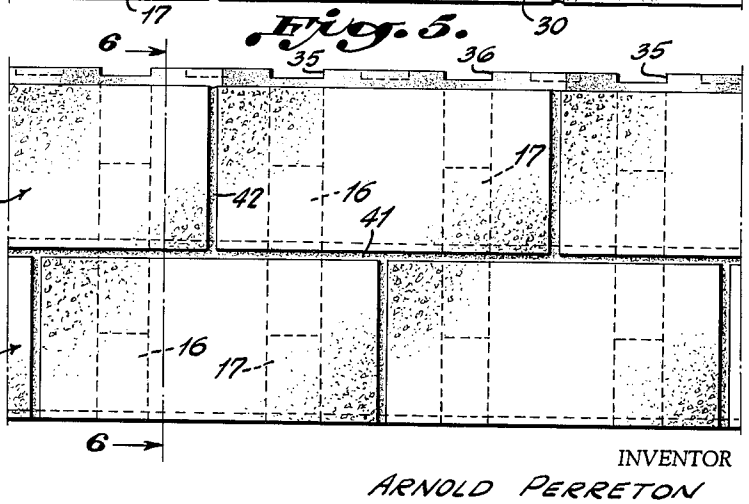


Fig. 5.



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COMPOSITE INSULATED BUILDING BLOCK AND WALL STRUCTURE

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Fig. 10.

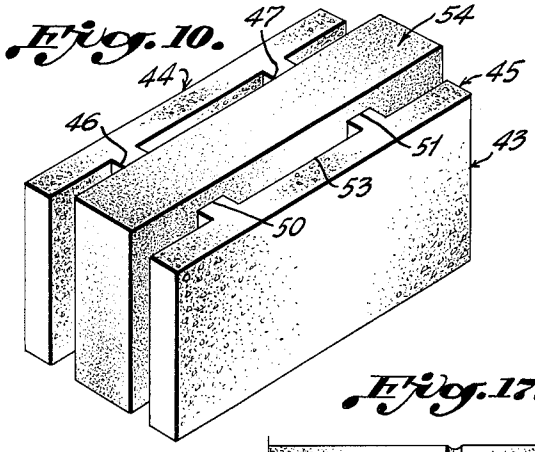


Fig. 16.

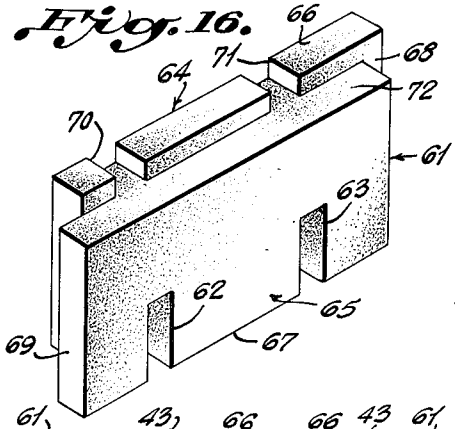


Fig. 17.

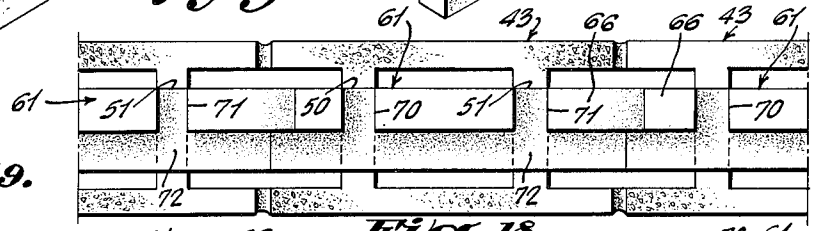


Fig. 19.

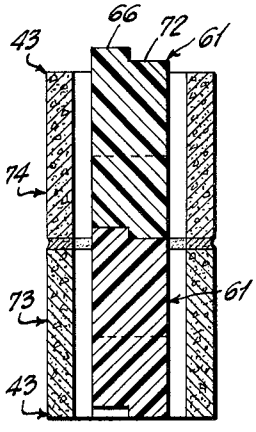


Fig. 18.

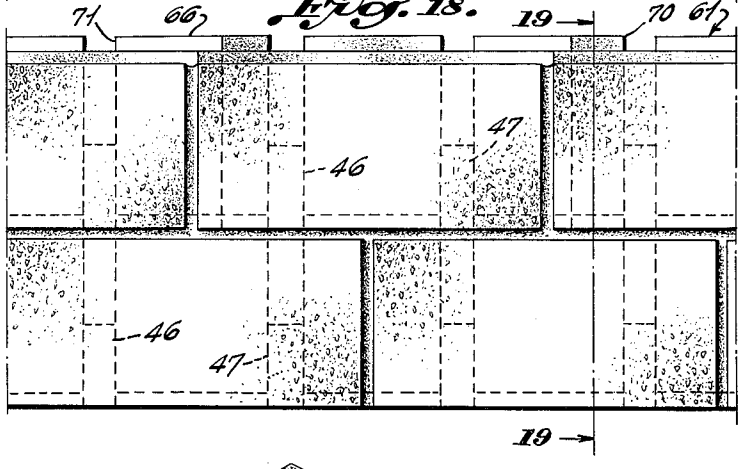
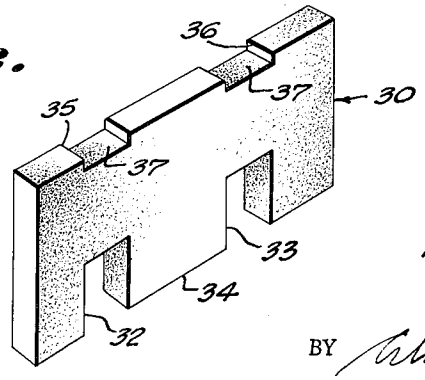


Fig. 2.



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Sept. 7, 1965 A. PERRETON 3,204,381

COMPOSITE INSULATED BUILDING BLOCK AND WALL STRUCTURE

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Fig. 8.

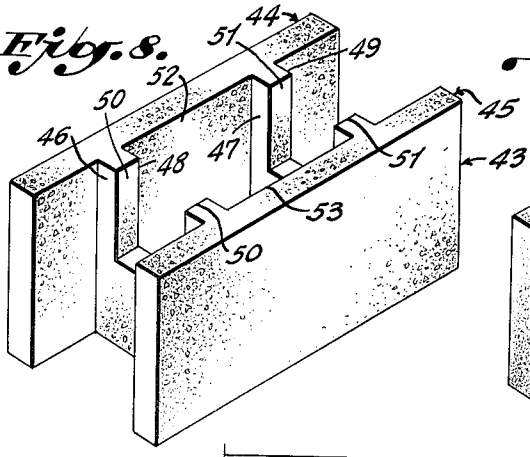


Fig. 9.

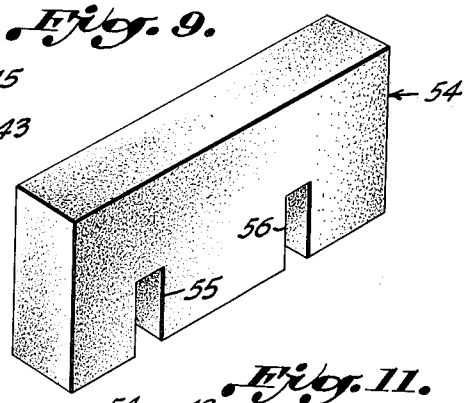


Fig. 11.

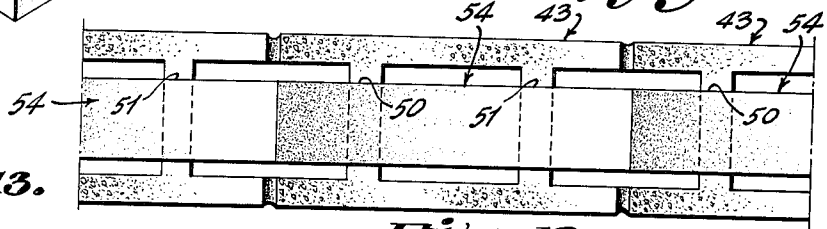


Fig. 13.

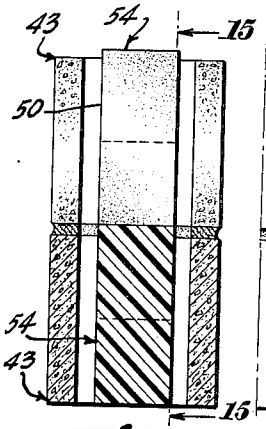


Fig. 12.

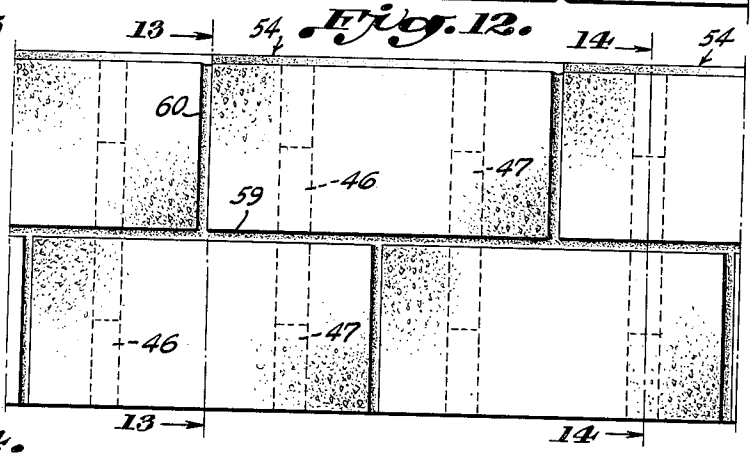
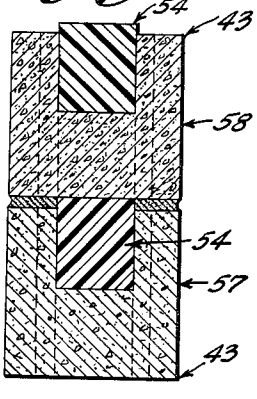


Fig. 14.



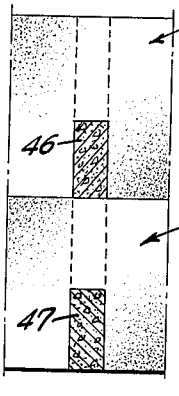


Fig. 15.

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United States Patent Office 3,204,381 Patented Sept. 7, 1965

3,204,381

COMPOSITE INSULATED BUILDING BLOCK AND WALL STRUCTURE

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Filed Oct. 12, 1962, Ser. No. 230,196
9 Claims. (Cl. 52—309)

This invention relates to building structures and more particularly to a composite insulated building block and wall structure in which the composite block materially facilitates the construction of a wall to provide uniform horizontal and vertical mortar joints therein and also serves to provide a wall having high thermal insulation and moisture barrier characteristics.

Numerous types of insulated building blocks have heretofore been proposed and utilized, but many of these merely provide air spaces for insulation purposes and where such air spaces are made large enough to accomplish an insulating function, the load-carrying characteristics of the block have been materially reduced and furthermore, these prior art blocks do not provide effective moisture barriers or cooperate in a manner to automatically assure uniform horizontal and vertical mortar joints, thereby requiring a high degree of skill on the part of the mason laying the wall.

It is accordingly an object of the invention to provide a composite insulated building block, including a block of concrete or similar cementitious material having maximum load carrying characteristics and providing a space for receiving one or more blocks of lightweight insulating material which serves to provide a barrier to the transverse flow of heat or moisture through the block.

A further object of the invention is the provision of a composite insulated building block, including a block of concrete or other cementitious material and providing space within the block for receiving a block of lightweight insulating material and in which the block of insulating material may be inserted in the building block prior to laying the same in a wall or other structure or in which the insulating block may be inserted in the building blocks of each course as the wall is laid up.

A still further object of the invention is the provision of a composite insulated building block, including a block of concrete or other cementitious material and providing a space within the building block for receiving a block of lightweight insulating material and in which such block of insulating material may be provided as a unit for each building block or may be provided in a strip of any desired length to be received in a plurality of building blocks.

Another object of the invention is the provision of a composite insulated building block, including a building block of concrete or other cementitious material having outer sidewalls and an intermediate wall, together with webs connecting one sidewall to the intermediate wall and other webs disposed in staggered relationship connecting the other sidewall to the intermediate wall, all of the webs having downwardly extending notches therein and blocks of lightweight insulating material received between the sidewalls and the intermediate wall in the notches in the webs and serving to provide a continuous heat and moisture barrier within the building block and opposite all of the webs.

A further object of the invention is the provision of a composite insulated building block in which the building block is provided with sidewalls and an intermediate wall connected by webs disposed in staggered relationship, there being blocks of insulating material disposed between the sidewalls and the intermediate wall, such insulating blocks projecting above the upper edge of the building block and having notches therein to engage the lower edges of the webs of a block in the next course of blocks to accurately locate and space the blocks to provide uniform horizontal and vertical mortar joints, at least one of the insulating blocks having upwardly extending notches therein for engaging the webs of adjacent blocks in the same course to link the same together and also to permit overlapping of insulating blocks in the building blocks of the same course.

A still further object of the invention is the provision of a composite insulated building block, including a building block of concrete or other cementitious material and a block of lightweight insulating material received within the confines of the building block, such insulating block being of a size to engage portions of adjacent building blocks and insulating blocks to accurately locate and space the same, thereby providing uniform horizontal and vertical mortar joints.

Another object of the invention is the provision of a composite insulated building block, including a building block of concrete or other cementitious material and a lightweight insulating block received within the confines of the building block and with one side of the insulating block offset longitudinally and vertically with respect to the opposite side of the insulating block to provide a "shiplap" structure which serves to interlock and cooperate with the insulating block in the adjacent building block of a wall.

A further object of the invention is the provision of a composite insulated building block having sidewalls and connecting webs and in which the webs are so arranged as to be disposed one under the other when the block is utilized in building a wall thereby providing additional load carrying characteristics.

A still further object of the invention is the provision of a composite insulated building block, including a building block of concrete or other cementitious material and a block of insulating material received within the confines of the building block, such insulating block comprising rigid foam of polystyrene or other suitable material, such foam consisting of non-connected cells thereby providing both a thermal insulation and a moisture barrier.

Another object of the invention is the provision of a composite insulated building block including a building block of concrete or other cementitious material and a block of lightweight insulating material received between the sidewalls of the building block with air spaces being provided between the insulating block and the inner surfaces of the sidewalls of the building block to provide additional thermal insulation.

A further object of the invention is the provision of a wall constructed by utilizing the composite insulated building blocks of this invention.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a view in perspective showing a building block constructed in accordance with one embodiment of the invention;

FIG. 2 is a view in perspective showing one of the insulating blocks utilized with the building block of FIG. 1;

FIG. 3 is a view in perspective showing the building block of FIG. 1 with two of the insulating blocks of FIG. 2 incorporated therein in full lines and showing in dotted lines the position of adjacent insulating blocks;

FIG. 4 is a top plan view of a wall constructed with the building block of FIG. 1 and the insulating block of FIG. 2 and showing the relative positions of the building blocks and insulating blocks in the wall;

FIG. 5 is a side elevational view of the wall shown in FIG. 4 and showing the relationship of the cross webs of the building blocks in each course, as well as the uniform horizontal and vertical mortar joints;

FIG. 6 is a sectional view taken substantially on the line 6—6 of FIG. 5;

FIG. 7 is a sectional view taken substantially on the line 7—7 of FIG. 6;

FIG. 8 is a view in perspective showing a building block constructed in accordance with the preferred form of the invention;

FIG. 9 is a view in perspective showing an insulating block for use with the building block of FIG. 8;

FIG. 10 is a view in perspective showing the building block of FIG. 8 with the insulating block of FIG. 9 incorporated therewith;

FIG. 11 is a top plan view of a wall constructed with the building block of FIG. 8 and the insulating block of FIG. 9;

FIG. 12 is a front elevational view of the wall shown in FIG. 11;

FIG. 13 is a sectional view taken substantially on the line 13—13 of FIG. 12.

FIG. 14 is a sectional view taken substantially on the line 14—14 of FIG. 12;

FIG. 15 is a sectional view taken substantially on the line 15—15 of FIG. 13;

FIG. 16 is a view in perspective showing an insulating block constructed in accordance with a still further modified form of the invention;

FIG. 17 is a top plan view of a wall constructed with the building block of FIG. 8 and the insulating block of FIG. 16;

FIG. 18 is a front elevational view of the wall of FIG. 17;

FIG. 19 is a sectional view taken substantially on the line 19—19 of FIG. 18.

With continued reference to the drawings, there is shown in FIG. 1 a building block constructed in accordance with one embodiment of the invention, and such block may be composed of concrete or other suitable cementitious material and may include spaced parallel generally rectangular sidewalls **10** and **11** and an intermediate wall **12**. Vertical end webs **13** and **14**, as well as an intermediate web **15** connect the sidewall **10** to the intermediate wall **12**, and it is to be noted that the thicknesses of the end webs **13** and **14** are approximately one-half the thickness of the intermediate web **15**. A pair of spaced vertical webs **16** and **17** connect the sidewall **11** with the intermediate wall **12**, and it is to be noted that the webs **16** and **17** are staggered with respect to the webs **13**, **14** and **15** or, in other words, the web **16** is disposed in a plane between the intermediate web **15** and the end web **13** and the web **17** is disposed in a plane between the web **15** and the end web **14**.

The sidewalls **10** and **11** and the intermediate wall **12** connected to the sidewalls by the cross webs mentioned above provide a unitary structure and the webs **13**, **14** and **15** are provided with notches **18**, **19** and **20** respectively extending downwardly to a point intermediate the height thereof and it is to be noted that the outer side edges **21**, **22** and **23** of the notches **18**, **19** and **20** are spaced inwardly from the inner surface **24** of the sidewall **10**. In a similar manner, the webs **16** and **17** are provided with notches **25** and **26** extending downwardly therein and the outer side edges **27** and **28** are spaced inwardly from the inner surface **29** of the sidewall **11**.

With particular reference to FIG. 2, there is shown an insulating block **30** for use with the building block **31** of FIG. 1 and the insulating block **30** may be formed of lightweight rigid foam material, such as polystyrene and may be provided with spaced parallel notches **32** and **33** extending upwardly from the lower edge **34** of the blocks **30** and it is to be noted that the heights of the notches **32** and **33** are less than the height of the lower portions of the webs of the building blocks **31** for a purpose to be later described. The insulating block **30** is also provided with spaced downwardly extending notches **35** and **36** in the upper edge thereof and such notches are in

alignment with the upwardly extending notches **32** and **33**.

The thickness of the insulating block **30** is approximately equal to the distance between the inner edges of the notches in the webs of the building blocks **31** and the outer surfaces of the intermediate wall **12** and as shown in FIG. 3, one insulating block **30** is disposed between the sidewall **10** and the intermediate wall **12** with the lower portions of the webs **15** and **14** of the building block **31** received in the notches **32** and **33** respectively of the insulating block **30** which results in one end of the insulating block **30** projecting from the end of the building blocks **31** and the opposite end disposed within the building blocks **31**. A second insulating block **30** is disposed between the sidewall **11** and the intermediate wall **12** of the building block **31** with the lower portions of the webs **16** and **17** received in the notches **32** and **33** of the building blocks **30** thereby disposing the second insulating block **30** substantially within the confines of the building block **31**. As clearly shown in FIG. 3, the upper edges of the two insulating blocks **30** positioned in the building block **31** project above the upper edge thereof and as clearly shown in FIG. 6, the lower edges of the insulating blocks **30** are disposed above the lower edges of the building block **31**.

With the above described arrangement of the insulating blocks **30** in the building block **31**, it will be seen that a portion of at least one of the insulating blocks **30** will be disposed opposite the connecting part of each web and, therefore, there is provided a continuous barrier to the transverse flow of heat or moisture through the buildling block **31**.

With particular reference to FIGS. 4 to 7, there is shown a wall constructed with the building block **31** of FIG. 1 and the insulating block **30** of FIG. 2, such wall being laid in a broken joint pattern and it will be seen that the lower surfaces **37** of the downwardly extending notches **35** and **36** of the insulating blocks **30** are disposed above the upper edges **38** of the sidewalls **10** and **11** of the building block **31** a distance equal to the width of a mortar joint and as clearly shown in these figures, the lower portions of the webs of the building blocks **31** in the upper course **39** are received in the notches **35** and **36** of the insulating blocks **30** in the next lower course **40** which serves to accurately space the blocks vertically and also to accurately space the blocks horizontally, thereby providing uniform horizontal mortar joints **41** and uniform vertical mortar joints **42**. As clearly shown in FIG. 4, the insulating blocks **30** in the building block **31** abut each other in end-to-end relationship to provide a continuous heat insulating and moisture barrier in the wall.

When constructing the wall, the second tier of blocks may, if desired, be laid in place prior to positioning the insulating blocks therein, since the engagement of the lower portions of the webs in the second tier of blocks with the downwardly extending notches in the insulating blocks of the lower tier serve to accurately locate the blocks of the upper tier or course and thereafter, the insulating blocks may be placed in the building blocks of the upper course and such insulating blocks **30** may be formed as single units for each building block as shown, or may be constructed in continuous lengths to be inserted in any desired or convenient number of building blocks **31**. In this manner, a wall may be rapidly and efficiently constructed without requiring great skill to provide uniform mortar joints and, furthermore, a continuous sheet insulating and moisture barrier is provided in the wall by the insulating blocks and additional heat insulation is provided by the air spaces between the surfaces of the insulating blocks and the inner surfaces of the walls **10** and **11** of the building block **31** between the webs as clearly shown in FIG. 4.

With particular reference to FIG. 8, there is shown the preferred form of building block **43** which may be constructed of the same material as the building block

described above and such building block 43 may well comprise spaced parallel rectangular sidewalls 44 and 45 connected by spaced parallel vertical webs 46 and 47 to provide a unitary structure. Webs 46 and 47 are provided with downwardly extending notches 48 and 49 terminating at a point intermediate the height thereof and the side edges 50 and 51 of the notches 48 and 49 are spaced inwardly from the inner surfaces 52 and 53 of the sidewalls 44 and 45.

With particular reference to FIG. 9, there is shown an insulating block 54 formed of rigid foam material, such block being of a thickness to be tightly received in the notches 48 and 49 of the building block 43 as clearly shown in FIG. 10 and the insulating block 54 is provided with spaced parallel upwardly extending notches 55 and 56 for receiving the lower portions of the webs 46 and 47 of the building block 43. It is to be noted that the length and height of the insulating block 54 is somewhat greater than the length and height of the building block 43, by reason of which, when positioned in the building block 43 as shown in FIG. 10, one end of the insulating block 54 will project beyond the adjacent end of the sidewalls 44 and 45 of the building block 43 and the upper edge of the insulating block 54 will project above the upper edge of the building block 43.

With particular reference to FIGS. 11 to 15, there is shown a wall constructed by utilizing the building blocks 43 and the insulating blocks 44 and, as clearly shown in FIG. 14, the projecting upper edge of the insulating block 54 of the lower course 57 engages the lower edges of the webs 46 and 47 of the building block 43 in the second course 58 to accurately space such blocks vertically thereby providing uniform horizontal mortar joints 59. As clearly shown in FIG. 11, the projecting end of the insulating block 54 of one building block 43 engages the adjacent end of the insulating block 54 of the adjacent building block 43 to accurately space the building blocks 43 horizontally thereby providing uniform vertical mortar joints 60. It is also to be noted as clearly shown in FIG. 12, that the webs 46 and 47 of each course are in alignment with the webs of the next upper course thereby providing maximum weight carrying capacity. The insulating characteristics of the insulating block 54, as well as the moisture barrier characteristics thereof in conjunction with the air spaces between the insulating block 54 and the inner surfaces 52 and 53 of the sidewalls 44 and 45 of the building block 43 serve to provide adequate heat insulating and moisture barrier characteristics in a wall constructed with these blocks.

With particular reference to FIG. 16, there is shown a modified form of insulating block 61 for use with the building block 43 of the FIG. 10 and as before, the insulating block 61 is formed of suitable rigid foam material and the block 61 is provided with spaced parallel upwardly extending notches 62 and 63 and as clearly shown in FIG. 16, one side 64 is offset, both longitudinally and vertically, from the opposite side 65 to provide an upstanding rib 66 on one side of the upper edge of the insulating block 61 and a depending rib 67 on the opposite side of the lower edge of the block 61. Also a flange 68 projects outwardly from one end of the block 61 in alignment with the rib 66 and a second flange 69 projects outwardly from the opposite end of the block 61 in alignment with the rib 67. These flanges 68 and 69, instead of being planar on their ends, could be provided with a tongue and groove connection, if desired. The same is true of the upper and lower ribs. The upstanding rib 66 is provided with spaced parallel downwardly extending notches 70 and 71 terminating at the upper edge 72 of the block 61 and being in alignment with the upwardly extending notches 62 and 63. The insulating block 61 is positioned in the building block 43 in the same manner as previously described in connection with the insulating block 54, and the lower portions of the webs 46 and 47 are received in the upwardly extending notches 62 and 63 of the insulating block 61 and, as clearly shown in FIGS. 17 and 19, one end of the insulating block 61 projects beyond the adjacent end of the building block 43 while the upper edge and rib 66 of the insulating block 61 projects above the upper edge of the building block 43 and the lower edge of the depending rib 67 of the insulating block 61 is flush with the lower edge of the building block 43.

With particular reference to FIGS. 17 to 19 there is shown a wall constructed by utilizing the building block 43 of FIG. 10 and the insulating block 61 of FIG. 16 and, as clearly shown, the upwardly extending rib 66 and depending rib 67 of adjacent lower and upper courses 73 and 74 interlock to provide a "ship-lap" construction and, in a similar manner, the adjacent end flanges 68 and 69 also interlock to provide a "ship-lap" construction. Furthermore, the engagement of the ends of the insulating blocks 61 in adjacent building blocks 43, as well as the engagement of the lower edges of the ribs 46 and 47 in the notches 70 and 71 and with the upper surface 72 of the insulating blocks 61 serves to provide accurate spacing between the building blocks 43, thereby providing uniform horizontal and vertical mortar joints, Also in this form of the invention, the webs 46 and 47 of the building blocks 43 are positioned in vertical alignment to increase the load-carrying capacity and the insulating block 61, together with the air spaces provided between such blocks and the inner wall surfaces of the building blocks 43 serve to provide adequate heat insulation, as well as a barrier against the passage of moisture transversely through the building blocks 43.

It will be seen that by the above described invention there has been provided a highly effective composite insulated building block which may be conveniently utilized for constructing walls or other structures and various forms of building blocks and insulating blocks are provided by the invention by means of which maximum insulating and moisture-proof characteristics, as well as load-carrying characteristics are secured and since the insulating blocks may be made of extremely lightweight rigid foam material, little weight is added to the wall and in fact, the building blocks may be made to minimum sizes for accommodating the required load, since the entire heat insulating and moisture-proof characteristics are provided by the insulating blocks utilized in conjunction with the building blocks. The particular structure of both the building blocks and insulating blocks of this invention are particularly well adapted to mass production and also serve to materially facilitate the construction of a wall or other structure by labor utilizing a minimum of skill in such matters.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. A composite insulated building block comprising spaced parallel rectangular sidewalls and an intermediate wall, vertical end webs and an intermediate web connecting one sidewall and said intermediate wall, the thickness of each end web being approximately one-half the thickness of said intermediate web, a pair of spaced vertical webs connecting the other sidewall and said intermediate wall, one of said pair being disposed in a plane between said intermediate web and one end web and the other of said pair being disposed in a plane between said intermediate web and the other end web, said walls and webs being of cementitious material and providing a unitary structure, each web having a notch extending downwardly from the upper edge to a point intermediate the height of said web, the outer side edges of the notches in said end and intermediate webs being spaced inwardly from the inner surface of said one sidewall, the outer side edges of the notches in said pair of webs being spaced inwardly

from the inner surface of said other sidewall and a pair of separate generally rectangular blocks of insulating rigid foam material, each insulating block having two spaced parallel notches extending upwardly from the lower edge, the height of said last named notches being less than the height of said webs below the notches therein and spaced downwardly extending notches in the upper edge of said insulating block in alignment with said upwardly extending notches, one of said insulating blocks being received between said one sidewall and said intermediate wall with one upwardly extending notch receiving the lower portion of said intermediate web and the other upwardly extending notch receiving the lower portion of one end web, the other insulating block being received between said other sidewall and said intermediate wall with the upwardly extending notches receiving the lower portions of said pair of webs, the lower edges of said insulating blocks being spaced above the lower edges of said walls and the upper edges projecting above the upper edges of said walls by the width of a mortar joint downwardly extending notches being spaced above the upper edges of said walls by the width of a motar joint to provide a composite building block with insulation provided by said insulating blocks and the air spaces between the outer sides of said insulating blocks and the inner surfaces of said sidewalls.

2. A composite insulated building block comprising spaced parallel rectangular sidewalls and an intermediate wall, vertical end webs and an intermediate web connecting one sidewall and said intermediate wall, a pair of spaced vertical webs connecting the other sidewall and said intermediate wall, one of said pair being disposed in a plane between said intermediate web and one end web and the other of said pair being disposed in a plane between said intermediate web and the other end web, said walls and webs being of cementitious material and providing a unitary structure, each web having a notch extending downwardly from the upper edge to a point intermediate the height of said web, the outer side edges of the notches in said end and intermediate web being spaced inwardly from the inner surface of said one sidewall, the other side edges of the notches in said pair of webs being spaced inwardly from the inner surface of said other sidewall and a pair of separate generally rectangular blocks of insulating rigid foam material, each insulating block having two spaced parallel notches extending upwardly from the lower edge, the height of said last named notches being less than the height of said webs below the notches therein and spaced downwardly extending notches in the upper edge of said insulating block in alignment with said upwardly extending notches, one of said insulating blocks being received between said one sidewall and said intermediate wall with one upwardly extending notch receiving the lower portion of said intermediate web and the other upwardly extending notch received the lower portion of one end web, the other insulating block being received between said other sidewall and said intermediate wall with the upwardly extending notches receiving the lower portions of said pair of webs, the lower edges of said insulating blocks being spaced above the lower edges of said walls and the upper edges projecting above the upper edges of said walls with the lower surfaces of said downwardly extending notches being spaced above the upper edges of said walls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating blocks and by the air spaces between the outer sides of said insulating blocks and the inner surfaces of said sidewalls.

3. A composite insulated building block comprising spaced parallel rectangular sidewalls and an intermediate wall, vertical end webs and an intermediate web connecting one sidewall and said intermediate wall, a pair of spaced vertical webs connecting the other sidewall and said intermediate wall, one of said pair being disposed in a plane between said intermediate web and one end web and the other of said pair being disposed in a plane between said intermediate web and the other end web, said walls and webs being of cementitious material and providing a unitary structure, each web having a notch extending downwardly from the upper edge to a point intermediate the height of said web and a pair of separate generally rectangular blocks of insulating rigid foam material, each insulating block having two spaced parallel notches extending upwardly from the lower edge, the height of said last named notches being less than the height of said webs below the notches therein and spaced downwardly extending notches in the upper edge of said insulating block in alignment with said upwardly extending notches, one of said insulating blocks being received between said one sidewall and said intermediate wall with one upwardly extending notch receiving the lower portion of said intermediate web and the other upwardly extending notch receiving the lower portion of one end web, the other insulating block being received between said other sidewall and said intermediate wall with the upwardly extending notches receiving the lower portions of said pair of webs, the lower edges of said insulating blocks being spaced above the lower edges of said walls and the upper edges projecting above the upper edges of said walls with the lower surfaces of said downwardly extending notches being spaced above the upper edges of said walls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating blocks.

4. An insulated building wall having uniform mortar joints, said wall comprising a plurality of composite insulated building blocks laid in a broken joint pattern with mortar joints therebetween, each building block comprising spaced parallel rectangular sidewalls and an intermediate wall, vertical end webs and an intermediate web connecting one sidewall and said intermediate wall, the thickness of each end web being approximately one-half the thickness of said intermediate web, a pair of spaced vertical webs connecting the other sidewall and said intermediate wall, one of said pair being disposed in a plane between said intermediate web and one end web and the other of said pair being disposed in a plane between said intermediate web and the other end web, said walls and webs being of cementitious material and providing a unitary structure, each web having a notch extending downwardly from the upper edge to a point intermediate the height of said web, the outer side edges of the notches in said end and intermediate webs being spaced inwardly from the inner surface of said one sidewall, the outer side edges of the notches in said pair of webs being spaced inwardly from the inner surface of said other sidewall and a pair of separate generally rectangular blocks of insulating rigid foam material, each insulating block having two spaced parallel notches extending upwardly from the lower edge, the height of said last named notches being less than the height of said webs below the notches therein and spaced downwardly extending notches in the upper edge of said insulating block in alignment with said upwardly extending notches, one of said insulating blocks being received between said one sidewall and said intermediate wall with one upwardly extending notch receiving the lower portion of said intermediate web and the other upwardly extending notch receiving the lower portion of one end web, the other insulating block being received between said other sidewall and said intermediate wall with the upwardly extending notches receiving the lower portions of said pair of webs, the lower edges of said insulating blocks being spaced above the lower edges of said walls and the upper edges projecting above the upper edges of said walls with the lower surfaces of said downwardly extending notches being spaced above the upper edges of said walls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating blocks and by the air spaces between the outer sides of said insulating blocks

and the inner surfaces of said sidewalls, the upwardly extending notch in said one insulating block receiving the lower portion of one end web also receiving the lower portion of the end web on the adjacent building block, the ends of said other insulating block engaging the ends of the corresponding insulating blocks in adjacent building blocks to provide uniform vertical mortar joints therebetween and the lower edges of the webs on the adjacent course of building blocks being received in the downwardly extending notches in said insulating blocks to accurately locate the building blocks in said adjacent courses and provide uniform horizontal mortar joints.

5. An insulated building wall having uniform mortar joints, said wall comprising a plurality of composite insulated building blocks layed in a broken joint pattern with mortar joints therebetween, each building block comprising spaced parallel rectangular sidewalls and an intermediate wall, vertical end webs and an intermediate web connecting one sidewall and said intermediate wall, the thickness of each end web being approximately one-half the thickness of said intermediate web, a pair of spaced vertical webs connecting the other sidewall and said intermediate wall, one of said pair being disposed in a plane between said intermediate web and one end web and the other of said pair being disposed in a plane between said intermediate web and the other end web, said walls and webs being of cementitious material and providing a unitary structure, each web having a notch extending downwardly from the upper edge to a point intermediate the height of said web and a pair of separate generally rectangular blocks of insulating rigid foam material, each insulating block having two spaced parallel notches extending upwardly from the lower edge, the height of said last named notches being less than the height of said webs below the notches therein and spaced downwardly extending notches in the upper edge of said insulating block in alignment with said upwardly extending notches, one of said insulating blocks being received between said one sidewall and said intermediate wall with one upwardly extending notch receiving the lower portion of said intermediate web and the other upwardly extending notch receiving the lower portion of one end web, the other insulating block being received between said other sidewall and said intermediate wall with the upwardly extending notches receiving the lower portions of said pair of webs, the lower edges of said insulating blocks being spaced above the lower edges of said walls and the upper edges projecting above the upper edges of said walls with the lower surfaces of said downwardly extending notches being spaced above the upper edges of said walls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating blocks, the upwardly extending notch in said one insulating block receiving the lower portion of one end web also receiving the lower portion of the end web on the adjacent building block, the ends of said other insulating block engaging the ends of the corresponding insulating blocks in adjacent building blocks to provide uniform vertical mortar joints therebetween and the lower edges of the webs on the adjacent courses of building blocks being received in the downwardly extending notches in said insulating blocks to accurately locate the building blocks in said adjacent courses and provide uniform horizontal mortar joints.

6. A composite insulated building block comprising spaced parallel rectangular sidewalls, spaced parallel vertical webs connecting said sidewalls, said sidewalls and webs being of cementitious material and providing a unitary structure, each web having a notch extending from the upper edge downwardly to a point intermediate the height of said web, the side edges of said notches being spaced inwardly from the inner surfaces of said sidewalls and a separate generally rectangular block of insulating rigid foam material, said insulating block having spaced parallel notches extending upwardly from the lower edge to a point intermediate the height, one side of said insulating block being offset longitudinally and vertically with respect to the opposite side to provide an upstanding rib on one side of the upper edge surface, a depending rib on the opposite side of the lower edge surface, a flange projecting from one end in alignment with said upstanding rib and a second flange projecting from the opposite end in alignment with said depending rib, said upstanding rib having spaced parallel notches extending downwardly in alignment with said upwardly extending notches and terminating at the upper edge of said insulating block, said insulating block being received between said sidewalls in the notches in said webs and with the lower portions of said webs received in the upwardly extending notches in said insulating block, the lower edge of said depending rib being flush with the adjacent lower edges of said sidewalls, the end of said flange on said opposite end being flush with the adjacent end edges of said sidewalls, the upper edge of said insulating block projecting above the upper edges of said sidewalls by the width of a mortar joint and said one end projecting beyond the adjacent end edges of said sidewalls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating block and by the air spaces between the sides of said insulating block and the inner surfaces of said sidewalls.

7. A two-part composite insulated building block, one part comprising spaced parallel rectangular sidewalls, spaced parallel vertical webs connecting said sidewalls, said sidewalls and webs being of cementitious material and providing a unitary structure, each web having a notch extending from the upper edge downwardly to a point intermediate the height of said web and a second part comprising a separate generally rectangular block of insulating rigid foam material, said insulating block having vertically extending parrallel outer surfaces, said surfaces being spaced from the interior surfaces of said spaced parallel rectangular sidewalls to provide continuous air spaces on both sides of said insulating block, whereby when any moisture penetrates the cementitious block, it will collect on outer surfaces of said insulating block and will be evaporated due to the air currents in said air spaces, said insulating block having spaced parallel notches extending upwardly from the lower edge to a point intermediate the height, one side of said insulating block being offset longitudinally and vertically with respect to the opposite side to provide an upstanding rib on one side of the upper edge surface, a depending rib on the opposite side of the lower edge surface, a flange projecting from one end in alignment with said upstanding rib and a second flange projecting from the opposite end in alignment with said depending rib, said upstanding rib having spaced parallel notches extending downwardly in alignment with said upwardly extending notches and terminating at the upper edge of said insulating block, said insulating block being received between said sidewalls in the notches in said webs and with the lower portions of said webs received in the upwardly extending notches in said insulating block, the lower edge of said depending rib being flush with the adjacent lower edges of said sidewalls, the end of said flange on said opposite end being flush with the adjacent end edges of said sidewalls, the upper edge of said insulating block projecting above the upper edges of said sidewalls by the width of a mortar joint and said one end projecting beyond the adjacent end edges of said sidewalls by the width of a mortar joint to provide a composite building block with insulation provided by said insulated block.

8. An insulated building wall having uniform mortar joints, said wall comprising a plurality of two-part composite insulated building blocks layed in a broken joint pattern with mortar joints therebetween, one part of each building block comprising spaced parallel rectangular sidewalls, spaced parallel vertical webs connecting said sidewalls, said sidewalls and webs being of cementitious

material and providing a unitary structure, each web having a notch extending from the upper edge downwardly to a point intermediate the height of said web, the side edges of said notches being spaced inwardly from the inner surfaces of said side walls and a second part comprising a separate generally rectangular block of insulating rigid foam material, said insulating block having vertically extending parallel outer surfaces, said surfaces being spaced from the interior surfaces of said spaced parallel rectangular side walls to provide continuous air spaces on both sides of said insulating block, whereby when any moisture penetrates the cementitious block, it will collect on outer surfaces of said insulating block and will be evaporated due to the air currents in said air spaces, said insulating block having spaced parallel notches extending upwardly from the lower edge to a point intermediate the height, one side of said insulating block being offset longitudinally and vertically with respect to the opposite side to provide an upstanding rib on one side of the upper edge surface, a depending rib on the opposite side of the lower edge surface, a flange projecting from one end in alignment with said upstanding rib and a second flange projecting from the opposite end in alignment with said depending rib, said upstanding rib having spaced parallel notches extending downwardly in alignment with said upwardly extending notches and terminating at the upper edge of said insulating block, said insulating block being received between said sidewalls in the notches in said webs and with the lower portions of said webs received in the upwardly extending notches in said insulating block, the lower edge of said depending rib being flush with the adjacent lower edges of said sidewalls, the end of said flange on said opposite end being flush with the adjacent end edges of said sidewalls, the upper edge of said insulating block projecting above the upper edges of said sidewalls by the width of a mortar joint and said one end projecting beyond the adjacent edges of said sidewalls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating block and by the air spaces between the sides of said insulating block and the inner surfaces of said sidewalls, said one end of said insulating block engaging the end of the flange on said opposite end of the adjacent insulating block to provide uniform vertical mortar joints, the lower edges of the webs in succeeding courses being received in the notches in said upstanding rib to locate the webs in succeeding courses in vertical alignment and the upper edge of said insulating block engaging the lower edges of the webs in the next succeeding course to provide a uniform horizontal mortar joints.

9. An insulated building wall having uniform mortar joints, said wall comprising a plurality of two-part composite insulated building blocks layed in a broken joint pattern with mortar joints therebetween, one part of each building block comprising spaced parallel rectangular sidewalls, spaced parallel vertical webs connecting said sidewalls, said sidewalls and webs being of cementitious material providing a unitary structure, each web having a notch extending from the upper edge downwardly to a point intermediate the height of said web and the second part comprising a separate generally rectangular block of insulating rigid foam material, said insulating

block having vertically extending parallel outer surfaces, said surfaces being spaced from the interior surfaces of said spaced parallel rectangular side walls to provide continuous air spaces on both sides of said insulating block, whereby when any moisture penetrates the cementitious block, it will collect on outer surfaces of said insulating block and will be evaporated due to the air currents in said spaces, said insulating block having spaced parallel notches extending upwardly from the lower edge to a point intermediate the height, one side of said insulating block being offset longitudinally and vertically with respect to the opposite side to provide an upstanding rib on one side of the upper edge surface, a depending rib on the opposite side of the lower edge surface, a flange projecting from one end in alignment with said upstanding rib and a second flange projecting from the opposite end in alignment with said depending rib, said upstanding rib having spaced parallel notches extending downwardly in alignment with said upwardly extending notches and terminating at the upper edge of said insulating block, said insulating block being received between said sidewalls in the notches in said webs and with the lower portions of said webs received in the upwardly extending notches in said insulating block, the lower edge of said depending rib being flush with the adjacent lower edges of said sidewalls, the end of said flange on said opposite end being flush with the adjacent end edges of said sidewalls, the upper edge of said insulating block projecting above the upper edges of said sidewalls by the width of a mortar joint and said one end projecting beyond the adjacent end edges of said sidewalls by the width of a mortar joint to provide a composite building block with insulation provided by said insulating block, said one end of said insulating block engaging the end of the flange on said opposite end of the adjacent insulating block to provide uniform vertical mortar joints, the lower edges of the webs in succeeding courses being received in the notches in said upstanding rib to locate the webs in succeeding courses in vertical alignment and the upper edge of said insulating block engaging the lower edges of said webs in the next succeeding course to provide uniform horizontal mortar joints.

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