Nov. 29, 1932. F. L. GREEN 1,889,547

BUILDING STRUCTURE

Filed April 23, 1929 3 Sheets-Sheet 1

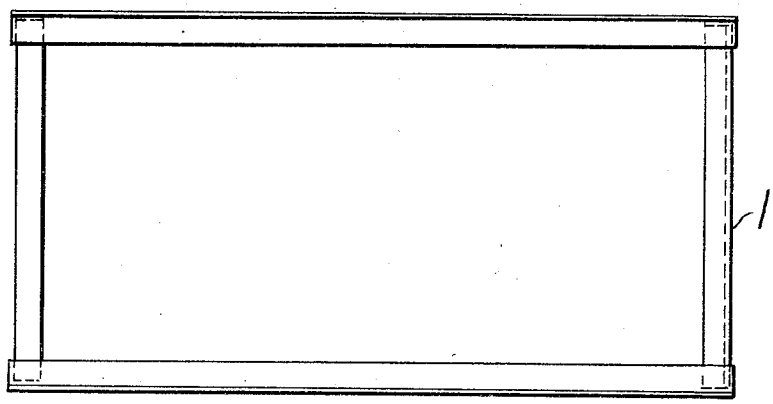


FIG.-1

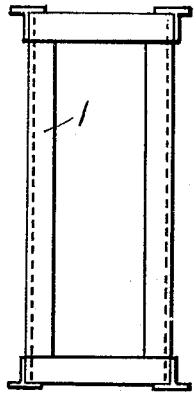


FIG.-2

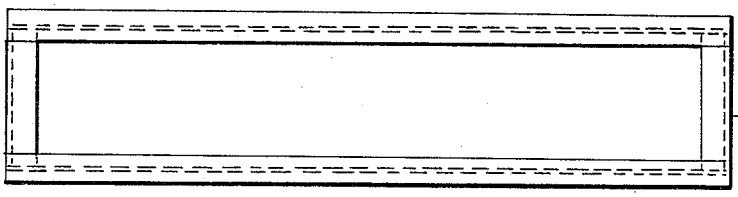


FIG.-3

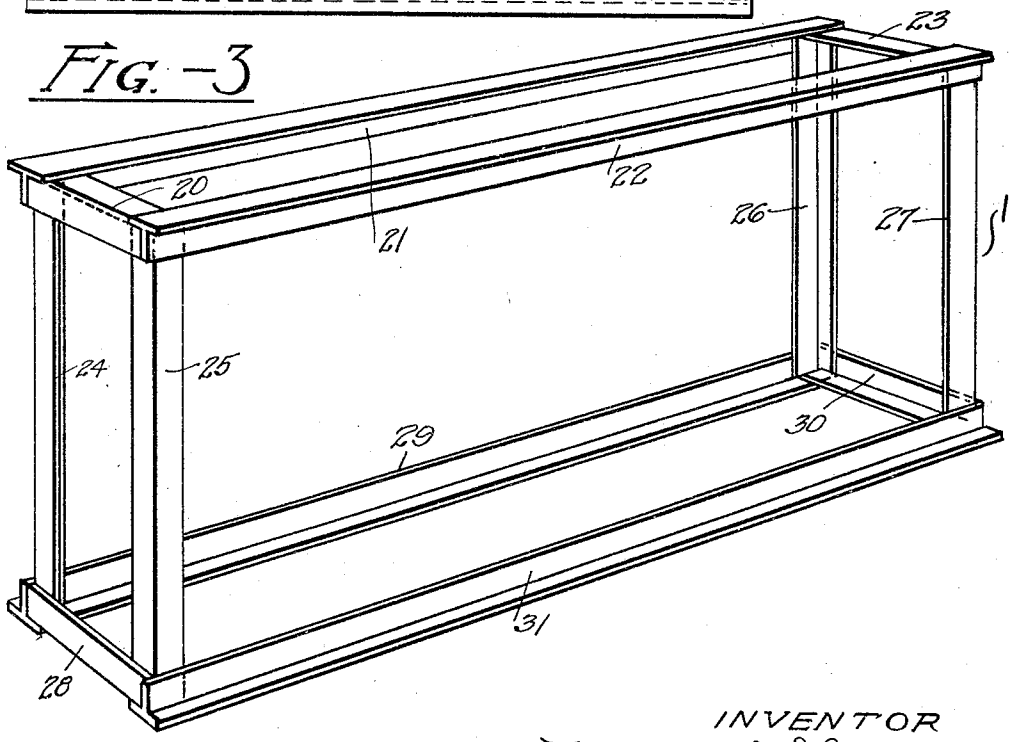


FIG.-4

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BUILDING STRUCTURE

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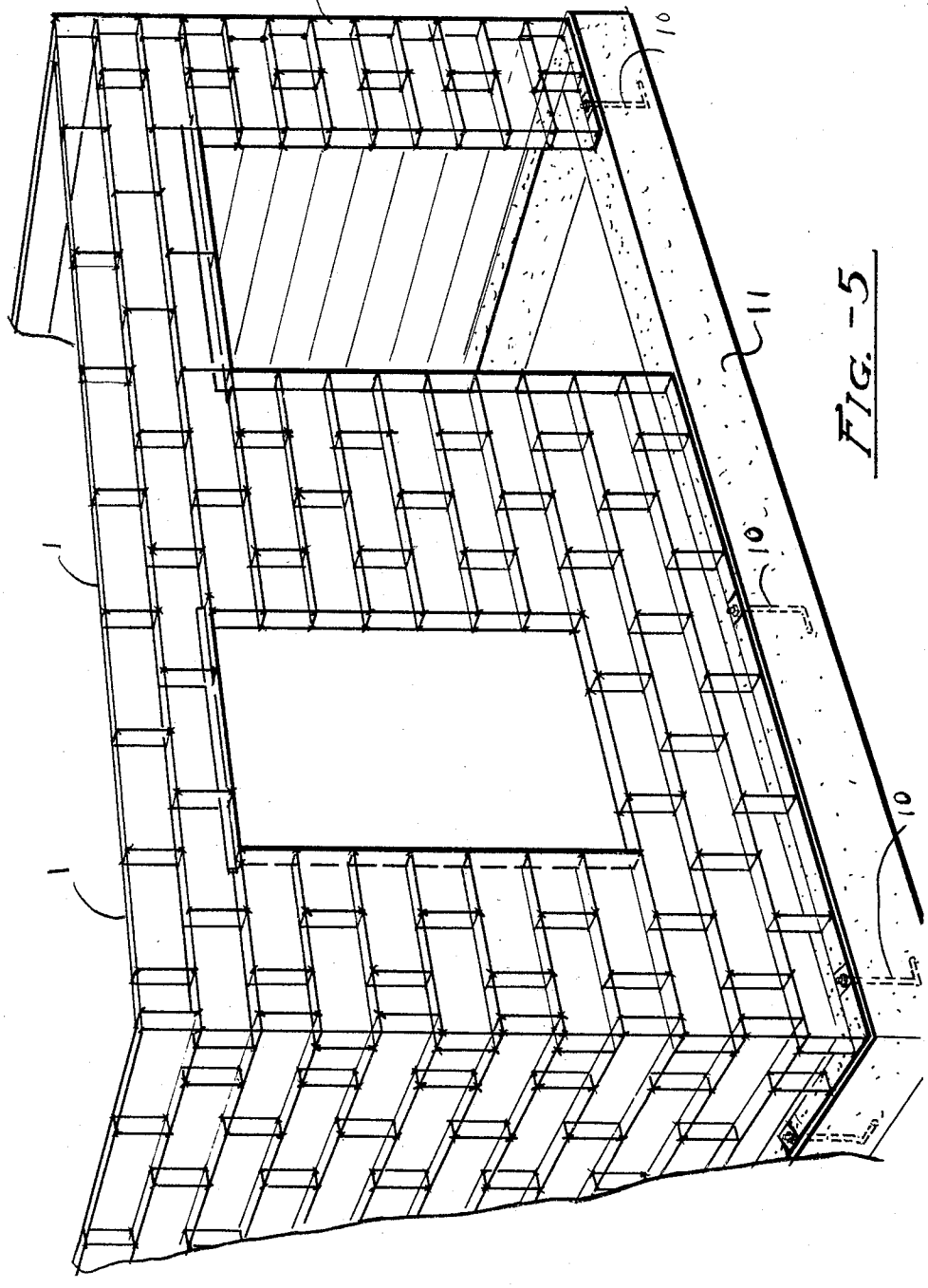


FIG. -5

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BUILDING STRUCTURE

Filed April 23, 1929 3 Sheets-Sheet 3

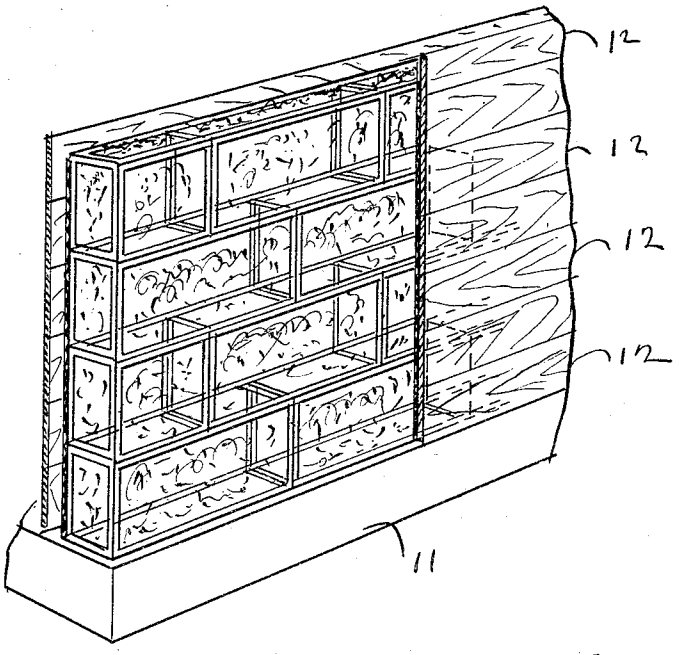


FIG. -7

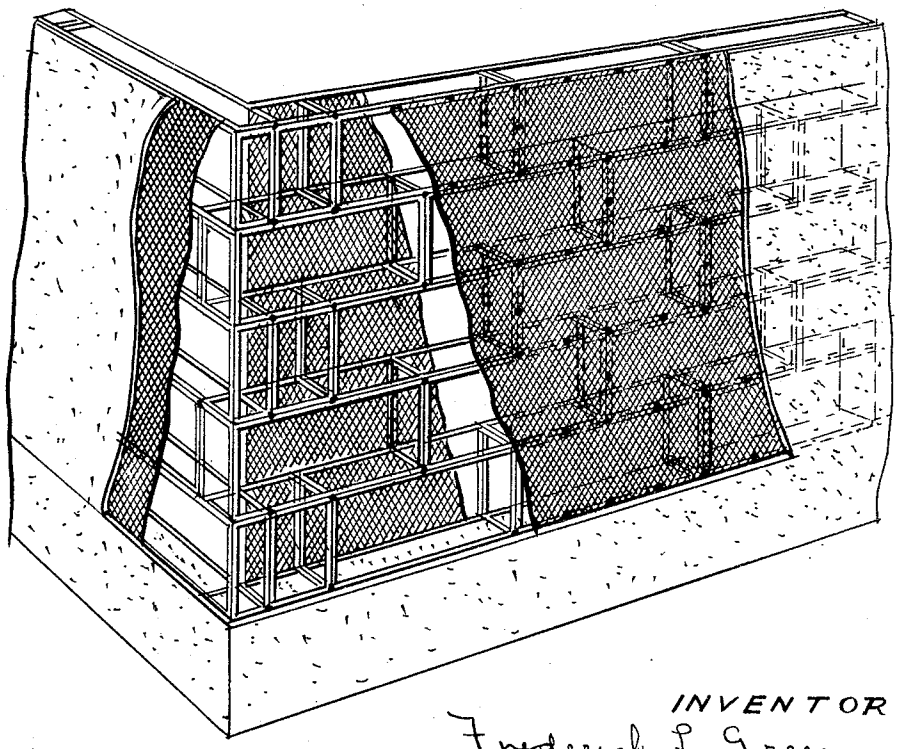


FIG. -6

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Patented Nov. 29, 1932 1,889,547

UNITED STATES PATENT OFFICE

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BUILDING STRUCTURE

Application filed April 23, 1929. Serial No. 357,403.

The invention will be fully understood from the following description read in conjunction with the drawings in which,

Figs. 1, 2, 3, and 4 are, side, end, top, and perspective views respectively of a unit employed in my construction.

Fig. 5 is a perspective view of an assembly of such units forming a structure.

Fig. 6 is a perspective view of walls composed of my units showing method of attachment of metal lath thereto, and,

Fig. 7 is a phantom view of such a wall showing method of forming a combination steel and cement structure.

Referring specifically to Figs. 1 to 4 inc. the unit 1 which I employ is a steel skeleton brick and may hereinafter be referred to as such. This brick may have any form such that it may be assembled with similar forms to make up a wall; thus for example, a section through my brick parallel to the major surface of the wall so formed may be that of a triangle, rectangle, or any multi-sided figure adapted to be laid close to similar figures to form a complete surface. A section through my unit at a right angle to the surface of the wall so formed is preferably rectangular. The preferred form of unit is that of a parallelepipedon such as 1 illustrated in the various figures. which accompany the application. By reference to Fig. 3, it will be observed that this preferred form is completely skeletonic and is defined only by the terminal members forming the edges of the brick. The upper face, for example, is defined only by the terminal members 20, 21, 22 and 23. The lower face is defined only by the terminal members 28, 29, 30 and 31. One end is defined by the terminal members 24, 20, 25 and 28, and the opposite end is defined by the terminal members 23, 26, 27 and 30.

These units are of light weight, composed of relatively light weight pieces of steel, such as for example, angle, channels and/or T rails, and in the preferred form these rails are distributed along the edges of the brick, that is along the vertices of the dihedral angles. While these units may be of any size, I find a width of 4 to 8 inches, a length of 8 to 32 inches, and a height of 6 to 24 inches to be suitable. These units are assembled together to form the desired wall, and are secured to each other, by spot welding contiguous edges of said bricks along the inside and outside surfaces of said wall.

A favored construction is that in which the units are assembled with staggered joints as illustrated in Figs. 5 to 7 inc.

My preferred practice in joining the units is to spot weld the same at those points on the said wall surfaces at which three or more of the said bricks come together thereby imparting the maximum rigidity to the complete structure with a minimum number of welding operations. The wall so formed may of course be secured to the foundation in any suitable way, as for example, by means of anchor bolts 10 cast in concrete foundation 11. Windows and doors may be placed in spaces left for that purpose in the finished wall. I preferably employ windows and doors fabricated with steel frames so that these frames may be locked in position by welding to the abutting edges of the skeleton brick.

Owing to the strength and rigidity which characterize my construction, I am enabled to dispense entirely if desired with the vertical supports such as the steel rails (beams) which carry the compressive stresses of the weight of the superstructure. In this case, the skeleton bricks carry the entire transmitted weight of that part of the structure which is above the same. For this reason I do not require complicated plans showing the character, proportions and positions of steel work, but having any plans at all and regardless of whether these plans were originally prepared for steel or wood construction, I may proceed to fabricate a finished building assemblying my walls in the same fashion as brick walls are assembled although more rapidly and easily.

An additional advantage of my construction arises from the fact that owing to the skeleton structure of my building units, I may assemble these to form a wall, preferably welding the same in position, and place cement retaining means such as boards against the inside and outside surfaces of the wall so

formed and proceed to pour a liquid or plastic cement, such as for example, concrete into the space so formed.

This relieves me of the necessity for forming complicated forms and permits me to construct a rigid steel cement structure at a minimum cost. Whenever one horizontal section of the wall has been completed in this manner, the boards may of course be carried to a higher level following the upward extension of the assembled skeleton brick and the process repeated.

Fig. 7 illustrates an assembly of bricks in this manner resting on foundation 11, backed by boards 12, the outside boards having been removed for purposes of observation, and a cement filling being indicated.

A preferred method of constructing the said steel cement wall is to pour into the space so formed a cement which prior to setting generates a multiplicity of small gas bubbles disseminated throughout the mass thereof, to form a solid material which has excellent thermally insulating properties. Cements of this type have been developed, and a more complete description of the same is not necessary at this point. The hollow space between the inside and outside surfaces of the wall formed may if desired be left empty or filled with any fibrous or pulverulent thermal insulation.

Having constructed the wall as aforesaid, with or without the cement filling between the inside and outside surfaces thereof, I may attach thereto lath of any character, although I preferably employ for this purpose metal lath, such as for example, that formed of expanded metal. Such lath is shown as 14 in Fig. 6 attached to the inside and outside surfaces respectively. This lath is perfectly attached by spot welding it to the steel skeleton bricks. The plastic finish for the interior walls may be formed on the inside lath and a stucco finish may be formed on the outside lath. It will of course be understood that any alternative surfacing for either inside or outside walls may be employed in combination with my skeleton bricks, thus for example, the outer surface may be composed of wood or brick veneer, and if desired may be spaced away from the skeleton bricks to permit any seepage through the outside wall to drain down out of contact with the bricks.

It will of course be understood that my invention is susceptible of a number of modifications other than those herein described. The description is for purposes of illustration and not by way of limitation. It is my intention that the invention be limited only by the appended claims or their equivalents in which I have endeavored to claim broadly all inherent novelty.

I claim:

1. A house comprising a wall of steel skeleton bricks, rigidly joined by welding contiguous edges of said bricks along the inside and outside surfaces of said wall, each vertically succeeding layer of said steel skeleton bricks being adapted to support the entire wall structure surmounting the same, said bricks having the form of parallelepipedons and this form being defined only by terminal members forming the edges of the brick.

2. A house comprising a wall of steel skeleton bricks, said skeleton bricks being laid with broken joints and rigidly connected by spot welds on the inside and outside surfaces of said wall uniting the points at which three of said bricks join, each vertically succeeding layer of said steel skeleton bricks being adapted to support the entire wall structure surmounting the same, said bricks having the form of parallelepipedons and this form being defined only by terminal members forming the edges of the brick.

3. A house comprising a wall of steel skeleton bricks, rigidly joined by welding contiguous edges of said bricks along the inside and outside surfaces of said wall, each vertically succeeding layer of said bricks being adapted to support the entire wall structure surmounting the same, and a thermally insulating cement carrying a multiplicity of small gas bubbles disseminated throughout the mass of the same filling the space between the inner and outer surfaces of said wall.

4. A house comprising a wall of steel skeleton bricks, said bricks being laid with broken joints and rigidly connected by spot welds on the inside and outside surfaces of said wall uniting the points at which three of said bricks join, each vertically succeeding layer of said bricks being adapted to carry the entire wall structure surmounting the same, and a thermally insulating cement carrying a multiplicity of small gas bubbles disseminated throughout the mass of the same filling the space between the inner and outer surfaces of said wall.

FREDERICK L. GREEN.