June 4, 1940. E. S. GUIGNON, JR 2,202,850

BUILDING STRUCTURE

Filed Oct. 31, 1938 2 Sheets-Sheet 1

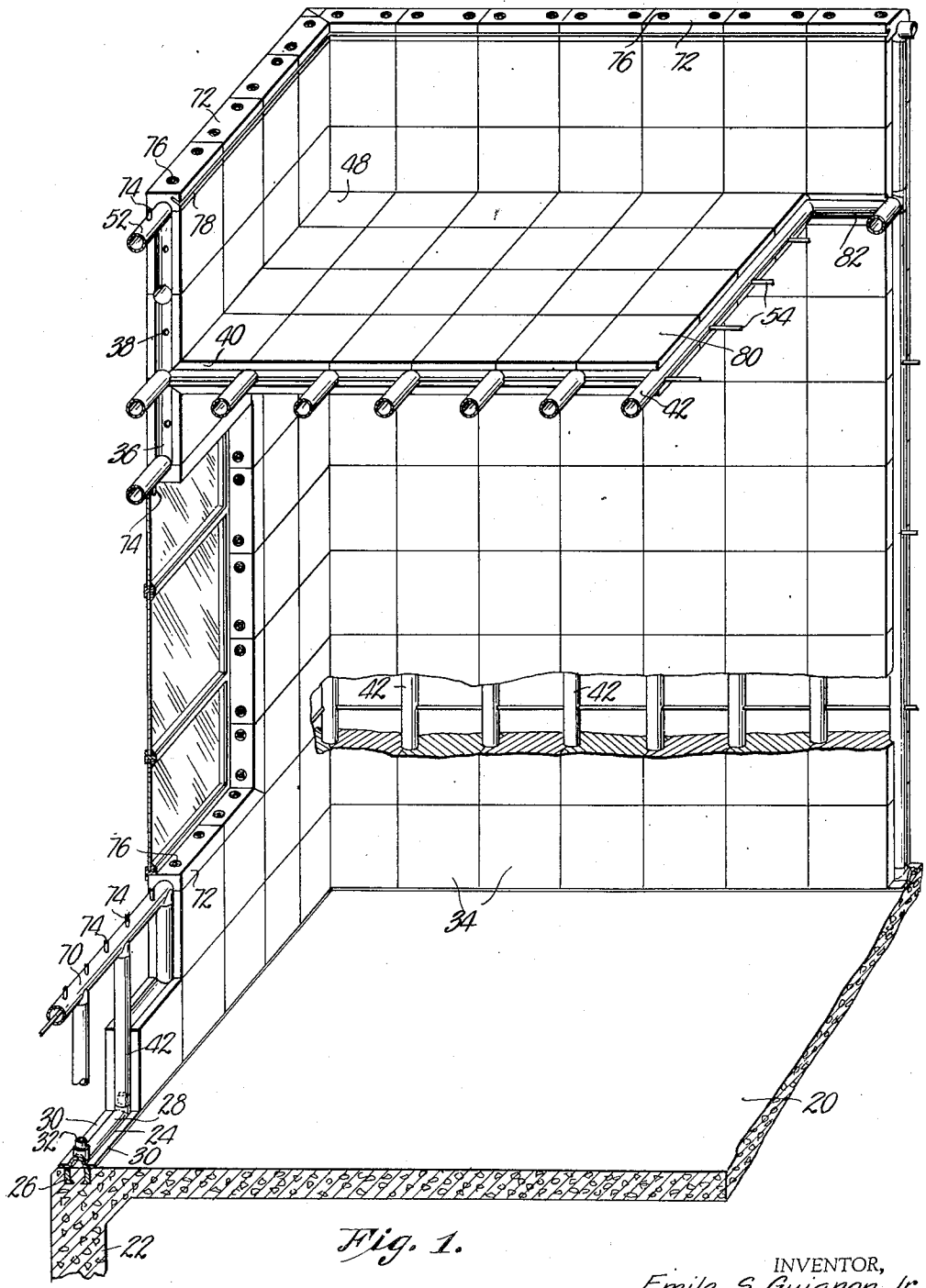



Fig. 1.

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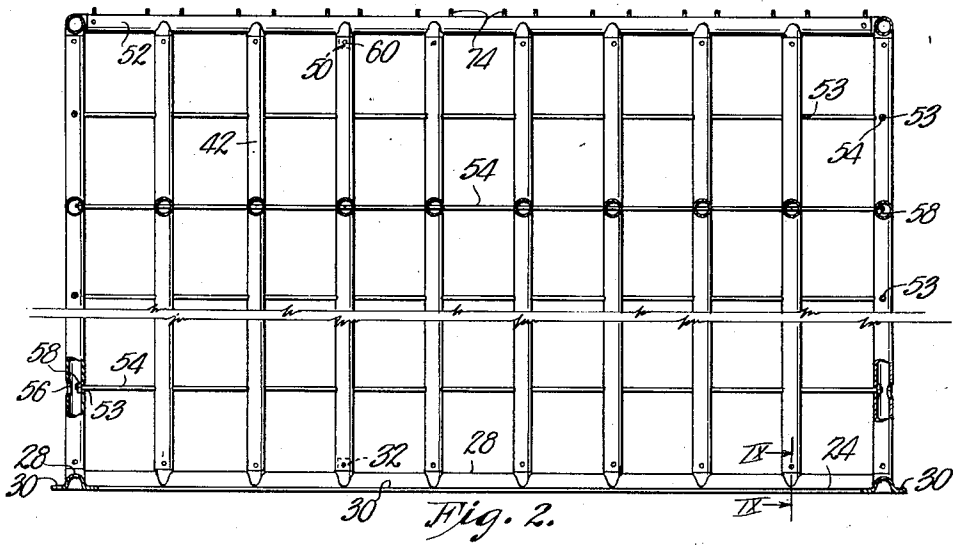



Fig. 2.

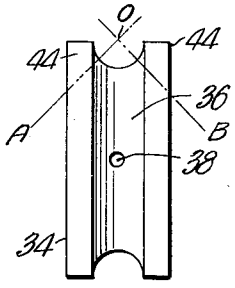



Fig. 3.

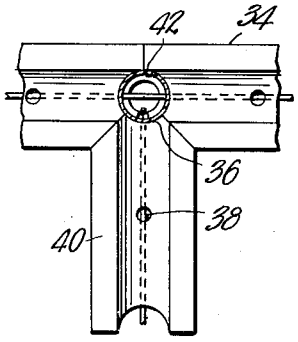



Fig. 4.

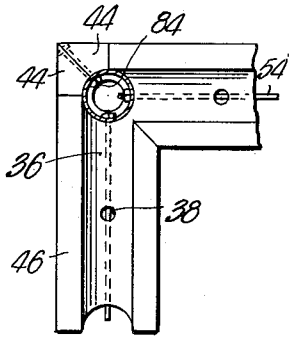



Fig. 5.

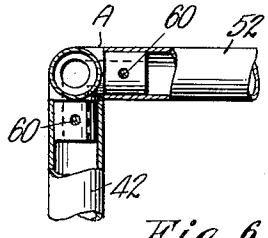



Fig. 6.

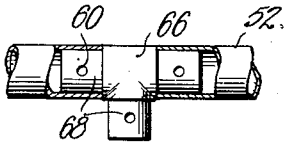



Fig. 7.

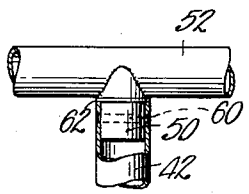



Fig. 8.

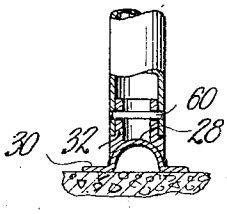



Fig. 9.

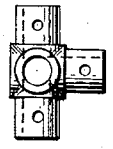


Fig. 10.

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# UNITED STATES PATENT OFFICE

2,202,850

## BUILDING STRUCTURE

Emile S. Guignon, Jr., Kansas City, Mo.

Application October 31, 1938, Serial No. 237,913

9 Claims. (Cl. 189—34)

This invention relates to improvements in building structures and has for its principal object, the provision of a structure which may be easily and quickly fabricated by unskilled labor and wherein building blocks of similar structure are secured in abutted relation by means of parallel longitudinal members embedded in grooves formed in the marginal edges thereof.

A further object of this invention is the provision of a building structure wherein the walls and ceilings are similarly constructed and adapted to be positioned and secured in abutted relation with longitudinal tubular members interengaging adjacent blocks to secure them in fixed relative relation and rods passing through said tubular members to secure said blocks against movement longitudinal to said tubes.

A yet further object of the present invention is the provision of a building structure wherein a uniformly shaped building block of definite dimensions serves as a master block from which all blocks used in the structure may be made without any appreciable loss of material by simply intersecting said block.

A still further object of this invention is the provision of a building structure wherein the upper floors and ceilings of the structure are supported by vertically disposed tubular members which rest on the base of the building structure and also serve to maintain adjacent wall block members in alignment.

Other objects of this invention are simplicity and economy of construction, ease and rapidity of erection, and adaptability for use in the various types of architecture. With these as well as other objects which will appear during the course of the specification in view, reference will now be had to the drawings wherein:

Figure 1 is a fragmentary perspective view of a building structure embodying this invention.

Fig. 2 is a foreshortened elevation of the fabricated metal frame work which supports the building block.

Fig. 3 is an enlarged edge elevation of the building block.

Fig. 4 is a sectional plan view of a portion of the building structure at the joining of a partition with the main wall.

Fig. 5 is a fragmentary sectional plan view of the corner construction.

Fig. 6 is a sectional plan view showing the corner construction of tubular members.

Fig. 7 is a fragmentary partially sectioned view showing a straight away connector for the tubular members with a transverse connecting boss.

Fig. 8 is an elevational view of a longitudinal tube having a transversely disposed connecting boss to receive another structural tube.

Fig. 9 is a partially sectioned view of the base member with associated parts; and

Fig. 10 is an elevation of a connector having four connecting bosses.

Throughout the several views, like reference characters designate similar parts and the numeral **20** is a floor mounted on a suitable base **22** and provided with base members **24** which are secured in position on the floor surface by means of anchors **26**. This floor structure as shown is made of concrete or terrazzo and the base members will be positioned thereon while the floor material is still green so that as the floor material hardens, it will definitely secure the anchoring members **26** in position. This base member is provided with a central, semi-circular rib **28** with outwardly projecting flanges **30** at each side thereof. At equally spaced apart intervals connecting bosses **32** are secured in parallel relation and perpendicular to the major plane of the base member.

The building block **34** is of rectangular shape and in the present showing, is square, however, any other rectangular formed block might be used by changing the fabricated steel structure in certain dimensions. This block **34** is provided at its peripheral portions with a uniform groove **36**. For convenience of building, it has been found best to make these grooves semi-circular in cross section so as to snugly fit the ordinary pipe of cylindrical form and to provide proper surfaces for drawing when the blocks are molded. It is contemplated to use a hollow metal block with special tile facings in order to produce a finished building by simply positioning the various parts as shown.

When the blocks are made hollow, a ventilating opening **38** at the bottom of the grooves may be provided on each side of the block in order to allow for a certain amount of ventilation.

Referring now to Fig. 3 which shows an edge view of the standard building block unit, it will be noted that the lines O—A and O—B intersect at O which is the center of the semi-circular groove **36**. In order to produce a block such as that designated as **40** in Figs. 1 and 4, block **34** is cut along the lines AO and AB. It will be noted that when block **40** is so constructed, it will still retain a portion of the arcuate groove **36** which will snugly fit the tubular member **42**, as shown in Fig. 4. Furthermore, those portions **44** of block **34** which are severed during the formation

of block 40, serve as corner pieces for the building structure, as indicated in Fig. 5.

Another type of block 46 is shown in Fig. 5 and is made by simply cutting the block along line OA to sever one of the members 44.

With these three types of blocks and the resultant severed portions, it is apparent that substantially any wall, ceiling or partition might be constructed without the use of any other type or form of blocks. It will be noted that in all cases where the block is altered, the plane of severing passes through the axis of the semi-circular groove 36 and is disposed at an angle of 45° to the face of the block. It might also be noted that the corner block 48 would necessarily be severed as indicated by lines OA and OB in Fig. 3 at two adjacent edges.

The vertical tubes 42 which constitute the present frame work of the building structure, are fitted over connecting bosses 32 carried by base member 24 and extend upwardly to engage connecting bosses 50 which depend from the top frame tube 52. Each of the tubes 42 is perforated at spaced apart intervals to permit the insertion of transverse rods 54. The outside vertical tubes are provided with enlarged openings 56 through which nuts 58 are inserted and adapted to be threaded onto the various transverse rods 54. It will be noted that these tubes 42 and transverse rods 54 are so positioned that the central point of their intersections when joined together, form a square exactly of the same dimension as the face of the building block.

The building blocks are positioned in horizontal rows between the vertical tubes 42 before the transverse rods are positioned. When the first row of blocks has been positioned with the bottom groove therein engaging the rib 28 of the base member and the side grooves receiving the adjacent tubes 42, the transverse rod 54 is then threaded through the successive tubes and the next tier of blocks is then positioned thereabove. This operation is continued until all of the blocks have been placed after which the nuts on rods 54 are tightened in order to definitely bind the blocks in abutting relation.

As a further precaution to secure the tubes 42 in proper relation, securing pins 60 are provided.

Referring to Fig. 8, it will be noted that the connection bosses 50 are so constructed that a square shoulder 62 is provided, thus making it possible to cut the tubes at right angles.

The corner connector 64 and intermediate connector 66 are tubular in form and are provided with a plurality of connecting bosses 68 perforated transversely for the reception of securing pins 60.

It is very apparent that as many as six connecting bosses might be provided for a coupling where two walls intersect. The principal object for providing openings through these connectors is to permit the placing of electrical conduits without interfering with the block structure.

Referring to Fig. 1 wherein a window structure is shown, it is apparent that a header tube 70 is used to support the specially shaped sill blocks 72 and is provided with pins 74 adapted to receive nuts 76 by means of which the sill blocks are secured in position. These sill blocks are usually faced with a suitable tile covering. The top frame tube 52 is also provided with transverse pins 74 which receive nuts 76 to secure the coping blocks 72. The jamb blocks 72 are similar to the coping and sill blocks and are secured in like manner. Coping blocks 72 used at the top of the building are provided with upwardly and inwardly formed grooves 78 which are adapted to receive the edge of the flashing member.

Referring now to the horizontally disposed ceiling or floor 80, it will be noted that parallel tubes 42 are adapted to engage and be supported by horizontal tubes 82. Furthermore, the ceiling blocks adjacent the side walls are so formed as to enter grooves formed between adjacent blocks of the side wall. When these blocks are all positioned and the transverse rods 54 are secured by means of end nuts as described above, when referring to the side wall, it is very apparent that the horizontal ceiling member 80 will be securely anchored to the side walls and with the tubular supports at the juncture of each tier of building blocks. Sufficient strength will be provided to support a heavy load.

In this structure it will be noted that substantially all the weight of the super-structure is carried by the vertically tubular members which rest directly upon the base member, thus relieving the block structure from heavy loads and thereby making it possible to construct them of light material.

It is contemplated that these blocks be made hollow and then filled with some suitable insulating material.

Referring to Fig. 5 which shows an assembly of a corner structure, it will be observed that the corner pieces 44 are secured in position by means of bolt 84. At all marginal edges of the wall, including the top coping, door and window openings, etc., the adjacent tubes will be provided with threaded pins 74 whereby the coping blocks may be attached.

In the process of assembling this building, it is necessary to permit slight movement of certain of the parts during the different assembly operations in order to permit the insertion of certain of the parts. However, this feature of the assembly will be easily learned by the workmen. When the structure is complete with all adjustments properly made, it will present a building of very substantial and economic structure which can be easily dismantled and again constructed on another site.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a building structure a wall comprising vertically disposed, spaced apart tubes, rectangular blocks fitted between said tubes, with edge grooves formed therein engaging said tubes so as to present planar wall surfaces at the opposite sides of said tubes, transverse rods passing through said tubes at the junction of said blocks having associated, adjustable means whereby said blocks and tubes are drawn together and secured in the operative position.

2. In a building structure a wall comprising vertically disposed, spaced apart members; rectangular blocks having grooves at its perimeter and adapted to be positioned in tiers with adjacent blocks butted together and with one of said vertical members fitted in adjacent grooves of said blocks whereby said blocks are secured together to present planar wall surfaces; and rods extending transversely through said vertical members and having adjustable means whereby said blocks are urged together and secured in the operative position relative to said vertical members.

3. In a building structure a wall comprising a series of vertically disposed members positioned

on a base member; tiers of rectangular blocks grooved at their periphery, each block being fitted between adjacent vertical members with the groove of adjacent blocks forming pockets to receive said vertical member; rods horizontally disposed extending through each member of said series of vertical members and having adjustable means whereby said blocks are urged together and against said vertical members.

4. In a building structure a series of vertically disposed perforated tubes secured to a base member; rectangular blocks, each having a groove extending around its perimeter and adapted to be positioned between adjacent tubes with the tubes fitted into the block grooves; rods projected through the perforations of said tubes and disposed at right angles thereto in the openings formed by the peripheral recesses of adjacent blocks; and means associated with said rods and adjustable to force said blocks toward each other and against said tubes.

5. In a building structure a wall comprising a series of square faced blocks, each having uniformly shaped semi-circular grooves formed along each side thereof, positioned in superimposed courses with the grooves positioned to form continuous openings vertically and horizontally through said wall; perforated tubes adapted to snugly fit into the vertical openings and transverse rods passing through said horizontal openings and through the perforations in said tubes; and nuts adjustable on said rods whereby said wall structure is drawn tightly together.

6. In a building structure, a ceiling comprising a series of perforated, parallel horizontally disposed tubes supported by vertical tubes; transverse rods passing through said perforated tubes to form therewith a metal network of substantially square mesh, and square blocks, having their edge portions grooved, secured in fixed aligned relation by said metal network, to present a substantially horizontal planar surface above and below said metal network.

7. In a building structure, interconnected side walls having a series of equally spaced vertically disposed tubular members; a series of horizontally disposed rods interconnecting the vertically disposed tubular members of each of said side walls, the end tubes of each wall being common to adjacent walls and being secured thereto by said horizontally disposed rods; and grooved blocks carried by said tubes and rods whereby the tubes and rods are completely encased within said blocks.

8. In a building structure, interconnected side walls vertically disposed tubular members; a series of horizontally disposed rods interconnecting the vertically disposed tubular members of each of said side walls, the end tubes of each wall being common to adjacent walls and being secured thereto by said horizontally disposed rods; tubular members horizontally disposed and carried by said vertically disposed tubular members to present a horizontally disposed tubular network about said building; a series of horizontally disposed, parallel tubes secured at their opposite ends to said frame-work; transverse rods attached at their opposite ends to said frame work and extended through each of said last named tubes; and grooved blocks carried by said tubular members and rods whereby all of said tubes and rods are encased.

9. In a building structure, a frame-work of tubes and rods interconnected to support building blocks in abutted relation whereby a planar wall surface is presented at opposite sides of the frame-work; certain of said tubes having transverse pins, threaded to receive nuts and adapted to secure coping blocks to the structure.

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