Nov. 18, 1924. 1,516,084

M. E. J. A. CUYPERS

BUILDING FORMED OF FRAMES, SECTIONS, OR ELEMENTS

Filed July 18 1923 2 Sheets-Sheet 1

Fig. 4

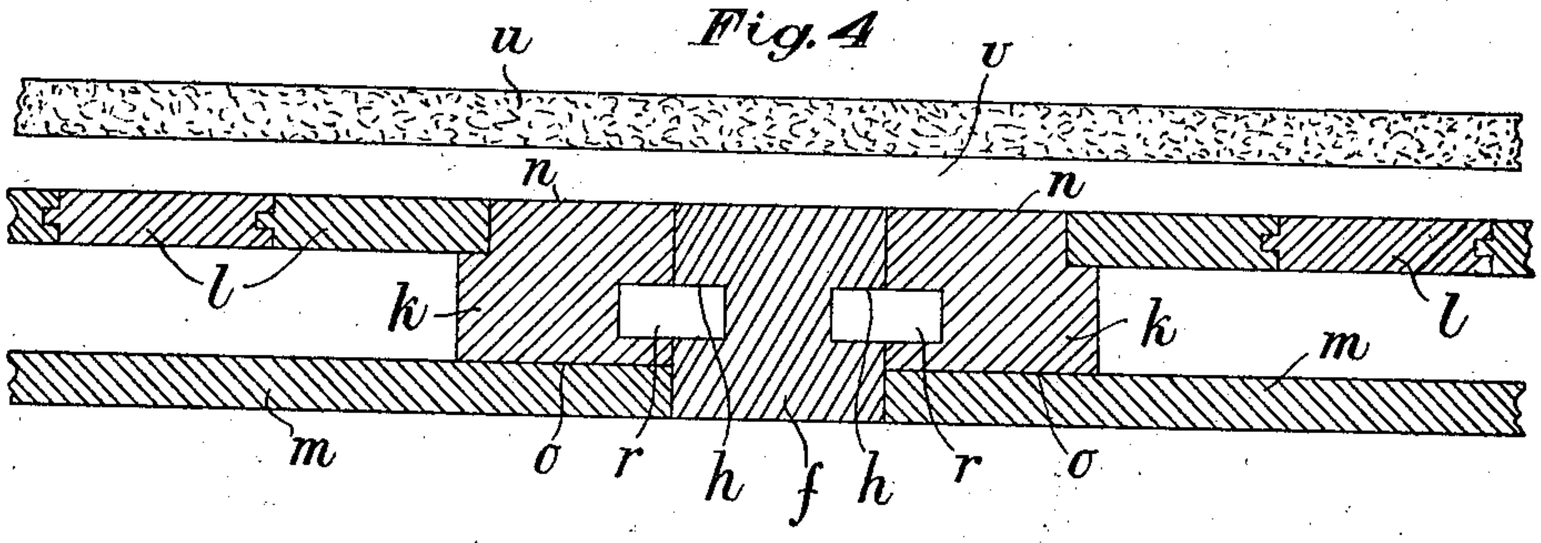
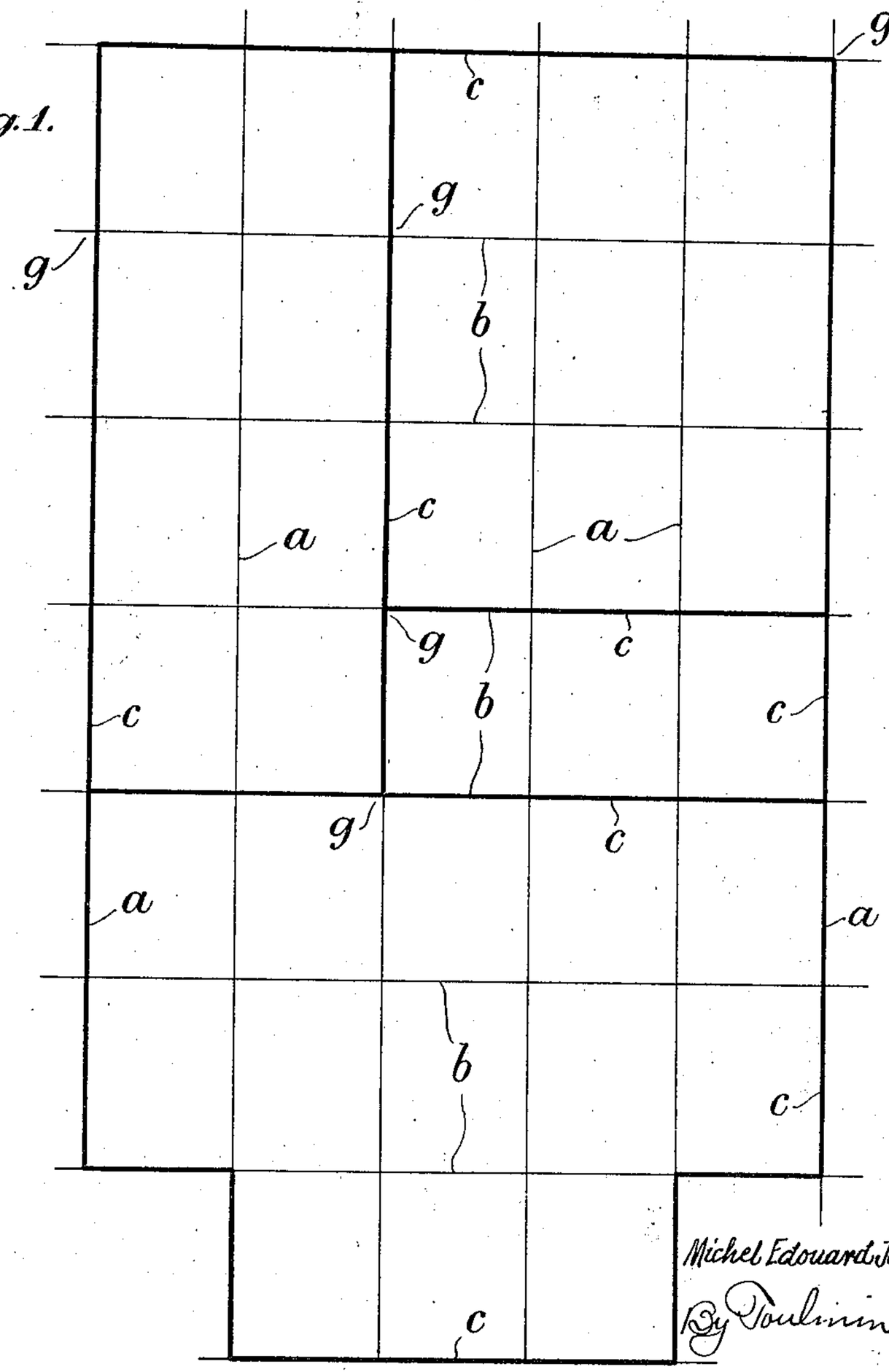


Fig. 1.



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2 Sheets-Sheet 2

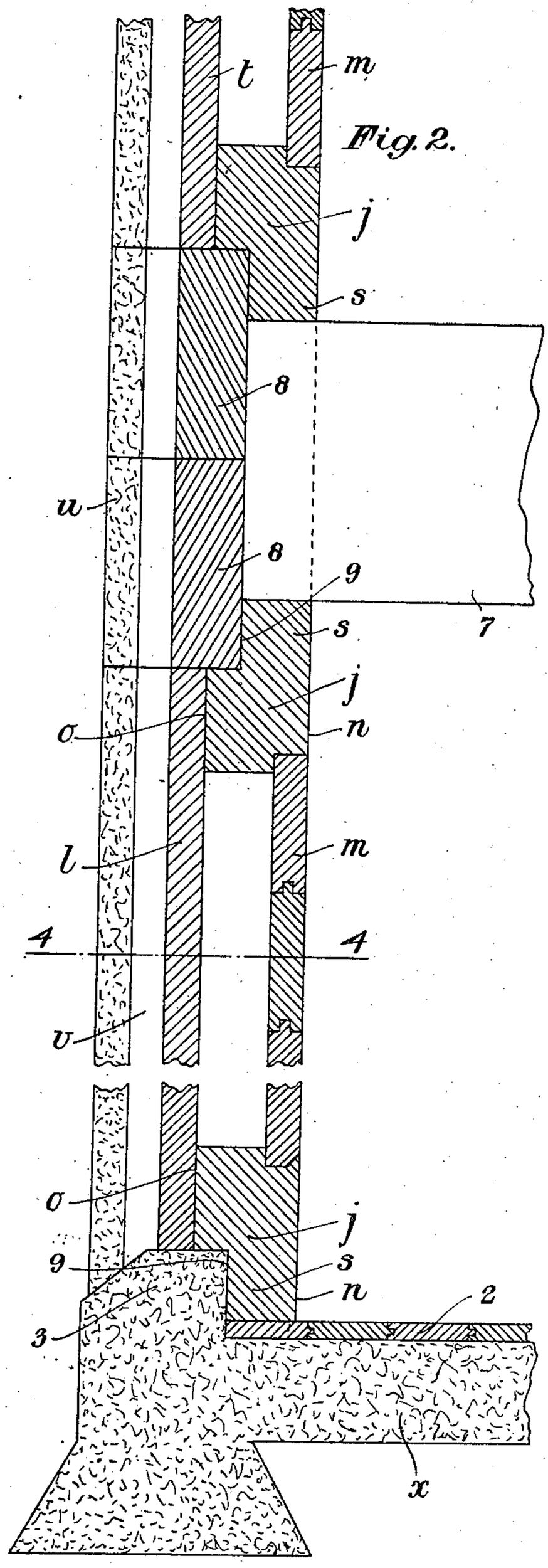

Fig. 2.

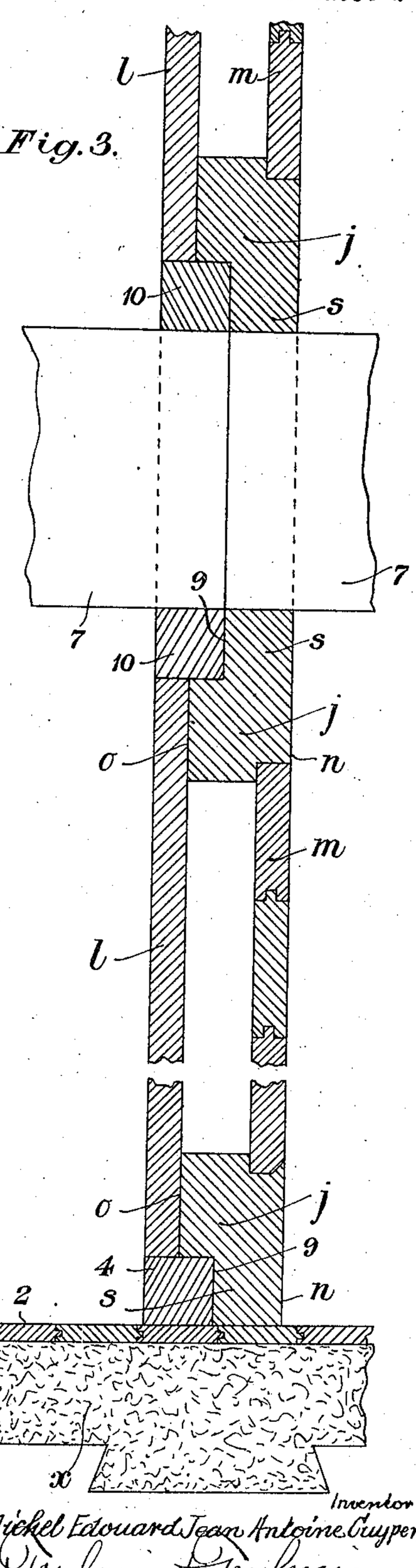

Fig. 3.

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UNITED STATES PATENT OFFICE.

MICHEL EDOUARD JEAN ANTOINE CUYPERS, OF LONDON, ENGLAND.

BUILDING FORMED OF FRAMES, SECTIONS, OR ELEMENTS.

Application filed July 18, 1923. Serial No. 652,309.

To all whom it may concern:

Be it known that I, MICHEL EDOUARD JEAN ANTOINE CUYPERS, of 88 North End Road, London, N. W. 11, England, a subject of the Queen of the Netherlands, have invented certain new and useful Improvements in Buildings Formed of Frames, Sections, or Elements, of which the following is a specification.

This invention relates to buildings in which the walls are formed of standardized panels or elements.

The object of this invention is to provide improved panels or elements of the simplest nature that will give the necessary rigidity and durability and that will, at the same time, enable the walls of the buildings to conform to a standardized plan system and to be effectively erected on an improved foundation with a minimum of labour and expense.

Buildings made in accordance with this invention are characterized by the features set forth in the following claims, and exemplified by the following description, referring to the accompanying drawings in which,

Fig. 1 is a plan;

Fig. 2 is a vertical section taken through the foundation, and part of an outside wall;

Fig. 3 is a similar section taken through the foundation and an inside wall; and

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2.

In the method of construction illustrated in the accompanying drawings, which is one example of an embodiment of this invention, the walls are laid out so as to conform to selected lines of a plan having longitudinal lines a and transverse lines b forming rectangles whose sides are 5 by 4 units in length. The selected lines c, on which the walls are constructed, are drawn heavily for distinction from the remainder. By means of this plan system a variety of plan shapes may be conceived in which the lengths of all the longitudinal walls are multiples of a standard length, the standard length being the length of a longitudinal side of one of the rectangles formed by the lines a and b. Similarly the lengths of all the transverse walls are multiples of the length of a transverse side of one of the rectangles.

It is to be understood that the ratio between the lengths of the longitudinal and transverse sides of the rectangles need not necessarily be 5 by 4, and in some cases the rectangles may be squares.

The walls are constructed of a combination of posts and elements or panels. The posts f are positioned on the selected lines c of the plan at the occurrence of every intersecting line a or b, that is at g. The posts f are square in cross section, except for grooves h, and are of a width equal to the width of the elements or panels excluding any additional plaster coatings that may be provided as hereinafter described. The panels or elements are of lengths that will fill the distance between the posts f, and are therefore of two standard lengths whose ratios are 5 by 4.

The panels or elements comprise rectangular wooden frames which form the edges of the panels or elements, and comprise two horizontal members j and two vertical members k. Vertical coating boards l are provided on one side of the frames and horizontal coating boards m are provided on the other side. The horizontal frame members j are slightly offset to the vertical members k to permit of the ends of the coating boards on either side extending to the full length of the element or panel, while the side edges of the coating boards which are adjacent to the frame members lie flush with the side of the frame members. Thus one side n of each of the frame members j and k is left exposed, the other side o is covered by the ends of coating boards, and each of the edges of the elements are formed by an edge of the frame member together with the ends of the coating boards on one side.

The vertical edges of the elements are flat, except for grooves r which register with the grooves h when the elements are placed between the posts f to allow of the insertion of tongue boards. The horizontal edges of the elements are each provided with a longitudinal ridge s formed on the members j flush with the side n. The longitudinal ridges s are square in cross section, and of a width equal to half the thickness of the member j together with the thickness of the coating boards on the side o.

The elements used for the construction of the external walls of a building may be provided with additional coatings on the external surface. In Fig. 2 of the drawings, the elements are provided with a coating u of roughcast plaster or stucco which is held in position and spaced apart from the adjacent

coating boards *l* by suitably disposed wood strips so as to leave an air space *o*. The space between the two board coatings of the elements may be provided with reinforcing members which strengthen the rectangular frames and to which the coating boards *l* and *m* may be secured intermediately of their ends; for instance I may provide a central vertical reinforcing member which is positioned mid-way between the vertical members *k*.

The foundation of the building is formed of a solid concrete bed *x* on which flooring boards 2 are laid. The edges of the foundation are provided with ridges 3 which fit the lower edges of the wall elements forming the external walls so that the ridge *s* occurs on the inside surface of the wall and rests on the flooring boards 2. At the location of the internal walls of the building a longitudinal ridge is formed by means of a wooden member 4 secured to the flooring and which fits the lower edge of the wall element, the longitudinal ridge *s* resting on the flooring boards 2. The sides of the ridges 3 and member 4 which contact with the sides 9 of the longitudinal ridges *s* indicate the location of the axes of the walls which conform to the lines *c* of the plan system.

The height of each of the wall elements is equal to the distance between the floors of the building; the elements resting on one floor carrying the floor above. Joists 7 carrying the upper floors are located between the wall elements, and the spaces left between the wall elements above and below the joists are completed by filling pieces 8. The joists 7 enter the walls to an extent such that their ends coincide with the plan axes of the wall; that is the ends of the joists lie flush with the sides 9 of the longitudinal ridges *s*. When the joists 7 are on the same side of the wall as the longitudinal ridges *s*, the ridges *s* contact with the joists; but when the joists 7 are on the opposite side of the wall to the ridges *s*, filling pieces 10 of a height equal to the ridges *s* are interposed between the elements and the joists.

What I claim and desire to secure by Letters Patent is;—

1. In a building, an element for forming the walls comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, and a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element.

2. In a building, an element for forming the walls comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element, and being square in cross section and of a width equal to half the thickness of the rectangular frame with its coating boards on either side.

3. In a building, walls formed of the combination of elements, each of said elements comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, and a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element; and of a post disposed between the vertical edges of adjacent elements.

4. In a building, walls disposed to conform to selected lines of a plan having longitudinal and transverse lines forming rectangles, said walls comprising the combination of posts disposed on the selected lines at the occurrence of each intersecting line; and of an element of standard length filling the distance between each two adjacent posts, each of said elements comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, and a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element.

5. In a building, walls formed of elements each comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element; and floors carried by joists which enter the walls so that the ends of the joists lie flush with the edges of the longitudinal ridges, and filling pieces completing the spaces between the horizontal edges of the wall elements.

6. In a building, walls formed of the combination of elements, each of said elements comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, a longitudinal ridge on the top and bottom edges of the element, a face of

said longitudinal ridges being flush with the side of the element; and of a post disposed between the vertical edges of adjacent elements; and floors carried by joists which enter the walls so that the ends of the joists lie flush with the edges of the longitudinal ridges, and filling pieces completing the spaces between the horizontal edges of the wall elements.

7. In a building, walls formed of the combination of elements, each of said elements comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element; and of a post disposed between the vertical edges of adjacent elements; and a solid foundation having longitudinal ridges fitting the lower edges of the outside walls, and flat surfaces on which flooring is laid.

8. In a building, walls formed of the combination of elements, each of said elements comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges being flush with the side of the element; and of a post disposed between the vertical edges of adjacent elements; floors carried by joists which enter the walls so that the ends of said joists lie flush with the edges of the longitudinal ridges, filling pieces completing the spaces between the horizontal edges of the wall elements; and a solid foundation having longitudinal ridges fitting the lower edges of the outside walls, and flat surfaces on which flooring is laid.

9. In a building, walls formed of the combination of elements, each of said elements comprising a rectangular frame having two vertical members and two horizontal members forming the four edges of the element, vertical coating boards on one side and horizontal coating boards on the other side of the frame, a longitudinal ridge on the top and bottom edges of the element, a face of said longitudinal ridges both being flush with the same side of the element, and an additional coating of roughcast plaster on the external side of the elements forming the external walls; and of a post disposed between the vertical edges of adjacent elements; floors carried by joists which enter the walls so that the ends of said joists lie flush with the edges of the longitudinal ridges, filling pieces completing the spaces between the horizontal edges of the wall elements; and a solid foundation having longitudinal ridges fitting the lower edges of the outside walls, and flat surfaces on which flooring is laid.

In testimony whereof, I affix my signature.

MICHEL EDOUARD JEAN ANTOINE CUYPERS.