No. 860,682. PATENTED JULY 23, 1907.

G. M. MARSHALL.

BUILDING CONSTRUCTION MATERIAL.

APPLICATION FILED MAY 1, 1906.

3 SHEETS—SHEET 1.

Fig: 1,

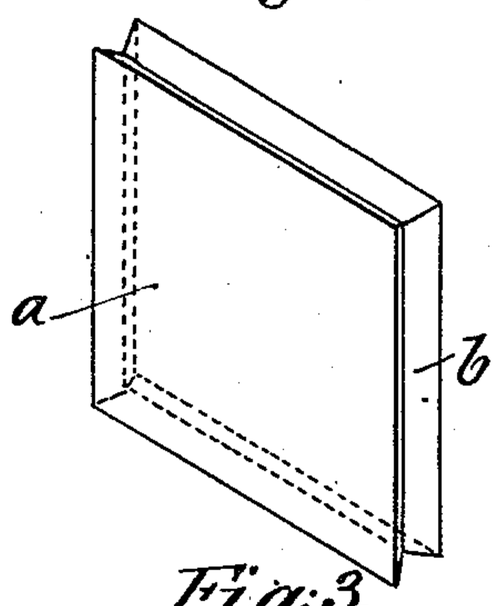
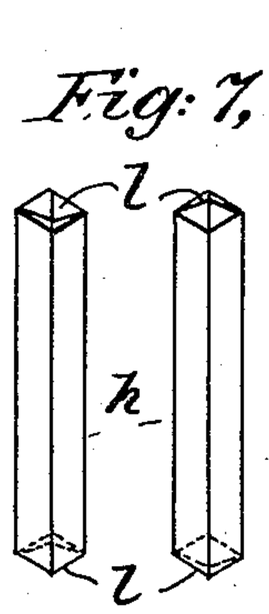


Fig: 7,



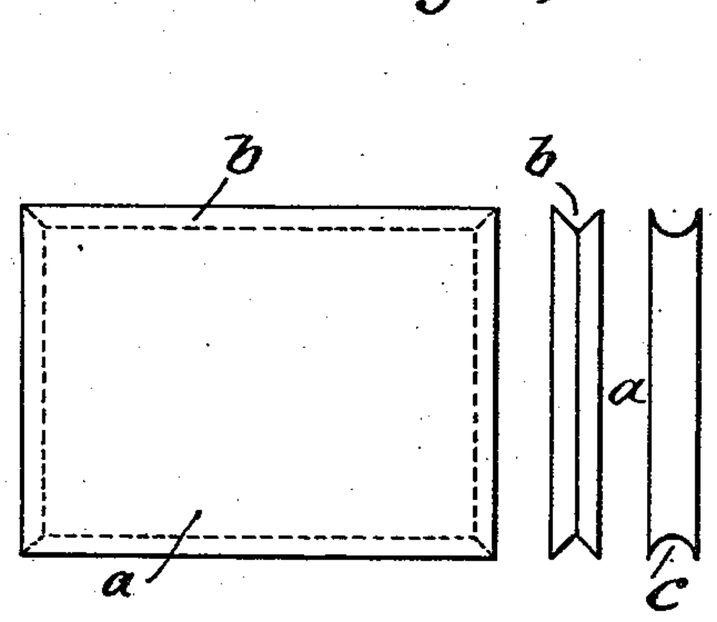
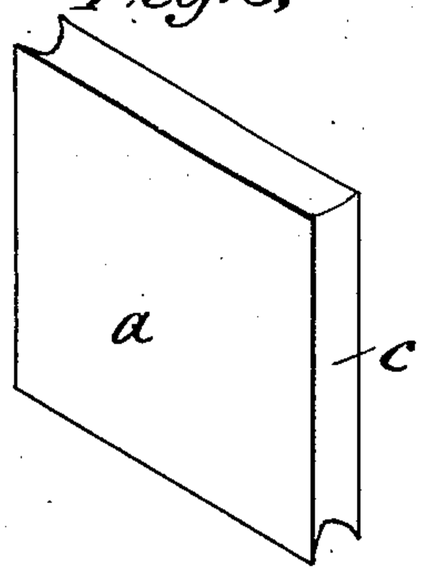


Fig: 2,

Fig: 3,



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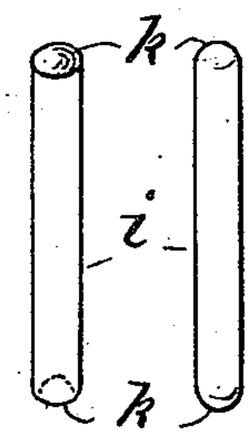

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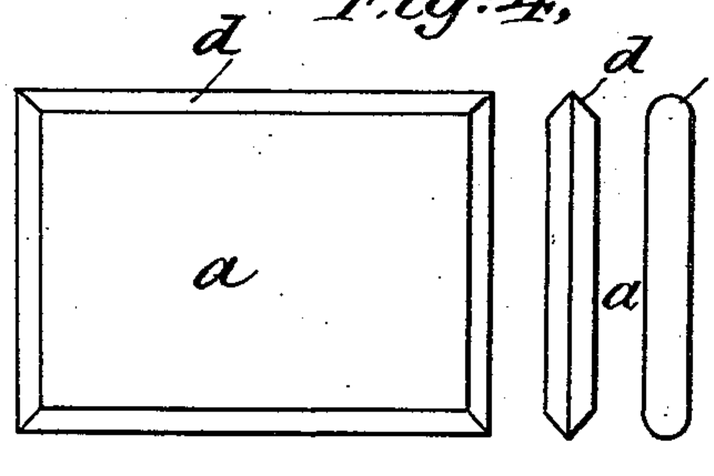

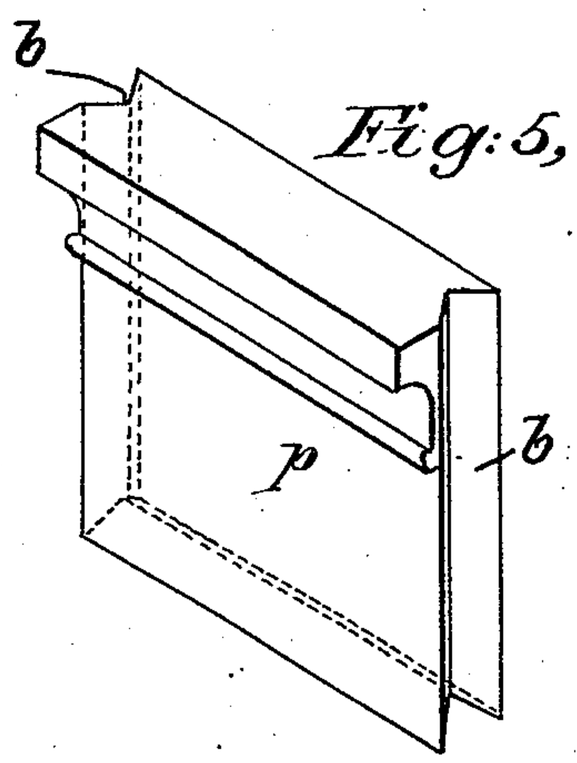

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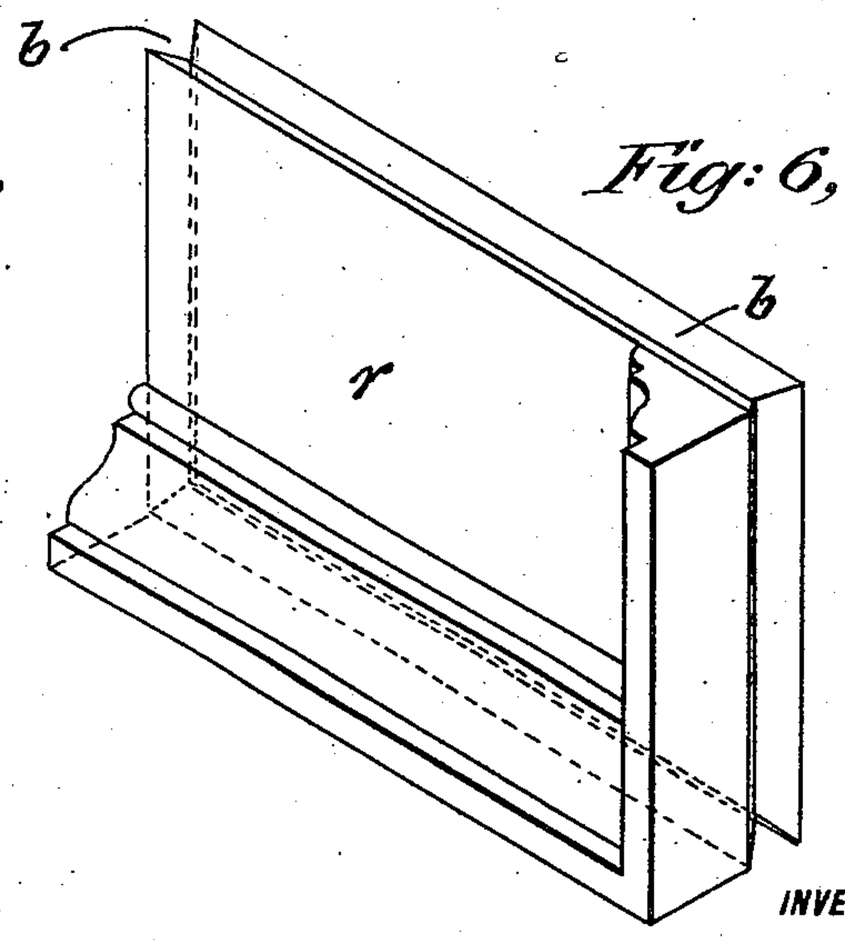

Fig: 6,

WITNESSES

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3 SHEETS—SHEET 2.

Fig: 9,

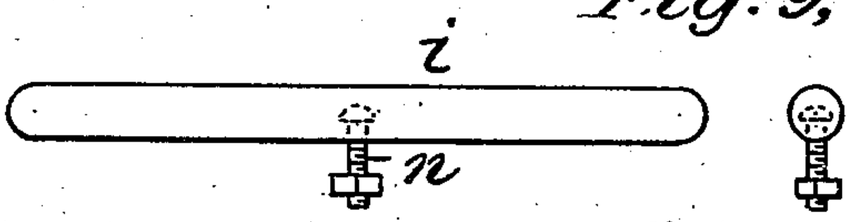


Fig: 10

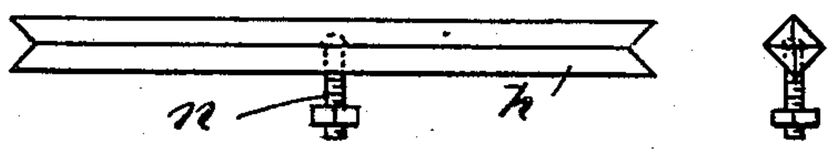
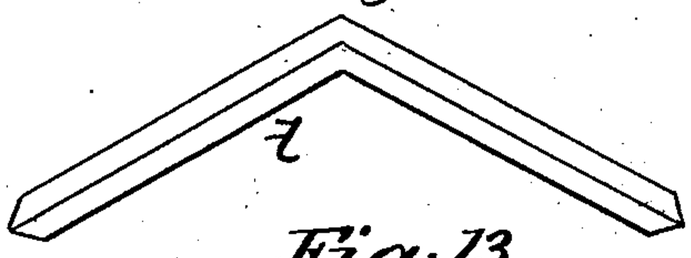


Fig: 11,



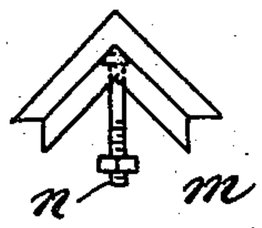


Fig: 12,

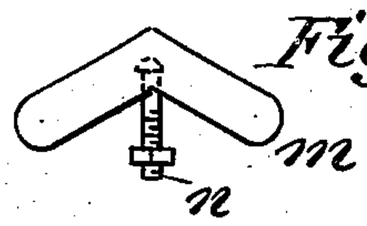


Fig: 13.

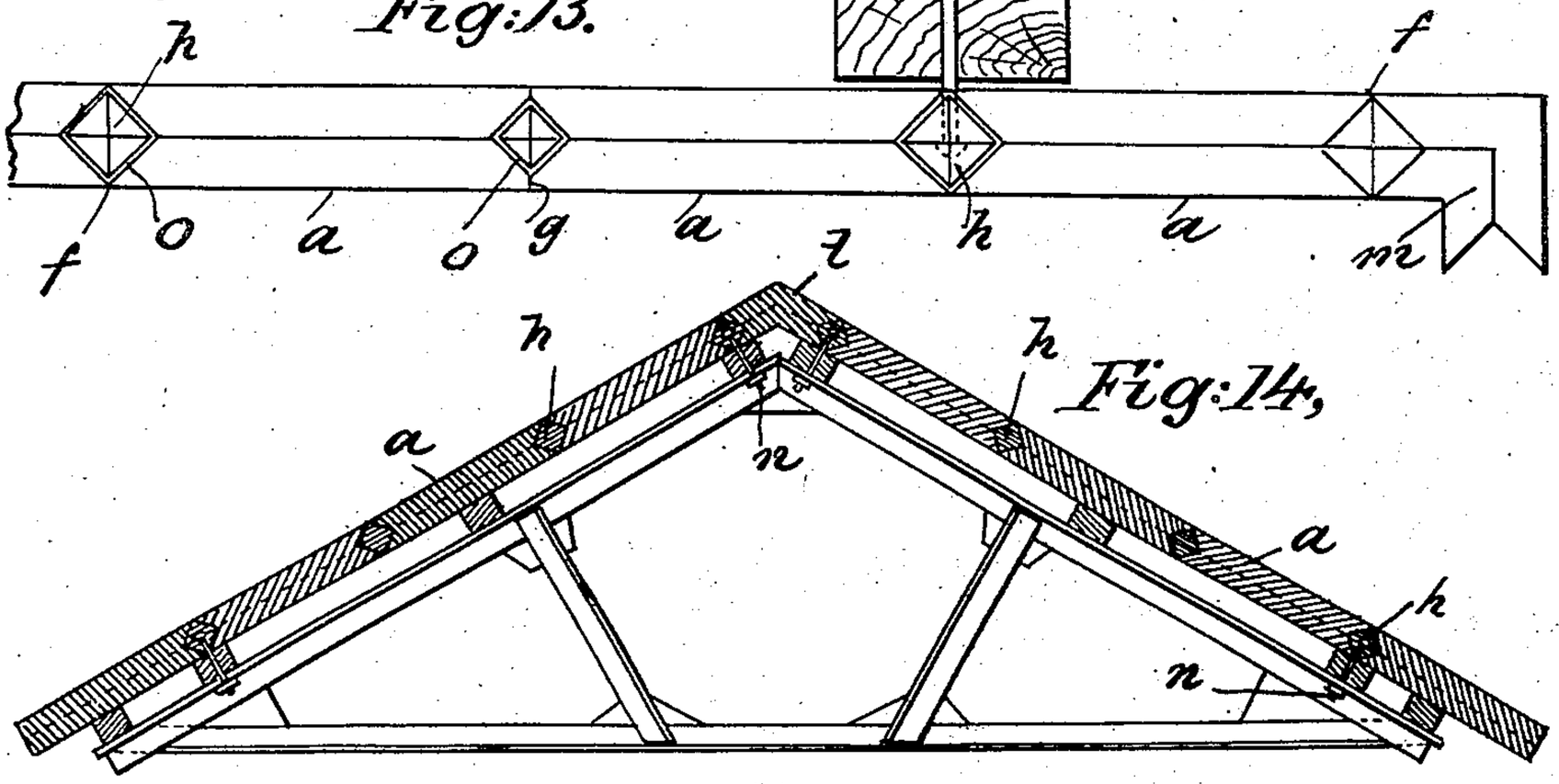


Fig: 14,

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3 SHEETS—SHEET 3.

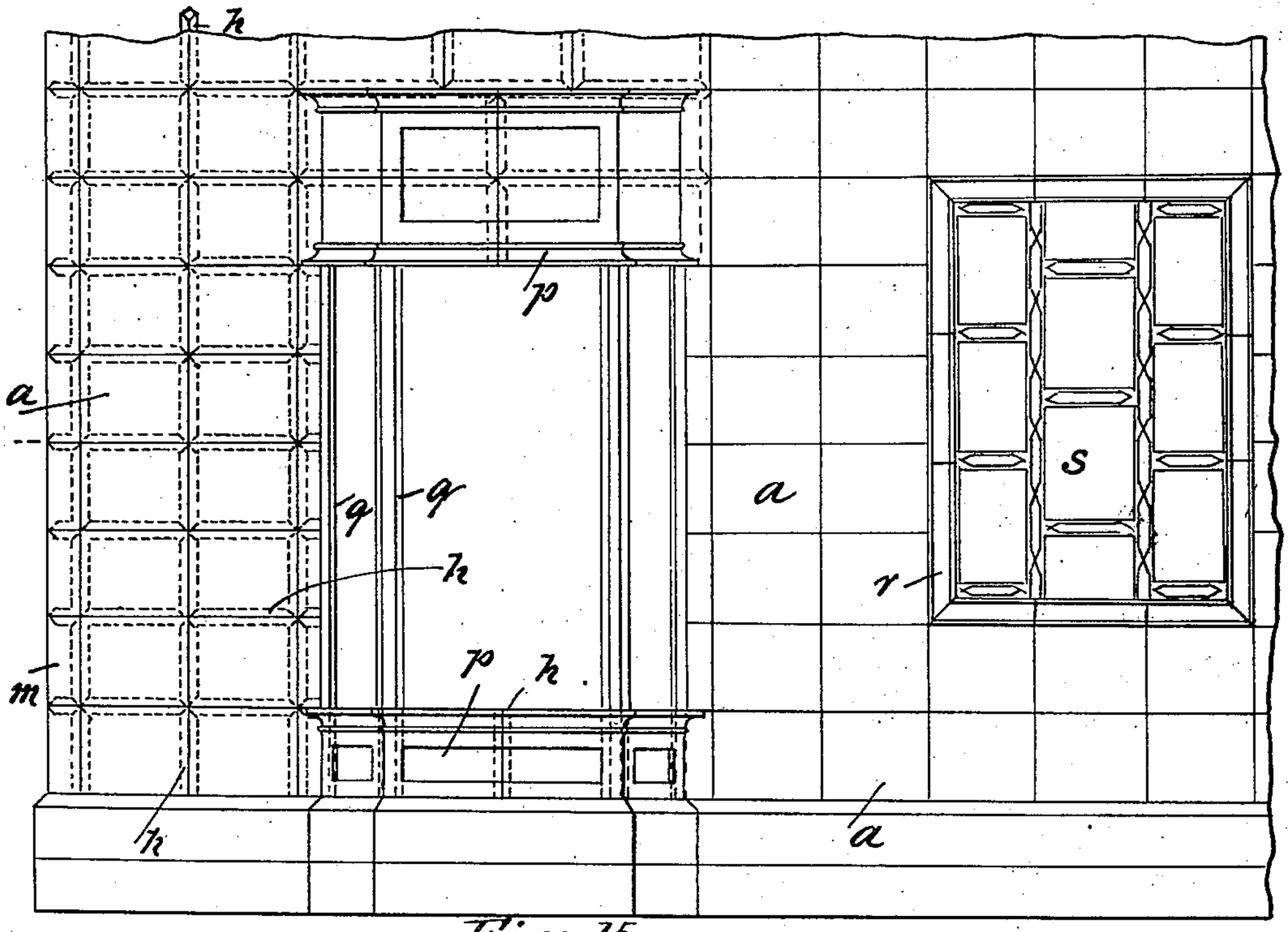

Fig: 15,

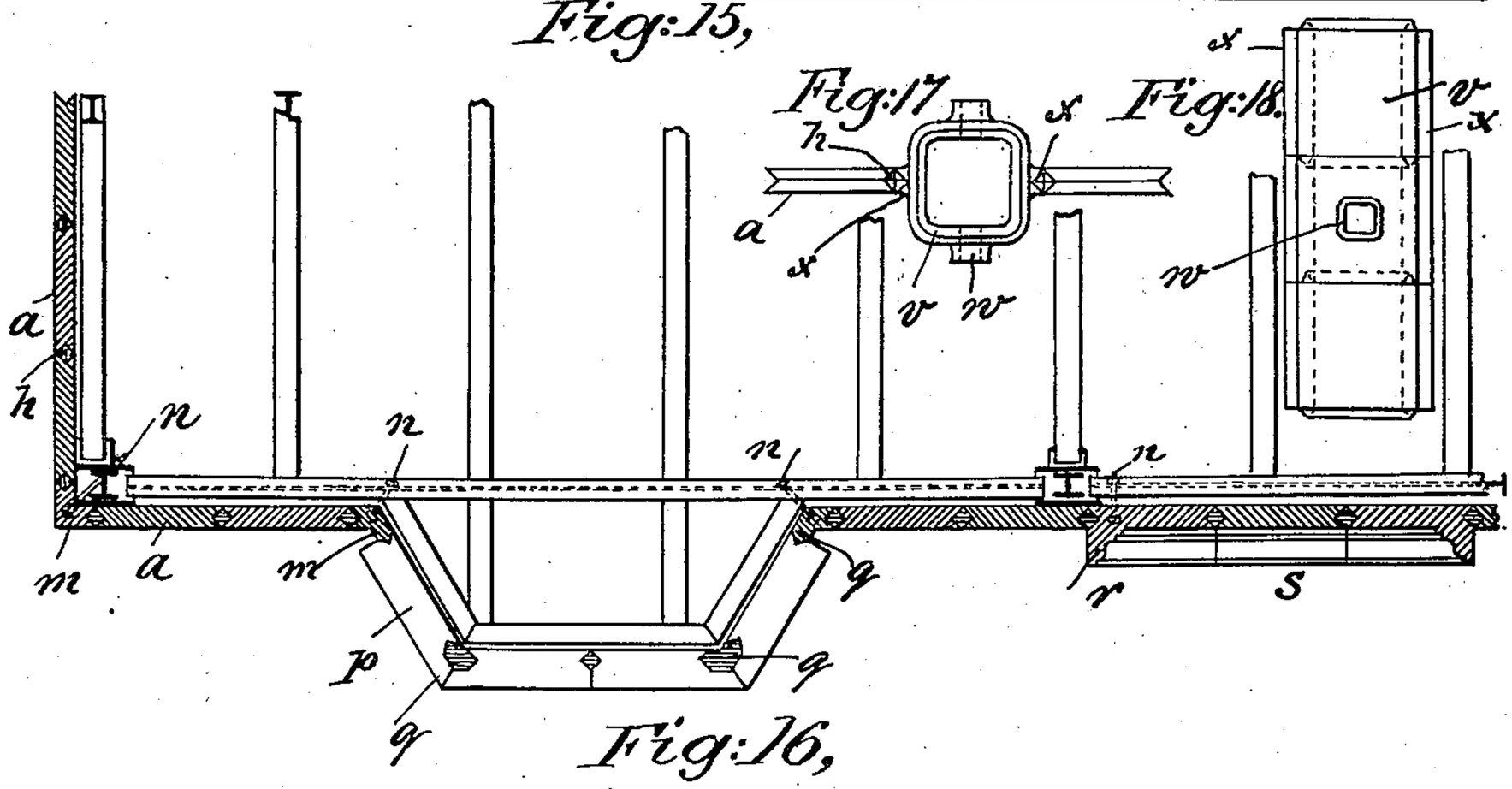

Fig: 16,

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE MILLER MARSHALL, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

BUILDING CONSTRUCTION MATERIAL.

No. 860,682. Specification of Letters Patent. Patented July 23, 1907.

Application filed May 1, 1906. Serial No. 314,635.

To all whom it may concern:

Be it known that GEORGE MILLER MARSHALL, a subject of the King of Great Britain, and residing at Vancouver, in the county of Burrard, British Columbia, Canada, have invented certain new and useful Improvements in Building Construction Material, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in building construction-material designed for the erection and construction of all classes of houses and buildings, and the object of my invention is to provide a building material used especially for facing and dividing walls provided with specially constructed interlocking joints; another object being to enable a rapid construction by means of my improved building material which will at the same time give a substantial and safe construction and be of little weight which is especially useful in structures of great altitude; and a further object being to provide a building material which in its cost as well as in the cost of labor for erecting the same is cheaper than other material now in use; and with these and other objects in view the invention consists in the construction hereinafter described and claimed.

The invention is fully disclosed in the following specification of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a perspective view of one form of my improved building block; Fig. 2 is a plan view of the same also two special end views of the same illustrating a circumferential V-shaped and semi-circular interlocking groove; Fig. 3 is a modified form of Fig. 1; Fig. 4 is a modified form of Fig. 2 with circumferential V-shaped or semi-spherical raised edges; Fig. 5 is a perspective view of a molded building block suitable for window-sills and lintels; Fig. 6 is a perspective view of a molded angle cornice block; Fig. 7 shows perspective views of a binder prismatic in form with depresed and extended pyramidal ends; Fig. 8 are similar binders but cylindrical in form with depressed and extended semi-spherical ends; Fig. 9 shows side and end view of a cylindrical binder with fastening device attached thereto; Fig. 10 shows similar views of a pyramidal binder; Fig. 11 illustrates an angular building block; Fig. 12 illustrates angular binders of various forms provided with attaching devices; Fig. 13 illustrates a portion of a finished wall constructed by means of my improved building blocks and binders; Fig. 14 illustrates a roof truss supporting roof tiling of my improved form of construction; Fig. 15 is an elevation of a part of a building; Fig. 16 is a plan view thereof, both views illustrating the use of my improved building materials. Fig. 17 is a plan view; and, Fig. 18 an elevation of a chimney flue or ventilating chamber made according to my system of construction.

My invention as illustrated in the accompanying drawings consists essentially in the form of the specifically constructed building blocks and the manner of joining the same together as well as attaching the same to a frame skeleton structure. This frame can be of any desired form, either to consist of wooden posts studding, girders and joists, such as are used for residential purposes, or of a steel skeleton frame used for tall office buildings, or a combination of both, and it is intended to provide such skeleton frames with an outer facing or lining and with general subdividing walls, with roof tiling, with air, ventilating and elevator shafts, with chimney flues and so forth, and in all such cases where brick, marble, stone, tiling, wood or metal sheathing and so forth have heretofore been used. For this purpose I employ the blocks *a* preferably made rectangular in shape and of any desired material either natural or artificial, such blocks being provided on their outer circumferential rim with locking devices which consist either of a V-shaped groove *b* as shown in Figs. 1 and 2 or a inverted semi-spherical groove *c* as shown in Fig. 3, or such blocks *a* may be provided with V-shaped projecting edges *d* or with semi-spherical projecting edges *e* as shown in Fig. 4. Such V-shaped edges may either extend to the front or rear side of the block and form sharp edges therewith as shown at *f* in Fig. 13 or they may have square butting ends on each block as illustrated at *g* in Fig. 13.

For the purpose of joining two or more such building blocks *a* together I provide binders *h* which are prismatic in form as shown in Fig. 7 or cylindrical as shown at *i* in Fig. 8, and the ends thereof are either concave or convex as seen at *k* or they are projecting or inverse pyramids *l* as seen in Fig. 7.

It is obvious that the blocks *a* with V-shaped edges *b* require prismatic binders *h* while the block *a* with rounded grooves *c* require cylindrical binders *i*. These binders are preferably made of a cement composition and these binders as well as the block *a* if made of artificial stone may be provided with steel reinforcements.

For the purpose of providing binders for angular blocks or for roof tilings *t* such as shown in Fig. 11 corresponding angular binders *m* are provided as illustrated in Fig. 12.

The binders can also be provided with bolts *n* with their heads embedded into the binders permitting the projecting shank with its nut to be fastened to any convenient stationary part of the skeleton frame of the building. The binders *h*, *i* and *m* are preferably smaller in cross sectional area than the apertures obtained by the joining together of two abutting blocks *a*, and the interstices *o* thus obtained are filled out in

the horizontal joints with mortar or cement by means of a trowel, while the vertical joints are preferably grouted.

In Figs. 13, 15 and 16 wall construction is clearly illustrated where wall plates or blocks *a* and prismatic binders *h*, angle binders *m* with fastenings *n* are employed, also illustrating the use of my building blocks as window-sills and lintels *p* jointed to special cast iron vertical connectors or standards *q* which latter form a part of the main skeleton steel frame. Angle cornice blocks *r* and an ornamental design of facing block *a* are also illustrated in Figs. 15 and 16 at *s*.

Fig. 14 shows a roof truss supporting tiling of the form of my building block *a* with ridge piece *t*, ordinary binders *h* and binders with fastenings *n* attached to the purlins of the truss.

The construction of ventilating shafts, chimney flues, etc. is illustrated in Figs. 17 and 18 where *v* shows one form of a hollow rectangular block respectively provided with projecting and raised V-shaped edges which do not require special binders but will interlock each other. These blocks *v* are provided with inlet openings, dampers, etc. shown at *w* and with projecting vertical V-shaped recesses *x* for the reception of dividing walls.

From the foregoing it will be seen that by means of my improved form of building construction-material facing and dividing wall, roof covering, air ducts, etc. can be easily constructed, that said material can be shaped to any desired form, and when provided with interlocking devices as above specified it will lend itself to a large and various combination of forms and adaptations, that it is strong and durable, easily applied, light of weight and cheap in construction.

In the application and use of my improved form of building construction-material the insertible binder after being cemented into the receiving grooves of all abutting edges produces such a strong bond that the dividing walls become practically self-sustaining and do not require fastening devices such as bolts or anchors, except at the intersection of two or more walls. For facing walls but a limited amount of bolts or anchors is desired in order to attach the same to the skeleton frame, while for roof covering the blocks and binders if made of light tiling material produce an absolute water-tight covering which is easily and securely fastened into place.

As shown in Fig. 15, both continuous vertical and horizontal joints as well as broken joints can be attained to suit architectural requirements, while the construction of corners, either with right, acute or obtuse angles which are always difficult to construct and more or less insecure under the older form of building construction is easily attained by means of the use of cast iron or steel connectors such as shown at *q* and the interlocking blocks *a* with their binders.

The insertible binders with their projecting or inverted ends effect at the intersection of the horizontal and vertical joints a simultaneous and secure locking or bonding at such intersections, thereby preventing any forward or backward sliding of any of the series of building blocks and also preventing a buckling of walls by offering a greater resistance to any pressure force which might be brought to bear against the wall thus constructed. Furthermore by means of my form of blocks continuous or break joints in the horizontal and vertical series of building blocks can easily be effected without subdividing or fitting the blocks or binders as is necessary with other forms of building construction-material.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is;—

1. A wall composed of a series of building blocks having grooves throughout their abutting edges for the reception of insertible locking devices, and locking devices which correspond in length with said grooves, and are keyed into abutting grooves, and are provided with coöperating interlocking ends and which permit of the formation of continuous vertical and horizontal joints or break joints as desired without sub-dividing or fitting the material employed.

2. A wall composed of a series of building blocks having grooves throughout their abutting edges for the reception of insertible locking devices, and locking devices which correspond in length with said grooves, and are keyed into abutting grooves, and are provided with coöperating interlocking ends and which permit of the formation of continuous vertical and horizontal joints or break joints as desired without sub-dividing or fitting the material employed, some of said locking devices being also provided with means whereby they and the blocks are secured to the framework of a building.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this twenty-first day of April 1906.

GEORGE MILLER MARSHALL.

Witnesses:
L. EDWIN DUDLEY,
RAGNHILD LUNDGREEN.