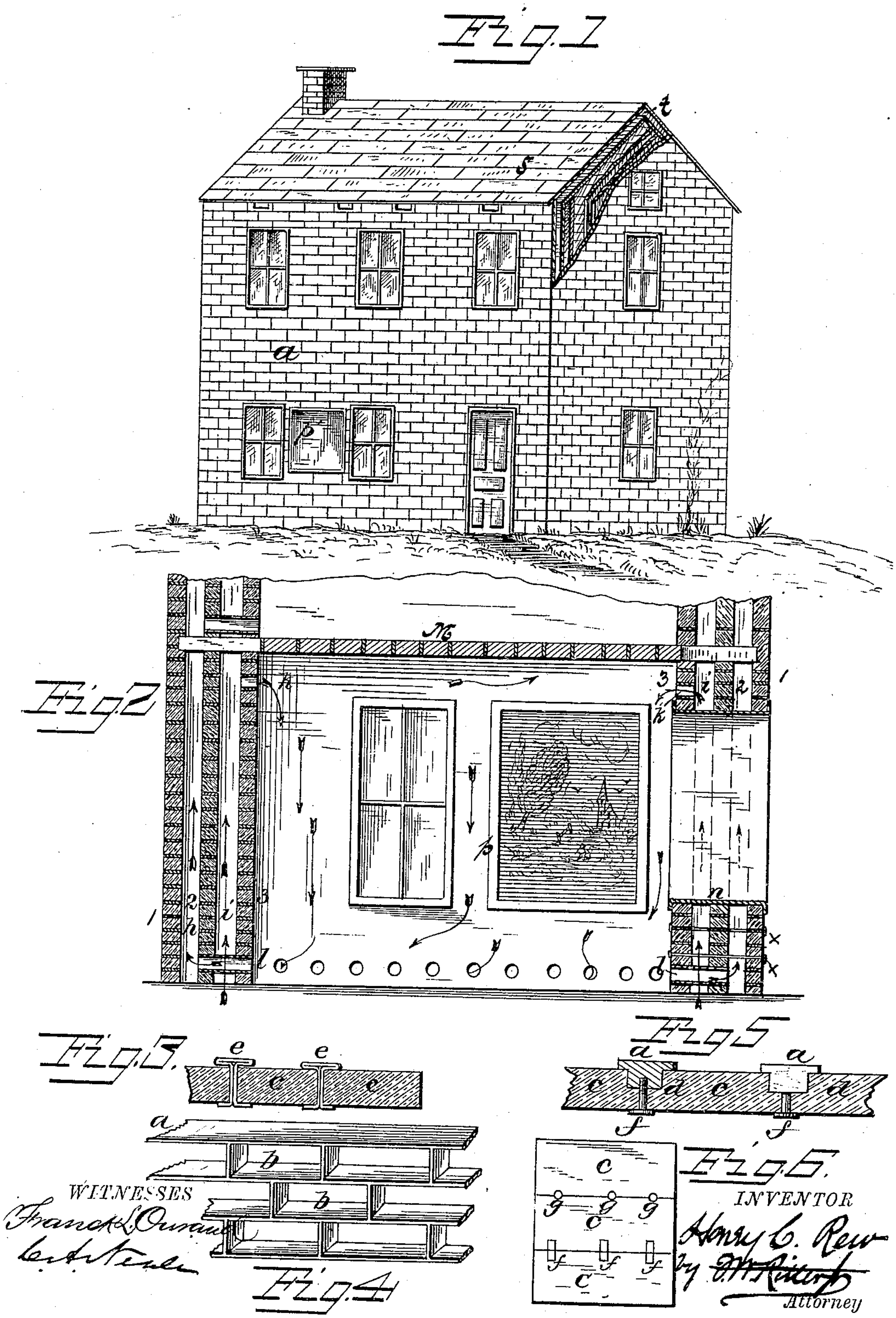
(No Model.)

H. C. REW.

CONSTRUCTION AND DECORATION OF BUILDINGS.

No. 263,354. Patented Aug. 29, 1882.



WITNESSES

INVENTOR
Henry C. Rew
Attorney

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

HENRY C. REW, OF CHICAGO, ILLINOIS.

CONSTRUCTION AND DECORATION OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 263,354, dated August 29, 1882.

Application filed April 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. REW, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in the Construction and Decoration of Buildings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation, partly in section, of a building embodying my invention. Fig. 2 is a sectional view of the same. Fig. 3 is an enlarged detail sectional view of a portion of a wall thereof. Fig. 4 is an enlarged detail view of a portion of the frame. Fig. 5 is a detail sectional view, showing one method of securing the blocks or panels. Fig. 6 is a front view of the same.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of dwellings and like buildings, and has for its objects to strengthen the structure, and to permit the free transmission of light of any color or shade desired, and provide for proper ventilation and ornamentation thereof.

To this end it consists, first, in the combination of a frame-work with blocks, plates, or panels composing the walls of the structure; secondly, in the combination of inner and outer walls with intermediate air passages or chambers; and, thirdly, in the combination of an outer translucent or transparent paneled wall with an inner decorated translucent or transparent wall; and, finally, in details of construction, all as will hereinafter more fully appear.

Heretofore, so far as I am aware, in the construction of dwellings and like buildings wherein translucent walls have been designed for architectural and sanitary purposes it has been proposed to construct such walls entirely of blocks of glass laid in courses and with binding material, in the usual manner of constructing buildings, and without any interposed frame-work. Such a construction is objectionable, first, in that no sufficient means of ventilation can be applied without giving an excessive and undesirable thickness to the walls, and in buildings of this character it is essential that means of ventilation should be provided to counteract the effects of the sun's rays in summer; secondly, such construction limits materially the methods that may be applied for internal adornment or decoration of the building.

I will now proceed to describe more specifically the means by which I overcome such objections, so that others skilled in the art to which my invention appertains may apply the same.

In the drawings, *a* indicates a metallic frame-work, which may be made preferably of angle-iron, T-iron, or like suitable material, riveted or bolted to form cells *b* or spaces of rectangular, hexagonal, octagonal, or other desired form, to receive panels or plates of translucent or transparent material, said frame being formed, either in sections or as a whole, of requisite dimensions for the contemplated wall. In constructing this web or frame-work *a* of metal the size, form, and position of the cells *b* will be preferably designed with due regard to internal decoration—as, for instance, where a decorated panel, *p*, is to be placed in the inner wall a correspondingly-shaped cell, *p'*, will be provided in the outer, and, if several walls exist, in the intermediate walls, so that no opaque or shaded cross-lines shall mar or confuse the design upon the panel.

c c indicate the panels, plates, or blocks constituting the walls. These blocks are formed or glass (porcelain where not too expensive for the purpose) and like translucent or transparent material of such thickness as will give the desired strength, and of dimensions as to width and breadth commensurate with the size of the cells *b* or *p'*, also of such shades or colors as will give the desired effect in the interior. The blocks or panels *c* are preferably formed with rabbets *d*, so that they will lap over and hide the frame-work *a*. The frame-work *a* of cells *b* having been erected, and the blocks *c* and panels *p'*, of translucent or transparent material, having been molded, cut, or cast of such form as to fit the cells, the blocks, plates, or panels are inserted in the cells and secured by suitable cement, by clamps E, or by T-headed bolts *f*, which bolts enter the T-bars of frame *a*, or by both cement and clamps or T-bolts, as may be preferred.

Where clamps or T-bolts are employed the block *c* or panel *p'* will have its edges slightly recessed, as at *g*, for the passage of the bolt or clamp. In case a T-bolt is used, as shown in Fig. 5, it will be threaded at its extremity and will enter the notches *g* of the adjacent edges of two blocks, *c c*, and will screw into a properly-threaded bolt-hole in frame *a*. If clamps *c* are used, they will preferably have T-heads, and will extend directly through the wall between the adjacent edges of the blocks, and the ends of the clamp will then be bent up on the inner face of the wall, as shown in Fig. 3.

In the erection of buildings, two, three, or any number of distinct walls may be employed. To give additional strength or support, stay rods or bolts may be fastened across, as at *x x*. Where only an upward ventilating current to protect the interior from excessive heat is required the walls 1 and 2 will suffice, and will form the air space or flue *h;* but where, as for dwellings, elaborate internal decoration is desired, an inner or third wall, 3, (which may be much thinner than the outer wall,) will be desirable, and will form a second air-flue, *i*.

In arranging the ventilating-flues formed by the several air-spaces the inner flue, *i*, which connects with the cellar or first story (for the reception of hot air in winter and cool air in summer) connects also with the interior of the several chambers near the ceiling, as at *k*, while the interior of the building connects with the outer flue, *h*, near the floors of the compartments, as at *l*, by means of horizontal flues, which cross the flue or air-space *i*. By this construction the sun's rays in summer will induce an inward current in the outer air-space, *h*, which will cause the circulation to take place upward in the flue *i*, thence through the compartment into flue *h*, as indicated by the arrows. The lower story, or the cellar below the building, may be provided with heaters, refrigerators, and means for heating, cooling, and cleansing the air, so that at all times the best sanitary conditions may be preserved.

M indicates the flooring between stories. These floors may be formed of iron or metal frames, with inserted blocks of either opaque or translucent material, as may be preferred, and where the span demands it the floors, roof, &c., may be supported by suitable pillars.

The roof *s* may be formed of translucent or transparent panels or blocks set in the cells of a suitable frame, substantially in the same manner as the side walls are constructed, and by preference a double roof, with intermediate air space or flue, *t*, is employed.

The ventilating-passage between the two outer walls may discharge into the open air at the top of the wall, or it may be continued up and discharge at the apex of the roof or highest part of the building, the roof in such cases being made with two walls having an air-space between, as before specified. Such a space will also carry off the heated air that will be caused by the sun's rays penetrating the outer roof. Proper ventilators in such cases will be provided at the summit of the building, which may be opened or closed at pleasure.

Arranged at appropriate intervals in the walls, and spanning from the outer to the inner wall, are metallic frames *n*, within which are secured the frames for the doors and windows.

3 indicates the inner wall, to which any decoration of the building is to be applied. This wall also is of translucent or transparent material, and is laid out in panels corresponding to the internal finish desired and the ornamentation to be applied.

Having provided on the inner wall proper panels, the ornamentation may be applied thereto either by colored or stained glass figures, by painting in transparent colors, by photographic pictures, by etching, or by any of the various methods known to the art for producing transparencies, and when the outer walls are translucent or transparent the finest effects may thus be produced.

I have throughout the specification spoken of "translucent" or "transparent" panels for the reason that my invention is more especially intended for dwellings, stores, factories, &c., where the free admission of light is desired; but I hold it within the scope of my invention to employ opaque blocks—such as terra-cotta and like material—where dark chambers are desirable—as, for instance, in ice-houses and like structures.

I also hold it to be within the scope of my invention to construct the frame *a* of wood (the general structure herein specified being preserved) where for any reason wood shall be the most desirable, or metal not attainable.

The advantages of my invention are the strength secured in and the facility of erecting structures of the class specified, the protection afforded against the hot rays of the sun, the thorough ventilation secured, durability and cleanliness, the free admission of light of any color, and the ability to apply internal decoration and finish to the walls in an effective and inexpensive manner.

I am aware that facings have heretofore been applied to building-walls for the purposes of ornamental finish by anchoring frame-bars to the main wall and inserting slabs of slate, marble, &c., and do not herein claim such a construction. I am also aware that plaster and cement sections for the ornamental finish of inside walls and ceilings have heretofore been formed on wooden frames to strengthen and facilitate the attachment of the sections to the main wall, &c., of the building, and do not claim such a construction. Each of said constructions contemplates the use of already-existing walls, while my invention contemplates the construction of a wall which shall consist only of the cellular supporting-frame and the inserted or inclosed blocks.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A building-wall composed of a cellular support or frame-work and a series of blocks or

panels set therein, substantially as and for the purpose specified.

2. The combination, in a building, of an outer wall and an inner wall, each of said walls composed of a frame-work and translucent or transparent blocks or panels set therein, substantially as and for the purpose specified.

3. The combination, in a building, of an outer wall of translucent or transparent material and an inner decorated wall of translucent or transparent material, substantially as and for the purpose specified.

4. The combination, in a building, of an outer wall of translucent material, an inner wall, and an intermediate wall, forming air or ventilating chambers between the walls, substantially as and for the purpose specified.

5. A double roof of transparent or translucent material, substantially as and for the purpose specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 25th day of April, 1882.

HENRY C. REW.

Witnesses:
F. W. RITTER, Jr.,
H. B. MOULTON.