No. 752,831. PATENTED FEB. 23, 1904.

I. W. EMERSON.

WINDOW SASH.

APPLICATION FILED MAY 6, 1903.

NO MODEL.

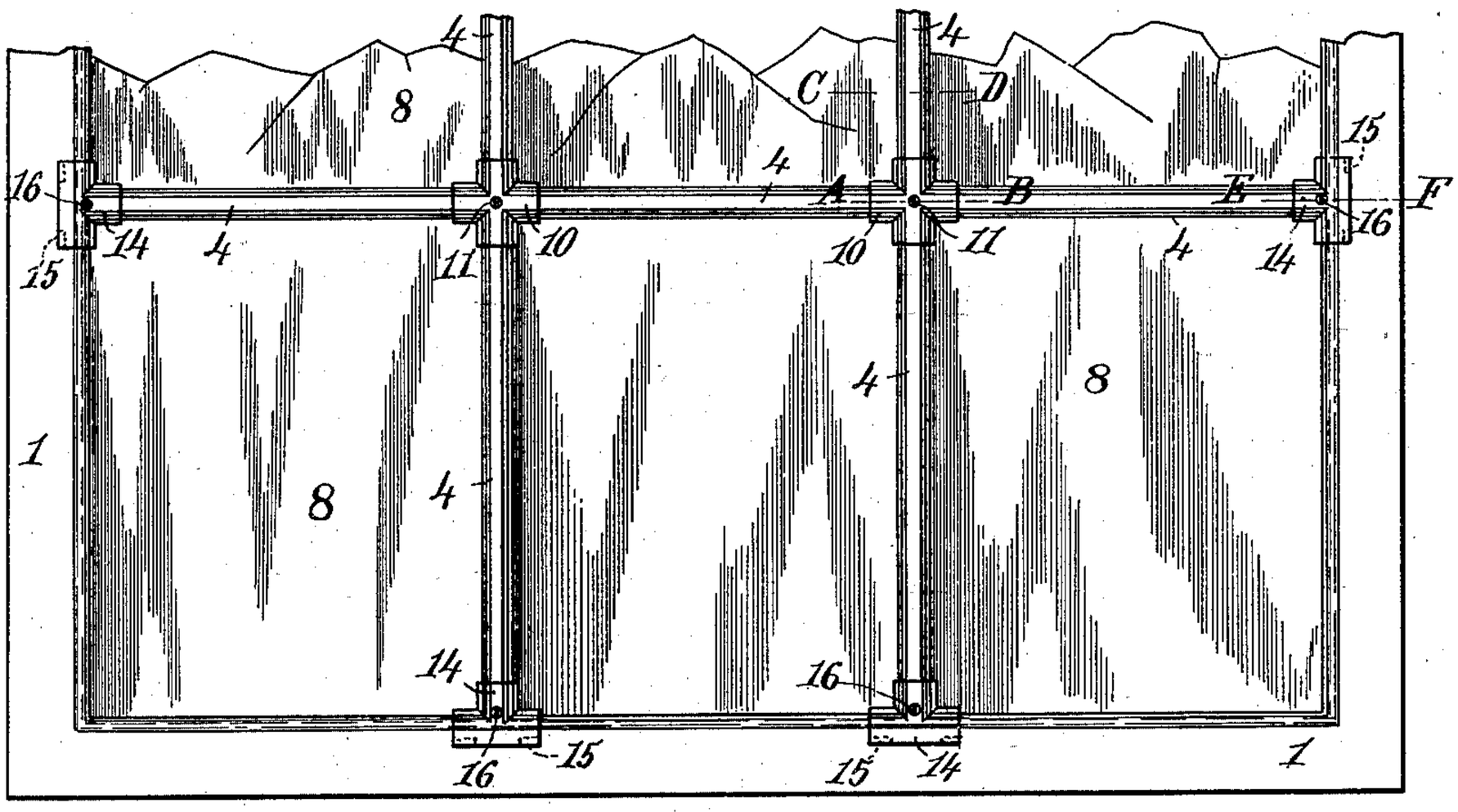

Fig. 1.

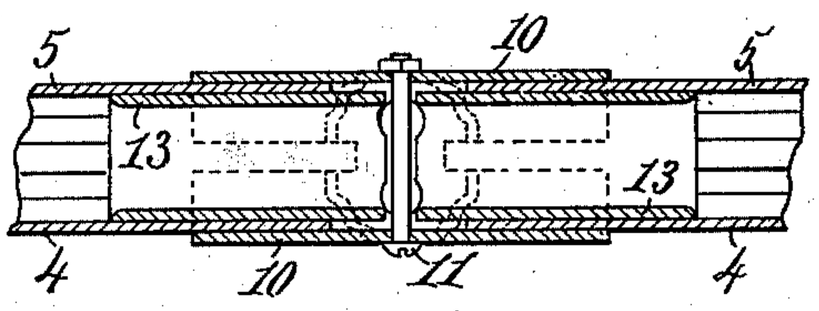

Fig. 2.

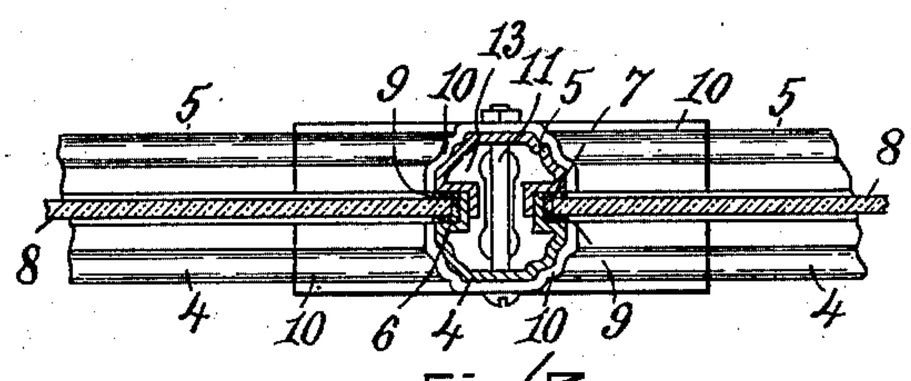

Fig. 3.

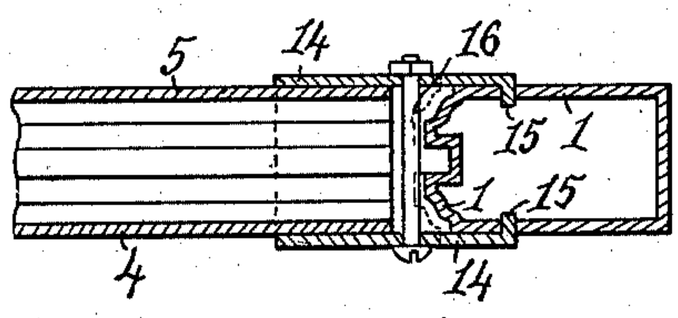

Fig. 4.

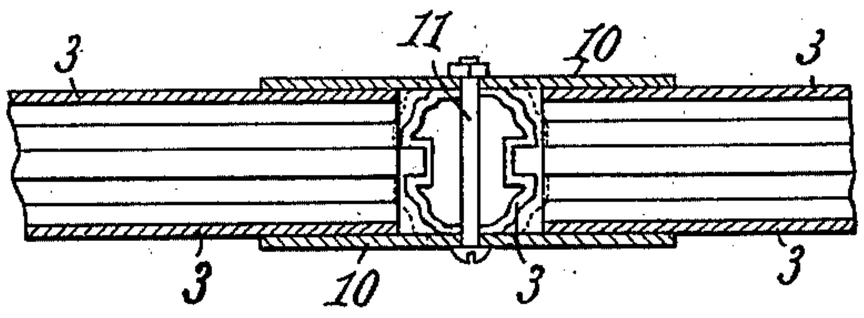

Fig. 5.

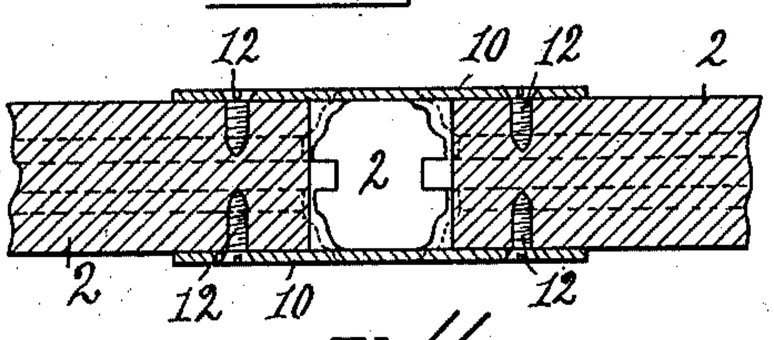

Fig. 6.

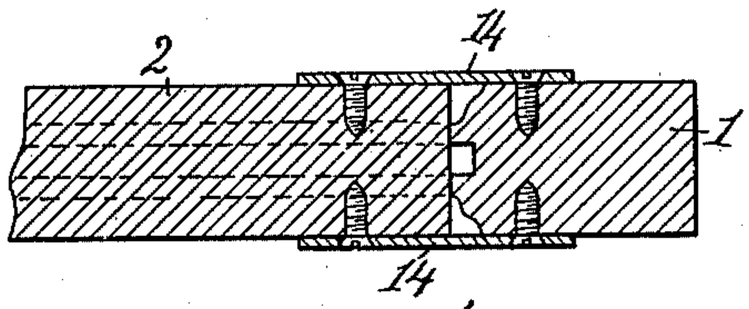

Fig. 7.

WITNESSES.

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No. 752,831. Patented February 23, 1904.

UNITED STATES PATENT OFFICE.

ISAIAH W. EMERSON, OF MILFORD, MASSACHUSETTS.

WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 752,831, dated February 23, 1904.

Application filed May 6, 1903. Serial No. 155,943. (No model.)

To all whom it may concern:

Be it known that I, ISAIAH W. EMERSON, of Milford, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Window-Sash, of which the following is a specification.

This invention relates to improvements in window-sash, and has for its object to provide a sash in which the several parts thereof are easily assembled or taken apart, one which may be made to have the same appearance on both sides of the sash, and one in which the putty used will have but a small portion thereof exposed to the weather.

The invention consists of the novel construction, arrangement, and combination of parts, as will be fully described hereinafter and fully set forth in the claims annexed hereto and forming a part of this specification, and the invention is carried out substantially as illustrated on the accompanying drawings, which also form an essential part of this specification, and whereon like characters of reference refer to like parts wherever they occur on the different parts of the drawings.

On the drawings, Figure 1 represents a side elevation of a portion of a window-sash having a plurality of panes of glass and provided with my improvements. Fig. 2 represents a section on the line A B in Fig. 1 enlarged and showing the construction of the joint between two or more muntins. Fig. 3 represents a section on the line C D in Fig. 1 enlarged and showing the muntins as separated longitudinally into two pieces. Fig. 4 represents a section on the line E F in Fig. 1 enlarged and showing the construction of the joint between a muntin and the outer portion or frame of the sash. Fig. 5 represents a view similar to that shown in Fig. 2, but showing a slightly-different arrangement of the device. Fig. 6 represents a view similar to that shown in Fig. 2, but showing still another arrangement of the device. Fig. 7 represents a view similar to that shown in Fig. 4, but showing a slightly-different arrangement of the device.

The outer portion 1 of the sash may be made hollow or tubular, as shown in Fig. 4, or it may be made solid, as shown in Fig. 7, and the joints at the corners between the several pieces which form the outer portion may be made in any desired manner, as the construction of the same forms no part of my present invention. The muntins may be made solid, as the muntins 2 in Figs. 6 and 7, or hollow and tubular, as the muntins 3 in Fig. 5, or they may be made in two parts 4 and 5, joined together longitudinally and forming a hollow tubular muntin, as shown in Fig. 3, as is desired; but I prefer to form the muntins as shown in Fig. 3, in which the parts 4 and 5 are made substantially the same shape in cross-section, and when assembled within a sash they form the grooves 6 and 7 to receive the edge of the pane of glass 8 and the putty 9, in which the glass is embedded to make an air-tight joint at this place.

In forming a sash in accordance with my invention I construct the outer portion 1 of the desired dimensions. I form pieces of muntin slightly shorter than the length and width of the panes of glass to be used. These muntins may be cut perfectly square at the ends, or they may be formed with a slight miter at the ends, so that two or more muntins in meeting will fit more closely together.

In order to form a rigid joint between two of more muntins which meet, I provide the sash on opposite sides thereof with the clamping-pieces 10 10, which are made to fit upon the outside of the muntins, as shown, and which extend a short distance upon each muntin from the joint between them. These clamping-pieces are drawn firmly against the opposide sides of the meeting ends of the muntins by means of the single screw or bolt 11, as shown in Figs. 2 and 5, or by two or more screws 12, as shown in Fig. 6. These clamping-pieces may be made of metal and cast or stamped into shape, or they may be made of any other suitable material and in any other manner than by casting or stamping; but I prefer to form them from sheet metal and stamp or press them into shape, as they will thereby be made more perfect, uniform, strong, and light. These clamping-pieces when used with hollow muntins may be used alone, as shown in Fig. 5, or they may be used

in connection with an interior filling-piece 13, inserted into the meeting ends of the hollow muntins, as shown in Figs. 2 and 3, which filling-piece may be made solid or hollow, as desired, but which is preferably made hollow, as shown on the drawings. If so desired, the clamping-pieces at a number of the joints between the muntins may be joined together, forming a single piece, which will then have tubular portions to receive the ends of the muntins, and in such a case the bolt or screws 11 and 12 may be dispensed with, if so desired. The ends of the muntins are rigidly connected to the outer portions 1 of the sash, also by the clamping-pieces 14 14, placed upon the opposite sides of the sash at the meeting of the muntin and the outer portion of the sash. One portion of the clamping-pieces 14 fits against the surface of the muntin and extends a short distance upon said muntin back from the end of the same, while another portion of the clamping-pieces 14 extends upon the side of the outer portion of the sash and may be provided with projections 15, which enter perforations or recesses in the sides of the outer portion 1 of the sash. These clamping-pieces 14 are clamped firmly against the end of the muntin and the side of the outer portion of the sash by means of the screw or bolt 16 or by any suitable equivalent and well-known fastening device.

By forming a sash in the manner above described it will be seen that a very strong, rigid, and durable sash is formed, that any one or more of the muntins may be taken out and replaced when desired, that a broken pane of glass may easily and quickly be removed and replaced by a whole pane, and that the sash is very neat in appearance, as there is but a very little putty exposed to the weather, and consequently there is no chance for a portion of the putty to drop out and leave the glass loose, that the sash may be made alike on opposite sides thereof, and that the number of muntins, and consequently the number of panes of glass in a sash, may be easily and quickly increased or decreased if it is desired to have smaller or larger panes of glass in a sash than is already in the sash.

When the sash is made as illustrated in Figs. 1, 2, and 3, with the muntins divided longitudinally into two parts, it is especially easy to reset a broken pane of glass, as the clamping-pieces 10 at the four corners of the pane on one side of the sash only may be removed and then the parts of the muntins on that side of the sash only may be removed, leaving the entire surface of the pane of glass exposed and ready to be taken out.

When the several parts of the sash are made of metal, and more especially of sheet metal, rolled or stamped into the proper shape, I am thereby able to make a very convenient, cheap, effective, and strong fireproof sash, in which there will be nothing excepting the glass used which would burn or would crack by the heat.

Although I have described my invention herein as applied to the formation of a joint or joints between the muntins of a sash and between the muntins and the outer portion or frame of the sash by the use of clamping-pieces on opposite sides of the parts and fitting the surface of the same, it will be understood that the same formation of a joint may be used in the corners of the outer portion or frame of the sash and, in fact, in the construction of window-frames, doors, door-frames, and for similar constructions.

Having thus fully described the nature, construction, and the operation of my invention, I wish to secure by Letters Patent and claim—

1. In a window-sash, muntins made in lengths substantially that of the dimensions of the pane of glass to be used in the sash, clamping-pieces placed upon the opposite sides of the sash at the meeting place of a plurality of muntins fitting the surface of the muntins and extending a short distance on each muntin from its meeting place with the other muntins, and means to hold the clamping-pieces firmly in place against the opposite sides of the sash and the muntins in place.

2. In a window-sash, tubular muntins made in lengths substantially that of the dimensions of the pane of glass to be used in the sash, clamping-pieces placed upon the opposite sides of the sash at the meeting place of a plurality of muntins fitting the surface of the muntins and extending a short distance on each muntin from its meeting place with the other muntins, filling-pieces inserted within the meeting ends of the tubular muntins, and means to hold the clamping-pieces firmly in place against the opposite sides of the sash and the muntins in place.

3. In a window-sash, the combination with the outer portion of the sash and a muntin having its end adjacent to the inner surface of the outer portion of the sash, of clamping-pieces on opposite sides of the sash fitting the surfaces of the muntin and the outer portion of the sash and extending a short distance upon the surfaces of said muntin and outer portion of the sash, and means to hold the clamping-pieces firmly in place against the opposite sides of the sash and the muntin and outer portion of the sash in proper relative positions.

4. In a window-sash, muntins divided longitudinally into two pieces thereby forming a groove for the reception of the glass, combined with clamping-pieces on the opposite sides of the sash at the meeting place of said muntin with another part of the sash, said clamping-pieces fitting the surface of said muntin and other part of the sash, and means to hold the clamping-pieces firmly against

said parts of the sash and said parts firmly assembled.

5. In a window-sash, an outer portion or frame and muntins extending from one place to another place on said outer frame, combined with clamping-pieces covering the joint between said muntins and outer frame, said clamping-pieces fitting the surfaces of the muntin and outer frame, extending a short distance on both of said parts, projections on the clamping-pieces to enter recesses in the outer frame of the sash, and means to clamp and hold the clamping-pieces firmly against said parts and the part firmly assembled.

In testimony whereof I have affixed my signature in presence of two witnesses.

ISAIAH W. EMERSON.

Witnesses:

HENRY CHADBOURN,

MAY F. FULLER.