No. 621,542. Patented Mar. 21, 1899.

J. W. SHEPPARD.

FIREPROOF WINDOW.

(Application filed Dec. 21, 1898.)

(No Model.)

Fig. 1.

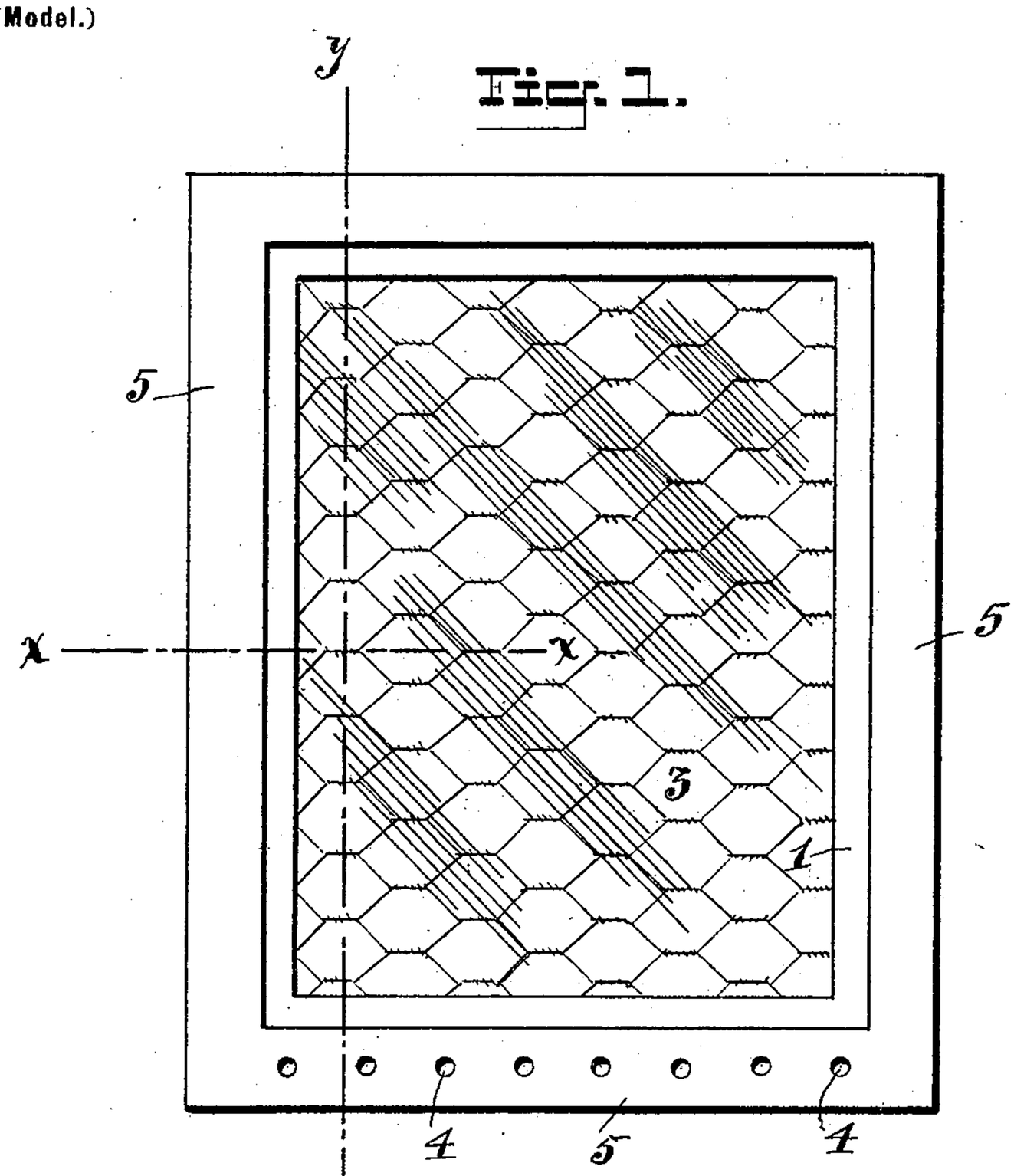


Fig. 2.

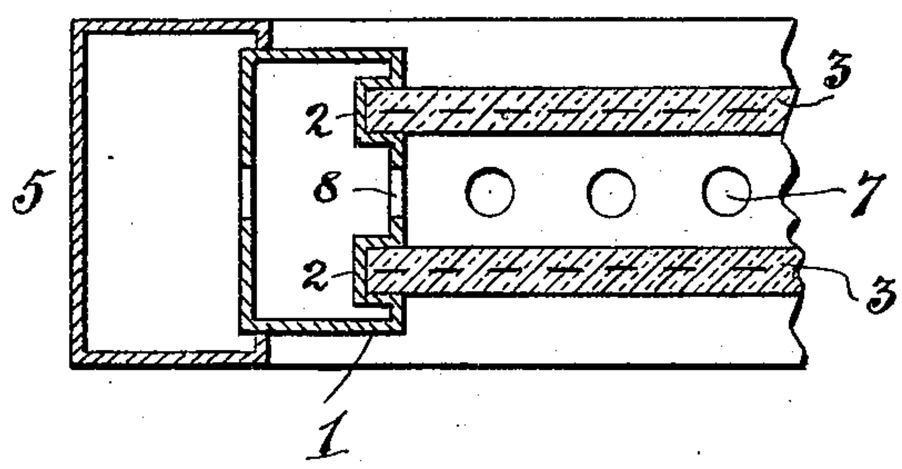
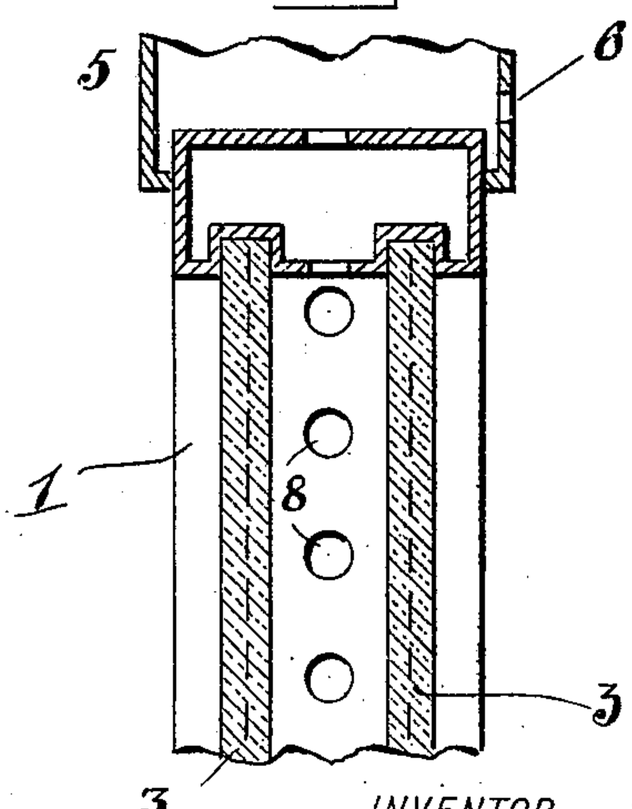


Fig. 3.



WITNESSES:

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FIREPROOF WINDOW.

SPECIFICATION forming part of Letters Patent No. 621,542, dated March 21, 1899.

Application filed December 21, 1898. Serial No. 699,958. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. SHEPPARD, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Fireproof Windows, of which the following is a specification.

My invention relates especially to means and construction whereby windows or glazed openings of any kind, style, or description may be rendered fireproof, and has for its object the provision of a window or glazed opening so arranged that means are provided for inducing a current of air between two panes of wire-glass, all of which will be hereinafter first fully described and then pointed out in the claims.

In the accompanying drawings, forming a part hereof, Figure 1 is an interior view in elevation of a window or glazed opening, illustrating one method of carrying my invention into effect. Fig. 2 is an enlarged horizontal sectional view at line *x x* of Fig. 1. Fig. 3 is an enlarged vertical sectional view at line *y y* of Fig. 1.

Similar numerals of reference, wherever they occur, indicate corresponding parts in all the figures.

I am aware that window-sashes have been made with two panes of ordinary glass for ice-houses, greenhouses, and the like, between which panes was provided a dead-air space.

My invention is designed particularly to provide a glazed opening or window giving light in any location, while at the same time rendering such window fireproof without the use of fire-shutters or other apparatus. This object may be attained, as shown in the accompanying drawings, by making the sash proper of sheet metal, as well as the window-frame, so arranged that air may enter freely and circulate between the two panes of wire-glass constituting the glazing.

My invention therefore consists in supporting two panes of wire-glass in a hollow sash or in any other opening parallel to each other, the space between said panes of wire-glass communicating with a source of air-supply and also with an exit opening or openings, whereby in the event of heat being applied to one side of the window a rapid circulation of air is induced through the space between the two panes of glass, thereby carrying off the heat and preventing the pane farthest from the source of heat from becoming so heated as to give off dangerous radiation, thereby preventing ignition of combustible material in proximity thereto.

To clearly demonstrate the nature of my invention, I will illustrate the operation of the same by briefly reciting the history of a test conducted with a window constructed substantially the same as that shown in the drawings. The window was placed eighteen inches from an opening in a kiln where the heat was known to be at a temperature of over 2,500° Fahrenheit. When air from the exterior was permitted to circulate between the two panes of wire-glass, common cotton-batting located seven inches from the pane of wire-glass farthest from the heat showed no signs of singeing, although it was so exposed to this intense heat for half an hour. Some of the same combustible material was rubbed against the surface of the wire-glass farthest from the heat and it also showed no signs of scorching, the circulating air effectually preventing the transmission of heat sufficient to scorch or ignite the cotton. Upon closing the apertures through which the air reached the space between the two panes of wire-glass combustible material when placed in proximity to the glass farthest from the source of heat would ignite.

My invention is designed for use in connection with the well-known wire-glass—that is, glass in which is embedded a wire mesh. When subjected to a high temperature, the pane of wire-glass nearest the heat will crack, and the pane farthest from the heat may also crack, more or less, but the wire embedded between the surfaces of the glass is protected from the air. Hence as no oxidation can take place the panes of glass will be held in place, let the glass be cracked ever so much by the heat applied, practically preserving the integrity of the pane. Sashes embodying my invention are designed for use particularly in roof-exposed windows in buildings, factories, &c., where light is provided from the exterior, and in all positions where light is required and at the same time where protection must be provided against fire from adjacent

buildings and to confine fire to a building wherein it originates.

In the drawings, 1 is a sash proper, preferably made of sheet metal and molded hollow, with seats 2 for two sheets of wire-glass 3. The sash may be mounted in any kind of frame — that is, the sash may be pivoted, swinging, sliding, or stationary. Openings 4 may be provided in the frame 5 at the bottom and similar openings 6 at the top of the frame, as illustrated in Fig. 3. The sash 1 may be provided at the bottom with openings 7 and at the top with similar openings, and when the window-frame is made hollow, as shown in Fig. 2, openings 8 may be made in the side stiles of the sash. I have shown the openings as circular; but it is obvious that such openings may be of any shape and arrangement, and the air may be admitted and exit-openings provided at any desired point without departing from the spirit of my invention, and it will be at once apparent that should excessive heat be applied to one side of a window or glazed opening having the characteristics of my invention the pane nearest the source of heat would heat the air in the space between the two panes, inducing a rapid circulation or current of ascending air the tendency of which would be to keep the opposite pane at a much lower temperature, and by so doing prevent ignition of combustible material in proximity thereto.

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

1. In a window or glazed opening, two panes of wire-glass supported parallel to, but separate from each other, and air-conduits to and from the space between the panes, substantially as and for the uses and purpose shown and described.

2. A window-sash provided with two panes of wire-glass, and having openings leading from the exterior to the space between the panes, substantially as described.

3. The combination with a hollow sash-frame, of two panes of wire-glass mounted therein, said sash-frame being provided with openings communicating with the space between the said panes of wire-glass, the space in the hollow sash in turn communicating with the exterior, substantially as described.

4. The combination with a hollow, metal sash-frame, of two panes of wire-glass therein, said frame being provided with an opening or openings connecting the space in said hollow frame with the space between the said panes of wire-glass, said sash-frame being also provided with exterior openings, substantially as described.

5. The combination with a hollow metal sash-frame, formed with interior openings between the two panes of glass, of two panes of wire-glass mounted in said frame, substantially as shown and described.

Signed by me, at New York city, this 19th day of December, 1898.

JOSEPH W. SHEPPARD.

Witnesses:
A. M. PIERCE,
S. S. BRADSHAW.