

(No Model.)

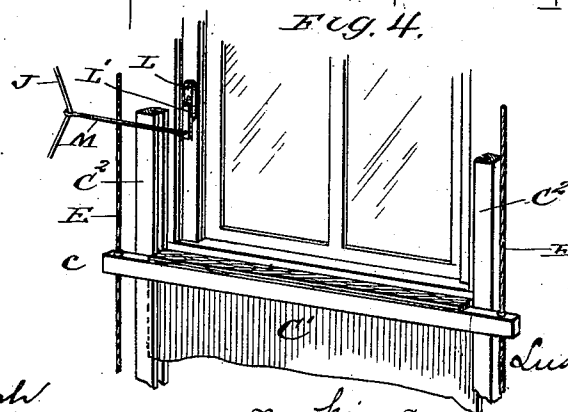
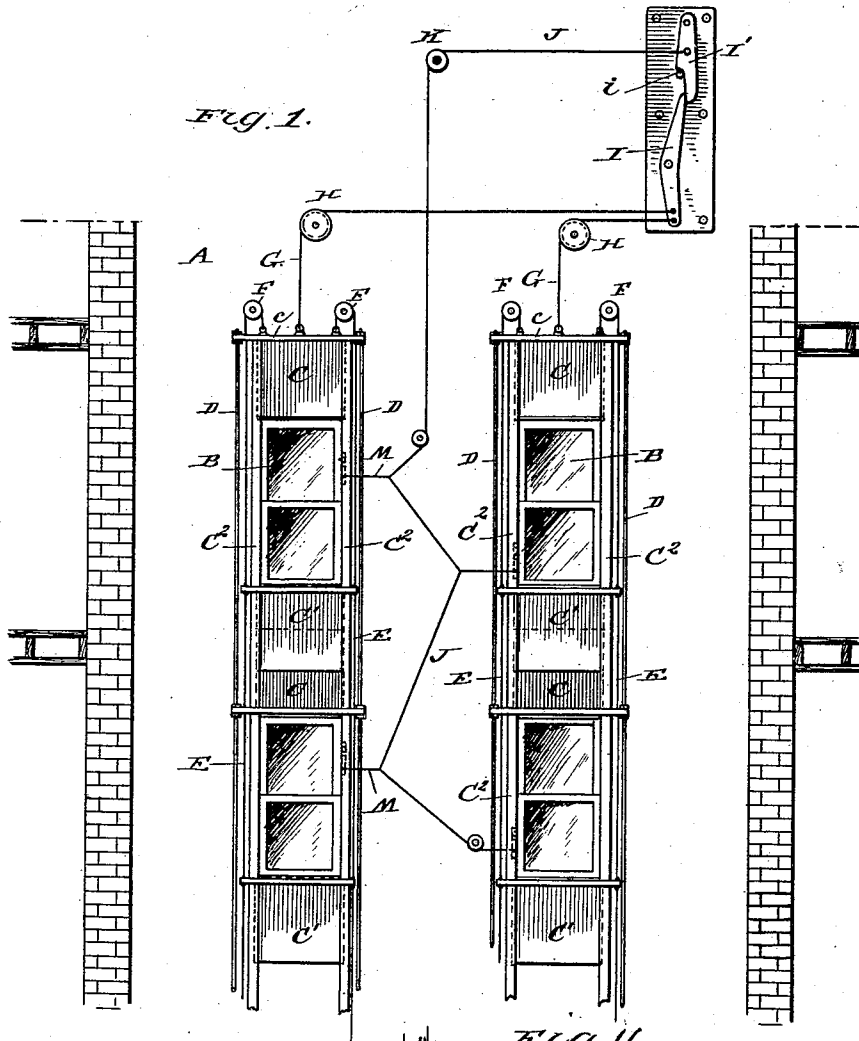
2 Sheets—Sheet 1.

L. WIELAND.

FIRE SHUTTER FOR VENTILATING SHAFTS OF BUILDINGS.

No. 474,982.

Patented May 17, 1892.



Witnesses

W. R. Davis.

John M. Stalsh

Inventor

Ludwig Wieland

By his Attorneys

Alexander Davis

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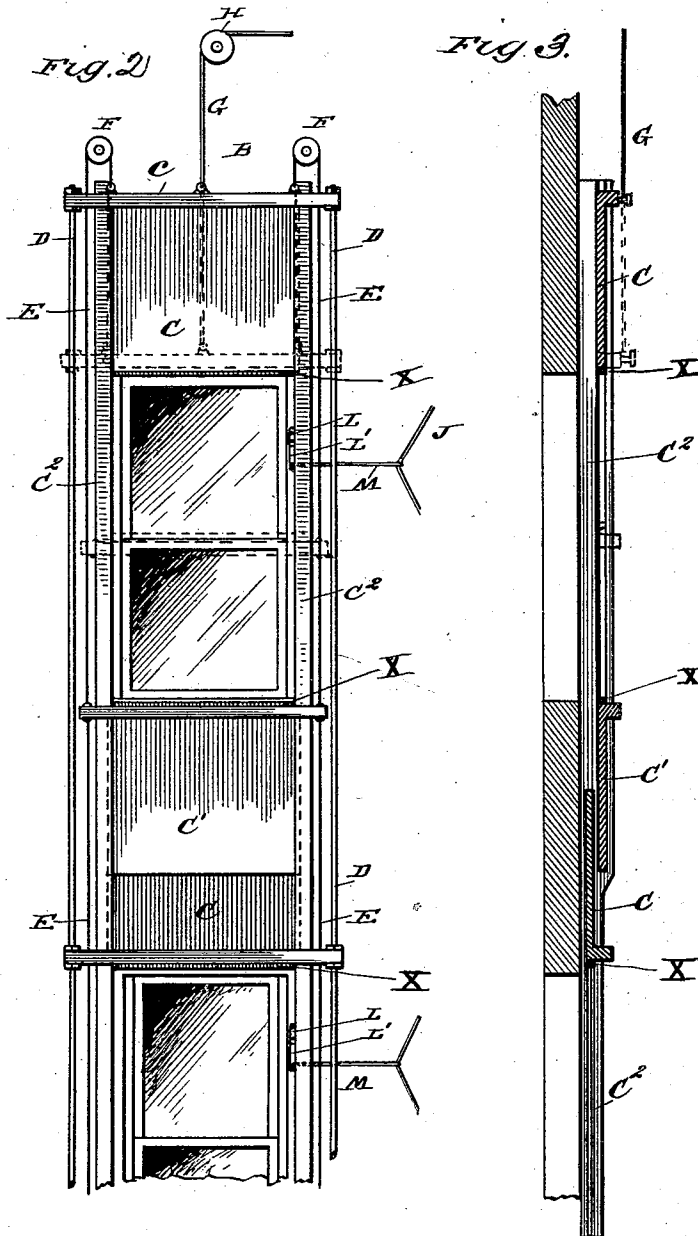
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UNITED STATES PATENT OFFICE.

LUDWIG WIELAND, OF NEW YORK, N. Y., ASSIGNOR TO THE AIR SHAFT PRO-
TECTOR AND MANUFACTURING COMPANY, OF NEWARK, NEW JERSEY.

FIRE-SHUTTER FOR VENTILATING-SHAFTS OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 474,982, dated May 17, 1892.

Application filed June 12, 1891. Serial No. 396,039. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG WIELAND, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Fire-Shutters for Ventilating-Shafts of Buildings, of which the following is a specification, reference being had therein to the accompanying drawings.

A factor conducing to the spread of fires occurring in buildings adjoining each other is the presence of vertical shafts between the structures, into which windows open from the compartment adjacent thereto for their illumination and ventilation. Such windows, as is readily understood, are the means whereby fire is often extended from a structure where it originates to an adjoining one and but for whose presence such extension might not occur. They are indispensable, however, for the purposes above stated, but at the same time it is highly important that danger from them should be obviated, and therefore I have addressed myself to the task of doing this, and it is the object of my invention to prevent the spread of fire by this means; and to this end said invention consists in blinds or shutters adapted to automatically cover the windows on the outbreak of a conflagration in their vicinity.

In the accompanying drawings, Figure 1 shows a portion of an air and light shaft between two buildings, equipped with my apparatus to automatically close the shaft-windows. Fig. 2 is a front elevation, on a larger scale, of a portion of the apparatus. Fig. 3 is a vertical section of what is shown in Fig. 2, and Fig. 4 is a detail perspective view of the lower portion of one of the windows and the mechanism thereat.

In Fig. 1 is shown only the upper portion of two adjoining buildings, between which is an air and light shaft A, having two vertical lines of windows B and B opening into the compartments of each building. Each window is adapted to be closed by a vertically-sliding metal shutter composed of two pieces, an upper C and a lower C', the former being held normally above the window and the lat-

ter below, and movable in suitable guideways C², which with their side edges engage toward each other until they touch, to completely cover the window. From a bar c, attached to and extending across the top of the upper shutter part C of the highest window B in the shaft, a short distance to each side of said part two rods D D extend downward on each side of the series of windows to a similar bar on the upper shutter part of the lowest window, and to which by means of like bars the similar intermediate shutter parts are attached. The lower shutter parts C' are on each of their sides attached to a cord or rope E, which is attached at one end to the cross-bar c on the upper shutter part of the highest window and passes over a sheave F₁ mounted on a shaft fixed to the wall above such window. By this arrangement when the upper shutter part descends the lower will be simultaneously raised, and as all of the upper shutter parts of one line of windows are attached to the same rods and all of the lower to the same ropes there will be a simultaneous closing of the windows of the whole series.

The movement of the shutters is effected by the gravity of the upper shutter parts and the connected rods, whose aggregate weight should exceed that of the lower shutter parts, and to normally hold the shutters open against the downward closing tendency of the upper shutter parts I employ the following mechanism: Attached to and extending from the center of the cross-bar c of the upper shutter part of the highest window is a rope G, of wire or other incombustible material, which passes upward to and over a sheave H, and thence to the lower end of a pivoted lever I. The upper end of the latter, when the shutters are open, is engaged by the lower end of an arm I', pivoted at its upper end so as to be capable of lateral swing. A stop i may be provided to limit its swing in the direction of the lever I, if necessary. To such arm at a point between its ends is attached a rope J, which extends therefrom over a sheave K downward through the shaft A between the two sets of windows B and B, and when arranged and secured, as will presently be described, will en-

able the arm I' to resist through the lever I the downward tendency of the upper shutter parts.

At suitable points in the shaft, preferably
 5 as shown at each window, I secure a metal plate or strip L, to which, by some metal readily fusible at a comparatively low temperature, I attach a second metal plate or strip L'. To a portion thereof that projects beyond the
 10 former plate a short section of rope M, less in length than the distance to the adjacent fusible device, extends and is attached to the rope J, which in consequence is caused to extend in zigzag lines from the first or highest
 15 to the last or lowest fusible device, and therefore has a length from one device to the other greater than the distance in a direct line between the said devices. Hence on the occurrence of a fire, should one of these be fused,
 20 and so the rope J released and allowed to relax, the shutters will close, as the pivoted arm will no longer oppose movement of the lever I. In order to relieve the shutter parts from the shock or jar incident to their sudden coming together, I provide them—one or both—
 25 with an elastic buffer, consisting, preferably, of a strip of rubber X, attached to the upper edge of the lower part or the lower edge of the upper part. Where the distance between
 30 adjacent windows of a series renders it necessary, the shutter-part guideways have to be in different vertical planes, as shown in Fig. 3, so that the lower and upper parts of adjacent windows when open may be accommodated by overlapping each other.
 35

Both sets of windows B B, it may be observed, are equipped exactly alike and but one locking device is employed for both, to which both are connected in the same way.

40 I do not claim, broadly, in this specification the use of a flexible connection extending between the latch device and some fixed point of greater length than the distance between the two whose slack is taken up by a heat-operative device or devices, as such is made
 45 the subject of claims in an application filed

by me the 12th day of June, 1891, Serial No. 396,040.

I claim—

1. In combination, a vertical series of sliding shutters connected together so as to automatically close when released, a releasing mechanism normally holding said series of shutters open, a rope attached at one end to said releasing mechanism and fixed at its
 50 other end, and heat-released devices connected to this rope between its ends and adapted to hold it in an irregular line, whereby when said heat-released devices are released by the
 55 temperature the rope will be permitted to straighten, and thereby release the releasing mechanism, substantially as described.

2. In combination, the sliding shutter composed of an upper and a lower part and connections between them, whereby the descent
 60 of the former will raise the latter to close them together, substantially as described.

3. In combination, the series of two-part sliding shutters, the rod connecting all of the upper ones of the series, and the cords connecting all of the lower ones together and to
 70 the upper ones, substantially as described.

4. In combination, the series of automatically-closing two-part sliding shutters consisting each of an upper and a lower part, all of the upper being connected together and all
 75 of the lower being connected together and to the upper, the means to normally hold them open, consisting of a latch device connected to the upper shutter part of the upper series,
 80 a flexible device, as a rope, extending from said latch to a fixed point, being of greater length than the distance between, and the heat-operative device or devices attached to said rope to take up the slack, substantially
 85 as described.

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

LUDWIG WIELAND.

Witnesses:

G. T. DETET,
 B. F. TOBIN.