

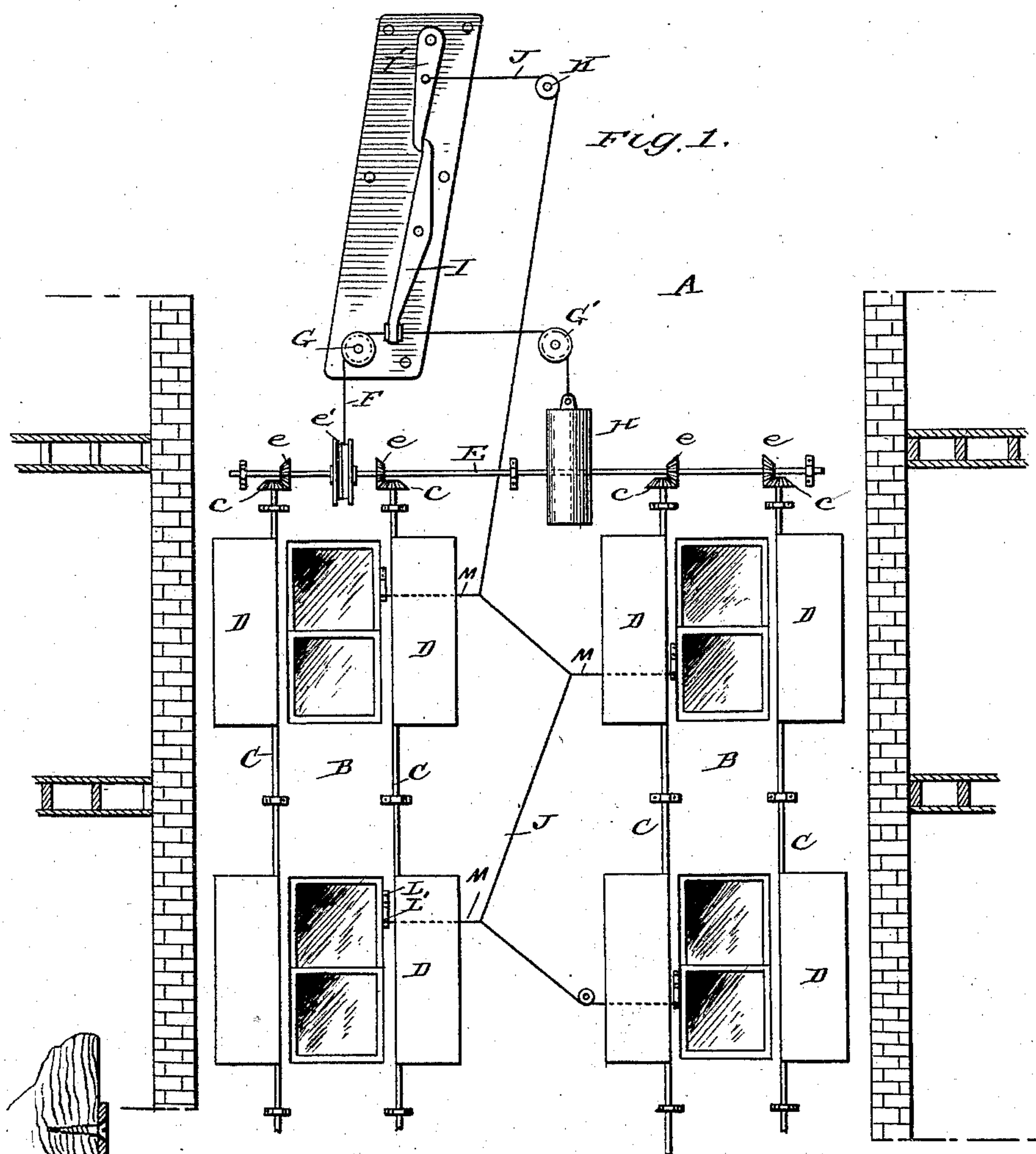
(No Model.)

L. WIELAND.

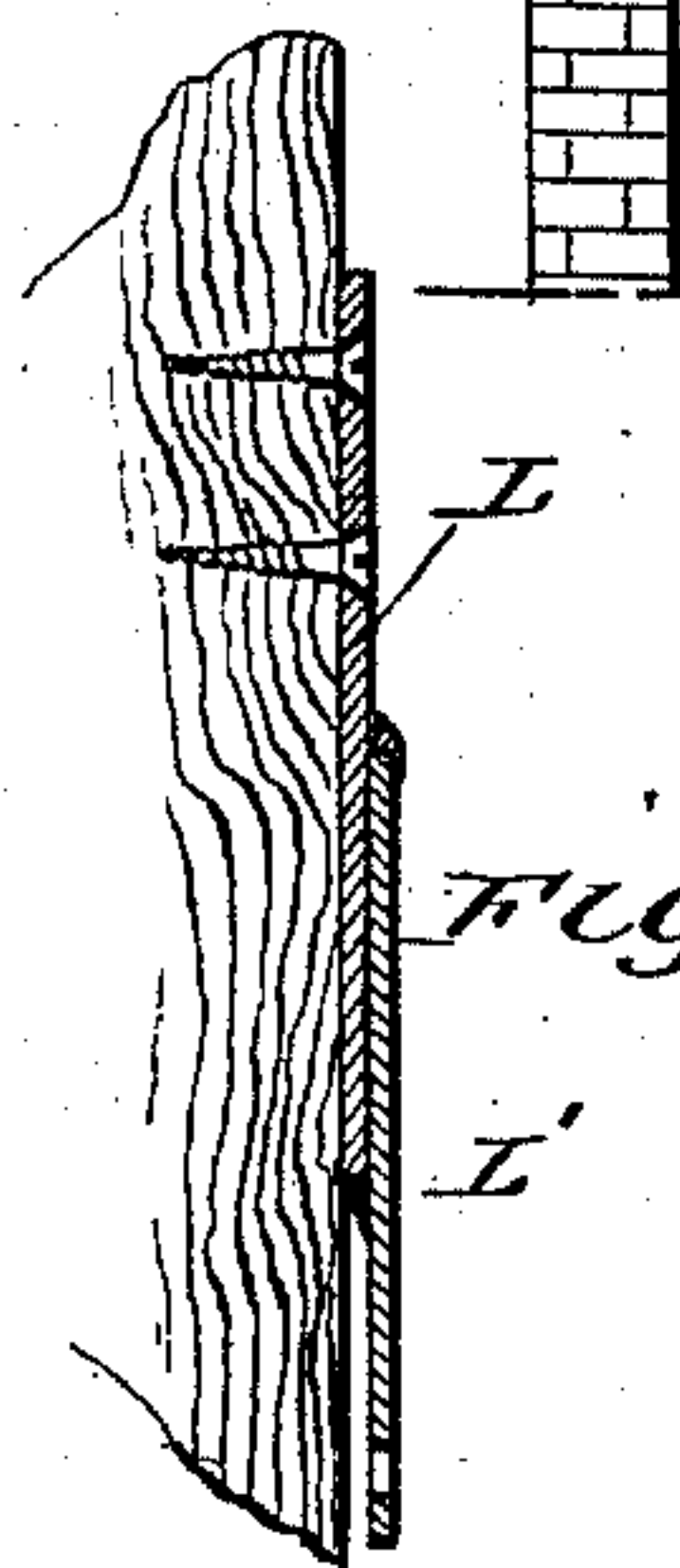
# FIRE SHUTTER FOR VENTILATING SHAFTS OF BUILDINGS.

No. 474,890.

Patented May 17, 1892.



*Fig. 1.*



*Fig. 3.*

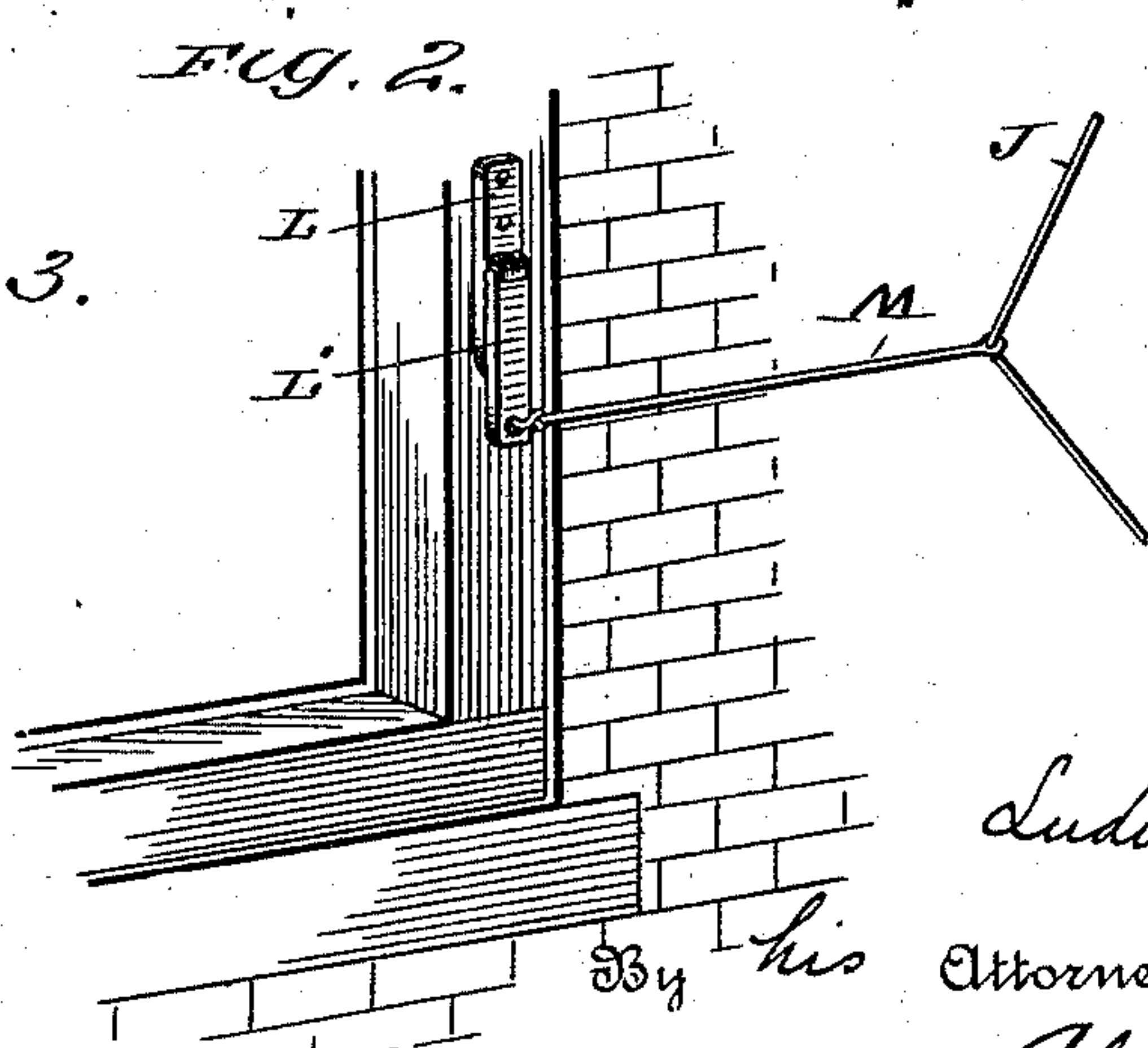


FIG. 2.

Witnesses  
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By his Attorneys  
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# UNITED STATES PATENT OFFICE.

LUDWIG WIELAND, OF NEW YORK, N. Y., ASSIGNOR TO FRITZ STROSBURG AND THE AIR SHAFT PROTECTOR AND MANUFACTURING COMPANY, OF NEWARK, NEW JERSEY.

## FIRE-SHUTTER FOR VENTILATING-SHAFTS OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 474,890, dated May 17, 1892.

Application filed June 12, 1891. Serial No. 396,040. (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.

10 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 compartments 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.

20 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.

30 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 detail perspective view of the lower portion of one of the windows and the mechanism thereat, and Fig. 3 is a detail vertical section of the fusible device I employ to be operated when the temperature reaches a certain height to effect the closing of the windows.

40 In the drawings is shown but the upper portion of two adjoining buildings, between which is air and light shaft A, having windows B and B opening into the compartments of each building. Extending on each side of the windows from a point above the upper ones to the lower is a rod or shaft C, suitably supported in bearings on the wall, which at each window has attached, so as to turn with

it, a metal blind or shutter D of such dimensions as to extend half-way across the window and from top to bottom thereof. The two blinds, one on each side, thus are adapted to completely cover the window. At their upper ends each of said shafts has keyed or otherwise secured to it a bevel-gear *c*, which meshes with a similar gear *e* on a shaft E, extending across the ventilating-shaft A, being supported by suitable bearings therein.

55 The shaft E at a convenient point carries a pulley *e'*, by which it may be rotated to cause the rotation of the vertical shafts and the swinging of the shutters or blinds to close the windows. Around said pulley is passed several turns of a wire or other incombustible rope F, which thence passes upward to and over a sheave G, and then across to a second sheave G', from which it depends, having attached to its end a weight H of such gravity as to cause by its descent, when permitted, the rotation of the transverse shaft E and the shutting of the blinds. The weight under ordinary circumstances is kept to its highest position, and so the blinds open by means of a pivoted lever I, whose lower member is attached by a clamp or otherwise to the portion of the rope F between the sheaves G and G', and whose upper end is engaged by the lower end of an arm I', pivoted at its upper end, so as to be capable of lateral swing. 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 B, and when arranged and secured, as will presently be described, will enable the arm I', to resist through the lever I, the downward tendency of the weight.

60 At suitable points in the shaft, preferably, 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 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 to the

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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 and so the rope J released and allowed to relax, the weight will descend, as the pivoted arm I' will no longer oppose movement of the lever I, and cause, as above described, the closing of the blinds or shutters through the instrumentality of the intermediate mechanism.

I claim—

1. In combination, shutters, mechanism for automatically closing the shutters when released, a rope attached at one end to the releasing devices of said closing mechanism and to a fixed point at its other end and having a length greater than the distance between its points of attachment, and heat-releasing devices connected to said rope intermediate its ends and normally holding it in an irregular line, whereby when said heat-releasing devices are released the rope will tend to straighten and thereby release the shutter-closing mechanism, substantially as described.

2. In combination, the blinds or shutters, the mechanism for operating them and the means for normally holding said shutters open, consisting of a rope extending from said operating mechanism to a fixed point, and the short-rope sections attaching said rope at intermediate points to heat-operated connections, substantially as described.

3. In combination, the blinds or shutters, the vertical shafts carrying them, the transverse shaft gearing between the latter and the former, the weight to operate said mechanism, the pivoted lever and pivoted arm for holding said weight in a raised position, the rope connected to said pivoted arm, and suit-

able heat-operated devices connected to said rope, substantially as described.

4. In combination, the blinds or shutters, the mechanism for operating them, and the means for normally holding said blinds open, consisting of a latch mechanism, a flexible device, as a rope, extending therefrom to a fixed point, and the heat-operative devices holding the rope in a zigzag or irregular line between such points, substantially as described.

5. In combination, the blinds or shutters, the vertical shafts carrying them, the transverse shaft, gearing between the latter and the former, the pulley on the transverse shaft, the weight connected to such pulley by suitable belting, the pivoted lever connected to the latter, the pivoted arm engaging such lever, and the heat-operating device or devices connected to said arm, substantially as described.

6. In combination, two vertical series of connected shutters, mechanism for closing the shutters simultaneously when released, a rope connected at one end to the releasing devices of said closing mechanism and extending between the two series of shutters, said rope being fixed at its other end, and heat-releasing devices connected to the rope at different points between the two series of windows and normally holding the rope in an irregular line, whereby when one of the heat-releasing devices is released the rope will be permitted to straighten and thereby release the closing mechanism, substantially as described.

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

LUDWIG WIELAND.

Witnesses:

G. S. DOTTET,  
S. R. TOBIN.