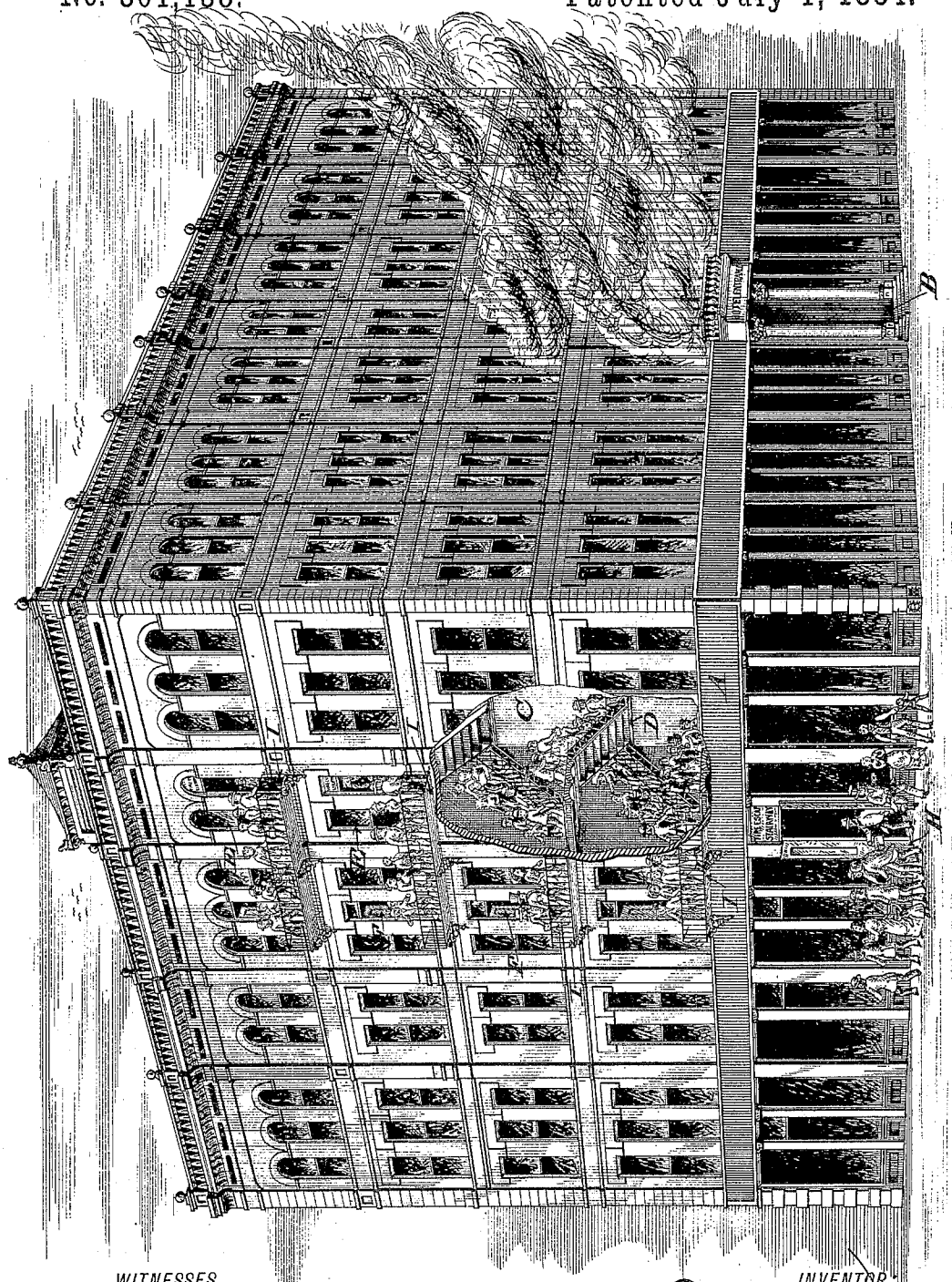
(No Model.) 3 Sheets—Sheet 1.

J. L. MacDONALD.

FIRE ESCAPE.

No. 301,138. Patented July 1, 1884.



WITNESSES.

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Fig. 1.

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Fig. 2.

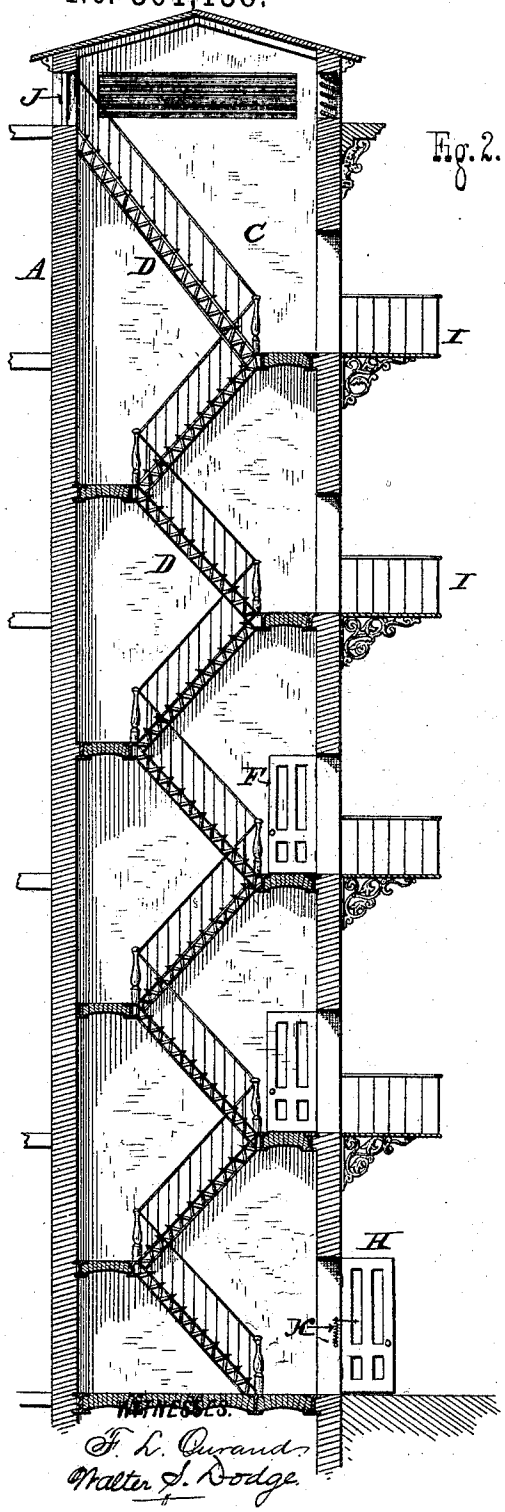
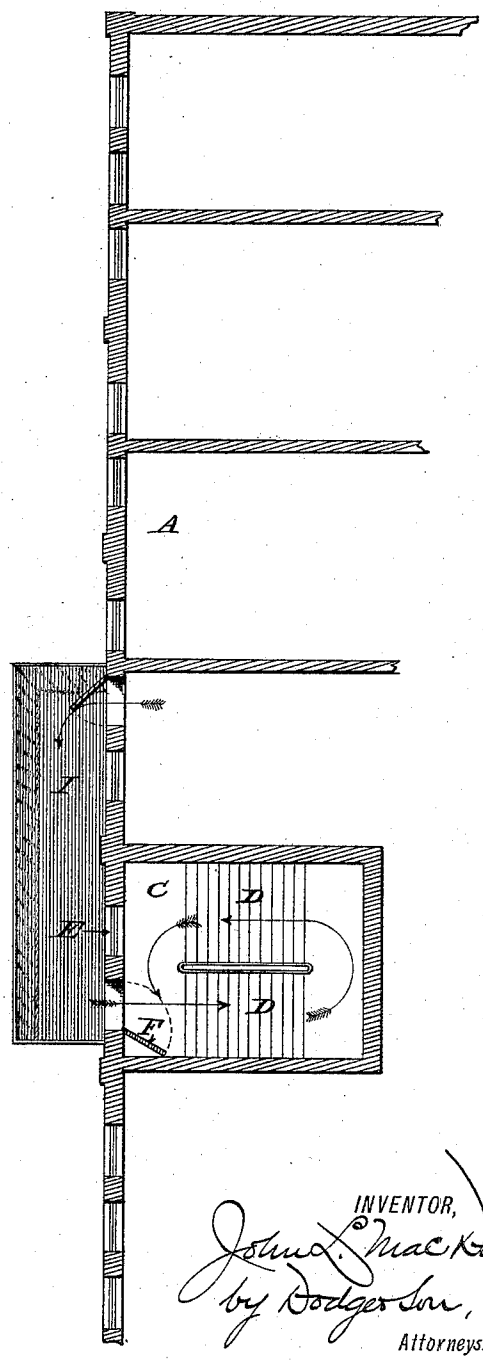


Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 4.

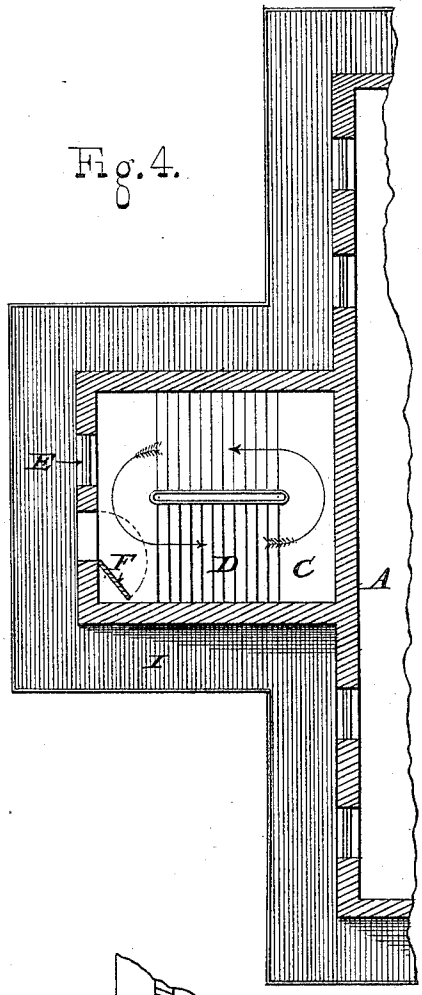


Fig. 5.

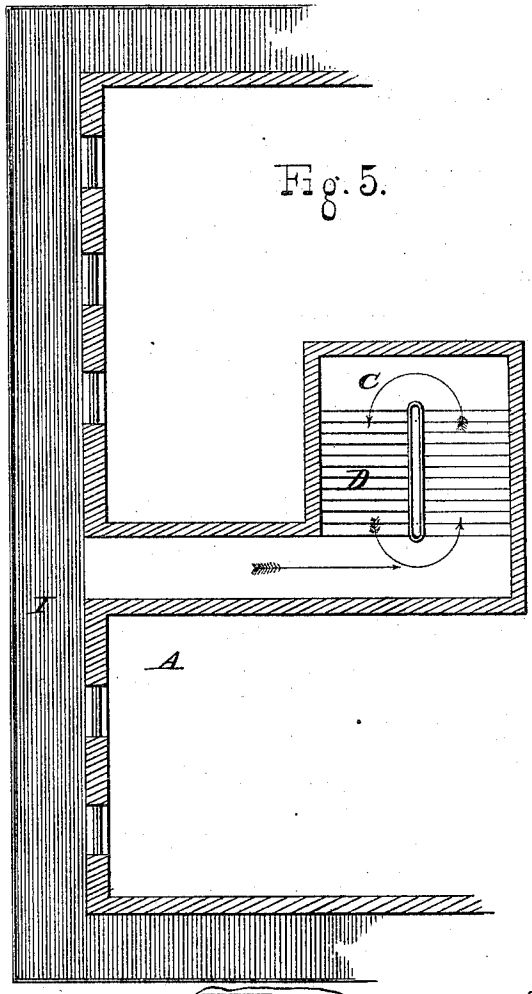


Fig. 6

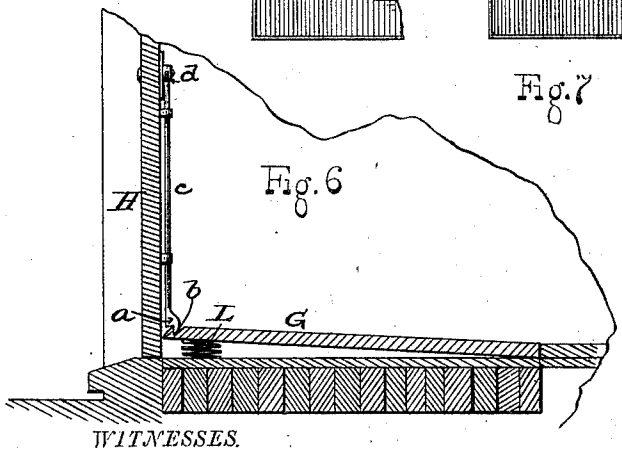
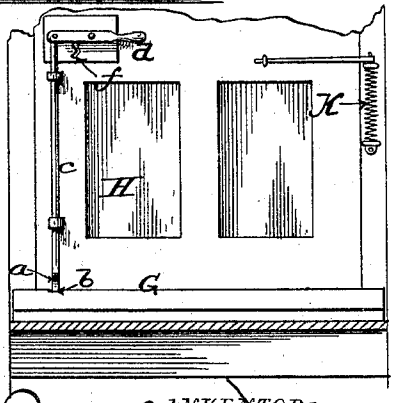


Fig. 7



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UNITED STATES PATENT OFFICE.

JOHN L. MACDONALD, OF SHAKOPEE, MINNESOTA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 301,138, dated July 1, 1884.

Application filed March 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. MACDONALD, of Shakopee, in the county of Scott and State of Minnesota, have invented certain Improvements in Permanent Fire-Escapes, of which the following is a specification.

My invention relates to fire-escapes; and it consists, primarily, in constructing within a building, and of uniform style therewith, a fire-proof wellway or shaft containing a stairway and having no direct communication with the interior of the building, but furnished with doors and windows through which persons may enter from balconies extending along the front face of the building past the windows or doors of rooms or hallways, said shaft or wellway being constructed of material which will not transmit heat readily.

The invention relates also to other features, which will be hereinafter duly pointed out and explained.

In the accompanying drawings, Figure 1 is a perspective view of a building provided with my improved fire-escape shaft and stairway, the wall partly broken away to show the interior; Fig. 2, a vertical section through the shaft; Fig. 3, a horizontal section; Figs. 4 and 5, horizontal sections or diagrams showing modifications in the arrangement of the shaft, and Figs. 6 and 7 detail views of the lower door and its fastenings.

I desire here to state that I am aware it has been proposed to build a fire-proof wellway with stairs in it within a building, doors or openings being made directly into it from the interior of the building, and also that it has been proposed to build a tower entirely outside of and apart from the building, with stairways in it and with bridges or balconies reaching from one to the other.

I am also aware that it has been proposed to build against the exterior wall of an ordinary building a box or tower of metal, or of wood covered with metal, and containing a ladder or a spiral stairway. My plan differs from the first of these, in that no openings are made into the shaft from the interior of the building, and hence it is prevented from acting as a chimney for the flames, as is otherwise liable to occur, or from being cut off by the flames at the entrance-openings. It differs from the second plan, in that the shaft is wholly within the building ordinarily, and is therefore much less expensive to construct, does not mar the appearance of the building, and does not involve the necessity of additional ground, on the one hand, or material shortening of the building, on the other hand. My invention differs from the last of these three plans mentioned, in that the tower is built of the same material, in the same style, and as an integral part of the building, so that, whether wholly within the building or otherwise, its appearance is not objectionable or even noticeable; but when wholly within the building its presence cannot be ascertained from the street, except by the doors or by such signs or indications as may be given to call attention to it. The difference is therefore very great, not only because of the absence of any objection on account of appearance, but because of the facility with which the tower or wellway can be constructed in the process of erecting the structure. It is also of importance to avoid spiral stairways, because of the tendency to produce dizziness and the unequal width of different portions of the tread of the steps, and even more important to avoid ladders, because of their slight use by women and children.

Referring to the drawings, A indicates a building having a main entrance, B, at the front, to which the ordinary stairways descend.

C indicates the fire-proof shaft or wellway, and D the stairs therein, which latter, as well as the landings, should be of iron or other incombustible material. The shaft C is built next to the outer wall of the building, which wall forms, or may form, one side of the shaft, as indicated, the finish being the same for this part of said wall as for the rest thereof, so that from the outside little or no difference appears, and the appearance of the building is uninjured. In the drawings, windows E are shown in the shaft at each landing or floor; but these may be omitted and the shaft lighted by a skylight at the top, or by gas or other light inside. Doors F open inward into the shaft C—one or more from each balcony—and these are preferably made

of iron, so that there may be no chance of their taking fire. At the bottom of the shaft C there is a fire-proof floor, *g*, and outwardly-opening doors H, which latter are preferably of iron or like incombustible material. Extending across the front of the shaft on the outer wall of the building and at each floor is a balcony, I, supported by iron brackets and having a floor of iron or other incombustible material. These balconies should extend each side of the shaft and to or beyond windows or doors opening into rooms, or, advisably, into hallways of the buildings, as indicated in Fig. 3. The balconies may be extended entirely around the building, and, if desired, may be connected one with the other by ladders or stairways, as in fire-escapes already in use. This latter feature, while permitting escape from one story to another and affording means of reaching the shaft without passing windows from which flames and smoke may be issuing, is not deemed necessary ordinarily, because the hallways and rooms will generally afford a clear passage to the balconies at one or the other side of the shaft.

In order that access may be had to the interior of the shaft from the roof, a doorway may be made through the wall of the shaft above the roof, which should be furnished with an iron or other fire-proof door, J. If such opening be provided, the stairway D is of course extended upward thereto. In some cases I propose to counterbalance floor G at the bottom of shaft C, as shown in Fig. 6, and to provide the door with a hook or stud to enter a recess in the tipping floor, or to provide said floor with a stud or hook which shall serve to hold the doors H normally closed, but which, being carried down by the depression of the floor through the weight of a person stepping thereon, shall release the doors and allow them to open outward, springs K being advisably employed to insure the prompt opening of the doors.

As shown in Fig. 6, the floor G is hinged at its inner edge, and supported at or near its outer edge by a spring, L, for which a counter-weight may obviously be substituted. A hook or stud, *a*, is secured to the door H, or to the outer, if double doors be used, said stud being set away from the door a short distance, as indicated. A hole or recess, *b*, is formed in the tipping floor G, near its outer edge, to permit the entrance of the stud *a* as the door is closed and the floor raised by its spring or counter-weight. The stud or hook *a* is advisably made upon the lower end of a vertically-moving bar, *c*, which is jointed to a hand-lever, *d*, or may be furnished with a knob or handle, so that it can be raised to release the door or doors in case the floor should fail to fall far enough to effect such release. A latch, *e*, capable of being operated from the outside by a key, or from the inside without a key, may be substituted for the locking device described; or a key-hole, *f*, may be made just below the lever *d*, so that a key may be inserted from the outside and made to raise the bolt and hook or stud *a*. Where space permits and it is found desirable so to do, the shaft may be outside of the building, but joined thereto so as to form a single complete structure and to avoid unnecessary duplicating the walls, as in Fig. 4. In such case the shaft may be carried up to form an ornamental tower, adding to instead of detracting from the appearance of the building, as would a detached shaft. It will also be understood that if for any reason it should be necessary or desirable so to do, the shaft may be built back away from the wall of the building, and connected therewith and with the balconies by fire-proof passages, as in Fig. 5, no communication being established with the interior of the building. This may be necessary in some instances to save valuable space at the front or outer side of a building, where rooms are more desirable on account of the better light and ventilation afforded. It is preferred to employ the zigzag form of stairway instead of the common spiral stairway, as there is less danger of fatigue, dizziness, or falling; but any form of stairway may be used. The doors opening into the shaft should be furnished with transoms to admit light, and upon these transoms will be lettered the words "Fire-Escape Stairway," or other matter calculated to direct the occupant of the building. As before stated, windows E may be formed in the front of the shaft by the side of the doors, or omitted, as preferred, or two or more doors may be provided at each landing. These and other details may be varied as desired.

Having thus described my invention, what I claim is—

1. A permanent fire-escape for buildings, consisting of a fire-proof shaft having one wall in common with the building, its exposed walls made of uniform style and material with the building, and provided with inlets in its outer wall, containing a stairway and having no direct communication with the interior of the building, and a balcony (one or more) extending from a window or other opening in the wall of the building to an inlet of the shaft.

2. The combination, substantially as set forth, of a building, a fire-proof shaft having one wall in common with said building, and its exposed walls of corresponding style and material with those of the building, and containing a stairway, a series of inlets into the shaft through its outer wall, said shaft having no direct communication with the interior of the building, and a series of balconies extending from windows or openings in the walls of the building to those of the shaft, substantially as and for the purpose set forth.

3. The combination, substantially as herein set forth, of a building, A, a fire-proof shaft, C, built within the same, and having no direct communication with the interior of said building, a stairway, D, in said shaft, doors F

in the outer wall of the shaft, and balconies L, extending from openings in the walls of the building to the doors F, as shown.

4. In combination with a building and fire-proof shaft therein containing a stairway, outwardly-opening doors H at the bottom of said shaft, and a counterbalanced floor, G, adapted to engage and hold the doors in their closed position when the floor is elevated, substantially as set forth.

5. In combination with doors H, provided with stud *a*, yielding floor G, provided with recess *b*, substantially as and for the purpose explained.

6. In combination with a building, a fire-proof shaft containing means of ascent and descent, built within said building, having no direct communication with the interior thereof, but having outlets through the outer wall of the building, substantially as and for the purpose specified.

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Witnesses:
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CHAS. BORNARTH.