

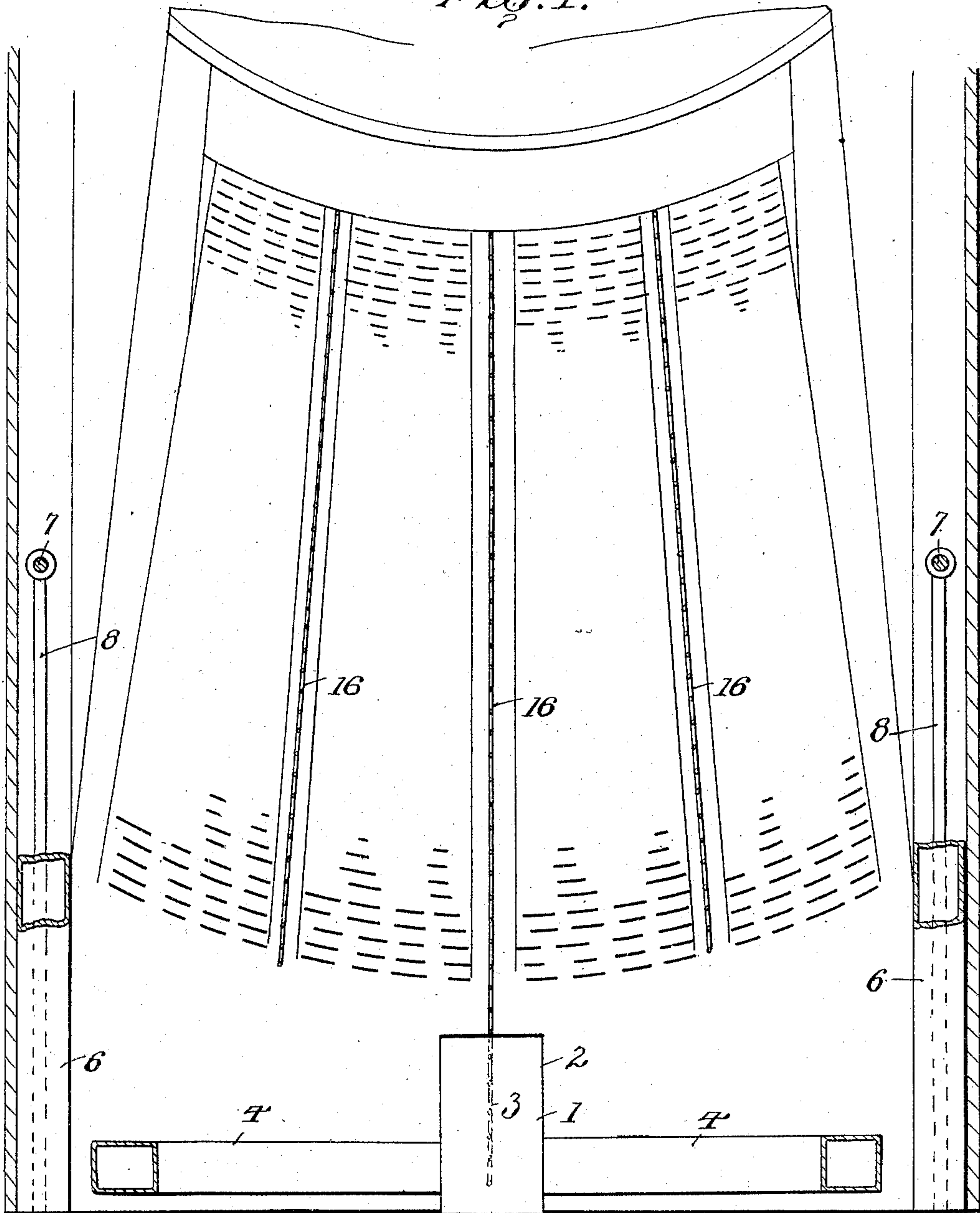
W. O'KEEFE.  
FIRE ESCAPE CONSTRUCTION.  
APPLICATION FILED AUG. 5, 1908.

928,325.

Patented July 20, 1909.

2 SHEETS—SHEET 1.

FIG. 1.



Inventor

Witnesses

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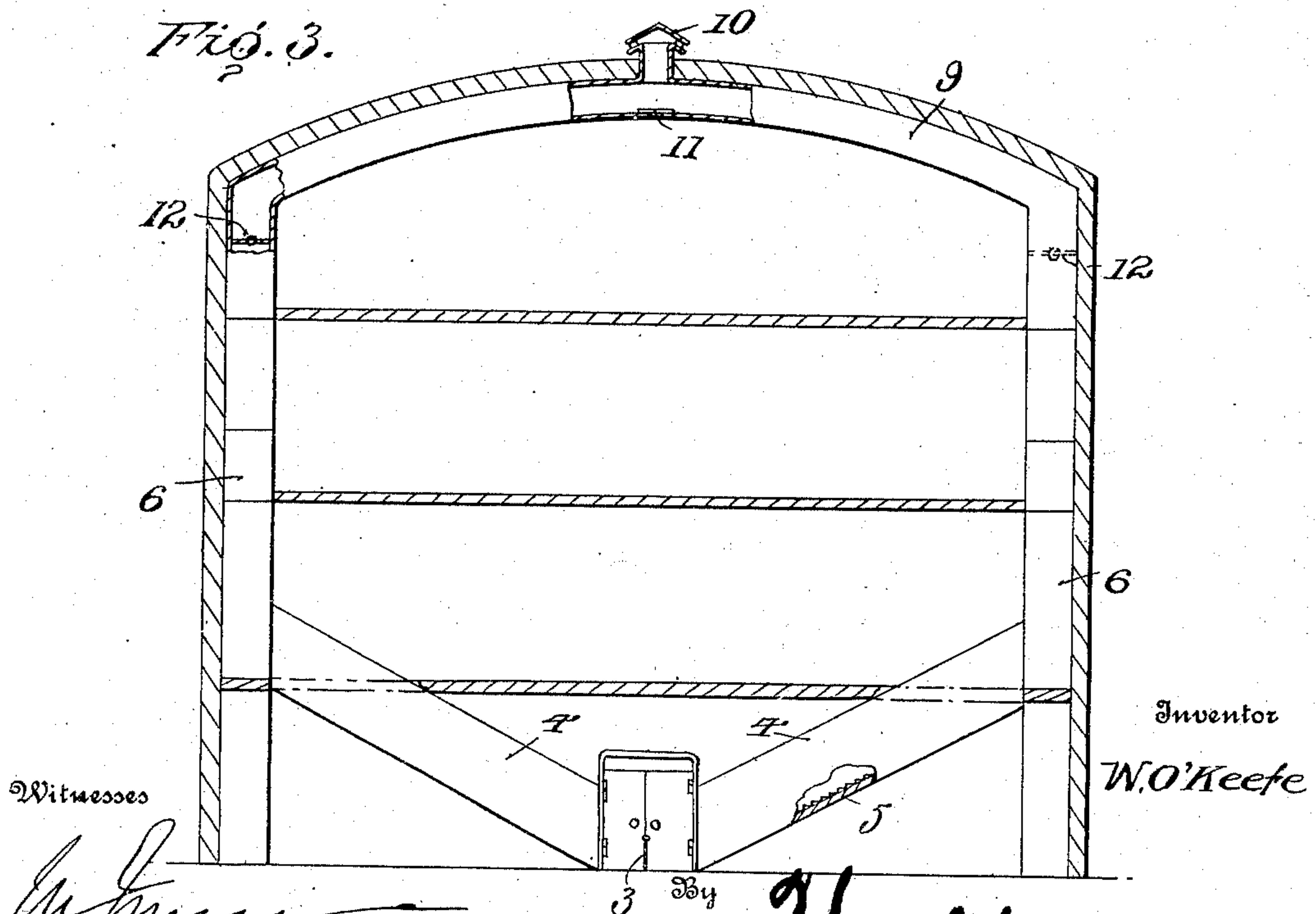
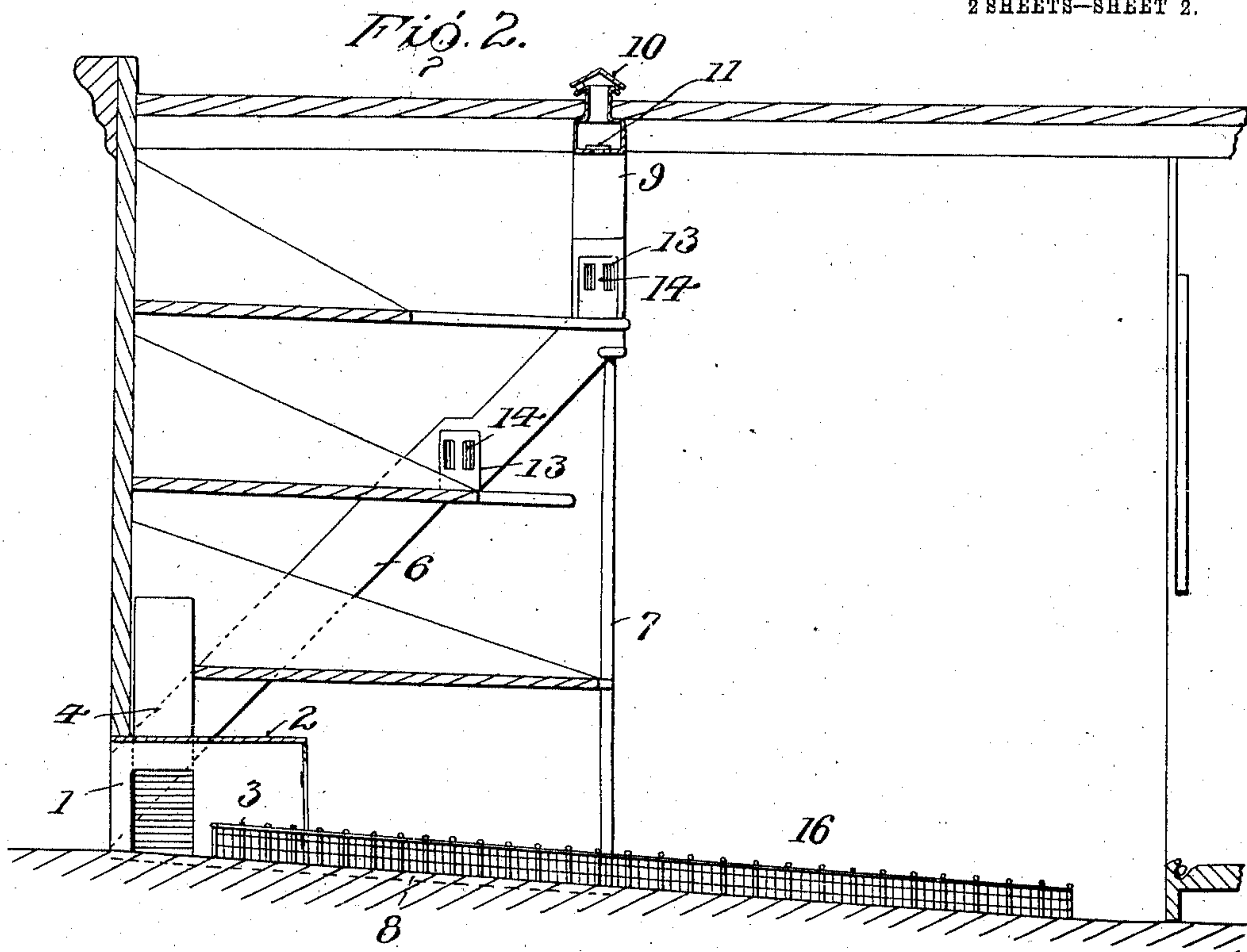
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# UNITED STATES PATENT OFFICE.

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## FIRE-ESCAPE CONSTRUCTION.

No. 928,325.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed August 5, 1908. Serial No. 447,098.

*To all whom it may concern:*

Be it known that I, WILLIAM O'KEEFE, citizen of the United States, residing at Elliston, in the county of Powell and State of Montana, have invented certain new and useful Improvements in Fire-Escape Construction, of which the following is a specification.

The present invention relates to improvements in fire escapes, and the object of the invention is the provision of a device of this character which will enable all of the people within a building to quickly reach a point of safety in case of danger.

The invention further contemplates a novel fire escape construction which can be utilized in connection with all buildings within which the public is accustomed to assemble such as halls, places of amusement, churches, schools and the like, and which will operate in a quick and effective manner to lead all of the people to a place of safety without danger of a panic or jam.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a plan view of the first floor of a theater having the improved fire escape applied thereto. Fig. 2 is a longitudinal sectional view through the theater. Fig. 3 is a front view of the fire escape, portions being shown in section.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the embodiment of the invention shown on the drawings, the numeral 1 designates a tubular passage which is located at the central portion of the front of a building and leads to the first floor the inner end of the passage being provided with the doors 1<sup>a</sup>. This passage 1 is incased in a shell 2 which may be of metal or other material which will not burn and is adapted to resist the action of heat in case of fire. It will also be observed that the passage 1 is subdivided by a longitudinal rail 3 into two sections.

Inclined upwardly toward opposite sides of the building from the tubular passage 1 are the lateral passages 4 which are also

inclosed in a metallic shell or casing and are provided with the steps 5. At their upper ends these lateral passages 4 communicate with the second floor, the passages 1 and 4 serving both as exits and entrances to the first and second floors.

Located upon opposite sides of the building and inclined upwardly and rearwardly are the side passages 6 which lead to the third and fourth floors. The lower ends of the side passages which are inclosed by a metallic casing similar to the previously mentioned passages lead to the street in front of the building while the upper ends are supported by the columns 7, the lower ends of the columns being connected to the lower ends of the passages by the tie members 8. The lateral passages 4 pass over the side passages 6 and are securely connected thereto to provide a rigid structure. It will also be observed that the upper ends of the two side passages 6 are connected by a tubular arch 9 which extends under the roof and may have a truss formation so as to aid in supporting the same. These passages may either be built into the walls of the building or secured to the exterior or interior faces thereof, and are so connected as to reinforce each other and form a frame which will stand even after the building has fallen. The central portion of the arch 9 is formed with a tower 10 which has substantially the capacity of a twenty-five inch pipe and extends through the roof and communicates with the exterior of the building. Immediately under this tower 10 the arch is provided with a trap door 11 which may be either closed or opened to the capacity of a twenty-five inch or a six inch pipe as required. The communication between the tubular side passages 6 and the opposite ends of the arch 10 is controlled by the valves 12 and when these valves are open, the cold air which is drawn through the tubular passages will flow through the tubular arch member and out through the tower 10, the trap door 11 being open to the capacity of a six inch pipe so that as the hot air within the theater rises through the tower a suction will be produced which will tend to draw the cold air through the side passages. However, when the valves 12 are closed and the doors 14 open, the cold air which rises through the tubular passages will enter the interior of the building and leave the same through the



trap door 11 and tower 10, the trap door being open to the capacity of a twenty-five inch pipe.

In the present instance the building to which the fire escape is applied is shown as comprising four floors, the central and lower passage 1 leading to the lower floor while the side passages 6 communicate with the upper floor through the door-ways 13. These door-ways 13 are provided with sliding doors 14, two of the doors being provided for each door opening. Under some conditions it may be found desirable to provide weights for opening the doors and a trip mechanism for releasing the weights so that all of the doors may be simultaneously opened by an attendant in case of fire. At the same time that these doors are closed, the valves 12 are also opened so that the heated air rising through the tower will operate by suction to draw the cold air through the passage-ways 6, the trap door 11 being open to the capacity of a six inch pipe, the lower end of the passage-ways being in communication with the atmosphere upon the exterior of the building.

The invention also contemplates means for preventing too many people from reaching the doors at the same time and also to regulate the number of people entering the passages and for this purpose the aisles are divided by the intermediate rails 16 into two comparatively narrow passages, the rails being only about five feet high so that they will not interfere with the passage of sound or with the view from side to side. Instead of the rails, any kind of a partition such as a wire fence may be used, if desired. The provision of these rails causes the people to pass through each aisle in two narrow columns and in this manner the crowding which is usually incident to such an exit is entirely eliminated. The people within the building can be quickly led into the tubular passages which are incased by heavy metal plates and once within these passages they are practically safe since a current of cool air is continually flowing therethrough and the passages themselves are so constructed as to stand even after the building has fallen. With this construction a place of safety is always in plain view of the people and the knowledge that they can quickly reach such a place of safety will prevent them from becoming excited or panic stricken. On account of the strong current of cold air entering the passages at all doors, the passages will be prevented from becoming overheated and since the passages can neither burn nor fall, an absolutely safe fire escape is provided. It may also be mentioned that with the present construction,

the public practically rehearse a fire drill every time they use the hall, since the fire escape is used as the general entrance and exit.

Having thus described the invention, what is claimed as new is:

1. A fire escape comprising a side passage upon each side of the building, the said side passages being inclosed in a protective shell, means for supporting the side passages independently of the building, and connecting means between the side passages upon opposite sides of the building.

2. A fire escape comprising side passages upon each side of the building, the said passages being inclosed in a protective shell, and an arch connecting the side passages.

3. A fire escape comprising a central passage at the front of the building, side passages at the sides of the building, lateral passages connecting the central passage and the side passages, the various passages being inclosed by a protective shell, and an arch connecting the side passages.

4. A fire escape comprising a central passage at the front of the building, inclined passages at the sides of the building, posts for supporting the upper ends of the inclined passages, lateral passages connecting the central passage to the side passages, the various passages being inclosed in a protective shell and forming a frame which will stand independently of the building.

5. A fire escape comprising side passages located at opposite sides of the building and communicating at their lower ends with the outer atmosphere, a tubular arch member connecting the side passages, valves controlling communication between the tubular arch member and the side passages, a tower leading from the arch to the exterior of the building, and a trap door under the tower.

6. A fire escape comprising a central passage located at the front of the building, inclined side passages at the sides of the building, posts supporting the upper ends of the inclined passages, branch passages from the central passage to the side passages, the various passages being inclosed by a protective shell, and a tubular arch connecting the upper ends of the side passages, valves controlling communication between the tubular arch and the passages, a tower leading from the arch to the exterior of the building, and a trap door for the arch.

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

WILLIAM O'KEEFE. [L. s.]

Witnesses:

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FRANK F. KUEHN.