

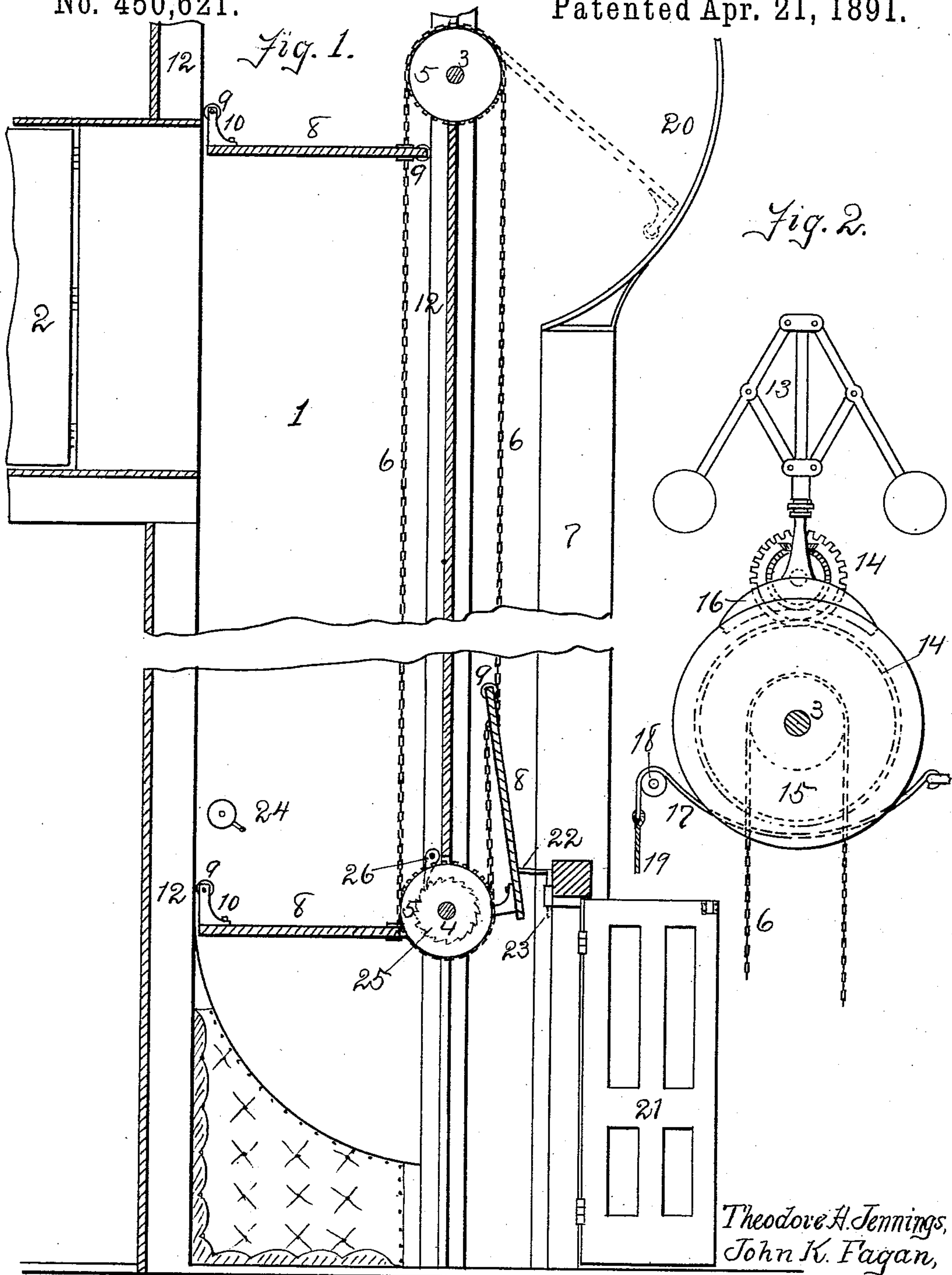
(No Model.)

2 Sheets—Sheet 1.

T. H. JENNINGS & J. K. FAGAN.
FIRE ESCAPE.

No. 450,621.

Patented Apr. 21, 1891.



WITNESSES:

Manly Burns
Levin S. Lee

INVENTORS,

BY *L. H. Kane* ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

T. H. JENNINGS & J. K. FAGAN.
FIRE ESCAPE.

No. 450,621.

Patented Apr. 21, 1891.

Fig. 3.

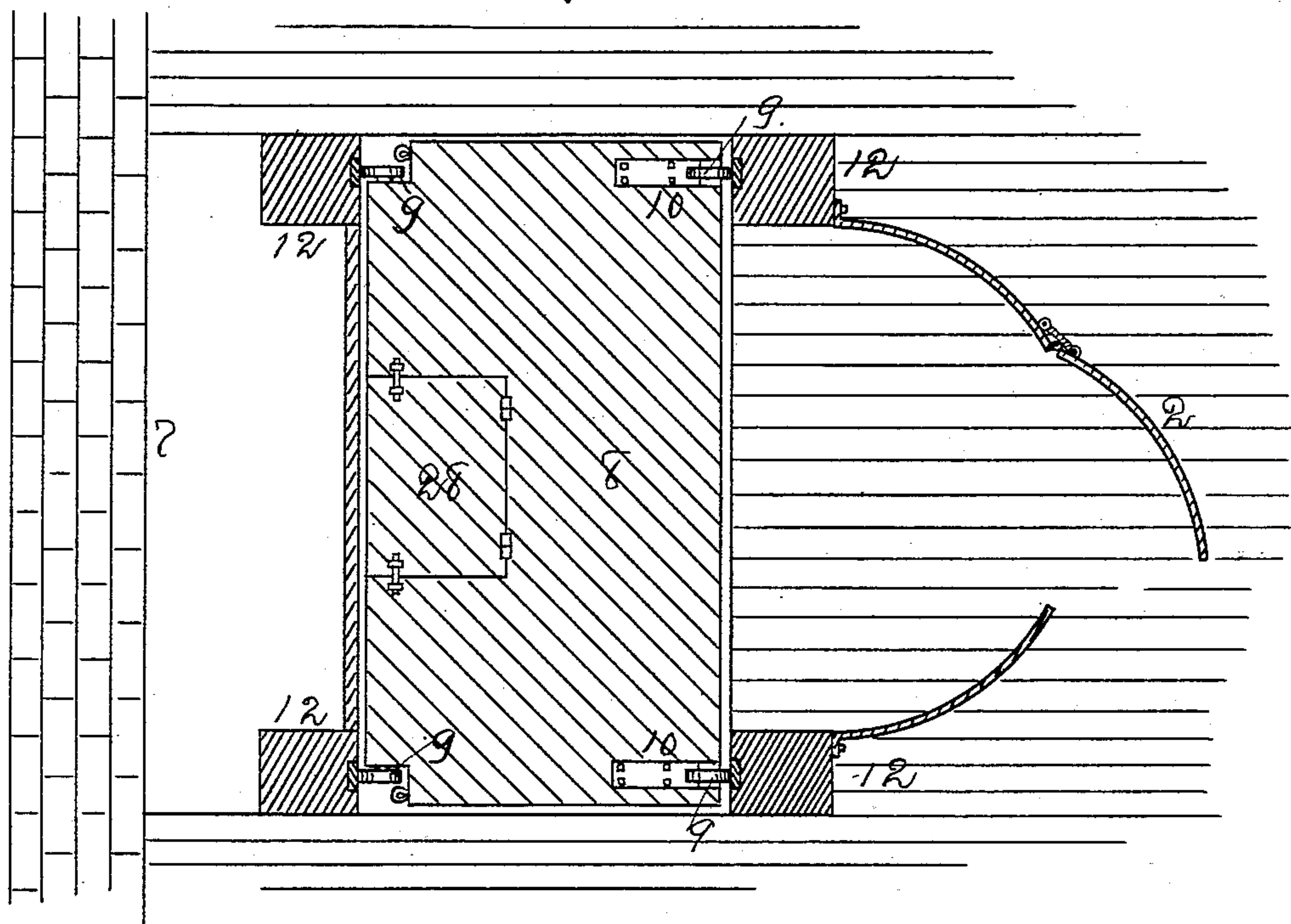
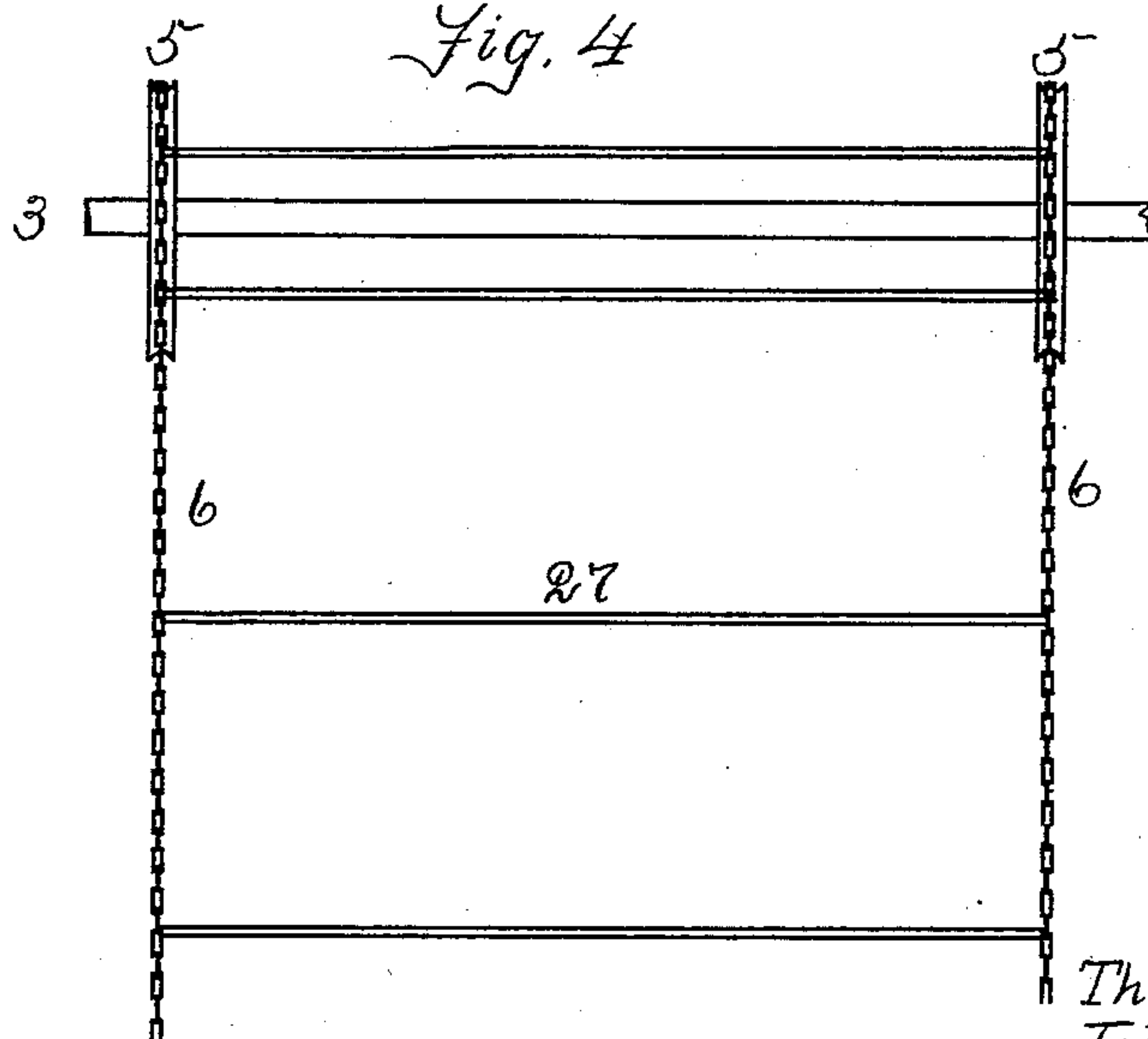


Fig. 4.



Theodore H. Jennings.
John K. Fagan.
INVENTORS.

WITNESSES:

Manly B. Curry
Cornelius S. Lee

BY

Thurman

ATTORNEY.

UNITED STATES PATENT OFFICE.

THEODORE H. JENNINGS AND JOHN K. FAGAN, OF ST. PAUL, MINNESOTA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 450,621, dated April 21, 1891.

Application filed August 18, 1890. Serial No. 362,357. (No model.)

To all whom it may concern:

Be it known that we, THEODORE H. JENNINGS and JOHN K. FAGAN, citizens of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Fire-Escapes; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved form of fire-escape; and it consists, generally, in a fire-proof well or shaft located at any convenient point within the walls of the building and capable of being inclosed therefrom by means of closets or ante-rooms, one for each floor, within which well is a series of platforms suspended by means of endless chains passing over sprocket-wheels at the top and bottom of the well and adapted to be actuated to descend therein by the weight upon the platforms, while the empty platforms are carried in the opposite direction in a space between the well and the wall of the building. At the bottom of the well are doors opening outwardly, through which passengers may escape. Automatic governing mechanism is connected with one of the shafts, upon which the sprocket-wheels are situated for controlling the speed at which the platforms descend, and a brake having an operating-cord within reach of a person about to board a platform or already upon the same serves to allow of the stopping of the same at any desired point.

The invention also consists in other features of detail, which will be hereinafter more fully set forth.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical sectional view of the upper and lower portions of our improved fire-escape; Fig. 2, an end view of the governing and brake mechanism; Fig. 3, a horizontal cross-sectional view of the well, showing a plan view of one platform and the entrance thereto; and Fig. 4, an elevation of

the rear of the escape, showing the ladder formed by means of rods extending from one chain to the other.

The object of the invention is to provide a means of escape from a burning building which may be equally as efficient in saving women and children or other persons rendered practically helpless by reason of physical infirmity or fear as in the case of those possessed of full bodily strength and presence of mind. To this end the apparatus is made entirely automatic, and at the ground the passengers are discharged into the outer air, even if entirely unconscious by reason of smoke or other causes, without danger of injury.

Against one wall of a building, preferably at the end of a hall and entirely within the building, is erected a fire-proof shaft or well 1, communicating with each floor except the ground-floor by means of a fire-proof door 2. This door 2, however, preferably opens from the building into a small ante-room which is open to the shaft 1, thus affording a safe standing-place in which to await the escape.

At the top and bottom of the well and in the rear of the same opposite the doors are located horizontal shafts 3 4, provided at each end with sprocket-wheels 5 5. Over the corresponding sprocket-wheels of the two shafts pass endless chains 6 6, the shafts being so located that the chains upon one side of the wheels hang within the well and upon the other side within a space between the rear wall of the well and the wall of the building 7. To the chains are secured at their rear edges a series of platforms 8 8 as many as may be required, but generally at a distance apart equal at least to about twice the distance between two floors of the building. These platforms are of a size to fit loosely within the well, and at the rear corners are provided with anti-friction rollers or pulleys 9 9 and at the front corners with upwardly-extending arms 10 10, also carrying each a similar pulley or roller. The several pulleys or rollers bear against suitable tracks or ways formed by or secured to the upright posts 12, forming the frame-work of the well. The object of the upwardly-extending arms 10 10 is to maintain the platform in a horizontal position by preventing the front part of the same

from falling at a greater degree of speed than is allowed by the chains by which the rear is supported.

The working of the apparatus is caused by the weight of the person or persons stepping upon one or more of the platforms, thus throwing a greater weight upon the part of the chains in front of the sprocket-wheels. The platforms are thus caused to descend by the action of gravity. For the purpose, however, of controlling the speed of the descent, which would naturally tend to accelerate, the shaft carrying the upper sprocket-wheels is connected with a governor 13 by means of suitable multiplying gearing 14, and the said shaft also carries a brake-wheel 15, against which is adapted to be pressed a shoe 16, operated by the governor. The principal embodied in this portion of the apparatus is in common use and does not require more specific description, since it will be readily understood that the brake will be applied to the wheel with a pressure proportionate to the speed of revolution of the governor. The speed of the descending platforms is thus automatically regulated without regard to the weight upon the same.

For the purpose of affording a means for stopping the descent of the platforms a strap 17 is fixed to some permanent means of support, passing over a pulley 18 and connected with a cord 19, hanging within reach of a person within any one of the closets or upon the platform. By pulling the cord the strap is drawn against the under side of the brake-wheel, retarding the movement of the same sufficiently to render boarding of the platforms perfectly safe.

The shaft carrying the lower sprocket-wheels is located at some distance above the bottom of the well, sufficient to allow the several platforms to swing around underneath the same as the portion of the chains to which the platform is attached passes under the circumference of the wheel. At this point the tracks or guides before mentioned are curved, the axis of the shaft representing the center of curvature, so that the platform slides easily around. When the platform has passed the wheel, its weight causes it to assume a nearly-vertical position, in which position it is carried to the top of the shaft by the ascending side of the chain in a passage provided for that purpose. When the ascending platform reaches the upper wheel, it is thrown over the same and back into its former position upon the tracks ready to descend again.

A space 20 is provided in the rear of the well at the top to afford room for the turning of the platform. The various positions of the platforms are clearly shown in Fig. 1.

At the bottom of the well the space cleared by the descending platform as its rear edge begins to travel around the sprocket-wheels is heavily padded upon the front and sides in order that passengers may slide from the platform and land without fear of injury.

From this space they may pass through the outwardly-opening door 21 before the next descending platform has time to reach them. The lower sprocket-shaft is ordinarily located at a sufficient height from the ground to allow the platform to pass over any person who may have fallen and been unable to get through the door before the next platform descends.

The doors at the bottom of the well are adapted to be automatically opened upon the first movement of the apparatus by means of an arm or lever 22 in connection with a catch or bolt 23, which arm is struck by the first platform moving upwardly in the space between the well and the wall. The striking of the lever draws the bolt or releases the catch and by means of springs upon the doors they are at once thrown open.

A gong 24 may be placed near the bottom of the well, which is automatically sounded by the descending platform to warn passengers that they are nearly to the point at which the platform begins to turn around the lower sprocket-wheels.

The sprocket-wheels are prevented from moving in a direction opposite to that described by means of a ratchet-wheel 25 on the lower shaft, which is engaged by a pawl 26 on the frame-work. The pawl rides over the teeth of the ratchet when moving in the direction described, but engages with the teeth to prevent movement in the opposite direction.

The escape is also adapted to serve as a ladder by means of rods 27, extending across from one chain to another, the chains thus forming the side rails and the rods the rungs of the ladder.

A passage is afforded through the platforms by means of a trap-door 28 therein, which may be opened upwardly.

This invention is particularly designed to afford means of escape for that class of persons for whom fire-escapes as commonly constructed are of no use—that is, women and children and persons who are physically unable to climb down a ladder, or by reason of fright or other causes are unable to manage an apparatus requiring physical or mental exertion. It is always ready for use and is only operated by the weight of the person or persons boarding the platforms.

We claim as our invention—

1. In a fire-escape, the combination of horizontal shafts located at top and bottom of the wall of a building, sprocket-wheels upon each of said shafts, chains connecting corresponding pairs of sprocket-wheels, platforms secured at intervals to said chains, anti-friction rollers mounted upon the front and rear edges of said platforms, and vertical guides in position to act as ways for said rollers, substantially as and for the purpose herein specified.

2. In a fire-escape, the combination, with a well or shaft formed outside the walls of a

building and accessible only from the interior of the building, of an endless belt passing around sprocket-wheels at top and bottom of said shaft, platforms hinged to said belt
5 at the rear edge, arms extending upwardly from the front edge of said platform, anti-friction rollers carried by said arms and adapted to bear against the front wall of the well or upon guides therein, and a governor controlling the movement of said upper shaft,

substantially as and for the purpose herein specified.

In testimony whereof we affix our signatures in presence of two witnesses.

THEODORE H. JENNINGS.
JOHN K. FAGAN.

Witnesses:

OTTO KNIFFIN,
F. W. LANE.