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Patented June 26, 1900.

H. KARBERG.

SAFETY GUARD FOR ELEVATOR SHAFTS.

(Application filed Nov. 29, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

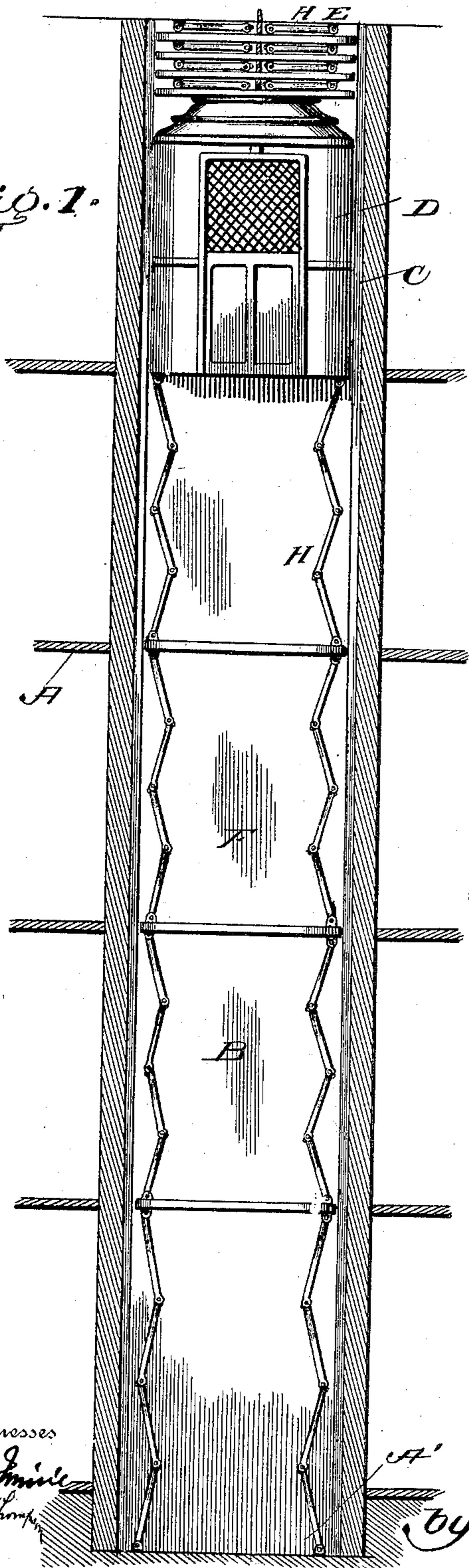


Fig. 5.

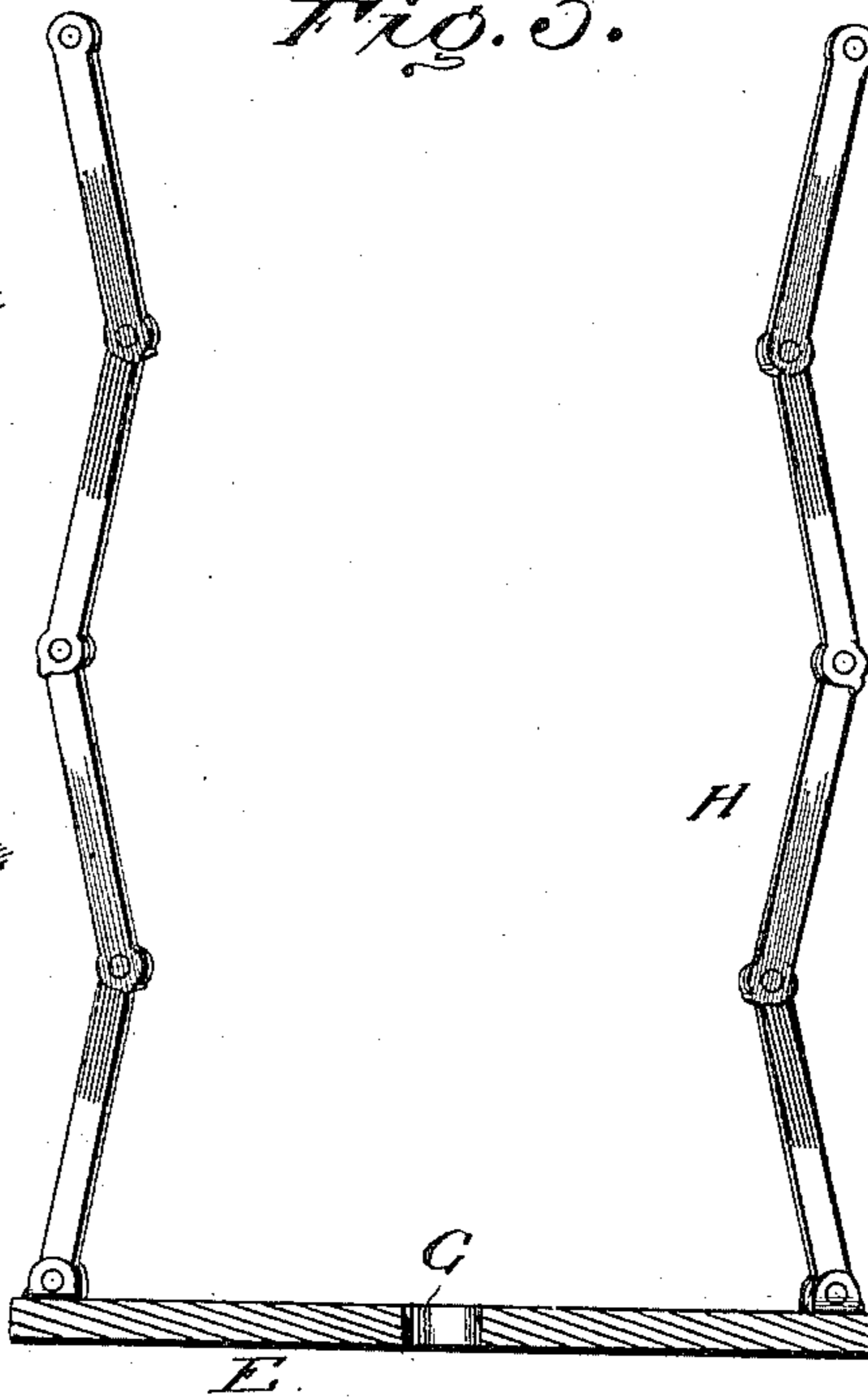
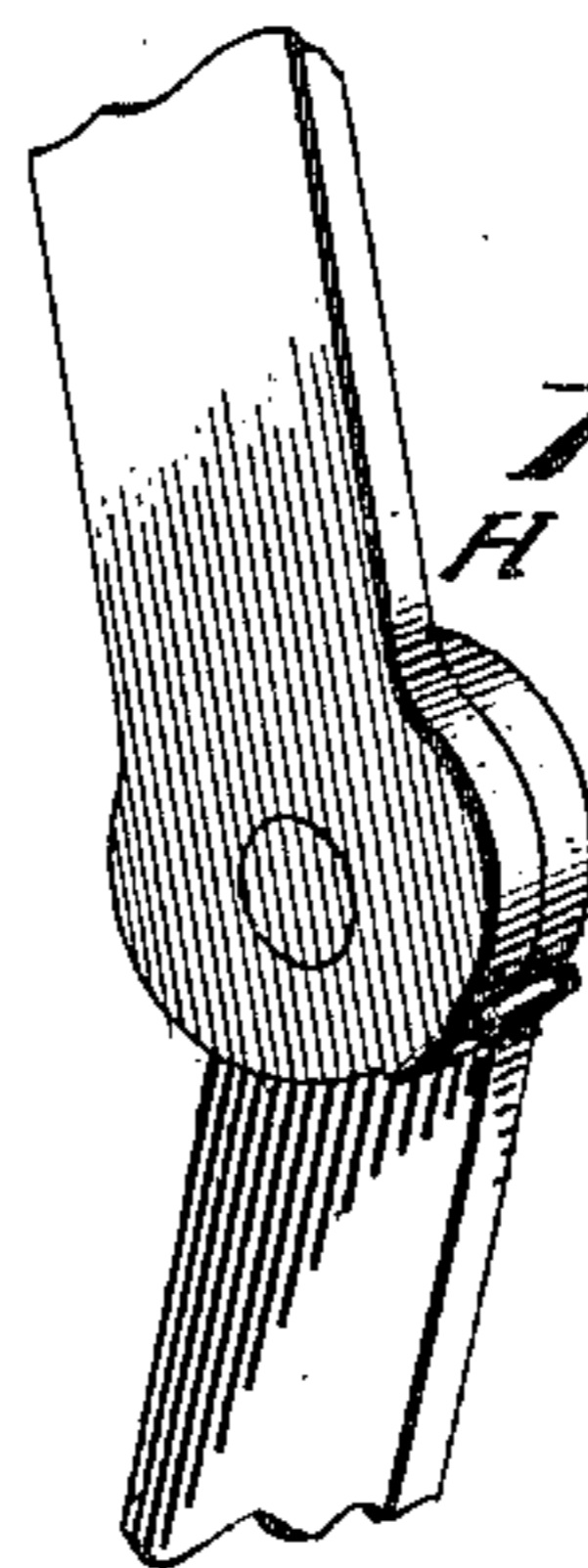


Fig. 6.



Witnesses

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SAFETY-GUARD FOR ELEVATOR-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 652,515, dated June 26, 1900.

Application filed November 29, 1899. Serial No. 738,662. (No model.)

To all whom it may concern:

Be it known that I, HERMANN KARBERG, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Safety-Guards for Elevator-Shafts; and I do hereby 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.

My invention relates to improvements in automatic safety-guards for use in elevator-shafts or hatchways to cut off draft and obviate the spreading of flames and also prevent persons walking through open doors from falling through the hatchway. The invention has particular reference to apparatus of this character in which a series of guard-hatches or platforms are arranged above and below the elevator-car and are automatically operated upon the ascent and descent of the latter to close the shaft at each floor or landing.

The object of the invention is to provide a safety guard apparatus which is simple of construction, efficient in operation, and capable of being applied to existing elevator structures without materially changing or altering the walls of the elevator-shaft and wherein the parts are connected in such a manner as to obviate all liability of binding or casual stoppage of the platforms and adapt the same to move easily and fold in close compass.

With this and other minor objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical section of an elevator-shaft embodying my invention, showing the car at the limit of its upward movement. Fig. 2 is a similar view showing the car at the limit of its downward movement. Fig. 3 is a plan view of one of the platforms, showing the jointed connections collapsed or folded down. Fig. 4 is a cross-section thereof. Fig. 5 is a view similar to Fig. 4, showing the jointed connections extended. Fig. 6 is a detail view of the connecting ends of two rods, showing the stop-hinge connection thereof.

A in the drawings designates the floors or

landings of a building; B, the elevator-shaft or hatchway; C, the guides therein, and D the elevator car or carriage traversing said guides.

The safety-guards are composed of a number of hatches or platforms which are arranged in the shaft in two sets or series, one series E being located above and the other series F below the car. The platforms of each series are alike in number and connections and are sufficient in number to close the shaft at each floor of the building except that occupied by the car. The bottom platform of the upper series is attached directly to the top of the car, and the top platform of the lower series is suspended from the bottom of the car through the medium of its jointed connections hereinafter described, and the platforms of each series are yieldingly connected to each other and to the top and bottom walls of the shaft, so as to rise and fall with the car, and are so spaced that when the car stops before the door of any floor the platforms rest opposite all the other floors of the building, as shown in Figs. 1 and 2. In the ascent of the car the platforms of the upper series are taken up and folded on top of the car, and in its descent the platforms of the lower series are folded or piled in the bottom of the shaft, a cell or chamber A' being provided at the bottom of said shaft to receive the piled platforms.

The platforms themselves may be of any suitable material and construction. As shown in the drawings, each platform preferably consists of a rectangular frame or plate of sheet-iron or aluminium and of a size sufficient to nearly fill the cross-area of the shaft and to rest lightly against the guides. An opening G is formed in the center of each platform of the upper series when a center controlling or hoisting cable is used. The platforms of each series are yieldingly connected to each other and to the ceiling or top wall and floor or bottom wall of the shaft through the medium of jointed connections H. These connections are preferably in the form of jointed rods or bars composed of two or more sections connected by stop-hinges of the construction shown in Fig. 6, whereby they are adapted to move freely in one direction to fold when the platforms are forced together, but are prevented from fully straight-

ening out and caused to take an angular relation or staggered position when the platforms are separated to the fullest extent, so that a slight forcing pressure will effect a
 5 folding movement of said sections and binding will be prevented. As shown in the drawings, the top platform of the upper series of platforms and bottom platform of the lower series of platforms are connected to the top and
 10 bottom walls of the shaft and the other platforms of each of said series to each other by four such rods, pivoted adjacent to the corners of the platforms and each composed of four jointed sections. The end sections of
 15 the rods are pivoted to fold inwardly, and the intermediate sections thereof are hinged thereto to fold outwardly and between said end sections, similarly to the sections of a pair of lazy-tongs. By this means the rods are
 20 adapted to fold inwardly and radially toward the centers of the collapsing platforms, so as to allow the latter to come closely together, and the platforms are rigidly centered and retained against lateral movement. By reference to Figs. 1 and 2 of the drawings it will
 25 be seen that the jointed rods fold snugly to allow the platforms to approach closely and that the sections thereof are prevented from straightening fully out, but are caused to assume an angular relation or staggered disposition by their hinge-joints, so that an easy and effective folding and unfolding action is insured. Another advantage incident to this
 30 construction is that there are no parts to become displaced and dangle over the platforms to cause them to bind or otherwise impede

their operation. The object of securing the bottom platform of the upper series directly to the elevator-car is to secure a steady and equal pushing action on the jointed connections as the car ascends. 40

In the operation of the invention it will be seen that as the car ascends or descends a platform will be positioned at each floor and held in such position so long as the car remains at rest. Thus the shaft will always be closed against draft, and the spreading of fire through the shaft thereby prevented, while all liability of persons walking into and falling down the hatchway will be effectually obviated. 50

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

1. In an elevator, the combination with an elevator-car, of two series of vertically-moving platforms, one arranged above and the other below the car, and jointed connections uniting the corners of the platforms and folding inwardly and radially toward the centers thereof. 55

2. In an elevator, the combination with an elevator-car, of vertically-moving platforms arranged above and below the car, and sectional jointed rods foldable inwardly between and uniting said platforms. 60

In testimony whereof I affix my signature in presence of two witnesses. 65

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Witnesses:

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