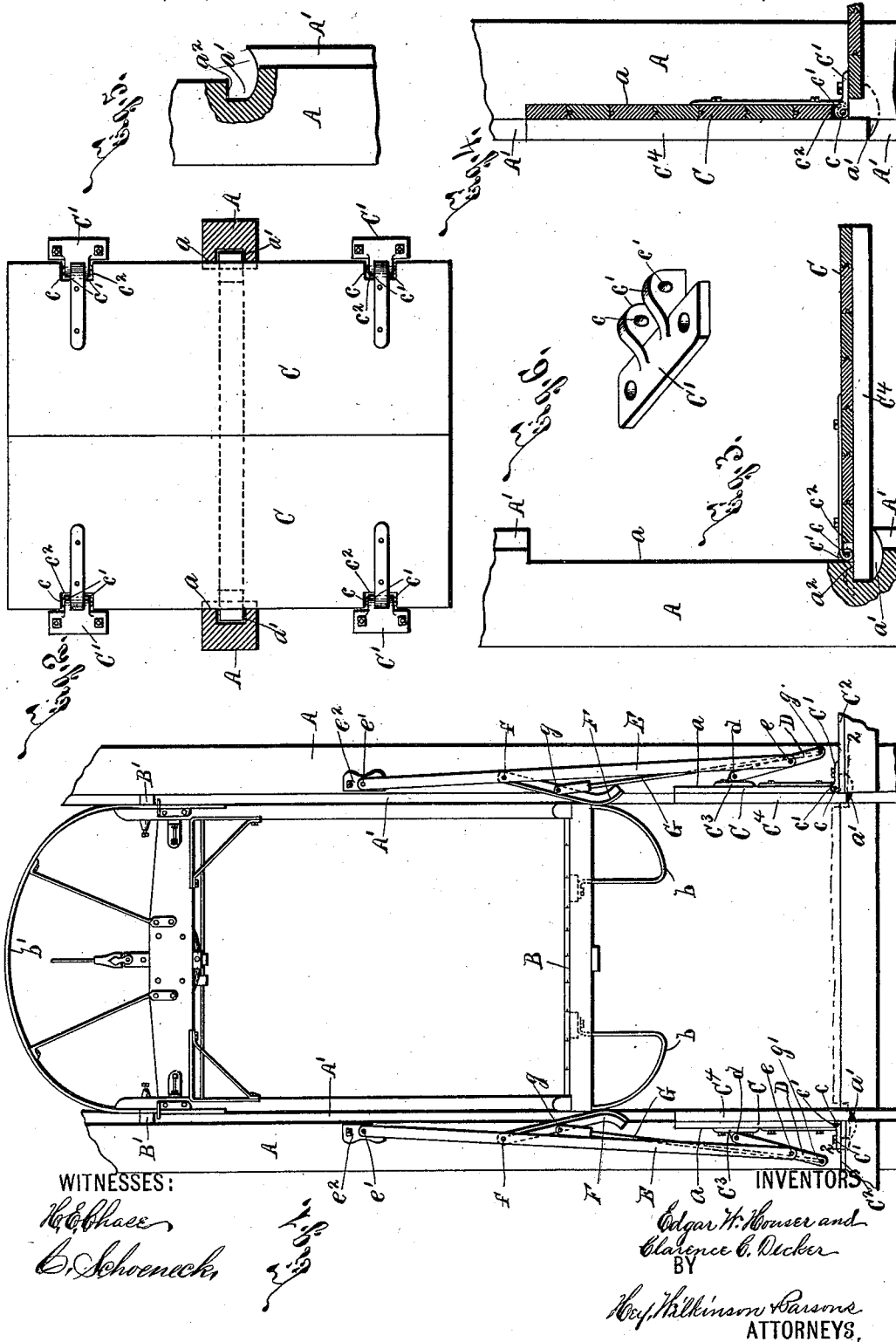


(No Model.)

E. W. HOUSER & C. C. DECKER.
ELEVATOR.

No. 530,776.

Patented Dec. 11, 1894.



WITNESSES:

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ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 530,776, dated December 11, 1894.

Application filed January 13, 1894. Serial No. 496,775. (No model.)

To all whom it may concern:

Be it known that we, EDGAR W. HOUSER and CLARENCE C. DECKER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Elevators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to improvements in elevators of the particular class set forth in our prior patent, No. 515,225, dated February 20, 1894, and has for its object the production of a simple, practical, and effective device, in which the car is guided with great efficiency and with a minimum amount of jar when passing the shaft doors or guards, and said doors or guards are opened and closed practically and effectively, and operate to effectually shut off the draft through the shaft and to reduce to a minimum all liability of the spreading of a fire through the shaft; and to this end it consists, essentially, in an elevator car, a support or guide for the car having a guide rib on one face thereof and provided with a recess extending inwardly from the outer face of the rib and with a second recess in said rib and face arranged above the former recess, a hinged shaft door or guard arranged in proximity to the support or guide and movable into and out of the latter recess and provided with a guide rib on its normal lower face having its normal outer extremity extended beyond the pivot for the door and movable in the former recess.

The invention furthermore consists in the general construction and arrangement of the parts, all as hereinafter more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an elevation of our invention illustrating an elevator car, portions of the supports or guides for the car, two shaft doors, and the mechanism for raising and lowering the shaft doors. Fig. 2 is a transverse vertical sectional view, taken on line 2—2, Fig. 1, the shaft doors being illustrated as in their normal or depressed position. Fig. 3 is an elevation of a portion of a support or guide

for the elevator car, and a shaft door hinged thereto and shown in its normal or depressed position. Fig. 4 is an elevation of a portion of the support or guide opposite to that illustrated at Fig. 3 and the corresponding shaft door shown in its elevated position. Fig. 5 is an elevation, partly in section, of a detached portion of a support or guide for the elevator car, and Fig. 6 is an isometric view of one of the attaching plates to which the shaft doors are hinged.

In our aforesaid application we have shown an elevator shaft having a door or guard provided on its normal lower face with a guide rib adapted to be moved into and out of alignment with a corresponding rib upon the adjacent support or guide for the elevator car and formed of less length than the width of said door. The shaft door is formed with a slot or aperture in the central portion of its outer edge aligned with the ribs of the door and the car support or guide, and the adjacent portion of the rib upon the car support or guide projects upwardly above said shaft door through the slot or aperture therein when the shaft door is in its normal closed position in order that the projecting portion of said rib may extend comparatively close to the adjacent end of the rib on the door when said door is elevated to permit the passage of the car. Moreover, the pivots for the shaft door, shown in said application, are arranged above the normal plane of the door, and consequently the normal outer edge thereof is elevated as the door assumes its upright position, and the projecting portion of the rib on the support or guide is of considerable length in order that its upper face may extend comparatively close to the adjacent end of the rib on the door when in its upright position.

In the practical operation of doors or guards of this character we have observed that a greater or less space necessarily intervenes between the adjacent edges of the guide ribs upon the car support or guide and the door, and the elevator car does not move as evenly and with as little vibration as would otherwise be possible. Moreover, owing to the apertures in the shaft doors or guards for the ribs on the car supports or guides, the draft through the shaft is not entirely shut off by said doors, and, as said supports or guides

project above the doors and are more or less coated with grease a flame follows along said ribs above the doors, and consequently there is more or less liability of the spread of fire through the shaft. We have also observed that small particles, dust, &c., pass downwardly through the slots or apertures in the inner edges of the doors to the underlying portions of the ribs of the car supports or guides, and frequently cause great annoyance and inconvenience, and material wear and binding of the parts.

Our present invention is designed to obviate to a maximum degree the vibration of the car in its passage along its guides to effectually shut off the draft through the shaft and obviate spreading of fire through the shaft, absolutely prevent the elevation of the normal outer edges of the doors as said doors assume their upright positions, and to obviate the annoyance, inconvenience, wear and binding heretofore resultant from the dropping of small particles, dust, &c., through slots or apertures in the outer edges of the shaft doors upon the underlying portions of the ribs of the car supports or guides.

A represents the elevator car supports or guides, only a portion of which are here illustrated, and B the car having separated rounding faces b b at its lower end and a single rounding face b' at its upper end. The elevator shaft doors or guards C are arranged in proximity to the supports or guides A, and are hinged at c to ears c' of attaching plates C' mounted upon the floor C^2 .

As clearly seen at Figs. 1, 2, 3, and 4 the ears c' extend into cut-outs or apertures c^2 in the opposite ends of the outer sides of the doors or guards C, and the pivots c for the doors are arranged within the normal outer edges and between the opposite sides of said doors or guards. Consequently, as the doors or guards assume their upright positions, their normal outer edges are not elevated, and the doors swing upwardly as easily and practically and with as little movement of their pivoted sides as though shafts were passed through their normal outer sides in proximity to their corresponding edges.

The adjacent faces of the supports or guides A are provided with guide ribs A' , which are engaged by guide arms B' upon the car B, and serve to guide the car in its movement. Portions of said guide ribs A' and of the inner faces of the supports or guides A in proximity to the floor C are cut away for forming upright recesses a of sufficient height and depth to receive the doors C when in their upright positions, and thereby permit ribs C^4 upon the normal lower faces of the doors or guards C to register with the ribs A' . At the base of said upright recesses a are recesses a' extending inwardly from the inner faces of the supports or guides A a greater distance than the depth of the recesses a , and, as clearly seen at Figs. 1, 3, 4, and 5, the lower faces of the recesses a' are formed concave,

and the upper faces thereof are provided with stop shoulders a^2 . The pivots c for the doors C C, as seen at Figs. 1, 3, and 4 are arranged midway between vertical planes drawn from the opposite ends of the lower faces of the recesses a' , and the ends of the ribs C^4 adjacent to said pivots are extended beyond the same, and form shoulders on the doors or guards which are movable in the recesses a' into and out of alignment with the portions of the ribs A' directly beneath the floor C^2 and into and out of engagement with the stop shoulders a^2 . This construction and arrangement of recessed supports or guides provided with guide ribs on their adjacent faces and hinged doors movable into and out of said recesses and provided on their normal lower faces with guide ribs movable into and out of alignment with the guide ribs of the supports or guides is particularly practical and simple, and, owing to the minimum amount of space intervening between the projecting ends of the ribs C^4 and the adjacent portions of the ribs A' the car is guided with great firmness and rigidity, entirely obviates the necessity for slots or apertures in the shaft doors aligned with the ribs of the supports or guides, and prevents spreading of a fire through the shaft.

D D are levers having corresponding ends hinged at d to the doors C, or to plates C^3 suitably secured thereto, and E E are links having their lower ends hinged at e to intermediate portions of the levers D D and their upper ends hinged at e' to the supports or guides A, or to brackets e^2 thereon.

F F are actuating levers having their outer ends hinged at f to intermediate portions of the links E E and their opposite ends arranged normally in the path of the car, and G G are links having their upper ends hinged at g to intermediate portions of the actuating levers F and their opposite ends hinged at g' to the free extremities of the door levers G.

As the elevator car ascends, the curved face b' engages the under faces of the ribs C^4 , and elevates said doors as indicated at Fig. 1, and, as the lower end of the car passes beyond the actuating levers G, the free ends of said levers ride along the curved faces b at the lower end of the car, and the doors are gradually depressed. As the car descends the curved faces b engage the free ends of the actuating levers G, and rock said levers backwardly, thereby opening the doors, and, as the lower end of the car passes beyond the upper ends of said doors, they gradually close or swing downwardly.

The operation of our invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be particularly noted that the same is simple in construction, is practical and effective in use, guides the car with great firmness and rigidity, and reduces to a minimum all liability of the spreading of a fire through the shaft, and that the doors are firmly supported at their central portions by the en-

gagement of the normal outer ends of their guide ribs with the supports or guides for the car, are so pivoted that their outer edges are not elevated as the doors swing upwardly, and
 5 are unprovided with cut-outs or slots in their outer edges for permitting downward passage of small particles, dust, &c., to the underlying portions of the ribs on the car supports or guides.

10 Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an elevator, the combination with a car; of a support or guide for the car provided with an inwardly extending recess in its face and a second recess arranged above the former recess and formed of less depth than said former recess, a hinged shaft door or guard arranged in proximity to the support or guide and movable into and out of the second recess, said door or guard being provided with a shoulder extending beyond its pivot and movable in the former recess and beyond the plane of the inner wall of the second recess, substantially as described.

2. In an elevator, the combination with a car; of a support or guide for the car provided with an inwardly extending recess in its face having a stop shoulder, and a hinged shaft door or guard arranged in proximity to the support or guide and having a shoulder extending beyond its pivot and movable in the recess into and out of engagement with said stop shoulder, substantially as and for the purpose described.

3. In an elevator, the combination with a car; of a support or guide for the car having a guide rib on one face thereof and provided with an inwardly extending recess in said face and with a second recess in said face arranged above the former recess, and a hinged shaft door or guard arranged in proximity to the support or guide and movable into and out of the second recess, said door or guard being provided with a guide rib on its normal lower face having one extremity thereof extended beyond the pivot of the door and movable in the former recess into and out of alignment with the adjacent portion of the guide rib of the support or guide, substantially as and for the purpose specified.

4. In an elevator, the combination with a car; of a support or guide for the car having a guide rib on one face thereof and provided with an inwardly extending recess in said face having a concave lower face, and a second recess in said face arranged above the former recess, and a hinged shaft door or guard arranged in proximity to the support or guide and movable into and out of the latter recess, said door or guard having its pivot interposed between vertical planes extending from the opposite extremities of the concave lower face of the former recess, and being provided with a guide rib on its normal lower

face having one extremity extended beyond said pivot and movable in the former recess into and out of alignment with the adjacent portion of the guide rib of the support or guide, substantially as and for the purpose 70 described.

5. In an elevator, the combination with a car; of a support or guide for the car having a guide rib on one face thereof and provided with an inwardly extending recess in said face having a stop shoulder, and with a second recess arranged above the former recess, and a hinged shaft door or guard arranged in proximity to the support or guide and movable into and out of the latter recess, said door or guard being provided with a guide rib on its normal lower face having one extremity extended beyond the pivot for the door and movable in the former recess into and out of engagement with said stop shoulder and into and out of alignment with the adjacent portion of the guide rib of the support or guide, substantially as and for the purpose set forth.

6. In an elevator, the combination with a car; of a support or guide for the car provided with an inwardly extending recess in its face and a second recess arranged above the former recess and formed of less depth than said former recess, a shaft door or guard arranged in proximity to the support or guide and movable into and out of the second recess, a pivot for the shaft door or guard arranged within the normal outer edge of the shaft door or guard and substantially midway between the opposite sides thereof, a shoulder provided upon said door and extending beyond its pivot and movable in the former recess and beyond the plane of the inner wall of the second recess, and mechanism, substantially as described, for rocking said door or guard on its pivot, substantially as specified.

7. In an elevator, the combination with a car, a floor, a shaft door or guard having cut-outs or apertures in the opposite ends of its normal outer edge, attaching plates secured to the floor and provided with ears arranged within said cut-outs or apertures, pivots secured to said door and ears and arranged within the outer edge and between the opposite sides of the door or guard, and mechanism, substantially as described, for rocking said door or guard on its pivot, substantially as and for the purpose described.

In testimony whereof we have hereunto signed our names, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 23d day of December, 1893.

EDGAR W. HOUSER.
CLARENCE C. DECKER.

Witnesses:

CLARK H. NORTON,
K. H. THEOBALD.