

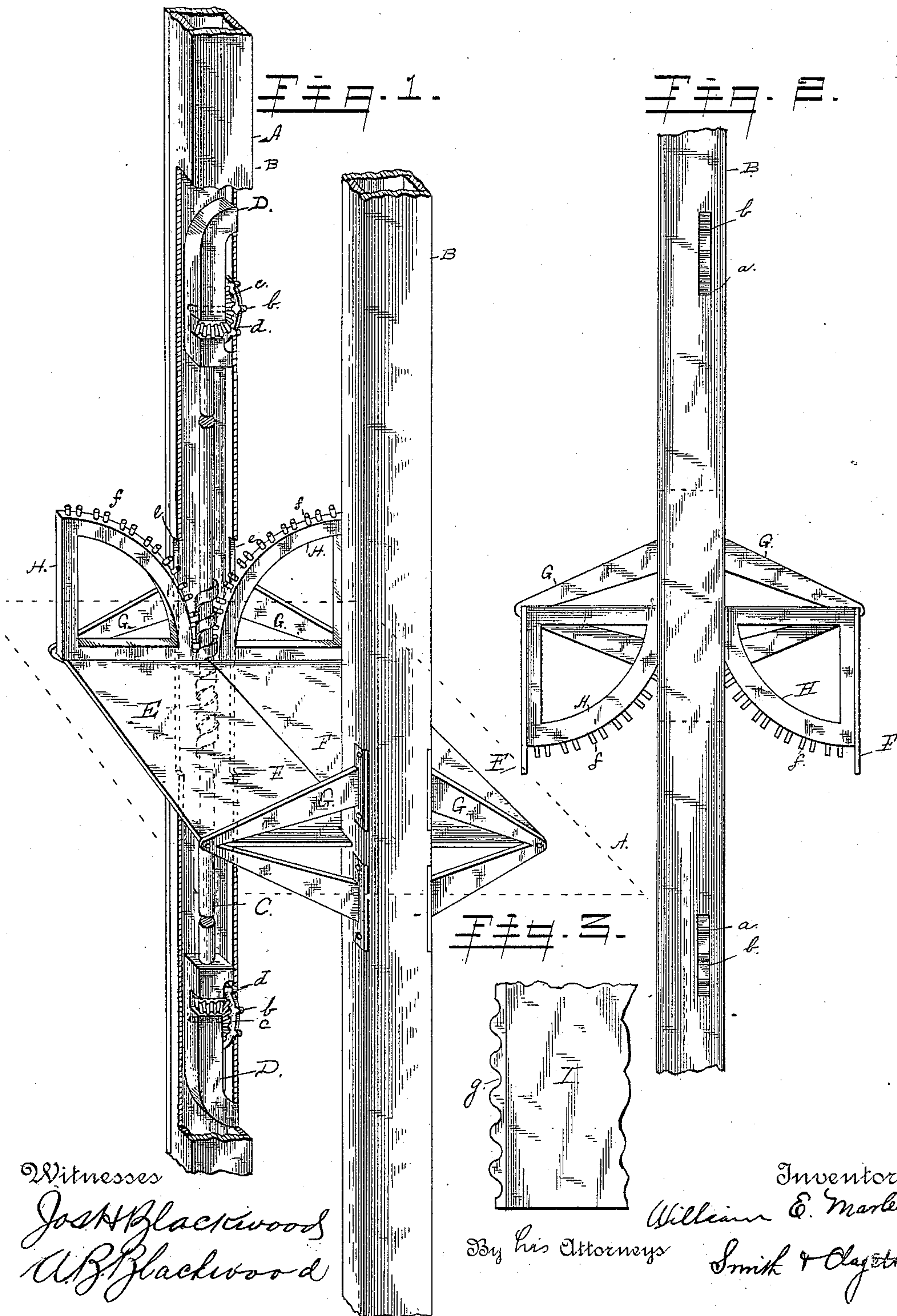
(No Model.)

W. E. MARLETT.

DEVICE FOR OPERATING THE DOORS TO ELEVATOR SHAFTS.

No. 433,901.

Patented Aug. 5, 1890.



UNITED STATES PATENT OFFICE.

WILLIAM E. MARLETT, OF LA SALLE, ILLINOIS, ASSIGNOR OF TWO-THIRDS
TO PHILIP R. DE STEIGER, AUGUST F. DE STEIGER, JOSEPH L. DE STEIGER,
AND EDWARD A. DE STEIGER, ALL OF SAME PLACE.

DEVICE FOR OPERATING THE DOORS TO ELEVATOR-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 433,901, dated August 5, 1890.

Application filed November 19, 1889. Serial No. 330,852. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. MARLETT, a citizen of the United States, residing at La Salle, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Doors for Elevator-Shafts; and I 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.

My invention relates to certain new and useful improvements in doors for elevator-shafts or hatchways.

The nature of the invention will be understood from the following description, when taken in connection with the accompanying drawings, in which—

Figure 1 is a view in perspective of the operative parts of my invention, the outlines of one floor being shown; Fig. 2, a view in elevation, the doors in this view being shown open; and Fig. 3, a view in detail of a rack secured to the cage or coach.

In the drawings, A represents one floor of a building, and B B boxes or casings situated upon opposite sides of an elevator-shaft or hatchway, such boxes or casings extending, preferably, from the bottom to the top of the shaft. At points equidistant from one floor of the building, above and below the same, one casing B is provided with slots *a*, through each of which the teeth of a cog *b* protrude, such cogs being suitably mounted upon short shafts having bearings in the casing. One face of each cog *b* is formed into a pinion *c*, each of which meshes with a beveled pinion *d*, pinions *d* being mounted upon a vertical shaft C, one at the upper and the other at the lower end thereof. Shaft C has bearing at each end in a box D, as clearly shown, and at a point at or about its center is formed with a screw E, such screw extending a suitable distance both above and below the floor-line. The casing B is provided with two slots *e*, formed through the diametrically-opposite faces of such casing, these slots being formed directly opposite that portion of the shaft which is formed into screw E.

F F represent the two doors, which are preferably cut away, as shown, on their inner edges to form a close joint with the casings B. The size of these two doors, when considered together, is such that they will extend entirely over the shaft or hatchway, thus entirely closing the same. These doors are pivoted at each end in brackets G, secured to the casings B, and one end of each door is provided with a quadrant-shaped frame H, each of which carries on its arc-shaped face a series of teeth or cogs *f*, the parts being so arranged that the arc-shaped faces of the frames H and the teeth *f* mounted thereon will pass into the interior of the casing, the teeth engaging the screw and adapted to be operated thereby.

I, Fig. 3, represents the cage or coach, which is provided on the outer face of two of its sides with a rack *g*, preferably of the form shown, such racks being arranged to engage and operate the cogs *b*.

The operation is as follows: The cage or coach being at the bottom of the shaft, the normal position of the doors at each landing will be such that they will be closed, the doors occupying the horizontal position shown in Fig. 1 of the drawings, thus completely covering the shaft at each landing. The cage being started on its upward course at a suitable time before its top reaches the line of the floor, the rack upon one side will engage the cog situated beneath the floor and cause the revolution thereof. In this way motion is imparted to the pinions described, and through them to the shaft and the screw formed therewith. The revolution of the screw will serve, through the medium of the cogs or teeth named, to revolve the quadrant-shaped frames to which the doors are secured, the doors being thus caused to move in the arc of a circle until they occupy the vertical position shown in Fig. 3 of the drawings. As they reach that position, the top of the cage passes them and the first landing is reached. The continued ascent of the cage will bring the same rack into mesh with the cog on the upper end of the shaft C, and through the medium of a line of gearing similar to that

described and operating in the same manner
close the doors, this second cog being so situ-
ated with respect to the line of the floor as
to cause the complete closing of the doors im-
5 mediately after the lower end of the cage has
ascended above the line of the floor. This
operation is repeated at each landing, the
operative mechanism being arranged, alter-
nately, upon opposite sides of the shaft. The
10 lowering of the cage will cause the same ma-
nipulation of the doors.

What I claim is—

In a device for opening and closing doors

of elevator-shafts, the combination of a shaft
C, provided with pinions *d* and screw E, the 15
combined pinion and cog *c b*, the pinion *c* en-
gaging the pinion *d*, a cage provided with
rack *g*, and the doors F, provided with seg-
mental frames H, carrying cogs *f*, as set forth.

In testimony whereof I affix my signature 20
in presence of two witnesses.

WILLIAM E. MARLETT.

Witnesses:

V. J. DUNCAN,

THEODORE K. HOLMES.