

J. R. NORMAN.
SAFETY ELEVATOR.

APPLICATION FILED APR. 12, 1907.

Patented Oct. 13, 1908.

900,878.

2 SHEETS—SHEET 1.

Fig. 1.

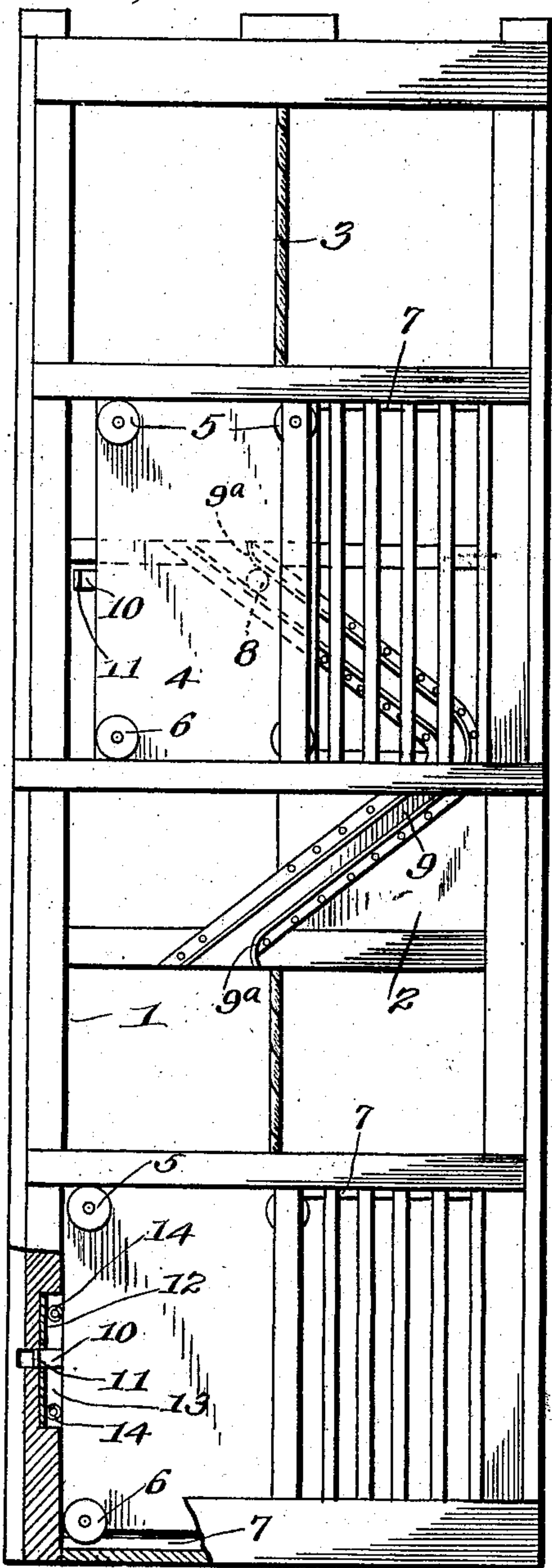
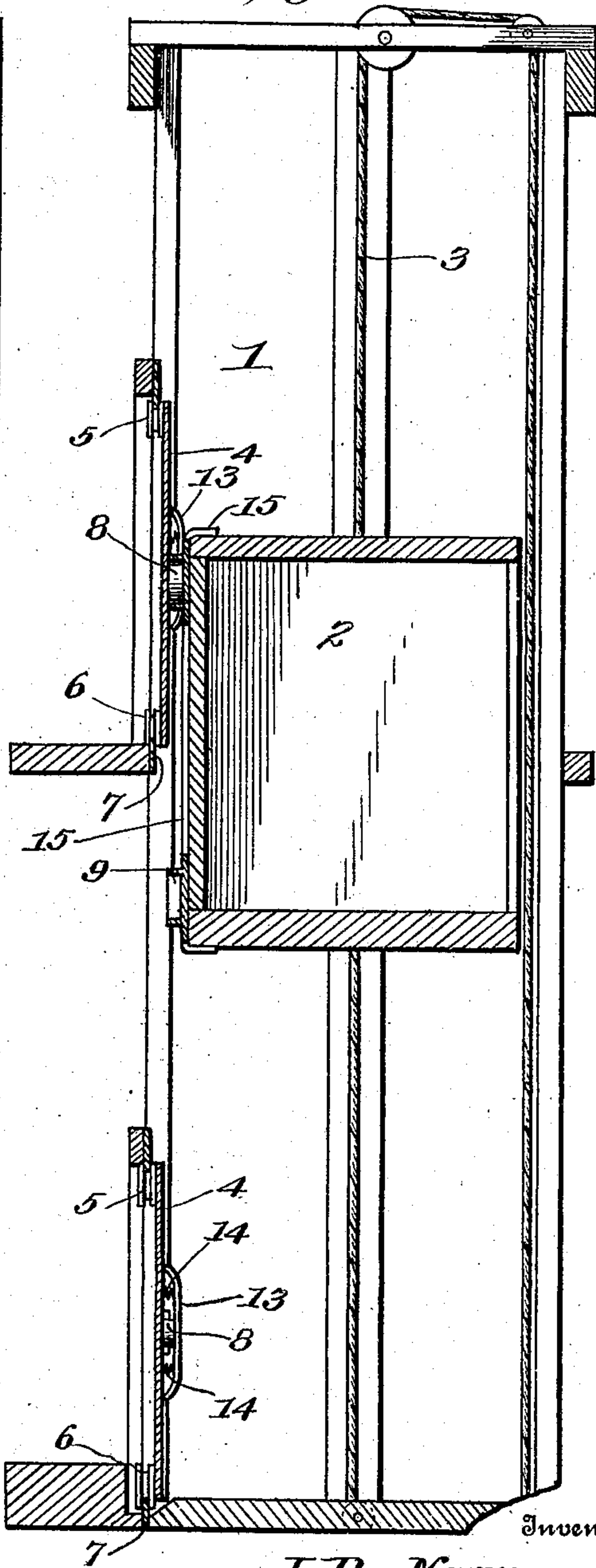


Fig. 2.



Inventor

J. R. Norman

Witnesses

W. R. Norman
W. R. Norman

By

R. A. R. R. R.

Attorneys

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2 SHEETS—SHEET 2.

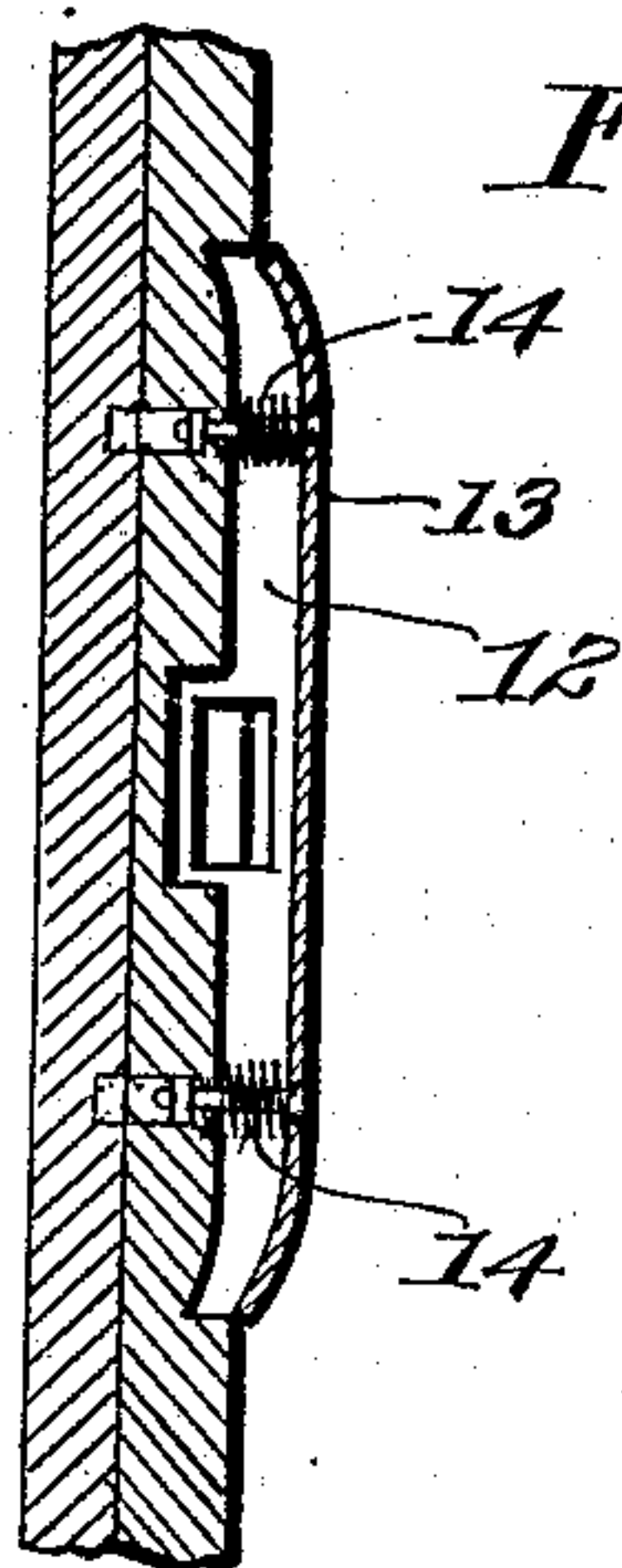


Fig. 3.

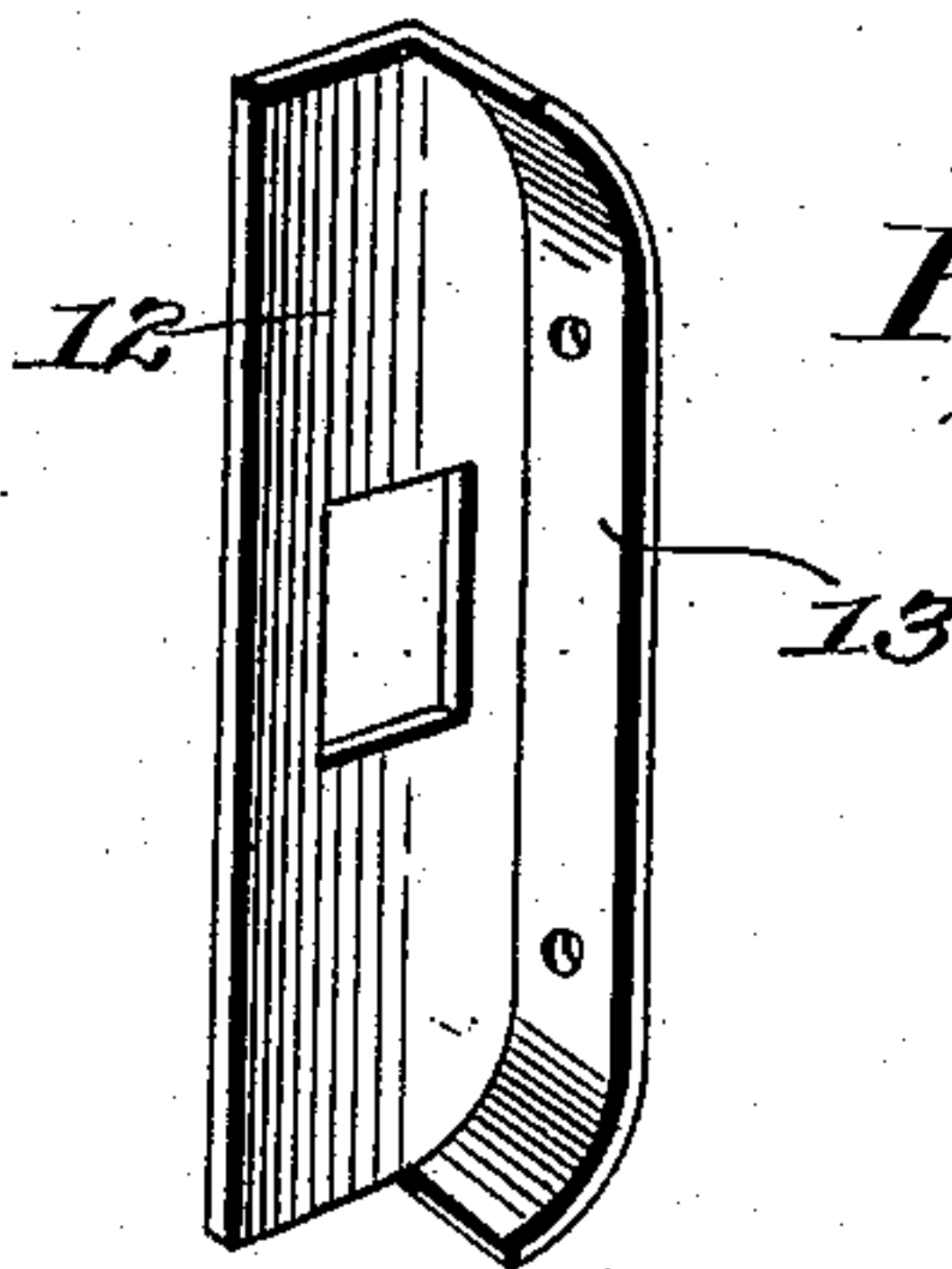


Fig. 4.

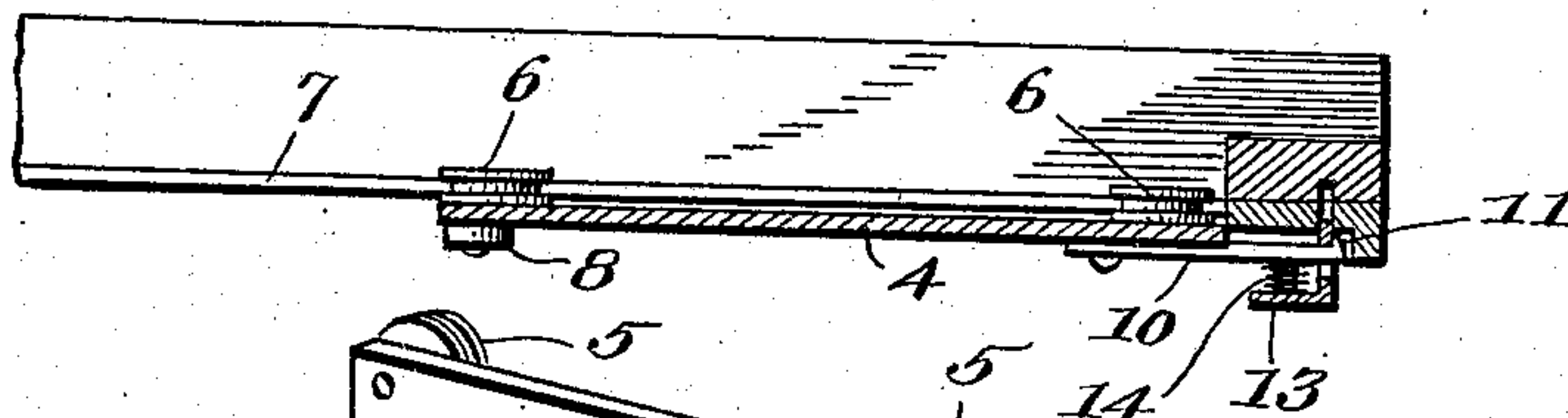


Fig. 5.

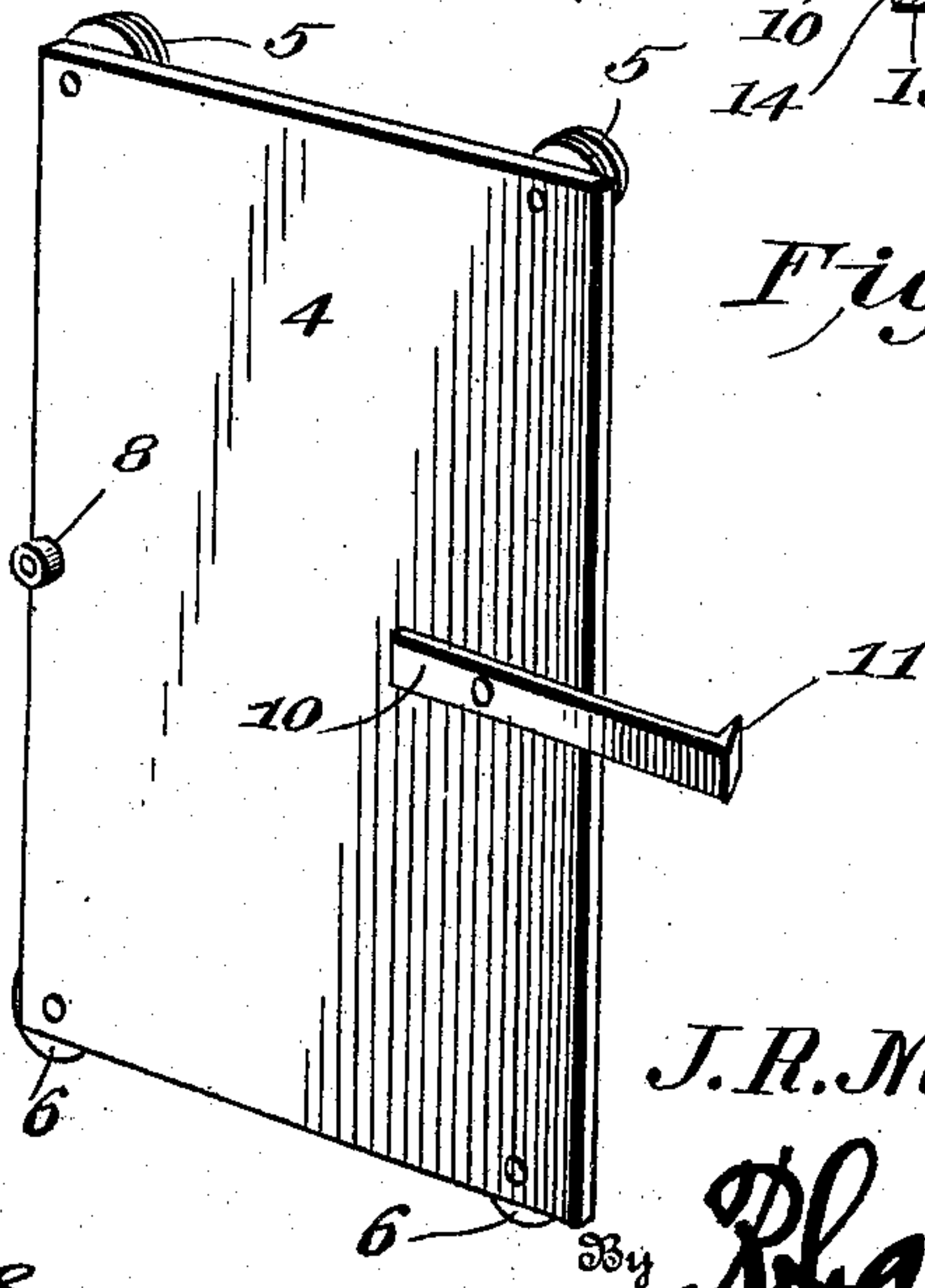


Fig. 6.

Witnesses

W. J. Moore
W. J. Woodson

Inventor

J. R. Norman

Ph. A. H. H. H. H.

Attorneys

UNITED STATES PATENT OFFICE.

JOHN R. NORMAN, OF BYINGTON, TENNESSEE, ASSIGNOR OF ONE-FOURTH TO M. E. EMMERSON AND ONE-FOURTH TO J. F. POGUE, OF BYINGTON, TENNESSEE.

SAFETY-ELEVATOR.

No. 900,878.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed April 12, 1907. Serial No. 367,775.

To all whom it may concern:

Be it known that I, JOHN R. NORMAN, citizen of the United States, residing at Byington, in the county of Knox and State of Tennessee, have invented certain new and useful Improvements in Safety-Elevators, of which the following is a specification.

This invention contemplates certain new and useful improvements in safety elevators, and the invention has for its object an improved construction of automatic door locking and unlocking means which will be entirely out of the control of the conductor of the car, and which will be simple and durable in construction and efficient in operation, and so arranged that the doors at the respective floors will be held locked in closed position except when the car is at the door, in which event the door will be automatically unlocked.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts which I shall hereinafter describe and then point out the novel features in the appended claim.

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

Figure 1 is a front elevation of an elevator shaft illustrating the improvements of my invention; Fig. 2 is a vertical sectional view thereof; Fig. 3 is a detail sectional view illustrating the latch plate for the latch of the door on an enlarged scale; Fig. 4 is a detail perspective view of the latch plate detached; Fig. 5 is a horizontal sectional view through the door illustrating it in locked position; and, Fig. 6 is a detail perspective view of the door.

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.

Referring to the drawings, the numeral 1 designates an elevator shaft of any desired construction and design, except as hereinafter noted, and 2 designates the elevator car or cage which is adapted to move up and

down in the shaft and which may be raised and lowered by the operating means, either mechanical or electrical, the cable 3 being shown arranged for this purpose, in the present instance, merely for the purpose of illustrating an operative structure, as my invention does not reside in any specific form of hoisting mechanism.

4 designates the doors that are adapted to open and close the passage ways into the car from the shaft at the respective floors. These doors may be provided with upper and lower wheels 5 and 6 mounted to run upon rails 7 or may be mounted to slide in any desired manner away from or over the opening in the elevator shaft through which the passengers are adapted to pass to and from the car. Each door 4 is provided on its inner face, preferably midway of its height, with a roller 8. The car itself is provided on its front with a curved guide 9 which, in the present instance consists of a plate secured in any desired manner, preferably removably to the front of the car, and which may extend from the top to the bottom of the car and include two main portions disposed substantially angularly with respect to each other and inclined to the vertical, as clearly illustrated in the drawings. The entrance ends of the curved guide 9 at the top and bottom of the car are flared or widened as designated at 9^a and are so positioned as to engage with the roller 8 as the car is moved past a door. It will thus be seen that as soon as one or the other of these widened ends engages the roller 8 of the door, the continued movement of the car will cause the roller to ride in the cam groove formed by the curved guide 9 to move away from the door opening in the elevator shaft and then again over the said opening. The arrangement of the parts is such that the door will be fully opened when the car is at the floor.

My invention comprises automatic means for latching and unlatching the shaft doors, such means being entirely out of the control of the conductor of the car, as well as passengers at the outside of the shaft. In order to accomplish this purpose, I have shown, in the present instance, a spring latch 10 connected to one edge of each door and provided with a beveled end 11 adapted to spring into an opening in the keeper 12 which is incased in one of the guide rails or sills of the eleva-

tor shaft and which is provided with a later-
ally projecting release plate 13 engaged by
springs 14 so as to normally hold the keeper
in position where the spring latch 10 will au-
5 tomatically engage therewith when the door
is moved to the closed position. The car 2
at one side is formed with a wear strip 15
which is adapted to contact with the release
plate 13 as the car passes a floor and push
10 said plate inwardly so as to remove the
keeper out of engagement with the bevel
hooked end 11 of the latch 10 and permit the
cams or curved guides 9 to effect the opening
and closing of the door as has been before de-
15 scribed. It is preferred that the guide 9 be
so arranged that should the door of the shaft
for any reason be partly opened at the time
the car is passing a floor, the outermost rail
of the two that form the guide will engage
20 the roller 8 and merely open the door, the
roller passing beyond the rail at its outermost
point, and the door being thus left open with-
out any injury or strain of the parts.

From the foregoing description in connec-
25 tion with the accompanying drawings, it will
be seen that I have provided an effective
safety device for elevators, which will insure
the automatic locking of the door and the au-

tomatic unlocking thereof by the movement
of the elevator car in the shaft. 30

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

The combination with an elevator shaft
and a car mounted to move in said shaft, the
car being provided with an opening for pas- 35
sengers and the like to enter and leave the
car, of a door mounted to move across and
away from said opening, a latch secured to
and projecting forwardly from one edge of
the door, a plate 12 incased in one of the sills 40
of the shaft and formed with an opening to
receive the projecting end of the latch, said
plate being provided with a laterally project-
ing release plate 13, springs bearing upon
said release plate, above and below the open- 45
ing in the plate 12, and a wear strip secured
to one side of the car and adapted to contact
with the release plate, whereby to push said
plate inwardly and release the keeper from
the latch. 50

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

JOHN R. NORMAN. [L. S.]

Witnesses:

Mrs. CYRUS SIMMONS,
EVA BIRD.