

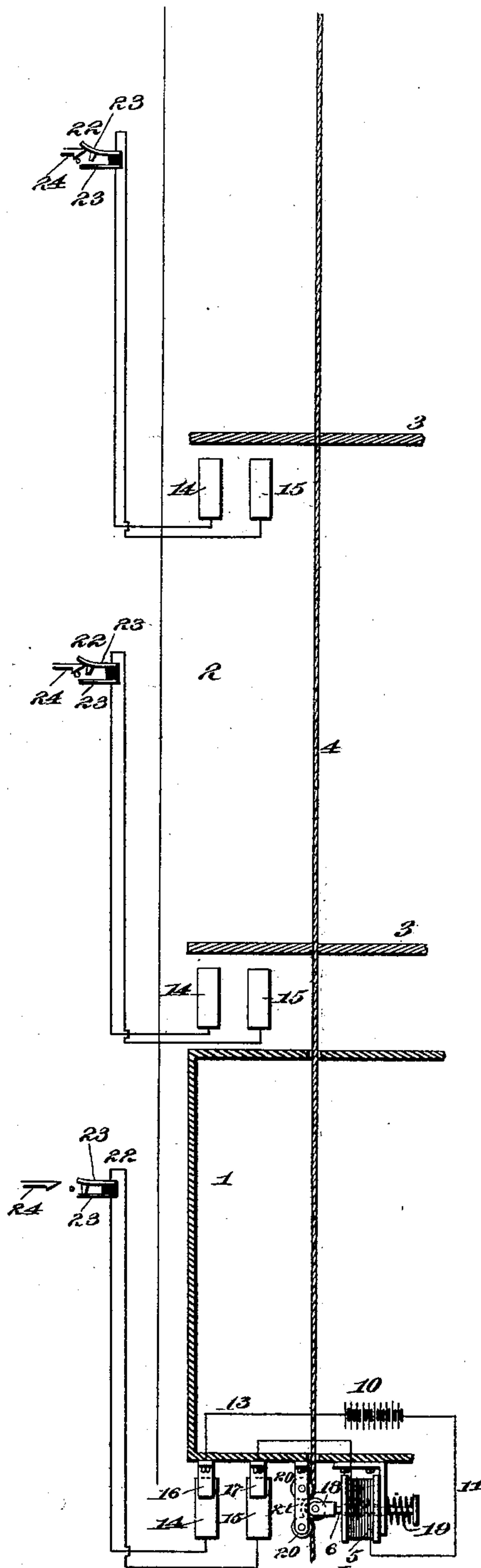
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Patented July 22, 1902.

S. D. STROHM.
SAFETY DEVICE FOR ELEVATORS.

(Application filed Apr. 4, 1896.)

(No Model.)



Witnesses

J. F. Coleman.
Keara L. Dyer

Inventor
Samuel D. Strohm.

by R. A. Morrison

Att'y.

UNITED STATES PATENT OFFICE.

SAMUEL D. STROHM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
STROHM ELEVATOR SAFETY DEVICE COMPANY, OF PHILADELPHIA,
PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 705,480, dated July 22, 1902.

Application filed April 4, 1896. Serial No. 586,214. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. STROHM, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Elevators, (Case D;) and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to various new and useful improvements in safety devices for elevators, designed particularly for use as passenger-elevators, the invention being adapted for ready application to any elevators controlled by an actuating-rope or by equivalent devices.

The object of the invention is to provide an attachment to elevators whereby absolute safety of operation will be assured.

By means of the invention where an elevator-car has been stopped at any one of the landings of a building it will be impossible to start the same until the landing-door has been closed and a door at any landing is opened, the elevator-car being in operation, its movement will be arrested when it reaches said landing.

To effect these ends, the invention consists in the combinations of elements hereinafter described and claimed.

The general principles of my invention are capable of being carried out in a multitude of ways; but in order that the same may be understood I illustrate in the accompanying drawing one convenient form of arrangement which may be carried out economically and which in action will be absolutely positive and certain.

The figure shows a diagrammatic view of a different form of locking device for the valve-rope or other controlling element and illustrating the application of the invention in a separate electric circuit at each of the floors.

Corresponding parts are represented by the same figures of reference.

I secure at the side of the elevator shaft or well 2 two contact-plates 14 and 15, with which

two brushes 16 and 17, carried on the elevator-car, are adapted to make contact as the elevator moves up or down. The solenoid or magnet 5, which is shown carried beneath the elevator-car, is provided with a core 6, carrying the roller 18 at its free end. 19 is a coiled spring on said core, tending to normally retract the same. Opposing the roller 18 are two rollers 20 20, carried in a suitable supporting-frame 21 on the bottom of the elevator. The valve-rope 4 works between said rollers 18 and 20, as shown. The source of current-supply is shown as a battery 10, carried upon the elevator-car; but it will of course be understood that current may be supplied to the apparatus in any suitable way. The solenoid or magnet 5 is included in a partial circuit extending between the brushes 16 and 17, which circuit is adapted to be completed when said brushes are upon the contact-plates 14 and 15 if the circuit on the other side of said contact-plates is closed, due to the fact that the landing-door at the said landing is opened. At each landing, therefore, I provide a circuit-breaker 22, composed of two plates 23 23 and adapted to normally make contact, said plates being forced apart, so as to break contact at that point by the latch 24 on the landing-door. Said contact-plates 23 23 are in circuit with the plates 14 and 15.

It will be observed that when the landing-door is closed, so that the latch 24 operates the contacts 23 23, no current can pass through the solenoid or magnet 5, so that the roller 18 will be held withdrawn from the operating-rope 4. If, however, the elevator-car has been brought to the landing and stopped and the landing-door is opened, the circuit will be completed through the contact-plates 23 23 and the magnet or solenoid 5 will be energized so as to attract its core, forcing the valve-rope 4 between the rollers 18 and 20, as shown. When in this condition, the said valve-rope will be locked against movement, so that the elevator-car cannot be started either up or down. When, however, the landing-door is closed and secured, so as to break the circuit at the plates 23 23, the mag-

net or solenoid will be deenergized, whereby the spring 19 will retract the roller 18, so as to release the valve-rope, whereby the elevator may be started. Similarly, if the landing-door at any one of the landings is opened, whereby the circuit will be closed at the plates 23 23, then when the elevator-car in moving up or down passes the plates 14 and 15 the circuit through the solenoid or magnet will be completed, gripping the valve-rope 4, whereby the further movement up or down of the elevator-car will operate the valve thereof and arrest its movement. The operator on the elevator-car will then know that the door of the landing at which the elevator-car has been thus stopped is not closed and then can make it so.

It will of course be understood that the invention which I have thus described is capable of many changes in modifications which will occur to any one skilled in the art and which need not be alluded to in detail.

I do not wish to be limited in any way to the particular form of gripping mechanism carried on the elevator-car, to any forms of circuit breakers or closers at the landings, or, in fact, to any details of construction not necessary in the carrying out of the broad principles of the invention.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. In a safety device for elevators, the combination of an elevator-car, a controlling-rope for operating the controlling mechanism of

said car, a clamping or locking device on the car normally out of engagement with said controlling-rope, a solenoid or magnet for operating said locking or clamping device, a partial or incomplete circuit carried on the car, a series of corridor-doors, a separate partial electric circuit for each of said doors, a closer in each of said circuits operated by the corresponding doors, and means whereby the partial circuit on the car will connect with the partial door-circuits when adjacent to the latter, substantially as described.

2. In a safety device for elevators, the combination of an elevator-car, a controlling-rope for operating the controlling mechanism of said car, a clamping or locking device on the car normally out of engagement with said controlling-rope, a solenoid or magnet for operating said locking or clamping device, a partial or incomplete circuit carried on the car, the contacts 16, 17, thereon, a series of corridor-doors, a separate partial electric circuit for each of said doors, a closer in each of said circuits operated by the corresponding doors, and the contacts 14, 15, whereby the partial circuits of the car will connect with the partial door-circuits, when adjacent to the latter, substantially as described.

This specification signed and witnessed this 12th day of March, 1896.

SAMUEL D. STROHM.

Witnesses:

FRANK L. DYER,
L. DELLA MCGIRR.