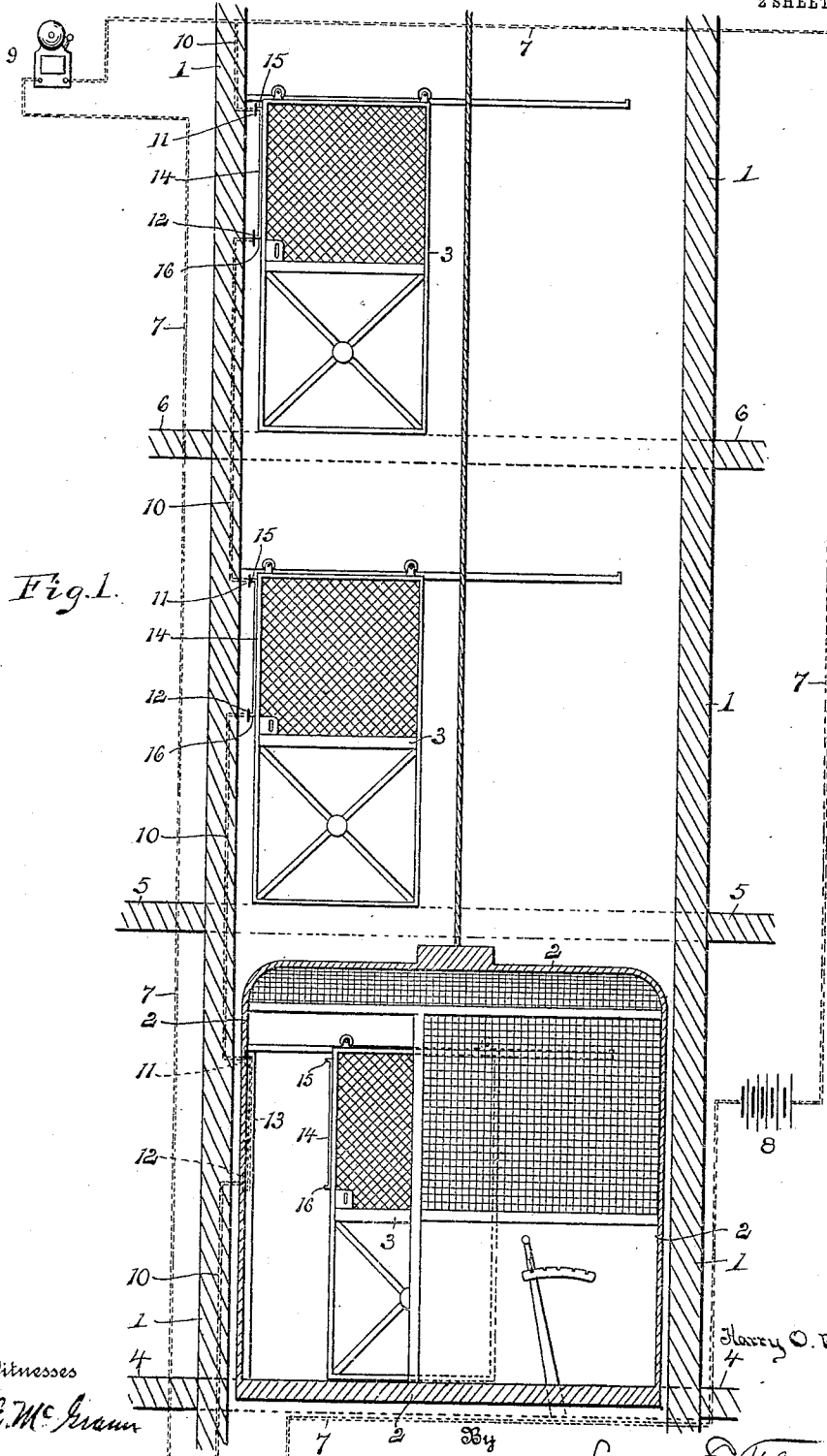


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SAFETY ELEVATOR MECHANISM.
APPLICATION FILED FEB. 18, 1909.

931,175.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.



Witnesses

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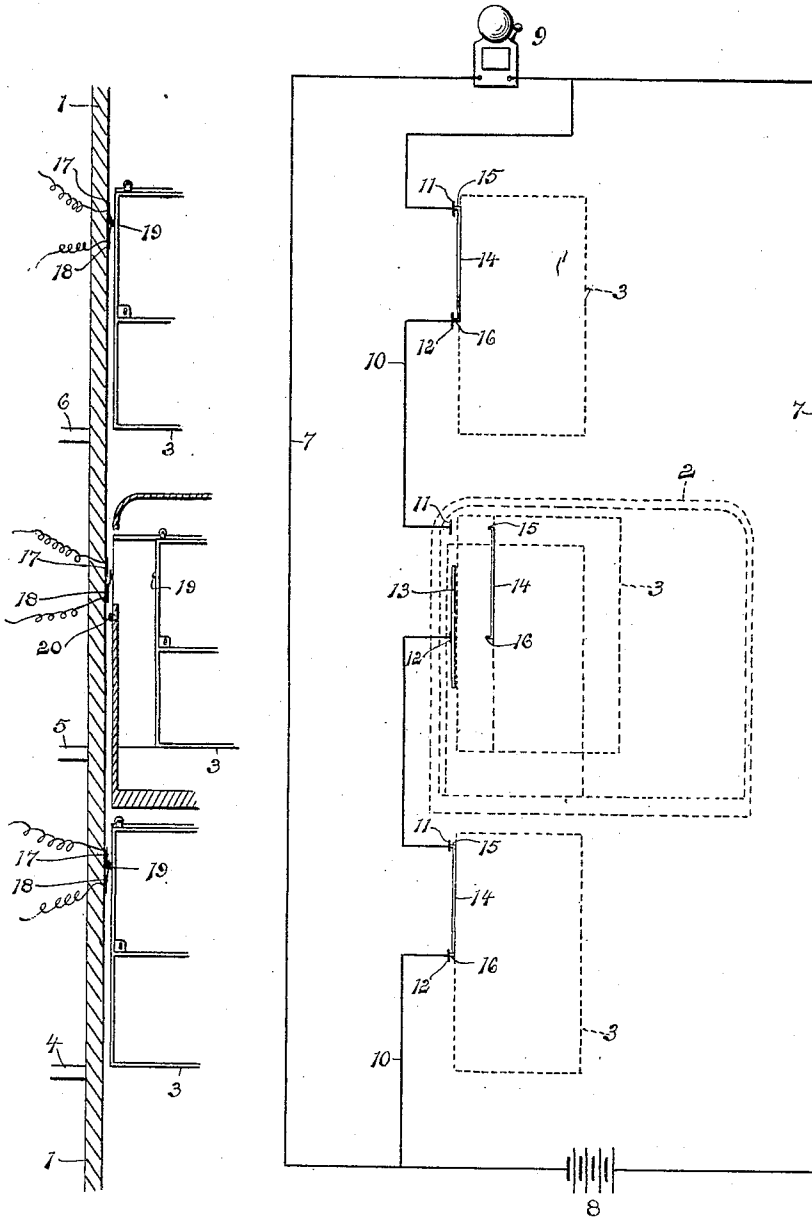


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

HARRY O. BARNES, OF LANSING, MICHIGAN.

SAFETY ELEVATOR MECHANISM.

No. 931,175.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed February 18, 1909. Serial No. 478,630.

To all whom it may concern:

Be it known that I, HARRY O. BARNES, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Safety Elevator Mechanism, of which the following is a specification.

The object of this invention is to provide a simple, cheap, and efficient automatic safety elevator device for elevators to sound an alarm when one of the shaft doors is accidentally left open, and to this end the invention consists in providing two electrical circuits so arranged that when the circuit of least resistance is broken the current will pass through the other circuit and sound the alarm, suitable devices being provided upon each shaft door and upon the car for making and breaking the circuit so arranged that the opening of a door will break the circuit and the stopping of the car at a landing will make the circuit, and thus prevent the sounding of the alarm when the car is in position before a door and the door is opened. If the car is moved from a landing without the door being closed the circuit will remain open and the alarm will be continuously sounded until the car is returned to the landing or the door closed.

The invention is carried out substantially as hereinafter described and shown in the accompanying drawing in which,

Figure 1 is a vertical section through an elevator well, a car or elevator cage being shown in vertical section therein; Fig. 2 is a diagrammatic view illustrating the electrical circuits and several contacts carried by the doors and car; and Fig. 3 is a similar view showing the modified form of contacts.

In the drawings the numeral 1 denotes the elevator shaft or well, 2 a car or cage, and 3 the elevator shaft doors indicated at the several floors or landings 4, 5, and 6. These parts are all constructed and arranged in the usual manner, the cage being provided with a door opening to register with the doors 3 at the different landings. A closed or main electrical circuit 7 is provided in which is a battery 8 or other source of electrical energy and a bell 9 or other suitable alarm, the battery and alarm being located in any convenient position. A shunt circuit 10 is connected across the main closed circuit 7 in such a way that the current from the battery will pass through the shunt circuit when

said circuit is closed instead of passing through the entire circuit 7 and causing the alarm to sound. The shunt circuit is provided adjacent to the shaft doors 3 with separated contacts 11 and 12 which are adapted to be connected and the circuit thus closed by a contact strip or plate 13 on the car, said contact strip engaging the contacts 11 and 12 when the car is in position at one of the landings to discharge or take on a load. Each of the doors 3 is provided with a strip 14 having contact points 15 and 16 at its ends to engage the contacts 11 and 12 when the door is closed and close the circuit.

As before described when the car is stopped at a landing in proper position to take on or discharge its load, the contact strip 13 carried by the car engages the contacts 11 and 12 in the shunt circuit 10 at that landing, and therefore when the door 3 at that landing is opened, the contact strip 14 on the door moving with it out of contact position, the circuit will not be broken and the alarm will not be sounded by the opening of the door. But should the door be accidentally left open and the car moved from that landing, as shown in dotted lines Fig. 2 thus carrying the contact strip 13 out of engagement with the contacts, the shunt circuit will be broken and the current will then pass through the alarm and cause it to sound until the door which was left open is closed and the shunt circuit thus closed, or the car moved back to that landing and the shunt circuit closed by the contact strip 13 on the car.

If desired the contacts of the shunt circuit may be formed as shown in Fig. 3, in which short contacts 17 and 18 are secured to the wall of the elevator well adjacent to each door 3, the contact 18 being a spring member which is adapted to be pressed into engagement with the contact 17 to make the circuit. The circuit is closed by each door by a projection or contact 19 on the door engaging the contact 18 and forcing it into engagement with the contact 17 when the door is closed, and the circuit is closed at each landing by a projecting contact device 20 on the elevator car adapted to engage the contact 18 when the car is in position at a landing, as shown in Fig. 3 at landing 5. When the car is moved from the landing without the well door being closed the shunt circuit is opened as the contact 18 will spring away from the contact 17 owing to the fact that it is not held by either door or car.

By the described construction a very simple arrangement of wiring is secured and the contact device carried by the car and doors is also very cheap and simple in construction, and a very efficient device is secured at a minimum cost which will effectually guard against accidents caused by the well doors being left open.

Having thus fully described my invention what I claim is:

1. A safety elevator mechanism comprising a main electric circuit, an alarm in said circuit, a shunt circuit to cut out the alarm, an elevator car, means carried by said car to open and close the shunt circuit, doors, and means carried by said doors to open and close the shunt circuit.

2. A safety elevator mechanism comprising a main electric circuit, an alarm in said circuit, a shunt circuit provided with contacts, an elevator car, means carried by said car to close the shunt circuit when the car is at a given landing, a door, and means carried by said door at said landing to close the shunt circuit when said door is closed.

3. A safety elevator mechanism comprising a main electric circuit, an alarm in said circuit, a shunt circuit provided with contacts, an elevator car, a contact carried by said car to close the shunt circuit when the car is at a given landing, doors, and a contact carried by the door at each landing to close the shunt circuit when said door is closed.

4. A safety elevator mechanism comprising a main electric circuit, an alarm in said circuit, a shunt circuit to cut out said alarm and including contacts at each elevator landing, an elevator car, means carried by said car to close the shunt circuit through said contacts when the car is at a given landing, doors, and means carried by the doors at the several landings to close the shunt circuit

through the contacts of the shunt circuit when said doors are closed, the shunt circuit being opened when the car has left a given landing and the door is left ajar.

5. A safety elevator mechanism comprising a closed main electrical circuit, an alarm in said circuit, a shunt circuit to cut out said alarm and including separated contact points at each landing, an elevator car, a device carried by said car to close the shunt circuit through said contact points when the car is at a given landing, doors, and a device carried by each door at each landing to close the shunt circuit through said contact points when the doors are closed.

6. Safety elevator mechanism comprising a closed main electric circuit, an alarm in said circuit, a shunt circuit to cut out the alarm when said shunt is closed and including separate contacts projecting into the elevator well at each landing, an elevator car, a contact device carried by said car to engage said contacts and close the shunt circuit to prevent the sounding of the alarm when the car is at a given landing, well doors, a contact device carried by a well door at each landing to close the shunt circuit through the corresponding contacts at the landings when the doors are closed.

7. A safety elevator mechanism comprising a main electric circuit, an alarm in said circuit, a shunt circuit to cut out the alarm, and means within the shunt circuit to make and break said circuit adapted to be operated by an elevator shaft door and by an elevator car.

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

HARRY O. BARNES.

Witnesses:

CHANCEY A. BARNES,
WILLIAM T. SHAW.