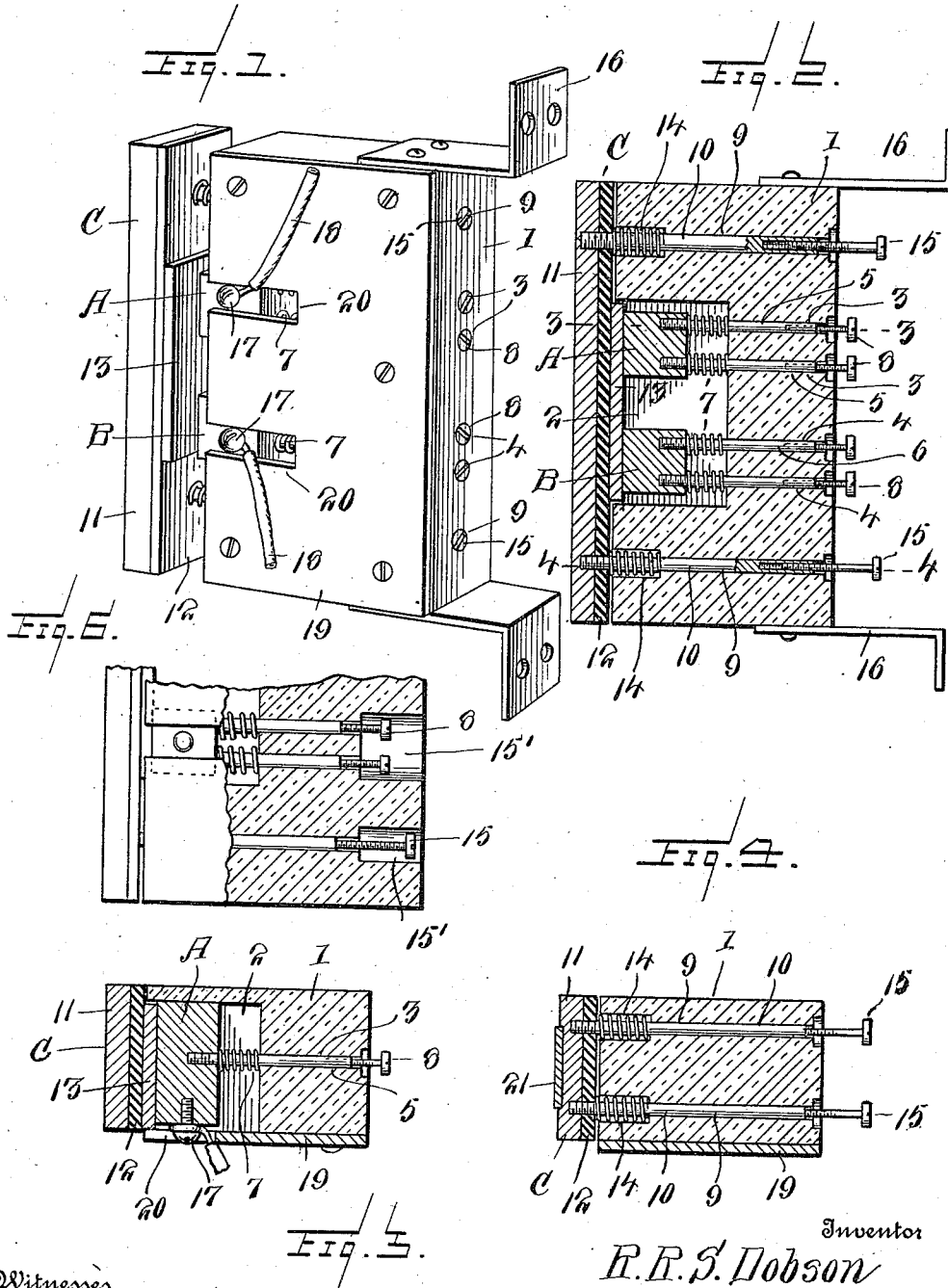


R. R. S. DOBSON.
SAFETY ATTACHMENT FOR ELEVATOR DOORS.
APPLICATION FILED JULY 16, 1912.

1,059,717.

Patented Apr. 22, 1913.

2 SHEETS—SHEET 1.



Witnesses
E. R. Ruppert.
J. J. Berger.

Inventor
R. R. S. Dobson

By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

RANDOLPH R. S. DOBSON, OF NEW YORK, N. Y.

SAFETY ATTACHMENT FOR ELEVATOR-DOORS.

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To all whom it may concern:

Be it known that I, RANDOLPH R. S. DOBSON, a subject of the King of Great Britain, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Safety Attachments for Elevator-Doors, of which the following is a specification.

This invention relates to safety devices for elevators, and it has for its object to provide a simple and efficient attachment adapted to be applied to be operated by the doors at the different landings of the elevator, the device being of such a nature that the opening of a door at any landing will cause the circuit including the motor to be broken, thereby making it impossible to start the car until the door has been fully closed, thereby avoiding liability of any of the numerous accidents apt to be caused by leaving the doors open and unlatched.

A further object of the invention is to produce a circuit breaker for the purposes set forth which shall be of simple and improved construction.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings, Figure 1 is a perspective view of the circuit breaker which constitutes a part of the improved safety device, showing the cover plate detached. Fig. 2 is a vertical sectional view of the same, showing the circuit closed. Fig. 3 is a transverse sectional view taken on the line 3—3 in Fig. 2. Fig. 4 is a transverse sectional view taken on the line 4—4 in Fig. 2. Fig. 5 is a diagram showing the application of the invention to the doors of a conventional elevator. Fig. 6 is a detail view partly in elevation and partly in section, illustrating a slight modification.

Corresponding parts in the several figures are denoted by like characters of reference.

The circuit breaker or improved safety device, which is to be applied in the path of a door at each landing of the elevator in the simple and preferred form illustrated in Figs. 1 and 2 of the drawings, consists of a block 1 of porcelain, slate or other non-conductive material having a recess 2 communicating with one side face and with one end face of the block. Bores or apertures 3, 3 and 4, 4 connect the rear wall of the aperture with the rear wall of the block, said bores extending through the body of the block horizontally and in substantially parallel relation. Two contact members, A and B, are provided, said contact members being in the form of rectangular blocks, each having laterally extending pins 5, 5 and 6, 6 that are guided through the apertures 3, 3 and 4, 4, respectively, thereby supporting the contact blocks A and B slidably within the recess 2 and spaced apart from each other. Coiled about the supporting pins 5 and 6 are springs 7, whereby the contact blocks A and B are forced outward or forward with respect to the rear wall of the recess 2. Threaded into the rear ends of the pins or supporting members 5 and 6 are headed screws 8, the heads of which are countersunk in the rear wall of the block 1, said headed screws serving to limit the outward or forward movement of the blocks A, B under the impulse of the springs 7, it being also evident that the extent of outward movement beyond the front wall of the block 1 may be regulated by proper adjustment of the screws 8. Normally, the adjustment is such that the blocks A and B will be projected by the springs 7 a short distance beyond the front face of the block 1, the said blocks A and B being projected evenly or to the same extent.

The block or body 1 is provided with horizontal transverse bores or apertures 9 that are positioned above and below the recess 2 in parallel relation to the bores or apertures 3 and 4. Extending through the apertures 9 are pins 10 carrying at their outer ends a contact member C which has been shown as consisting of a plate 11 of wood or other suitable material having a face plate 12 of hard rubber, fiber or other insulating material, the latter carrying a plate 13 of conducting material, such as brass, the last named plate being positioned opposite to the contact blocks A and B, and said plate being of such dimensions that both contact

blocks may be simultaneously engaged thereby. The contact member C is normally projected outwardly from the front wall or face of the block by means of springs 14 coiled about the pins 10, and the latter are provided at their rear ends with headed screws 15 that are countersunk in the rear wall of the block 1 and which may be adjusted to regulate the extent to which the contact member C shall be projected. Normally, the contact member C will be projected to such an extent as to leave an open space between the contact plate 13 and the blocks A, B, said open space being of such width as may be considered necessary or desirable to insure successful operation. Suitably attached to the top and bottom faces of the block 1 are brackets 16 which project beyond the rear wall of the block, and whereby said block may be supported for operation in such a manner that the rear wall of said block will be unobstructed, thus permitting the pins 5, 6 and 10 to be projected beyond the rear wall when the device is in operation. Sometimes the construction of the elevator fixtures is such that a block equipped with the brackets 16 cannot be conveniently mounted in position in such a manner as to cause the block to be sufficiently spaced from the neighboring wall, door frame or other support. In such event the modified construction illustrated in Fig. 6 is used, by reference to which it will be seen that the back of the block is countersunk or provided with recesses, as shown at 15' to permit the pins having the headed screws 8 and 15 to be actuated without causing the heads of the screws to be projected rearwardly of the back edge of the block.

The side faces of the blocks A and B are provided with binding screws 17 for the attachment of conductors, such as insulated wires 18 that are included in the motor circuit. A cover plate 19 is provided, the same being adapted to be attached to the side of the body block 1 by screws or other fastening means; said cover plate is provided with slots 20 to admit the ends of the conductors that are connected with the contact blocks A and B so as not to conflict with the operation of the device. The contact member C is provided in its external face with a wear plate 21 of steel or other suitable material to receive the impact of the latch of the elevator door, or of the door itself.

In the operation of this device, the circuit breaker may be mounted on the door frame 22 at any elevator landing with the contact member C exposed in the path of the door, the device being so positioned that when the door is closed it will impact upon the plate C and force the latter against the tension of the springs 10 until the contact plate 13 contacts with the blocks A and B through which the circuit will thus be com-

pleted. As soon as the elevator door is opened, the contact member C will be projected to a position where the plate 13 no longer engages the blocks A and B, thus breaking the circuit. The bracket members 16, it will be observed, support the block 1 in spaced relation to the door frame or casing, indicated at 22, so as to afford free play to the pins 5, 6 and 10 when the device is being operated.

A simple and effective wiring system has been illustrated in Fig. 5, by reference to which it will be seen that 31 designates a conductor leading from the current supply to the motor, which has been conventionally indicated at M, and 32 is a conductor leading from the current supply to a point 33 about half way up the elevator shaft E and thence to a switch 34 in the elevator car. A conductor 35 leads from the motor to the point 33 half way up the elevator shaft and thence to the switch 34 which may be an ordinary knife switch. A conductor 36 leads from the switch 34 to the bottom of the elevator shaft, thence up through the latter to the top of the shaft, and thence downward to the bottom landing where it is connected with the contact block B of the circuit breaker. A conductor 36' connects the contact block A of the circuit breaker at the bottom landing with the contact block B of the circuit breaker at the landing next above. The conductor 36'' connects the contact block A of the last mentioned circuit breaker with the contact block B of the circuit breaker at the third landing, and so on, to the top of the elevator shaft. On the contact block A of the circuit breaker at the top landing a conductor 37 leads to the switch 34. It will thus be seen that when the doors at the several landings are closed, as well as the switch 34, a complete circuit is established and that the opening of a door at any one landing will cause the circuit to be broken. It follows that after a door has been opened at any landing to admit or discharge passengers, it will be absolutely impossible to again start the car until the door has been fully closed, thereby restoring the circuit. The circuit may also be broken, between landings, by opening the switch 34, thus providing for unforeseen emergencies.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The construction of the device is simple, and it may be readily installed at small expense in electrically operated elevators of all ordinary types.

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

1. In a device of the character described, 130

a circuit breaker including a body member having a recess, contact blocks supported resiliently within the recess and normally projected slightly beyond the face of the body member, a contact member supported resiliently upon the body member adjacent to the face thereof and normally projected beyond the contact blocks, and means for supporting the body member with the contact member in the path of an elevator door.

2. In a device of the character described, a body member having a recess, contact blocks supported within the recess and having pins extending through the back wall of the body member, adjusting screws engaging the rear ends of the pins and having heads countersunk in the back wall of the body member, and springs coiled upon the pins to project the contact blocks beyond the face of the body member.

3. In a device of the character described, a block having a recess, contact blocks supported within the recess and having pins extending through the back wall of the body member, adjusting screws threaded into the rear ends of the pins and having heads countersunk in the back wall of the body member, springs coiled on the pins to project the contact blocks beyond the face of the body member, and brackets connected with and extending from the body member to support the latter in spaced relation to the point of attachment.

4. In a device of the character described, a body member having a recess, spring actuated contact blocks supported within the recess and normally projected beyond the face of the body member, means for regulating

the extent to which the contact blocks may be projected, a contact member supported by the body member in spaced relation to the face thereof and to the contact blocks, springs whereby said contact member is projected, and means for regulating the extent to which said contact member may be projected.

5. In a device of the character described, a body member having a recess open at one side, contact blocks supported within said recess and having pins extending through the back wall of the body member, binding screws on said blocks, springs coiled on the supporting pins to project the contact blocks forwardly, headed screws threaded into the rear ends of the pins to regulate the extent to which the blocks may be projected, a contact member having pins extending through the body member whereby it is supported in spaced relation to the face of the body member, springs on the supporting pins whereby the contact member is projected, headed screws threaded in the rear ends of the pins to regulate the extent to which the contact member may be projected, a cover plate having slots registering with the binding screws on the contact blocks, and bracket members secured to and extending from the body member to support the latter upon and in spaced relation to a door casing and in the path of an elevator door.

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

RANDOLPH R. S. DOBSON.

Witnesses:

THOMAS H. ROTHWELL,
EDWARD G. JAHNKE.