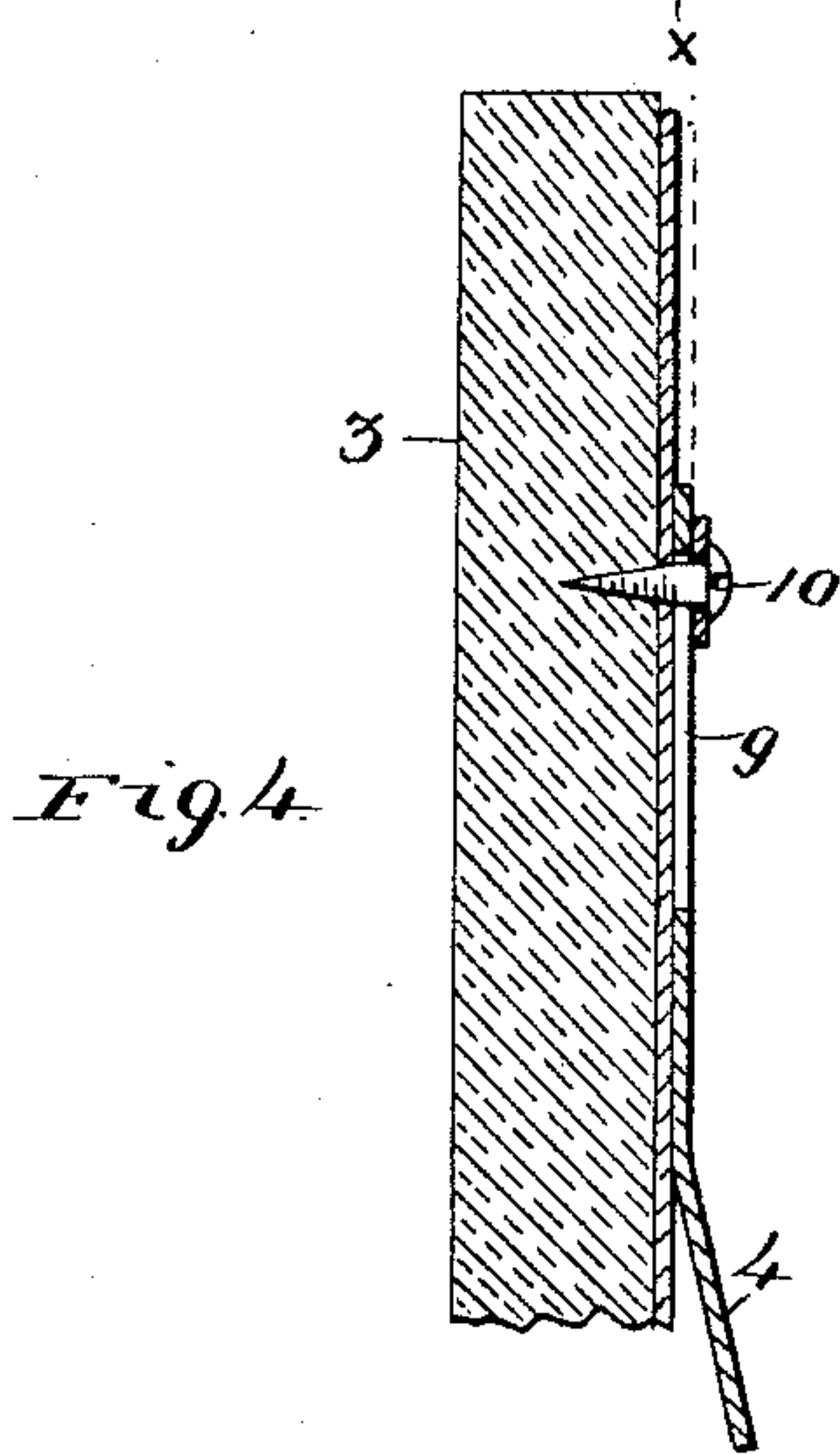
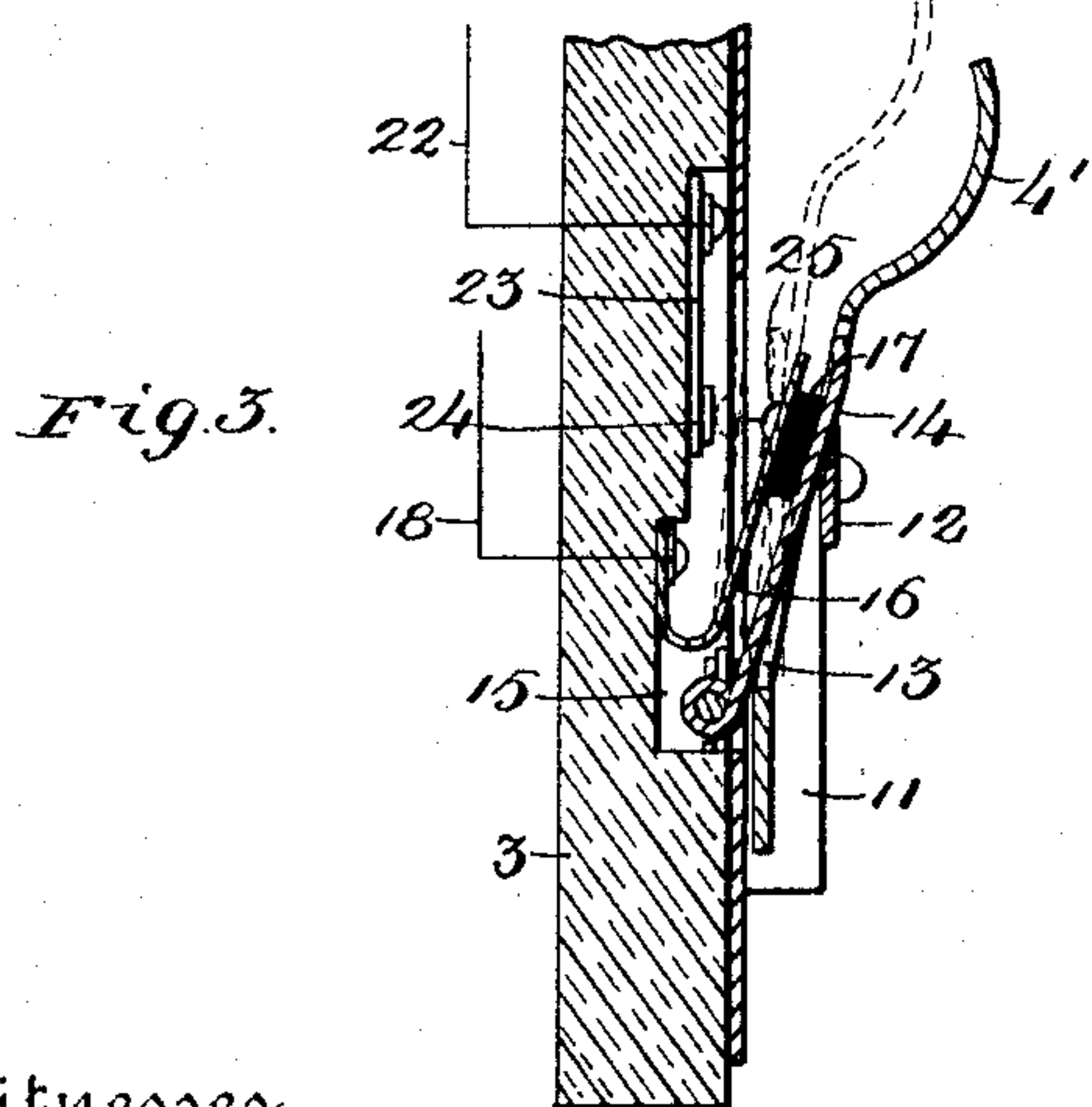
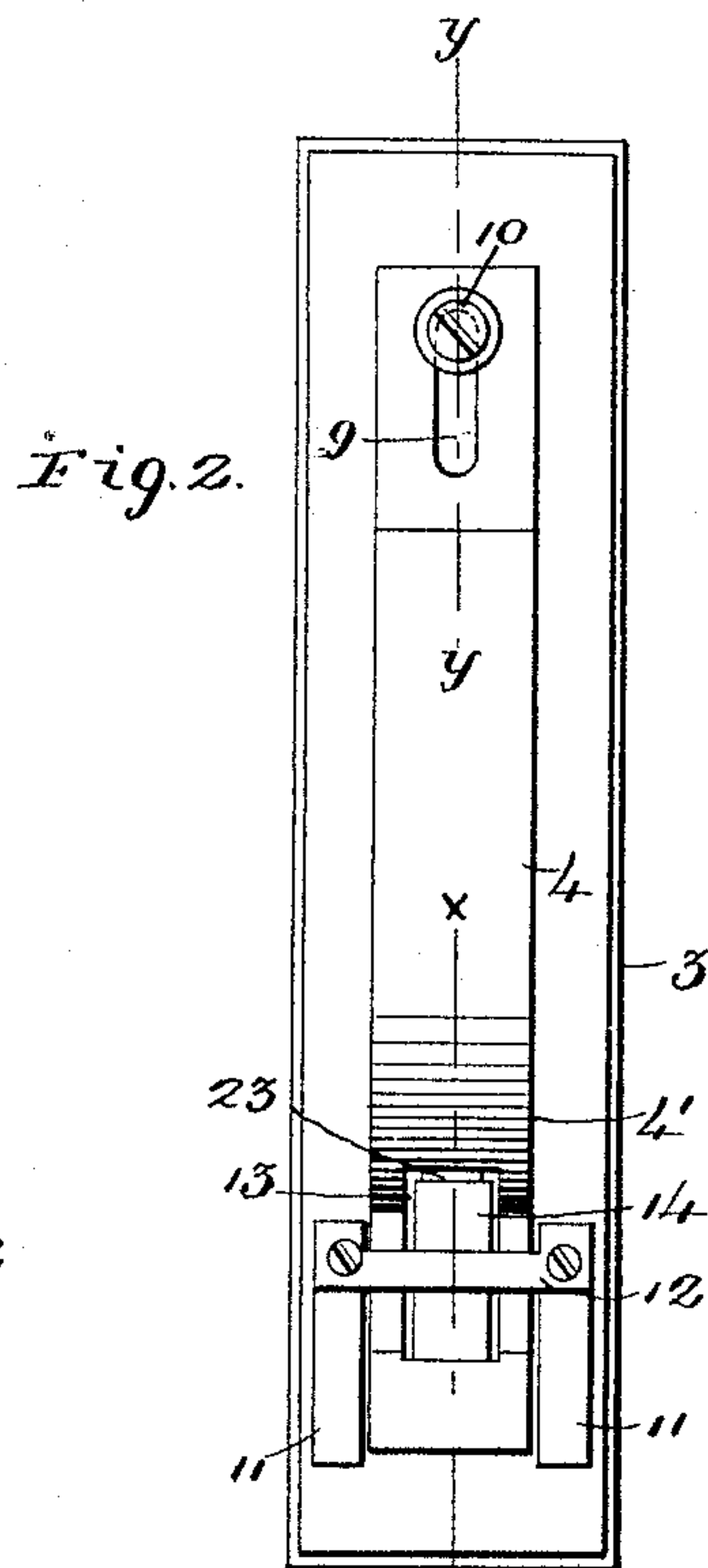
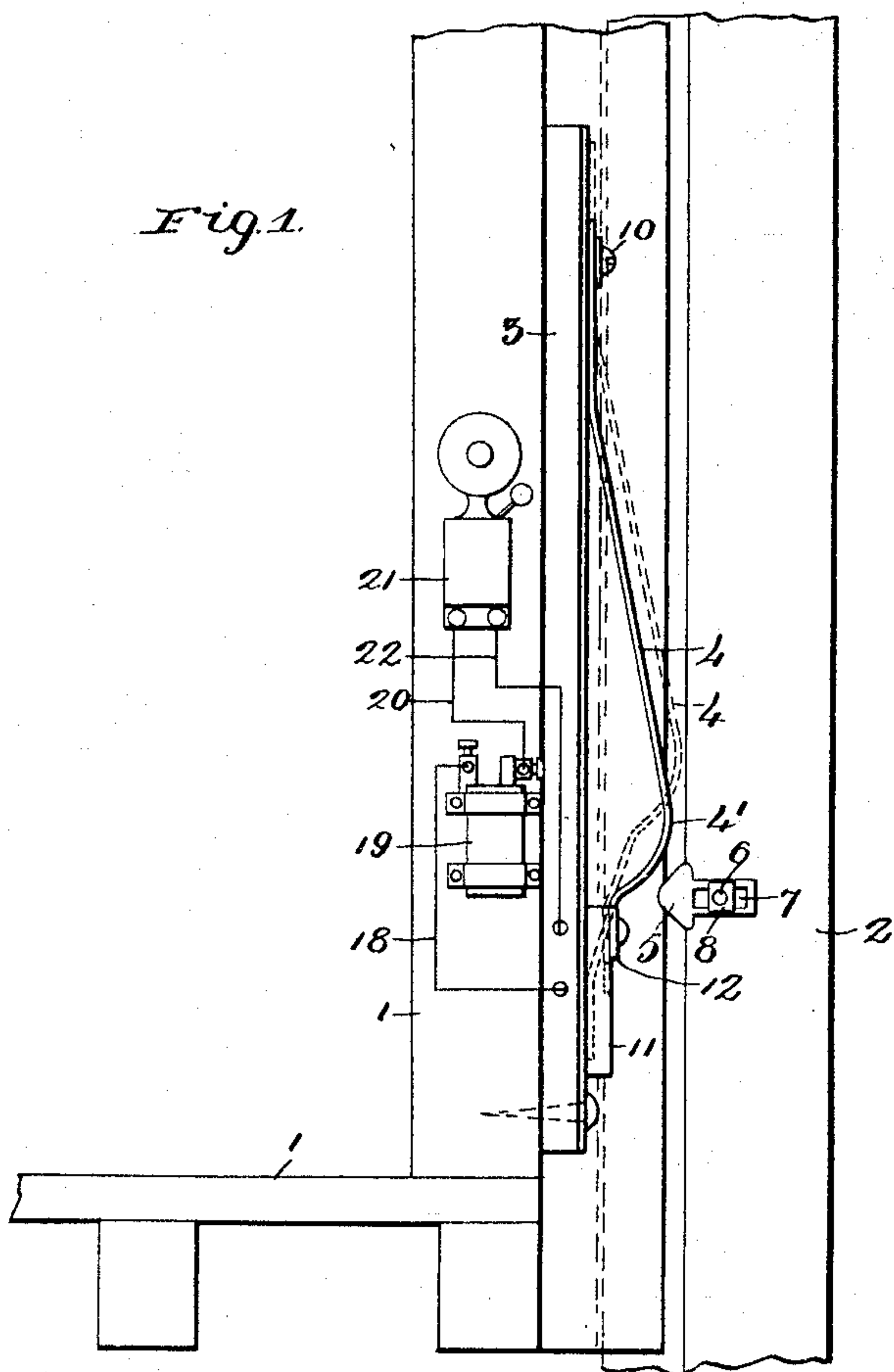


(No Model.)

O. RAACKE & G. HENSEL.
ELECTRIC SIGNAL DEVICE FOR ELEVATORS.

No. 587,507.

Patented Aug. 3, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

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ELECTRIC SIGNAL DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 587,507, dated August 3, 1897.

Application filed March 11, 1897. Serial No. 627,037. (No model.)

To all whom it may concern:

Be it known that we, OTTO RAACKE, a citizen of the United States, and GUSTAV HENSEL, a subject of the Emperor of Germany, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Electric Signal Devices for Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in electric signal devices for elevators; and it consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is an elevation of a section of an elevator and shaft within which it operates, showing our invention carried by the elevator. Fig. 2 is a front elevation of the device. Fig. 3 is a section on line *x x* of Fig. 2, and Fig. 4 is a section on line *y y* of Fig. 2.

The object of the present invention is to construct a signal device for elevators which will sound an alarm when the elevator is descending, whereby persons who may accidentally be looking down the elevator-shaft when the elevator is above them may be advised of the approach of the descending elevator the moment the latter begins its descent from any particular floor or landing.

In detail the invention may be described as follows:

Referring to the drawings, 1 represents a section of an elevator, and 2 the vertical beam of the shaft along which it is guided. Mounted on a suitable board, of wood or other non-conducting material 3, secured to the elevator, is a yielding vertically-disposed spring-plate 4, having a medial outwardly convex or bulging portion 4', adapted during the travel of the elevator to ride over the bevel end of a suitable lug 5, secured to the beam 2 in the path of the said plate 4, the lug being adjustable laterally along a bolt 6, passed through an elongated slot 7 of the stem of said lug, which when once in proper position is firmly secured by a binding-nut 8. The upper end of the spring-plate 4 is provided with a vertically-elongated closed slot 9, through which loosely passes a screw 10, by which arrangement the

upper end of the spring-plate is thus slidingly or movably secured to the board 3. The lower extension of the plate 4, or that portion below the bulge 4', is guided between the lateral strips 11 11 and the cross-piece 12, joining the upper ends of the said strips. That portion of the plate 4 thus guided between the strips 11 is provided with an elongated opening 13, through which when the plate 4 is in its normal position there projects outwardly a metallic tongue 14, hinged at the base of a suitable socket 15, cut in the board 3, the hinge being located adjacent to the lower edge or base of the said opening. To the rear of the tongue is secured a flexed circuit-closing arm or contact-plate 16, carrying a non-conducting disk 17, which normally contacts against the adjacent surface of the tongue. Leading from the fixed end of the circuit-closing plate is a wire 18, which is in connection with one pole of an electric battery 19, carried by the elevator. The opposite pole of the battery communicates by a wire 20 with an electric bell 21, from which leads a wire 22, and connects with a metallic plate 23, secured in the upper portion of the socket 15, the lower end of the plate 23 carrying a contact-button 24, which completes the electric circuit of the battery whenever the knob 25, carried by or forming a part of the free end of the circuit-closing plate 16, is brought into contact with said button, as presently to be described in connection with the operation of the device, which is as follows:

When the elevator effects a landing, the lug 5 will be normally below the bulging portion of the plate 4. As the elevator descends the bulging portion 4' of the plate 4 strikes and rides over the lug 5, the latter raising the said plate to a position such as indicated by the dotted lines in Fig. 1, whereby the lower end of the plate—that is, the portion below the closed opening 13—will be brought approximately opposite the free end of the tongue 14, pressing the latter inwardly and causing it to force the circuit-closing plate or arm 16 into contact with the button 24, thereby closing the electric circuit and sounding an alarm. After the elevator has descended sufficiently to pass out of the influence of the action of the lug 5 the plate 4, which has been raised, as explained, will now drop by gravity

to its normal position, permitting the resiliency of the circuit-closing plate to force the tongue 14 outwardly to its original position, the said circuit-closing plate itself assuming its normal position. Of course the object of the insulating-disk 17 is to keep the current from passing through the tongue and the metallic parts with which it is in communication. A lug, such as 5, may be secured in connection with each floor or landing, in which event an alarm would be sounded as the elevator passes each floor.

It is apparent, of course, that the device could be attached to the shaft and the lug carried by the elevator. In that event, however, it would be necessary to turn the board 3, with the parts carried thereby, upside down, so that the plate 4 can drop to the proper position for bringing the end of the plate opposite the free end of the tongue, in which event the lug carried by the elevator would, in riding over the plate thus in proper position, press against the same and force the tongue inwardly, thus closing the circuit in the manner already described. In going up the lug would then simply raise the plate 4, forcing the end of the plate, which depresses the tongue approximately opposite the hinge-line of the tongue, and no alarm would be sounded.

When the lug 5 is carried by the elevator-shaft, as in the preferred construction described herein, it is apparent that as the elevator ascends no alarm will be sounded, the lug simply riding over the inclined plane surface of the plate 4, but in no wise shifting the latter from its lowest position, at which the opening 13 comes opposite the hinged tongue, depressed only on the downward travel of the elevator.

It is apparent that many minor changes could be made in the present construction without departing from the spirit of our invention. Any source of electrical energy is of course serviceable.

Although the bell is here illustrated as being carried on the side of the elevator it might better be placed along the bottom, whereby the alarm sounded by the bell can be better heard by a person under the elevator.

Having described our invention, what we claim is—

1. In an electric signal device for elevators, a vertically-movable spring-plate having a bulging portion forming a part thereof, a plane extension forming a continuation of the bulging portion and having a cut-away portion or opening, circuit-closing devices

normally projecting through said opening, a suitable source of electrical energy, and means for shifting the movable plate and bringing the solid portion thereof in contact with the said circuit-closing devices as the elevator approaches a landing, substantially as set forth.

2. In an electric signal device for elevators, a suitable alarm, an electric circuit in connection with the same, a circuit-closing arm having one end permanently connected with one pole of the circuit, a tongue hinged or pivoted adjacent to said arm, a non-conducting disk carried by said arm and adapted to bear against the adjacent surface of the tongue, a spring-plate having an opening or cut-away portion through which said tongue may normally project, and means for shifting the plate from its normal position upon the movement of the elevator whereby the opening of the plate will pass by the pivotal line of the tongue and cause the solid portion of the plate to bear against the tongue and the adjacent circuit-closing arm, thereby closing the circuit and sounding the alarm, substantially as set forth.

3. In an electric signal device for elevators, a suitable spring-plate adapted to be movably secured to either the elevator or shaft thereof, means for guiding the plate in its movements, an opening formed at one end of the plate, a hinge pivoted to the rear of said opening and adapted to normally project therethrough, a resilient spring circuit-closing arm having one end permanently in connection with an electric circuit, located to the rear of the hinge, a non-conducting disk carried by the arm and adapted to be brought in contact with the adjacent surface of the hinge, means cooperating with the spring-plate during the travel of the elevator in one direction for shifting said plate whereby the normal relation between the opening of the plate and the hinge is disturbed and the solid portion of the plate is made to bear against the hinge and thus depress the free end of the circuit-closing arm bringing said end into connection with the opposite pole of the circuit, and thereby sounding an alarm, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

OTTO RAACKE.
GUSTAV HENSEL.

Witnesses:

EMIL STAREK,
ALFRED A. MATHEY.