

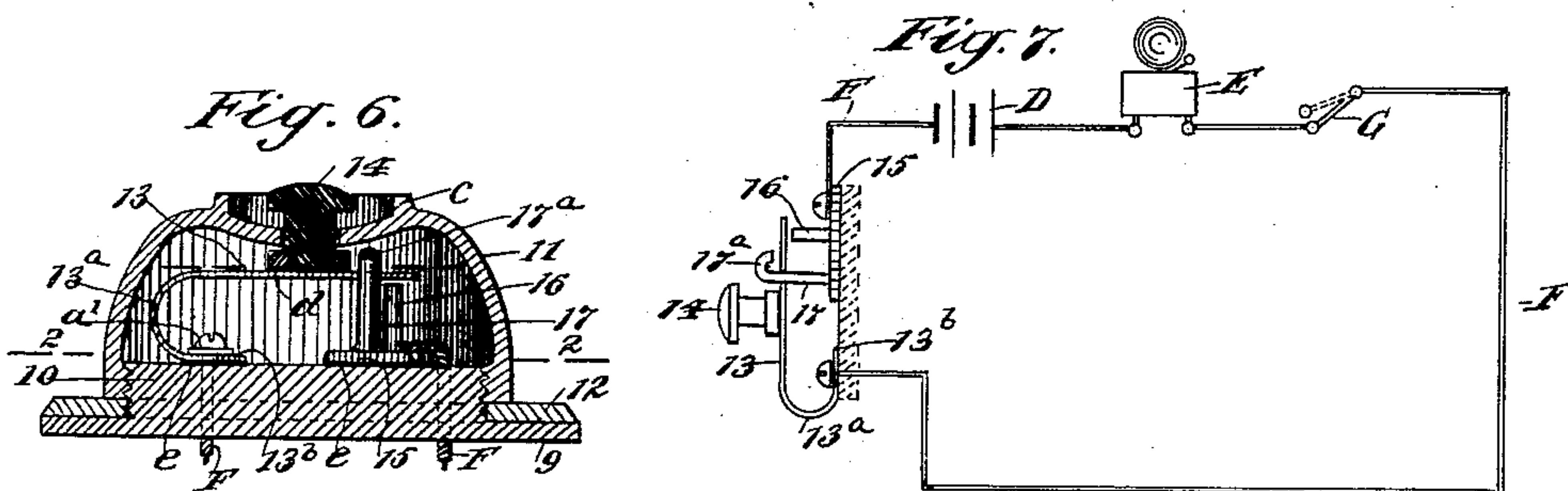
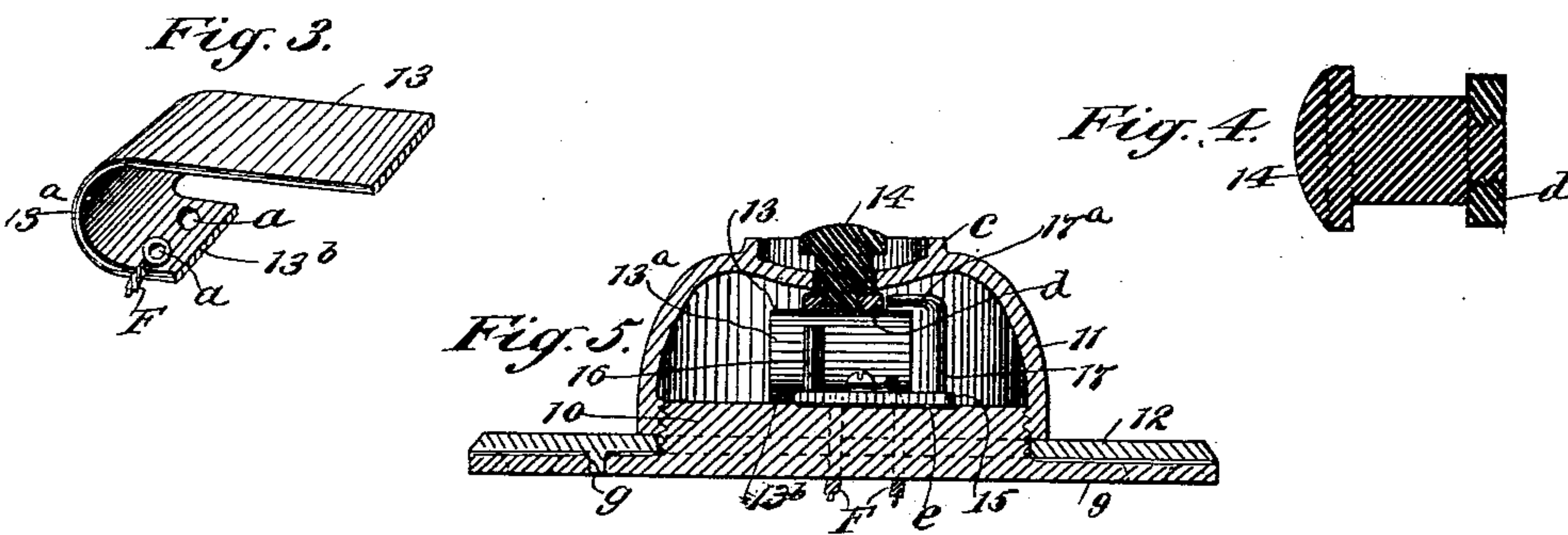
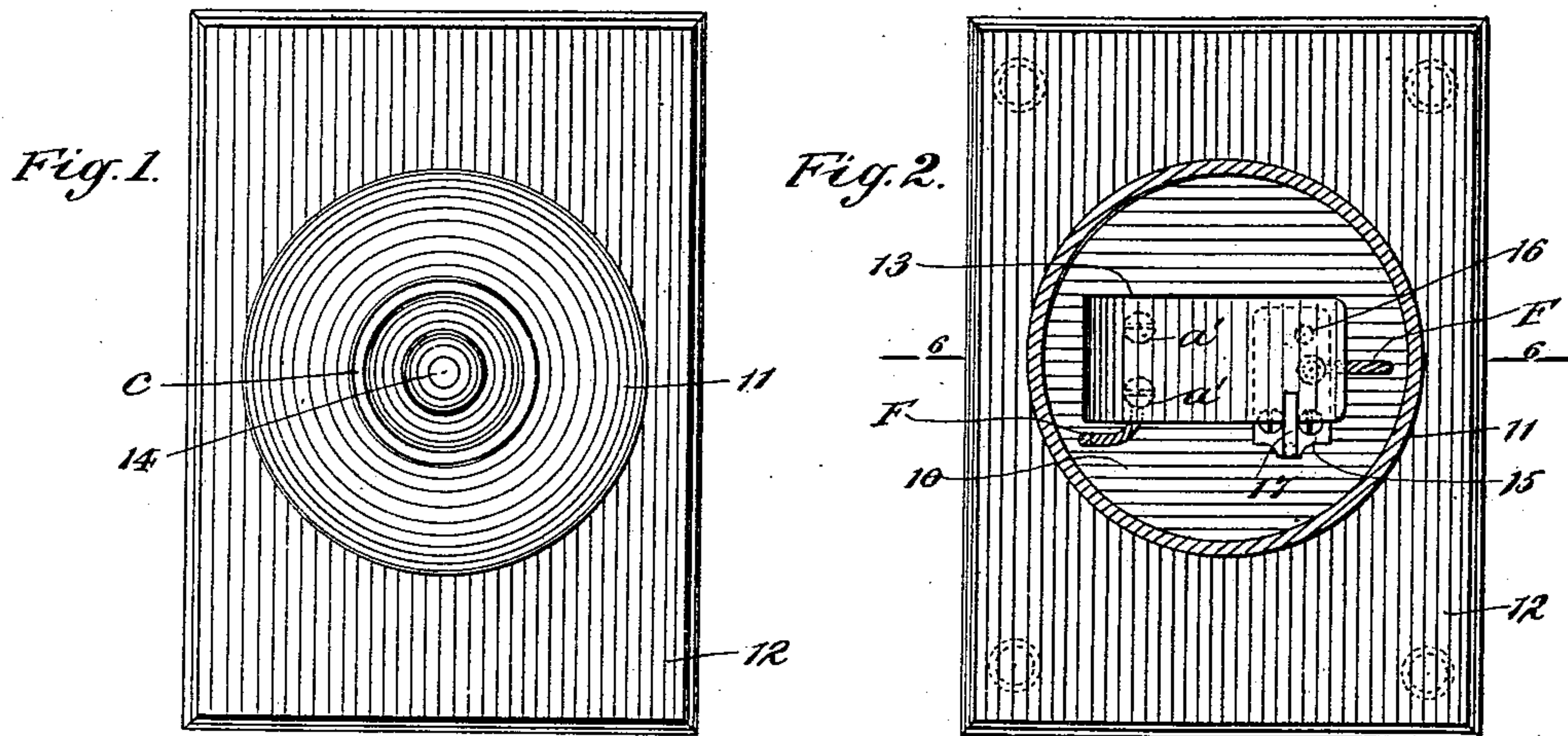
No. 664,667.

Patented Dec. 25, 1900.

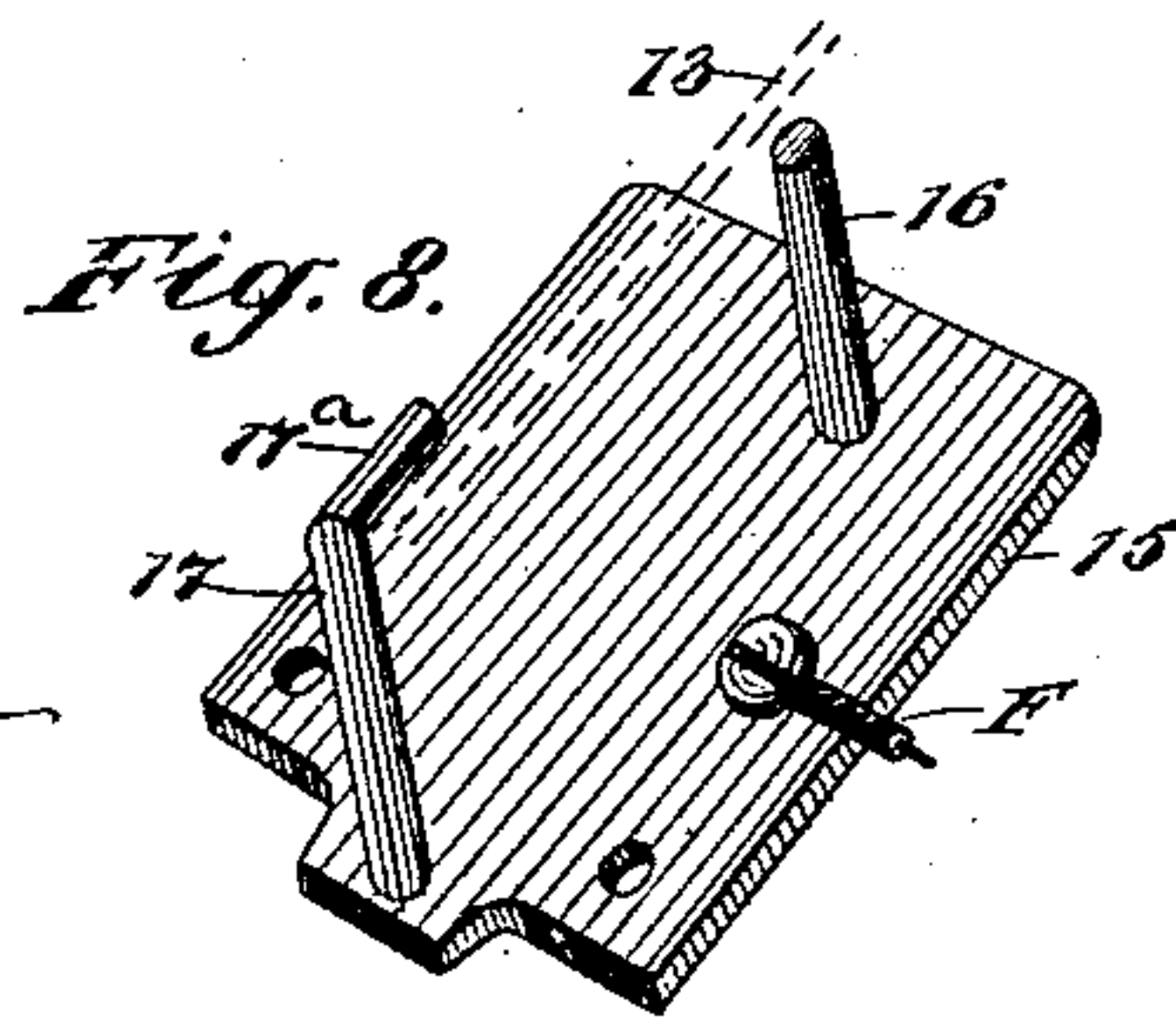
T. A. NATHANS.  
ELECTRIC PUSH BUTTON.

(Application filed June 1, 1900.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## ELECTRIC PUSH-BUTTON.

SPECIFICATION forming part of Letters Patent No. 664,667, dated December 25, 1900.

Application filed June 1, 1900. Serial No. 18,701. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. NATHANS, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Electric Push-Button, of which the following is a full, clear, and exact description.

This invention relates to push-buttons in electric circuits for the purpose of sounding an alarm or making an audible signal and which is particularly well adapted for use in connection with door-bells.

The object of my invention is to provide a novel device of the character indicated which embodies means for sounding a bell by completing an electric circuit either by applied pressure upon the push-button proper or in case a surreptitious removal of parts of the bell is attempted.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved push-button. Fig. 2 is a partly-sectional plan view substantially on the line 2 2 in Fig. 6. Fig. 3 is a detached perspective view of a spring contact-plate of peculiar form, which is a feature of the invention. Fig. 4 is an enlarged longitudinal sectional view of a push-piece employed. Fig. 5 is a sectional side view of the device. Fig. 6 is a transverse sectional view taken at right angles to Fig. 5, substantially upon the line 6 6 in Fig. 2. Fig. 7 is a diagrammatic view showing the working parts of the improvement in circuit with a battery and bell; and Fig. 8 is an enlarged perspective view of a base-plate and two contact-posts thereon, which are features of the invention.

The invention as illustrated comprises the following details of construction.

The bottom plate 9, whereon other parts of the device are supported, is preferably rectangular in contour and securable upon a wall by screws which engage spaced holes

therein located near the corners of the bottom plate, as indicated by dotted lines in Fig. 2. Centrally upon the top surface of the bottom plate 9 a boss 10 is formed or secured, which is circular, peripherally considered, flat on the top surface, and screw-threaded on its periphery, as shown in Figs. 5 and 6. A dome-like casing 11 is also provided, which on the inner side, at the lower edge, is threaded to adapt said casing to screw upon the boss 10.

A cover-plate 12 of the same form and dimensions as the bottom plate 9 is centrally and circularly apertured to slide over the boss 10 and loosely embrace its periphery, as shown in Figs. 5 and 6, and it will be seen that if the cover-plate is in position a portion of the boss 10 will be projected above the same to permit the casing 11 to be screwed down upon said cover-plate.

The spring contact-plate 13 shown is preferably formed of a strip of spring sheet metal which is a good conductor of electricity and has a portion thereof near one end return-bent, as at 13<sup>a</sup>, thus affording a base-flange 13<sup>b</sup>, wherein screw-holes *a* are formed to facilitate securing the plate 13 in place upon the flat top surface of the boss 10 by means of screws *a'*, as is indicated by dotted lines in Fig. 2. Preferably the spring contact-plate 13 is secured upon the boss 10 transversely of the bottom plate 9, as indicated in Fig. 2, so that the resilient main portion thereof will be located beneath and near the central portion of the casing 11. Preferably the crown of the casing 11 is somewhat dished and may have a circular guard-flange *c* erected thereon concentric with a central perforation in the crown.

The push-piece 14 (shown detached in Fig. 4 and in position in Figs. 1, 5, and 6) is formed, preferably, of a non-conductor of electricity, and consists of a cylindrical shank having an enlarged head at the upper end and a reduced threaded portion on the lower end for the reception of a flat nut *d*, that when in place affords a retaining-flange.

The relative diameter of the push-piece adapts it to loosely fit in the central perforation in the casing 11, so that when inserted and the nut *d* screwed fully thereon the lat-



ter will seat upon the top surface of the spring contact-plate 13 and be pressed upon by the latter, so as to have enforced contact with the lower surface of the casing 11, as indicated in Figs. 5 and 6.

The base-plate 15, having one terminal of the circuit-wire 16 secured in electrical connection therewith, is affixed upon the upper surface of the boss 10 near the free end of the spring member of the contact-plate 13, as shown in Fig. 6, and for the proper operation of the device the foot-flange of the spring contact-plate 13 and the base-plate 15 must be insulated from the bottom plate 9, as shown at *e*, if the latter and the boss thereon are conductors of electricity.

A post 16 is upwardly extended from the base-plate 15, and when the parts of the device are in normal position said post has slight clearance from the lower side of the spring contact-plate 13. Another post 17 is erected upon the base-plate 15 near one side edge of the spring member of the contact-plate 13, and the upper end of said post is bent at a right angle, so as to project above and over the spring portion of the contact-plate 13, this member 17<sup>a</sup> of the post 17 having slight clearance from the upper side of the spring member of the contact-plate 13 when the parts of the electric push-button are not in service for closing the normally open electric circuit.

Fig. 7 illustrates diagrammatically the working parts of the novel push-button device arranged in open circuit with a battery D and bell E by the conducting-wire F, that at one terminal thereof is secured upon the foot portion of the spring contact-plate 13 and at the opposite terminal has electrical connection with the base-plate 15, a switch G of any approved construction being preferably introduced to permit the bell and push-button to be cut out and the battery rendered dormant when the bell is not needed for use.

It will be seen that when the working details of the improvement are properly assembled the casing 11 will be seated upon the cover-plate 12 and hold the latter in place, which enables said cover-plate to prevent access to the screws which hold the bottom plate upon the wall of a building, and in order to prevent the partial rotation of the cover-plate for exposure of said screws a small dowel-pin or stud *g* may be formed on one plate to enter a perforation in the other, as represented in Fig. 5, or any other equivalent means may be employed for the purpose.

Upon pressing the push-piece 14 inwardly a depression of the spring member of the contact-plate 13 will be produced, and its lower surface will impinge the top of the straight post 16, which will obviously close the circuit and ring the bell E.

Should an attempt be made to unscrew the casing 11, and thus obtain access to the fastening-screws for the bottom plate 9, the removal of the push-piece 14 from enforced en-

gagement with the spring member of the contact-plate 13 will allow the latter to rise somewhat and contact with the overhanging member of the bent post 17, which will complete the electric circuit and give an alarm by ringing the bell E.

The cover-plate 12 not only serves the purpose of protecting the screws that retain the push-button device secured in position on a wall, but also is so removed from the surface of said wall as to facilitate the polishing of the casing 11 and the top surface of said cover-plate without touching the adjacent surface of the building-wall, which will prevent the disfigurement of the latter that is liable to occur if protection from the polishing material is not provided.

It will be evident that the peculiar form given to the spring contact-plate 13 permits it to be formed of a thin light strip of spring metal, and as it is in enforced contact with the inner end of the push-piece 14 the latter is always under stress of said spring, which insures the effective operation of the complete device at all times.

The simplicity of the improvement is a meritorious feature of the same, as it enables the cheap production of the device by ordinary machine-shop tools, so that it may be afforded at low cost to the purchaser.

It is evident that there may be slight changes made in the device within the scope of the invention—as, for example, the spring pushing the button may be in spiral form and the position and arrangement of the contacts may be altered without departure from the spirit of the invention. Hence I do not wish to restrict the construction to the exact details shown.

Having described my invention, I claim as new and desire to secure by Letters Patent—

1. In a push-button device, the combination with a bottom plate, a casing held removably thereon, and a push-button slidable through the top of the casing, of a double contact device adapted to independently close a normally open circuit when the push-button is depressed, and also when the casing is partially removed from the bottom plate.

2. In a push-button device, the combination with a bottom plate, and a casing removably securable thereon, of a spring-pressed push-button slidable through the casing-top, electric wires in connection with open-circuit contacts in the casing, and means to complete the circuit upon depression of the push-button or partial displacement of the casing from the bottom plate.

3. In a push-button device, the combination with a casing, a bottom plate on which the casing is removably secured, a push-button slidable through the top of the casing, and a spring pressing the push-button upwardly, of electric wires terminating in the casing in open circuit, one wire connected to the spring and the other wire to a contact on the bottom plate, and means to effect the closure of the



circuit when the bush-button is depressed and also on partial removal of the casing from the bottom plate.

4. In a push-button device, the combination with a bottom plate, a spring-actuated push-button, and a casing removably held on the bottom plate, the push-button passing loosely up through the casing, of a cover-plate held on the bottom plate by the casing and adapted to prevent removal of said bottom plate from a building, two electric wires terminating in the casing in open circuit, and means to effect the closure of the circuit when the push-button is depressed and also when the casing is partially removed from the bottom plate.

5. In a push-button device, the combination with a bottom plate, a dome-like casing thereon, and a push-button slidable through the top of the casing, of a bent contact-spring engaging the bottom plate and pressing the push-button upwardly, two electric wires terminating in open circuit in the casing, and a contact adapted to engage the spring upon the depression of the push-button, thus closing the electric circuit, a partial removal of the casing also closing said circuit.

6. In a push-button of the character described, the combination with the bottom plate, the casing screwing upon the bottom plate, and the spring-pressed push-button, of the two-part contact device adapted to close a normally open circuit of two electric wires in the casing when the push-button is depressed, and also when the casing is moved to unscrew it.

7. In an electric push-button, the combination with a bottom plate, and a casing screwing upon a boss on the bottom plate, of a return-bent spring contact-plate secured by a foot portion thereof upon the boss, a push-piece working through the casing and pressed by the spring contact-plate, a base-plate seated upon the boss, two posts adapted to receive the impinge of the contact-plate on opposite sides thereof, and electric-circuit-wire terminals respectively secured upon the spring contact-plate and upon the base-plate.

8. In an electric push-button, the combination with a bottom plate having a peripher-

ally-threaded boss thereon, a cover-plate apertured to pass over the boss and seat upon the bottom plate, means to prevent the cover-plate from turning, and a casing screwing upon the boss and pressing upon the cover-plate, of a spring contact-plate on the boss, a push-piece passing through the top of the casing and pressed by the spring contact-plate, and two contact-posts, one of which coacts with said contact-plate for closure of an electric circuit to ring a bell when the push-piece is depressed, and the other post together with the spring contact-plate closing the same electric circuit when the casing is partially unscrewed.

9. In an electric push-button, the combination with a bottom plate having screw-holes, and also a peripherally-threaded boss that is flat on its upper side, and an apertured cover-plate passing over the boss and seating upon the bottom plate, of a dome-like casing screwing upon the boss and pressing upon the cover-plate, means to prevent the cover-plate from turning, a return-bent spring contact-plate secured by a foot portion thereof upon the boss, a push-piece passing loosely through a perforation in the crown of the casing and pressed upon by the spring contact-plate, said push-piece having a flange screwed upon its lower end to prevent removal from the casing, a base-plate fast on the boss and insulated therefrom, a straight post on the base-plate adapted to receive the impinge of the spring contact-plate when said plate is depressed by the push-piece, an angularly-bent post on the base-plate, the horizontal member of this post overhanging the contact-plate, to contact therewith when the casing is partially unscrewed, terminals of an electric circuit respectively secured upon the spring contact-plate and base-plate, and a bell in the electric circuit.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS A. NATHANS.

Witnesses:

ADDISON M. NATHANS,  
FRANK L. ZABRISKIE.