No. 646,693. Patented Apr. 3, 1900.

W. D. GHARKY.

ANNUNCIATOR AND SPRING JACK.

(Application filed June 16, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 5.

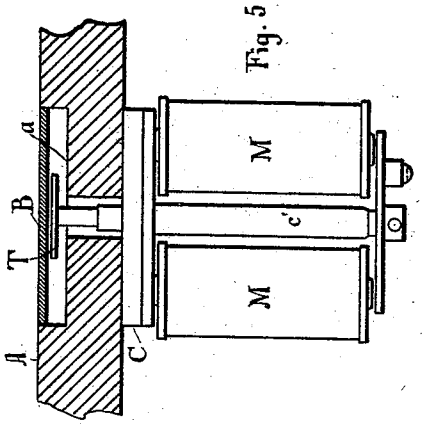
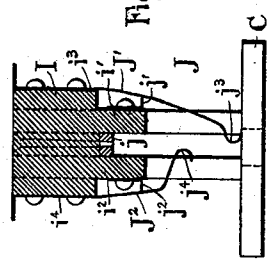


Fig. 7.



Fig. 8.



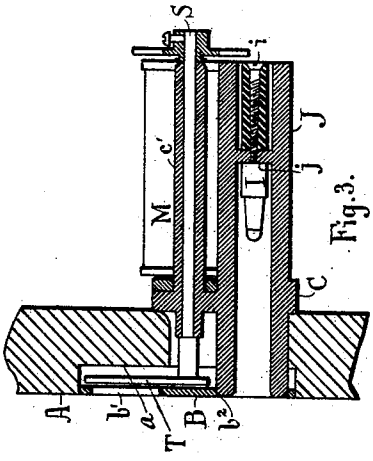


Fig. 3.

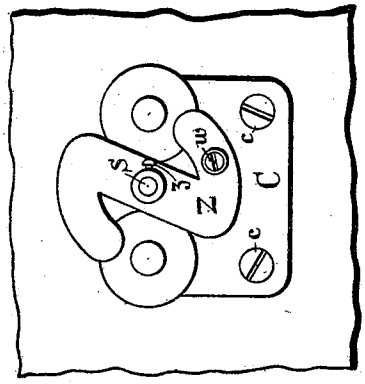


Fig. 4.

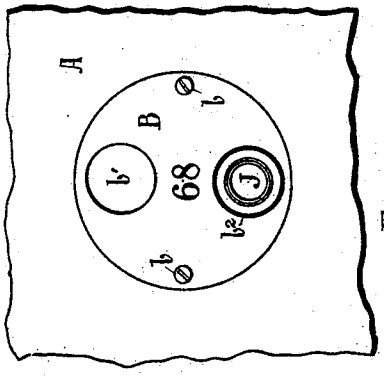


Fig. 1.

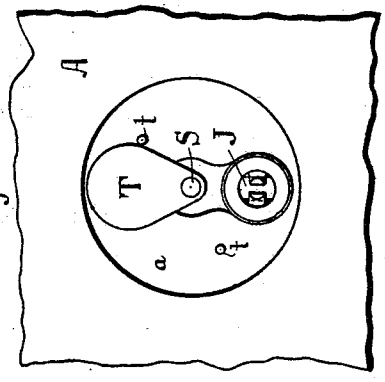


Fig. 2.

WITNESSES:

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No. 646,693. Patented Apr. 3, 1900.

W. D. GHARKY.

ANNUNCIATOR AND SPRING JACK.

(Application filed June 16, 1898.)

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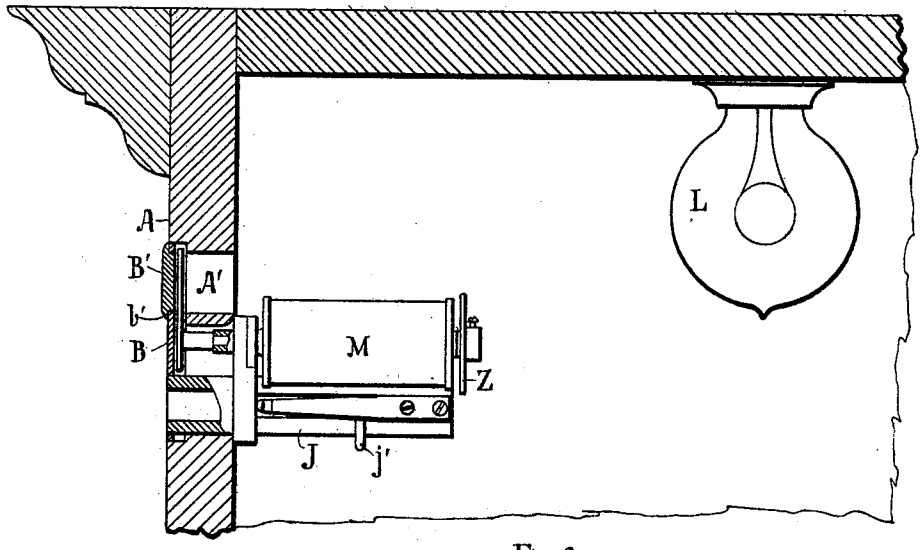


Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM D. GHARKY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE SUN ELECTRIC MANUFACTURING COMPANY, OF NEW JERSEY.

ANNUNCIATOR AND SPRING-JACK.

SPECIFICATION forming part of Letters Patent No. 646,693, dated April 3, 1900.

Application filed June 16, 1898. Serial No. 683,636. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. GHARKY, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Annunciator and Spring-Jack, of which the following is a specification.

My invention relates to annunciators and spring-jacks as used upon telephone-switchboards.

It has for its object the production of an organization of the character referred to compact in form and certain in its operation, its signal being sufficiently conspicuous to instantly attract attention and automatically restoring itself without the necessity for any other manual act than the insertion of a plug in the spring-jack.

I attain my object by mounting the annunciator and spring-jack upon one base, which is adapted to be attached to the rear of a switchboard. An oscillating signal-shutter is provided upon the front of the board and a connection therefrom, through the board itself and the base upon which the whole is mounted, to the armature of the magnets.

My invention is illustrated in the accompanying drawings, wherein the same letters represent the same parts throughout.

Referring to the drawings, Figure 1 is a face view of a small portion of a telephone-switchboard having mounted thereon one form of my combined annunciator and spring-jack. Fig. 2 is a similar view having the covering-plate removed. Fig. 3 is a vertical longitudinal section thereof in a central plane. Fig. 4 is a rear view of the same. Fig. 5 is a top view of the combined annunciator and jack, the portion of the board upon which it is mounted being shown in section. Fig. 6 is a sectional view similar to Fig. 3, showing a modification of the mounting of my annunciator whereby the shutter acts to open and close an aperture to allow light-rays from a source within to emerge when a signal is desired. Figs. 7 and 8 are detailed views of portions of the spring-jack.

Referring to the figures, A is a portion of the face of a telephone-switchboard.

B is a circular plate countersunk into the face thereof and secured in position by suitable means, such as screws *b*. The plate B is provided with two apertures b' b^2, the first being the signal-aperture and the latter being provided for the margin of the tube of the spring-jack J. The plate B carries upon it the number or other symbol designating the line to which it belongs.

Mounted upon the rear of the board-section A is a base-frame C, secured to the board in a suitable manner, as by screws *c*. Carried upon and integral with this base-frame are the jack J, which consists in its essential features of a partially-split tube, and the journal-bearing or tube c'. Journaled in the tube c' and extending from the rear end thereof to and through the switchboard-section A is a revoluble spindle S. Mounted upon this spindle at its outer end, between the recessed face *a* of the board-section A and the covering-plate B, is a target T. Attached to the rear end of the spindle S by a set-screw *z* or otherwise is an armature Z, which is shaped like that letter itself. The normal position of this armature is as shown in Fig. 4, and in order to retain it in such position when the signal is not to be displayed I provide a retracting-weight *w*, which, however, may obviously be replaced by any suitable form of spring, if desired.

No form of limiting-stop for the armature Z is provided; but on the face *a* of the board-section A, I provide limiting-stops *t t* for the target T, whose travel necessarily determines that of the armature.

The spring-jack J consists, essentially, of a metal tube soldered, brazed, or cast to form an integral portion of the base-frame C. This tube is split, as shown in Figs. 7 and 8, and the two sides united by a bridge *j*. Inserted between the two portions of the tube and straddling the bridge is a block of insulation I, through which passes a screw *i*, which engages with threads tapped in the bridge *j*. Mounted upon the projecting portions i' i^2 are the contact-anvils j' j^2. (Shown in section in Fig. 8 and shown in side view in Fig. 6.) Mounted upon the opposite edges i^3 i^4 of the block I are the jack-springs J' J^2, which project forward through the slot in the jack-tube and terminate in tips j^3 j^4, adapted to make contact with the sleeve and tip, re-

spectively, of a plug inserted from the front of the board. These jack-springs normally rest upon the contact-anvils $j' j^2$, the latter forming terminals for the circuit of the magnet M and the jack-springs constituting the line-terminals. When a plug is inserted in the jack, the springs J' J^2 are lifted slightly away from the contact-anvils, thus breaking the magnet-circuit.

Referring to Fig. 6, a portion of the switchboard is shown in section, with my combined drop and jack shown in full except for such portions as are upon the face of the board. The switchboard in this case is supposed to be an inclosed structure having within it a source or sources of light L. When each drop and jack is mounted on the face of this board, an aperture A' is cut through the front of the board in alinement with the opening b' in the covering-plate B. The target T is supposed to be blackened and to stand normally in the position shown in Figs. 2 and 6—that is, so as to cut off and intercept light-rays which would otherwise pass out through the aperture A' and the orifice b'. When the magnet M is energized and the armature Z turned, the target T is oscillated away from the aperture A', permitting the light-rays to pass through, thereby signaling the operator. In adapting my drop and jack to this form of board I make only one change, which is the insertion of a window of glass (ground, colored, or otherwise prepared) to diffuse the light-rays, which it receives in a parallel beam from within. As shown in Fig. 6, this window B' is a flat disk inserted in the orifice b' and retained in position in any suitable manner. I may, however, use bull's-eyes or so-called "jewels" or any other efficient form, the principal requirement being that the glass shall be prepared in such a way as to diffuse light-rays properly, this being rendered necessary by the fact that the operator is not always directly in front of any particular signal.

There are various changes in this invention which will doubtless occur to those skilled in the art as possible to be made which might increase its efficiency without destroying its identity, and all such changes are considered as within the scope and purview of my invention.

Having thus described the invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an annunciator, the combination of a face-plate provided with a circular depression, an electromagnet mounted upon the rear of said plate, a bearing-tube mounted parallel to the cores of said magnet, a spindle journaled in said tube and extending through the face-plate into said circular depression, an armature upon the end of said spindle adapted to oscillate across the poles of said magnet, a target on the front end of the spindle, adapted to oscillate in said circular depression, and a covering-plate, provided with an orifice, fitted over the same, substantially as described.

2. In an annunciator a face-plate provided with an orifice, a magnet mounted on the back of said face-plate, a bearing parallel to the cores of said magnet, a spindle journaled in said bearing and extending through the face-plate, a Z-shaped armature upon the inner end of said spindle having one of its legs weighted, so that it will normally hang by gravity with its straight transversed portion intermediate of the magnet-poles, and a target upon the other end of the spindle normally covering the orifice in the face-plate, but adapted to be oscillated to uncover the same when the magnet is energized and to so remain as long as the magnet remains energized, together with a source of light arranged to throw its rays through said orifice when uncovered, substantially as described.

3. In an annunciator, a face-plate provided with an orifice, a magnet and a source of light on the rear of said face-plate, a bearing having its axis parallel with the cores of said magnet, a spindle journaled in said bearing having at one end a target normally appearing before the orifice in a vertical position, and at the other end an armature having one arm heavier than the other and so arranged on the spindle relatively to the target that the weight of the heavy end tends to keep the latter vertical when the magnet is not energized, together with the covering-plate upon the face-plate, overlying the target and provided with a window registering with the orifice aforesaid, substantially as described.

4. In an annunciator, a face-plate, a magnet mounted upon the rear side thereof, a spindle-bearing parallel to the cores of the magnet, a spindle in said bearing, a light-target upon one end of said spindle and a Z-shaped armature upon the other end of the spindle, both being freely movable and the armature having one of its legs weighted so that it will normally hang down by force of gravity, with its transversed portion intermediate of the magnet-poles, together with a window or orifice in the face-plate adapted to be covered or uncovered by the target in accordance with the position of the armature, acting in obedience to the magnet, substantially as described.

5. In a telephone-switchboard, a face-plate or panel, having a circular depression, a base-frame mounted upon the rear of the panel, a jack-tube, a spindle-bearing and a magnet having their axes parallel, and mounted on said base-frame, the jack-tube extended forward through the panel; a spindle journaled in the bearing and having at its inner end an armature, and at its outer end a target in said circular depression, and a covering-plate overlying the depression and provided with orifices for the exhibition of the target, and for the passage of the jack-tube, respectively, substantially as described.

6. In a spring-jack, a split tube, a block of

insulating material, detachable and secured across and within said tube, contact-anvils and line-springs secured to said block, the line-springs extending into the tube and normally in contact with the anvils, substantially as described.

7. A spring-jack consisting of a split tube having a bridge-piece, a block of insulating material across said tube, and straddling the bridge-piece, contact-anvils secured upon said block, and line-springs also secured to the block, normally resting upon the anvils and extending into the tube, in a position to make contact with a plug inserted therein, substantially as described.

In testimony whereof I have hereunto set my hand, this 10th day of June, A. D. 1898, in the presence of two witnesses.

WM. D. GHARKY.

Witnesses:

EDWD. E. CLEMENT,

MORTIMER A. JONES.