(No Model.)

H. W. LELAND.

CIRCUIT CONTROLLER.

No. 486,212. Patented Nov. 15, 1892.

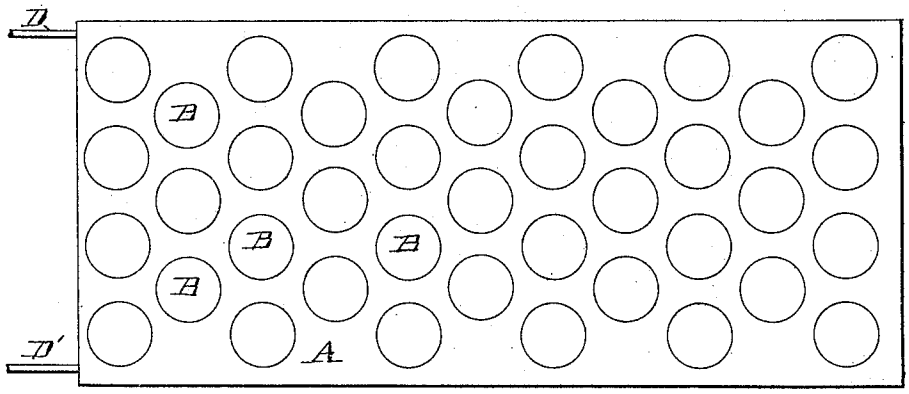

Fig. 1.

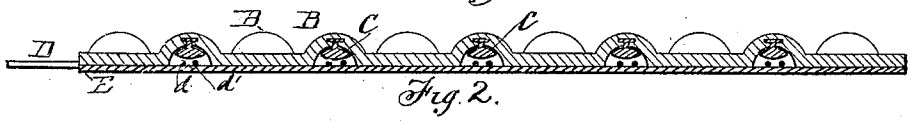

Fig. 2.

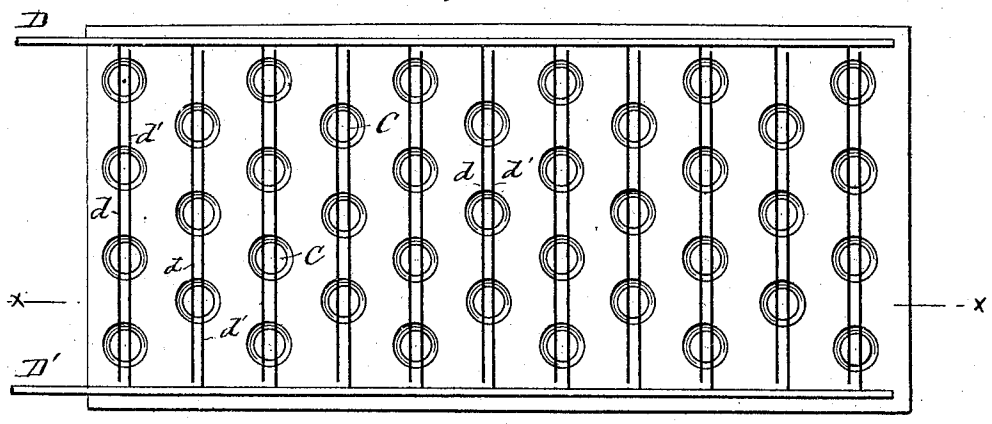

Fig. 3.

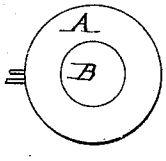

Fig. 4

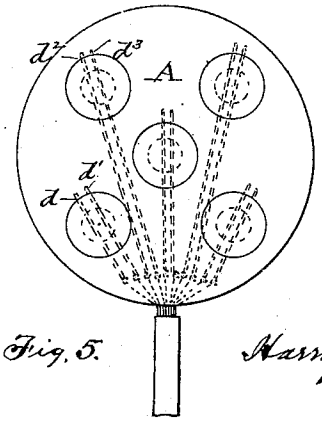

Fig. 5.

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UNITED STATES PATENT OFFICE.

HARRY W. LELAND, OF JERSEY CITY, NEW JERSEY.

CIRCUIT-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 486,212, dated November 15, 1892.

Application filed January 11, 1892. Serial No. 417,614. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. LELAND, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Circuit-Controllers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electric-circuit controllers, the object being to render devices of this character more free from the interference of dust and moisture with the circuit-changing contacts than has been the case with the constructions ordinarily used.

In the accompanying drawings, which illustrate the invention, Figure 1 is a plan view of a circuit-controlling device for an alarm or calling circuit for use at the entrance to a room or building for the purpose of giving an alarm when any one enters. Fig. 2 is a longitudinal sectional view of Fig. 1 on the plane indicated by the line $x\ x$ in Fig. 3. Fig. 3 is a bottom view of the circuit-controller shown in Fig. 1, the protective sheet used on the bottom to exclude dust or moisture being removed. Fig. 4 is a circuit-controller provided with a single pair of circuit-closing contacts for use as a push-button or similar contrivance. Fig. 5 illustrates a group of independent circuit-controllers suitable for use in calling any of a number of different stations.

In carrying out my invention I provide a sheet or disk of elastic material—such as soft rubber—with one or more protuberances upon its upper surface, to the under side of which is or are secured a metallic stud or studs, in operative relation to which are mounted the wires or terminals of an electric circuit, so that when pressure is applied to the protuberances the studs will vary the condition of the electric circuit and give an alarm.

A represents the elastic sheet, upon which are the protuberances B B, to the under side of which are secured metallic studs C, preferably by embedding in the rubber before vulcanization. Upon the under side of the rubber are mounted two conductors D D′, having lateral branches $d\ d'$ extending over the surface of the sheet. These conductors and their branches may be secured to the sheet of elastic material in any suitable way. A recess is formed under each protuberance B to permit the necessary movement of the stud C to change the condition of the circuit.

As illustrated in the drawings, the device is constructed for an open-circuit system. In this case the branch wires $d\ d'$ cross the recesses and are in position to be bridged by the stud C when pressure is applied to the protuberances. A protecting-sheet E is applied to the under surface of the sheet A and is firmly connected therewith by riveting, cementing, or vulcanizing, so as to form a dust-proof and waterproof covering for the contacts. The protuberances B should be arranged on the mat at such distances apart that one or more of them will be necessarily brought into service when the mat is trod upon. In the device illustrated in Fig. 5 the same plan of structure is followed, except that the branch wires $d\ d'\ d^2\ d^3$, &c., connect with independent circuits. The main conductors are permitted to project at one end for making the necessary connections with an exterior circuit.

It will be evident that the device may be adapted for service in a closed-circuit system by forming the recess upon the under sheet and permitting the stud C to extend under the wires and normally bridge them in a manner common in the construction of circuit-controllers.

The important advantages following such a construction as herein described are that the contacts are thoroughly protected from the entrance of air and moisture, which prevents their fouling or the deposition of dust or the oxidation of the wires and insures a safe electrical closure of the circuit when the circuit-controller is operated. Such a result is important in all types of circuit-controllers, but especially so in those used in burglar-alarm systems, where a reliable action of the electrical features of the system is imperatively required.

It will be noted that no springs are used in my circuit-controller, the material upon which the contacts are mounted having the required elasticity to restore the contacts to their normal condition after operation.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A circuit-controller comprising a sheet or disk provided with one or more rubber or similar elastic ridges or protuberances formed on its surface and circuit-controlling contacts embedded in the sheet and its ridges, respectively.

2. A circuit-controller comprising a sheet or disk of elastic material provided with one or more protuberances on its surface and having circuit-controlling contacts mounted on the under surface of the protuberance or protuberances.

3. A circuit-controller comprising a sheet of elastic material having one or more circuit-controlling contacts mounted upon its under surface and one or more co-operating contacts mounted on the under side of the sheet, the co-operating contacts being held in their normal condition by the elasticity of the supporting-sheet.

4. A circuit-controller comprising a sheet of elastic material provided with one or more ridges or protuberances, to the under side of which are fixed circuit-controlling contacts, co-operating contacts mounted on the under side of the sheet in operative relation to those first mentioned, and a protecting-sheet applied to the under surface to maintain the contacts in operative condition.

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

HARRY W. LELAND.

Witnesses:
ROBT. H. READ,
CHARLES W. BENJAMIN.