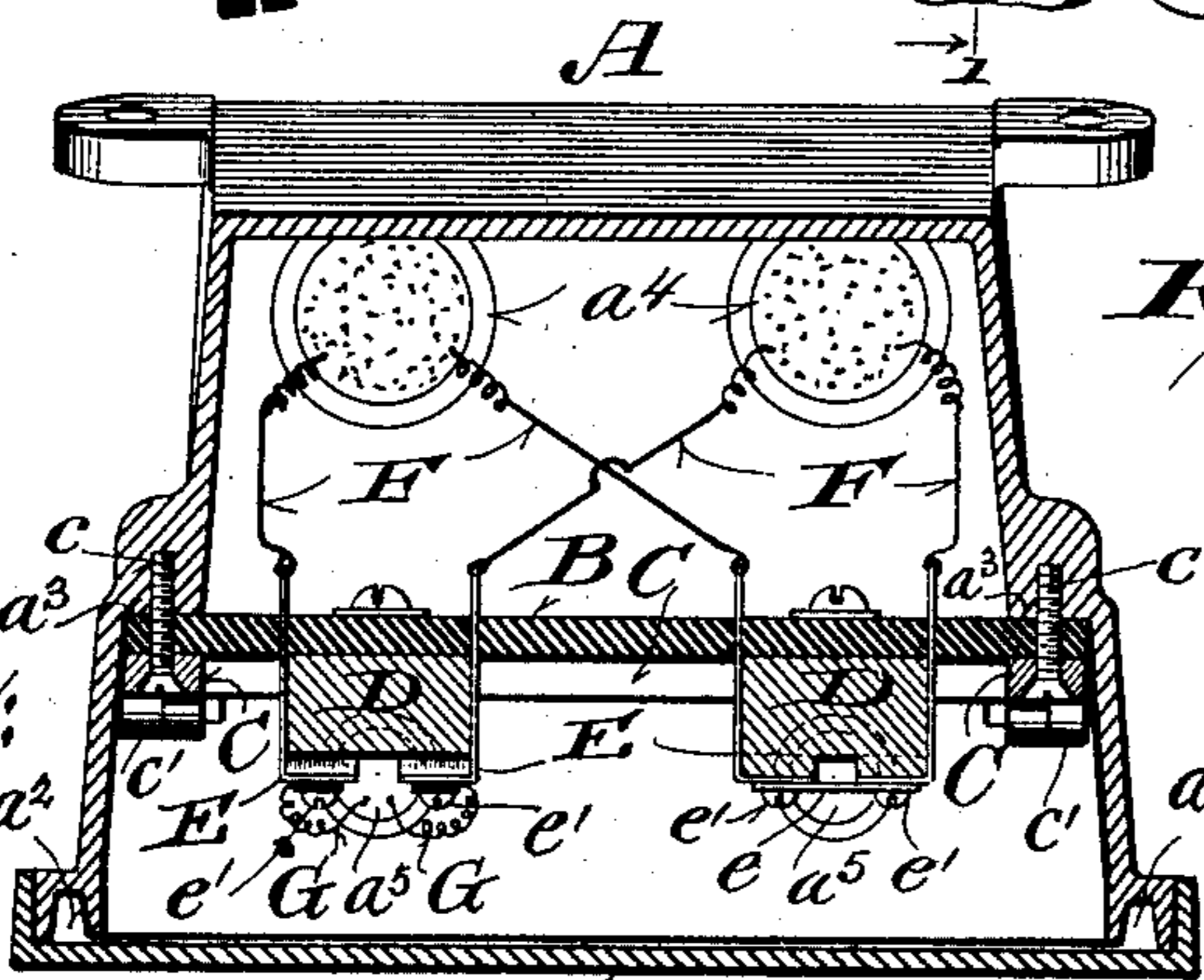
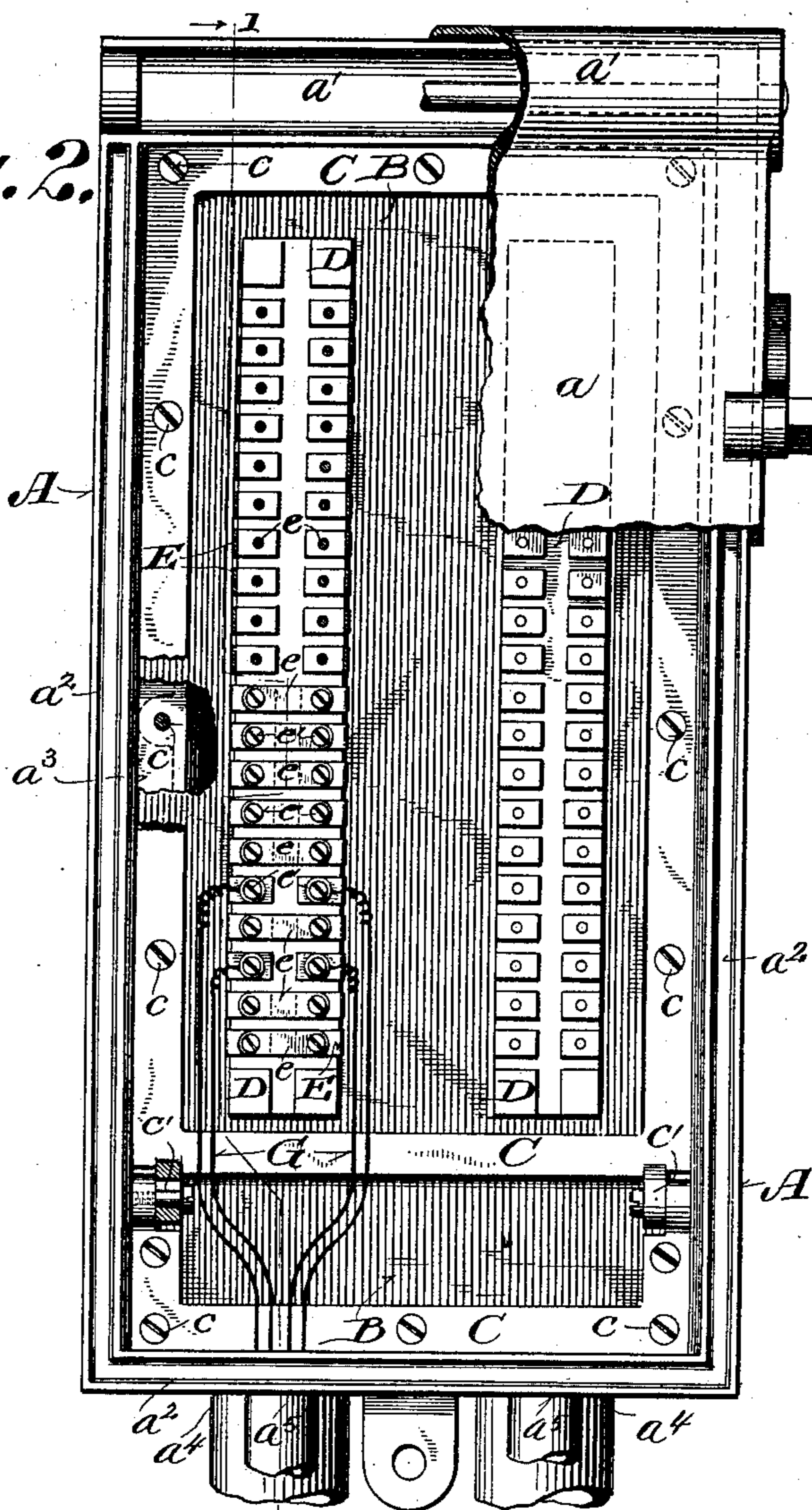


W. S. JOHNSON.  
ELECTRICAL JUNCTION BOX.

Patented Oct. 1, 1895.



*Fig. 3.*

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# UNITED STATES PATENT OFFICE.

WARREN S. JOHNSON, OF MILWAUKEE, WISCONSIN.

## ELECTRICAL JUNCTION-BOX.

SPECIFICATION forming part of Letters Patent No. 547,078, dated October 1, 1895.

Application filed January 21, 1895. Serial No. 535,682. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN S. JOHNSON, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Electrical Junction-Boxes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main objects of my invention are to prevent the leakage and waste of electric current by excluding moisture from the electrical connections of the box and to facilitate access to such connections for the purpose of making repairs or changes.

It consists essentially of the combination with a suitable casing and a series of pairs of electric contacts or terminals of an elastic partition dividing said casing into two compartments and constituting a base or support for said contacts and a hermetic seal between said compartments, and of certain other novel features in the construction and arrangement of the component parts of the device, as hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings, like letters designate the same parts in the several figures.

Figure 1 is a vertical section on the line 1 1, Fig. 2, of a junction-box embodying my improvements. Fig. 2 is a front elevation of the same, a portion of the cover and other parts being broken away to disclose the interior; and Fig. 3 is a horizontal section on the line 3 3, Fig. 1.

In devices heretofore designed for the same general purpose of that herein described it has been proposed to protect the electrical connections of the main wires or conductors by filling the compartment of the box containing them with some fusible or soluble insulating material, such as paraffine, the contacts or terminals being mounted upon an insulating base of vulcanized fiber, which of itself does not constitute a partition impervious to

moisture or form a hermetic seal between the compartments of the box; but the paraffine contracts when it cools and solidifies or stiffens and is liable to crack and leave interstices between it and the casing and electric connections and thus fails to accomplish its purpose. It also prevents easy access to the electric connections, as it must be melted and drawn off before they can be reached or inspected.

It is the specific purpose of my improvements to avoid these objections in the attainment of the general objects above mentioned.

Referring to the drawings, A designates a casing, which may be conveniently made of cast-iron and provided with a hinged door or removable section on one side to afford access to the interior. This door may be conveniently hinged to the box at the top and the hinge covered with a shield  $a'$  to exclude water. The adjacent side and lower edges of the casing may also be formed with a channel  $a^2$  to catch and conduct off any water which might run under the edges of the door and otherwise enter the box. The casing is formed on the inside with an inwardly-projecting flange or ledge  $a^3$  in a plane approximately parallel with the door and midway between it and the back.

In the bottom of the casing openings and pipe-connections  $a^4$  and  $a^5$  are provided in the usual manner for the introduction of wires and the attachment of the coverings of cables containing the wires.

B is a partition, made of soft rubber or other suitable elastic insulating material impervious to moisture. It is approximately fitted inside of the casing, which it divides into two compartments, and is adapted to rest at its edges upon the flange or ledge  $a^3$ , to which it is tightly clamped by a rigid frame C, and screws  $c c$  passing through it into said flange or ledge, thus forming a hermetically-sealed joint. This frame is preferably made in two sections, which are hinged together at  $c' c'$  to admit of swinging the larger section and the corresponding part of the elastic flexible portion B, carrying the electric contacts outward, so as to gain access to the connections on the back side of said partition without completely

detaching it from the casing or displacing it. To the front side of this flexible partition are preferably attached strips or blocks D D of vulcanized fiber or other suitable insulating material, possessing sufficient hardness and rigidity to afford a base or foundation for the electric contacts of the requisite stability. This may be accomplished by forming the soft rubber or other elastic material of partition B upon a stiff frame, bars, or strips of suitable shape. Upon these strips D D are mounted in a series of pairs metallic plates, contacts, or terminals E E, which afford means of variously connecting branch-service wires with the main-line wires. The contact-plates are bent over the sides of said strips and pass transversely through the elastic partition B, which, by reason of its elasticity, closes snugly and forms tight joints around them. The ends of the rearwardly-bent arms project sufficiently through the said partition to permit of the easy attachment thereto of the main-line wires F F, which are connected in pairs with corresponding pairs of contacts.

The insulating strips or blocks D D are preferably grooved lengthwise and crosswise between the several contact-plates, so as to leave raised portions for their attachment and to more effectively separate and insulate them.

The sulphur contained in the soft rubber forms with the metal in contact therewith a sulphide, which further insures tight joints around the arms of the contact-plates passing through the partition.

The contact-plates are electrically connected in pairs on the front side of partition B by any suitable means, such as detachable bridge-plates *e e* and binding-screws *e' e'*. The same screws also serve to secure the contact-plates to the insulating strips or blocks, and when desired to fasten the branch-service wires G G to said plates, and thus connect them with a pair of main-line wires F F, the bridge-plates *e e* of such contact-plates being removed for the latter purpose.

The elastic insulating partition and associated parts, as hereinbefore described, not only form an effectual barrier to the passage of moisture from the front compartment, which is frequently opened into the rear compartment containing the main electrical connections, but also affords means of ready access to the rear compartment, which may be opened by simply removing the screws *c c* from the larger section of frame C and turning it with the adjacent part of partition B, carrying the contact-plates E and their connections down on the hinges *c' c'*. The electrical connections on the back of said partition are thus completely exposed to view and reach and may be easily and quickly restored to normal position.

Various changes in the details of my improvements may be made within the spirit and intended scope of my invention.

I claim—

1. In an electrical junction box, the combination with a suitable casing, of an elastic insulating partition impervious to moisture and adapted to divide said casing into two compartments, substantially as and for the purposes set forth.

2. In an electrical junction box, the combination of a suitable casing having a door or removable section, of a flexible insulating partition impervious to moisture and adapted to divide said casing into two compartments, electrical contacts or terminals mounted upon said partition and having electrical connections on opposite sides thereof, and means of hermetically sealing the edges of said partition in said casing, substantially as and for the purposes set forth.

3. In an electrical junction box, the combination with a suitable casing having an interior flange or ledge, a series of electrical contacts or terminals, means of electrically connecting said contacts in pairs at will, an elastic partition dividing said casing into two compartments and constituting a base or support for said contacts, and a frame secured over the edges of said partition to said ledge and producing a hermetically sealed joint between said compartments, substantially as and for the purposes set forth.

4. In an electrical junction box the combination with a suitable casing and electrical contacts or terminals, of an elastic insulating partition dividing said casing into two compartments and forming a hermetic seal against the passage of moisture from one compartment into the other around the edges of the partition and around the contacts or terminals passing through it, said contacts having electric connections for attachment to conductors on opposite sides of said partitions, and means of electrically connecting them at will in pairs, substantially as and for the purposes set forth.

5. In an electrical junction box the combination with a suitable casing having an inwardly projecting flange or ledge and a door or removable section on one side, of an elastic insulating partition arranged to divide said casing into two compartments, and a frame composed of sections which are adapted to be secured to said flange or ledge over the edges of said elastic partition, substantially as and for the purposes set forth.

6. In an electrical junction box, the combination with a suitable casing, of an elastic partition impervious to moisture, dividing said casing into two compartments, an insulating base attached to said partition, and electrical contacts or terminals mounted upon said base and having electrical connections on opposite sides of said partition, substantially as and for the purposes set forth.

7. In an electrical junction box, the combination of a suitable casing, a soft rubber partition dividing said casing into two compartments; electric conductors passing through

said partition and provided on opposite sides thereof with suitable electrical connections, the rubber of said partition forming hermetically sealed joints with said casing and conductors, substantially as and for the purposes set forth.

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my own I affix my signature in presence of two witnesses.

WARREN S. JOHNSON.

Witnesses:

A. W. HARD,  
CHAS. L. GOSS.

In testimony that I claim the foregoing as