April 29, 1930. J. E. POTTER 1,756,878

ELECTRIC DISCHARGE DEVICE

Filed Dec. 10, 1927

Fig. 1.

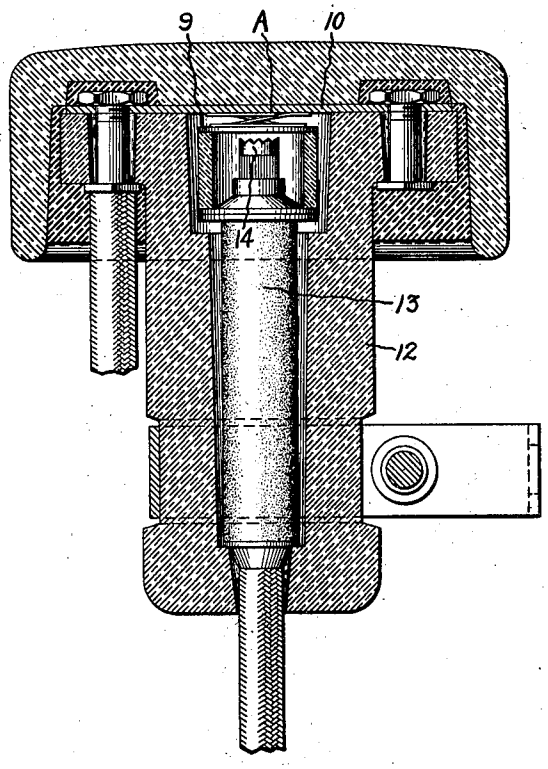
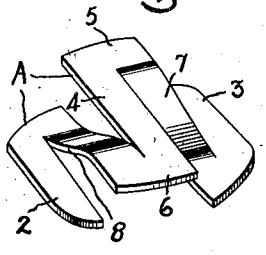


Fig. 2.



Inventor
John E. Potter,
by Alexander S. Lewis
His Attorney.

Patented Apr. 29, 1930 1,756,878

UNITED STATES PATENT OFFICE

JOHN E. POTTER, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

ELECTRIC DISCHARGE DEVICE

Application filed December 10, 1927. Serial No. 239,040.

My invention relates to electric discharge devices; more particularly it relates to a type of such device especially adapted for use as a lightning arrester.

Heretofore the elements contained within the arrester porcelain container have been held in position by devices of various sorts. As far as applicant is aware the devices heretofore used have been more or less unsatisfactory, have been comparatively expensive, and have not insured satisfactory electrical connection with varying loads of current. Among the objects of my invention are: to provide a contact compression member such as a contact spring that can carry large volumes of current intermittently or small volumes of current continuously; to provide for this purpose a device which is non-inductive and which can be compressed or expanded within the limits of operation of the arrester without losing its flexible character; to provide such an element which is simple in structure, which is effective and which can be cheaply manufactured; to provide such a device in which the contact surfaces remain parallel, thereby giving continuous effective contact during variations of compression within the porcelain container due to expansion or contraction of the elements contained therein. The features of the invention will be more readily understood from the following specification and claims, reference being had to the accompanying drawing.

Referring to the drawing, Fig. 1 shows a lightning arrester provided with the features of the invention. Fig. 2 shows the compression spring which is interposed between the cap of the arrester and the elements within the porcelain chamber of the arrester. Referring to Fig. 2 it will be seen that the spring element is constructed from a single piece of metal—any good conducting metal which is non-inductive electro-magnetically is prefcrable. It will be seen that the spring A may be made, preferably, from a metal disc or plate and so bent that the terminal prongs 2 and 3 of the spring remain parallel with respect to a common plane. The spring is provided with an intermediate portion which has the general configuration of the letter Z. This portion comprises a central stem 4 with cross terminal portions 5 and 6. The intermediate Z-shaped portion is produced by four parallel cuts which extend alternately to opposite edges of the plate, the inner ends of the cuts stopping short of the edges of the plate as shown in Fig. 2. The device is so formed that the sections 4, 5 and 6 extend parallel to a common plane and preferably parallel to the first mentioned plane. As shown in the figure, the lower elements 2 and 3 are connected with the upper elements 4, 5 and 6 by means of the sloping strips 7 and 8. Obviously, therefore, when the spring A is in position in the arrester as shown in Fig. 1, the elements 2 and 3 rest against the usual metal electrode disc 9. Similarly, the elements 4, 5 and 6 preserve flat contact against the upper metal plate 10. This relation obviously is preserved or substantially preserved with any contraction or expansion of the elements within the porcelain tube 12 which elements include a resistance rod 13 and an electrode cell within which the gap is located between the electrodes 9 and 14. The material is selected so that the element A preserves its resiliency without deformation as a result of the contraction and expansion of the arrester. For example, I find that satisfactory results are obtained when the element A is formed from phosphor-bronze.

It will be understood that while I have illustrated my invention in connection with a specific form of construction, I do not wish to be so limited inasmuch as variations may be made in view of the disclosure without departing from the spirit of the invention or the scope of the claims contained herein.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A resilient contact for use in connection with electric devices, said contact being formed from a metal plate, the plate being cut along four parallel lines transverse an axis of the plate, said cuts extending alternately to the opposite edges of the plate with respect to said axis, the inner ends of said cuts stopping short of the edges of the plate, the metal of the plate between the two outermost cuts being raised, the raised portion comprising

three bands, two of said bands sloping with respect to and one of said bands not sloping with respect to the non-raised portion.

2. A resilient contact for use in connection with electric devices, said contact being formed from a metal plate, the plate being cut along parallel lines transverse an axis of the plate, said cuts extending alternately to the opposite edges of the plate with respect to the said axis, the inner ends of said cut stopping short of the edges of the metal, the metal between the two outermost cuts being raised, the raised portion comprising three bands, two of which slope with respect to and one not sloping with respect to the non-raised portion of the metal.

In witness whereof, I have hereunto set my hand this 6th day of December, 1927.

JOHN E. POTTER.