No. 869,403. PATENTED OCT. 29, 1907.

A. ANDERSON.

STRAIN INSULATOR.

APPLICATION FILED MAR. 2, 1906.

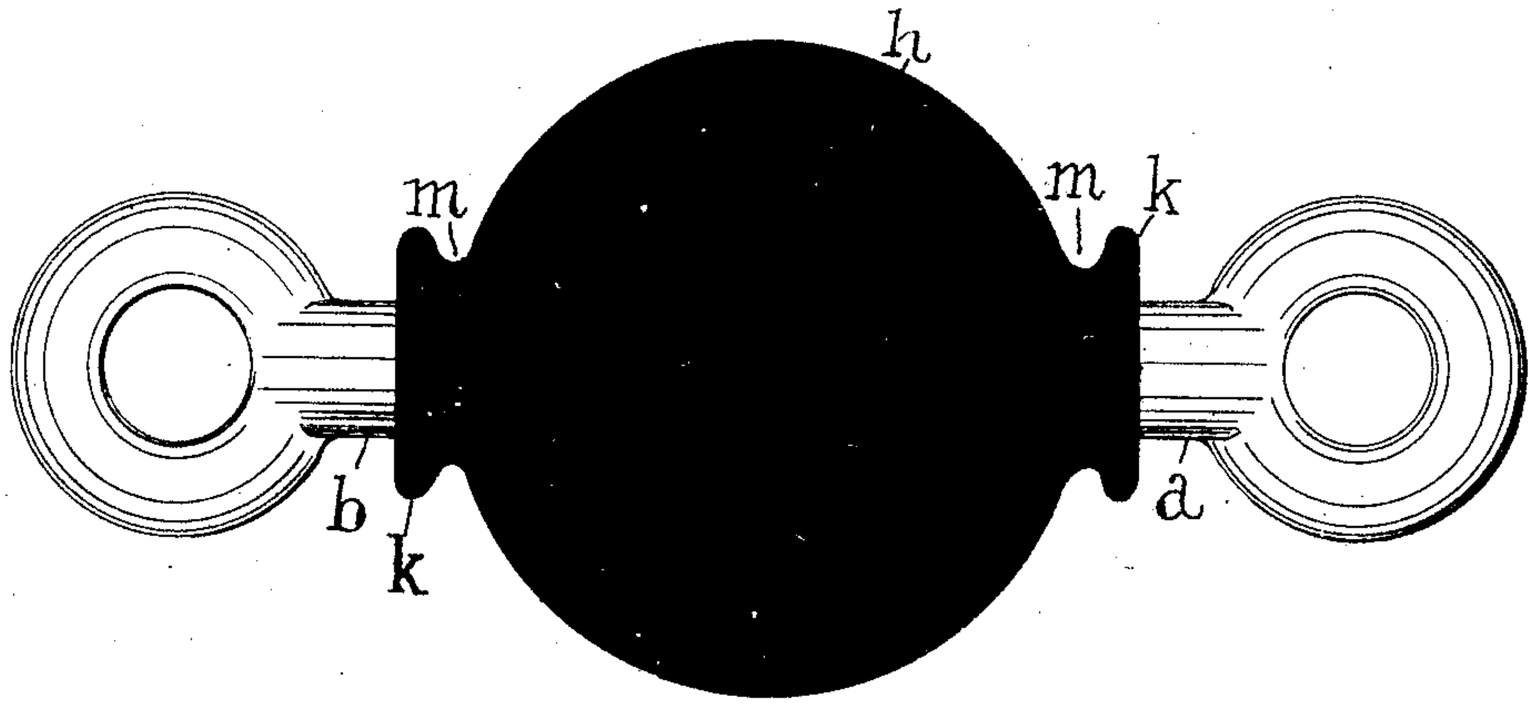

Fig. 1.

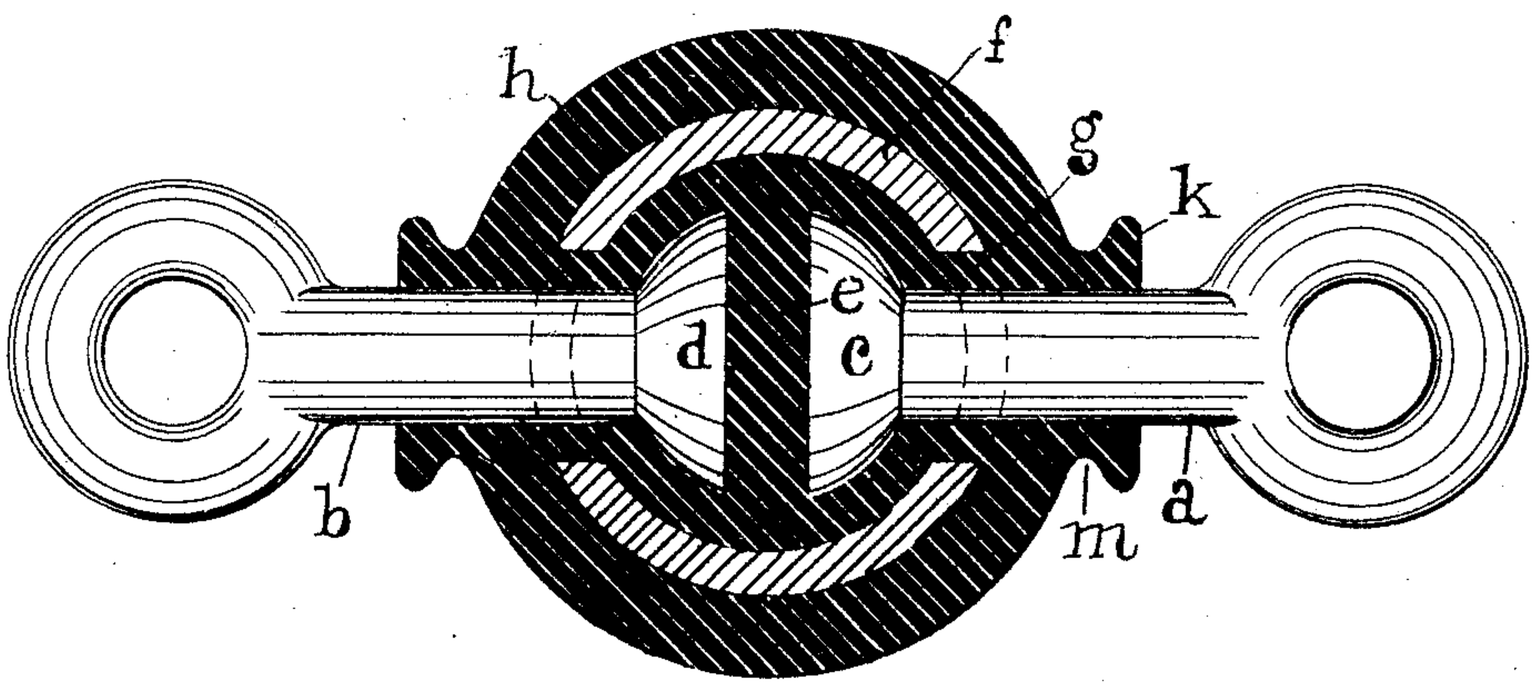

Fig. 2.

Witnesses.
C. N. Garnett
J. Murphy

Inventor
Albert Anderson
by Jas. H. Churchill
Atty.

UNITED STATES PATENT OFFICE.

ALBERT ANDERSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ALBERT AND J. M. ANDERSON MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

STRAIN-INSULATOR.

No. 869,403. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed March 2, 1906. Serial No. 303,756.

To all whom it may concern:

Be it known that I, ALBERT ANDERSON, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Strain-Insulators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to an electric insulator of that class known as strain insulators, and such as are commonly employed in the overhead electric railway systems.

Insulators of the class described, are subjected to severe strains, and the present invention has for its object to provide an insulator which is capable of withstanding a maximum strain without impairing the efficiency of the insulation.

The particular features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is an elevation of a strain insulator embodying this invention, and Fig. 2, a longitudinal section with parts in elevation of the insulator shown in Fig. 1.

The strain insulator herein shown as embodying this invention consists of two metallic members, shown as eye-bolts *a*, *b*, provided with heads *c*, *d*, arranged in line with and separated from each other by insulating material *e;* a metallic shell *f*, inclosing the heads *c*, *d*, and provided with openings through which the shanks of the members *a*, *b*, extend and from which the said shell is separated by insulating material *g*. The metallic shell *f* and the shanks of the bolts for a portion of their length are enveloped by insulating material *h*.

The insulating material marked *e*, *g* and *h* may be of the same or different compositions or kinds, and in the present instance, the insulating materials are represented as of one kind, which is molded into the form of a globe which may be provided as shown with poles or neck portions *k* enveloping the shanks of the eye-bolts and having annular grooves *m* for the purpose of shedding the moisture which may run down the globe.

In order to impart to the insulator the property of resisting strains of maximum severity, and thereby avoid cracking, separating or otherwise impairing the insulation within and without the metallic shell *f*, the latter is made curved or spherical on its inner surface at the ends or portions through which the eye-bolts pass, so that the said ends will not yield or move under severe strain.

It is preferred to make the shell spherical in shape both on its inner and outer surfaces and in one piece of steel as represented herein.

The heads *c*, *d* of the eye-bolts may and preferably will also be made substantially semi-spherical in shape, whereby the curved surface of the heads may coöperate with the curved inner surfaces of the shell, so that the strain may be distributed over a substantially large area of the inclosing shell near the diametrically opposite poles or openings in said shell, thereby increasing the resistance to movement of the walls of the openings in the shell and thus obtaining an insulator capable of withstanding a longitudinal strain of maximum severity, which is especially desirable in the line equipment of the overhead system of electric railways.

It is preferred to make the spherical metallic shell *f* in one piece of steel, and for this purpose a steel cylinder is employed, into which the insulating materials *e*, *g*, together with the heads *c*, *d* of the metallic members are placed, and which steel shell is then compressed into the form of a sphere as represented in Fig. 2.

The metallic members *a*, *b* are herein represented as eye-bolts, but it will be understood that the portion which is exterior to the shell *f* may be of any other desired or suitable construction.

Claims.

1. In an insulator of the class described, in combination, two metallic members provided with heads, insulating material electrically separating said heads, a one piece inclosing metallic shell substantially spherical in form and provided with openings substantially opposite each other and having its inner surface adjacent each of said openings curved or substantially spherical in shape, insulating material separating said shell from said members, and insulating material on the outer surface of said shell, substantially as described.

2. In an insulator of the class described, in combination, two metallic members provided with substantially semi-spherical heads, insulating material electrically separating said heads, a one piece metallic shell substantially spherical in form and inclosing said heads and provided with openings substantially opposite each other through which said members extend, said shell having its inner surface adjacent each of said openings substantially semi-spherical in shape, insulating material separating said shell from said members, and insulating material on the outer surface of said shell, substantially as described.

3. In an insulator of the class described, in combination, a one piece metal shell substantially spherical in form and provided with substantially diametrically opposite openings and having a curved inner surface adjacent to each of said openings, metallic members provided with heads located within said shell and with shanks extended through said openings, and insulating material within said shell separating said metallic members from each other and from said shell, substantially as described.

4. In an insulator of the class described, in combination, a one-piece substantially spherical metallic shell provided with substantially diametrically opposite openings, devices provided with heads located in said shell and with shanks extended through said openings, and insulating material separating said heads from each other and from said shell, substantially as described.

5. In an insulator of the class described, in combination, a one-piece substantially spherical metallic shell provided with substantially diametrically opposite openings, metallic members provided with curved heads located in said shell and provided with shanks extended through said

openings, and insulating material separating said heads from each other and from said shell, substantially as described.

6. In an insulator of the class described, in combination, a one-piece substantially spherical steel shell provided with substantially diametrically opposite openings, metallic members having curved heads located in said shell and with shanks extended through said openings, and insulating material separating said heads from each other and from said shell, substantially as described.

7. In an insulator of the class described, in combination, a one piece substantially spherical metal shell provided with an opening and having a curved inner surface adjacent to said opening, a metallic member provided with a head located within said shell and with a shank extended through said opening, and insulating material within said shell interposed between said head and the curved inner surface of said shell, substantially as described.

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

ALBERT ANDERSON.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.