(No Model.)

J. CLEGG.

STRAIN INSULATOR.

No. 599,493. Patented Feb. 22, 1898.

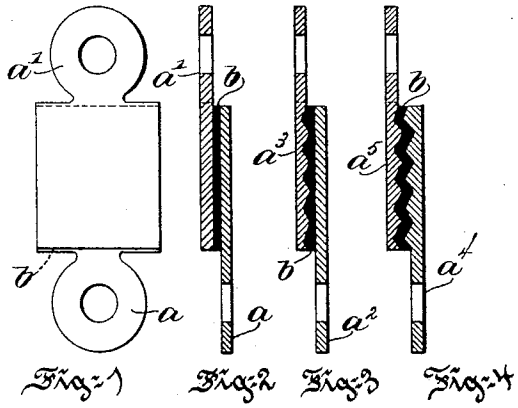


Fig. 1 Fig. 2 Fig. 3 Fig. 4

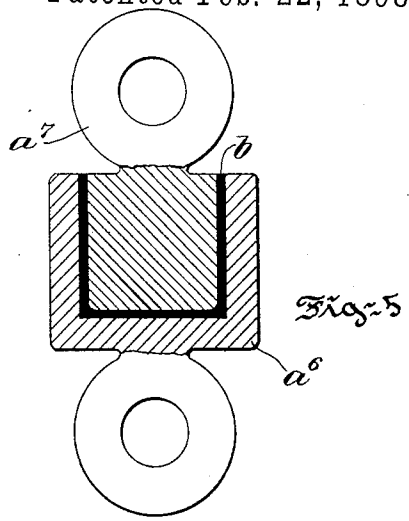


Fig. 5

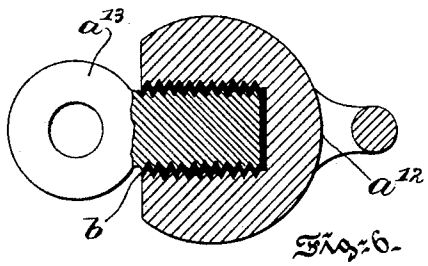


Fig. 6.

Witnesses:
W. B. Jackson.
K. M. Gilligan.

Inventor.
James Clegg.
By Augustus B. Stoughton.
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES CLEGG, OF NEW YORK, N. Y., ASSIGNOR TO THE METALLIC INSULATION COMPANY, OF NEW BRUNSWICK, NEW JERSEY.

STRAIN-INSULATOR.

SPECIFICATION forming part of Letters Patent No. 599,493, dated February 22, 1898.

Application filed December 30, 1895. Serial No. 573,709. (No model.)

To all whom it may concern:

Be it known that I, JAMES CLEGG, a subject of Her Majesty the Queen of England, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Insulating Electric Fittings, of which the following is a specification.

This invention relates to the insulation of metallic fittings and appliances for use with electric currents and other purposes of great utility.

It is well known that the principal difficulty in the distribution of electric energy is the insulation of it in predetermined areas.

My invention provides the means and materials, as are herein set forth, whereby metals can be cemented together with a cement of great tenacity and which will resist electric currents of the highest electromotive forces, and this cement will resist the extremes of heat and cold. It is unaffected by the most destructive acids, excepting hydrofluoric, and it is not attacked by any gases or the atmosphere, and consequently it is very durable.

In order to fully explain the details and scope of my invention, I will refer to the accompanying drawings, in which—

Figures 1 and 2 are respectively front and sectional views showing two pieces of metal, as iron, one-eighth of an inch thick, more or less, stamped out with an eye at one end and laid and held the one upon the other with insulating-cement between them. Fig. 3 is a sectional view showing the cement and two pieces of metal, whereof one is corrugated. Fig. 4 is a similar view showing both of the metallic pieces corrugated. Fig. 5 is a sectional view showing an electric appliance constructed of two pieces of iron fitted together with the insulating-cement between them; and Fig. 6 is a sectional view illustrating an electric fitting comprising two metallic pieces or parts respectively threaded and screwed together and having the cement interposed between their threaded portions.

In the drawings, Figs. 1 and 2 show two pieces a and a' of sheet-iron an eighth of an inch thick, more or less, stamped out with an eye at one end, and one piece is laid and held upon the other with the insulating-cement b between them. The insulating-cement may be of a thickness of not more than one-sixteenth of an inch. These two pieces of metal may be cuttings from ordinary sheet-iron, with plane surfaces, and the tensile strength of the insulating-cement, hereinafter described, is capable of resisting a tensile strain of more than one thousand pounds to each square inch of surface, and tests of the electric resistance of the insulating-cement have shown that it exceeds one million ohms. When the surfaces of the metal are corrugated or angularized, the strength of the cement-joint is increased. Fig. 3 shows two pieces of sheet iron or metal a^2 and a^3, with one piece, a^2, corrugated and the other, a^3, with a plane surface. b in these figures shows the insulating-cement.

In Fig. 4 both pieces a^4 and a^5 of sheet metal are corrugated, and b is the cement. This insulating-cement can be applied also to other electric fittings. For example, Fig. 5 shows an electric appliance made of two pieces of iron a^6 and a^7. The part a^6 is provided with a round cavity in its center of one and one-eighth inches diameter and one and one-eighth inches in depth, more or less. The other piece, a^7, is in the form of a plug, and its depth is one inch and its diameter is one inch, more or less, and there is a space of one-sixteenth of an inch, more or less, for the insulating-cement b. The superficial area of the cement in the device last above described exceeds three inches, and the tensile strength of this appliance has been ascertained by experiment to exceed three thousand pounds and its electric resistance to exceed one million ohms.

Fig. 6 shows parts a^{12} and a^{13} threaded and screwed together, with the insulating material between the threads and each of these parts provided with an eye.

The electric insulating-cement b of this invention is composed of silica, which may be obtained by the calcination of flint, and the best results are obtained by the employment of pure silica. However, good results may be obtained when alumina, which is generally found with silica, does not exceed fifteen per cent., more or less, and it is more tenacious when it is free from metallic oxids, such as

the oxids of calcium, iron, and manganese. The silica may be first fused by the employment of an alkaline or other flux—such as borax, pearlash, or soda-ash, or other sodium or potassium compounds. Silica is taken in proportion of one hundred parts of silica to fifty parts of the alkalies, more or less, and the whole is pulverized together and heated in a crucible to a temperature of about 2,400° Fahrenheit. The product may be employed in a molten condition, or it may after cooling be finely divided by grinding and then placed between the metals in a dry or liquefied condition, and then the metal with the cement are together heated in a muffle-furnace to a temperature of about 1,800° Fahrenheit. The insulating-cement may be applied to any metal which will withstand the high temperature of the furnace in which the cement is fused onto and between the metals. When desired, the fused silica may be inserted between the metal in a fused or molten condition.

It will be obvious to those skilled in the art to which my invention relates that modifications may be made in details without departing from the spirit thereof. Hence I do not limit myself to the precise construction and arrangement of parts hereinabove set forth and illustrated in the accompanying drawings; but,

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

An insulating strain-resisting fitting comprising metallic parts having their abutting faces insulated from each other and connected by an interposed layer of silica vitrified by means of a flux, substantially as described.

In testimony whereof I have hereunto signed my name.

JAMES CLEGG.

In presence of—
A. B. STOUGHTON,
W. T. JACKSON.