Sept. 3, 1940. R. STEWART 2,213,922

INSULATOR

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Fig. 2.

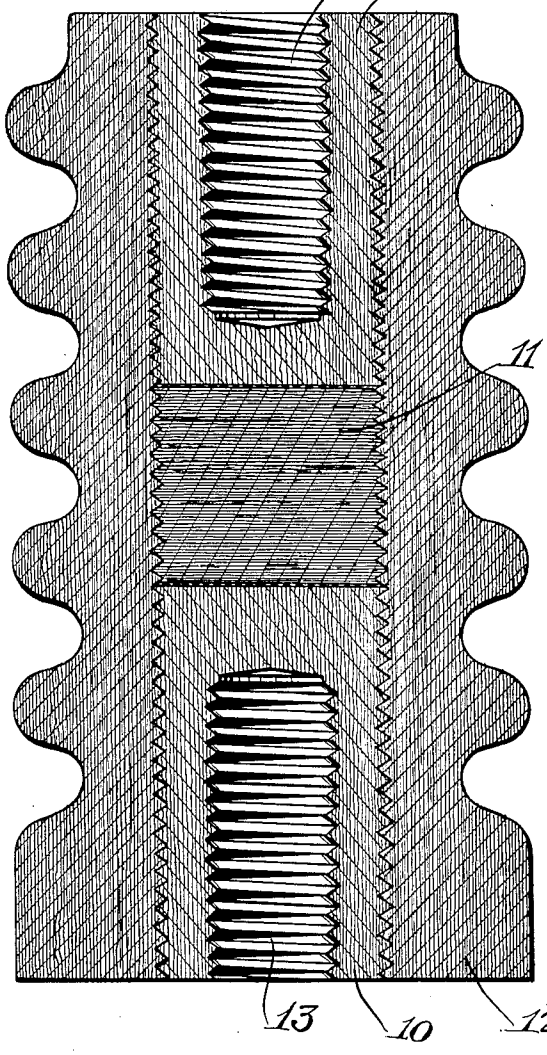
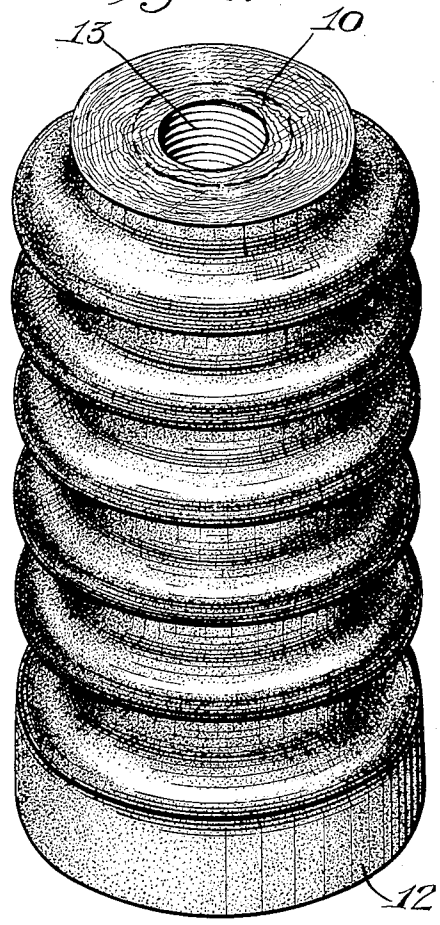


Fig. 1.



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Fig. 3.

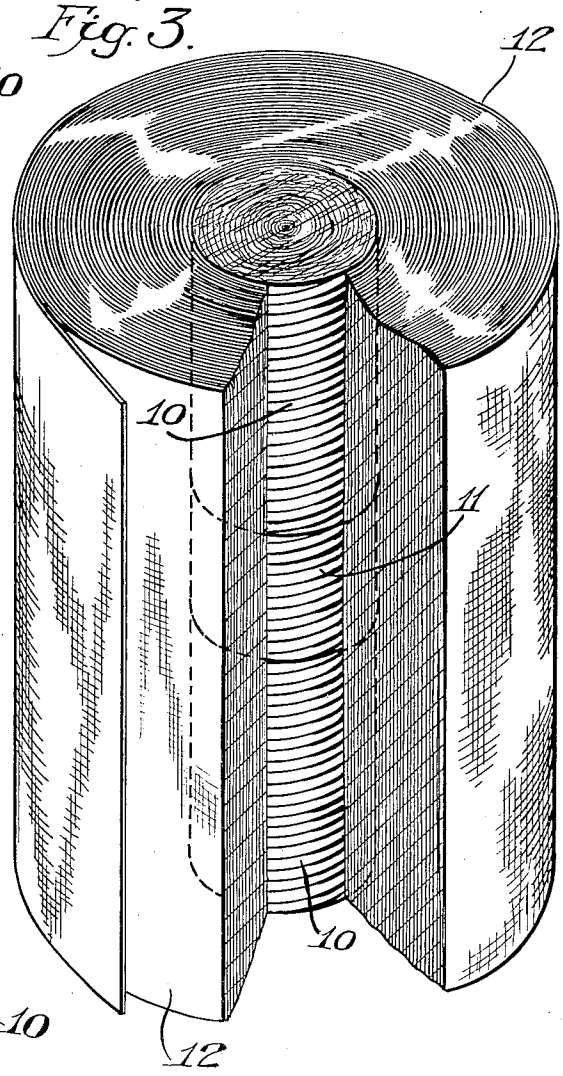
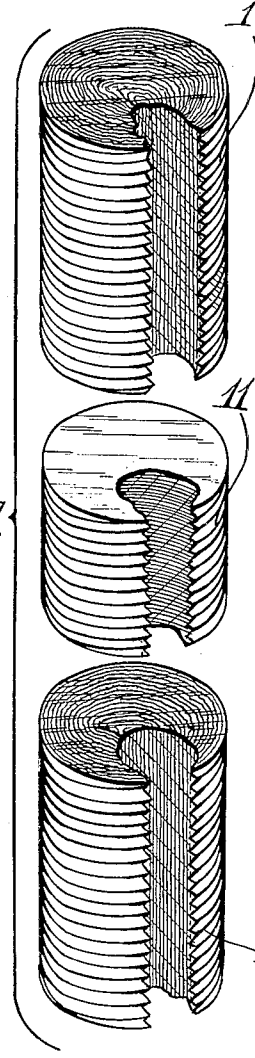


Fig. 4.



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Patented Sept. 3, 1940

2,213,922

UNITED STATES PATENT OFFICE

2,213,922

INSULATOR

Robert Stewart, Newark, Del., assignor to Continental-Diamond Fibre Company, Newark, Del., a corporation of Delaware

Application November 14, 1939, Serial No. 304,395

3 Claims. (Cl. 174—210)

This invention relates to insulators and, more particularly, to an insulator incorporating artificial resins, and has for an important object thereof the provision of a device of this character having a very high electrical resistance.

Another object of the invention is the provision of a structure of this character which may be readily and cheaply produced, which will be durable and efficient in service and a general improvement in the art.

These and other objects I attain by the construction shown in the accompanying drawings wherein, for the purpose of illustration, I have shown a preferred embodiment of my invention and wherein:

Fig. 1 is a perspective view of an insulator constructed in accordance with my invention;

Fig. 2 is a vertical sectional view therethrough;

Fig. 3 is a perspective view partially broken away, showing the assemblage partially completed; and

Fig. 4 is a combined perspective of the sections of the core employed, portions thereof being broken away to show the interior construction.

In accordance with my invention, I employ a multipiece core, shown more particularly in Fig. 4. This core comprises end sections 10 and an intermediate section 11. Each of these sections is formed of a plurality of plies of resin-impregnated fabric, the plies of the end sections being arranged in the direction of the axis of the section and those of the intermediate section 11 being arranged transversely to the axis. These sections are either partially or completely cured, as desired, and the exterior surfaces thereof are corrugated as, for example, by coarsely threading the same, although it will be obvious that preformed corrugations may be provided during the curing or partial curing of the sections. This core is then wrapped with resin-impregnated material indicated at 12, following which it is molded. During the molding operation, the heat and pressure utilized will serve to bind the outer covering to the core as well as to form the same and will, furthermore, serve, if the core is but partially cured, to complete the curing thereof. The inner layers of the covering will be forced into the corrugations, providing a secure interlock between the outer covering and core, as more clearly shown in Fig. 2 of the drawings. The end sections are then bored and threaded, as at 13, for reception of the usual attaching screws.

I have found that a construction of this character provides much higher electrical resistance than is available in the usual construction wherein all of the laminations of the insulator extend longitudinally of the insulator. For example, two insulators of the same size and general specifications, but one incorporating the transverse laminations in the core as hereinbefore described, and the other formed in the usual manner, showed an increase in resistance in favor of the type herein illustrated of more than 300 per cent. This is, undoubtedly, due to the fact that the dielectric resistance of the material is less in the direction of lamination than in a direction transverse thereto, and to the fact that the barrier formed by the intermediate section 11 is disposed in the direct path of highest dielectric stress. It is possible, but not practical, to place all of the laminations of the core transversely of the axis thereof due to the fact that strain insulators of the type illustrated must offer considerable resistance to pull in the zone of the connections made thereto. Such resistance is best offered by the axial arrangement of the laminations and for this reason it is advisable that the core be made sectional, as illustrated.

Threading of the core, or otherwise corrugating the same, insures a good mechanical connection, even though the core be completely converted prior to the final molding, and this corrugation is of further value in that it increases the path through which current must pass in moving about the intermediate section.

Since the construction illustrated is capable of considerable modification without in any way departing from the spirit of the invention, I do not wish to be understood as limiting myself thereto except as hereinafter claimed.

I claim:

1. An insulator composed entirely of artificial-resin-impregnated laminated material and having sockets in its ends, said insulator comprising a core coextensive with the body of the insulator and of greater diameter than said sockets and in the ends of which the sockets are axially formed, and an outer covering, said core and covering being axially interlocked and the core comprising end sections having said sockets and an intermediate section in which the material is in plies transverse to the insulator axis, the end sections of the core and said covering consisting of plies of the material paralleling said axis.

2. An insulator composed entirely of artificial-resin-impregnated laminated material and having sockets in its ends, said insulator comprising a core coextensive with the body of the insulator and of greater diameter than said sockets and in the ends of which the sockets are axially formed,

and an outer covering, the core comprising end sections having said sockets and an intermediate section in which the material is in plies transverse to the insulator axis, the end sections of the core and said covering consisting of plies of the material paralleling said axis.

3. An insulator composed entirely of artificial-resin-impregnated material, said insulator comprising a preformed core coextensive with the insulator body and consisting of end sections and an intermediate section, the intermediate section comprising plies of fabric disposed transversely to the axis of the core, the end sections comprising plies of fabric disposed parallel to the axis of the core, the exterior of the core being circumferentially corrugated, and a covering molded upon said core, said end sections having axial sockets formed therein for the reception of attaching elements, said sockets being of less diameter and length than said end sections.

ROBERT STEWART.