

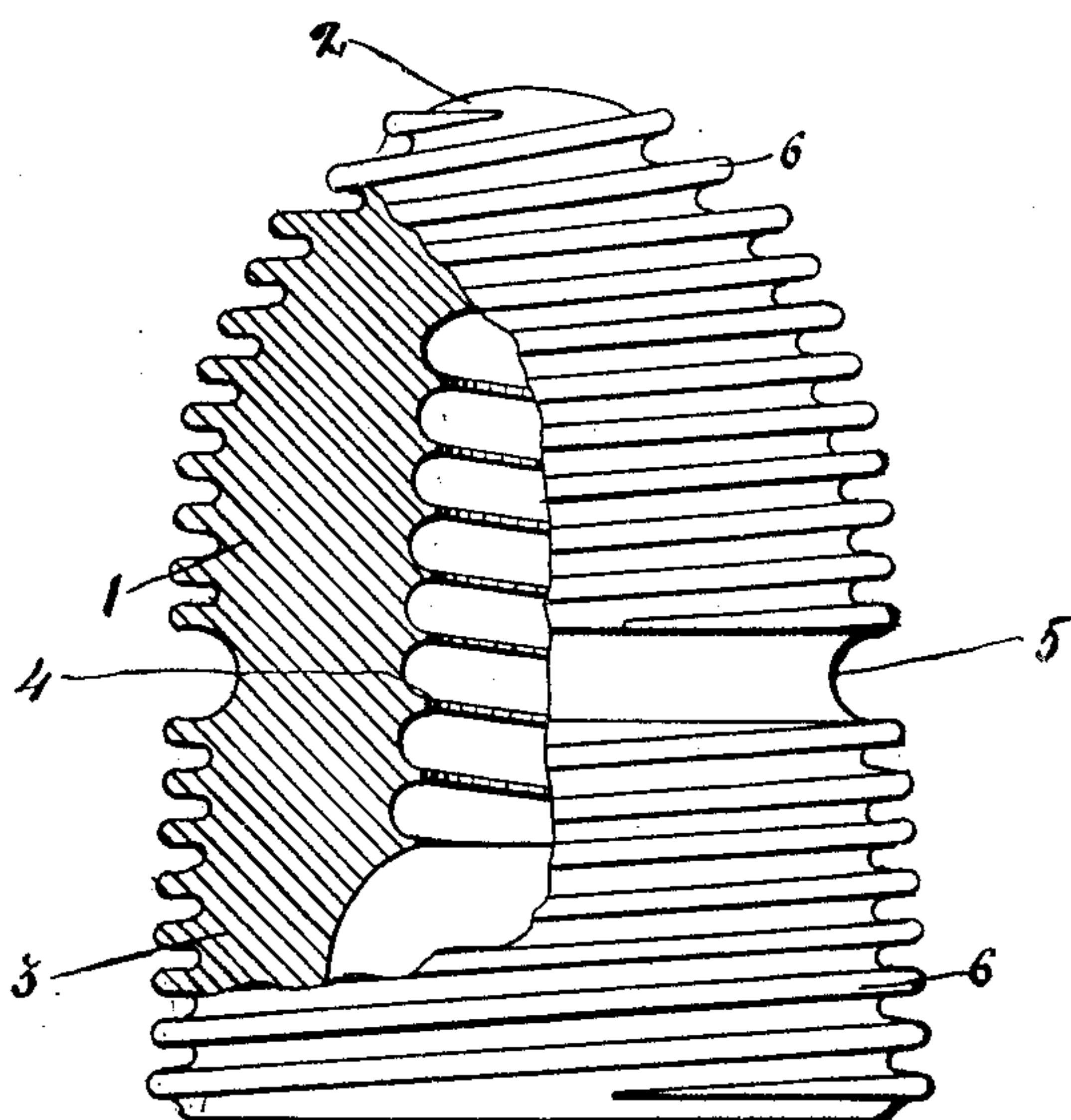
No. 633,174.

Patented Sept. 19, 1899.

F. H. WITHYCOMBE.  
INSULATOR.

(Application filed Feb. 2, 1899.)

(No Model.)



Witnesses  
Lorne H. Hodge  
*[Signature]*

Inventor  
*Fredrick H. Withycombe*  
By *his* Attorney  
*John W. Swan*

# UNITED STATES PATENT OFFICE.

FREDERICK HENRY WITHYCOMBE, OF MONTREAL, CANADA, ASSIGNOR OF  
ELEVEN-TWENTIETHS TO CLEMENT HENRY MCLEOD, OF SAME PLACE.

## INSULATOR.

SPECIFICATION forming part of Letters Patent No. 633,174, dated September 19, 1899.

Application filed February 2, 1899. Serial No. 704,317. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK HENRY WITHYCOMBE, of the city of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Insulators; and I do hereby declare that the following is a full, clear, and exact description of the same.

It is well known that the glass and other insulators used on telegraph and other electric lines are frequently made the targets of and are damaged by stones and other missiles. The damage resulting partially or wholly destroys their usefulness and necessitates the trouble and expense of replacing them, besides causing inconvenience by the interruption of communication.

My invention relates to the special construction of the exposed surface of the insulators apart from the general design or material employed.

My invention has for its object to render insulators less liable to breakage by providing a simple and efficient means to enable them the better to withstand the impact of foreign bodies.

The invention consists generally in replacing the smooth outer surfaces of insulators, as now made of glass, porcelain, or other insulating material, by an outer surface construction of small protuberances, ridges, or depressions. These small protuberances, ridges, or intervening portions between the depressions form an exterior construction which will break down readily with the impact of missiles. This breaking down of the intercepting parts cushions the blow and relieves the main portion or body of the insulator or extension therefrom from the full severity of the impact. It will thus be seen that the small parts, with which the missile first comes into contact, offering a sufficiently less resistance than that portion of the main body or extension therefrom it is intended to protect will crush or crumble under the force of impact, and thus cushion the blow by using up a large proportion of the energy. Experiment has proved this to be the case.

Insulators having a number of petticoats,

whether extending horizontally, vertically, or obliquely, of proportions which render them very easy of breakage by missiles can thus be made to offer greater resistance to fracture by forming the exposed surfaces in the way and as herein described.

Reference is made to the annexed drawing, which is an elevation, half in section, illustrating one application of the invention to one form of insulator.

The insulator shown is of the same general form as those now in use, having a central cylindrical part 1 surmounted by a dome-shaped upper portion or crown 2 and having depending from it the petticoat 3. The interior is provided with the usual threads 4, adapted to screw on the end of the supporting-pin, peg, or stick. The usual groove 5 is provided for attaching the wire.

The insulator shown in the drawing is formed with a spiral ridge or ridges 6, which may be of any form and of small cross-section, but in every case preferably of greater height than thickness, so as to be readily frangible, encircling the exposed surfaces of the insulator, so that while affording both a channel for moisture and a protection against any serious damage by impact from missiles it will also tend to deflect or guide a crack, should such occur, in a circumferential instead of vertical direction, thus insuring a longer life for the insulator. The function of such a surface formation (made up, as it is, of a spiral ridge or ridges of small cross-section) is that when a missile strikes the insulator it will first come in contact with such ridges, which being of a fragile or easily broken and yielding formation will give way to the impact of the foreign body. Thus in the form shown the projecting ridges would be first broken down. The energy of the impact will be largely expended in crushing these parts. The result will be to cushion the blow and reduce its severity as regards the main portions of the insulator, and unless the impact be very severe and violent the main body of the insulator or extension thereof will be saved from fracture.

Having thus described my invention and

the way in which it is to be applied, what I claim as new, and desire to secure by Letters Patent, is—

5 An insulator the exposed surfaces of which are composed of a spiral ridge or ridges adapted to form a protective cushion for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

FREDERICK HENRY WITHYCOMBE.

Witnesses:

FRED. J. SEARS,

LORNE A. MACKENZIE.