

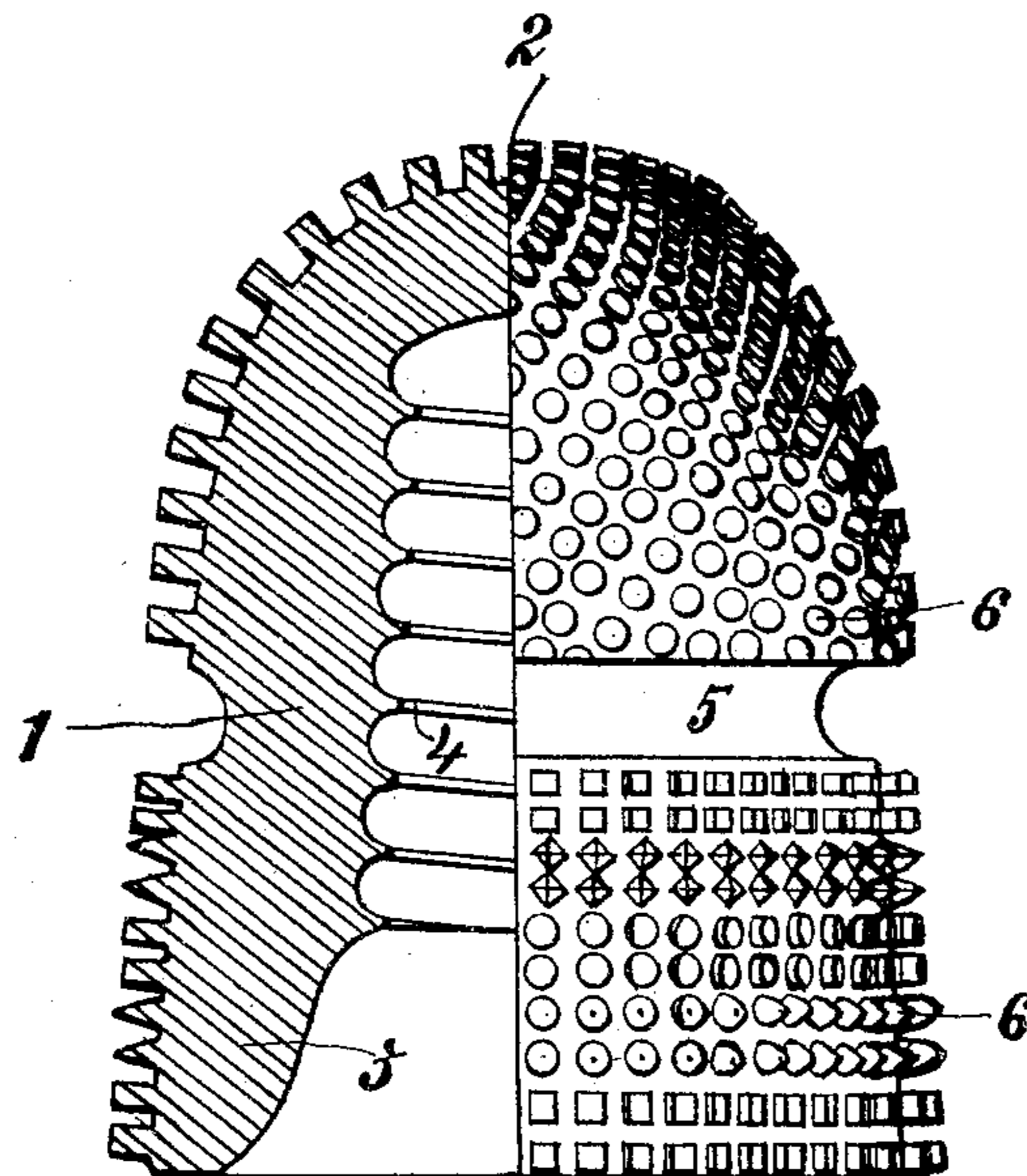
No. 633,175.

Patented Sept. 19, 1899.

F. H. WITHYCOMBE.  
INSULATOR.

(Application filed Feb. 2, 1899.)

(No Model.)



Witnesses  
Lorne Mackenzie  
*[Signature]*

Inventor  
*Fredrick H. Withycombe*  
By *his* Attorney  
*Oliver N. Wain*

# 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. 633,175, dated September 19, 1899.

Application filed February 2, 1899. Serial No. 704,318. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK HENRY WITHYCOMBE, of the city of Montreal, in the Province of Quebec, Canada, have invented  
5 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  
10 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  
15 trouble and expense of replacing them, besides causing inconvenience by the interruption of communication.

My invention relates to the special construction of the exposed surfaces of the insulators, apart from the general design or material employed.  
20

My invention has for its object to render insulators less liable to breakage by providing a simple and efficient means to enable them  
25 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, which may be of any desired section,  
30 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  
35 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. Experi-

ment has proved this to be the case. Insulators having a number of petticoats, whether  
50 extending horizontally, vertically, or obliquely and of proportions which render them very easy of breakage by missiles, can thus be made to offer greater resistance to fracture from those causes by forming the exposed  
55 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.  
60

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,  
65 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  
70 formed with small and therefore easily-broken protuberances 6, which may be of any desired form, (rectangular, conical, pyramidal, or cylindrical, as shown, or otherwise,) but in every case preferably of greater height than thick-  
75 ness and preferably arranged in oblique lines, as on the dome of the insulator, or in horizontal lines, as upon the petticoat thereof, so that the flow of moisture will in no way be impeded and yet every part of the whole of the outer or  
80 exposed surfaces be fully protected by the cushion-like protuberances. The function of such a surface formation, made up as it is of a large number of small and easily-crushed protuberances, is that when a missile strikes  
85 the insulator it will come in contact first with such projections, 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 protuberances  
90 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 body of the insulator, and unless  
95 the impact be very severe and violent the

main body of the insulator or extensions therefrom will be saved from fracture.

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

An insulator the exposed surface of which is composed of small easily-broken protuber-

ances adapted to form a protective cushion for the purpose set forth. 10

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

FREDERICK HENRY WITHYCOMBE.

Witnesses:

FRED. J. SEARS,

LORNE A. MACKENZIE.