

UNITED STATES PATENT OFFICE.

COLIN M. THOMPSON, OF BROOKLYN, NEW YORK.

INSULATING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 359,825, dated March 22, 1887.

Application filed May 4, 1886. Renewed February 19, 1887. Serial No. 228,214. (No specimens.)

To all whom it may concern:

Be it known that I, COLIN M. THOMPSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Insulating Material; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to the coating of surfaces and insulation of electric conductors.

The object is to provide wires, rods, and cables, or surfaces generally, but especially conducting wires, rods, or cables for telegraph, telephone, or electric light service and similar purposes, with a coating that shall be water-proof, weather-proof, invulnerable to or unchangeable by acids, and not liable to the attack of insects; which shall possess great tenacity, pliability, elasticity, and resistive power or protection for the object coated; which shall be an efficient and practical insulator or non-conductor of electricity, and which, withal, shall be of convenient source and ready manufacture, and thus comparatively inexpensive, or cheaper than the substances now in general use as insulators, &c.

The invention consists, essentially, of a composition of pitch and old rubber.

I have found that a material possessing the requisite qualities can be made from a compound of dead-oil, of pitch, and desulphurized old rubber, commonly called "shoddy," and these ingredients are especially desirable on account of their extreme cheapness.

In manufacturing the material the rubber and pitch are first thoroughly mixed between cold rollers, and when these ingredients have become intimately commingled steam is introduced into the rolls, the mixing of the ingredients being continued. As soon as the pitch and rubber have become well mixed, much in the nature of a homogeneous mass, and this mass has been rendered sufficiently soft, it is rolled out into thin sheets—say of about one-sixteenth of an inch in thickness—and is then allowed to dry.

The preferred manner of drying is by exposing the thin sheets in a drying-room having a good ventilation to a temperature as high

as 200° Fahrenheit. The temperature indicated is beneficial, since in drying by heat the naphthaline and other similar volatile substances present in the mass will evaporate completely, leaving the remaining substance odorless and without its having lost the desired properties of tenacity, elasticity, &c. I find that this process will entirely eliminate all the volatile oils and the naphthaline, leaving an elastic and adhesive substance, very strong, and capable of being used as a substitute in a great many instances for rubber.

If desired, the volatile oils may be eliminated from the pitch before it is mixed with the rubber by subjecting the pitch to a low temperature for a short time.

A material made of the two ingredients specified, prepared in the manner described, is possessed of all the desirable qualities of an insulator—that is, it is extremely tough and adhesive, and it is sufficiently pliable to allow of its being successfully employed, and remaining sound upon wires which are bent or twisted in use, and is of high resistance.

Inasmuch as by the addition of oil of pitch to shoddy I can produce a desirable insulating material, a very cheap and at once successful substitute for the compounds heretofore used is produced.

The crystallizable volatile compounds of coal-tar pitch—such as naphthaline, &c.—are very deleterious to india-rubber, and must be wholly eliminated, in order that the finished product may last and remain elastic or plastic. Naphthaline has the property of completely disintegrating india-rubber.

The manner in which I proceed, specifically, and expel the naphthaline and all other crystallizable volatile compounds of coal-tar pitch is as follows: I take about one (1) part of coal-tar pitch and about seven (7) parts of desulphurized old rubber, (known in commerce by the name of "shoddy,") and mix the same by passing them through rollers or grinders. After having incorporated them well into a mass while cold I pass the mass through heated calenders and sheet it as thin as practicable. The sheeted material is then hung or placed in a hot or dry room having a good ventilation. The temperature in the room may be as high as 200° Fahrenheit. At that

temperature the naphthaline and other similar volatile substances will evaporate completely, and the insulating material will be found to have become very elastic and odorless, without having lost the desired properties of plasticity, &c. The dried or cured sheets are then ready to be used for any purpose for which such material is employed.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An insulating material composed of pitch or dead-oil of pitch and old rubber, commonly

known as "shoddy," in or about the proportions specified.

2. An insulating material composed of one part of oil of pitch and seven parts of old rubber, commonly called "shoddy," the two being mixed, substantially as in the manner described.

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

COLIN M. THOMPSON.

Witnesses:

ORAZIO GUYOZ,
GROSVENOR S. HUBBARD.