

UNITED STATES PATENT OFFICE.

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INSULATING MATERIAL AND METHOD OF MANUFACTURING SAME.

No. 885,685.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed April 24, 1906. Serial No. 313,429.

To all whom it may concern:

Be it known that I, GEORGE KELLY, a citizen of the United States, residing at Hinsdale, in the county of Dupage and State of Illinois, have invented a new and useful Insulating Material and Method of Manufacturing the Same, of which the following is a specification.

In the manufacture of zinc oxid the vapors or fumes from the roasted zinc ores placed in the furnaces ascend and are forced or blown through large metal tubes for a considerable distance. At the ends of said tubes are located woven-fabric chutes, the fabric chutes having been found to be most efficient for conveying the condensed oxid into the receptacles for the same. It is a well-known fact to those skilled in the art that the fabric of which the chutes are made soon becomes scorched and unfit for use, necessitating the constant renewal of the chutes and the discarding of the old material. The discarded fabric is, however, thoroughly saturated with the oxid, and I have discovered that this material, with the employment of other inexpensive ingredients, can be made into high-grade insulating material at small cost, and it is the primary object of this invention to thus utilize the same.

There are a number of ways in which the invention may be practiced and the desired article produced. For instance, the discarded impregnated cloth or fabric may be cut into sheets of the desired size and moistened by brushing them with or dipping them into a liquid vulcanizing and binding composition. While this composition may perhaps be made of different ingredients, it is preferably composed of rubber, sulfur, and liquid glass, (silicate of sodium.) These ingredients are preferably, though not necessarily, substantially of the following proportions, measured by weight: ninety-five parts of liquid glass, ten to fifteen parts of rubber, and five parts of flowers of sulfur. The sheets, after having been moistened, are placed one upon the other, allowed to partly dry or set, are afterward pressed, and finally vulcanized under pressure and at moderate heat. The resultant product is a high-grade electric insulating board, slab, plate, or the like that is thoroughly homogeneous, will withstand high voltage without breaking down, is both fire and moisture proof, and is capable of withstanding comparatively heavy mechanical stress or strains.

The use of the above ingredients is important. In the first place, the fabric constitutes a strong body, the zinc oxid impregnated therein coöperates with the rubber and sulfur in forming an excellent binder and vulcanizing agent, and the silicate of sodium or liquid glass serves not only to make the article fireproof, but is itself a binder, and, furthermore, acts as a solvent or vehicle for the sulfur and rubber, causing the same to thoroughly saturate the fabric and be brought into intimate contact with the oxid contained therein.

Another advantageous way of carrying out the invention is to pulp the said fabric with the above-described compound in a pulping-machine or beating-engine, afterward mold and press the composition into articles of the desired shape, and finally vulcanize the same under heat and pressure. The articles thus produced have all the desired characteristics of those above set forth.

Still another mode of producing the article is to employ the binding and vulcanizing compound set forth in copending application, Serial No. 312,441. As therein set forth, said compound consists of a mineral vulcanizable gum or asphaltum, preferably that commercially known as "Gilsonite" and liquid glass. Equal parts, by weight, of these ingredients are taken and are thoroughly commingled. The above-described discarded fabric impregnated with zinc oxid is ground up to the proper consistency in any ordinary rubber-mill with the above compound and is then rolled or otherwise pressed or formed into sheets, tubes, or other articles, which are vulcanized under pressure and heat. The resultant product is a dense compact article having the advantages of the material first described.

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

1. That improvement in the process of manufacturing insulating material, which consists in intermingling with a fiber having zinc oxid therein, a vulcanizing-binder, and vulcanizing the composition under heat and pressure.

2. That improvement in the process of manufacturing insulating material, which consists in intermingling with waste fiber having zinc oxid incorporated therewith, a vulcanizing-binder, and vulcanizing and pressing the composition.

3. That improvement in the process of manufacturing insulating material, which consists in taking a fabric impregnated with zinc oxid, incorporating therewith a binder
5 and vulcanizing agent, and vulcanizing the composition under heat and pressure.

4. That improvement in the process of manufacturing insulating material, which consists in taking a fabric impregnated with
10 zinc oxid, incorporating therewith a binder and vulcanizing agent, and a fireproofing material, and vulcanizing the composition.

5. That improvement in the process of manufacturing insulating material, which
15 consists in taking a waste fabric impregnated with zinc oxid, incorporating therewith a vulcanizing-gum, and vulcanizing the composition.

6. That improvement in the process of
20 manufacturing insulating material, which consists in taking fabric impregnated with zinc oxid, incorporating therewith a vulcanizing-gum and a fireproofing material, and vulcanizing the same.

7. That improvement in the process of
25 manufacturing insulating material, which consists in taking fabric impregnated with zinc oxid, incorporating therewith rubber, and vulcanizing the composition.

8. That improvement in the process of
30 manufacturing insulating material, which consists in taking fabric impregnated with zinc oxid, incorporating therewith rubber and sulfur, and vulcanizing the composition.

9. That improvement in the process of
35 manufacturing insulating material, which consists in taking fabric impregnated with zinc oxid, incorporating therewith rubber, sulfur and liquid glass, and vulcanizing the
40 composition.

10. That improvement in the process of manufacturing insulating material, which

consists in disintegrating fabric impregnated with an oxid, intermingling therewith a vul-
canizing agent, and afterward vulcanizing 45 the composition.

11. That improvement in the process of manufacturing insulating material, which consists in disintegrating waste fabric that is
impregnated with an oxid, intermingling 50 therewith a vulcanizing agent and a fireproofing material, and afterward vulcanizing the composition under heat and pressure.

12. That improvement in the process of manufacturing insulating material, disinte-
55 grating fabric impregnated with zinc oxid, intermingling therewith rubber, sulfur and liquid glass, and forming articles of said composition.

13. As an article of manufacture, a vulcan-
60 ized insulating material, comprising a fabric impregnated with oxid of zinc, and a vulcanizing agent and binder.

14. As an article of manufacture, a vulcan-
ized insulating material comprising fabric 65 impregnated with oxid of zinc, a vulcanizing agent and a fireproofing material.

15. As an article of manufacture, a vulcan-
ized insulating material comprising a fabric
impregnated with oxid of zinc, and a binder 70 comprising rubber, sulfur and liquid glass.

16. As an article of manufacture, a vulcan-
ized insulating material, comprising a disintegrated fabric that is impregnated with
oxid of zinc, and a binder comprising rubber, 75 sulfur and liquid glass intermingled therewith.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE KELLY.

Witnesses:

JOHN H. SIGGERS,

BLANCHE J. KALDENBACK.