UNITED STATES PATENT OFFICE.

JOHN A. TITZEL, OF GLENSHAW, PENNSYLVANIA.

RUBBER COMPOUND OR MIXTURE.

SPECIFICATION forming part of Letters Patent No. 391,927, dated October 30, 1888.

Application filed August 22, 1888. Serial No. 283,439. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN A. TITZEL, of Glenshaw, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Rubber Compound or Mixture, of which the following is a full, clear, and exact description.

This invention consists of a novel compound, composition of matter, or mixture, in which vulcanized india-rubber (scrap or waste) is or may be utilized, and which, among other purposes or uses, is adapted for rendering various surfaces proof against the effects of either salt or fresh water, is capable of resisting many or most solvents, also moderately-strong acid and alkaline solutions, and that will stand both a high heat and extreme cold, and which may be used as a paint, varnish, baking-japan, or coating for cordage, canvas, metal, wood, brick, stone, and other materials, and for insulating or protecting electric wires or conductors of any description, either above or below ground, where elasticity and durability are required.

My improved compound is substantially composed of gilsonite asphaltum, vulcanized india-rubber, (scrap or waste,) manganated linseed-oil, spirits of turpentine, deodorized petroleum naphtha, and powdered sulphur. To these various other ingredients may, if desired, be added, including different pigments or coloring materials, according to the purposes or uses the compound is designed for; but the several ingredients first above named virtually complete the compound, and when made in large quantities should be combined in about the following proportions, though these may be more or less changed: Gilsonite asphaltum, ninety pounds; vulcanized rubber, (scrap or waste) one hundred and thirty pounds; manganated linseed-oil, three and one-half to seven gallons; spirits of turpentine, nine gallons; deodorized petroleum naphtha, nine gallons; powdered sulphur, ten to fifteen pounds; dependent on the quality of rubber—viz., more or less adulterated.

For the purpose, however, of more clearly explaining my invention, I will now describe the making of a smaller quantity of the compound. Thus I take of gilsonite, which is an asphaltum of rare qualities recently discovered in the United States, four ounces, on the top of which I charge six ounces of vulcanized india-rubber, (scrap or waste,) and place the whole in an open iron pot or vessel provided with a stirring or agitating device. I then apply direct fire-heat to the whole, which will soon cause the gilsonite or gilsonite asphaltum to melt, and so soon as the heat has increased up to about 400° Fahrenheit the gilsonite will act as a peculiar solvent of the rubber. At or about this temperature I keep up a constant agitation of the mass, which will cause the india-rubber to go into a complete solution with the gilsonite. So soon as this takes place and while the mass is hot, I add (for ordinary purposes) about four and one-fourth ounces of manganated linseed-oil. This manganated linseed-oil is made as follows: Take one gallon of raw Calcutta linseed-oil and simmer same for about three hours, then gradually add about four ounces of the white borate of manganese and stir constantly over a moderate fire for from six to eight hours, taking care not to exceed a heat that will turn a white feather, when dipped into the hot oil, a light-brown color, and afterward add about four onces of black oxide of manganese, and continue the heat for about one hour longer; then remove from the fire and allow the oil to cool and settle, after which it should be decanted clear for use. This mass of gilsonite asphaltum, vulcanized india-rubber, and manganated linseed-oil I then stir well over the fire for a few minutes and afterward remove from the fire and cool to about 200° Fahrenheit, and add about three ounces of spirits of turpentine and about three ounces of deodorized petroleum naphtha of about 63° gravity. I then agitate the whole well and when quite cool add about half an ounce (½ oz.) of powdered sulphur and grind the whole mass in a paint or other mill. This completes the compound, which, as finished, is of a thick pasty consistency and of a brownish-black color, but which will dry black. Articles may now be coated with the compound and dried, and if baked as a japan the compound will become vulcanized, or if allowed to dry without heat for a sufficient length of time the oil in the mass will bind the other ingredients and convert the compound into an excellent coating or covering for many purposes.

When the mass is required to be of various dark shades—as, for instance, brown—one fourth of an ounce of bright oxide of iron may be added and the whole be ground thoroughly in a paint or other mill; or other strong coloring materials or pigments may be used, as desired.

Instead of adding the sulphur after the other ingredients have been mixed and allowed to cool, as described, the powdered sulphur may be added before the turpentine and naphtha are introduced and when the mixture is at about 200° Fahrenheit. At this stage, if the heat is not increased, articles may be coated with or various material may be added to the compound, and upon a suitable application of heat the same may be vulcanized.

The compound may be reduced as required for use, either with turpentine or with naphtha and the quantities of such reducing materials be varied to suit the particular purpose.

If the compound is to be used as regular baking-japan, then the larger proportion of the manganated linseed-oil named in the formula here given should be used in the mixture; but when the compound is required to be otherwise used, then the smaller proportion named in said formula of such oil will suffice.

The following properties are embodied in this my new rubber compound, or "rubberite," as it may be termed. The india-rubber and gilsonite will resist most corrosive fluids to a great extent, and will be found very durable when placed under ground. Furthermore, the manganated linseed-oil will prevent the india-rubber from being injured by the sun's rays. The compound, if properly prepared by skillful workmen, compares favorably in many respects with india-rubber and gutta-percha.

What I claim as new, and desire to secure by Letters Patent, is—

The within-described compound, composed of gilsonite asphaltum, vulcanized rubber, (scrap or waste,) manganated linseed-oil, spirits of turpentine, deodorized petroleum naphtha, and powdered sulphur, combined substantially as specified.

JOHN A. TITZEL.

Witnesses:
JAMES C. TITZEL,
CHAS. R. WEITERSHAUSEN.