

UNITED STATES PATENT OFFICE.

JOHN MURPHY, OF NEW YORK, N. Y., ASSIGNOR TO AMADEE SPADONE,
OF SAME PLACE.

PROCESS OF DEVULCANIZING CAOUTCHOUC, INDIA-RUBBER, &c.

SPECIFICATION forming part of Letters Patent No. 665,967, dated January 15, 1901.

Application filed October 18, 1900. Serial No. 33,421. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN MURPHY, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Processes of Devulcanizing Caoutchouc, India-Rubber, and Similar Materials, of which the following is a specification.

10 The object of my invention is to produce a process of devulcanizing caoutchouc, india-rubber, and similar materials; and it consists in subjecting the vulcanized material to the action of a desulfurizing agent and a deoxi-
15 dizing agent. The desulfurizing agent has the effect of acting upon the sulfur in the vulcanized material to effect devulcanization, and the deoxidizing agent has the effect of deoxidizing the portion of the devulcanized
20 material which has been oxidized by exposure to air, &c.

The following is one example of one mode of carrying out my invention: The vulcanized material is preferably divided into small
25 pieces and placed in a receptacle, where it is subjected to the action of a solution of sodium carbonate in the proportion of one pound of sodium-carbonate to five pounds of vulcanized rubber and with two ounces of
30 gallic acid to five pounds of rubber. In order to assist the reactions, the mass is subjected to heat of about 320° Fahrenheit for about twenty hours, whereupon it will be found that the material treated has been devulcan-
35 ized, although all of the sulfur has not been entirely removed. The carbonate of soda may be replaced by other desulfurizing agents, such as phosphate of soda or by sulfid of sodium, and the gallic acid may be re-
40 placed by other oxidizing agents, such as pyrogallie acid, hydrochinon, or eikonogen.

The following formula and proportions have been found to answer the purpose:

First. Sulfid of sodium, one pound; rubber, four pounds; gallic acid, two ounces. 45

Second. Phosphate of soda, one pound; rubber, four pounds; gallic acid, two ounces.

Third. Carbonate of soda, one and one-half pounds; rubber, five pounds; pyrogallie acid, two ounces. 50

Fourth. Carbonate of soda, one and one-half pounds; rubber, five pounds; eikonogen, two ounces.

Fifth. Carbonate of soda, one and one-half pounds; rubber, five pounds; hydrochinon, 55 two ounces.

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

1. The process of devulcanizing caout- 60 chouc, india-rubber and similar materials, which consists in acting upon the same simultaneously with a desulfurizing agent and a separate deoxidizing agent substantially as described. 65

2. The process of devulcanizing caout- chouc, india-rubber and similar materials, which consists in acting upon the same with carbonate of soda and gallic acid.

3. The process of devulcanizing caout- 70 chouc, india-rubber and similar materials, which consists in acting upon the same in the presence of heat with a reagent which will act upon the combined sulfur of the mass to produce a desulfurizing effect and acting upon 75 the mass with a separate deoxidizing agent, substantially as described.

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Witnesses:

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