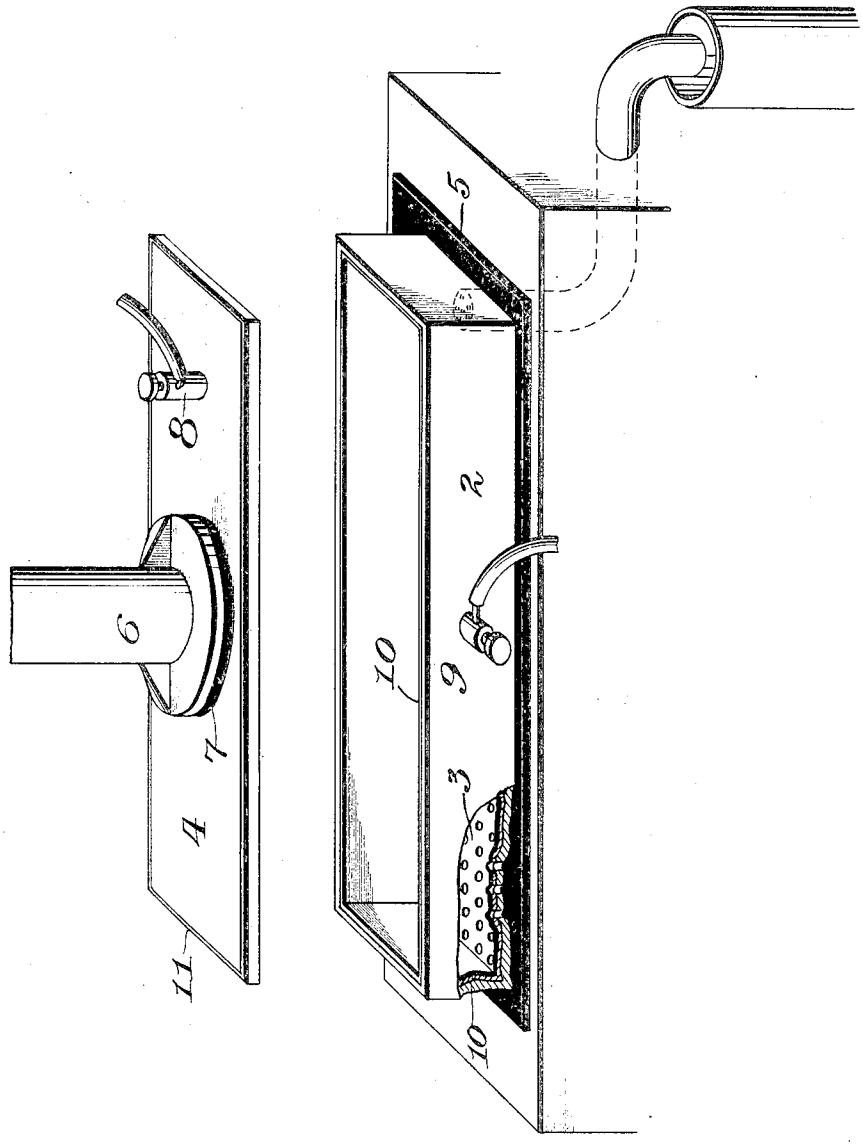
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R. DRAMBOUR

PROCESS OF PURIFYING ASBESTOS AND FABRICATING ASBESTOS MATERIALS

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PROCESS OF PURIFYING ASBESTOS AND FABRICATING ASBESTOS MATERIALS.

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To all whom it may concern:

Be it known that I, RUDOLPHE DRAMBOUR, a citizen of the United States, residing in the city of Brooklyn, borough of Kings, county of Kings, and State of New York, have invented certain new and useful Improvements in Processes of Purifying Asbestos and Fabricating Asbestos Materials, of which the following is a specification.

Asbestos fibers as found in nature are usually associated with impurities that have to be removed in order to put the fibers in condition for commercial use. Such impurities consist of the oxids and other compounds of iron, silica, silicates, magnesia, lime and other substances. Some of these are so difficult to remove as to render it unprofitable to treat certain asbestos-carrying rock, especially where the asbestos fiber is short.

My invention has for its object to treat the fiber in such manner that the impurities associated by nature therewith are removed and the fiber put in good condition for commercial use. In operating according to my process the rock is broken up and saturated with an aqueous solution of a caustic alkali, such as sodium hydroxide, NaHO, or potassium hydroxide, KHO, or commercial soda or lye. I preferably use about four pounds of the alkali to twenty gallons of water. The broken rock is placed in a receptacle, one of strong and hard earthenware being suitable for this purpose, and covered with the alkaline solution, and then boiled for two or three hours. This action results in the disintegration of the rock, the asbestor fibers separating from each other and the impurities which were associated therewith separating from the fibers, either as precipitates, which fall to the bottom of the receptacle, or by entering into solution in the liquid with which the rock was treated. The fibrous mass is then dipped out of the receptacle and placed in a drip pan, where the liquid drains off. This pan is preferably in the form of a hydraulic press such as represented in the drawing which is a perspective view, largely diagrammatic, of apparatus used in the part of the process now to be described. The pan or receptacle in which the chemically treated fibers are placed consists of a box 2 preferably lead-lined and having a perforated bottom 3. A plate 4 forming the platen of a hydraulic press is adapted to enter the box or pan 2 and act upon the material contained therein. This platen is also preferably led-covered. The box 2 is insulated from its support at 5, and the platen is insulated from its operating head 6 by insulation 7. One terminal of an electric circuit is connected with the platen at 8 and the other terminal 9 is connected with the box 2, and the arrangement is such that the current generated in the circuit indicated must pass through the material contained within the press.

In operating according to my process the asbestos fibers after being treated with the alkaline solution as described are placed in the press and subjected to pressure. The solvent liquid is thus expelled and carries with it most of the impurities. If the fibers be taken from the press at this stage and exposed to the air they will be found to be in condition suitable for many uses. But I have discovered that they are further purified and put in better condition for commercial use if while in the press they are subjected to an electric current. This causes the elimination of all remaining impure gases and makes the fibrous mass more solid or adhesive. The current that I have used with greatest success is one of 5 amperage, at 220 voltages, when treating a mass of fibers of about 25 pounds volume in a press of a size that will compress this mass to about one-half inch in thickness.

The fibers produced according to my process have been found to very thoroughly separated from such impurities as are undesirable, and they are in condition for commercial use. The fibers while still in somewhat moist and plastic condition, as they are when taken from the press, may be immediately molded into such articles as insulators, pipe coverings, packing, and the like, or it may be further dried in the open air and afterwards used as asbestos is used in the arts. If found desirable a further washing in pure water may be resorted to, either intermediate between the treatment with the alkaline solution and the extraction of the moisture in the press, or after the use of the press to extract the alkaline solution. The process which I have described is easily operated and is not expensive, and is found to be better adapted for the treatment of asbestos fiber, especially

where such fiber is short, than any other process of which I am aware.

While the material is under the boiling process, preferably at the close thereof, suitable pigments may be introduced for the purpose of coloring the finished product, or elastic materials such as gum, etc., may be added to give it flexibility, or a mixture of lacquer and varnish may be added for waterproofing the material.

After the boiling process adulterants such as lime, cement, etc., may be added to the fibrous mass for cheapening the product for certain purposes. The mixture is then introduced into the press and subjected to electrolysis as above described.

For adding rigidity and strength perforated metal or wire mesh may be introduced into the mass. This is preferably done by applying the reinforcing material between layers of asbestos sheets when still damp and subjecting to suitable pressure, either in a press or through rolls.

Also, after the product is moulded and still damp the surface may be sprinkled with crushed slate, pebbles, etc., and then by subjecting the material to suitable pressure and allowed to dry the surfacing material will be firmly and permanently held in place.

The fibers of the asbestos purified as above described have unusual strength and adhesive properties. I am thus able to coat the fibers on paper, cloth and other materials, producing extremely strong fabrics having in a measure the properties of asbestos. This is preferably done by mixing the mass of fibers with a non-inflammable cement and applying the coating to the surface of the paper, cloth, etc, by means of rolls, or in a press.

What I claim is:

1. The herein described process of treating asbestos-bearing material to separate and clean the fibers, which consists in subjecting the said material to the action of a caustic alkaline solution by which the fibers are separated from each other and the impurities separated from them.

2. The herein described process of treating material carrying asbestos fiber, which consists in treating the same with an alkaline hydroxide.

3. The herein described process of treating asbestos-carrying material to separate and clean the fibers, which consists in subjecting the material to the action of a hot caustic alkaline solution until the fibers separate from each other and from the impurities with which they were associated.

4. The herein described process of treating material bearing asbestos fiber, which consists in disintegrating the fiber and subjecting it while in a moist condition to the action of an electric current.

5. The herein described process of treating material carrying asbestos fiber, which consists in disintegrating the fiber and separating therefrom the impurities by the action of a liquid solvent, separating the fibers and draining the liquid therefrom and while they are still in a moist condition subjecting them to the action of an electric current.

6. The herein described process of treating rock carrying asbestos fiber, which consisting in subjecting it to the action of a hot aqueous solution of a caustic alkali until the fibers separate from each other and from the impurities with which they were associated, then removing the fibers and extracting the major portion of the liquid therefrom, and while the mass is in a moist condition subjecting it to the action of an electric current for the further separation and elimination of the impurities that may remain in the fibers.

RUDOLPHE DRAMBOUR.