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TREATMENT OF AMOSITE ASBESTOS.

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This invention relates to the treatment of amosite asbestos to prepare it for spinning into yarn for asbestos textile fabric or for any other commercial purposes to which asbestos fibres are applied or applicable.

Amosite is the name given to a variety of asbestiform mineral believed to belong to the amphibole class and physically characterized by an exceptional length and stiffness of fibre which renders it very difficult to work.

When crude amosite asbestos is subjected in the dry state to crushing or "breaking", which in the usual preliminary step in the treatment of other varieties of crude asbestos, the longer amosite fibres rapidly break up and in many cases are reduced almost to powder, and the shorter fibres separate and are lost in the form of a light fluff. Chiefly for these reasons the large deposits of amosite which have recently become available have not come into general use for commercial purposes.

I have found that if crude amosite asbestos is wetted to a suitable degree (before brushing or breaking or opening) the longer fibres are rendered soft and pliable and the shorter fibres are bound or agglomerated therewith and prevented from escaping in the subsequent operations and the material is rendered available or suitable for manufacturing processes.

According to the present invention therefore crude amosite asbestos is treated with a softening agent before being subjected to crushing or "breaking" or "opening". This softening agent may be any suitable liquid which will not have a deleterious chemical effect on the material. I have found that water is perfectly suitable, and for economical reasons I prefer to use water or wet steam, sufficient of which should be used to make the material distinctly damp to the feel.

After this wetting or softening the material may then be subjected to crushing or "breaking" and thereafter operated upon according to the final product required. I prefer to put the wetted or softened material through a crushing mill rather than a "breaking" machine since the latter is more suitable for the shorter fibred varieties of asbestos.

The crushing mill is preferably of the type known as edge runner crushing mills, the peripheries of the crushing rollers being advantageously rounded in cross-section to prevent or reduce breaking or cutting effects on the material.

Where the amosite fibre is to be spun into yarn or made up into lagging for boilers and hot pipes and the like it is passed from the crushing machine to an "opener" and then to a teasing and willowing machine before passing to the carding machine, after which the processes differ according to the product required.

Furthermore according to this invention I have found that after wetting or moistening the said material (amosite) to soften same as aforesaid I can if desired, omit the aforesaid step of crushing or breaking said softened material, and simply pass this material, after it has been wetted or moistened and softened as aforesaid, direct to an "opener" and then to the teasing and willowing machine and thereafter to the carding machine.

What I claim is:—

1. The herein described process for treating and preparing amosite asbestos of the kind specified for spinning into yarn for asbestos textile fabric and for other commercial purposes to which same is applicable which consists in wetting before crushing and breaking and opening such amosite asbestos while in the crude state, then subjecting the same while in the wetted state to a crushing and breaking and opening action, and thereafter operating upon same according to the final product required.

2. The herein described process of treating and preparing amosite asbestos of the kind specified for spinning into yarn for asbestos textile fabric and for other commercial purposes to which same is applicable, which consists in wetting before crushing and breaking such amosite asbestos while in the crude state to thereby soften same, then subjecting same while in the wetted and softened state to crushing, advantageously in a crushing mill of the type known as an edge runner crushing mill, then subjecting this crushed material to an opening action, then passing same in the following sequence through (*a*) teasing (*b*) willowing and (*c*) carding machines, and thereafter spinning same into yarn, substantially as set forth.

3. The herein described process of treating and preparing asbestos of the kind specified for asbestos textile fabric and for other

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commercial purposes to which same is applicable, which consists in wetting before crushing and breaking such amosite asbestos while in the crude state to thereby soften same, then subjecting same while in the wetted and softened state to crushing, advantageously in a crushing mill of the type known as an edge runner crushing mill, then subjecting this crushed material to an opening action, then passing same in the following sequence through (*a*) teasing (*b*) willowing and (*c*) carding machines, and thereafter subjecting same to any suitable operation according to the product required substantially as set forth.

4. The herein described process of treating and preparing amosite asbestos of the kind specified for spinning into yarn for asbestos textile fabric and for other commercial purposes to which same is applicable, which consists in wetting before crushing and breaking such amosite asbestos while in the crude state to thereby soften same, then subjecting same while in the wetted and softened state to an opening action, then passing same in the following sequence through (*a*) teasing (*b*) willowing and (*c*) carding machines and thereafter spinning same into yarn, substantially as set forth.

5. The herein described process of treating and preparing amosite asbestos of the kind specified for asbestos textile fabric and for other commercial purposes to which same is applicable, which consists in wetting before crushing and breaking such amosite asbestos while in the crude state to thereby soften same, then subjecting same while in the wetted and softened state to an opening action, then passing same in the following sequence through (*a*) teasing (*b*) willowing and (*c*) carding machines and thereafter subjecting same to any other suitable operation according to the product required substantially as set forth.

6. The herein described process for the treatment specifically of amosite asbestos, which consists in preliminarily moistening with water and steam the crude amosite asbestos to a degree to render the longer fibers soft and pliable and to bind and agglomerate therewith the shorter fibers whereby to prevent the escape of such shorter fibers from the longer fibers in the subsequent manufacturing operations, and secondly passing the material while wetted and softened directly to the opener without intermediately crushing and breaking the amosite asbestos.

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