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METHOD OF AND APPARATUS FOR TREATING ASBESTOS.

APPLICATION FILED JAN. 9, 1920.

1,338,613. Patented Apr. 27, 1920.

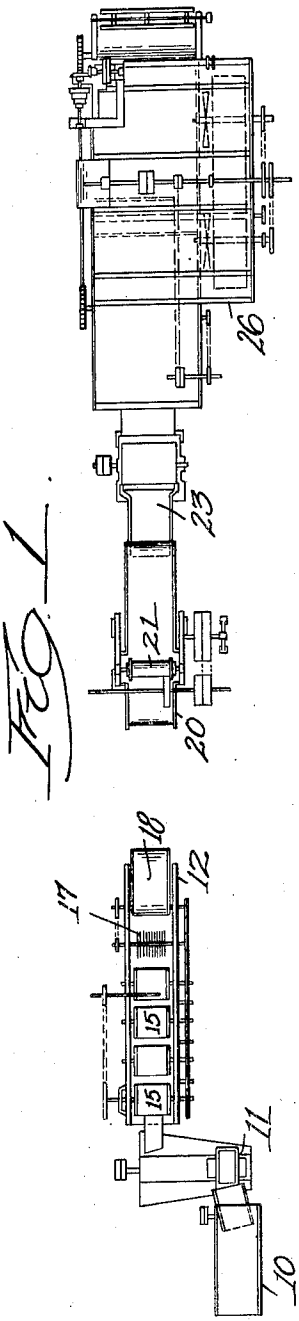


Fig. 1.

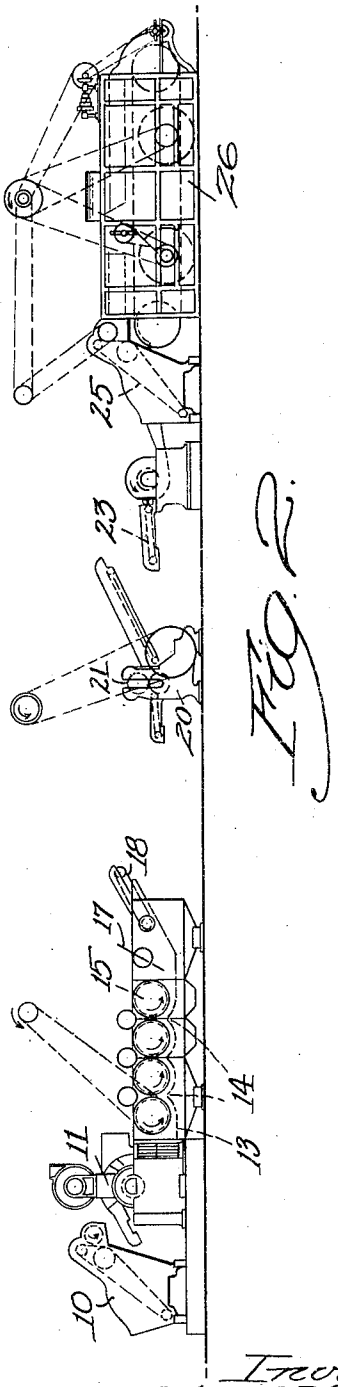


Fig. 2.

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OSBORN H. CILLEY, OF WESTFORD, MASSACHUSETTS, ASSIGNOR TO C. G. SARGENT'S SONS CORPORATION, OF GRANITEVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

METHOD OF AND APPARATUS FOR TREATING ASBESTOS.

1,338,613. Specification of Letters Patent. Patented Apr. 27, 1920.

Application filed January 9, 1920. Serial No. 350,446.

To all whom it may concern:

Be it known that I, OSBORN H. CILLEY, a citizen of the United States, residing at Westford, in the county of Middlesex and State of Massachusetts, have invented a new and useful Method of and Apparatus for Treating Asbestos, of which the following is a specification.

The principal objects of this invention are to provide an improved procedure and apparatus for the refining and treatment of asbestos ore so as to render it suitable for the various kinds of manufacture to which it is to be subjected, and especially to provide a process which will permit of the utilization of certain low grade ores that are not usually considered as being capable of being utilized for the ordinary purposes.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a plan of a plant for carrying out the herein-described process, and

Fig. 2 is a side view of the same, parts being shown diagrammatically.

Asbestos ores that contain a great deal of heavy mineral matter of a non-fibrous character have been treated heretofore for the purpose of removing the same, but the old processes are not sufficient to warrant the use of certain low grade asbestos deposits.

To overcome this difficulty I take the raw material as it comes from the mine and subject it successively to a dry dusting, a wet washing, a wet pressing, an opening and a drying action. To do this I place the raw material in a self-feeding device 10 to provide for a uniform feed of the material into the next machine through which it is passed. This feeding device delivers the material in a uniform manner to the intake of a cone duster 11. This is shown as a rotary machine designed to remove some of the light dust.

From this it is, according to this invention, fed automatically into a washer 12. This washer is provided with a screen 13 for receiving the material to be washed, which instead of being flat as is usually the case, is provided with upwardly extending V-shaped projections 14 between the cylinders 15 of the washer to keep the asbestos close to these cylinders and under their influence at all times. The material is passed continuously through this washer from one end to the other by the action of the cylinders rotating therein under water. It can be delivered from the washer by endless belt conveyer or otherwise, but I have shown a rotary fork 17 adapted to take the material from the discharge point of the last cylinder and elevate it on the usual delivery conveyer 18. This machine agitates the water and carries forward the material to be washed in a continuous manner from one cylinder to another, and then delivers it out over the apron 18 which holds it long enough to allow considerable of the water to drain back from it and then deposits it on the floor at the end of the washer. This washing machine extracts the heavy non-fibrous mineral matter that is not removed by the duster and coöperates with the duster to efficiently clean the material.

After it has passed through these two cleaning devices the product is practically pure asbestos, but of course, it is left in a wet condition. It is then shoveled by hand or otherwise into a press roll machine 20 which by means of feeding and discharge aprons, passes the material between a pair of press rolls 21 and discharges it on the feeding apron of a wet picker 23. This picks out and loosens the fibrous material still in a moist state, although most of the moisture has been squeezed out by the press roll machine.

From the wet picker the product is driven in any desired way into the feed 25 of a drying machine 26. This drier need not be described in detail as an ordinary wool drier can be used, and although I have shown a particular type of drier I wish it to be understood that I am not limited thereto according to the scope of the claims herein.

The material is passed through the drier and removed from it automatically and can be subjected to any further treatment that may be desirable. But it is found that the product of this process, even when the raw material has a very large percentage of foreign matter, is pure asbestos and is delivered in an open state suitable for future use in the industries.

The several machines used are capable of being so related to each other that they will continuously pass the material through them

without long delays or periods of idleness on the part of the machines or operators.

The machines also are of such a nature that they can be provided by taking machinery from different arts and in most cases using it without modifications as will appear from the description above.

Although I have illustrated and described only one series of machines for carrying out the process, and only one embodiment of the method, I am aware of the fact that modifications can be made in both without departing from the scope of the invention as expressed in the claims.

Therefore I do not wish to be limited in these respects, but what I do claim is:—

1. The method of refining asbestos which consists in dry dusting it to remove the lighter impurities, then washing it to eliminate the heavier non-fibrous impurities, thereafter draining out the water, mechanically pressing the water out of the fiber, then opening up the fiber and drying it.

2. In a plant for refining asbestos, the combination with a dry dusting machine, of a washing machine located in alinement with the delivery thereof, and in position to receive the stock from the duster directly, for eliminating other impurities and discharging them on the floor, a wet press roll machine in alinement with the washing machine and in position adjacent to the point at which the washed fiber is delivered from the washing machine, an opener located in position to receive the stock as it is deposited from the press roll machine, and a drier connected with the opener and through which the fiber is passed directly therefrom.

In testimony whereof I have hereunto affixed my signature.

OSBORN H. CILLEY.