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A. MAGNANI

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ROTARY BEATER FOR THE PREPARATION OF ASBESTOS FIBERS AND THE LIKE

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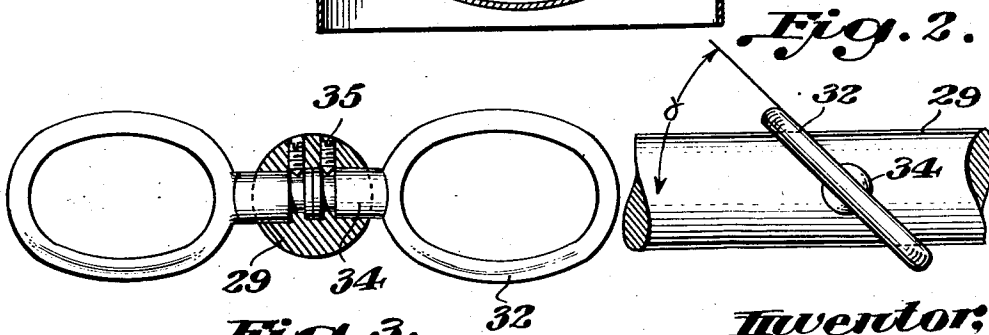
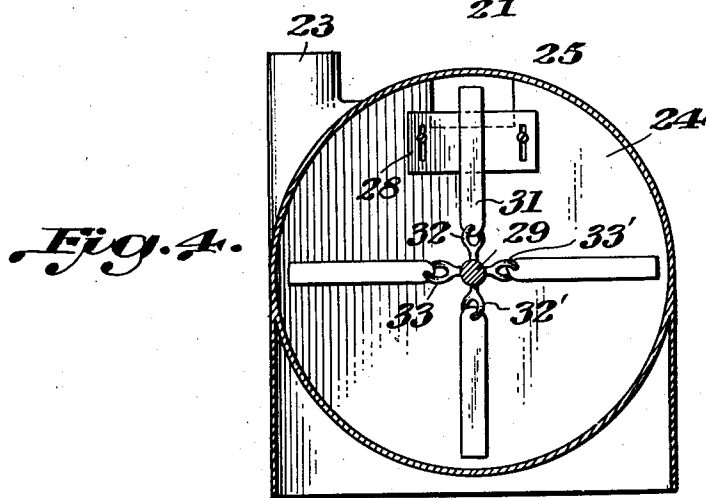
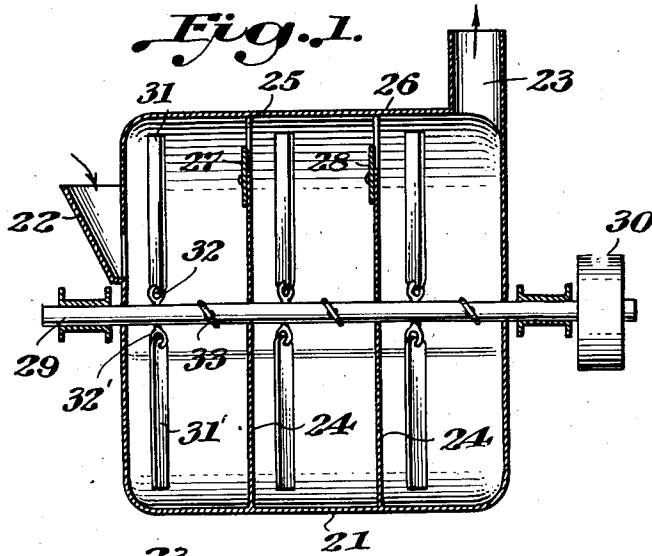


Fig. 3.

Inventor;
A. MAGNANI

By Young, Emery & Thompson
Attys.

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ROTARY BEATER FOR THE PREPARATION
OF ASBESTOS FIBERS AND THE LIKE

Alessandro Magnani, Broni, Pavia, Italy, assignor of one-half to F. L. Smidth & Co. A/S, Copenhagen, Denmark, a corporation of Denmark

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3 Claims. (Cl. 83—11)

In the preparation and treatment of asbestos fibers, many difficulties are found owing to the fact that, both for the preparation of asbestos for the manufacture of fibrous cements and for textile industries, it is necessary to obtain filaments consisting as far as possible each of a single elementary fiber without altering the original length of the same. For these operations are employed generally defibrers consisting of a drum wherein a bladed wheel turns, shaking and beating the asbestos mass introduced into the drum, which mass then issues through apertures in the cylindrical surface of the drum. For varying the degree of fineness of the asbestos treated, the size of said outlets is varied by any means, which causes the material to remain for a sufficient period of time inside the defibrer.

Said known systems present many inconveniences. Firstly, for obtaining a sufficiently high output, too high speeds must be adopted, which causes the fibers to break. The disposition of the outlets in correspondence to the cylindrical surface of the drum has further the drawback of allowing issue of asbestos not yet softened under the centrifugal action which acts very powerfully on the relatively heavy pieces, and the product thus obtained is not uniform and not quite satisfactory. Finally, when the outlets are reduced so as to prolong the time of the treatment so as to insure the defibring of the harder pieces, a too long action on the softer pieces is obtained and the fibers of the latter are broken.

The invention has for its object to eliminate these inconveniences and this is achieved according to the invention by providing a defibrator or opener wherein there are employed by a succession of adjacent treatment chambers of substantially cylindrical shape within which is mounted for rotation a rotor with beating arms in the form of blades articulated to the shaft of the rotor in such a manner that the blades can yield in both the direction of beating and transversely thereto, the articulation also permitting adjustment of the inclination of the width dimension of each blade to the axis of the shaft.

A single embodiment of the invention is illustrated diagrammatically by way of example in the accompanying drawing, in which:

Figure 1 is the longitudinal section of apparatus according to the invention.

Fig. 2 shows the connection of the blades to the beating wheel.

Fig. 3 is a cross-section of Fig. 2 through the shank of the ring-bolt.

Fig. 4 is a vertical transverse sectional view through the casing.

In the drawing, 21 designates the casing of the defibrator. The fibers are introduced through the hopper 22 and discharged through the outlet 23. The casing is cylindrical and is divided into several vertical compartments adjacent each other by means of partitions 24 wherein are formed apertures 25—26 whereof the area can be regulated by slide plates 27—28 which can be fixed in adjusted positions.

An axial shaft 29 driven by pulley 30 or otherwise is provided with articulated beating arms which consist of blades. Inside each chamber are two double blades, one 31—31' connected to the shaft in a diametrical position by ring-bolts 32—32' and the other (which is not visible in the drawing connected to the same shaft in a diametrical position at right angles to the first blade and somewhat rearwardly thereof, by means of similar ring-bolts 33. These ring-bolts may be fixed on the shaft to give a suitable inclination α , between the plane of the ring and the axis of the shaft as shown in Fig. 2. Preferably this connection is performed by means of a pivot 34 forming the shank of the ring-bolt and which can turn on its axis in a radial hole in the shaft and can be fixed in any position selected, by any conventional means. The blades being looped on the ring-bolts, their width dimensions will normally lie at an angle to the axis of the shaft corresponding to the angle α , but they can yield both laterally and in the direction of beating.

The regulation of the apertures 25—26 and the regulation of the inclination of the blades 31 obtained by the changing of the inclination of the rings 32—33 to the shaft 29, permit variation within a very wide range, of the velocity of advance of the material treated and consequently the output per hour of the apparatus.

Modifications of the disclosed apparatus are possible without exceeding the scope of the invention as herein claimed.

What I claim is:

1. A defibrator or beater for treating fibrous materials such as asbestos, comprising a stationary imperforate casing, partitions therein forming a succession of adjoining chambers communicating with each other through a single opening in each of said partitions, an inlet for the fibrous material, a shaft extending through the chambers, a plurality of elongated thin beating blades operative in each of the chambers and articulated to said shaft in such manner as to be capable of yielding in the direction of beating

and also transversely thereto, means for varying the normal inclination of the width dimension of each blade to the axis of said shaft, and a discharge outlet for the treated material carried away by an air stream set up by the beating blade.

2. A defibrator or beater for treating fibrous materials such as asbestos, comprising a stationary imperforate casing, partitions therein extending from the bottom of the casing to a point above the shaft axis and across the casing from side to side thereof, said partitions forming a succession of adjoining chambers communicating with each other through a single opening in each of said partitions at the top thereof, an inlet for the fibrous material, a shaft extending through the chambers, a plurality of elongated thin beating blades operative in each of the chambers and articulated to said shaft in such manner as to be capable of yielding in the direction of beating and also transversely thereto, means for varying the normal inclination of the width dimension of each blade to the axis of said shaft, a discharge opening for the treated ma-

terial, and slide plates movably attached to said partitions in such manner as to adjust the size of the openings between the tops of the partitions and the top of the casing.

3. A defibrator or beater for treating fibrous materials such as asbestos, comprising a stationary imperforate casing, partitions therein forming a succession of adjoining chambers communicating with each other through a single opening in each of said partitions, an inlet for the fibrous material, a shaft extending through the chambers, said shaft having a plurality of transverse holes therein, a plurality of ring-bolts having a ring and a shank, the shank of said ring-bolts rotatably adjustably mounted in the holes of said shaft whereby the angle between the plane of the ring and the axis of the shaft may be varied, and a plurality of elongated thin blades operative in each chamber and articulated to the rings of the ring-bolts so as to be capable of yielding in the direction of beating and also transversely thereto.

ALESSANDRO MAGNANI.