

June 13, 1967

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Filed Aug. 3, 1964

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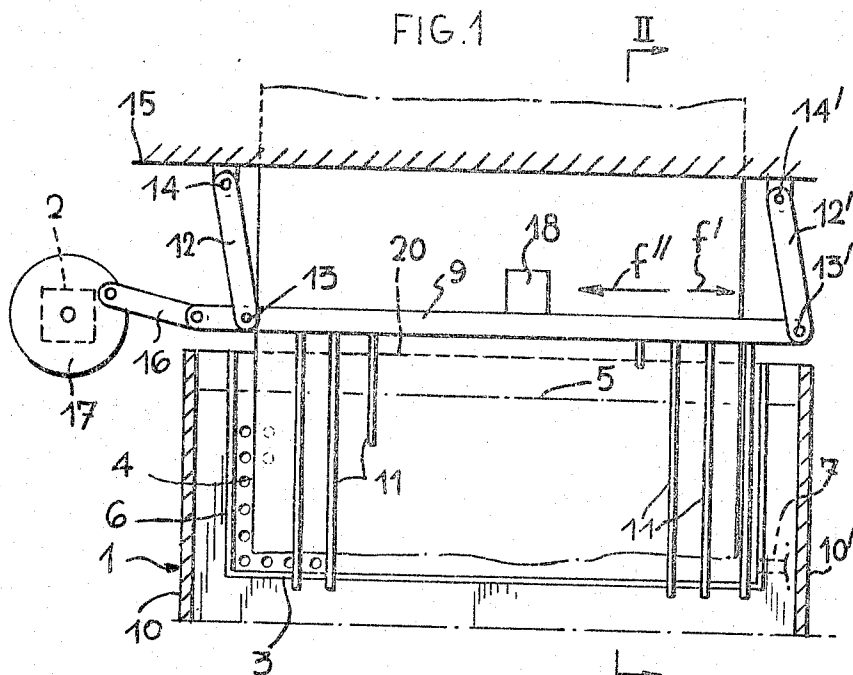
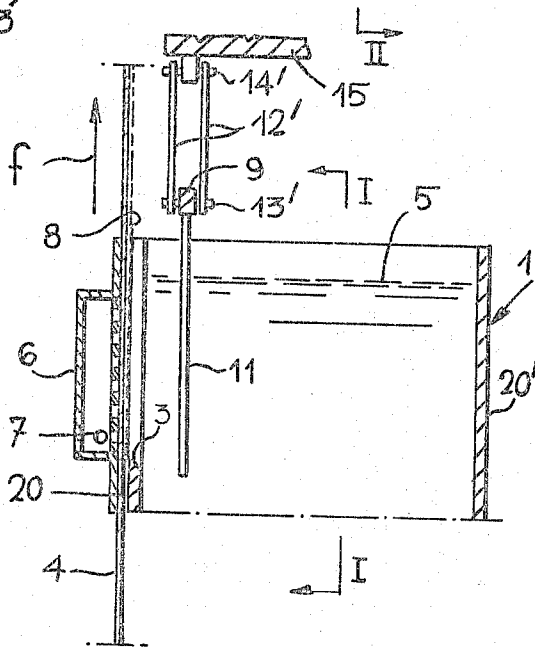


FIG. 2



INVENTOR
MAURICE J. G. VERLY
BY *John A. McKinney*
ATTORNEY

1

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MACHINE FOR THE MANUFACTURE OF PLATES FROM FIBER LOADED PASTE, SUCH AS ASBESTOS-CEMENT PASTE

Maurice Joseph Ghislain Verly, Mol, Belgium, assignor to John-Manville, Societe Anonyme, Mol, Belgium
Filed Aug. 3, 1964, Ser. No. 386,908

Claims priority, application Belgium, Aug. 9, 1963, 509,612, Patent 636,023
2 Claims. (Cl. 162-341)

The present invention relates to a machine for the manufacture of plates from a fiber-loaded paste, such as an asbestos-cement paste, in which a moving felt web is used for supporting paste layers driven by said web towards a forming cylinder. More particularly, the invention relates to a device for distributing the fibers in such a machine.

Among said known machines for the manufacture of plates, some comprise a cylindrical sieve having a large diameter, the felt web being pressed against said sieve which is immersed in the vessel containing the paste. In other machines, the felt web licks the paste with one of its faces. In the first case, the paste which is deposited on the sieve is applied by a pressure on the felt web which drives said paste away. In the second case, a suction applied through the felt web causes a thin paste layer to be deposited on said felt web, while moving towards the forming cylinder.

It has been found that in both types of previously known machines, the fibers of the paste have a tendency to be oriented on the felt web in the direction of the movement of said web, this tendency being more significant when the speed of the felt web is high. Under these circumstances the tensile strength of plates obtained by surimposing successive layers of paste supplied to the forming cylinder is different when measured in the direction of alignment of the fibers than when measured in the transverse direction thereto.

The object of this invention is to obviate this heterogeneity. According to this invention, in a machine for the manufacture of fiber loaded paste, such as an asbestos-cement paste, in which a moving felt web is used for supporting paste layers driven by said web towards a forming cylinder, there are provided in the paste bath and close to the layer being formed and to be driven by the surface of the moving felt web, a stirrer comprising a rake provided with teeth which extend in the direction of the felt web movement and which are substantially parallel to said web, as well as a mechanism for imparting a movement comprising a reciprocating movement component in a normal direction to the direction of the felt web movement and a reciprocating movement component in a substantially parallel direction to the felt web movement, both movement components being parallel to the plane of said felt web.

In a preferred embodiment of the machine according to the present invention, the rake comprises a substantially horizontal bar with teeth substantially extending in planes perpendicular thereto, said bar being carried by a pendulum suspension comprising at least two links, each link being hinged at the one end to the bar and at the other end, to a fixed point situated above said bar.

The rake is preferably provided with a vibrating device.

One embodiment of the invention will now be described only by way of example with reference to the accompanying drawings in which:

FIGURE 1 is a view of the rake according to the present invention as viewed from within the paste containing vessel, part of the teeth being shortened or omitted.

FIGURE 2 is a sectional view of the rake made along line II-II of FIGURE 1.

2

In the drawings, numeral reference 1 generally indicates a vessel containing an asbestos-cement paste 5. The vessel 1 comprises side walls 10, 10' and front and rear end walls 20, 20', respectively. The front end wall 20 is provided with an opening 3 against which is drawn a continuous felt web 4 drawn in the direction illustrated by arrow *f* by a drive mechanism (not shown). A vacuum box 6 connected through a pipe 7 to a suction pump (not shown) is disposed in front of the felt web and pressed against it. In operation, the asbestos-cement fibers are deposited on felt web 4 in the form of a layer 8 as a result of the vacuum action in box 6.

The stirrer which is the main component of the machine according to the present invention is a substantially flat device disposed in a plane parallel to the felt web 4. It comprises a bar 9 which is substantially horizontal and teeth 11 substantially vertical and fixedly connected thereto. The bar 9 is hinged at 13 and 13' to a pair of links 12, 12' the other end of which are themselves hinged to a stationary part 15 of the machine frame at 14, 14' respectively. The bar 9 is connected by means of a link 16 to a crank plate 17 rotatably driven by a motor schematically illustrated and indicated by reference 2. A vibrating device 18 is connected to bar 9.

The crank plate rotation imparts to bar 9 a reciprocating motion in a plane parallel to the plane of the web 4. Due to the provision of links 12, 12', the rake movement has a component which is parallel to the longitudinally extending direction of bar 9. For each displacement of bar 9 along the direction indicated by arrow *f* or along that indicated by arrow *f'*, the teeth are moving in a direction substantially parallel to felt web 4. This motion tends to prevent the asbestos-cement fibers alignment on felt web 4 along a direction parallel to its motion direction. Moreover, at the beginning of the displacement in the direction of arrow *f*, the vertical component of the rake motion results in sinking teeth 11 in the paste in a direction parallel to the extending direction of the teeth while at the end of the stroke of bar 9, the teeth are moving upwardly. The process is reversed for the reverse stroke during which bar 9 is moving in the direction of arrow *f'*. At the end of each stroke of bar 9, the raised rake tends to move downwardly and the weight thereof helps to the mechanism motion. This effect which adds itself to the favourable effect of the inertia of the flying wheel or crank plate 17 tends to counter-balance the awkward effect of the translation system inertia and of the paste bath resistance. In a specific embodiment of the machine, the crank plate was 6 inches in diameter and rotatably driven at a speed of 200 r.p.m. The net effect is a 200 cycle reciprocating motion with an elongation of 6 inches. The links were 2 feet in length.

The rake needs not be plane. In some embodiments of machines wherein the felt web is moving on a drum steeping in the paste, the rake teeth are provided with a curved disposition so that the whole length thereof remains in close proximity with the felt web surface.

What I claim is:

1. In apparatus used for forming asbestos-cement articles wherein an asbestos-cement paste is deposited from an asbestos-cement slurry onto a web passing through said asbestos-cement slurry, means for effecting the orientation of the asbestos fibers as the asbestos-cement slurry is deposited onto said web comprising:

- a rake having teeth extending in a direction parallel to the direction of movement of said web,
- said teeth being mounted adjacent but spaced from said web and lying in a plane parallel to said web,

3

(c) means for imparting a movement to said rake comprising a reciprocating movement component in a direction normal to the direction of movement of said web and a reciprocating movement component in a direction substantially parallel to the direction of movement of said web, and

(d) both of said movements being in a plane parallel to the plane of said web.

2. Apparatus as defined in claim 1 and further comprising:

(a) means for vibrating said rake.

4

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S. LEON BASHORE, *Acting Primary Examiner.*

J. H. NEWSOME, *Assistant Examiner.*