Sept. 27, 1932. L. V. ROBINSON ET AL 1,880,188

METHOD OF AND APPARATUS FOR MAKING WALL BOARD

Filed Feb. 3, 1930

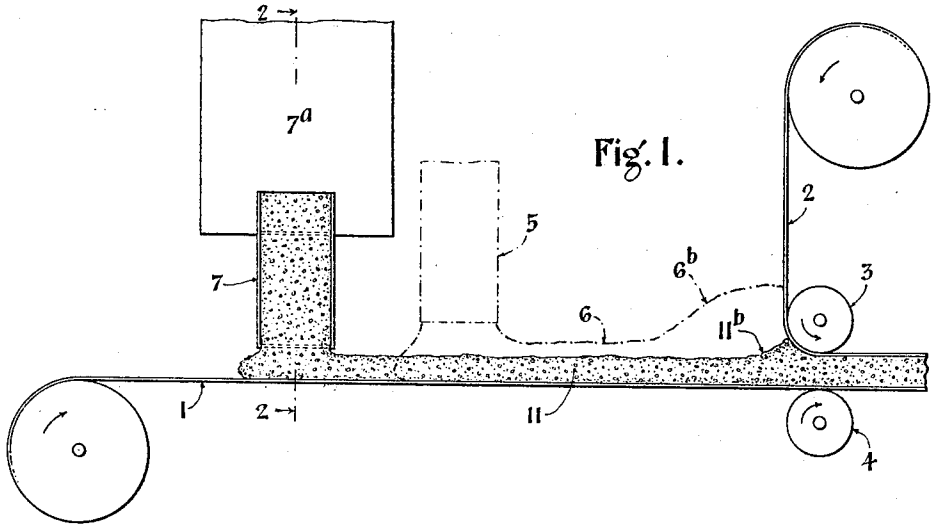


Fig. 1.

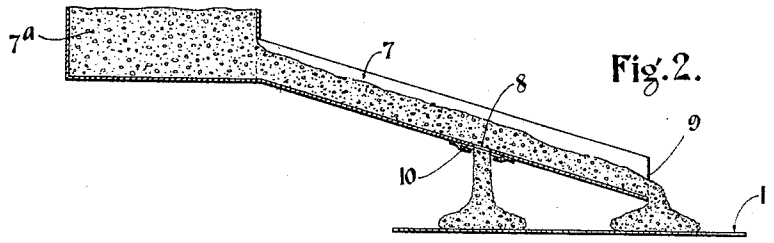


Fig. 2.

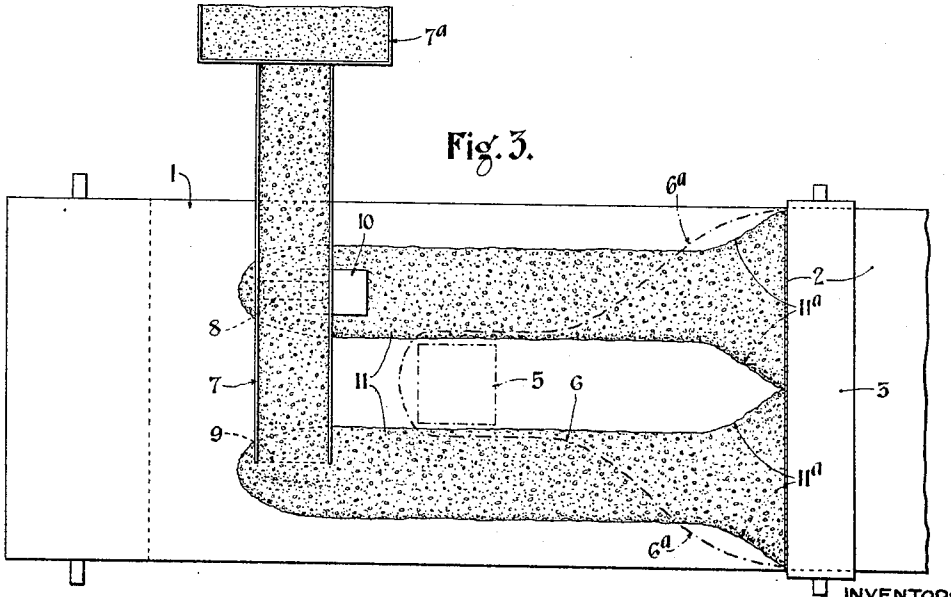


Fig. 3.

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UNITED STATES PATENT OFFICE

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METHOD OF AND APPARATUS FOR MAKING WALL BOARD

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This invention relates to the manufacture of wallboard of the type comprising a paper-covered layer of cementitious material.

In the manufacture of such board it is common practice to feed the cementitious material in a plastic condition on to a horizontally arranged web of paper which is to form the bottom liner of the board. The plastic material is continuously advanced with the paper, and the top liner is pressed on to the material by means of an upper squeeze roll which coacts with a lower roll supporting the lower liner at this point. By feeding the material on to the bottom liner at a single point it is necessary to maintain a heap of material of considerable height so as to ensure that it will flow or spread laterally to the desired extent. It is therefore difficult to control the distribution of the material across the width of the paper web and to avoid an undesirable accumulation of material behind the upper squeeze roll. This accumulation is especially objectionable in that the advance of certain portions of the accumulated body of material is unduly retarded, and such retarded portions may begin to crystallize and harden before they have been squeezed between the paper liners. This action impairs the quality and strength of the resulting board on account of the fact that the bond between the prematurely hardened portions and the paper liners and the rest of the core is greatly reduced.

The object of this invention is to obviate this objectionable feature by delivering the material to the paper at a plurality of points arranged transversely of the paper web and thus make it possible to place all of the slurry in final position between the liners with as little delay as possible after it leaves the mixer. The material can be fed from each delivery point at a slower rate as it will have to spread laterally only a sufficient distance to connect with the material fed from the adjacent discharge point. Furthermore, the banking up of the material adjacent the squeeze rolls is greatly reduced; thus less material has an opportunity of prematurely setting, less clearing of the apparatus is necessary, and consequently there is an important improvement in the setting of the core resulting in a stronger board.

The invention consists in the method, arrangement and construction of parts hereinafter fully described and more particularly pointed out in the appended claims.

The invention is illustrated, by way of example, in the accompanying drawing, in which:

Figure 1 is a side elevation;

Figure 2 is a section on line 2—2 of Figure 1, and Figure 3 is a plan view.

The lower and upper paper webs, above referred to, are indicated at 1 and 2 respectively, and the upper and lower squeeze rolls at 3 and 4. The customary single delivery feeding chute is indicated in dotted lines at 5, and the material fed from this chute is shown at 6. It will be seen from Figure 1 that a considerable amount of material accumulates behind the top squeeze roll 3 as hereinbefore mentioned.

The improved feeding means may conveniently comprise an inclined chute 7 leading from the mixer 7^a and having a plurality of discharge apertures. In the drawing two discharge apertures 8 and 9 are shown, though a greater number may be provided if desired. The aperture 8 is preferably provided with means for closing it and for adjusting the extent of opening of it. This means may take the form of a slidable valve indicated at 10 and may be applied to the discharge opening 9 if desired.

By reference to Figures 1 and 3 it will be seen that the amount of lateral spreading (see 6^a) and of vertical banking (see 6^b) in the normal method are very considerable. The material flowing from the apertures of the improved device is indicated at 11, the lateral spreading thereof being shown at 11^a, and the banking at 11^b. It will be seen that the spreading and banking of the individual streams of material are very greatly reduced by the use of the present invention, and for the reasons described above, this results in the production of a stronger and more uniform board.

The foregoing description and accompanying drawing are given by way of example

only and modifications within the scope of the appended claims may be made without departing from the accompanying claims.

What we claim is:

1. Apparatus for the manufacture of wallboard, comprising in combination, a pair of squeeze rolls, a travelling support for a bottom paper liner, means for delivering a top paper liner between the squeeze rolls in spaced relation to the bottom liner, a chute for a slurry of cementitious material discharging at its outer end and at least one intermediate point.

2. Apparatus as defined in claim 1, wherein said chute has a control valve for regulating the extent of discharge at said intermediate point.

3. Apparatus for the manufacture of wallboard, comprising in combination, a pair of squeeze rolls, means for passing an upper and a lower paper liner in spaced relation between the squeeze rolls and supply means having a plurality of discharge means placed laterally of said liners.

4. A method of manufacturing wallboard of the kind described, which comprises advancing a web of paper, feeding streams of cementitious material on to said web at a plurality of spaced points disposed transversely of the web, allowing said streams of cementitious material to spread and merge into one homogeneous mass and pressing a second paper web on to said homogeneous mass.

In testimony whereof we have affixed our signatures.

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