June 23, 1931. A. L. CLAPP 1,811,613

MOTTLED OR COLORED SHINGLE AND METHOD FOR PRODUCING IT

Filed March 7, 1924

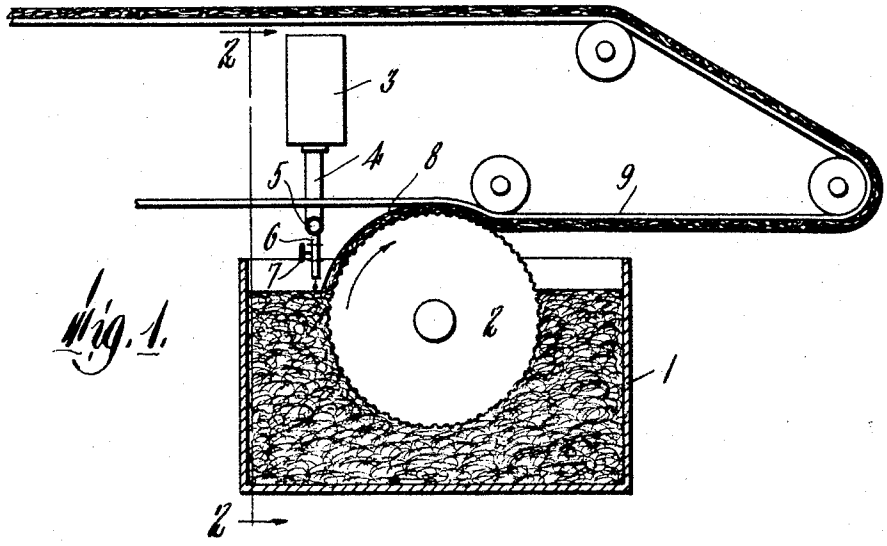



Fig. 1.

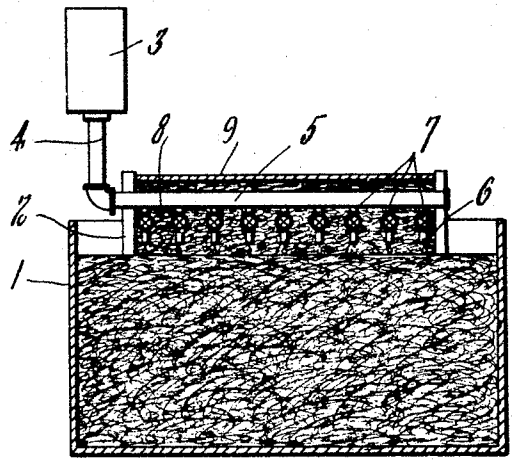
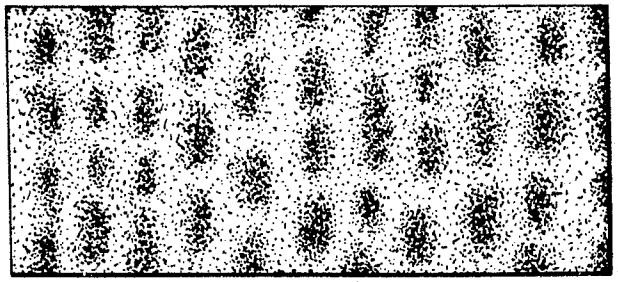



Fig. 2.

Fig. 3.



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# UNITED STATES PATENT OFFICE

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## MOTTLED OR COLORED SHINGLE AND METHOD FOR PRODUCING IT

Application filed March 7, 1924. Serial No. 697,485.

It is some times desirable for artistic reasons to produce roofing material having mottled or colored effects and the present invention relates to a method and composition by which such effects may be produced on sheet material such as may be produced on a paper machine without the necessity of any subsequent treatment either in the way of saturation or surface coating to produce the desired results.

Roofing material having the desirable qualities of being weatherproof and fireproof may be produced directly on a paper machine by incorporating in a suitable fibrous mixture water and weatherproofing materials in the manner disclosed in my application for patent Serial No. 662,225, filed September 12, 1923. As therein pointed out asbestos fiber may be employed to advantage to render the material fireproof and to prevent it from curling, and waterproofing material such as various gums and asphaltic or bituminous compounds may be incorporated therein and precipitated on the fibers so as to permeate the felted product. Coloring matter may also be added to the pulp before it is run on the paper machine.

In accordance with the present invention, there is delivered to the stock vat in which the cylinder mold rotates, at such point or points therein that it will be picked up on the web that has just formed or is forming on the cylinder mold, a daub coat containing the desired surface coloring material. The daub coat, being thus delivered close to the cylinder mold, is picked up or deposited upon the exterior of the forming web of fiber, in such manner that it is incorporated in the surface thereof. This may be done by forming the daub coat of a relatively small amount of fibrous material similar to that of which the sheet or board is to be made so that it will form in the sheet as a part thereof, uniting with the main body of the pulp, the coloring matter being in relatively large proportion and fixed upon or united with the fiber of the daub coat. The coloring matter, if desired, may comprise powdered or dissolved pigment material and may be fixed on the fiber of the daub coat, using for that purpose, if necessary, a precipitable size and a precipitating agent. For example, such a daub coat suitable for the asbestos board disclosed in the above mentioned application, may comprise 20% of asbestos, 10% of cellulosic fibers such as rags, beaten together with sufficient water to make a plastic, 60% of coloring matter, preferably pigments or water-insoluble substances, such for example, as powdered copper carbonate or red oxide of iron, depending on the color desired. To this mixture may be added aqueous dispersions of water-proofing material such as gilsonite, Montan wax, and/or asphalt, such as that known in the trade as K—B emulsion, and this may be fixed on the fibers, together with the coloring matter, by a suitable precipitate. A size such as rosin size or sodium silicate may be added prior to the addition of the alum, so that when precipitated on the fiber by the alum, the relatively large proportion of coloring matter and the waterproofing material may be fixed to the fibers thereby. This daub coat may be added to the vat of the paper machine closely adjacent the line of emergence therefrom of the cylinder mold and thus immediately beyond the formation of the web and if distributed in an irregular manner causes the daub coat to be applied irregularly to the surface of the felted material, thus producing a mottled effect. If applied regularly along the length of the cylinder mold an even colored coating is produced, as the daub coat is of uniform color. By this method a superficial coloring may be readily produced on the material to effect such artistic results as may be deemed desirable in any particular case and of course may be used in the manufacture of paper or board of any description which is made on a paper machine, particularly a Fourdrinier or cylinder machine.

By introducing the daub coat in this manner it lies next to the blanket when the web is stripped from the cylinder mold so that if a board is built up therefrom and stripped from the make-up roll the mottled surface appears on the out or right side of the board.

If desired, of course, any other suitable ma-

terial with which it is desired to coat the surface of the sheeted stock may be substituted for the coloring or waterproofing material or both, or used in connection therewith and united with the fibers of the daub coat as by being precipitated thereon and fiberboard or paper for other than roofing or weatherproofing purpose may be colored or otherwise surface treated as hereinbefore described.

On the accompanying drawings,

Figure 1 illustrates diagrammatically an arrangement of apparatus including the wet end of a cylinder machine for carrying out the method of my invention.

Figure 2 represents a section on the line 2—2 of Figure 1.

Figure 3 illustrates the mottled surface produced on the sheeted stock or fiberboard.

Referring to the drawings, 1 indicates the vat of a cylinder machine in which rotates a cylinder mold 2. A supply of daub coat is maintained in a receptacle 3 stationed above the vat and from which it gravitates through a pipe 4 to a manifold 5 arranged transversely of the vat 1, and thence through a series of spaced vertical pipes 6, each valved as at 7, to the vat 2, closely adjacent to the line of emergence of the cylinder mold therefrom and thus immediately beyond the formation of the web 8. By varying the openings of the several valves 6, gobs of daub coat of various sizes are discharged at different intervals from the several pipes into the vat, as a result of which the daub coat unites irregularly with the web 8 formed on the cylinder mold, to produce the mottled surface effect shown in Figure 3. The daub coat lies next to the blanket 9 which picks up the web from the cylinder mold, so that when a board is built up from the web on a makeup roll, the mottled surface appears on the outer face of the board.

While I have illustrated the method as being carried out in connection with a cylinder machine, it is evident that it may also be carried out in connection with a Fourdrinier machine, the daub coat being applied immediately beyond the formation of the web on the wire.

Having thus described this invention it should be evident to those skilled in the art that various changes and modifications might be made therein without departing from its spirit or scope as defined by the appended claims.

I claim:

1. A daub coat for application to fibrous stock as it is being sheeted on a paper machine, which comprises an aqueous pulp having a relatively small proportion of fibrous material capable of being formed with the fibrous stock into a sheet and having a relatively large amount of water-insoluble coloring matter and waterproofing material fixed thereto by a precipitate.

2. A daub coat for application to stock comprising cellulosic and asbestos fiber which comprises a pulp formed of a relatively small proportion of cellulosic and asbestos fiber and a relatively large proportion of the desired coating material fixed to the cellulosic and asbestos fiber of said pulp.

3. A daub coat for application to fibrous stock as it is being sheeted on a paper machine, which comprises an aqueous pulp having a relatively small proportion of fibrous material capable of interfelting with the fibrous stock as it is being sheeted and having a relatively large amount of a powdered insoluable coloring compound fixed thereto by a precipitate.

4. A daub coat for application to fibrous stock as it is being sheeted on a paper machine, which comprises a pulp having a relatively small proportion of fibrous material capable of interfelting with the fibrous stock as it is being sheeted and having a relatively large amount of powdered copper carbonate fixed thereto by a precipitate.

5. A method of surface-mottling a fibrous web while being formed on a cylinder mold rotating in a stock vat, which comprises delivering at various points into the stock, adjacent to the line of emergence of the cylinder mold from the stock, a composition comprising fibers and water-insoluable coloring material fixed to such fibers by a precipitate, said composition becoming irregularly incorporated into the surface of the web being formed.

6. A method of surface-mottling a fibrous web while formed on a cylinder mold rotated in a stock vat which comprises delivering at various points into the stock, adjacent to the line of emergence of the cylinder mold from the stock, a composition comprising fibers and waterproofing material and water-insoluble coloring material fixed to such fibers by a precipitate, said composition becoming irregularly incorporated into the surface of the web being formed.

In testimony whereof I have affixed my signature.

ALBERT L. CLAPP.