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CONSTRUCTION MATERIAL.

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This invention relates to improvements in the manufacture of construction material, such as roofing, siding, etc. More particularly, it relates to the manufacture of felt sheets, and bodies which are made from a pulp mixture of fibrous material, and waterproofing material. A process has heretofore been proposed by which comminuted particles of solid waterproofing material are introduced into the paper pulp on an ordinary paper-making machine, and become embodied in the sheet of felt or paper as it is formed. If, however, the waterproofing material is of such nature that it becomes sticky at the temperatures reached on the drying rolls, the rolls become gummed up and the sheets are unsatisfactory. By using waterproofing material of such high melting point that it does not become plastic or sticky at the temperatures reached during the drying operation, this difficulty of sticking to the drying rolls may be overcome, but in such cases, the waterproofing material is generally so hard and brittle at ordinary temperatures that the sheet is correspondingly hard and brittle when a considerable proportion of the waterproofing material is incorporated therein.

Moreover, high melting point waterproofing material is usually comparatively viscous when melted and the result is that when sheets containing such high melting point waterproofing material are heated and pressed as hereinafter described, the waterproofing material because of its viscous nature does not at times spread as evenly and thoroughly through this sheet or bodies as would be the case if liquid or semi-liquid low melting point less viscous waterproofing material were used. One of the objects of my invention is to take advantage of the desired rigidity of sheets which are produced by the use of high melting point waterproofing material while at the same time insuring a thorough distribution of waterproofing material by providing a supply of low melting point and less viscous waterproofing material mixed with the high melting point relatively viscous waterproofing material.

Another object of my invention is to produce a sheet of felt or building material that has incorporated therein waterproofing material as the sheet is being formed on the paper-making machine, which sheet will not give trouble on the paper-making machine or in sticking to the drying rolls during the drying operation.

Another object of my invention is to produce a sheet which shall possess a considerable amount of tensile strength and is less hard and stiff than would be the case if only very high melting point waterproofing material were incorporated therein.

In carrying out my invention, I introduce into the watery pulp of paper stock fibers such as rag stock, wood fibers, straw, etc., comminuted particles of solid high melting point waterproofing material, such as pitch, asphalt, etc., together with an amount of emulsion of liquid or semi-liquid waterproofing materials, such as flux oil, coal tar, etc. This mixture of fibrous and waterproofing material may be well stirred in the beater and introduced into the vat of a cylindrical paper-making machine, whereupon the sheet containing a mixture of the paper stock, high melting point waterproofing material, and the emulsion becomes formed and is picked up by the "wet blanket" in the ordinary way. The presence of the emulsion appears to increase considerably the mechanical strength of the sheet and at the same time no trouble arises due to the sheet sticking to the hot drying rolls.

In making the emulsion, I may, for example, use about 6 parts of a coal tar residue melting at approximately 100° F., and 4 parts of clay mixed in water.

In further illustration of this invention, I will now describe a sheet made of specific materials in certain proportions, but it is to be understood that the invention is not restricted to the particular materials nor to the exact proportions used. I may, for example, employ about 70% of pitch in comminuted particles of a melting point of 300° F. together with 10% of an emulsion such as described above, and 20% of paper stock. This mixture in the paper making machine readily forms a sheet on the foraminous cylinder which does not stick either to the foraminous cylinder of the paper making machine, or to the press rolls that are used for squeezing out the water, or to the driers. A sheet so formed can be made in different thicknesses by having different amounts of suction on the paper-making

cylinder and the sheets can be rolled up on a roll.

The sheets formed as above described may be heated and pressed individually or a number of these sheets may be piled together and pressed in like manner thus densifying the sheets and producing a more desirable distribution of the water-proofing material. The high melting point waterproofing material may possess considerable viscosity even at the high temperatures used in the pressing operation and consequently does not always spread as evenly and uniformly as is sometimes desired, but the low melting point or less viscous waterproofing material that was introduced in the form of an emulsion readily spreads during the hot pressing operation and overcomes the objection that would arise if only the high melting point waterproofing material were present.

I claim:

1. The herein described process which comprises introducing paper stock, comminuted particles of high melting point waterproofing material and an emulsion of waterproofing material into a paper making machine and forming a sheet therefrom.

2. The herein described process which comprises introducing paper stock, comminuted particles of high melting point waterproofing material and an emulsion of waterproofing material into a paper making machine and forming a sheet therefrom, and drying said sheet upon hot rolls.

3. The herein described process which comprises introducing paper stock, comminuted particles of waterproofing material having a melting point considerably above the boiling point of water and an emulsion of waterproofing material into a paper making machine and forming a sheet therefrom.

4. The herein described process which comprises introducing paper stock, comminuted particles of waterproofing material that does not become sticky at the temperature of the drying rolls of an ordinary paper making machine and an emulsion of waterproofing material into a paper making machine and forming a sheet therefrom.

5. The herein described process which comprises introducing paper stock, comminuted particles of high melting point pitch and an emulsion of waterproofing material into a paper making machine and forming a sheet therefrom.

6. The herein described process which comprises introducing paper stock, comminuted particles of pitch of an approximate melting point of 300° F. and an emulsion of waterproofing material into a paper making machine and forming a sheet therefrom.

7. The herein described process which comprises introducing paper stock, comminuted particles of high melting point waterproofing material and an emulsion of viscous waterproofing material into a paper making machine and forming a sheet therefrom.

8. As an article of manufacture a sheet comprising fibrous material, high melting point waterproofing material, and low melting point waterproofing material, and clay in substantially the proportion of 20 to 70 to 6 to 4 parts by weight.

In testimony whereof I affix my signature.

RAY P. PERRY.