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R. P. PERRY,
CONSTRUCTION MATERIAL.
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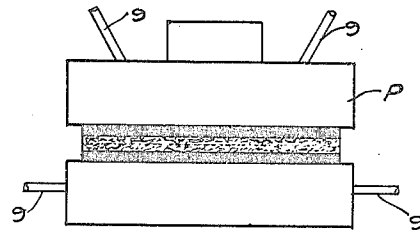
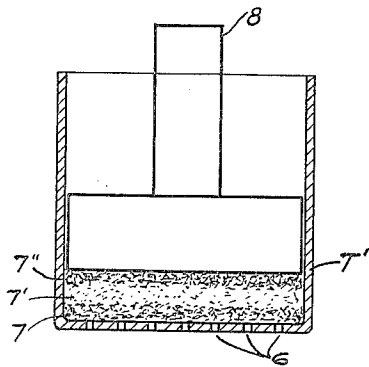
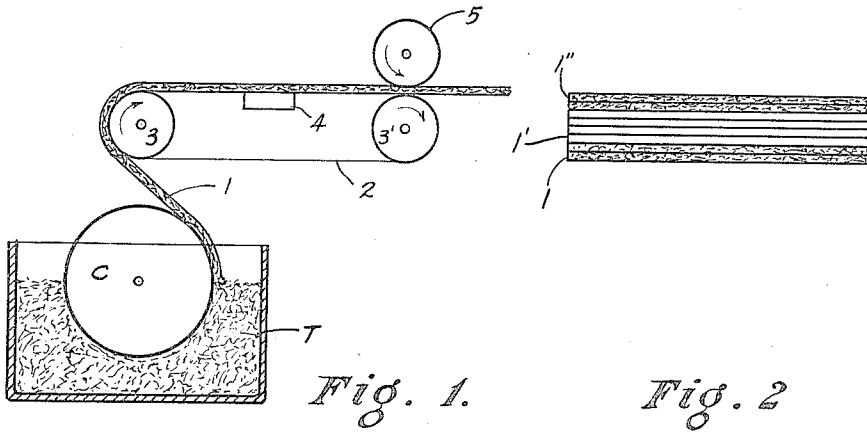


Fig. 3.

Fig. 4.

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CONSTRUCTION MATERIAL.

Application filed August 26, 1918. Serial No. 251,537.

To all whom it may concern:

Be it known that I, RAY P. PERRY, a citizen of the United States, residing at Upper Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Construction Material, of which the following is a specification.

This invention relates to a process for producing a new and useful construction material and the product thereby obtained.

The object of the invention is to produce a construction material which shall possess good wearing qualities, and which may be manufactured in large quantities in a rapid and convenient manner, and which shall be easy to handle.

Another object of the invention is to produce a construction material which may have a smooth external surface, be practically impervious to water, possess considerable mechanical strength, and resist splitting or fracture.

Another object of this invention is to produce a material which is suitable for a variety of uses, such as boarding, roofing, etc., where such characteristics as stiffness, economy, and attractiveness of appearance are desirable.

In the production of this product, a quantity of comminuted waterproofing material such as pitch, asphalt, resin, etc., may be mixed with a watery pulp of fibrous material, and this mixture then formed into a sheet upon an ordinary felt or paper-making machine. Other sheets having different proportions of waterproofing to fibrous materials may be formed in a similar manner on the same or separate paper forming machines. These sheets are assembled by laying one on the other, either before or after drying, and are united by heat and pressure. It has been found suitable for many purposes to have the sheets only a few hundredths of an inch thick, and to assemble a sufficient number of them to produce a construction material having 25 laminations, more or less. The sheets will be so assembled that the one or ones either at the beginning or end, or both, of the assembly will contain a very large proportion of waterproofing material, say as high as 90% or more of the weight of the water free sheet, while the others will contain a smaller proportion of bituminous material or some

of them may even be entirely free therefrom.

Instead of the article being produced by first forming an individual thin sheet, it may be produced by forming a thick sheet having portions or layers containing different proportions of fibrous and bituminous materials, and drying, densifying and uniting by heat and pressure in a manner to be described.

The invention will be readily understood from the accompanying drawings in which Fig. 1 is a view showing diagrammatically a machine for making the sheet.

Fig. 2 is a view showing several sheets assembled before being compressed.

Fig. 3 is a view showing a modification in which the sheet is formed with various proportions of bituminous material.

Fig. 4 represents diagrammatically a press for the material.

Referring to Fig. 1, T represents a tank into which may be introduced a watery pulp of mixed fibrous and comminuted waterproofing materials preferably in the form of filaments. On the foraminous cylinder C is formed the layer 1 in the usual manner, which is picked up by the wet blanket 2, passing over rollers 3 and 3'. A suction box 4 removes a part of the water and more of the water is squeezed out of the press roll 5. When a sufficient length of sheet has been formed the sheet may be severed and a number of such pieces piled on top of each other as shown at 1, Fig. 2. After one or more pieces containing a large proportion of waterproofing material has been formed other pieces containing progressively smaller proportions of waterproofing material may be produced in a similar manner and piled up as indicated at 1', Fig. 2. On top of these may be placed one or more pieces 1'' containing a large proportion of bituminous material, and the whole heated and pressed as indicated in Fig. 4.

It is obvious that instead of having the successive layers progressively decreasing in the proportion of bituminous material there may be only one or more layers of high content of waterproofing material on the outside and the remainder free from or containing a much smaller proportion of waterproofing material. The waterproof layer may be on one or both sides and additional waterproofing material in liquid or powdered

form may be applied to the surface of the layers prior to assembling. The formation of the layers on a paper making machine is described for illustrative purposes. They may obviously be formed in any other convenient way.

Fig. 3 illustrates a modification by which the construction material may be produced. In this figure is shown a tank T' having perforations 6 for the escape of water. A water pulp of fibrous material having a large proportion of comminuted waterproofing material mixed therein is first introduced into the tank T' and forms a layer 7 in the bottom thereof, a large portion of the water flowing out through the perforations 6. A water pulp containing a smaller proportion of waterproofing material is next introduced forming a layer 7', after which a water pulp containing a larger proportion of waterproofing material is introduced and forms the layer 7'', the water draining through the lower layers and out of the perforations 6. In this way the article is formed having a larger proportion of waterproofing material near the surfaces than in the interior. The layers 7, 7' and 7'' may be compressed by means of plunger 8 to force out more of the water and may then be removed and highly heated and pressed in the press as shown in Fig. 4.

When the assembly having the proper number and distribution of layers has been formed, as shown either in Figs. 2 or 3, it may be placed in a press P, as indicated in Fig. 4, which is heated by heating means 9, and heated and pressed until the individual layers become united. In this way a product is formed having a considerable degree of hardness and rigidity, one or more of whose surfaces are highly impervious to water.

The product obtained by this invention may have one or both of its surfaces smooth

and polished. By varying the amount of bituminous material and the degree of pressure used, its specific gravity may be made to vary over quite a wide range from below unity to above unity. A board made from this material is stiff and practically waterproof.

Claims:

1. As a new article of manufacture, a construction material comprising layers of mixed fibrous material and comminuted pitch which have been united by heat and pressure, the interior of the article containing a smaller proportion of pitch than the surface.

2. The process of producing a construction material which comprises forming a series of layers of mixed fibrous and comminuted waterproofing materials, said layers varying in the proportion of waterproofing material, and uniting said layers by heat and pressure.

3. The process of producing a construction material which comprises forming a series of layers of mixed fibrous and comminuted waterproofing material, said layers varying in the proportion of waterproofing material applying waterproofing material to the surface of said layers, and uniting said layers by heat and pressure.

4. The process of producing a construction material which comprises forming a series of layers of mixed fibrous material and comminuted pitch, said layers progressively varying in the proportion of pitch, and uniting said layers by heat and pressure.

5. The process of producing a construction material which comprises the steps of forming layers of mixed fibrous and comminuted waterproofing materials and progressively varying the proportions of said materials during the formation of the successive layers.

In testimony whereof I affix my signature.

RAY P. PERRY.