May 27, 1930. N. C. PIKE 1,760,606

SATURATED FIBER WEB

Filed May 26, 1924

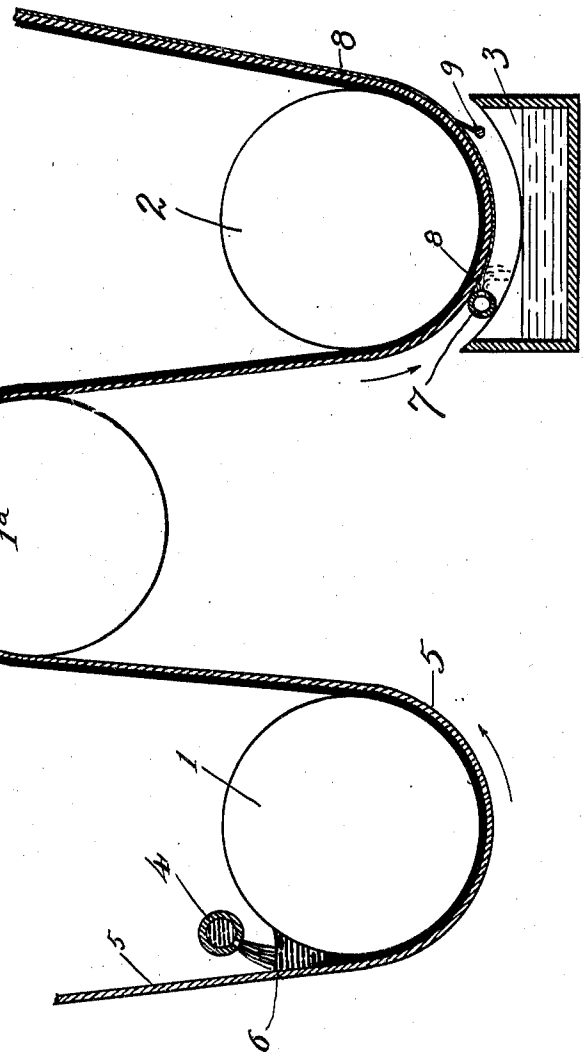


Fig. 1

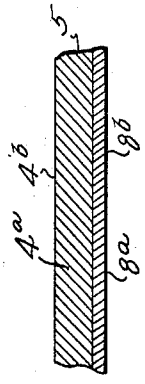


Fig. 2

INVENTOR:
Neal C. Pike
BY Allen & Allen
ATTORNEYS.

Patented May 27, 1930 1,760,606

UNITED STATES PATENT OFFICE

NEAL C. PIKE, OF BLANTON, FLORIDA, ASSIGNOR TO THE RICHARDSON COMPANY, OF LOCKLAND, OHIO, A CORPORATION OF OHIO

SATURATED FIBER WEB

Application filed May 26, 1924. Serial No. 716,052.

My invention relates to webs of felt or laminated paper board, which have been saturated with a plurality of coatings so as to be prepared for particular uses.

One of the primary objects of my invention is the production in one continuous operation of a suitable fiber web for use as a base for color printed floor covering.

At the present time floor coverings are made by using an asphalt saturated felt, and giving it a base coating of some priming or neutral color, and when this has set, printing in colors on the prime coat.

This requires a process, which the webs must be passed through in giving the primary coat, which is one of the items which go to make the color and pattern printing of floor coverings an expensive one. Furthermore the priming coat of solid color is in the prior art, as taught for example by Prifold in his Patent #1,297,009, not keyed into the fabric of the web but is imposed on the surface, since the material is filled with asphalt, which the priming coat does not substantially penetrate.

One of my objects is to provide a fiber web which, during the process of forming the web, can be fully prepared with a coating on one side which is keyed into the fabric itself. My process of manufacture can be used with much advantage in giving the priming coat to one side thereof as an operation separate from the operation of forming the web, and it can also be used with advantage in a process which, in one series of successive operations, saturates the web with asphalt and keys in a priming coat on the one side of the material.

By the use of my preferred process, it has been found that webs formed of super-imposed layers of short fibers, picked up by a multiple of cylinders can be saturated and given a keyed-in priming coat.

As stated the priming coat need not be imparted for color printing but may be imparted for other purposes.

I accomplish my objects by that certain web forming process to be hereinafter more specifically pointed out and claimed.

In the drawing Figure 1 is a diagram showing my process in its preferred embodiment. Fig. 2 is an enlarged section of the material.

I have indicated at 1 a roll, which may be steam heated and forms one of the drying rolls in a felt or board mill. There will preferably be a series of such rolls, over which the web passes with intermediate upper rolls 1^a. 2 indicates a heated roll under which the web passes after it has been drawn around the rolls, such as rolls 1 and 1^a. 3 indicates a trough for catching excess material. 4 indicates a pipe for spraying a saturating coating on the web, on the side which is against the face of roll 1, and such other rolls like roll 1 as are used in the process.

This mechanism is used in my preferred process. The fiber web 5, which may be of the type known as felt, or may be made of wood fiber, with or without rag fiber, and run on a multiple cylinder machine, will, while still retaining a considerable quantity of moisture carried over the felts and the couch rolls, be passed around a series of upper and lower rolls, of which but three are indicated in the diagram. An asphalt material, say at 450 degrees Fahrenheit, will be flowed onto the web from pipe 4, as indicated at 6, where it impinges on the roll 1, with the result of forcing its way into the web, driving moisture and air ahead of it, and saturating the web from one side.

The process of saturating from one side and driving the moisture through to the other is carefully controlled to the end that the web, when this operation is finished, will be saturated all but the outer surface, i. e., the surface away from the rolls, and this outer surface left practically dry. At this point (which it will be assumed is after the web leaves the roll 1^a) it passes under roll 2, where there is laid on the surface of the web on the unsaturated side, a quantity of the surface priming material 8, through pipe 7 with a scraper 9 to remove any excess which is collected and deposit it in pan 3. The web being freshly made and not calendered, will readily absorb the coating, which will penetrate the surface, and also coat the surface.

After webs have been permitted to stand for a while their surfaces become crusty,

and further the act of finishing the web to bone dryness, over a large number of rolls, as is the practice, will result in destroying the porosity of the web, and matting down the fibers, so that the web is not highly absorbent.

The priming coat 8, whether it be of a suitable material for a priming coat for color printing to make floor coverings, or for any other purpose, and which may be of any well known priming coat material such, for example, as that suggested by Prifold in his patent to which reference has hereinbefore been made, is well keyed into the fabric, and does not merely coat the asphalt as in the case with a web which has been dipped in an asphalt bath and thus has both of its surfaces filled with asphalt. Furthermore, there is but one handling of the web over successive rolls in the felt or board mill, thereby greatly economizing in labor. The amount of asphalt which will enter the web is very large, and seems to surround the individual fibers, giving extra good insulating and wearing properties, and the priming coat is well fastened into the web, due to the absorbent nature of the surface to which it is applied. In Figure 2, the web 5, where saturated is marked 4^a, and where having its primer is marked 8^a, the surfaces 4^b and 8^b will usually be formed of a coating of the primer or saturant that stays on the surface.

My process is of advantage if the web is formed up with the one surface not fully filled with the asphalt, and is later given the priming coat, as better results and more priming can be imposed than by the processes used at present. My process is also excellent if the web is permitted to become dry before the asphalt is applied, so long as the asphalt is applied to but one surface.

I have referred particularly to asphalt as the body saturant, and to a priming coating for printing as the outer surface covering medium. This it will be understood is expressive of but one valuable kind of web, as other materials for the main saturant and the surface covering can be used. Also it is not a necessity that the wet process be used, or if it is used that the same be employed as part of the process of making the web on the felt or board mill, although the economy of this mode is apparent.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A process of forming fiber webs which consists in filling the web from one side only with a saturant, said filling being controlled to leave the other surface substantially unfilled, and then applying a priming coat of desired character to the unfilled side.

2. A process of forming fiber webs which consists in passing the web when over a drying roll, with a saturant in highly heated liquefied form applied to the one side of the web, to the extent of filling the web except for the other surface, and then passing the web around another roll, and there depositing on its surface a priming coat of desired material.

3. A process of coating fiber webs, which consists in impressing through one surface of the web an asphalt saturant which will provide both a surface coating and a portion penetrating partially through the web, and subsequently applying a priming coating to the other surface of the web.

4. A fiber web for use as a floor covering, which consists of a fibrous web having a surface coating of asphaltic material which penetrates substantially through the web, said web further having a priming coating forming a surface coating for the other surface of the web which penetrates the web to a substantially lesser degree than the asphaltic material.

NEAL C. PIKE.