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METHOD OF SATURATING DOUBLE WIDTH FELT

Filed Jan. 5, 1929

Fig: 1.

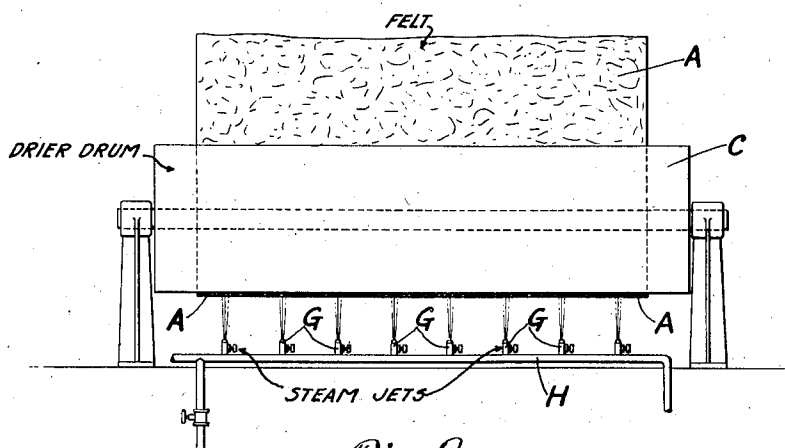
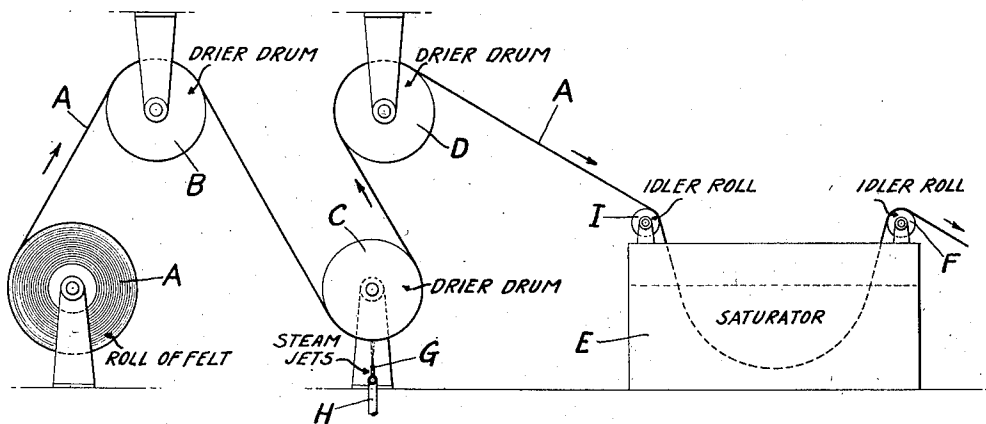


Fig: 2.

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METHOD OF SATURATING DOUBLE WIDTH FELT

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My invention pertains to the saturation of felt with tar, asphalt, or like materials for the production of building paper, artificial shingles, and similar products. My invention relates more particularly to an improvement in the saturation process whereby a uniform degree of saturation is attained throughout the width of the felt blanket.

In the usual process a roll of felt is slowly unwound by machinery. The felt passes over drier drums where some of its moisture is removed and is then immersed in or otherwise saturated with the hot impregnating fluid. The saturated felt then passes through squeeze rolls or other mechanisms adapted to impart any desired surface appearance and subsequently the felt is allowed to cool so that the saturant may harden.

Considerable difficulty has been experienced in the past in securing a uniform saturation of the felt, the greatest difficulty occurring in the case of the wider blankets. It was found that a layer of excess saturant appeared on the surface of the blanket, particularly in the center section. This surface saturant was found to cause excessive scrap and to increase manufacturing hazards. I have now discovered that by steaming the felt, prior to submitting it to the saturating process, an even degree of saturation may be obtained throughout the width of the felt and the presence of surface saturant may be eliminated.

The fact that the presence of moisture in the felt tends to retard its saturation is well known and it is for this reason that it is customary to dry the felt blanket to some extent before impregnation. As the result of my experiments I am of the opinion that the difficulty experienced in securing a uniform saturation of the entire width of the felt blanket has been due to the varying moisture content of the felt. This material is ordinarily stored in rolls, and the edges of these rolls appear to absorb more moisture than the center portion. Passing the blanket over drier drums prior to impregnation removes some moisture from the felt but does not equalize the moisture content across the width of the blanket. As a consequence, the edges

of the felt entering the impregnating bath contain more moisture than the center portion, and if the impregnation is complete enough to result in a saturation of the edges it will also cause an over-saturation of the center portion.

I have now discovered that I may obtain a uniform saturation of the felt, regardless of the blanket width, by producing a uniform moisture content therein prior to saturation. I may accomplish this result by exposing the felt to steam jets so that the total moisture present in the felt is increased, since under these circumstances the variance in the original moisture content across the width of the felt becomes inconsequential and all sections of the felt offer about the same resistance to saturation. However, I prefer to vary this procedure, somewhat, since the presence of a large amount of moisture in the felt makes saturation more difficult.

For the reasons indicated I prefer to dry the felt to some extent prior to the steaming treatment so that the amount of moisture required to be added to produce a substantial uniformity throughout the width of the blanket is reduced. I also prefer to dry the blanket somewhat, after the steam treatment, so that it will not offer unusual resistance to saturation.

In the appended drawings I have indicated the operation of my process in its preferred form. In the drawings, Fig. 1 shows a cross-sectional sketch of a suitable apparatus for the practice of my invention and Fig. 2 shows a face view of the drier drum over which the felt passes during the steaming process. Like letters of reference are used in the two figures.

In Fig. 1, (A) is a roll of felt adapted to be unwound in the process. The felt (A) passes over drier drum (B) where its moisture content is somewhat reduced. The felt then travels around drier drum (C) where it is subjected to a steaming process by means of steam jets (G, G) on steam pipe (H), after which it passes over drier drum (D), where its moisture content is again reduced. The felt then passes over idler (I) and enters saturator (E) which is shown diagrammat-

ically. The saturated felt rising from the saturator (E) passes over idler (F) after which it may continue on through squeeze rolls, cooling frames, and the like, which are
5 not shown in the drawings.

Fig. 2 represents a face view of the drier drum (C) carrying the felt (A) which is being treated with steam by means of jets (G, G) on steam pipe (H).

10 In practise I prefer to apply the steam at a pressure of about ten pounds or less by means of jets spaced about three inches apart on a steam pipe held in a plane parallel to the surface of the felt, the steam jets themselves
15 being located about three inches from the felt. I have also found it advisable to place a drain on the steam line supplying the jets so that free water may be removed from the system.

20 It should be understood that the preferred embodiment of my invention, thus described, is illustrative but not limiting. For example the drying of the felt prior to and subsequent to the steaming treatment may be eliminated
25 without departing from the spirit of the invention. On the other hand, drier drums in addition to those shown in the drawings may be used, or in place of the steam heated revolving drums some other drying means may
30 be employed. Also the steam treatment may be confined to the central portion of the fabric so that the moisture content of this portion is substantially equal to that of the ends of the fabric. While I prefer to impart the
35 required moisture to the felt by the steaming treatment described I may, alternatively, add this moisture in the form of a water spray or in any other convenient manner.

Now having described my invention, I
40 claim:

1. A process for the production of an impregnated felt which comprises heating said felt to remove a portion of the naturally contained moisture, adding moisture to said felt
45 so that the total moisture content thereof is substantially uniform across its width, and submitting said felt to the action of a saturant.

2. A process for the production of an impregnated felt which comprises heating said
50 felt to remove a portion of the naturally contained moisture, adding moisture to said felt so that the total moisture content thereof is substantially uniform across its width, partially drying said felt, and submitting said
55 felt to the action of a saturant.

In testimony whereof, I have hereunto affixed my signature.

FRANK BRADFORD MANKER.