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(54) **Papermakers marking felt**

Filz für die Papierherstellung

Feutre pour papeterie

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(56) References cited:

US-A- 4 283 454 **US-A- 4 425 392**
US-A- 4 564 985

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Description

[0001] The present invention relates to a papermakers marking felt.

[0002] Marking felts are used in the manufacture of various grades of paper which require a distinctive pattern embossed thereon. The most common area of application is in the manufacture of writing paper, envelopes, and other such stationery. The most commonly used form of marking felt is made entirely from wool.

[0003] It is an object of the present invention to provide superior marking felts to conventional woollen felts.

[0004] According to the present invention there is provided a papermakers marking felt comprising two woven base cloths and one or more additional layers, needled to the base cloths so as to bond the two base cloths together.

[0005] The marking felts of the present invention have a far greater working life than conventional woollen felts. The quality and intensity of the marking by the felt remains more regular over long periods of usage than known felts. A further advantage is the consistent reproducibility of marking of similar felts which have only minor dimensional variation unlike woollen felts which exhibit significant dimensional variation. Furthermore, the marking felts of the invention allow for water drainage for a paper web, whereas woollen felts do not.

[0006] Ideally the two woven base cloths have different weave patterns. In such circumstances the non-correspondence of the weave patterns, i.e. the fact that the two weave patterns are out of phase creates an irregular array of bumps distributed over a sufficiently wide area such that no repetitive pattern can be distinguished by the naked eye.

[0007] The woven base cloths preferably comprise synthetic fibres, for example monofilaments, cabled monofilaments, multi-filaments or any spun fibres in general.

[0008] The needled layer or layers may be provided on one or both faces of the marking felt.

[0009] In order that the present invention may be more readily understood specific embodiments thereof will now be described by way of example only with reference to the accompanying drawings in which:-

Fig.1 shows side elevations of the two base cloths of a marking felt in accordance with the invention and a plan view of the needled layer;

Fig.2 shows a pattern provided in paper made by using the upper base cloth alone of the felt shown in Fig.1;

Fig.3 shows a pattern provided in paper made by using the lower base cloth alone of the felt shown in Fig. 1;

Fig.4 shows a pattern provided in paper made by using the marking felt of Fig.1;

Fig.5 shows side elevations of the two base cloths of a second marking felt in accordance with the in-

vention and a plan view of the needled layer;

Fig.6 shows a pattern provided in paper made by using the upper base cloth alone of the felt shown in Fig.5;

Fig.7 shows a pattern provided in paper made by using the lower base cloth alone of the felt shown in Fig.5; and

Fig. 8 shows a pattern provided in paper made by using the marking felt of Fig. 5.

[0010] Referring to Fig. 1 a papermakers marking felt 10 comprises an upper base cloth 11, a lower base cloth 12 and a further layer 13 needled to the two base layers 11, 12. Felt 10 comprises upper and lower base cloths woven from cabled PA 6.6 yarn, needled on both sides with 22 dtex PA6 staple, giving a unit weight of 1320 g/m² ± 8% and a permeability of 64 cfm ± 10%.

[0011] Figs. 2 and 3 show the impression left on paper during the manufacture thereof using solely the base cloths 11 and 12 respectively. Fig. 4 shows the impression left on paper during the manufacture thereof using the felt 10.

[0012] Fig. 5 shows a seamed papermakers marking felt 20 of similar construction to that shown in Fig. 1. Felt 20 comprises a lower base cloth woven from monofilament yarns and an upper base cloth woven from multifilament warp and monofilament weft yarns. The base cloths are needled on both sides with 22 dtex PA6 staple giving a unit weight of 1380 g/m² ± 8% and a permeability of 60 cfm ± 10%.

[0013] Figs. 6 and 7 show the impression left on paper during manufacture thereof using solely the upper and lower base cloths of the felt respectively. Fig. 8 shows the impression left on paper during the manufacture thereof using the felt 20.

Claims

1. A papermakers marking felt (10, 20) comprising two woven base cloths (11, 12) and one or more additional layers (13), needled to the base cloths (11, 12) so as to bond the two base cloths (11, 12) together.
2. A papermakers marking felt (20) as claimed in claim 1, characterised in that the two base cloths (11, 12) have different weave patterns.
3. A papermakers marking felt as claimed in claim 1 or claim 2, characterised in that an additional layer (13) is needled to one face of the marking felt (10, 20).
4. A papermakers marking felt as claimed in claim 1 or claim 2, characterised in that additional layers (13) are needled to both faces of the marking felt (10, 20).

5. A papermakers marking felt as claimed in any preceding claim, characterised in that the woven base cloth (11, 12) comprises any of the following: monofilaments, cabled monofilaments, multi-filaments or spun fibres.

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Patentansprüche

1. Papiermaschinen-Markierfilz (10, 20) mit zwei Grundgeweben (11, 12) und einer oder mehreren zusätzlichen Lagen (13), die mit den Grundgeweben (11, 12) vernadelt sind, um die beiden Grundgewebe (11, 12) miteinander zu verbinden.
2. Papiermaschinen-Markierfilz (20) nach Anspruch 1, dadurch gekennzeichnet, daß die beiden Grundgewebe (11, 12) unterschiedliche Bindungen aufweisen.
3. Papiermaschinen-Markierfilz nach Anspruch 1 oder Anspruch 2, dadurch gekennzeichnet, daß eine zusätzliche Lage (13) mit einer Seite des Markierfilzes (10, 20) vernadelt ist.
4. Papiermaschinen-Markierfilz nach Anspruch 1 oder Anspruch 2, dadurch gekennzeichnet, daß zusätzliche Lagen (13) mit beiden Seiten des Markierfilzes (10, 20) vernadelt sind.
5. Papiermaschinen-Markierfilz nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß ein Grundgewebe (11, 12) eine der folgenden Fadenarten umfaßt: Monofilamente, mehrfach gezwirnte Monofilamente, Multifilamente oder gesponnene Fasern.

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Revendications

1. Feutre de marquage pour papeterie (10, 20) comprenant deux toiles de base tissées (11, 12) et une ou plusieurs couches supplémentaires (13) cousues aux toiles de base (11, 12) de manière à lier ensemble les deux toiles de base (11, 12).
2. Feutre de marquage pour papeterie (20) selon la revendication 1, caractérisé en ce que les deux toiles de base (11, 12) ont des motifs de tissage différents.
3. Feutre de marquage pour papeterie selon la revendication 1 ou 2, caractérisé en ce que une couche supplémentaire (13) est cousue sur une face du feutre de marquage (10, 20).

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4. Feutre de marquage pour papeterie selon la revendication 1 ou 2, caractérisé en ce que des couches supplémentaires (13) sont cousues sur les deux faces du feutre de marquage (10, 20).

5. Feutre de marquage pour papeterie selon l'une quelconque des revendications précédentes, caractérisé en ce que la toile de base tissée (11, 12) comprend l'un des éléments suivants : des monofilaments, des monofilaments câblés ou des fibres filées.

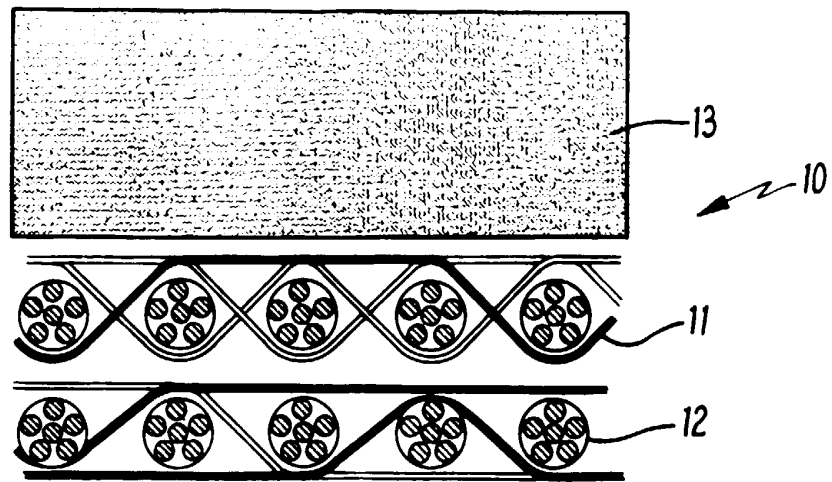


FIG. 1

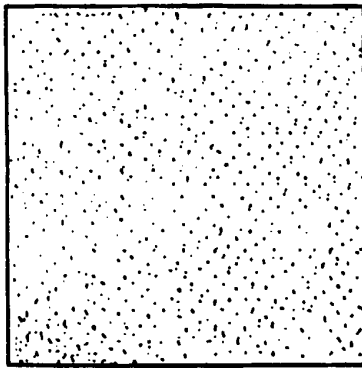


FIG. 2

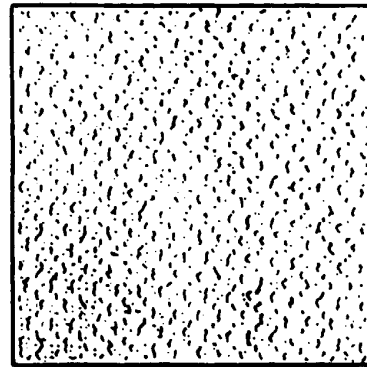


FIG. 3

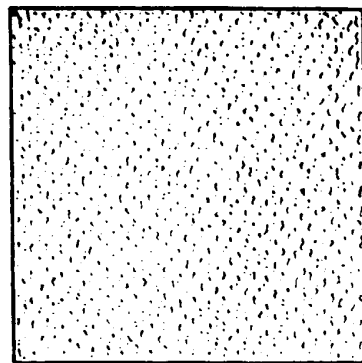


FIG. 4

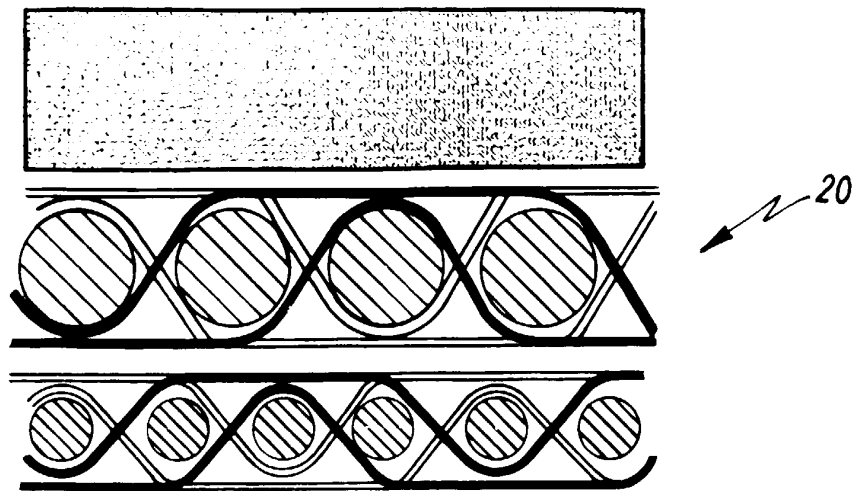


FIG. 5

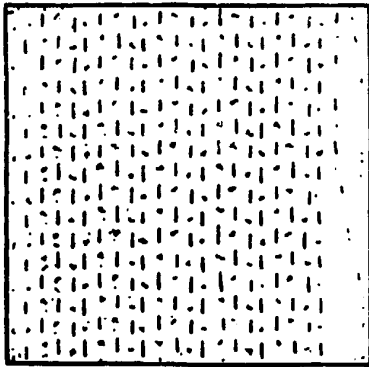


FIG. 6

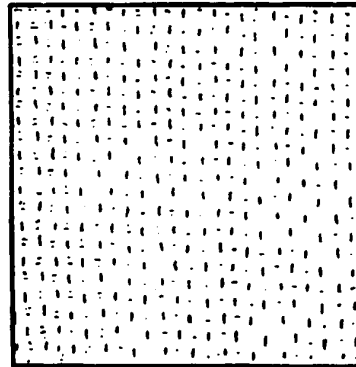


FIG. 7

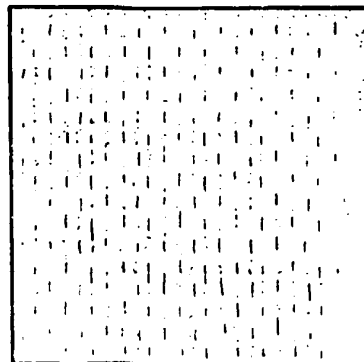


FIG. 8