

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

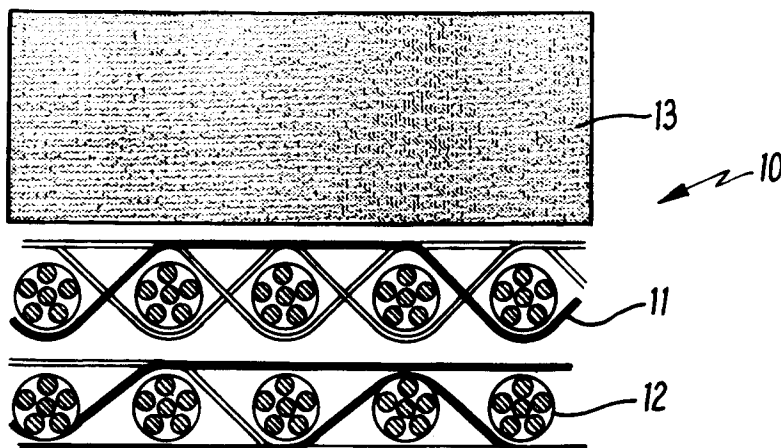
0 672 784 A1

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **95300727.5**(51) Int. Cl.⁶: **D21F 7/08**(22) Date of filing: **06.02.95**(30) Priority: **10.03.94 GB 9405187**(43) Date of publication of application:
20.09.95 Bulletin 95/38(84) Designated Contracting States:
CH DE FR GB LI NL(71) Applicant: **SCAPA GROUP PLC**
Oakfield House,
93 Preston New Road
Blackburn,
Lancashire BB2 6AY (GB)(72) Inventor: **Sudre, Paul**
La Fenetre
F-16220 Montbrun (FR)
Inventor: **Lalue, Jean-Pierre**
17 Rue Emile Bricq
F-16220 Montbrun (FR)(74) Representative: **Goodwin, Mark et al**
Wilson, Gunn, M'Caw & Co.,
41-51 Royal Exchange,
Cross Street
Manchester M2 7BD (GB)(54) **Papermakers marking felt.**

(57) A papermakers marking felt comprises two woven base cloths (11,12) and one or more additional layers needled to the base cloths in order to bond

the two base cloths together. The two woven base cloths (11,12) have different weave patterns.

***FIG. 1*****EP 0 672 784 A1**

The present invention relates to a papermakers marking felt.

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.

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

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.

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.

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.

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

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

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 invention 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.

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 22dtex PA6 staple, giving a unit weight of $1320 \text{ g/m}^2 \pm 8\%$ and a permeability of $64 \text{ cfm} \pm 10\%$.

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.

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 $1380 \text{ g/m}^2 \pm 8\%$ and a permeability of $60 \text{ cfm} \pm 10\%$.

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.

It is to be understood that the above described embodiments are by way of illustration only. Many modifications and variations are possible.

Claims

1. 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.
2. A papermakers marking felt as claimed in claim 1, characterised in that the two base cloths have different weave patterns.
3. A papermakers marking felt as claimed in claim 1 or claim 2, characterised in that an additional layer is needled to one face of the marking felt.

4. A papermakers marking felt as claimed in claim 1 or claim 2, characterised in that additional layers are needed to both faces of the marking felt.

5

5. A papermakers marking felt as claimed in any preceding claim, characterised in that the woven base cloth comprises any of the following: monofilaments, cabled monofilaments, multifilaments or spun fibres.

10

15

20

25

30

35

40

45

50

55

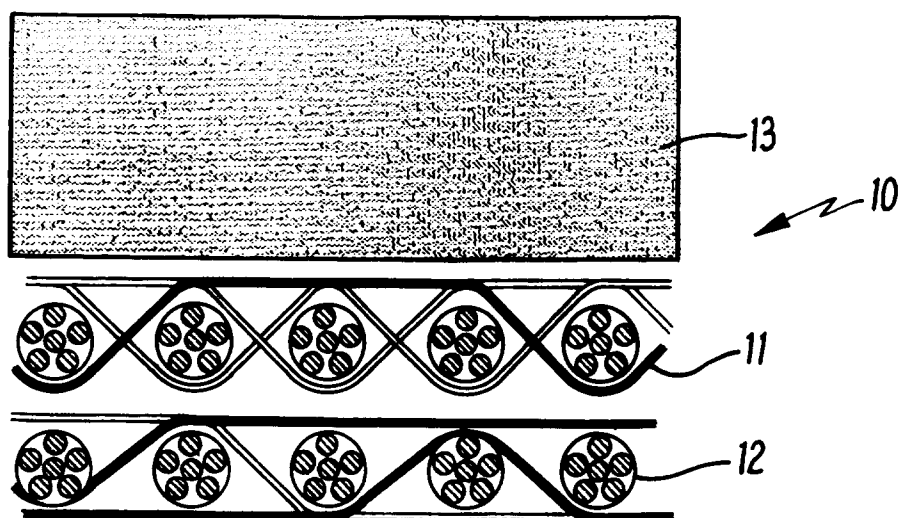


Fig. 1

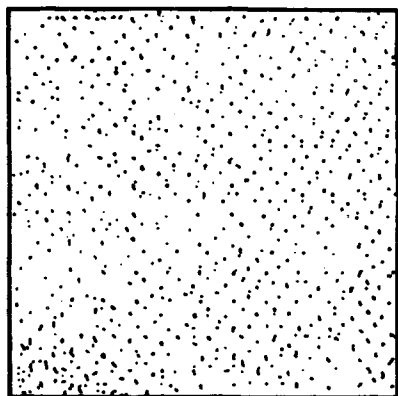


Fig. 2

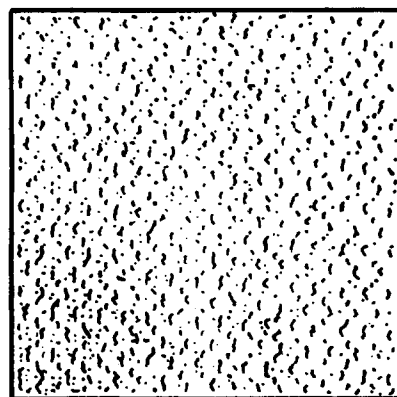


Fig. 3

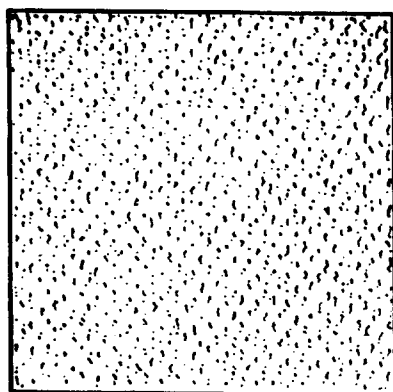


Fig. 4

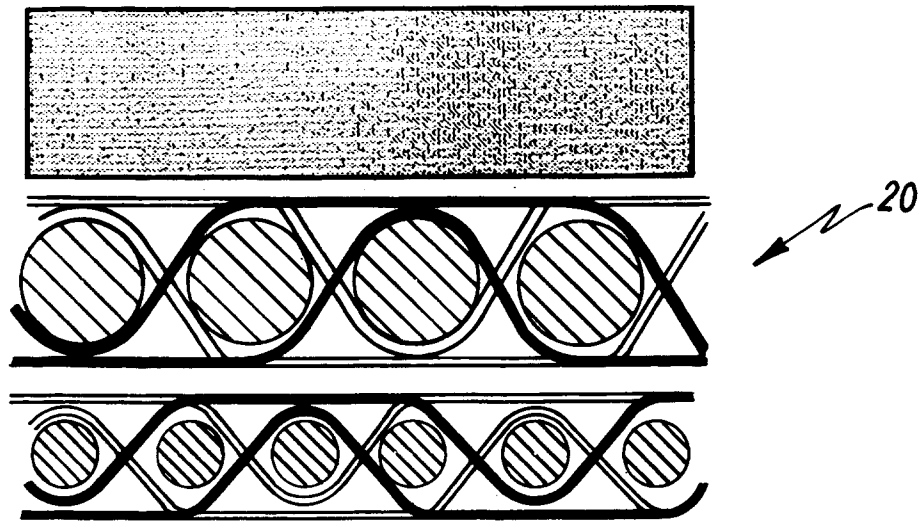


FIG. 5

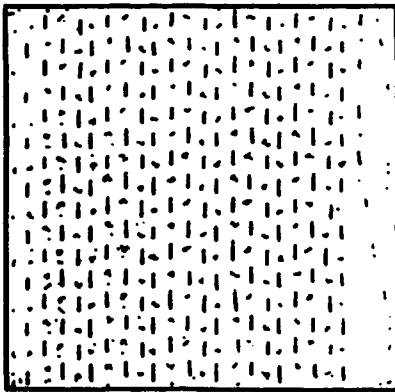


FIG. 6

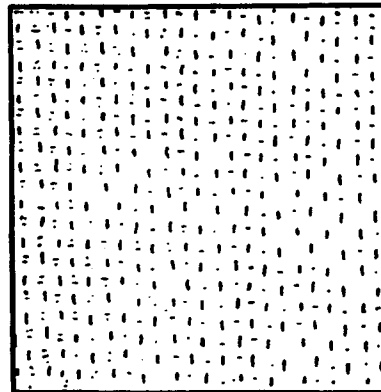


FIG. 7

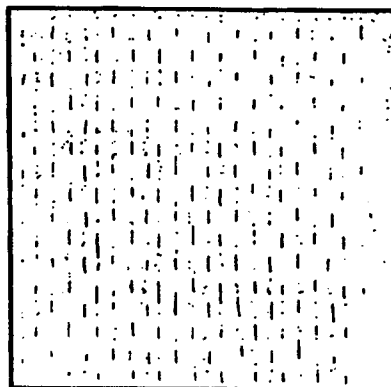


FIG. 8



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 30 0727

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US-A-4 425 392 (OIKAWA ET AL) * the whole document * ---	1-5	D21F7/08
X	US-A-4 564 985 (TANABE) * the whole document * ---	1-3,5	
X	US-A-4 283 454 (BUCHANAN) * the whole document * -----	1-3,5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			D21F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 July 1995	Examiner De Rijck, F
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	