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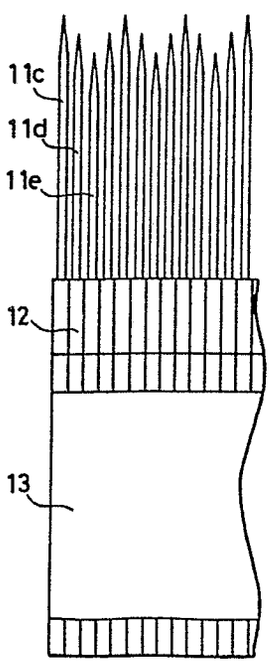
(54) Comb teeth for a comb.

(57) A comb, especially for high-density fibrous webs, has teeth of at least two different lengths (11c, 11d, 11e) juxtaposed. The teeth are preferably arranged in sets, with the sets being repeated. The root portions (12) of the teeth are identical.

FIG. 4



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COMB TEETH FOR A COMB

The present invention telates to combs, and especially to the teeth of combs suitable for combing fibrous webs.

In a conventinal comb a number of teeth of equal length are juxtaposed. Each tooth comprises a projecting part and a root portion, with the root portions being fixed integrally to form a unitary base. Then, in a combing operation, the projecting teeth are inserted into a moving fibrous web to order and open the fibres.

Since with the conventional comb a number of teeth having the same length are juxtaposed and the root portions are fixed integrally, the free ends of the teeth all lie on a straight line and the spacings between the ends of the teeth are very small. Therefore, the closely-spaced ends of the teeth, which lie on a line, act on the surface of the fibrous web just as if an edge of an edged tool was to come into contact therewith. This gives rise to the problem that it is then difficult to insert the teeth into a fibrous web, particularly a web having a high density of fibres. The conventional comb thus fails to perform a satisfactory combing operation.

It is an object of the present invention to provide a comb with teeth appropriate to make possible an excellent combing effect and which can easily be inserted

into a high-density fibrous web.

In accordance with the present invention there is provided a comb having a plurality of juxtaposed teeth whose root portions are identical and are connected in a unitary manner, characterised in that the teeth are of at least two different lengths.

Since at least two kinds of different length teeth with root portions fixed integrally are provided, the ends of the teeth do not lie on a straight line. Therefore, the ends of the teeth act as points on the surface of the fibrous web. First, the longer or longest teeth are inserted, then any mid-length teeth positioned between the first-mentioned longer teeth are inserted, and finally the shorter or shortest teeth are inserted. By this means, the comb teeth are easily inserted into a fibrous web, even one having a high fibre density, thus ensuring satisfactory combing of the fibrous web.

A number of embodiments of comb in accordance with the invention will now be described by way of example and with reference to the accompanying drawings.

In the drawings:

Figs. 1 to 5 are front views of various different embodiments of comb teeth for a comb according to the present invention; and,

Fig. 6 is a front view showing conventional comb teeth for a comb.

Fig. 6 illustrates the conventional comb where each tooth 1 is of the same length and where each tooth has a root portion 2 with the root portions juxtaposed to form a unitary base 3.

Figs. 1 to 3 show embodiments of comb according to the present invention which comprise two kinds of teeth 11a and 11b which are of different respective lengths. The teeth have identical root portions 12. In Fig. 1, long teeth 11a and short teeth 11b are alternately repeatedly

juxtaposed, with the root portions 12 fixed integrally to form a fixed base 13. In Fig. 2, two short teeth 11b are juxtaposed next to a single long tooth 11a to form a unit, these units being repeatedly juxtaposed. In Fig. 3, two short teeth 11b are juxtaposed next to two long teeth 11a to form a unit, these units being repeatedly juxtaposed.

Figs. 4 and 5 show embodiments of comb according to the present invention which comprise three kinds of teeth 11c, 11d and 11e of respective different lengths. Again, their root portions 12 are identical. In Fig. 4, a longest tooth 11c, a mid-length tooth 11d, a short tooth 11e and another mid-length tooth 11d are juxtaposed in that order to form one unit. These units are repeatedly juxtaposed with the respective root portions 12 fixed integrally to form a fixed base 13. In Fig. 5, a longest tooth 11c, a mid-length tooth 11d, a short tooth 11e, a mid-length tooth 11d, another short tooth 11e and another mid-length tooth 11d are juxtaposed in that order to form one unit, again with these units being repeatedly juxtaposed.

The teeth used in this invention are not limited just to teeth of two or three different lengths as shown in the aforesaid embodiments. Teeth having a greater variety of lengths can be used, as appropriate to be inserted into a fibrous web effectively to carry out a combing operation. The teeth may be suitably combined to constitute the set of teeth for the comb. In addition, the order or arrangement of the teeth is not limited to what is shown in the particular embodiments. Teeth having differing lengths may be juxtaposed at random. The order and arrangement should be such as will best achieve an effective combing of the particular fibrous web being treated.

As described above, the comb teeth of a comb according to this invention comprise at least two kinds of teeth, of respective different lengths but with identical root portions. The teeth, if arranged in an ordered set,

have the sets repeated, and the root portions are fixed in a unitary manner. Therefore, the ends of the teeth of the comb do not lie in a straight line as in the prior art combs but lie at different levels. The spaces between the ends of the longest teeth are thus increased. Moreover, the teeth are inserted into the surface of the fibrous web in a point-like manner, not as a solid edge.

The longer or longest teeth are first inserted into the fibrous web, and finally the shorter or shortest teeth are inserted. This means that the teeth can easily be inserted into a web, even into a fibrous web having a high fibre density, thus obtaining an excellent combing effect.

CLAIMS:

1. A comb having a plurality of juxtaposed teeth whose root portions are identical and are connected in a unitary manner, characterised in that the teeth are of at least two different lengths.

2. A comb as claimed in claim 1, characterised in that teeth of a first length (11b) are alternately juxtaposed with teeth of a second length (11a).

3. A comb as claimed in claim 1, characterised in that two teeth (11b) of a first length are juxtaposed next to one longer tooth (11a) to form a unit, with said units being repeatedly juxtaposed.

4. A comb as claimed in claim 1, characterised in that two teeth (11b) of a first length are juxtaposed next to two longer teeth (11a) to form a unit, with said units being repeatedly juxtaposed.

5. A comb as claimed in claim 1, characterised in that a tooth (11c) of longest length, a first mid-length tooth (11d), a tooth (11e) of shortest length, and a second mid-length tooth (11d) are juxtaposed to form a unit, with said units being repeatedly juxtaposed.

6. A comb as claimed in claim 1, characterised in that a tooth (11c) of longest length, a first mid-length tooth (11d), a first tooth (11e) of shortest length, a second mid-length tooth (11d), a second shortest length tooth (11e), and a third mid-length tooth (11d) are juxtaposed in said order to form a unit, with said units being repeatedly juxtaposed.

7. A comb as claimed in claim 1, characterised in that teeth of different lengths are juxtaposed in a random array.

FIG. 1

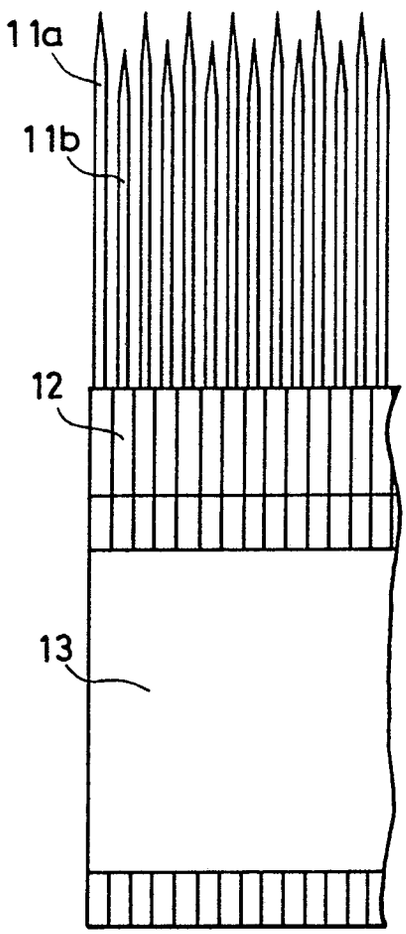


FIG. 2

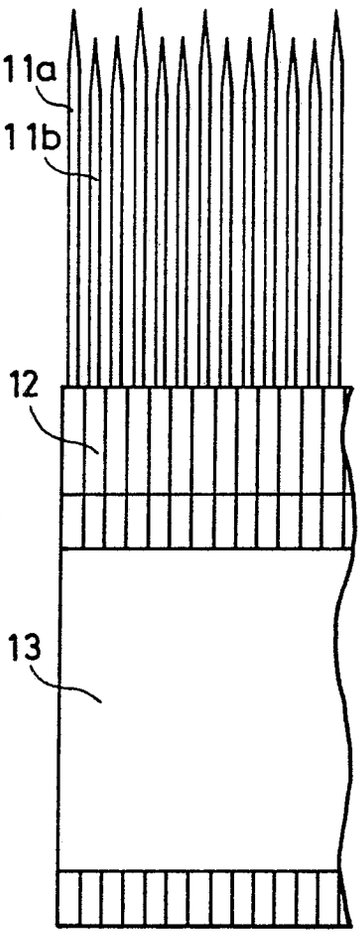


FIG. 3

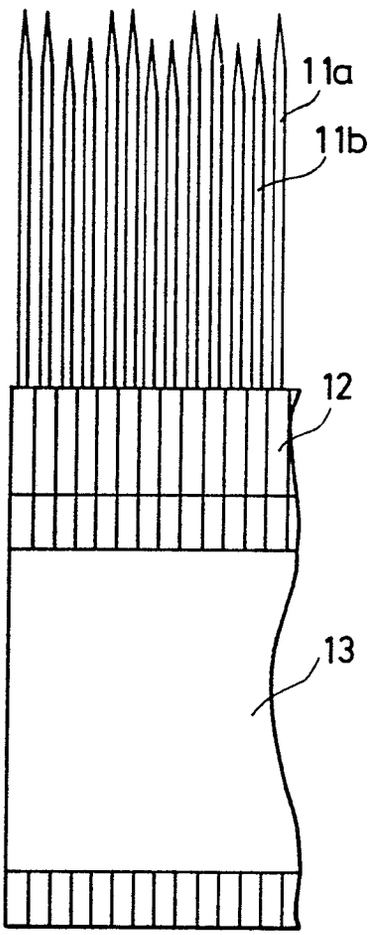


FIG. 4

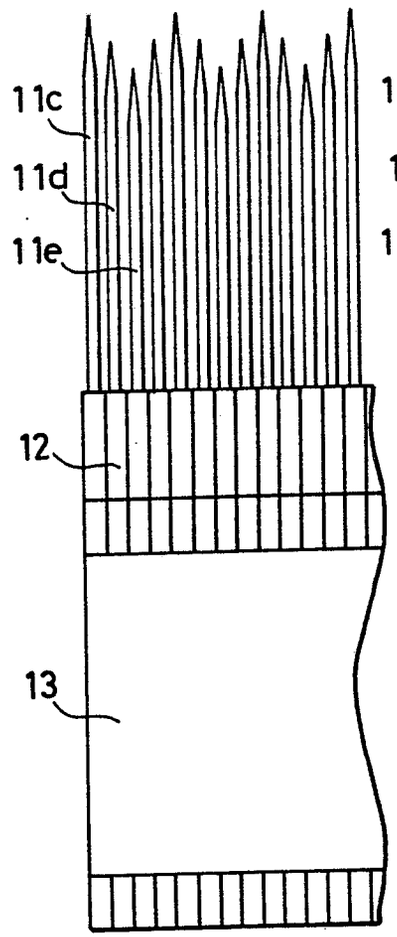


FIG. 5

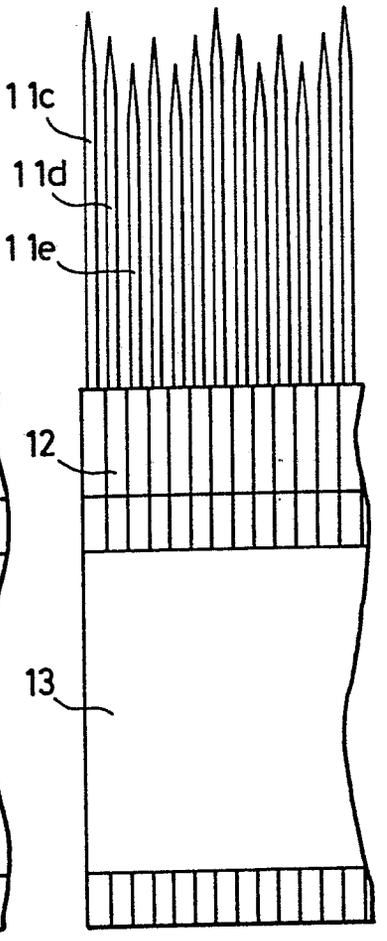
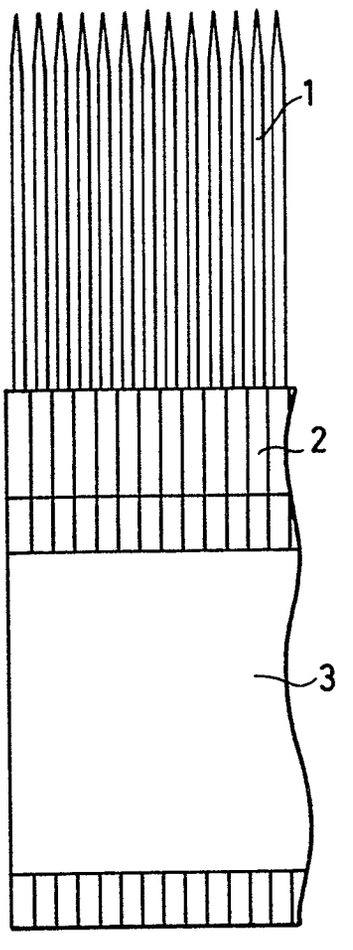


FIG. 6



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EUROPEAN SEARCH REPORT

0246796
Application number

EP 87 30 4171

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 4)
X	GB-A-2 027 766 (SOUTH AFRICAN INVENTIONS DEVELOPMENT CORP.) * Page 1, lines 73-88; figures 1-3 *	1	D 01 H 5/14
X	GB-A- 887 352 (FELICE BRONZINI) * Page 2, lines 17-30; figures 2-4 *	1	
X	DE-C- 511 865 (M. DASSONVILLE) * Front-page, lines 52-62; figures 2,5 *	1	

TECHNICAL FIELDS SEARCHED (Int Cl 4)

D 01 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	31-08-1987	MUNZER E.

CATEGORY OF CITED DOCUMENTS

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