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(54) Woven material provided with loops.

(57) The invention relates to a woven material having material threads (6) extending locally over some length outside the woven material adjacent and parallel to one another and together forming a loop (8).

The problem can occur here that material threads (6) forming part of a loop (8) that are located further to the outside are subjected during loading to greater stretching, resulting in a not very homogeneous distribution of forces and in the threads located further to the outside displaying a greater risk of breakage and more rapid deterioration.

Such a problem generally occurs when a woven material provided with loops is attached to rigid constructions.

The invention has for its object to provide a solution for the stated problem and proposed to this end a woven material of the type referred to in the preamble which has the feature that the stretchability, calculated per unit of length in transverse direction relative to the longitudinal direction of threads together forming a loop, increases from the longitudinal centre line of the loop towards the outside.

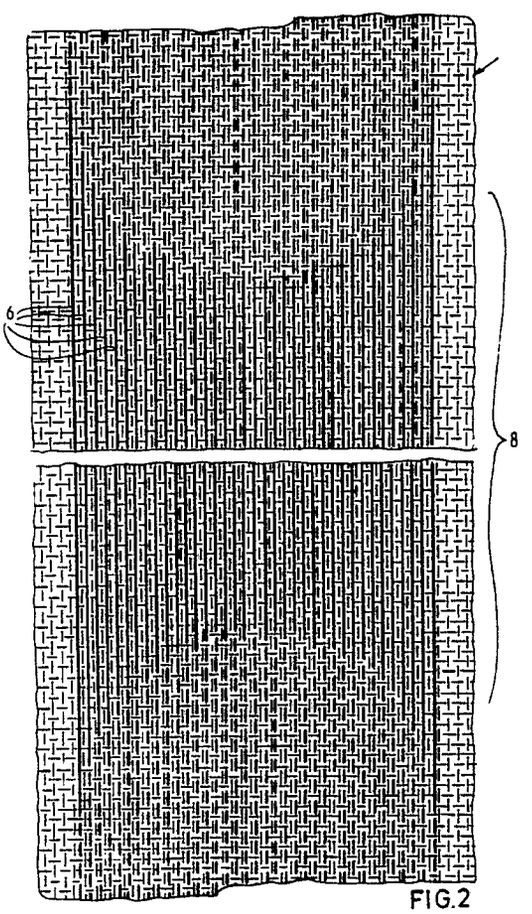

FIG.2

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Woven material provided with loops

The invention relates to a woven material having material threads extending locally over some length outside the woven material adjacent and parallel to one another and together forming a loop. Such a woven material is known from NL-A-7801805 in the name of current applicant.

Such a woven material is known. The woven material known from the above mentioned publication is widely used as scaffold covering, whereby the loops are used as fastening loops.

The problem can occur here that material threads forming part of a loop that are located further to the outside are subjected during loading to greater stretching, resulting in a not very homogeneous distribution of forces and in the threads located further to the outside displaying a greater risk of breakage and more rapid deterioration.

Such a problem generally occurs when a woven material provided with loops is attached to rigid constructions. Examples that come to mind are mattresses for sinking and cribs in hydraulic engineering, shading material for hothouses or protection of crops and the like, woven material for breaking strong winds, whereby the woven material is fastened to vertical posts driven into the ground, and protective screens for sports fields, such as tennis courts.

The invention has for its object to provide a solution for the stated problem and proposes to this end a woven material of the type referred to in the preamble which has the feature that the stretchability, calculated per unit of length in transverse direction relative to the longitudinal direction of threads together forming a loop, increases from the longitudinal centre line of the loop towards the outside.

An embodiment of this principle according to the invention which is simple in terms of woven material technique is one in which the greater the distance of a material thread forming part of a loop to the longitudinal centre line of the loop, the greater is the length over which this thread extends outside the woven material.

Use can also be made of a variant whereby the greater the distance of a material thread forming part of a loop to the longitudinal centre line of the loop, the greater is the stretchability of this thread. This stretchability can be determined for example by the material of the thread or by the cross-sectional area thereof or a combination.

A further variant displays the particular feature that the number of threads together forming a loop per unit of length in transverse direction relative to the longitudinal direction decreases from the longitudinal centre line of the loop towards the outside.

The invention will now be elucidated with reference to the drawing of several embodiments.

In the drawing:

Fig. 1 shows a schematic view of a scaffold which is covered with a woven material provided with loops according to the invention;

Fig. 2 is a first embodiment;

Fig. 3 is a second embodiment;

Fig. 4 shows the section IV-IV as in fig. 3;

Fig. 5 shows a view corresponding to fig. 4 of a last embodiment; and

Fig. 6 shows the detail VI-VI as in fig. 1.

Fig. 1 shows a scaffold 1 which is covered with a woven material 2 provided with loops according to the invention. Scaffold 1 comprises horizontal tubes 14 which serve as fastening elements for the woven material 2 provided with loops which functions as scaffold covering.

Fig. 6 shows the manner in which fastening loops 4 of the woven material 2 are attached to the horizontal tubes 3. The loops 8 which will be described hereinafter with reference to fig. 2 are removed manually by a personnel member from the principal plane of the woven material 2, after which a fastening rope 15 is inserted through each loop 8 and fastened to the tube 3.

This fig. 6 shows why in accordance with the invention the threads of the loop 8 located further to the outside must display a greater stretchability in order to distribute the loading on the woven material 2 more or less homogeneously.

Fig. 2 shows a detail of the woven material provided with loops 2, into which additional threads are interwoven parallel to one another, which threads are, for the sake of clarity, all designated by the reference numeral 6. In this case the greater the distance of such a thread to the longitudinal centre line 7 of the loop 8, the greater is the length over which this thread 6 extends outside the woven material 2. It will be apparent that this ensures that the stretchability per unit of length in transverse direction relative to the longitudinal direction of threads 6 increases from the longitudinal centre line 7 of the loop 8 towards the outside.

Fig. 3 shows a detail of a woven material 9 provided with loops having extra threads 10 which all extend outside the woven material 9 over approximately the same length. In order to obtain a stretchability of the loop 11 increasing to the outside from the longitudinal centre line, the cross-sectional area of a thread becomes smaller, in accordance with the cross section as in fig. 4, the greater the distance of this thread 10 to the longitudinal centre line 7 of loop 11.

Fig. 5 shows a variant in which the density of the extra threads 12, that is, the number of threads 12 together forming a loop per unit of length in transverse direction relative to the longitudinal direction, decreases from the longitudinal centre line 7 of the loop 13 towards the outside.

Attention is drawn to the fact that the above described configurations shown in the figures relate only to examples. Thus for example in a variant of the embodiment as according to fig. 2 the form of the boundary lines of the ends of the loop 8 can be substantially V-shaped, contrary to the more or less semi-circular form as in fig. 2.

In general the form of the loop and/or the stretch tendencies can be selected in relation to the construction of the woven material and the specific purpose of use.

Claims

1. Woven material having material threads extending locally over some length outside said woven material adjacent and parallel to one another and together forming a loop, characterized in that the stretchability, calculated per unit of length in transverse direction relative to the longitudinal direction of threads together forming a loop, increases from the longitudinal centre line of said loop towards the outside.

2. Woven material as claimed in claim 1, characterized in that the greater the distance of a material thread forming part of a loop to the longitudinal centre line of said loop, the greater is the length over which this thread extends outside said woven material.

3. Woven material as claimed in claim 1, characterized in that the greater the distance of a material thread forming part of a loop to the longitudinal centre line of the loop, the greater is the stretchability of this thread.

4. Woven material as claimed in claim 3, characterized in that the stretchability of the relevant thread is determined by the material of the thread.

5. Woven material as claimed in claim 3, characterized in that the stretchability of the relevant thread is determined by the cross-sectional area of said thread.

6. Woven material as claimed in claim 1, characterized in that the number of threads together forming a loop per unit of length in transverse direction relative to the longitudinal direction decreases from the longitudinal centre line of said loop towards the outside.

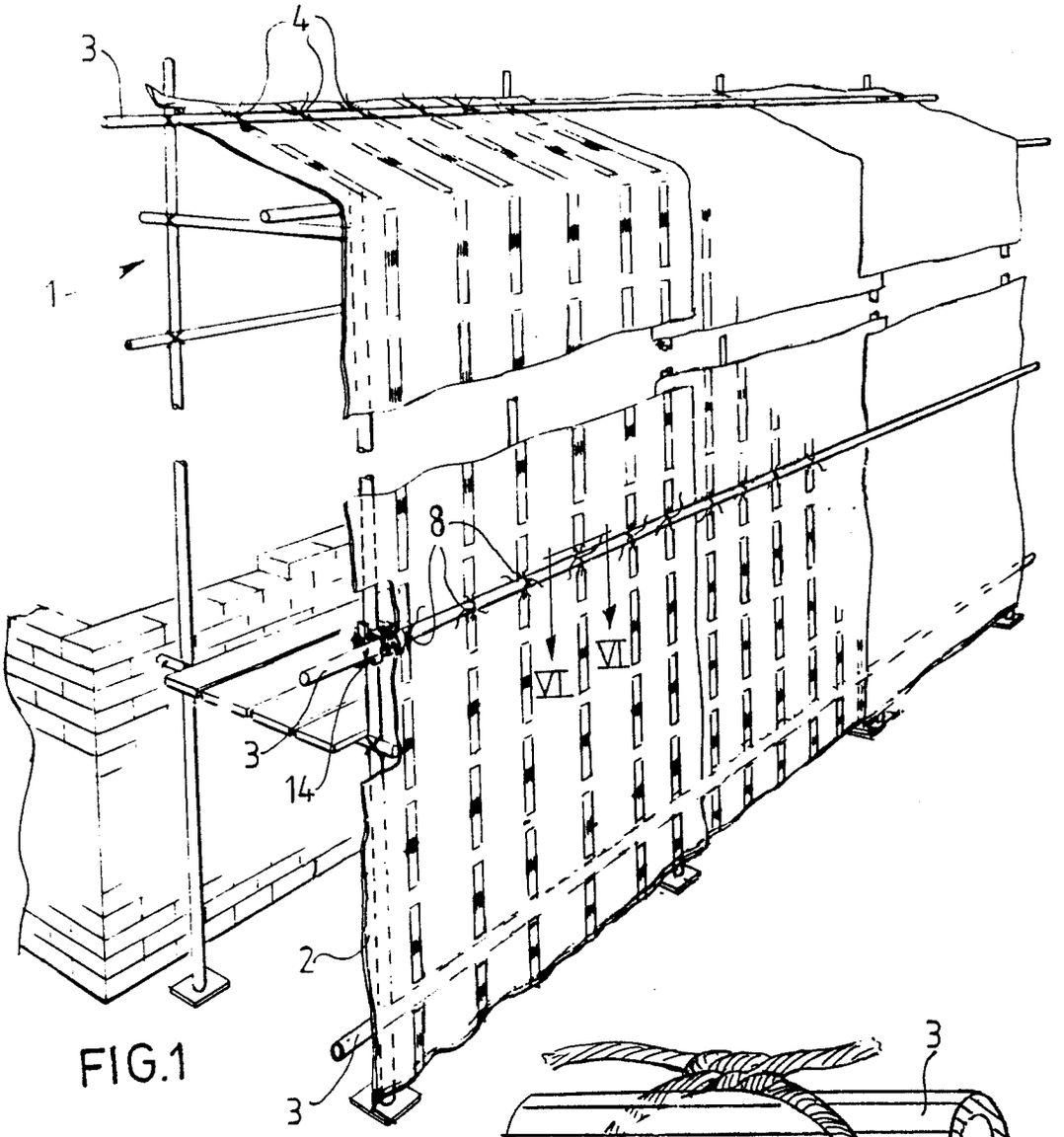

FIG.1

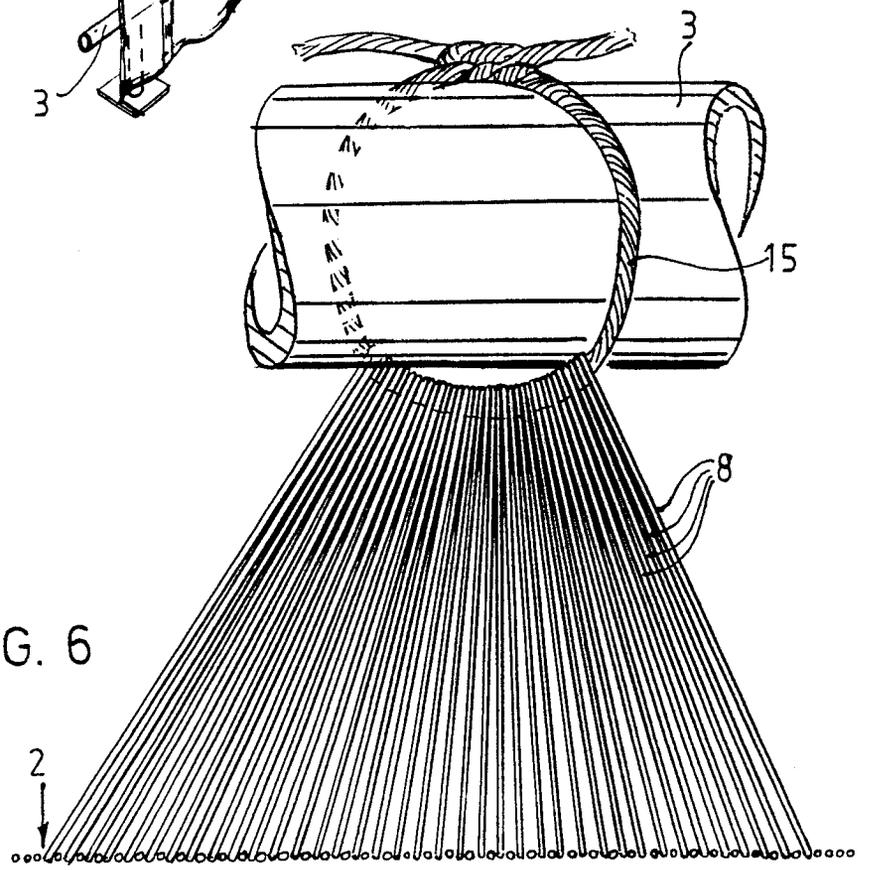

FIG. 6

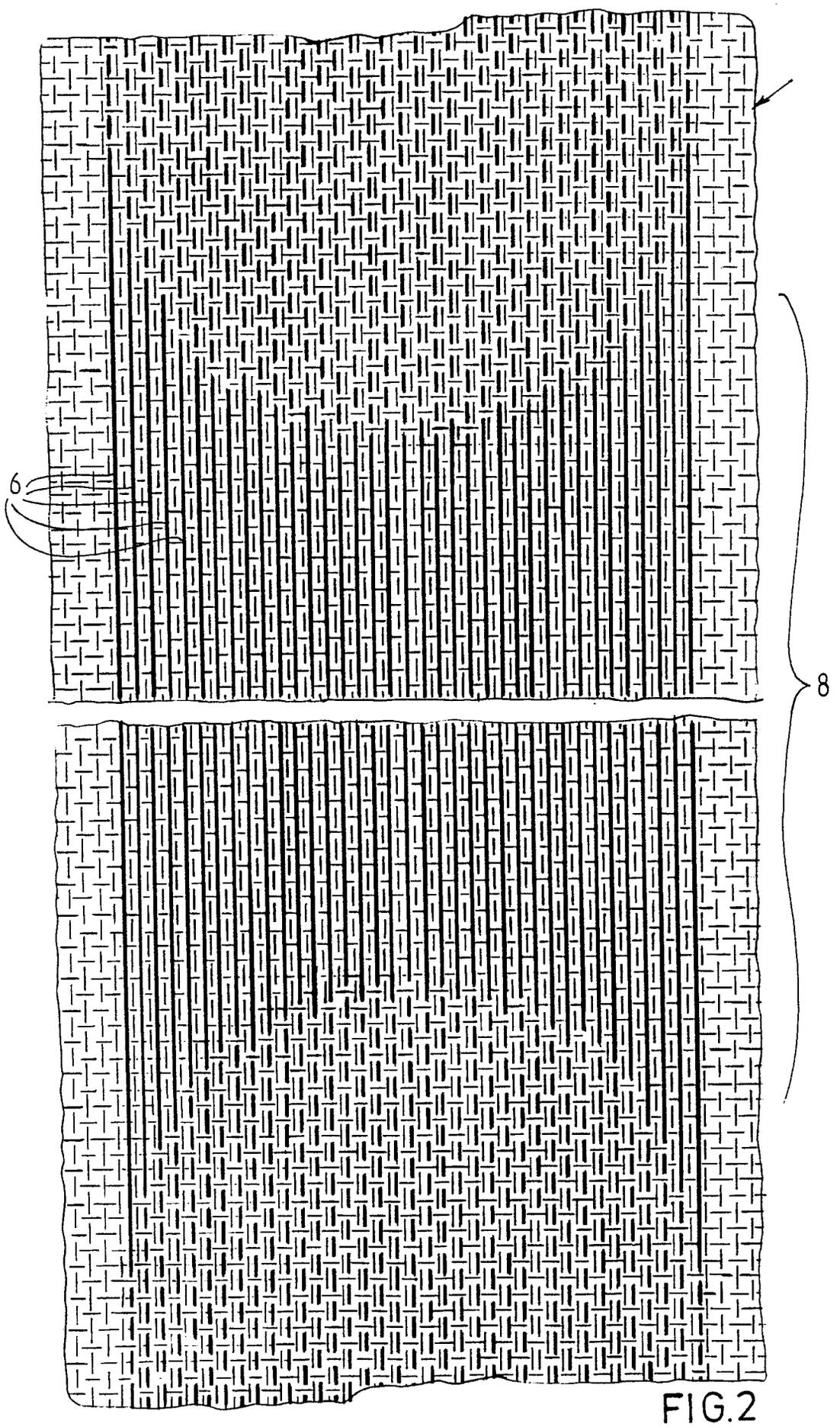

FIG.2

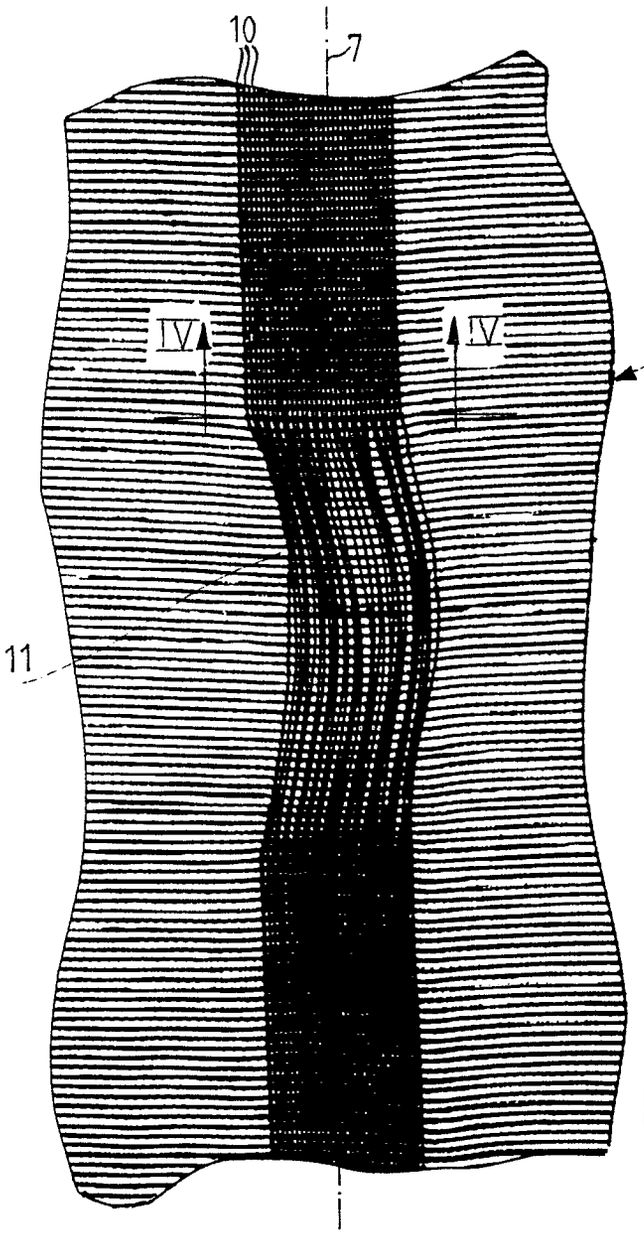

FIG. 3

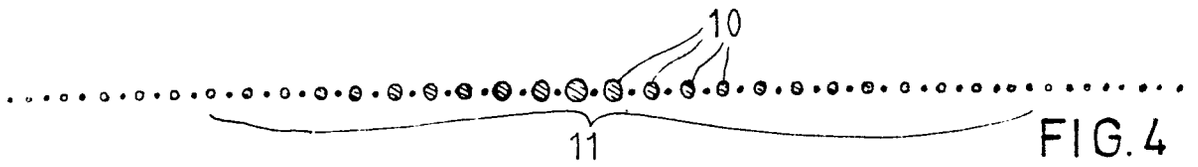

FIG. 4

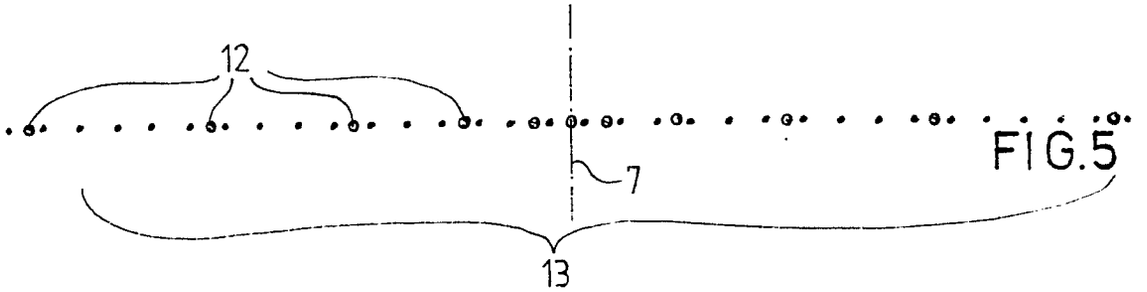

FIG. 5