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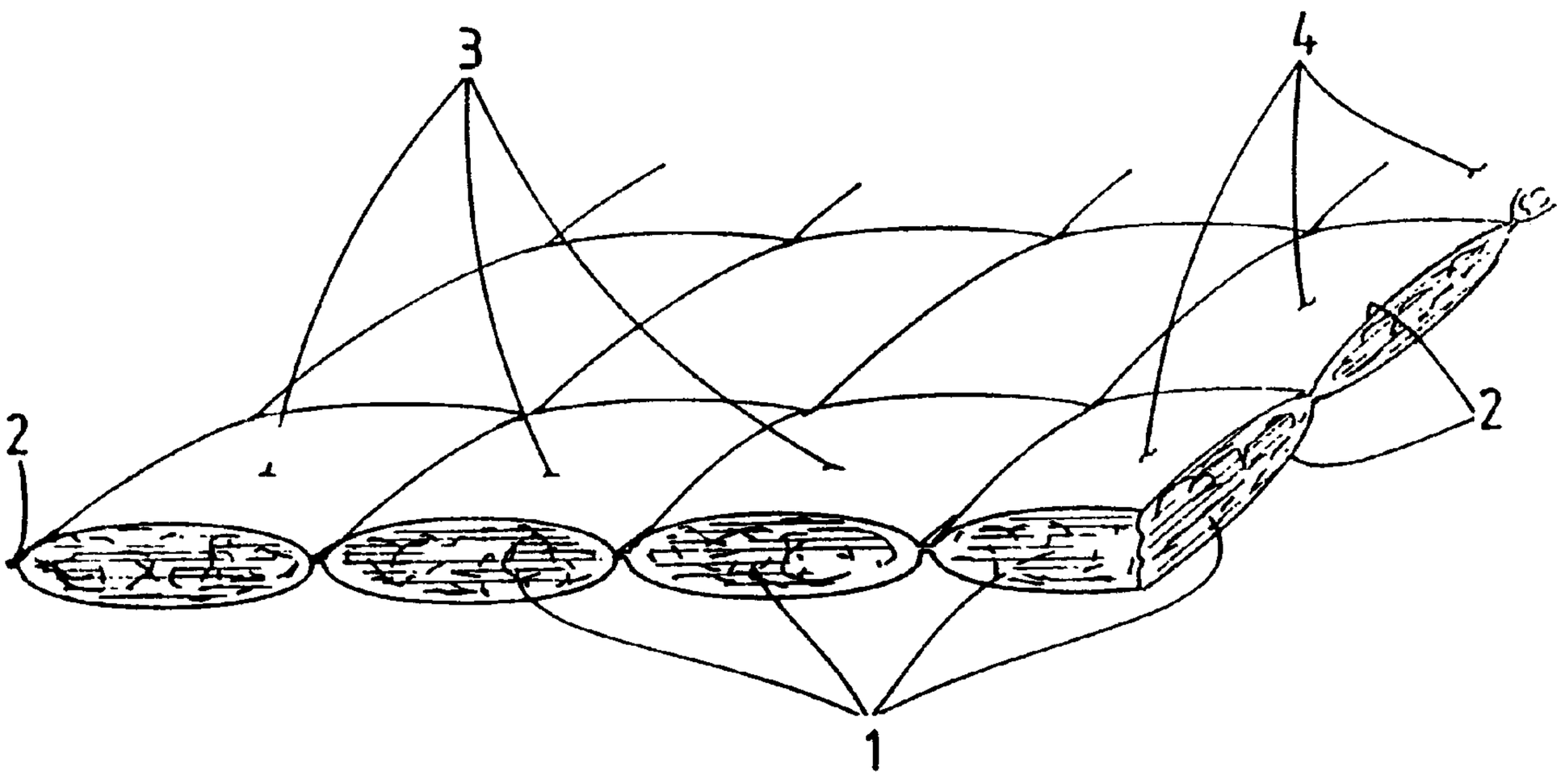
(54) Title: PROCESS OF COLLECTING AND PROCESSING NON-AQUEOUS DRIP-LIQUIDS



(57) Abrégé/Abstract:
A process for catching in a liquid catching cloth and processing non-aqueous drip-liquids, characterized in that the drip-liquids to be processed is caught in an oily and non-aqueous liquids absorbing, water-repelling liquid catching cloth on a non-woven basis, incorporated into an envelope of a hydrophobic synthetic resin fiber fabric, which envelope with cloth is partitioned in a suitable manner in a number of tracks of fields; the enveloped liquid catching cloth with absorbed drip-liquid are collected, the collected enveloped liquid catching cloths are washed in a solvent for the drip-liquid, the drip-liquid is separated from the solvent, the drip-liquid so recovered is incinerated with power-generation and the cleaned enveloped liquid catching cloths may be used anew.

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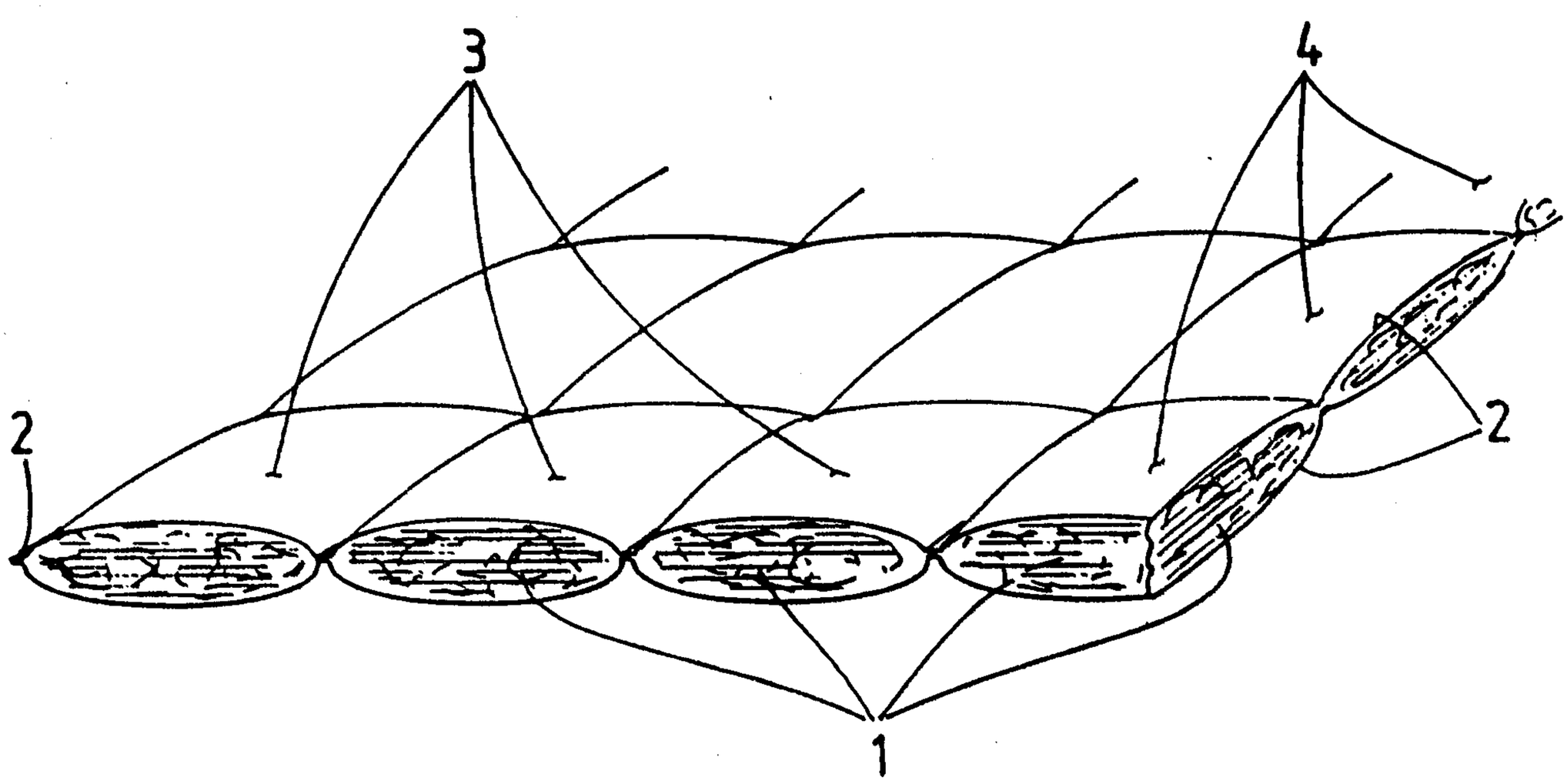

(57) Abstract

A process for catching in a liquid catching cloth and processing non-aqueous drip-liquids, characterized in that the drip-liquids to be processed is caught in an oily and non-aqueous liquids absorbing, water-repelling liquid catching cloth on a non-woven basis, incorporated into an envelope of a hydrophobic synthetic resin fiber fabric, which envelope with cloth is partitioned in a suitable manner in a number of tracks of fields; the enveloped liquid catching cloth with absorbed drip-liquid are collected, the collected enveloped liquid catching cloths are washed in a solvent for the drip-liquid, the drip-liquid is separated from the solvent, the drip-liquid so recovered is incinerated with power-generation and the cleaned enveloped liquid catching cloths may be used anew.

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PROCESS OF COLLECTING AND PROCESSING NON-AQUEOUS DRIP-LIQUIDS

The invention relates to a process for catching and processing of non-aqueous drip-liquids, and to a liquid catching cloth for use therein.

In everyday practice both household and in industry drip-liquids of oily nature are frequently caught. This catching takes place with granules or in a liquid catching cloth, which comprises in its simplest form absorbing paper or a loosely-woven or non-woven textile material. Once the catching material is somewhat soaked, it is removed and discarded. At the place of the leak granules are sprinkled or a new catching cloth is laid.

With the caught materials substantial amounts of absorption means qualify for waste disposal and there they constitute a problem, that is the processing of large amounts of accompanying materials and the processing of many different kinds of caught materials, and among these there may be materials present which cause environmental pollutive effects in the processing of the waste materials. The catching of drip-liquids occurs very frequently in the industry. There may be mentioned the automotive industry, garages, the printing trade, the metallurgical industry, ship engines, the food processing industry and certainly not in the last place the oil and chemical industry, whereby all kinds of non-aqueous and also aqueous liquids may pollute the working floor and should be taken up. Thereby it is noted that also aqueous liquids can do so and that they interfere in the absorption of other waterimmiscible liquids since aqueous liquids are caught in many absorbents.

Liquid catching cloths are also known, which lack this disadvantage and which are water-repellent, that is that they do not show or hardly show an affinity for water and aqueous liquids, but they do show a high absorptive power for oils and hydrophobic chemicals. From these

compounds they can catch a lot (up to 25 times their own weight) and they do so fast too. They are products on a non-woven synthetic resin basis, mostly polypropylene micro fiber fleeces.

So far these liquid catching cloths were used predominantly for the removal of oil and chemicals from surface waters. For catching and removing drip-liquids the product has not found acceptance. The initial expenses are too high therefore.

It has now been found that this aspect, as well as the ending up of the used cloths in the waste stream and thereby the complication of the processing of that waste stream, can be prevented.

US-A-2198164 discloses a process for catching non-aqueous drip-liquids in a liquid catching cloth where the drip-liquids are caught in an oily and non-aqueous liquid absorbing liquid catching cloth on a non-woven basis, incorporated in an envelope of a fabric which envelope with cloth is partitioned in a suitable manner of tracks or fields. After usage of such cloth it has to be disposed of, which is polluting to the environment.

The present invention provides a process for catching in a liquid catching cloth and processing non-aqueous drip-liquids, in which the drip-liquids to be processed are caught in an oily and non-aqueous liquid catching cloth on a non-woven basis, incorporated into an envelope of a fabric, which enveloped with cloth is partitioned in a suitable manner in a number of tracks or fields, characterized in that the liquid catching cloth is water-repelling; the envelope is of a hydrophobic synthetic

resin fiber, the enveloped liquid catching cloth with absorbed drip-liquids is collected; the collected enveloped liquid catching cloths are washed in a solvent for the drip-liquid; the drip-liquid is separated from the solvent; the drip-liquids are recovered; is incinerated with power-generation and the cleaned enveloped liquid catching cloths may be used anew.

Further the present invention provides a cloth on a non-woven basis for use in a process as described herein, suited for catching oily and non-aqueous drip-liquids and incorporated into an envelope of a fabric, which envelope with cloth is partitioned in a suitable manner in a number of tracks or fields, characterized in that said cloth is water-repelling and said envelop is of a hydrophobic synthetic resin fiber.

According to one aspect of the present invention, there is provided a reusable catching cloth for use in catching oily and non-aqueous liquid comprising an envelope of a hydrophobic synthetic resin fiber fabric partitioned into a number of fields or tracks on a non-woven, water repelling base.

According to another aspect of the present invention, there is provided the liquid catching cloth as described herein, wherein the hydrophobic synthetic resin fiber fabric is polypropylene.

According to still another aspect of the present invention, there is provided the liquid catching cloth as described herein, wherein the polypropylene fiber fabric of the enveloped liquid catching cloth is partitioned into

tracks by stitching through the envelope and base with synthetic resin yarn.

According to yet another aspect of the present invention, there is provided the liquid catching cloth as described herein, wherein the fiber fabric is 1/1 fabric of fibers dtex 1100 and the synthetic resin yarn is 100% polyester no. 100 continuous sewing-thread.

According to a further aspect of the present invention, there is provided a process for reusing the catching cloth as described herein, wherein the catching cloth is washed in a solvent for a drip liquid on the cloth, whereby the cloth may be reused.

It is noted that the liquid catching cloth on the non-woven basis as such is useless for the process because it cannot be washed several times and then used again.

The hydrophobic synthetic resin is preferably polypropylene. The polypropylene fiber fabric is preferably partitioned in tracks by stitching through the combination of envelope and liquid catching cloth with synthetic resin yarn. In this way it can be reached that the combination of envelope and liquid catching cloth can be used several times anew. Thus the initial cost of the enveloped product can be spread over a broad time period, which reduces the cost per time to a fraction of the cost for a disposable liquid catching cloth.

Drawing

The invention is further elucidated by the enclosed drawing.

The figure presents a perspective view of a combination of envelope and liquid catching cloth for use in this invention.

Herein the reference number 1 refers to the liquid catching cloth with polypropylene micro fiber fleece. The threads of this fiber fleece are drawn under magnification or clarity's sake. With 2 the envelope is indicated, with 3 the tracks in longitudinal direction and with 4 the tracks in transverse direction. In this way field are created.

The invention will now be further elucidated by the following example.

Example

Starting from a web of polypropylene micro fiber fleece and a web of an enveloping polypropylene fiber fabric 1/1 of fibers dtex 1100 a mat was manufactured of 100 cm wide, divided into pieces of 70 cm long and stitched through in some places with polyester no. 100 continuous sewing-thread, so that the cloth is divided into tracks.

The mat is delivered at an industry which wants to catch oil-leaking. After 2, 4 or 6 weeks, depending on the pollution rate, the cloths with absorbed oil are collected

and the polluted mats are washed. The washing liquid is separated from the oil and returned to the washing machine. The recovered oil is incinerated in an oven with energy recovery. The cleaned mats are used anew. After repeating the use for 15 times the mats were incinerated with the oil. The ashes which remain are very slight (0,05% of ashes).

A promising field of use for a liquid catching cloth according to the present invention is road construction. For such use the cloth is preferably provided with at least one sheet of water tight material, such as a so called combined HDPE/LDPE (High & Low Density Polyethylene) geomembrane preferably with a double sided coating. Such material is strong and flexible and is marketed by Nicolon under the trade mark Nicotarp®. It can also be provided with non woven material.

By including such sheet of Nicotarp®, liquid is prevented to drip into the soil below.

CLAIMS:

1. A process for catching and processing non-aqueous drip-liquids, in which the drip-liquids to be processed are caught in an oily and non-aqueous liquid catching, non-woven, water repelling cloth which is incorporated into an envelope of a hydrophobic synthetic resin fiber fabric, the envelope and the cloth being partitioned in a number of tracks, collecting the enveloped liquid catching cloth with absorbed drip-liquids, washing the collected envelope liquid catching cloth in a solvent for the drip liquids, separating the drip liquids from the solvent, and incinerating the separated drip liquids with power generation.

2. The process of claim 1 in which the process is repeated at least once using the enveloped liquid catching cloth after it has been washed with the solvent.

3. A cloth for use in the process according to claim 1, comprising an oily and non-aqueous liquid catching, non-woven, water repelling cloth enveloped by a hydrophobic synthetic resin fiber fabric, the envelope and the cloth being partitioned in a number of tracks.

4. The cloth according to claim 3 in which the hydrophobic synthetic resin is polypropylene.

5. The cloth according to claim 4 in which the envelope and the cloth are partitioned by a synthetic resin yarn stitched through the combination of envelope and liquid catching cloth.

6. The cloth according to claim 5 wherein the fiber fabric is 1/1 fabric of fibers dtex 1100 and the synthetic resin yarn is 100% polyester #100 continuous sewing thread.

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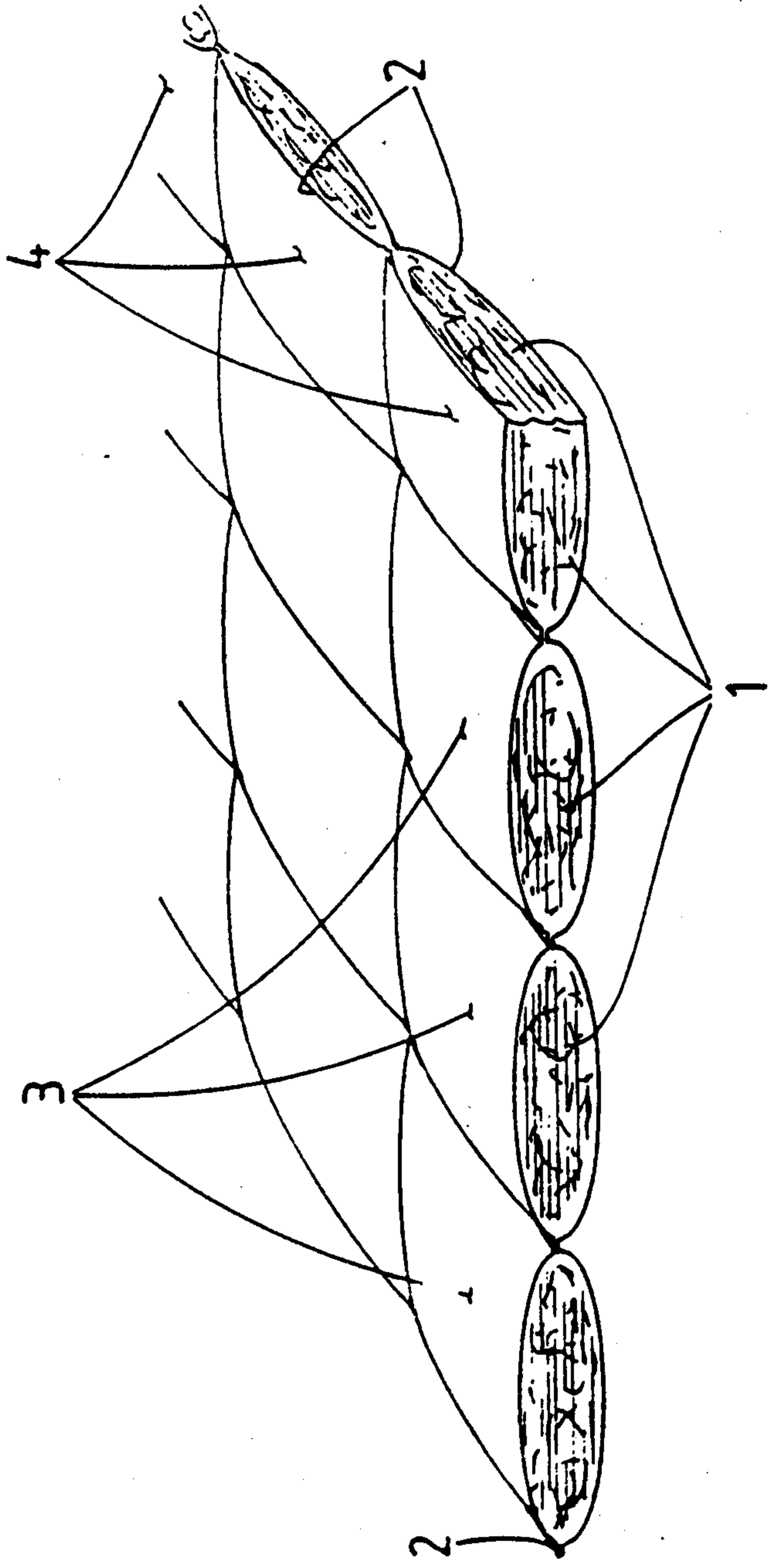

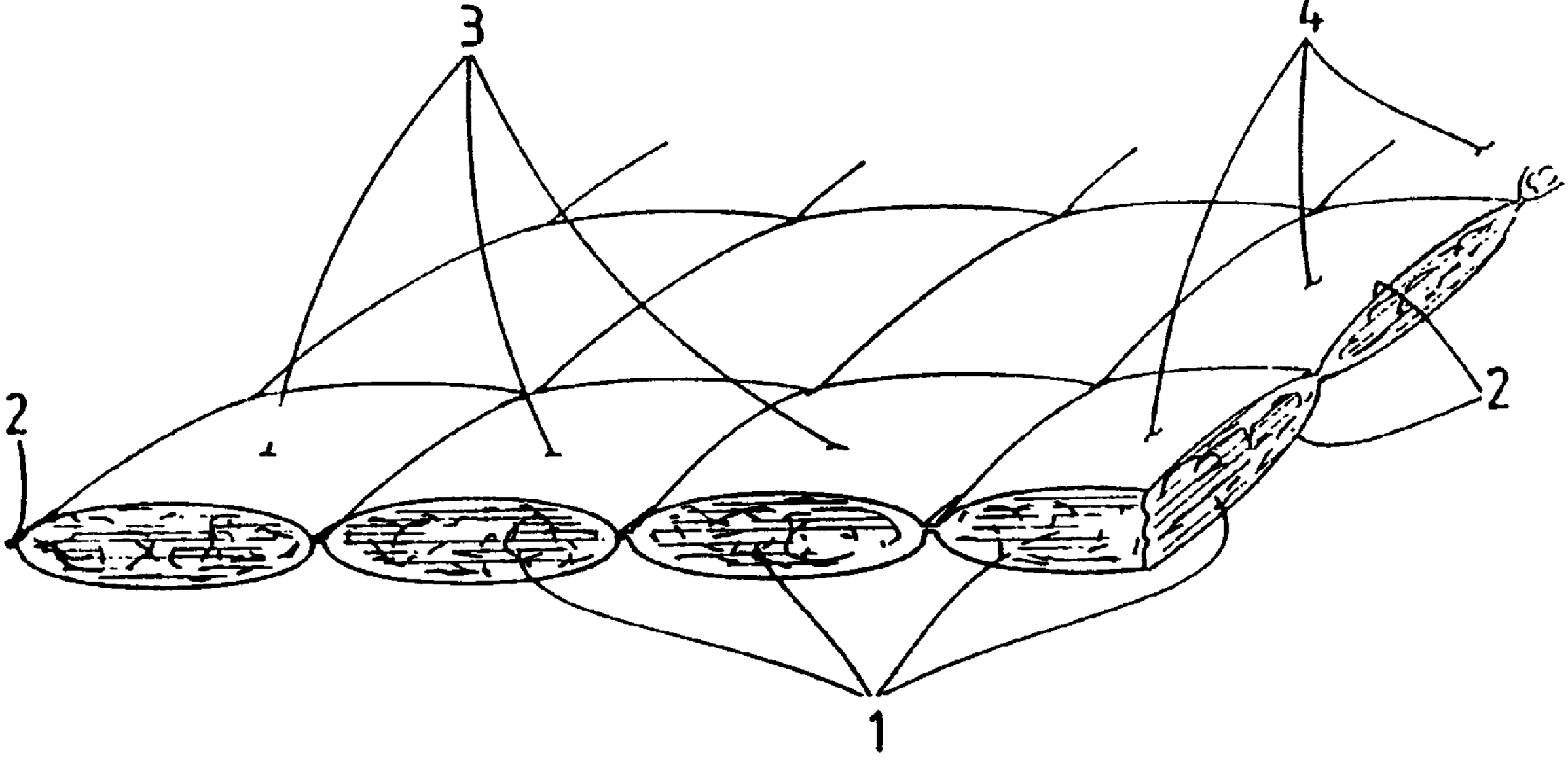
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