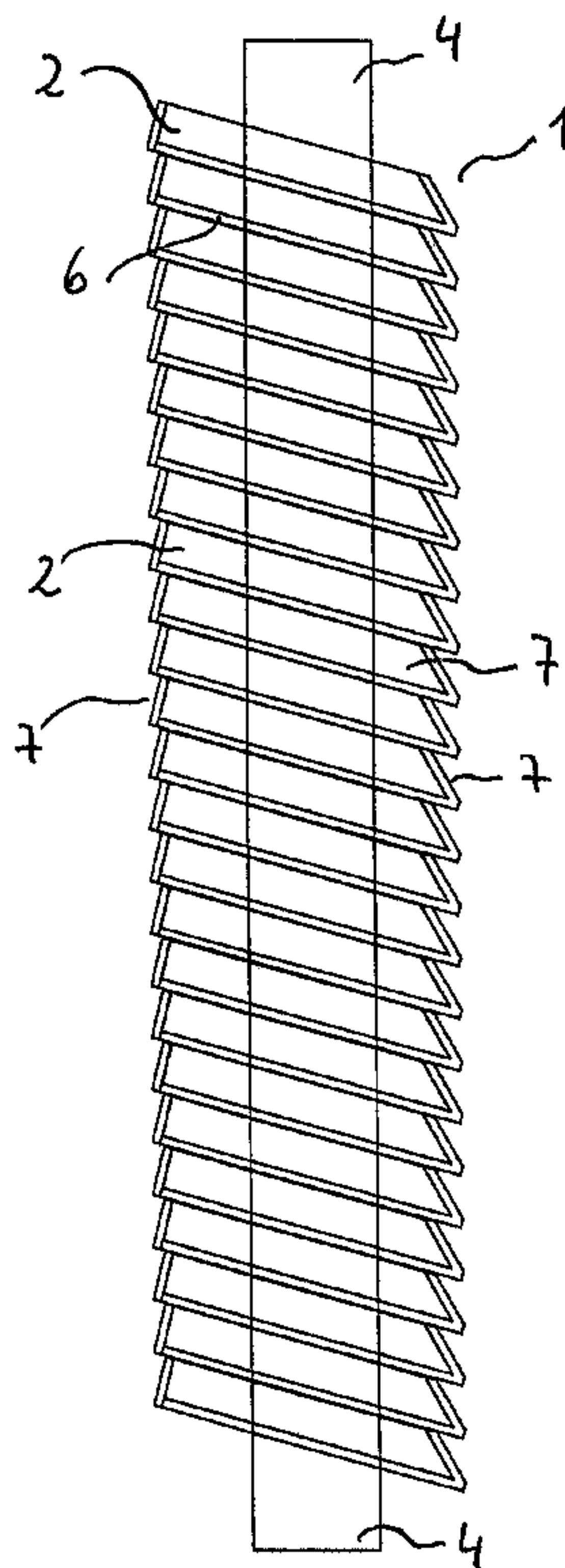




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(54) Titre : PILE DE CASSETTES COMPRENANT DES CASSETTES EN VUE DE PREPARATIONS HISTOLOGIQUES
(54) Title: CASSETTE STACK HAVING CASSETTES FOR HISTOLOGICAL PREPARATIONS



(57) Abrégé/Abstract:

A cassette stack (1) made up of individual plastic cassettes (2) connected detachably to one another, which are provided for the processing of histological preparations for subsequent section preparation, is described. The cassette stack (1) is insertable into a stack magazine (3) of a printing system, and the individual cassettes (2) are connected to one another via at least one adhesive tape (4) and/or via at least one weld seam (5).

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Abstract

A cassette stack (1) made up of individual plastic cassettes (2) connected detachably to one another, which are provided for the processing of histological preparations for subsequent
5 section preparation, is described. The cassette stack (1) is insertable into a stack magazine (3) of a printing system, and the individual cassettes (2) are connected to one another via at least one adhesive tape (4) and/or via at least one weld seam (5).

CASSETTE STACK HAVING CASSETTES FOR HISTOLOGICAL PREPARATIONS

The invention concerns a cassette stack having individual cassettes, arranged one above another and connected detachably to one another, according to the preamble of Claim 1.

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The cassettes of a stack of this kind serve as containers for histological specimens. The latter are exposed in the container, for preparation of the section, to a subsequent chemical process for fixing and to a process for embedding. In order to distinguish the cassettes, they are manually or automatically labeled. GB 2 235 163 A discloses a printing system for labeling the cassettes. In this printing system, the cassettes must be individually loaded into a stack magazine.

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The cassettes are usually packaged loose in plastic bags when supplied commercially, and must then be laboriously introduced "by hand" into such stack magazines.

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GB 2 304 704 A mentions a prepackaged stack magazine, "Packing [sic] containing a stack of tissue processing cassettes," for a special printer in which a high level of packaging complexity is effected.

Also offered commercially is a cassette stack in which the cassettes have a special groove on both long sides. A continuous ribbon is guided in the grooves in order to attach the cassettes to one another. Although the ribbon reliably retains the cassettes, each cassette must nevertheless be equipped with a special groove, so that this [approach] is limited to a specific cassette type. It has also proven in practical use to be difficult to remove the ribbon from the cassette stack.

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It is therefore the object of the present invention to connect the various commercially available cassettes detachably to one another so as to make possible secure transport and simple loading of printer stack magazines.

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According to the present invention, this object is achieved by way of the characterizing features of Claim 1. Advantageous developments are the subject matter of the dependent claims.

The invention is characterized in that connection of the individual plastic cassettes is accomplished either via an adhesive tape that is applied on one of the lateral surfaces and/or via a weld seam on at least one of the lateral surfaces. With the adhesive tape and/or weld seam, reliable transport and simple loading of the stack magazine with the cassette stack can be accomplished. These connections can moreover be produced in very economical and environmentally benign fashion. A further advantage is the fact that all existing cassettes can be connected to one another with no need to provide special grooves or the like in the cassettes.

10 In an embodiment of the invention, the cassettes 2 [sic], which have a rectangularly configured bottom surface having peripheral shaped-on lateral surfaces, are arranged in the cassette stack with a displacement with respect to one another in the longitudinal direction. This has the advantage that the corners of the cassette cannot jam against one another.

15 In order further to increase the dimensional stability of the cassette stack, the cassettes are arranged at an angle of at least 20° with respect to one another. This also has the advantage that the stack is easier to introduce into the stack magazine. Cassettes positioned obliquely inside the stack magazine are mechanically easier to remove, and do not jam against one another.

20 In a further embodiment of the invention, at least one adhesive tape is arranged on at least one of the lateral surfaces; it is of course possible, for stability reasons, to arrange two or more adhesive tapes on one side or also one adhesive tape on each of two or more sides. These adhesive tapes are selected in such a way that they can be pulled off the cassette in residue-free fashion.

25 The adhesive tape is also characterized by being configured so that at any desired point it can be severed and/or partially pulled off the cassette stack. Different stack magazines can thus be loaded individually.

30 In a further embodiment of the invention, provision is made for connecting the cassettes via a weld seam. This weld seam is produced with a heatable tool, preferably a heated wire. With this wire, adjacent cassettes, which preferably are made of polyoxymethylene, are welded to one another at adjacent points. This spot-type connection can be produced very easily and economically, and requires absolutely no additional packaging or attachment materials. A further advantage is that this connection can easily be undone. Provision can of

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course also be made for immobilizing one side of the cassette stack with an adhesive tape and another side additionally with a weld seam

In a further embodiment of the invention, the stack magazine of the printing system has [on] one side a slot for pulling the adhesive tape off the cassette stack. The result of this is that the entire cassette stack can be reliably inserted into the magazine, and only after that insertion is the adhesive tape completely or partially removed via the slot. Only in this manner is reliable insertion of the cassette stack ensured.

Provision is also made to make the bottom surface of the stack magazine smaller than the bottom surface of the cassette. As a result, the cassettes must be introduced obliquely into the stack magazine, and are stacked therein in that oblique position. This has the advantage that the cassettes cannot jam against one another with their corners, and thus ensures reliable mechanical removal of the cassettes.

In order to ensure oblique positioning of the cassettes, the cassette stack is configured to be obliquely insertable into the stack magazine. It has proven to be advantageous if the cassettes are arranged in the cassette stack at an angle of at least 20°, and in the stack magazine at an angle of at least 15°.

The invention will be presented and explained in more detail in several exemplary embodiments, with reference to the schematic drawings in which:

FIG. 1 is a side view of the cassette stack with adhesive tape applied;

FIG. 2 is a perspective view of the cassette stack with adhesive tape applied;

FIG. 3 is a side view of the cassette stack with a weld seam applied;

FIG. 4 is a perspective view of the cassette stack with a weld seam applied;

FIG. 5 is a side view of the stack magazine with the cassette stack inserted;

FIG. 6 is a plan view of the stack magazine.

FIG. 1 shows a cassette stack 1 having multiple cassettes 2 arranged one above another. Cassettes 2 have a rectangular bottom surface 6 and are equipped with shaped-on and peripheral lateral surfaces 7. These cassettes 2 serve to receive histological preparations that, for section preparation, pass through a chemical process. Cassettes 2 are arranged with a displacement with respect to one another in their longitudinal direction. Cassettes 2 are furthermore arranged in cassette stack 1 at an angle of approx. 20° to their bottom surface. The individual cassettes 1 of the stack are detachably connected to one another by way of an adhesive tape 4. This adhesive tape 4 can be removed later from the cassette stack in residue-free fashion.

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FIG. 2 shows cassette stack 1 of FIG. 1 in a perspective depiction, with adhesive tape 4 applied. It is clear from this depiction that cassettes 2 are arranged in inclined fashion and with a displacement with respect to one another.

15 FIG. 3, analogous to FIG. 1, shows cassette stack 1, the adhesive tape here having been replaced by a weld seam 5. By way of this weld seam 5, the respective adjacent cassettes 2 are connected in spot fashion to one another. In this exemplary embodiment, two weld seams 5 arranged parallel to one another are provided on one lateral surface 7. It may also be sufficient, however, if only one weld seam 5 is provided on lateral surfaces 7, or if one
20 weld seam 5 is arranged on each of two or three lateral surfaces 7. It is simply necessary to ensure that cassette stack 1 can be reliably transported, and that the individual cassettes 2 can later be detached from one another.

FIG. 4 shows a perspective view of cassette stack 1 with the two weld seams 5.

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FIG. 5 shows a side view of a stack magazine 3 having a slot 8 provided in the lateral wall. A cassette stack 1 is introduced into stack magazine 3 at an angle of approx. 15°. As a result of this angle, the individual cassettes 2 lie obliquely with respect to the bottom, and are arranged at an offset from one another. This has the advantage that the individual
30 corners of cassettes 2 cannot jam against one another, thus ensuring that cassettes 2 reliably slide along when the bottommost cassette 2 of stack 1 is removed.

Cassette 1 is depicted here still having adhesive tape 4 arranged on it. The latter can, after the introduction of cassette stack 1 into stack magazine 3, be pulled off and removed
35 through slot 8 in stack magazine 3.

FIG. 6 shows a plan view of stack magazine 3, which has a smaller bottom surface 9 than bottom surface 6 of cassette 2. This ensures that cassettes 2 are always arranged inside stack magazine 3 at an angle to the bottom.

- 5 The invention is not limited to the exemplary embodiments described; to the contrary, any desired connection combinations of weld seams and/or adhesive strips can be provided on the lateral surfaces of the cassettes.

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Parts list

- 1 Cassette stack
- 2 Plastic cassettes
- 5 3 Stack magazine
- 4 Adhesive tape
- 5 Weld seam
- 6 Bottom surface of 2
- 7 Lateral surface of 2
- 10 8 Slot in 3
- 9 Bottom surface of 3

Claims

1. A cassette stack (1) made up of individual plastic cassettes (2) connected detachably to one another, which are provided for the processing of histological preparations for subsequent section preparation, the cassette stack (1) being insertable into a stack magazine (3) of a printing system,
5 wherein the individual cassettes (2) are connected to one another either via at least one adhesive tape (4) and/or via at least one weld seam (5).
- 10 2. The cassette stack (1) as defined in Claim 1, wherein the cassettes (2) have a preferably rectangularly configured bottom surface (6) having peripheral shaped-on lateral surfaces (7), and the cassettes (2) arranged one above another are arranged with a displacement with respect to one another in the longitudinal direction.
- 15 3. The cassette stack (1) as defined in Claim 1 or 2, wherein the cassettes (2) are arranged in the cassette stack (1) at an angle of at least 20° with respect to one another.
- 20 4. The cassette stack (1) as defined in Claim 1, wherein at least one adhesive tape (4) is arranged on at least one of the lateral surfaces (7) and is configured so it can be pulled off the cassette (2) in residue-free fashion.
- 25 5. The cassette stack (1) as defined in Claim 1 through 3, wherein the adhesive tape (4) is configured so that it can be severed and/or partially pulled off the cassette stack (1).
- 30 6. The cassette stack (1) as defined in Claim 1, wherein the weld seam can be produced with a heated wire.
7. The cassette stack (1) as defined in at least one of the foregoing claims, wherein the stack magazine (3) of the printing system has on at least one side a slot (8) for pulling the adhesive tape (4) off the cassette stack (1).
- 35 8. The cassette stack (1) as defined in Claim 7, wherein the bottom surface (9) of the stack magazine (3) is smaller than the bottom surface (6) of the cassette (2).

9. The cassette stack (1) as defined in Claim 8, wherein the cassette stack (1) is configured to be obliquely insertable into the stack magazine (3).
10. The cassette stack (1) as defined in at least one of the foregoing claims, wherein the cassettes (2) are arranged in the stack magazine (3) at an angle of at least 15°.

Fig. 1

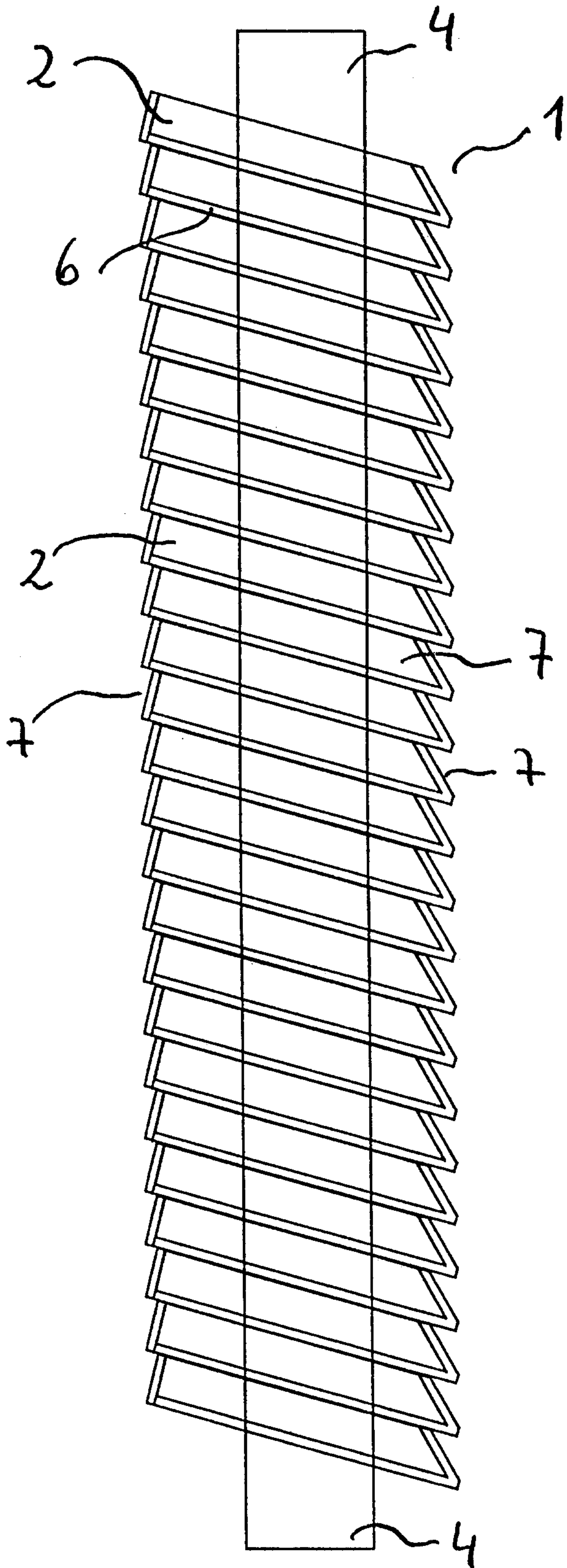


Fig. 2

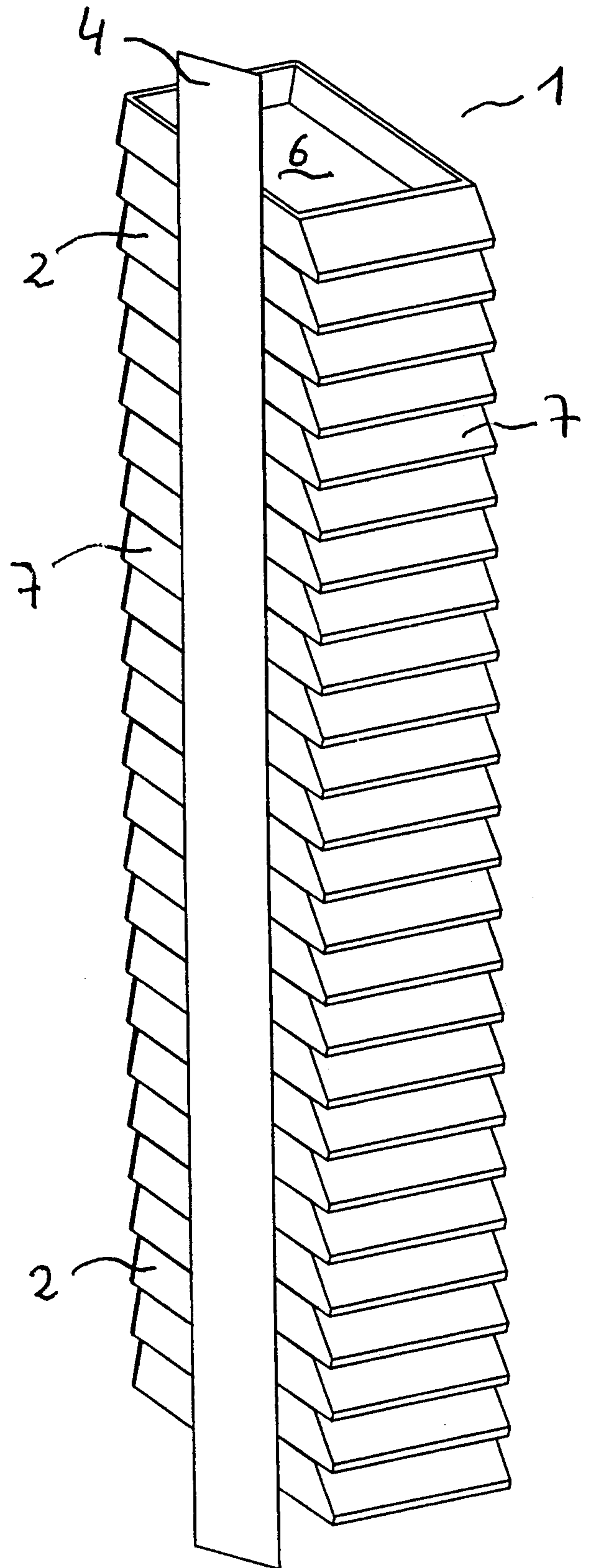


Fig. 3

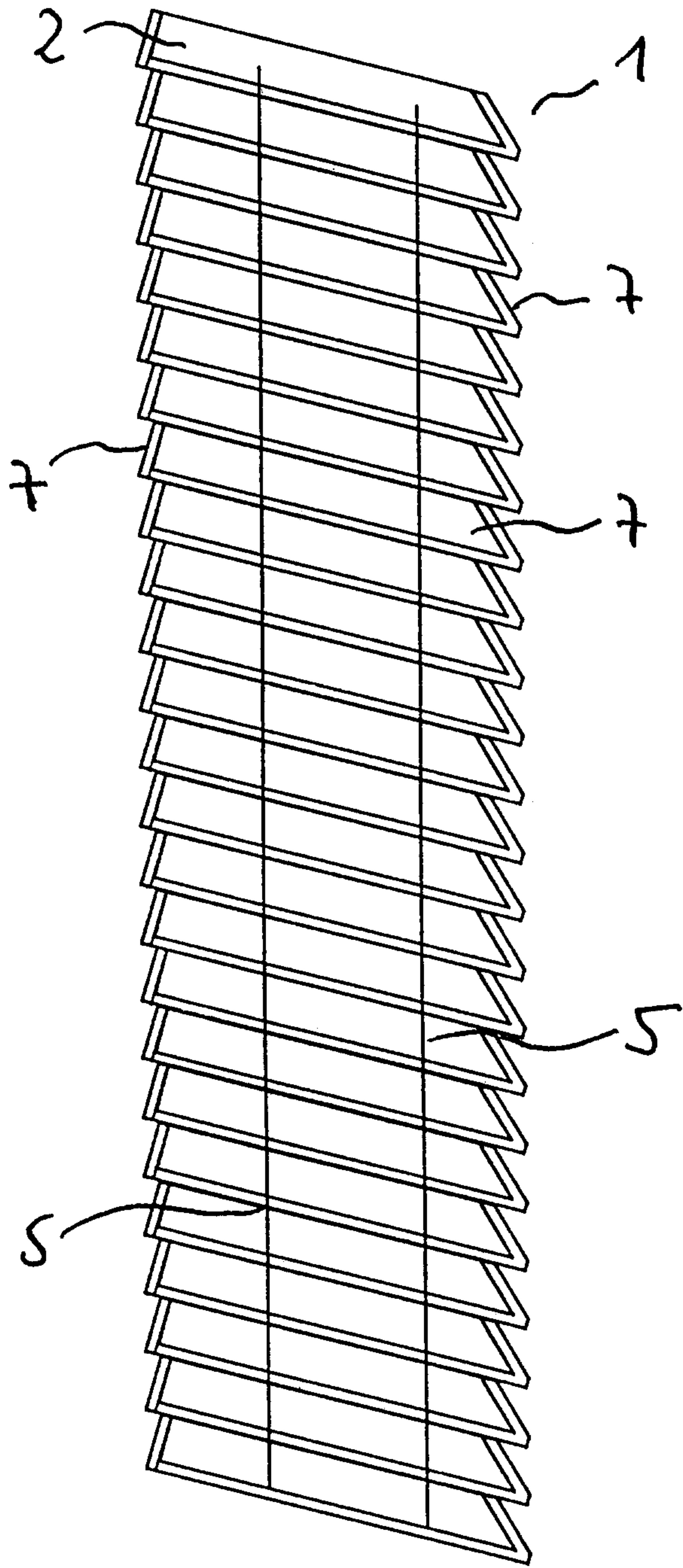


Fig. 4

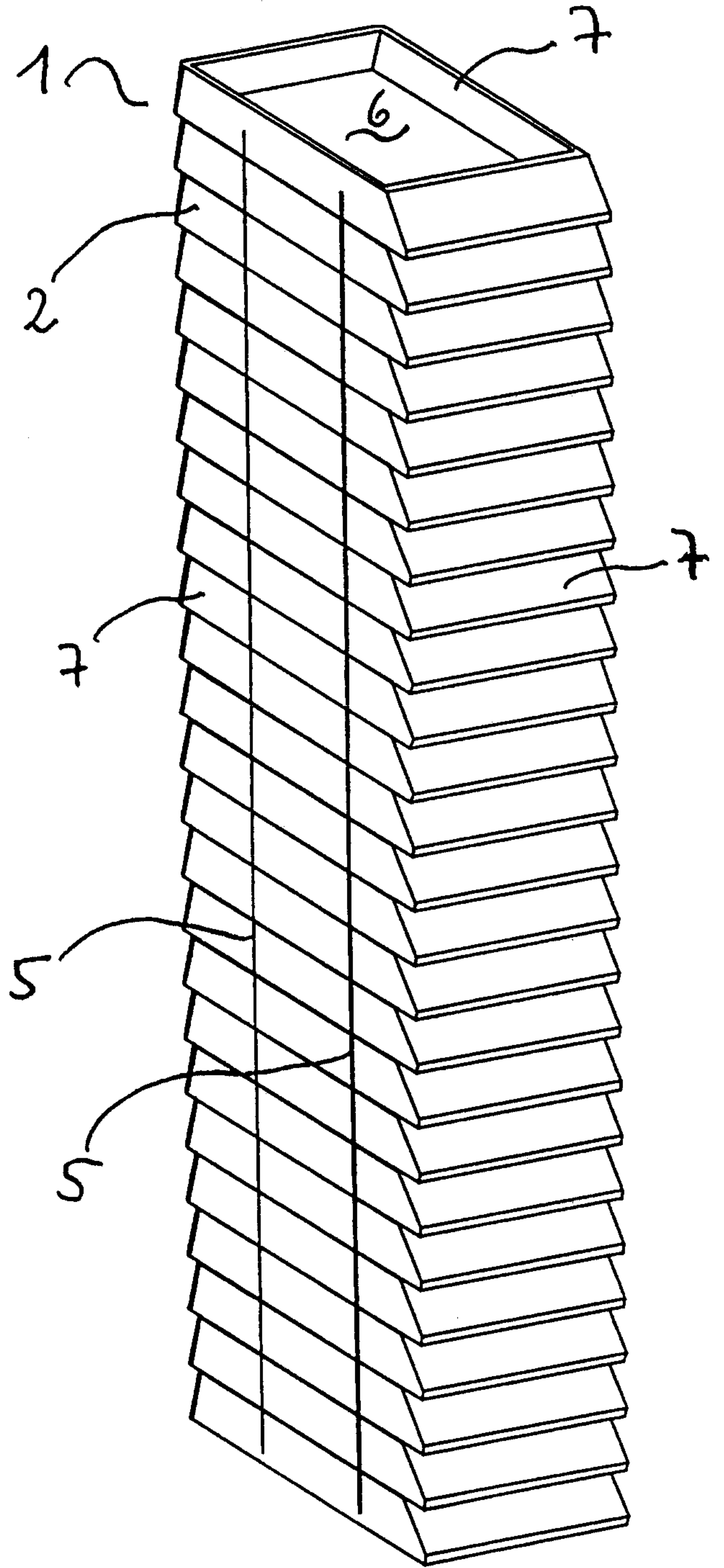


Fig. 5

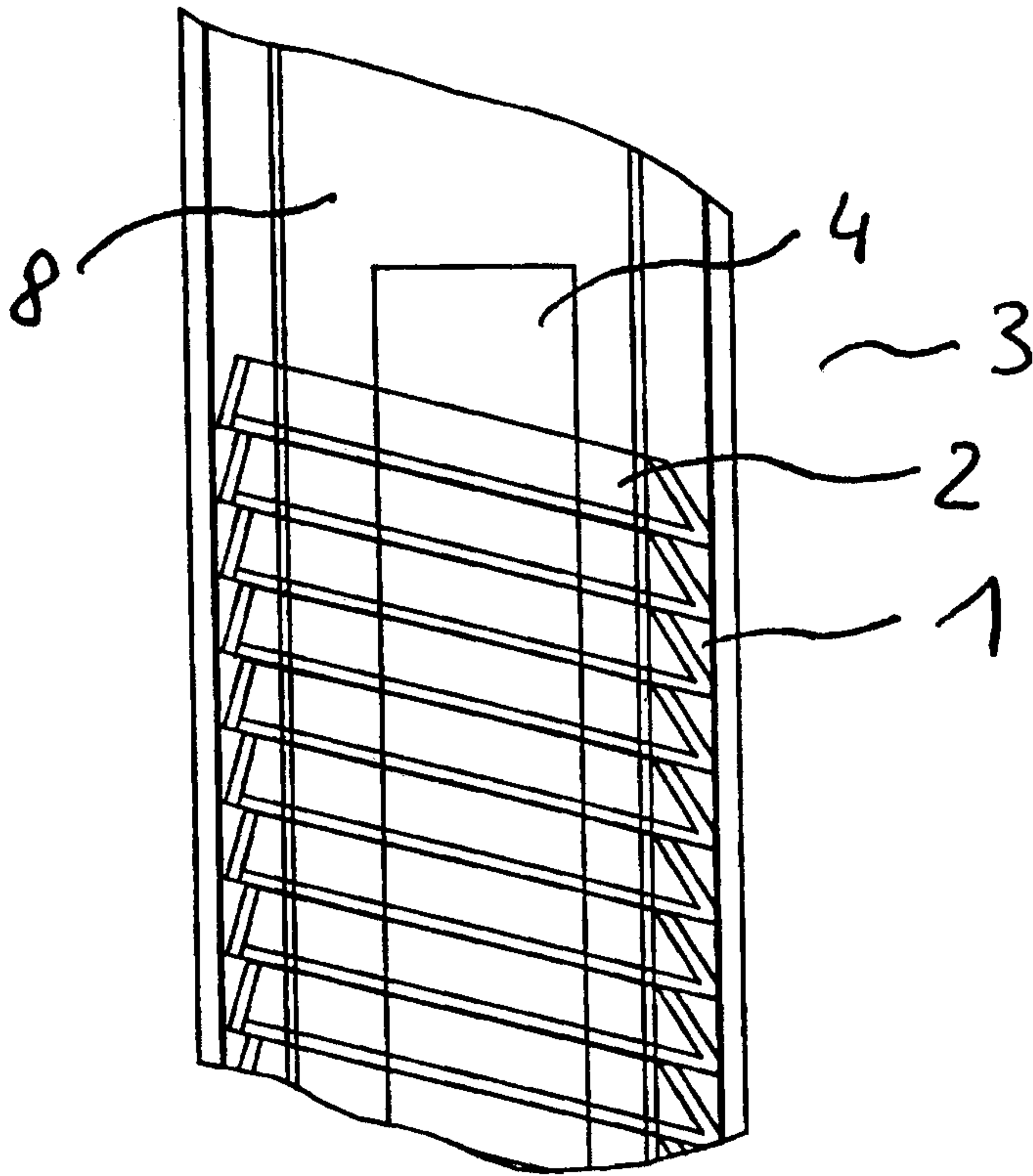


Fig. 6

