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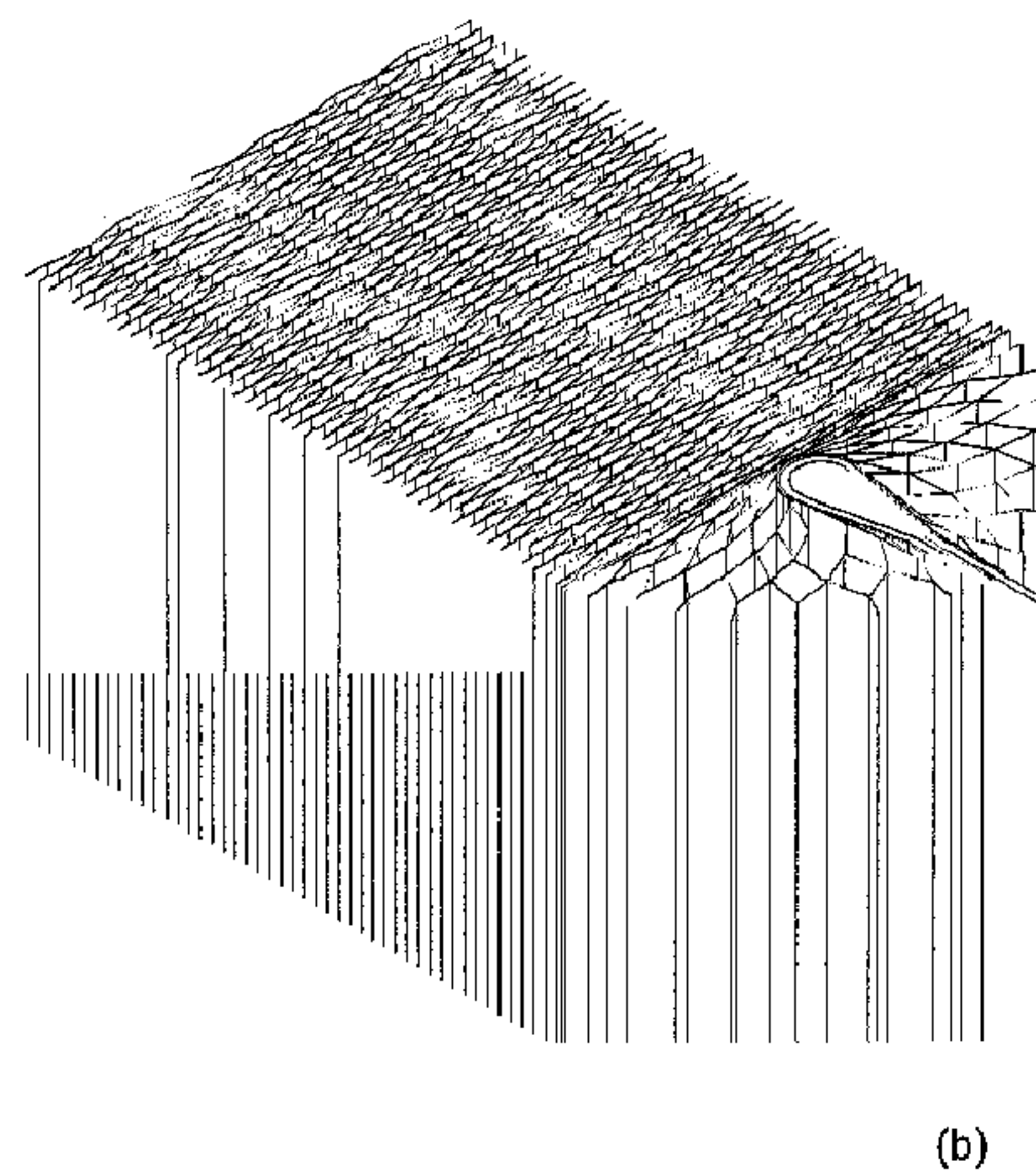
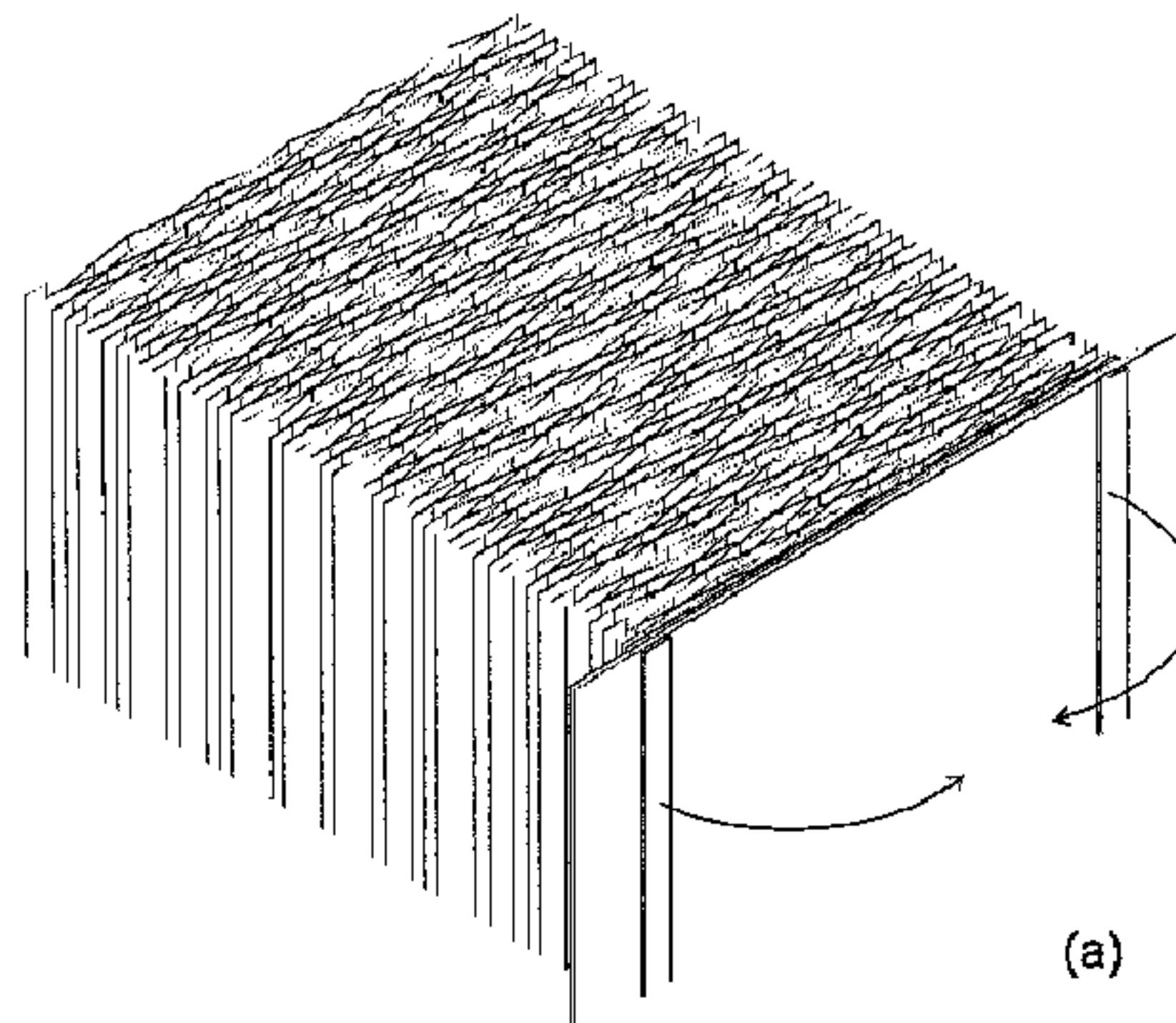
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(54) Title: FLEXIBLE WALL SYSTEM



(57) Abrégé/Abstract:

A partition having a core formed from a plurality of laminar panels of a flaccid material and each panel having a pair of oppositely directed major faces, adjacent faces of said panels being interconnected to provide a lattice structure upon movement of abutting

(57) **Abrégé(suite)/Abstract(continued):**

faces away from each other, a pair of supports at opposite ends of said core and connected to respective ones of said faces, said supports being self-supporting to provide rigidity to said core whereby said supports may be moved apart to expand said lattice and extend the length of said partition.

1 ABSTRACT

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3 A partition having a core formed from a plurality of laminar panels of a flaccid material and each
4 panel having a pair of oppositely directed major faces, adjacent faces of said panels being inter-
5 connected to provide a lattice structure upon movement of abutting faces away from each other,
6 a pair of supports at opposite ends of said core and connected to respective ones of said faces,
7 said supports being self-supporting to provide rigidity to said core whereby said supports may be
8 moved apart to expand said lattice and extend the length of said partition.

FLEXIBLE WALL SYSTEM

FIELD OF THE INVENTION

[0001] The present invention relates to partitions.

DESCRIPTION OF THE PRIOR ART

[0002] Partitions are frequently used to subdivide spaces, or create more intimate spaces. Typically such partitions are rigid, or have rigid frames, or are formed from rigid interconnected panels and they are relatively large, heavy, and cumbersome, and therefore difficult to set-up, take down, store, and transport.

[0003] Moreover, the inherent rigidity of such partitions limits the extent to which they can be dynamically extended (or contracted) and reshaped to suit varying spaces and requirements.

[0004] Additionally, such partitions are typically formed from opaque panels which inhibit the transmission of light, therefore necessitating increased use of, or rearrangement of artificial lighting to restore adequate lighting levels.

[0005] In domestic, working, and public environments it is frequently desirable to be able to subdivide space on a temporary basis. For example, visitors may require a temporary sleeping area, office workers may need to convert an open plan area into temporary meeting space, trade show participants may need to demarcate a temporary display area, and designers may need to create a temporary backdrop for a designed area, such as in a window display in a retail setting, in a showroom, or in a theatrical setting. For these types of applications, a partition that is rigid, heavy, and/or cumbersome may be costly to transport, difficult to set up/take down, and may require significant storage space. A partition that is rigid will also place significant constraints on the ways in which a given space can be partitioned, limiting its functionality. A partition that is fully opaque will severely disturb natural lighting.

1 **[0006]** It is therefore an object of the present invention to provide a partition in which the
2 above disadvantages are obviated or mitigated.

3 SUMMARY OF THE INVENTION

4 **[0007]** According therefore to one aspect of the present invention there is provided a
5 partition having a plurality of laminar panels formed from a flexible flaccid material. Each panel
6 has a pair of oppositely-directed major faces with faces of adjacent panels being inter-connected
7 to provide a lattice structure upon movement of the faces away from each other. Each one of a
8 pair of supports is provided at opposite ends of the partition connected to respective ones of the
9 faces. The supports are self-supporting to provide rigidity to the partition. In this way, the
10 supports may be moved apart to expand the lattice and extend the overall length of the partition.

11

12 BRIEF DESCRIPTION OF THE DRAWINGS

13 **[0008]** An embodiment of the invention will now be described by way of example only with
14 reference to the accompanying drawings in which:

15 **[0009]** Figure 1 is a front perspective view of a partition.

16 **[0010]** Figure 2 is a perspective view showing three panels used in the partition of Figure 1.

17 **[0011]** Figure 3 is a view on the line III-III of Figure 1.

18 **[0012]** Figure 4 is a series of views showing the sequential operations required to erect the
19 panel of Figure 1.

20 **[0013]** Figure 5 is a detailed view of the portion shown in circle A in Figure 4.

21 **[0014]** Figure 6 is a view showing the sequential steps to join a pair of panels shown in
22 Figure 1 end-to-end.

23 **[0015]** Figure 7 is a detailed view of the inter-connection of the panels shown in Figure 6.

1 **[0016]** Figure 8 is a top perspective view showing the arrangement of a panel within a living
2 area.

3 **[0017]** Figure 9 is a top perspective view showing an alternative configuration of panel.

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5 DETAILED DESCRIPTION OF THE INVENTION

6 **[0018]** Referring therefore to Figure 1, a partition 10 comprises a core 12 and a pair of
7 supports 14, 16 at opposite ends of the core 12. As can best be seen from Figures 2 and 3, the
8 core 12 is formed from a plurality of panels 18. The panels 18 each have a pair of oppositely-
9 directed major faces 19, 20, and are formed from a flexible flaccid material. In the preferred
10 embodiment, the material forming the panels 18 is standard white, flame retardant tissue paper,
11 having a weight of approximately 13.5lbs (500 sheets @ 24"x 36" = 13.5lbs). Each panel has a
12 major dimension or height h and a width w which may be adjusted to suit particular
13 environments. Typically the height will be in the order of 1-2 metres but could range from 0.5-3
14 metres and the width in the order of 30 centimetres but could range from 10-100 centimetres.
15 Adjacent panels 18 are inter-connected to one another at spaced intervals that alternate across the
16 width of the face of the panel. As indicated in Figure 2, the connection between panels 18a and
17 18b is through a series of parallel, laterally-spaced strips 24 on the face 19 of panel 18b. The
18 strips 24 are defined by stripes of adhesive, which connects the panels 18a, 18b to one another,
19 as shown in Figure 3.

20 **[0019]** Similarly, the inter-connection between a panel 18b and 18c is through spaced
21 parallel strips 28 on the face 19 of panel 18c which are offset from the strips 24. Each of the
22 panels 18 is therefore alternately connected to the panel 18 on opposite sides so that, as shown in
23 Figure 3, upon extension of the panel in a horizontal direction, a lattice structure having voids 30
24 is formed within the core. The voids 30 extend vertically from top to bottom of the core 12 with
25 the panels 18 providing a continuous transverse barrier. The lateral outer ends of each of the
26 panels 18 are connected so as to form vertical pleats on the exterior faces of the core 12.

1 **[0020]** An end panel 18d of the core is connected to respective ones of the supports 14 and
2 16 over its entire width. The supports 14 and 16 are made from a self-supporting material,
3 typically a non woven felt material which has a degree of flexibility but also has sufficient
4 rigidity to resist collapse of the core 12. In a typical application, the felt is a 1.95 nominal
5 pounds per square yard felt having a thickness in the order of 3 millimetres although other
6 weights and thicknesses may be utilized as appropriate depending upon the overall dimensions of
7 the partition 10. The supports 14 and 16 extend laterally beyond the core as indicated at 32 and
8 is adhered to the end panel 18d.

9 **[0021]** A pair of loop and hook strips 34, such as that sold under the trade name "Velcro" are
10 stitched to the felt supports 14 and 16, and extend vertically from one end to the other.

11 **[0022]** The core 12 is collapsible so that the major faces of adjacent panels 18 lay parallel to
12 one another and in abutment. In this position, as shown in Figure 4a, the partition 10 may be
13 stored in a flat, collapsed position. When the partition is required, it can be oriented vertically (
14 figure 4b) and the opposite supports 14 and 16 used to manipulate the partition. The supports 14
15 and 16 are moved away from one another as shown in Figure 4c to expand the core so that the
16 lattice is opened within the core 12.

17 **[0023]** Once partially extended, the supports 14 and 16 may be folded along a vertical axis to
18 provide enhanced rigidity at each end of the partition 12. This may be seen in more detail in
19 Figure 5 where it will be seen that the opposite edges of the supports 14 and 16 may be brought
20 together with the loop and hook strips 34 brought into abutment. The loop and hook strips 34
21 engage one another and thus hold the support in a folded tubular configuration. This movement
22 is accommodated by the flexible nature of the lattice structure which expands towards the lateral
23 edges to accommodate the folding of the supports 14 and 16. With the supports 14 and 16 folded
24 into a tubular support, extension of the core 12 continues as shown in view (e) of Figure 4, until
25 the desired overall length is reached.

26 **[0024]** With the partition expanded, it has sufficient width to remain stable in a vertical
27 position with the rigidity provided by the end supports 14 and 16. The material forming the

panels 18 is preferably translucent so that a pleasing transmission of light through the panel may occur, while still providing a degree of privacy.

[0025] The extended partition as shown in Figure 4e may be adjusted to different configurations as illustrated by the curve shown in Figure 1 and the wrapped curve shown in Figure 8. The core 12 has a surprising degree of flexibility to accommodate different configurations and allow an appropriate shaped and sized partition to be installed in an otherwise open space. By varying the overall dimensions, additional functionality may be obtained. The extended partition shown in Figure 4e may also be made with a lower height, for example 1 metre and a wider base, for example 0.5 metres so that the top surface of the partition may be used as an area to display objects. Such an arrangement is illustrated in Figure 9. Where appropriate, the terminal portions of the voids 30 may be used as a pocket to support a container, such as a vase, or similar object. In this, the height would be between 0.5 and 1.5 metres.

[0026] The provision of the supports 14 and 16 also permits a pair of partitions 10 to be joined end-to-end as shown in Figure 6. As may be seen from Figure 6a, a pair of partitions 10 is erected and positioned with opposite ends adjacent one another. The loop and hook strips 34 in adjacent supports are then brought into contact with one another as shown in Figure 7 so that the partitions 10 are joined in seriatim. The additional thickness provided by the double support at the intersection enhances rigidity, with the supports 14 at the free ends of the partition being folded upon themselves to provide stable support.

[0027] After use of the partition, it is simply necessary to reverse the procedure by moving the ends towards one another, unfolding the supports 14 and 16, and collapsing the core to its minimum size. It may then be stored and used when subsequently required.

[0028] In the above embodiments, the core has been made from a paper material, although it will be apparent that alternative materials may be used that fulfil the functional requirements. For example, it is possible to utilize a non-woven textile material such as a plastic material known as Tyvek from DuPont which is both tear and water resistant. Alternatively, a paper laminated with a plastic film to provide a composite material may be used. With such a core material, the supports 14 may be made of a felt or may be made from a material similar to the

core material but with increased thickness. The support would be sufficiently flexible to allow folding to define the tubular support structure at each end with fasteners such as the loop and hook strips 34 incorporated on the support.

[0029] Whilst a translucent material is preferred, it will be apparent that opaque or different coloured materials may also be utilized. The dimensions of the void 30 may be adjusted to suit particular applications. It has been found in practise that a spacing between stripes 24, 28 in the order of 5-10 centimetres (when unexpanded) is appropriate and that the width of the stripes 24, 28 is between 1 and 10 millimetres. This arrangement provides a flexible structure with extensive elongation to provide maximum functionality.

[0030] Although the invention has been described with reference to certain specific embodiments, various modifications thereof will be apparent to those skilled in the art without departing from the spirit and scope of the invention as outlined in the claims appended hereto.

What is claimed is:

1. An article of flexible furniture including a partition having a core formed from a plurality of laminar panels of a flaccid material and each panel having a pair of oppositely directed major faces, adjacent faces of said panels being inter-connected to provide a lattice structure upon movement of abutting faces away from each other, a pair of supports at opposite ends of said core and connected to respective ones of said faces, said supports being self-supporting to provide rigidity to said core to provide a freestanding wall whereby said supports may be moved apart to expand said lattice and extend the length of said partition.
2. An article of flexible furniture according to claim 1 wherein said supports are flexible and may be folded into a tubular configuration.
3. An article of flexible furniture according to claim 2 including fasteners on said supports to maintain said tubular configuration.
4. An article of flexible furniture according to claim 3 wherein said fasteners are loop and hook fasteners.
5. An article of flexible furniture according to any one of claims 1 to 4 wherein said lattice structure defines a plurality of parallel voids oriented on the longitudinal axis of said panels.
6. An article of flexible furniture according to any one of claims 1 to 5 wherein said panels are formed from paper.
7. An article of flexible furniture according to any one of claims 1 to 5 wherein said panels are formed from a non-woven material.
8. An article of flexible furniture according to claim 7 wherein said non-woven material is a plastic.

9. An article of flexible furniture according to any one of claims 1 to 5 wherein said panels are formed from a composite material.
10. An article of flexible furniture according to claim 9 wherein said composite material includes a plastic and paper.
11. An article of flexible furniture according to claim 10 wherein said composite material is a paper laminated to a plastic film.
12. An article of flexible furniture according to any one of claims 1 to 11 wherein said supports are formed from a felt panel.
13. An article of flexible furniture according to any one of claims 1 to 11 wherein said supports are formed from a non-woven material.
14. An article of flexible furniture according to any one of claims 1 to 13 wherein said panels have a major dimension of between 0.5 and 3 metres.
15. An article of flexible furniture according to claim 14 wherein said panels have a major dimension of between 1 and 2 metres.
16. An article of flexible furniture according to any one of claims 1 to 15 wherein said panels have a width of between 10 and 100 centimetres.
17. An article of flexible furniture according to claim 16 wherein said width is 30 and 45 centimetres.

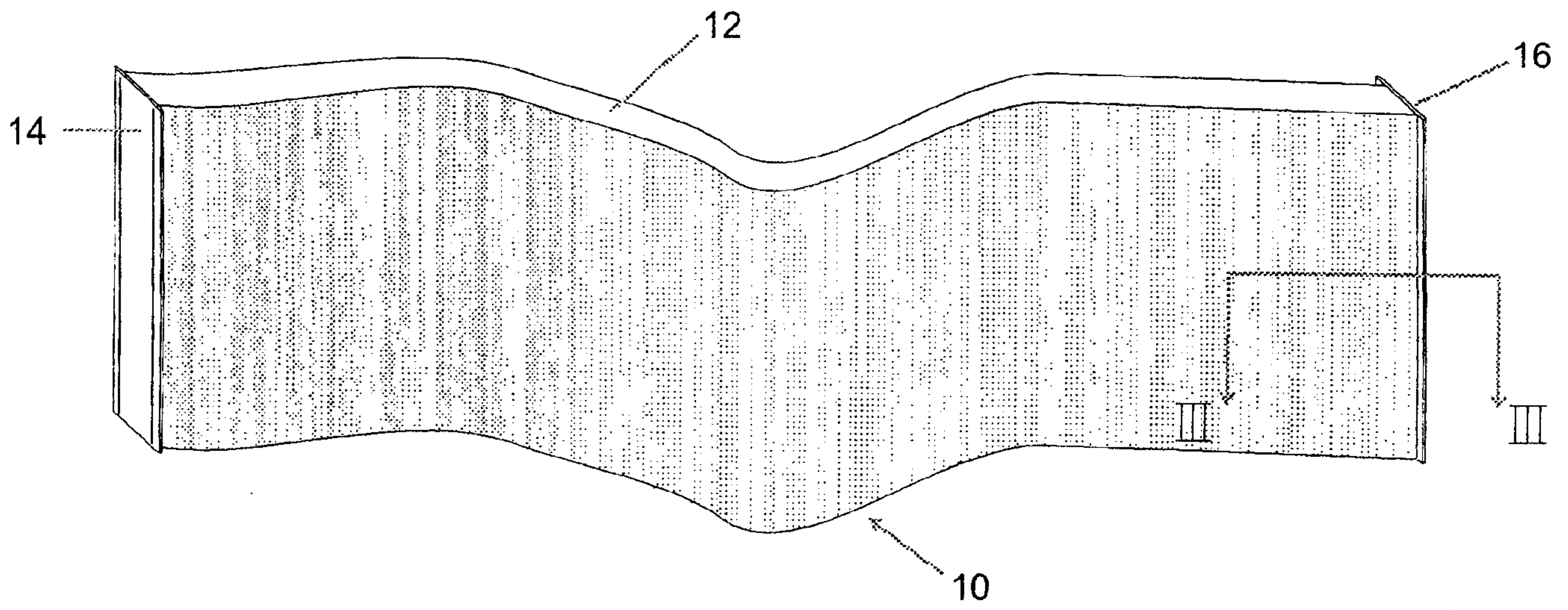


FIG 1

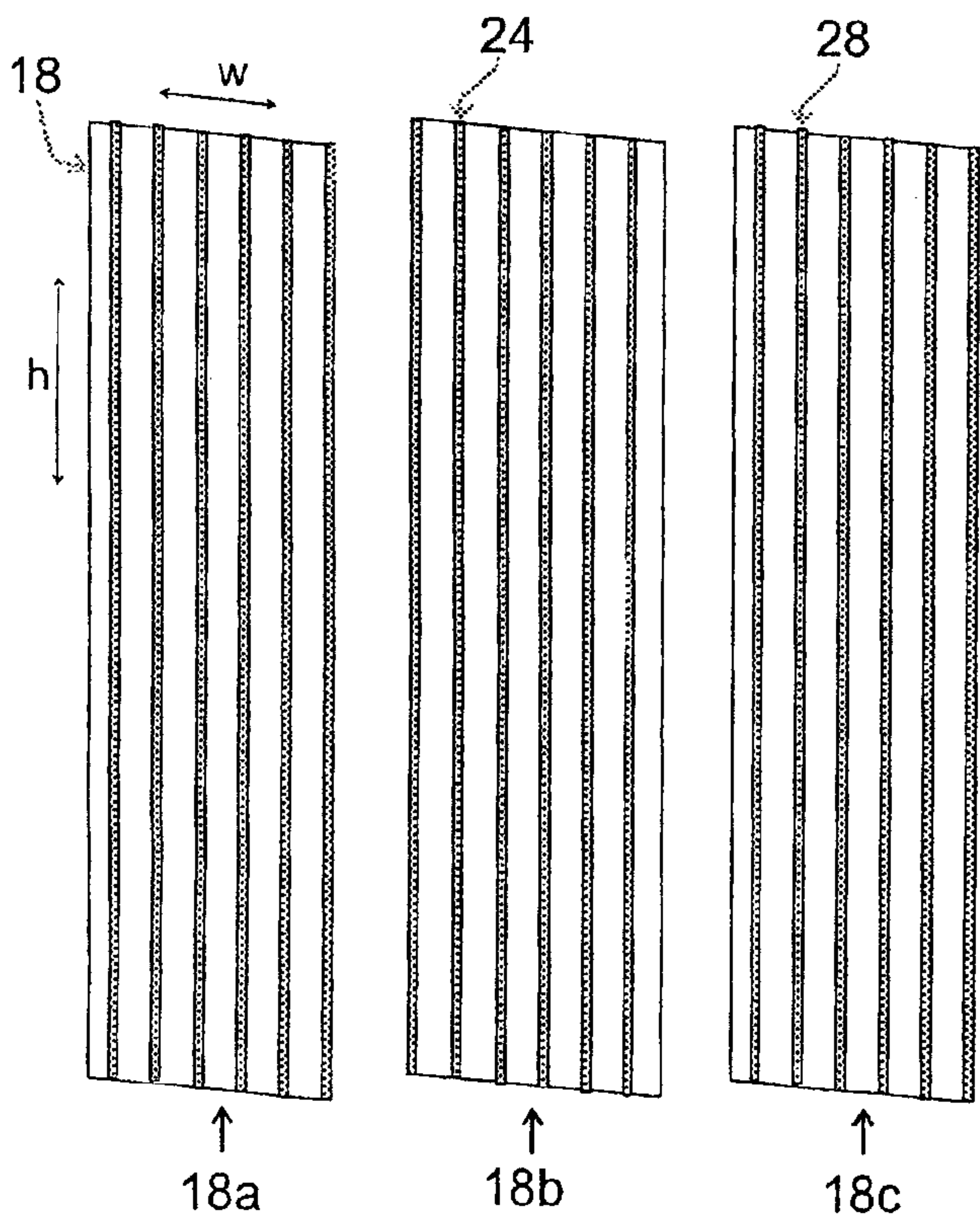


FIG 2

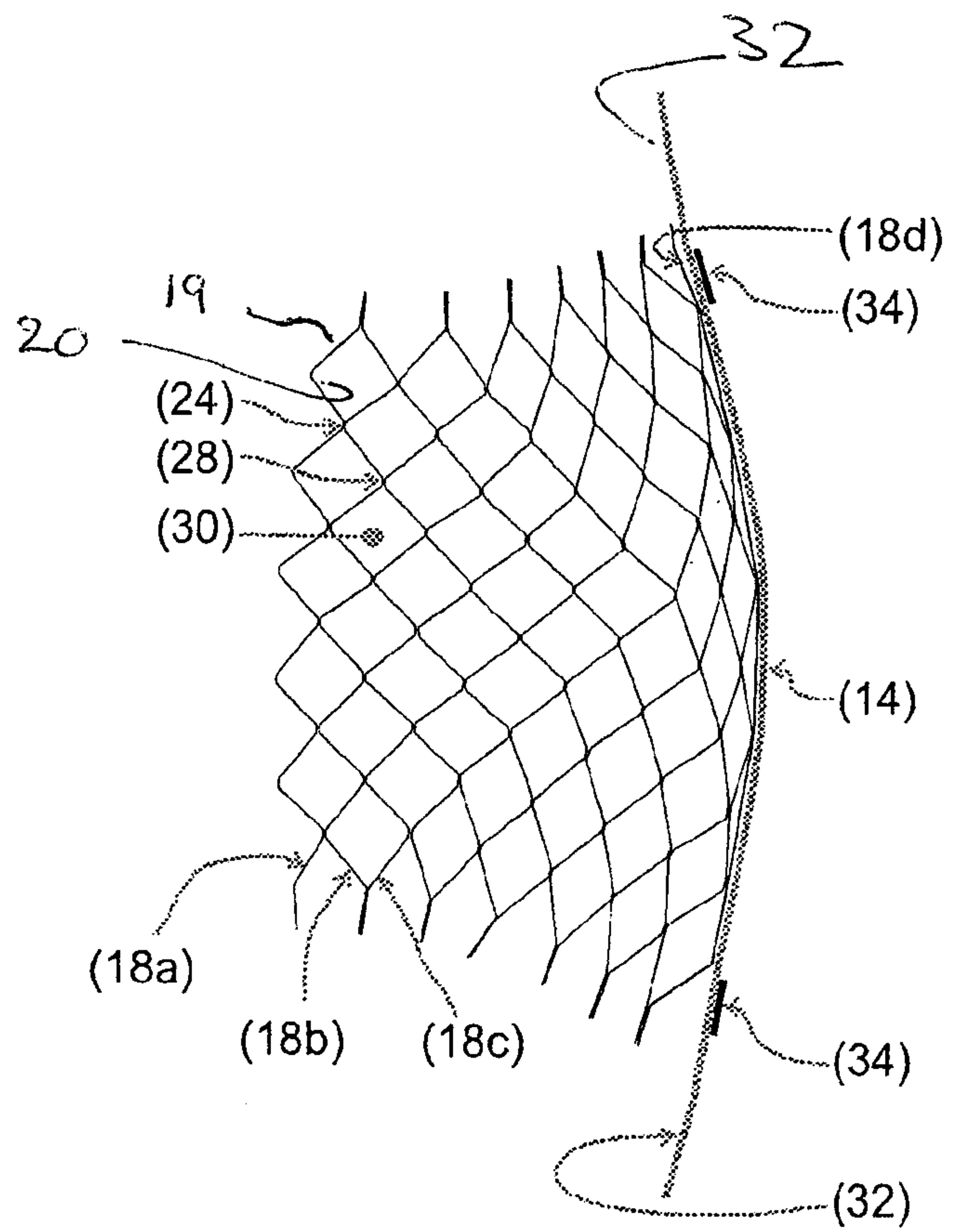
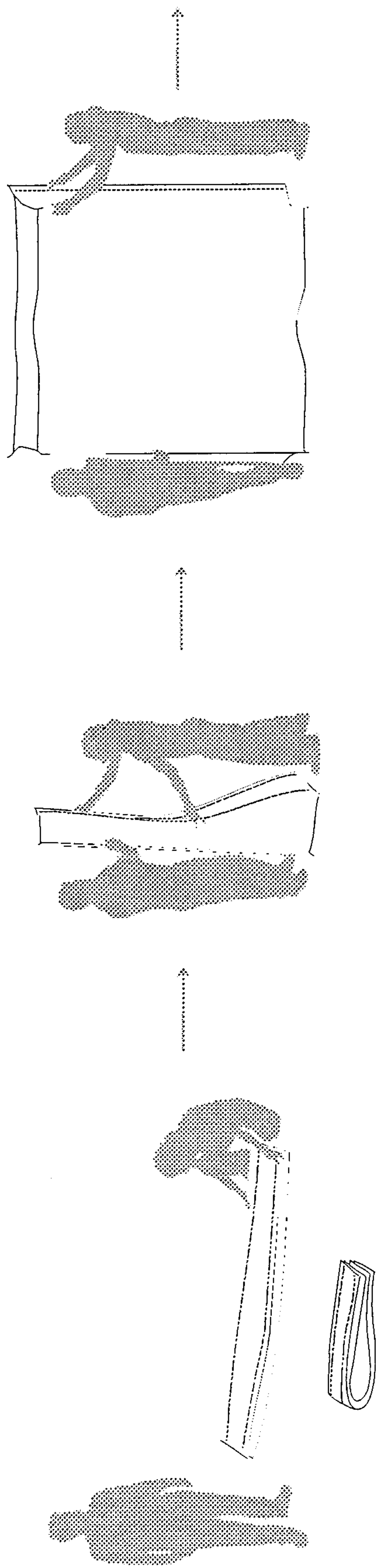
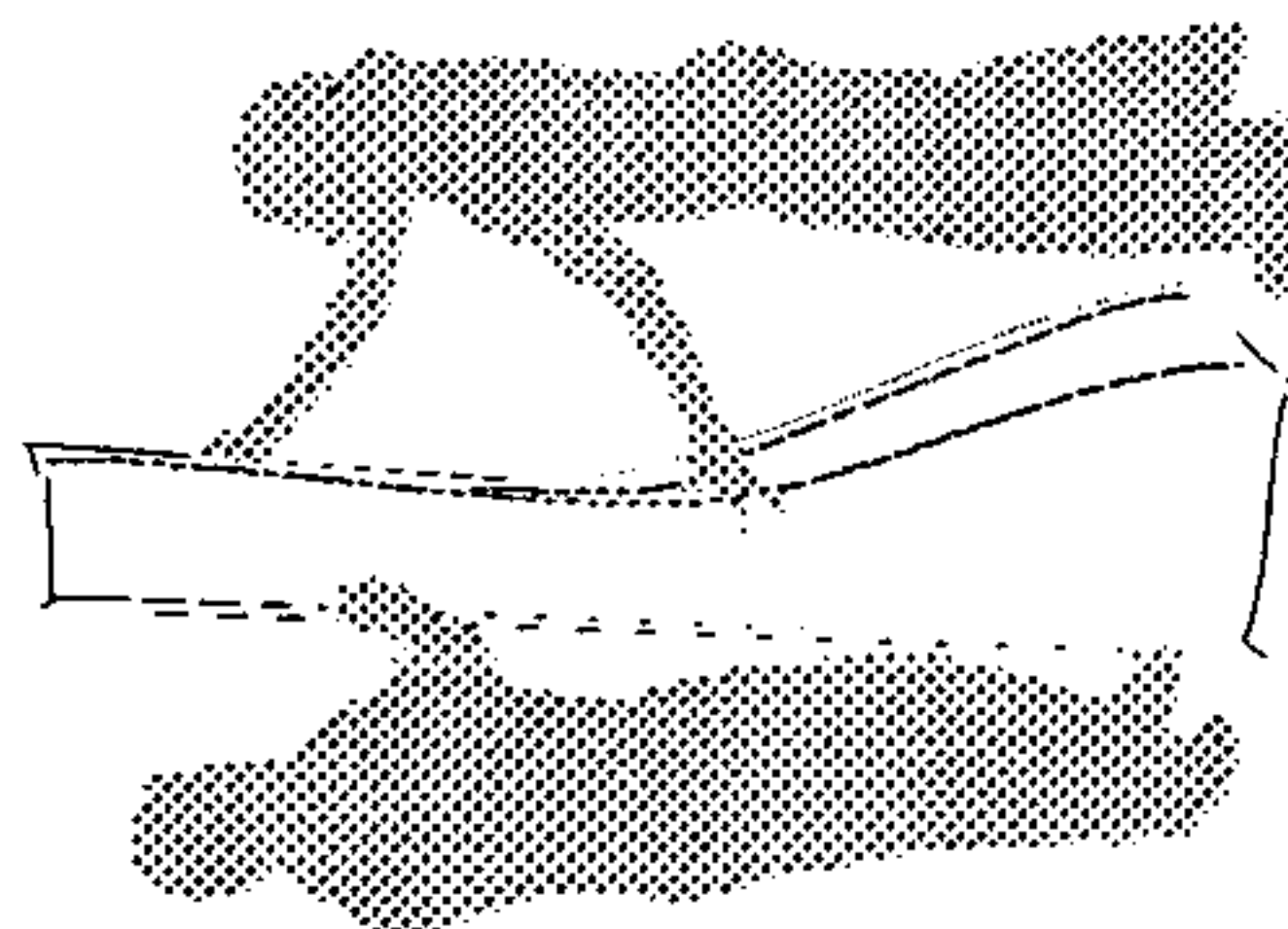


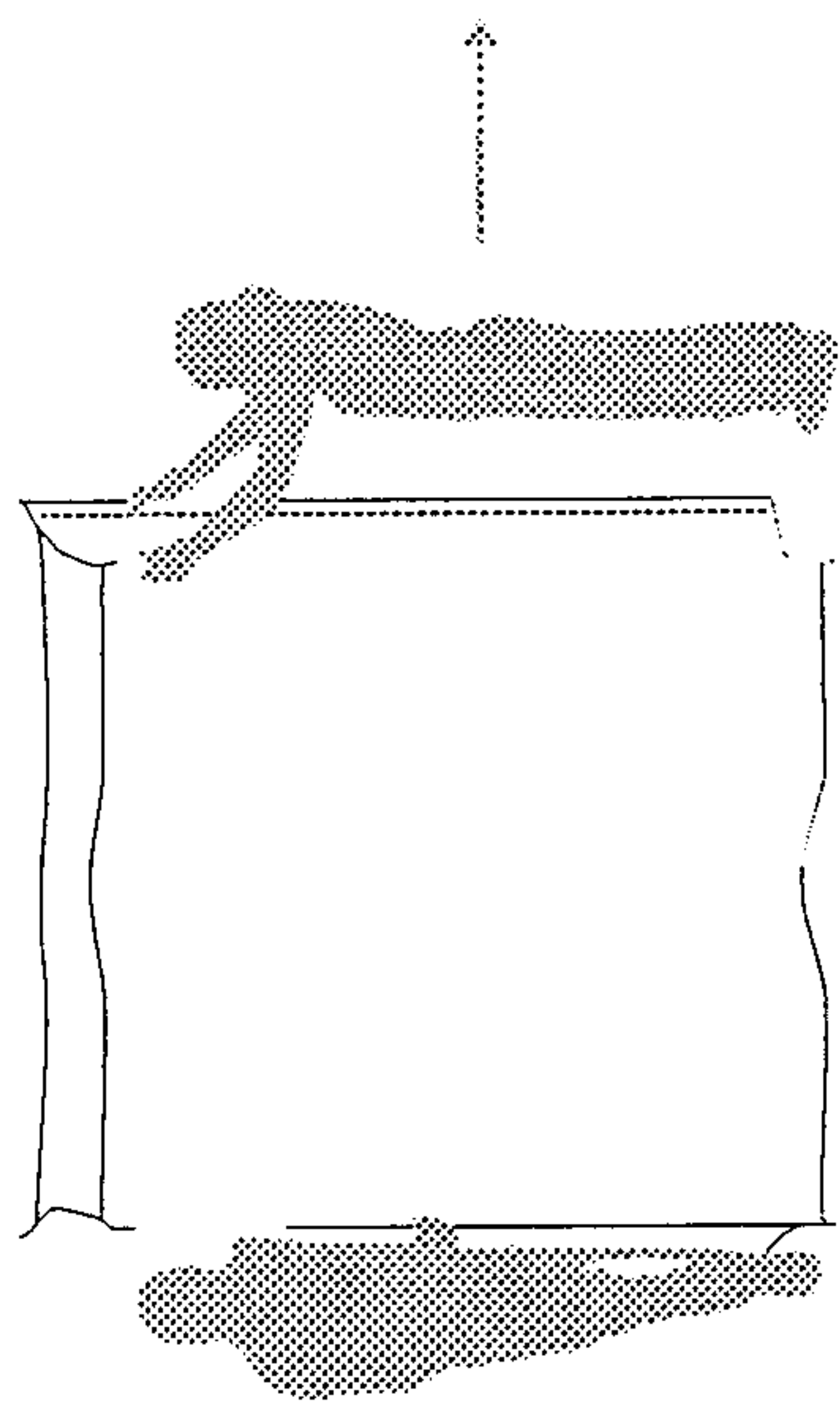
FIG 3



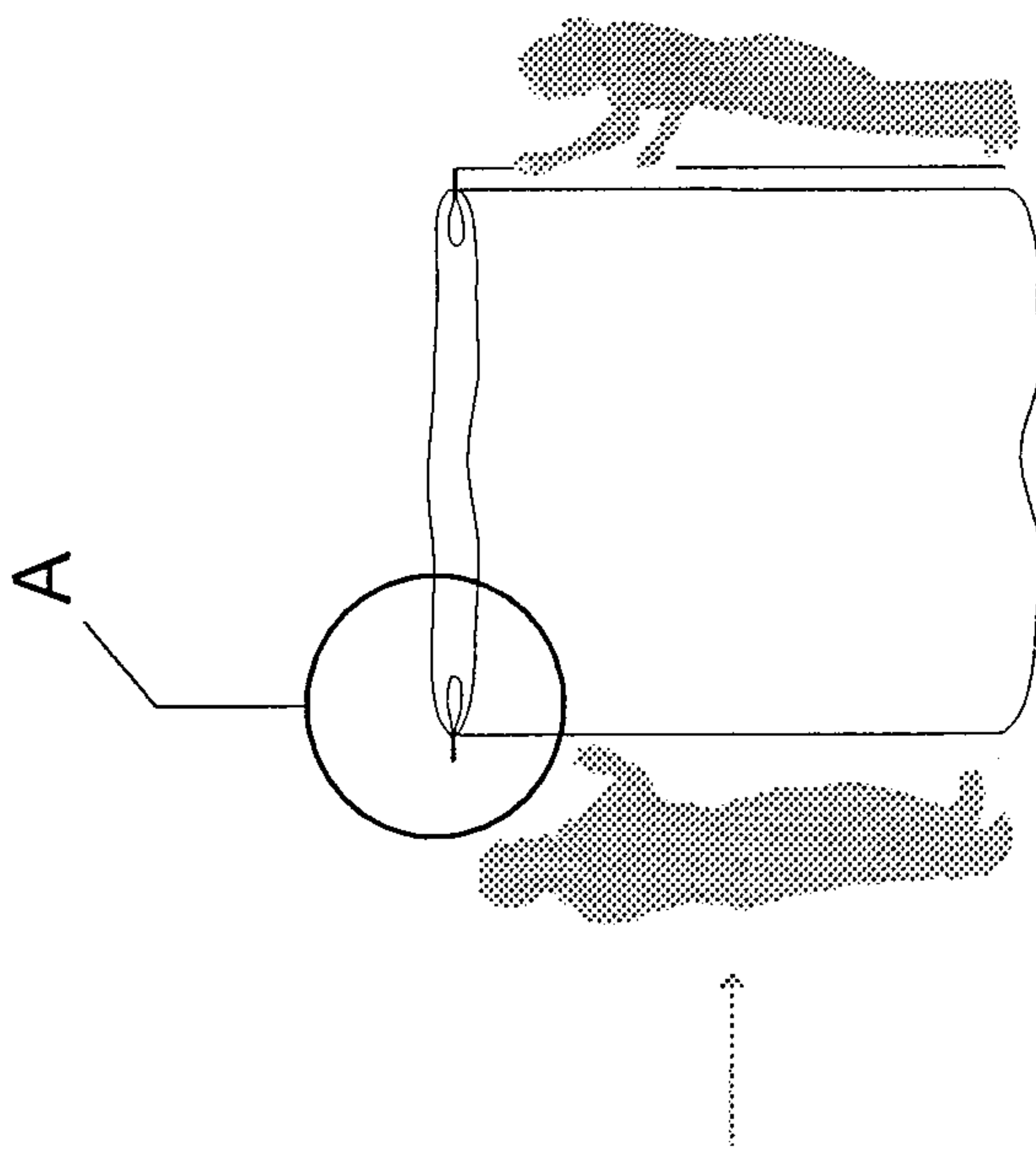
(a)



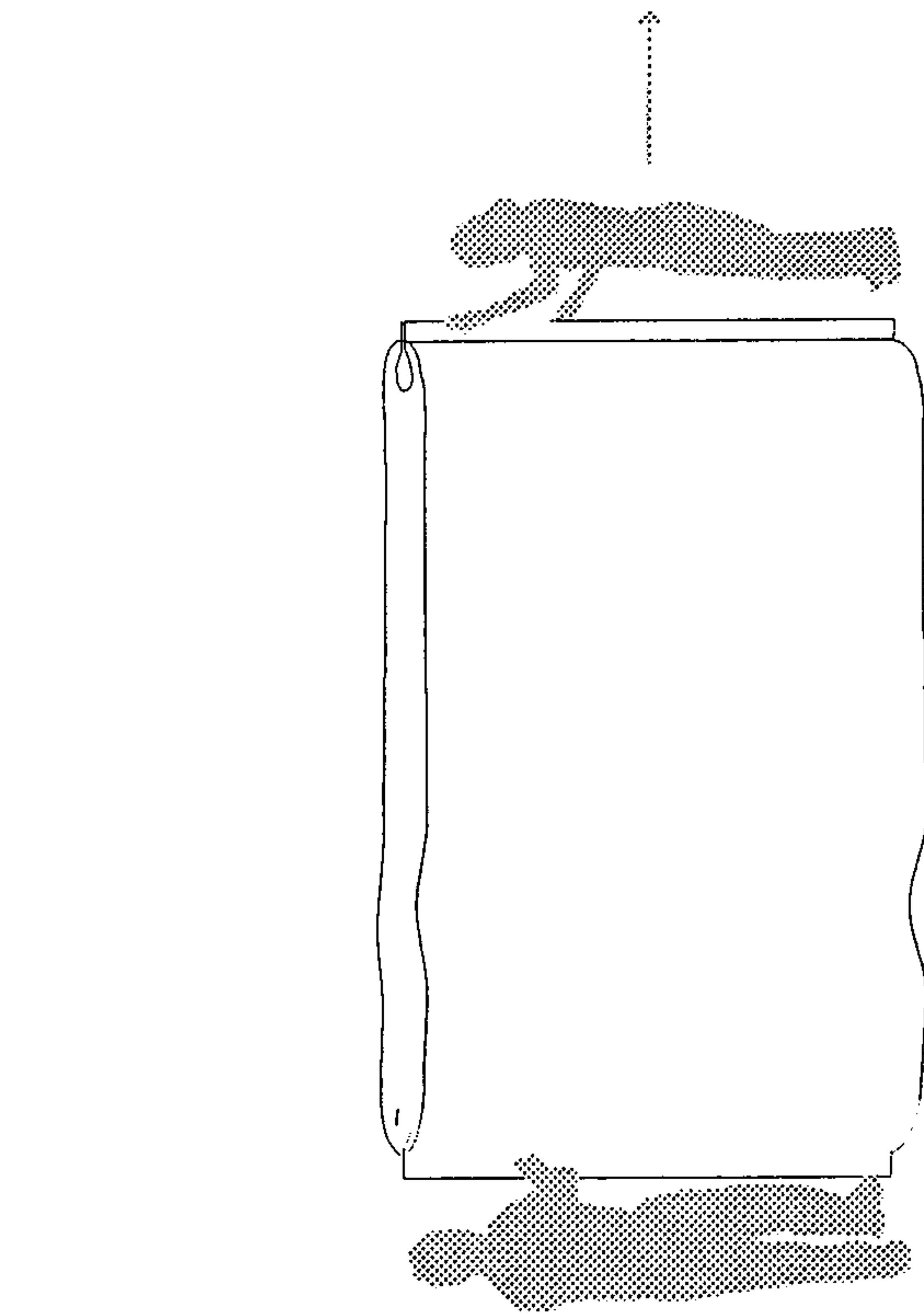
(b)



(c)



(d)



(e)

FIG 4

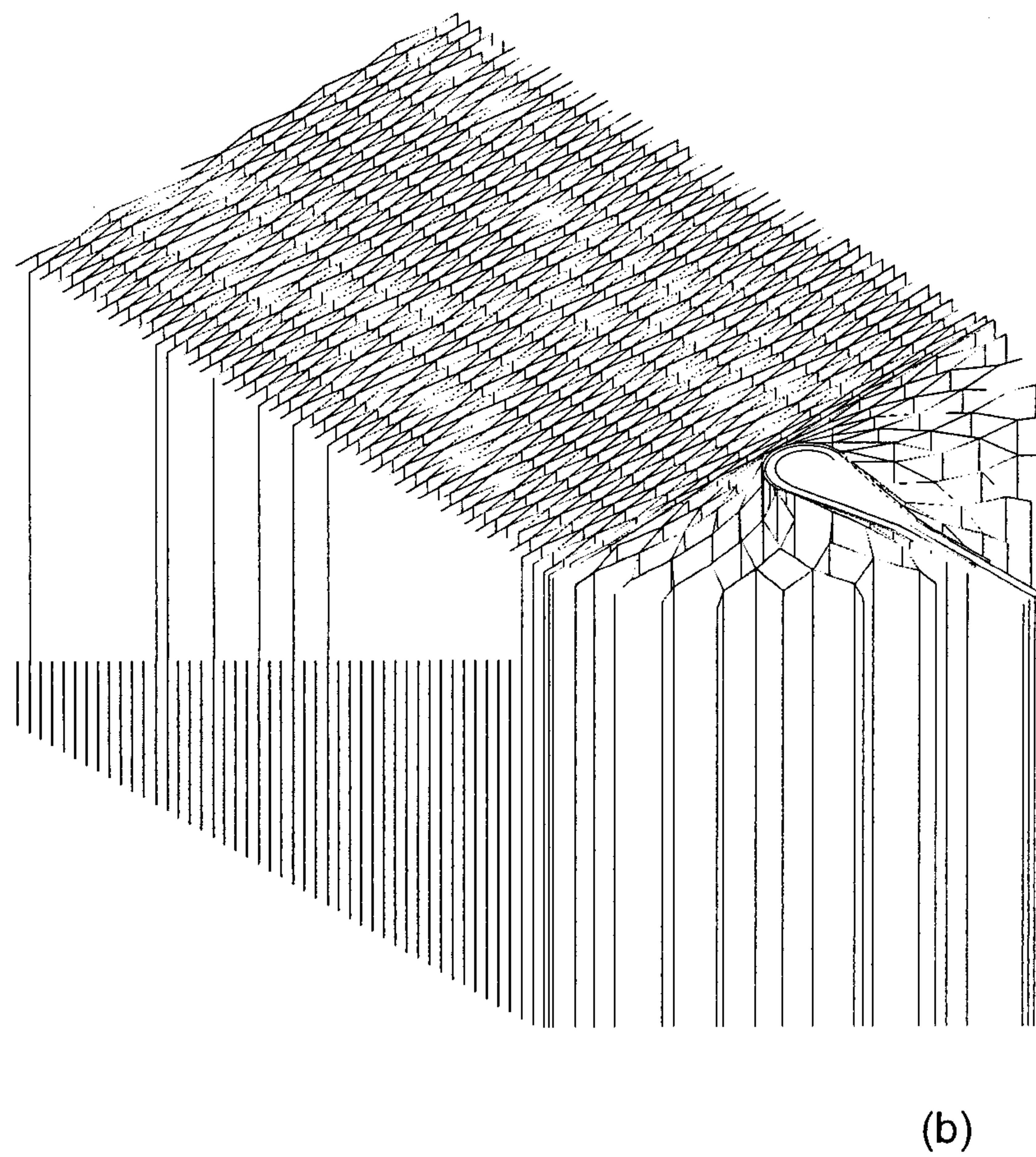
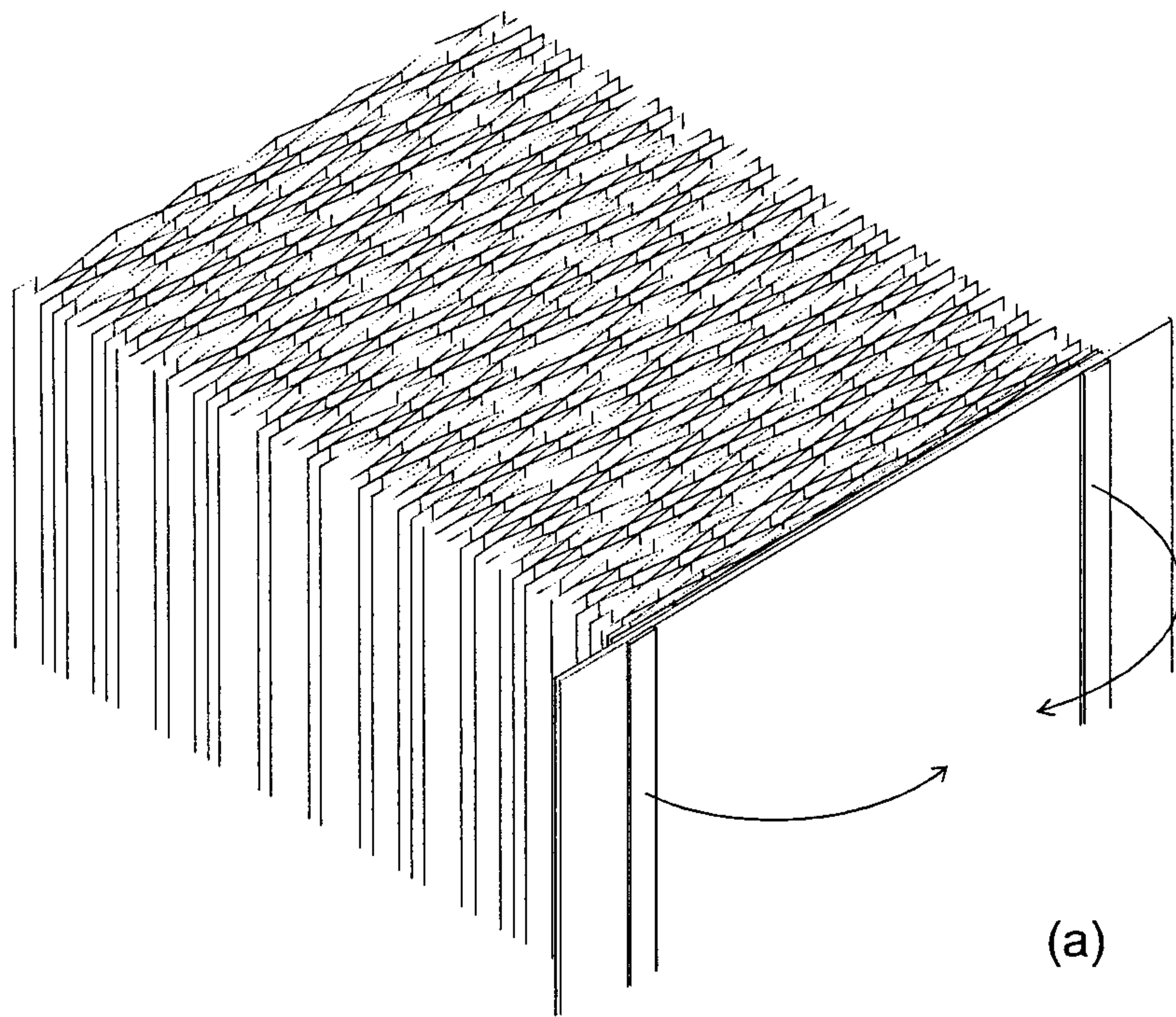
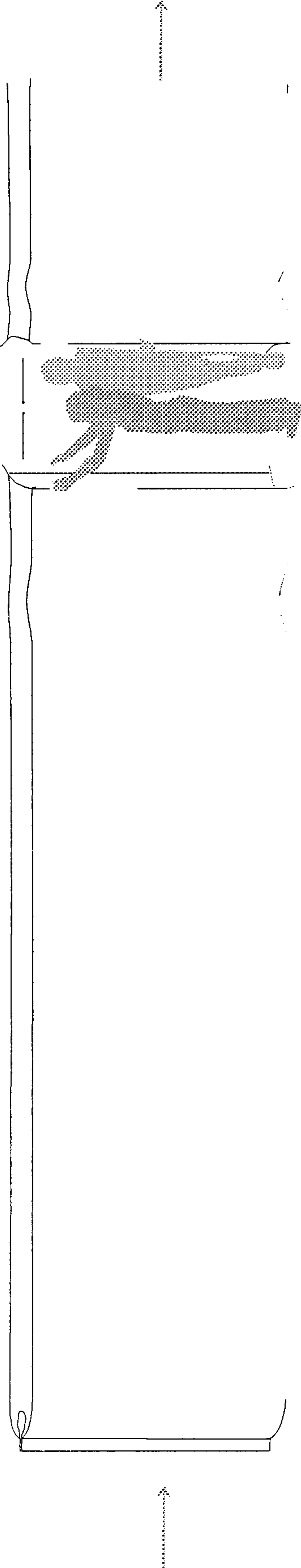


FIG 5



(a)

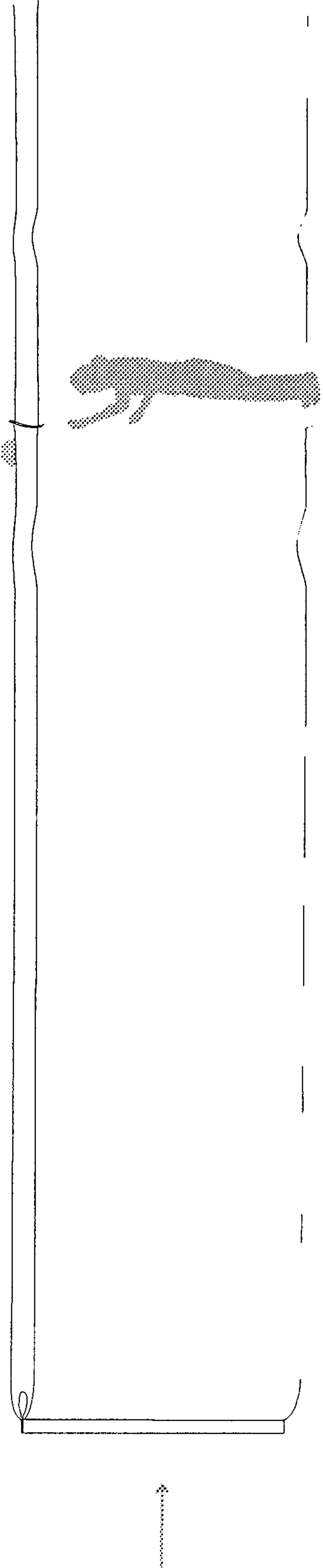


FIG 6

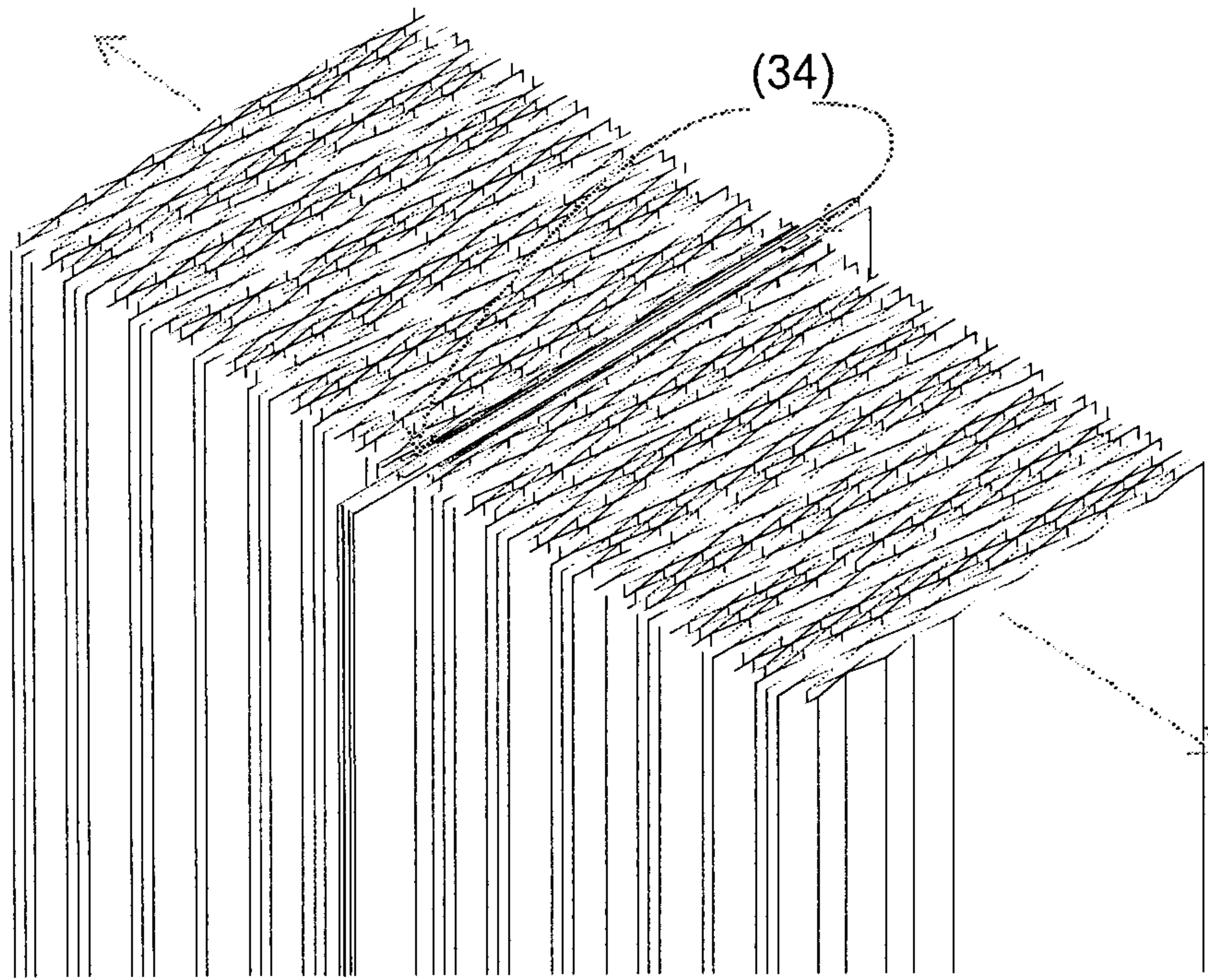


FIG 7

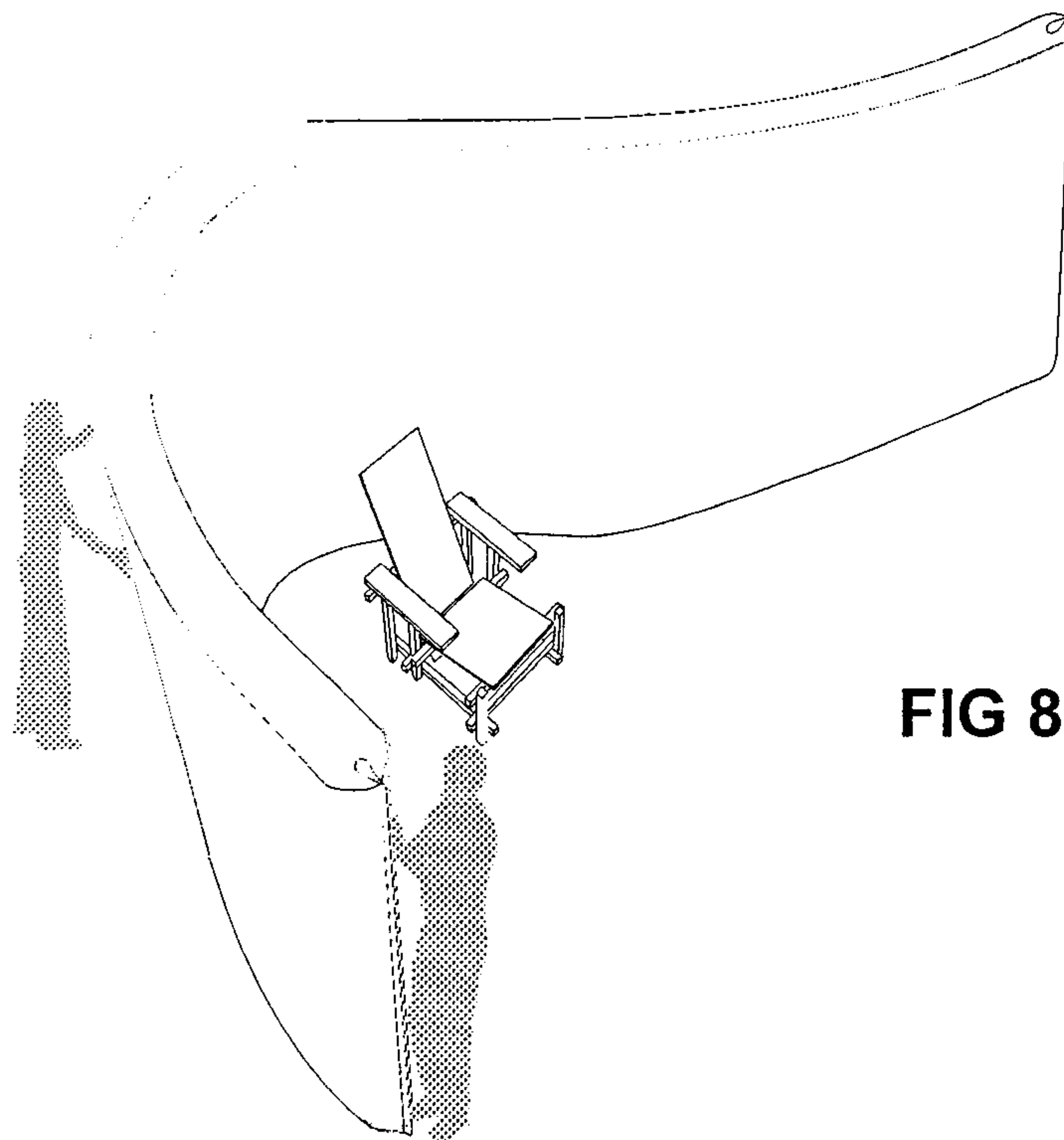


FIG 8

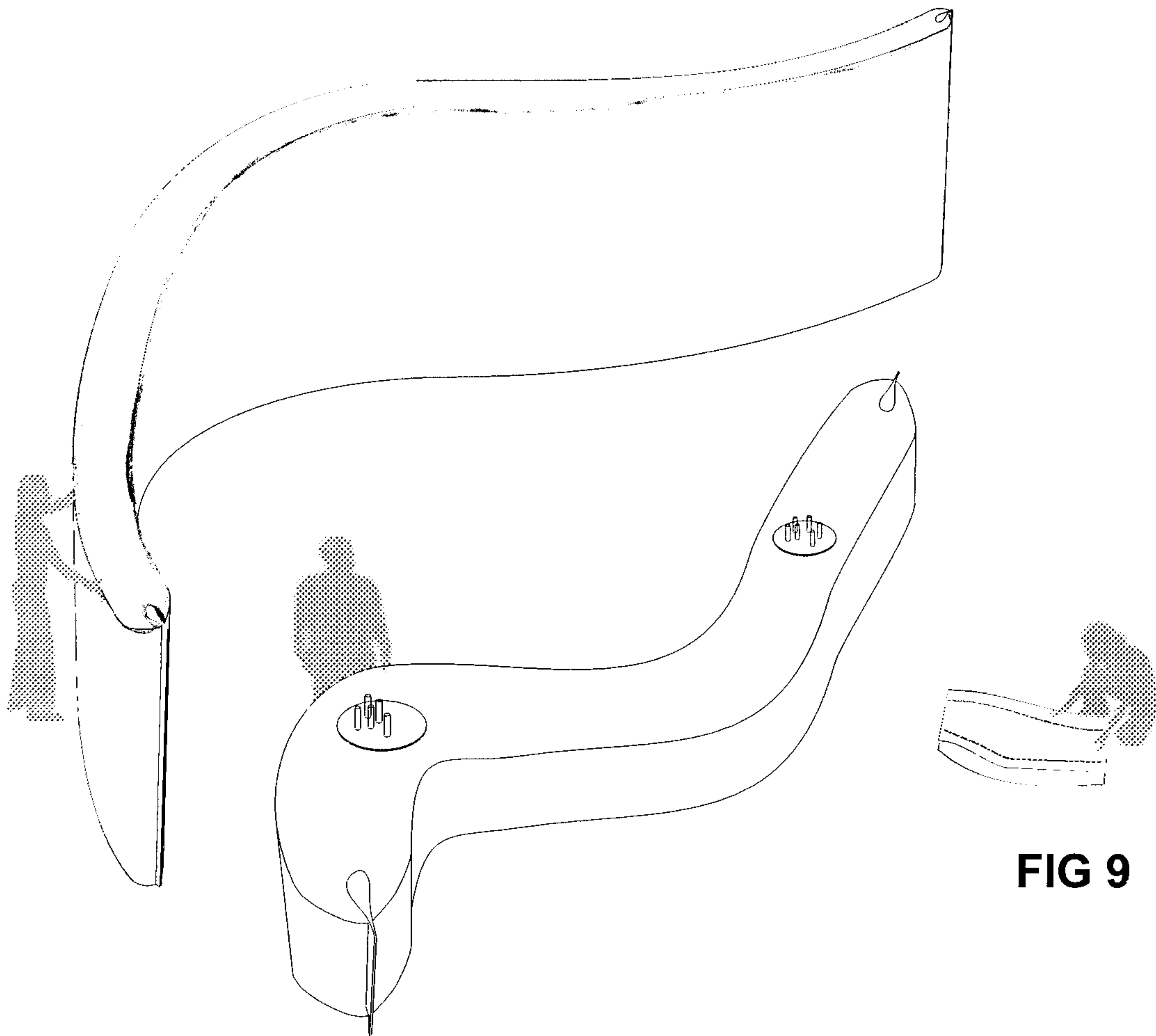
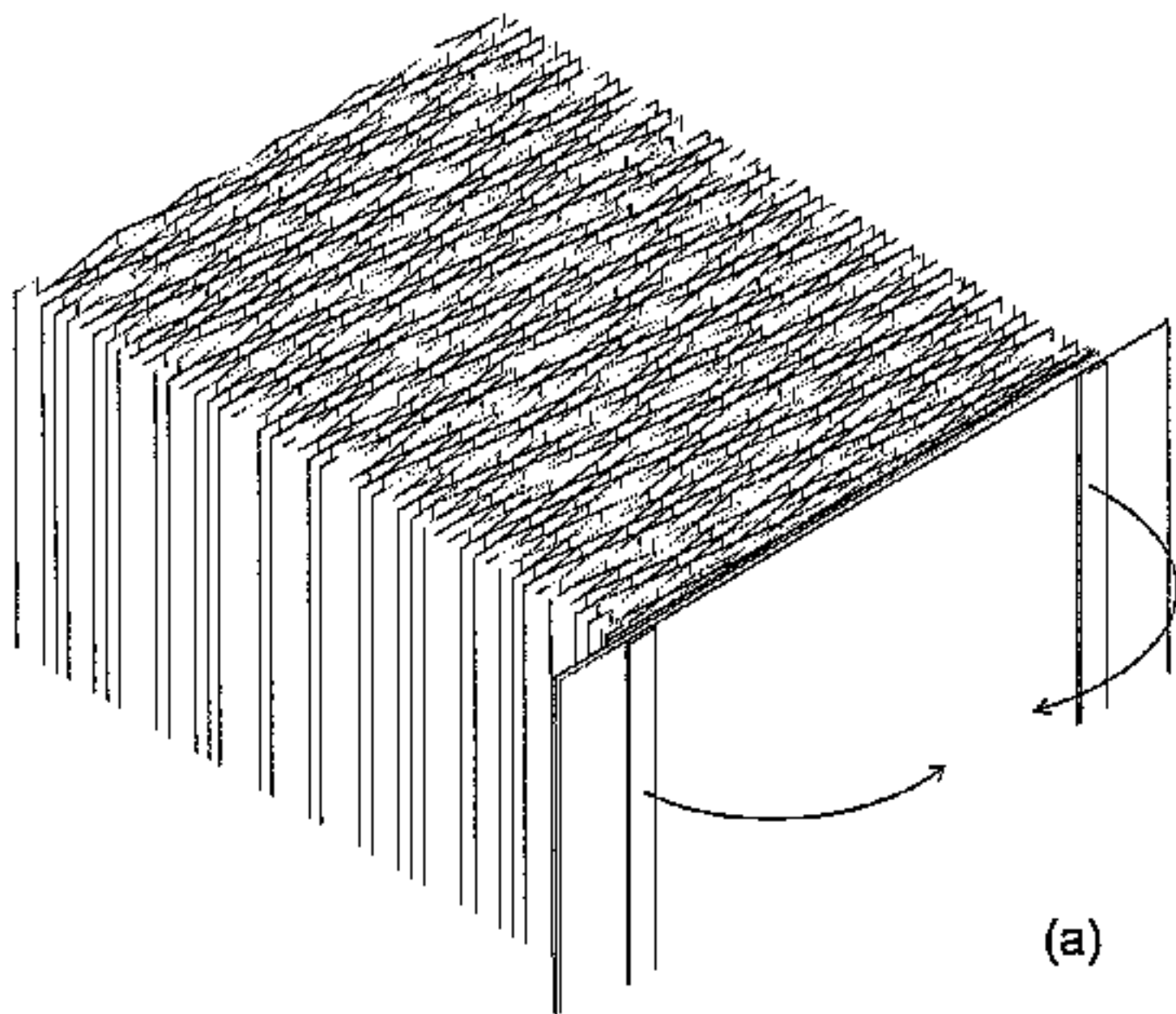
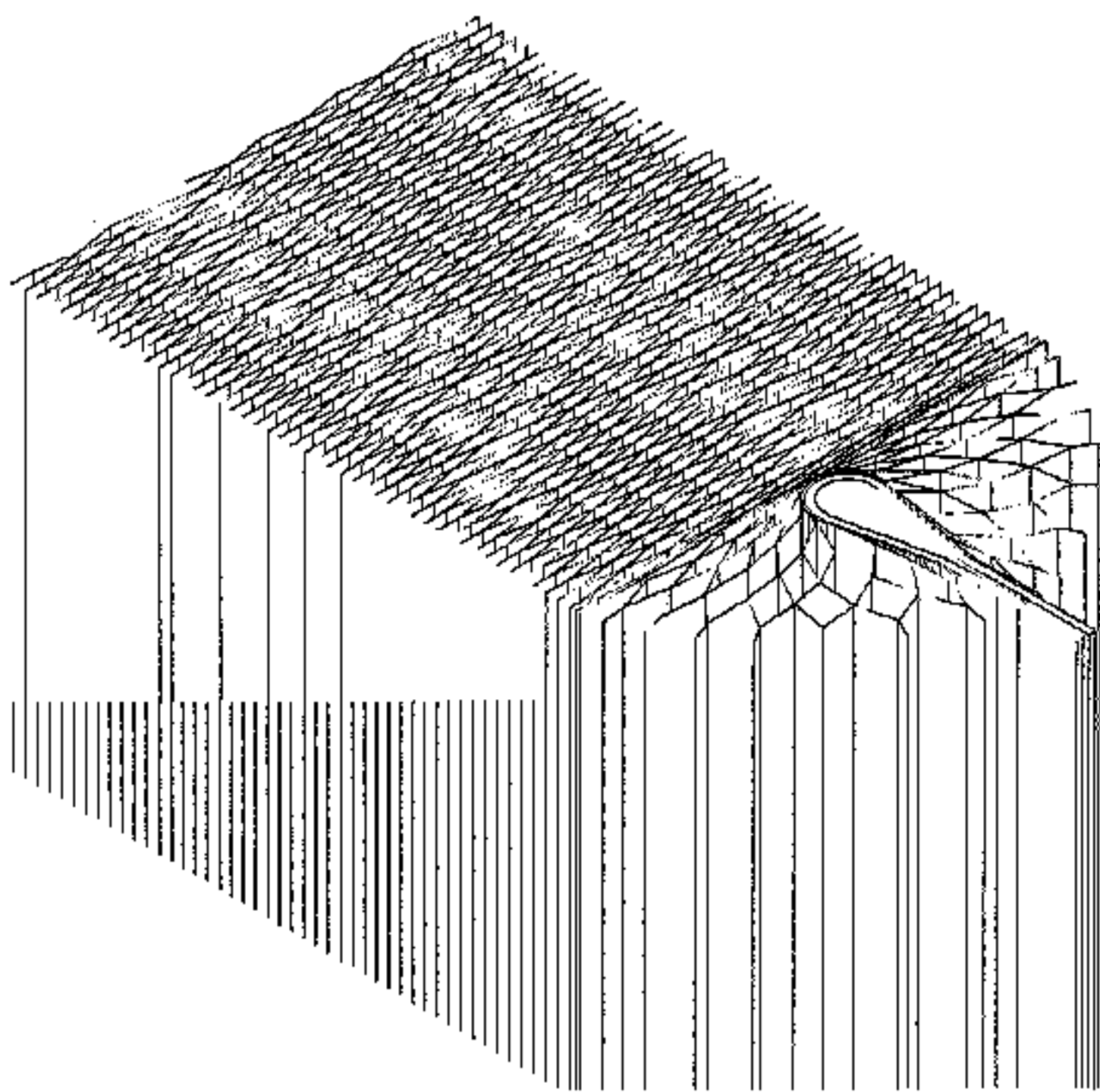


FIG 9



(a)



(b)