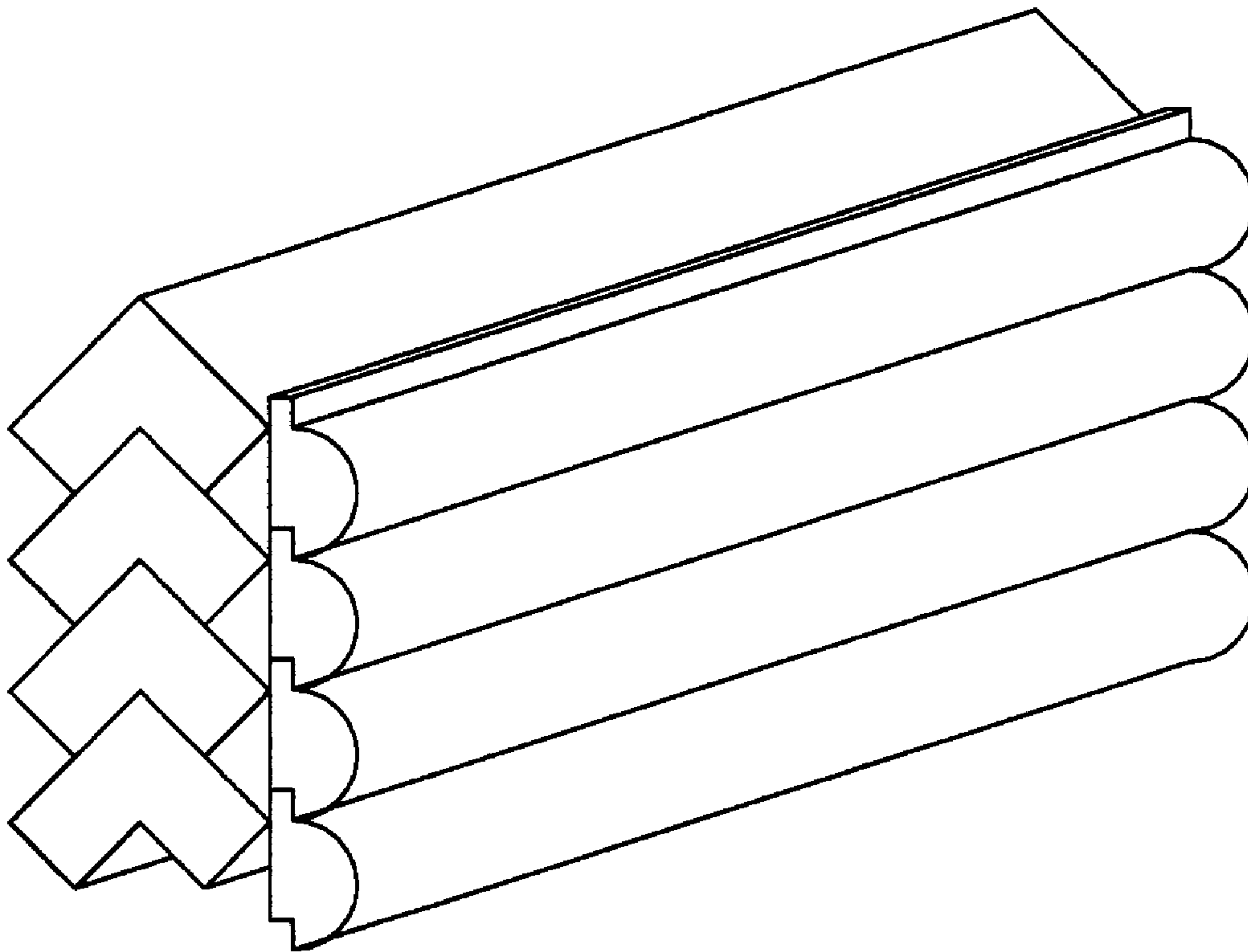




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(54) Titre : ELEMENT DE CONSTRUCTION DE MAISON DE RONDINS  
(54) Title: LOG HOUSE CONSTRUCTION ELEMENT



(57) Abrégé/Abstract:

The log house construction element of the present invention provides a means to increase the thermal insulation and/or modify the appearance of a log house with an element adapted to be received by recesses formed by adjacent logs of the walls. The log house construction element may be installed on the external side and on the internal side of the walls of a log house. Furthermore, a space may be left between the wall and the log house construction element allowing wiring, cabling and other equipments to be dissimulated in the wall.



File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

## **LOG HOUSE CONSTRUCTION ELEMENT**

### **Abstract**

5

The log house construction element of the present invention provides a means to increase the thermal insulation and/or modify the appearance of a log house with an element adapted to be received by recesses formed by adjacent logs of the walls. The log house construction element may be installed on the external side and on the internal side of the walls of a log house. Furthermore, a space may be left between the wall and the log house construction element allowing wiring, cabling and other equipments to be dissimulated in the wall.

15

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

## **Title of the Invention**

[0001] Log House Construction Element

## **5 Cross-Reference to Related Applications**

[0002] There are no cross-related applications.

## **Field of the Invention**

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[0003] The present invention generally relates to log houses, more particularly to a construction element that can be added to the wall to improve the thermal insulation, to change the aesthetical aspect of the walls and/or to dissimulate wiring, cabling and other equipments in the walls.

15

## **Background of the Invention**

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[0004] The desirability of constructing homes and other buildings of logs has long been recognized. Log houses are currently popular not only because of their pleasing aesthetic characteristics, but also because of their acoustics, fire resistivity, and thermo-inertia. The high density of logs prevents rapid expansion of fire. The density of logs, in combination with the characteristic convex curvature results in excellent acoustical absorption both interiorly and exteriorly of the home. However, while wood has high thermal insulating characteristics and relatively thick wood logs five to eight inches in thickness provide good insulation, building regulations, which have been adopted in some areas require an R factor which is difficult to achieve, particularly in North countries.

25

30

[0005] While log constructed homes have a number of advantages, a particular disadvantage is the insulative quality of homes so constructed, more particularly in cold locations. Log houses, in the past, have been constructed of logs having a wide cross sectional area to overcome this problem. Although providing comfortable living, such houses are more costly and more difficult to construct, and logs of small diameter are

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

5 simply unusable. Standard houses are usually insulated by placing insulation inside the framework of the wall proper. However, standard houses lack the inherent advantages of log homes, as above mentioned. Patents relevant to the problem include those of Williams and Morteson. Williams, U.S. Pat. No. 2,309,426 discloses the use of half logs  
10 attached to standard studs or frame members being filled with heat insulation material in a standard manner. Mortenson, U.S. Pat. No. 3,552,079 similarly discloses half logs and slabs. Mortenson also discloses a tongue and groove construction having insulative panels sandwiched between the half logs. Williams has the disadvantage of a standard frame construction with resultant high cost. Mortenson requires excessive woodworking, is restricted in the thickness of insulation, and is excessively expensive to construct. The  
15 U.S. Pat. No. 4,147,000 discloses an insulated log building structure comprising two parallel, vertically extending log walls having an insulative layer of foam plastic disposed therebetween. In the latter patent, two log walls have to be constructed which is very expensive and more time consuming.

15

There is thus a need to provide a means to improve thermal insulation of new log houses and existing log houses.

### **Objects of the Invention**

20

[0006] A first object of the present invention is to provide a log house construction element increasing the thermal insulation of the walls

25

[0007] A second object of the present invention is to provide a log house construction element that can be added to almost any existing log houses to increase thermal insulation.

30

[0008] A third object of the present invention is to provide a log house construction element allowing to pass wiring and other non-aesthetical furniture.

[0009] Another object of the present invention is to provide a log house construction element allowing a change of the aesthetical aspects of the walls of the log house.

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

[0010] Other and further objects and advantages of the present invention will be obvious upon an understanding of the illustrative embodiments about to be described or will be indicated in the appended claims, and various advantages not referred to herein will occur  
5 to one skilled in the art upon employment of the invention in practice.

### **Summary of the Invention**

[0011] The aforesaid and other objectives of the present invention are realized by  
10 generally providing a construction element for walls of a log house, comprising an internal portion adapted to be received by recesses between adjacent logs of log walls and an external portion having the appearance of a siding.

[0012] To improve the thermal insulation of a wall, an element is added to the walls of  
15 the log house. The thermal insulation depends on the thickness of the wall and the materials used to construct the walls. The critical locations are at the recesses because this is the thinner portion of the wall. The present invention thus provides a means to improve the thermal insulation by using a log house construction element having a complementary geometry to that of the recesses of the walls of the log house.

20

[0013] The log house element may be used on both sides of the log house walls. The elements may be used on only one side also, the thickness and materials of the element being adapted to obtain the required insulating factor.

25 [0014] The internal portion refers to the portion of the element which is contact with the wall of a log house. This portion is adapted to conform to the recess between adjacent logs.

[0015] The internal portion may be made from one or more material such as wood, an  
30 insulating foam material or any other suitable material having insulating properties. The material of the internal portion preferably has a predetermined shape adapted to be received by the recesses of the log wall. The material of the internal portion may also

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

have the ability to take the shape of the recesses when the log house element is fixed on the wall of the log house.

5 [0016] In another embodiment, the internal portion is constituted by a space only. It could be advantageous to be used inside the house when siding are disposed on the log wall to hide cabling, wiring or pipes or to change the appearance of the wall and when there is no need to insulate this side of the wall. Thus a wall could have log house construction elements on both sides of the wall and only one side insulated, both sides insulated or not insulated at all, depending of the requirements of the insulation.

10

[0017] During the construction of houses, cabling, wiring, pipes and other equipments are often passed in the walls to dissimulate them. This can be accomplished with the log house element by leaving a space in the recesses between adjacent logs. In this case, the internal portion does not entirely fill the recesses. Preferably, the space is adjacent to the log wall.

15

[0018] The external portion is the visible portion of the log house element. It is preferably provided with a decoration surface such as a siding. Such siding may be almost any siding used for houses.

20

[0019] When used on the exterior side of the log wall, the material of the external portion is adapted to resist to local weather. The external portion may be made from wood or other suitable material.

25 [0020] The external portion of the log house construction element preferably comprises engagement means allowing adjacent external portions, or sidings, to interconnect together. Engagement means are typically a male part and a female part.

30 [0021] Another advantage of the present invention is that the construction element allows to change the look of the house by choosing different sidings. This may be of particular interest for old log houses wherein weather and time have deteriorated the surface of the walls.

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

[0022] The log house elements are fixed on the wall of the log house using an appropriate fastening means depending of the materials of the internal and external portion. For example, screws or nails may be used to fix the log house element on the walls.

5

[0023] The fastening means may be inserted through male parts to be hidden by the female parts.

[0024] The features of the present invention which are believed to be novel are set forth with particularity in the appended claims.

10

### **Brief Description of the Drawings**

[0025] The above and other objects, features and advantages of the invention will become more readily apparent from the following description, reference being made to the accompanying drawings in which:

15

[0026] Figure 1a is a transversal view of a first embodiment of the present invention as used on a log house.

20

[0027] Figure 1b is a transversal view of a first embodiment of the present invention.

[0028] Figure 2a is a transversal view of a second embodiment of the present invention as used on a log house.

25

[0029] Figure 2b is a transversal view of a second embodiment of the present invention.

[0030] Figure 3a is a transversal view of another embodiment of the present invention as used on a log house.

30

[0031] Figure 3b is a transversal view of another embodiment of the present invention.

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

[0032] Figure 4a is a transversal view of another embodiment of the present invention as used on a log house.

[0033] Figure 4b is a transversal view of another embodiment of the present invention.

5

[0034] Figure 5a is a transversal view of another embodiment of the present invention as used on a log house.

[0035] Figure 5b is a transversal view of another embodiment of the present invention.

10

[0036] Figure 6a is a transversal view of another embodiment of the present invention as used on a log house.

[0037] Figure 6b is a transversal view of another embodiment of the present invention.

15

[0038] Figures 7a to 7c are transversal perspective views showing log house construction elements as used on a log house.

[0039] Figures 8a to 8d are transversal views showing log house construction elements as used on a traditional log house.

20

[0040] Figure 9 is a transversal view showing another embodiment of the log house construction elements.

## 25 **Detailed Description of the Preferred Embodiment**

[0041] A novel log house construction element will be described hereinafter. Although the invention is described in terms of specific illustrative embodiment(s), it is to be understood that the embodiment(s) described herein are by way of example only and that the scope of the invention is not intended to be limited thereby.

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File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

[0042] Figures 1a and 1b show a first embodiment of the construction element for a log house. The construction element 100 is composed by an external portion 110, also referred to as siding in the present document, and by an internal portion 125. The external portion 110 comprises engagement means to interconnect with other adjacent external portions. The engagement means, in one embodiment, are a male part 115 and a female part 120 and they interconnect together at 140 as shown in Figure 1a. Fastening means (not shown) may be inserted through the male part 115 and are hidden by the female part 120. The internal portion 125 is adapted to be received by the recess 135 formed by two adjacent beams or logs of a wall 130 of a log house.

10

[0043] The material composing the internal portion 125 has preferably good thermal insulating properties. The internal portion may be formed by only one material or by the assembly of a plurality of materials. For example, the internal portion 125 may be a foam type material, resilient or not, having thermal insulating properties, has known in the prior art. The internal portion 125 may be made of a single piece of wood or by glued laminated wood or other processed wood elements since this portion is not visible and do not need to have aesthetical qualities. The internal portion 125 could also be made from a composite material having higher insulating properties and having the needed property to resist to the weather of the local environment.

20

[0044] It is to be noted that the construction element of the present invention may be adapted to fit on any type of log house. Indeed, the internal portion may be adapted to have a complementary shape to almost any log house. Also, when a foam-type material is used for the internal portion, the foam is preferably selected such that it is able to conform to the shape of the wall of the log wall. This is particularly advantageous for logs houses constructed with log having irregular surfaces due to the shape of natural trunks.

[0045] Figures 2a and 2b show another embodiment in which another type of siding 210 is used. In the previous embodiment, the shape of the external portion 110 is rounded giving a log house look. In the embodiment of Figures 2a and 2b, a clapboard type of siding 210 is used.

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File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

[0046] In Figures 3a, 3b, 4a, 4b, 6a and 6b the internal portions 325 and 425 are adapted to be received by the recesses 335 and 435 wall 330 and 430 of a log house wherein the logs are rounded. In Figures 1a, 1b, 2a, 2b, 5a and 5b, the internal portions are adapted to be received by recessed having a substantially rectangular section.

[0047] Referring now to Figures 5a and 5b, the internal portion 525 does not completely fill the recess 535 between the logs of the wall 530. The space 540 is used to hide wiring, cabling and other equipments that are usually dissimulated in the walls of a house. The space 540 has variable dimensions depending on the space needed and of the insulating properties required for a wall. The siding 510 creates a flat wall.

[0048] Figures 7c shows wiring 750 and cabling 765 as disposed in spaces 755 and 765.

[0049] The embodiment shown in Figures 6a and 6b is similar to the one shown in Figures 5a and 5b, except that the log of the wall 630 are rounded and the internal portion 625 is adapted to the wall 630.

[0050] Figures 8a to 8d show construction elements 800 and 870 as used on a typical wall 830 of a log house. In the embodiment of Figures 8a and 8b, the external portion 810 is adapted to display a planar portion 885 between two adjacent construction elements 800, creating another look for a log house.

[0051] Figure 9 shows an embodiment wherein the internal portion is constituted only by a space.

[0052] While illustrative and presently preferred embodiment(s) of the invention have been described in detail hereinabove, it is to be understood that the inventive concepts may be otherwise variously embodied and employed and that the appended claims are intended to be construed to include such variations except insofar as limited by the prior art.

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

## Claims

1. A construction element for the wall of a log house, said wall being composed by a plurality of superposed logs and comprising recesses between said adjacent logs,  
5 comprising:
  - a. an internal portion adapted to conform to each said recesses;
  - b. an external siding like surface.
2. The construction element of claim 1, wherein a space is left between said wall and  
10 said internal portion.
3. The construction element of claim 1, wherein said internal portion is a space.
4. The construction element of claim 2, wherein said space adapted to receive cabling,  
15 pipes, wiring and the like.
5. The construction element of claim 1, wherein said internal portion is made from an insulating material.
- 20 6. The construction element of claim 1, wherein said internal portion is made from wood.
7. The construction element of claim 1, wherein said internal portion is made from insulating foam.  
25
8. The construction element of claim 1, wherein said internal portion is made from a composite material.
9. The construction element of claim 1, wherein said external portion is made from  
30 wood.

File number: 11357-001  
Revision: as filed  
Date: 14-12-2007

10. The construction element of claim 1, wherein said external portion further comprises means to hold said external portion of an adjacent log.
11. The construction element of claim 10, wherein said holding means comprise a male portion and a female portion allowing said construction element to be interconnected with a second adjacent construction element.

\* \* \*

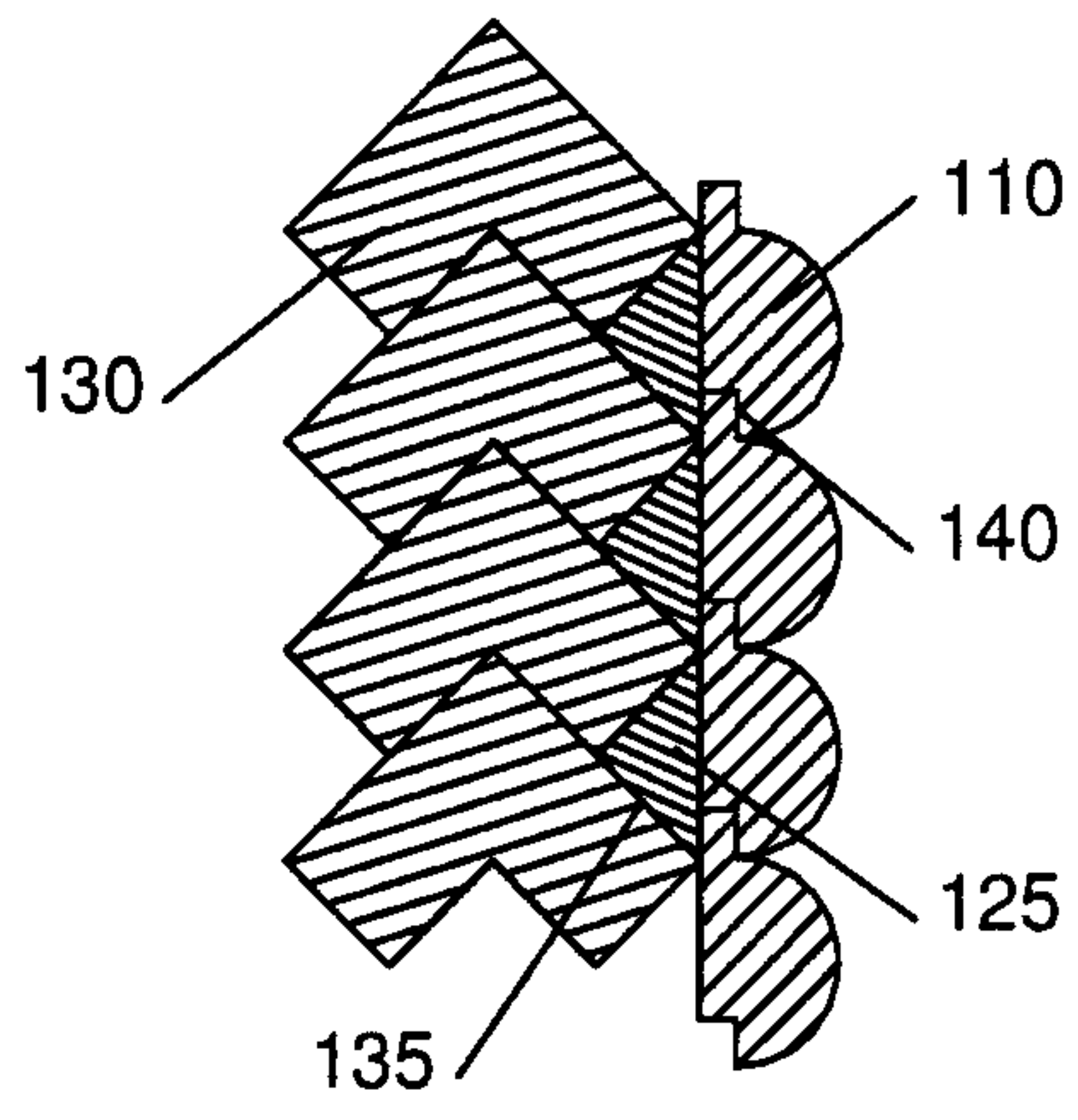


FIGURE 1A

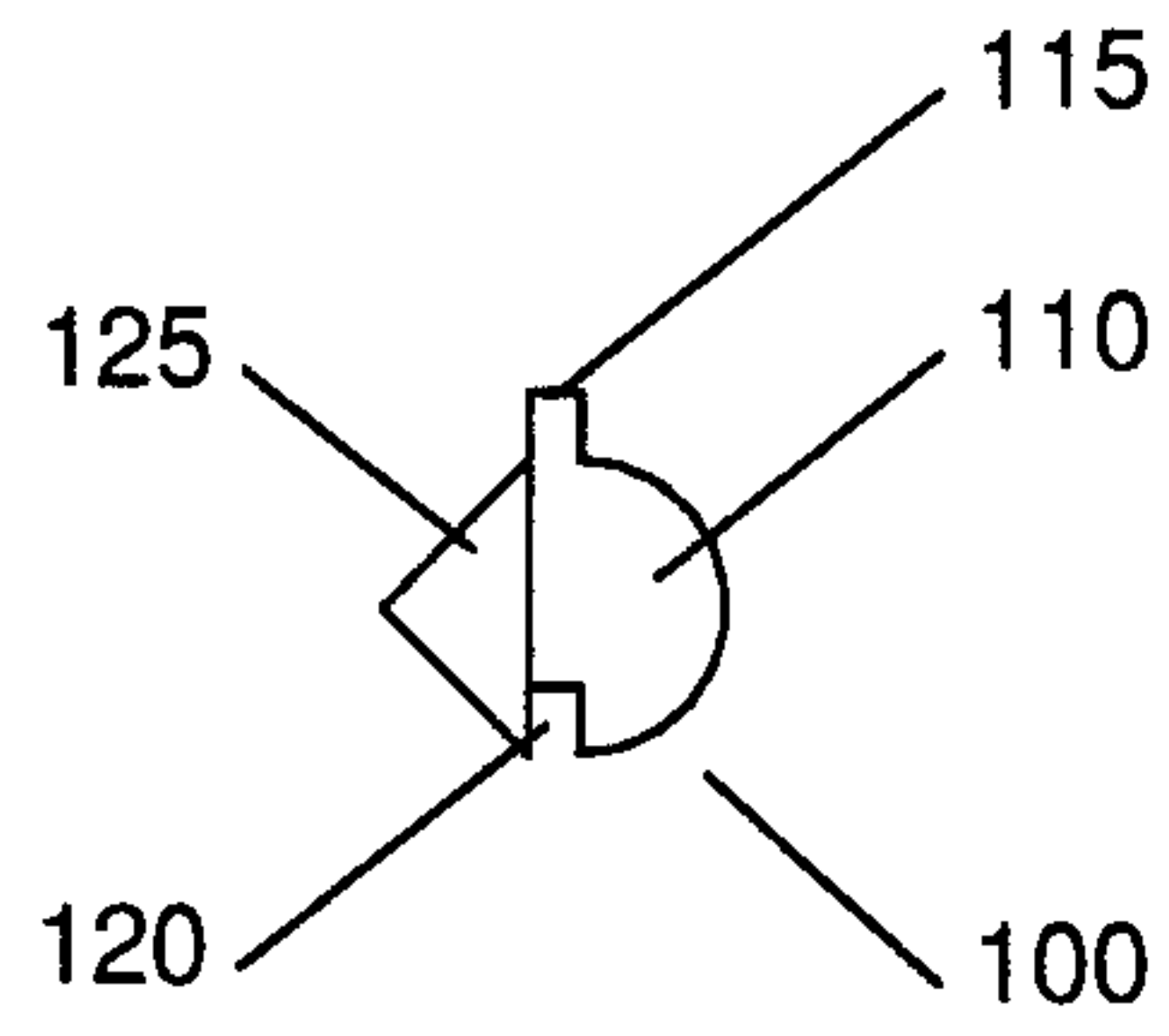


FIGURE 1B

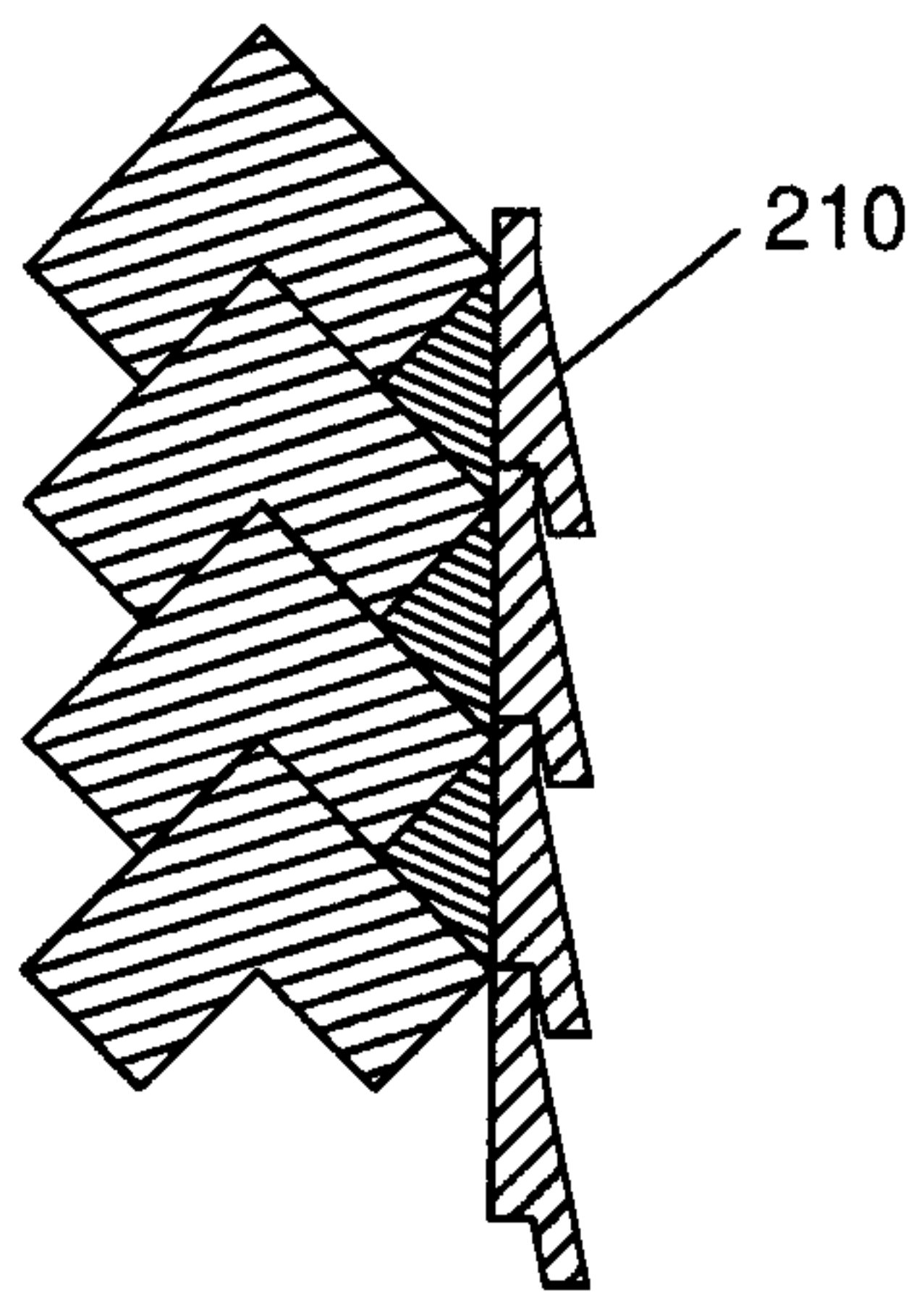


FIGURE 2A

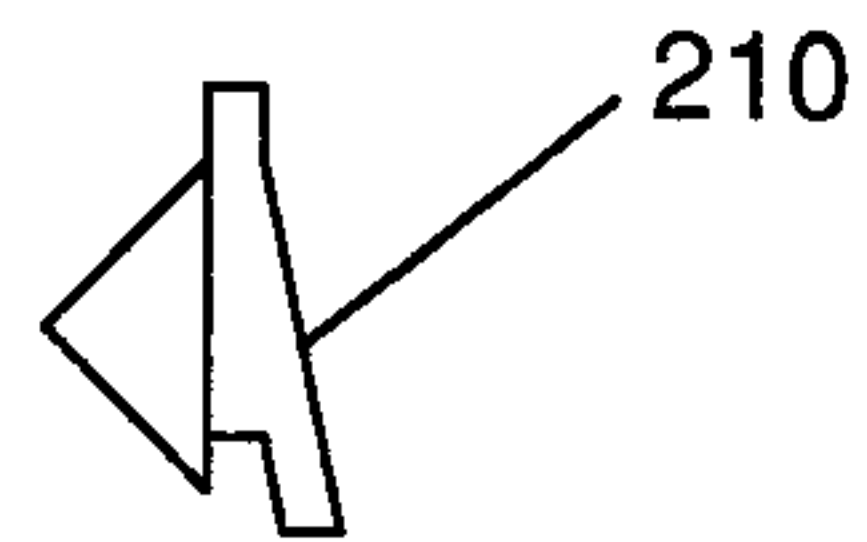


FIGURE 2B

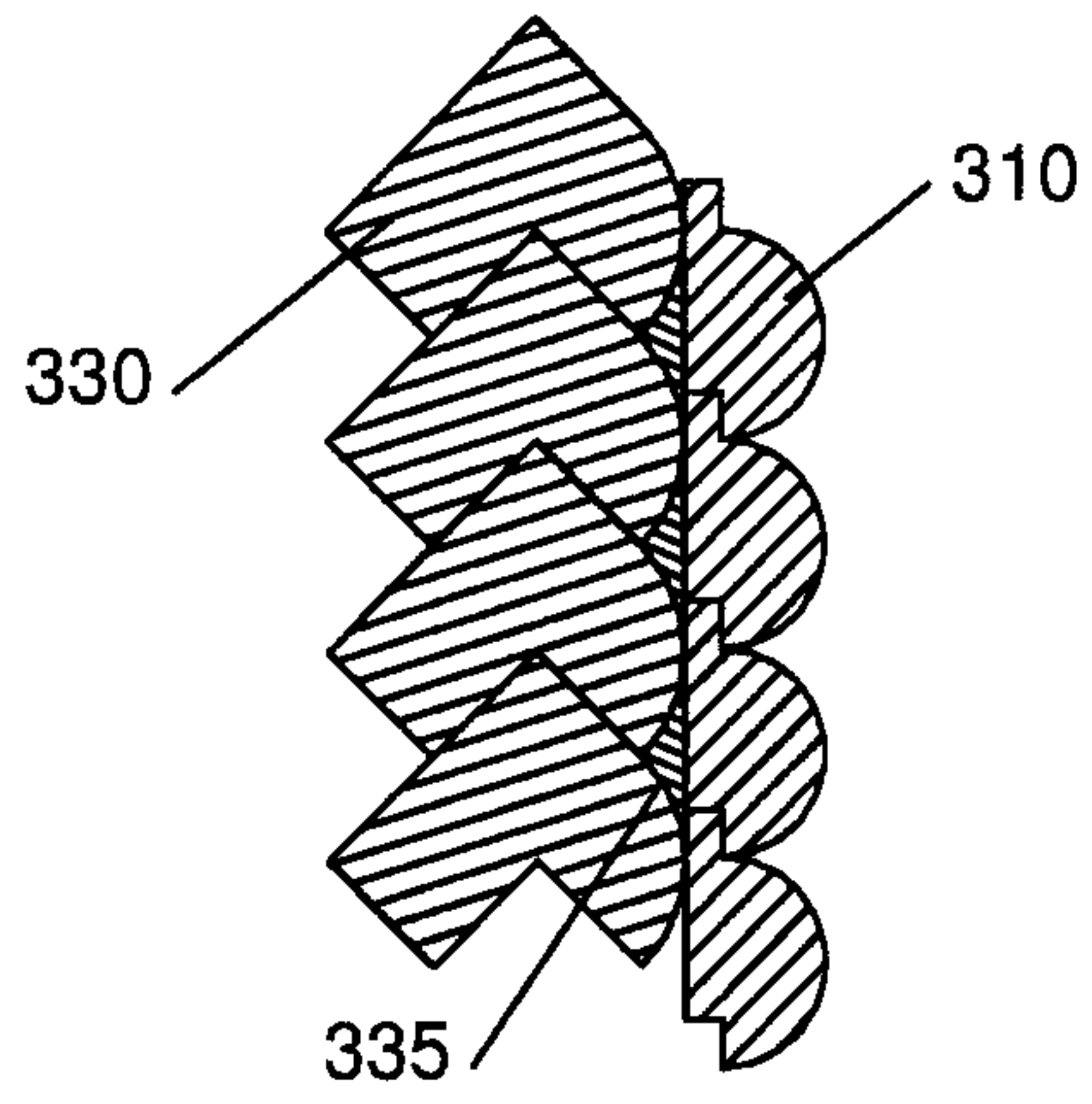


FIGURE 3A

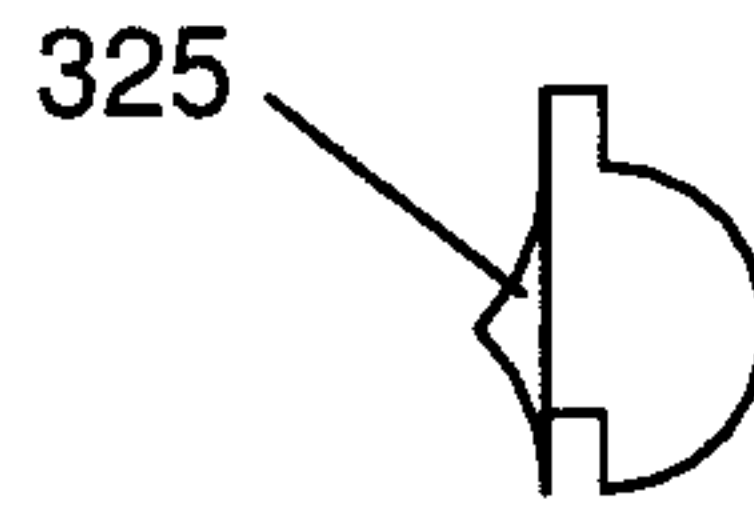


FIGURE 3B

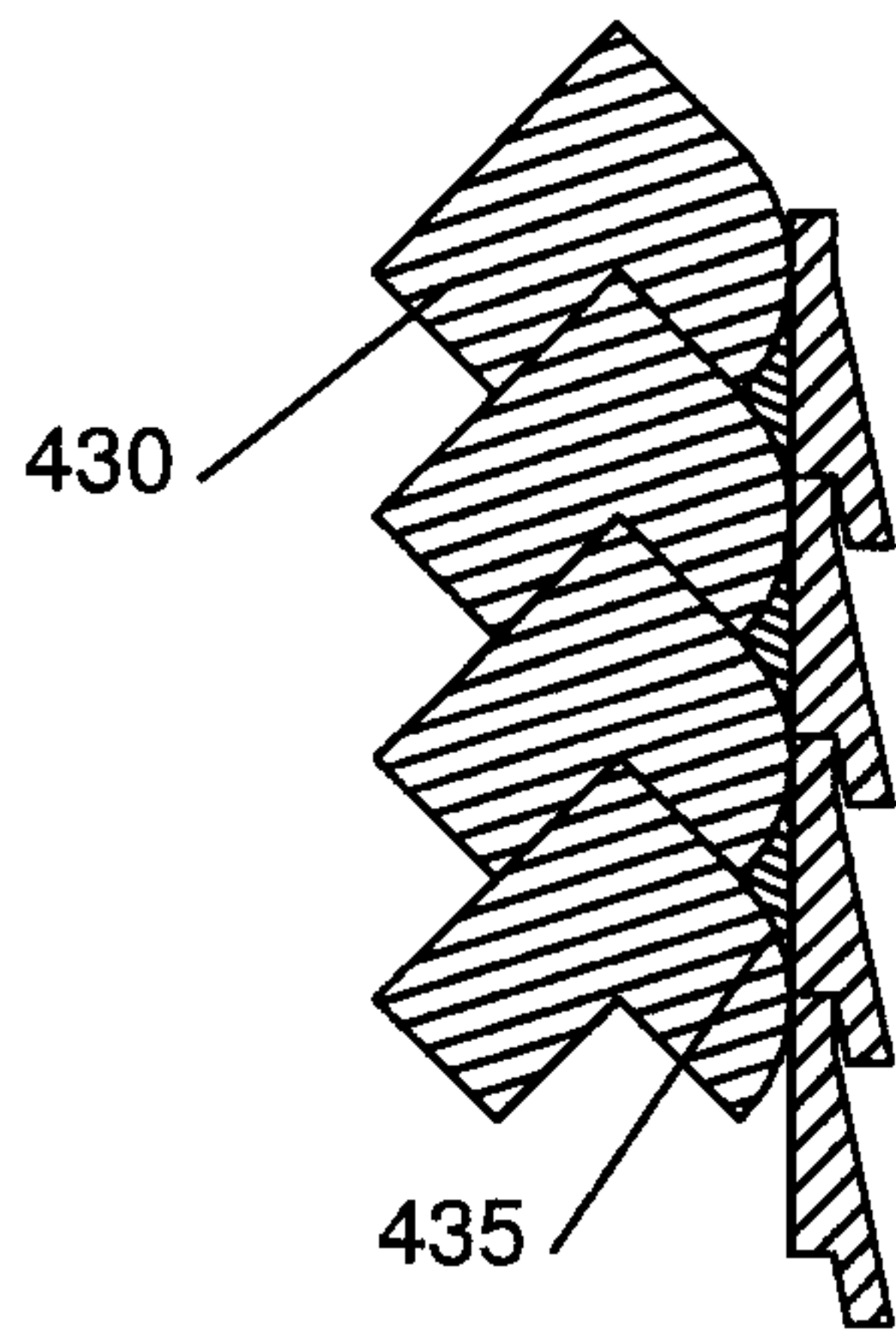


FIGURE 4A

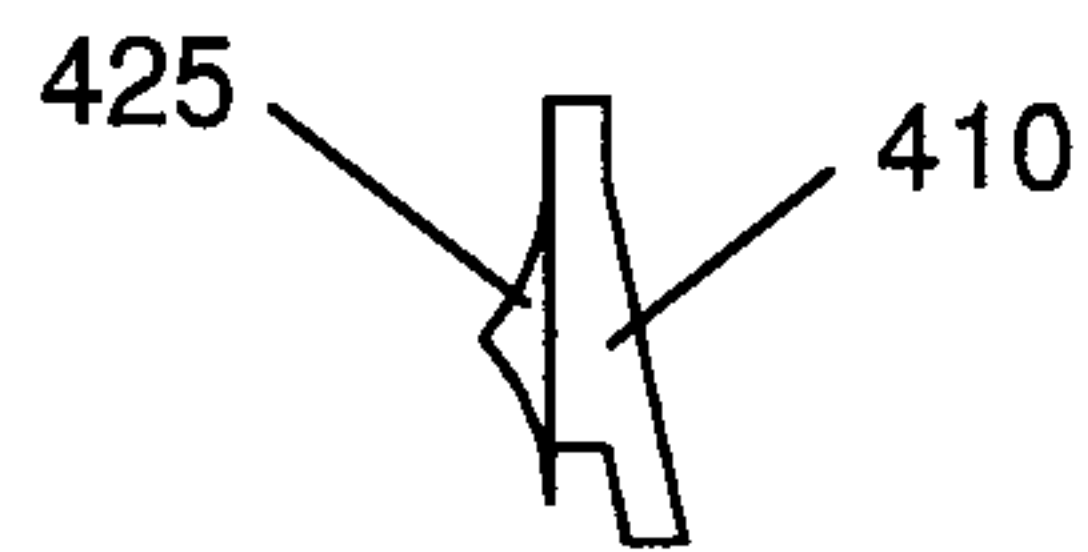


FIGURE 4B

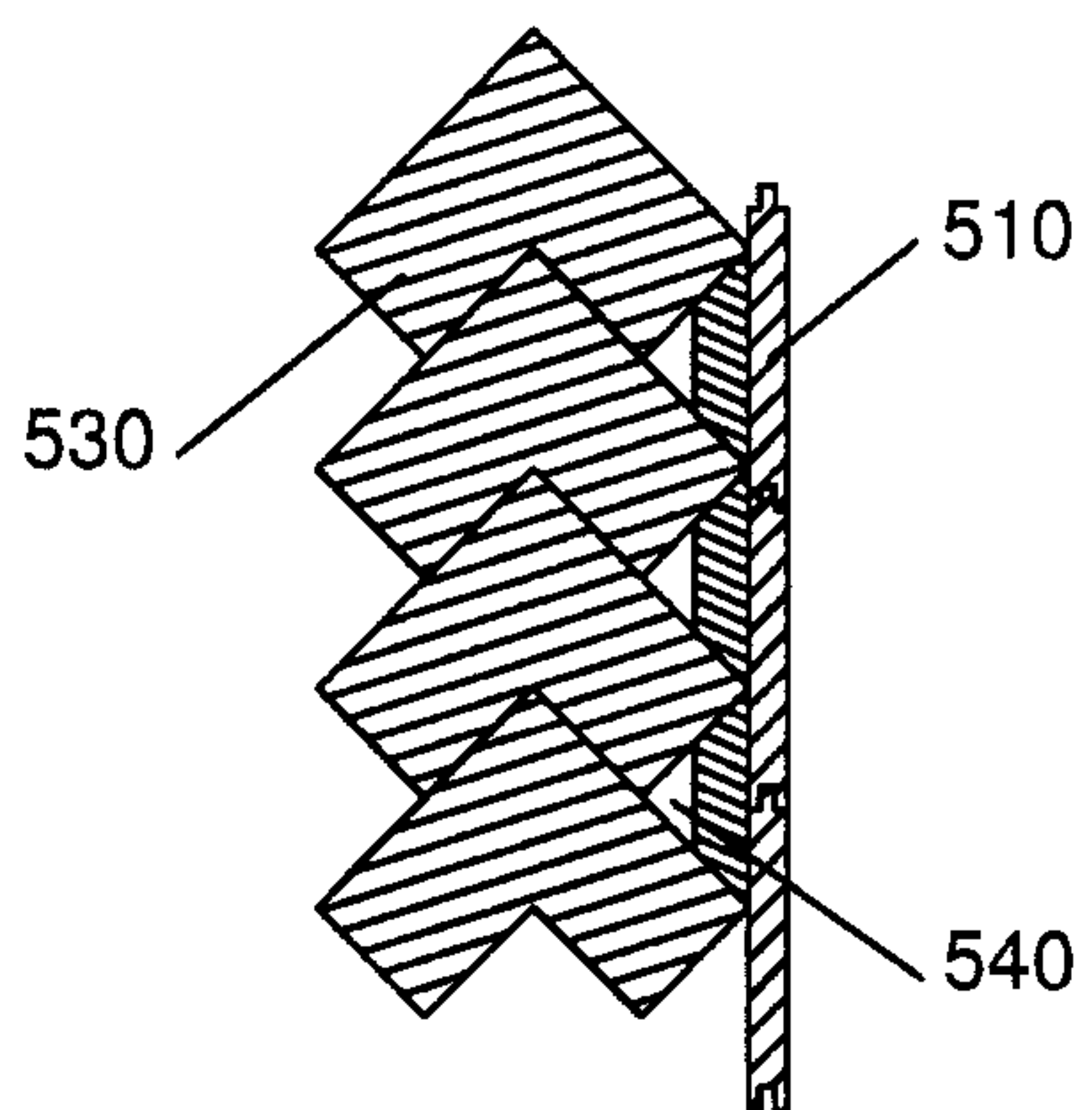


FIGURE 5A

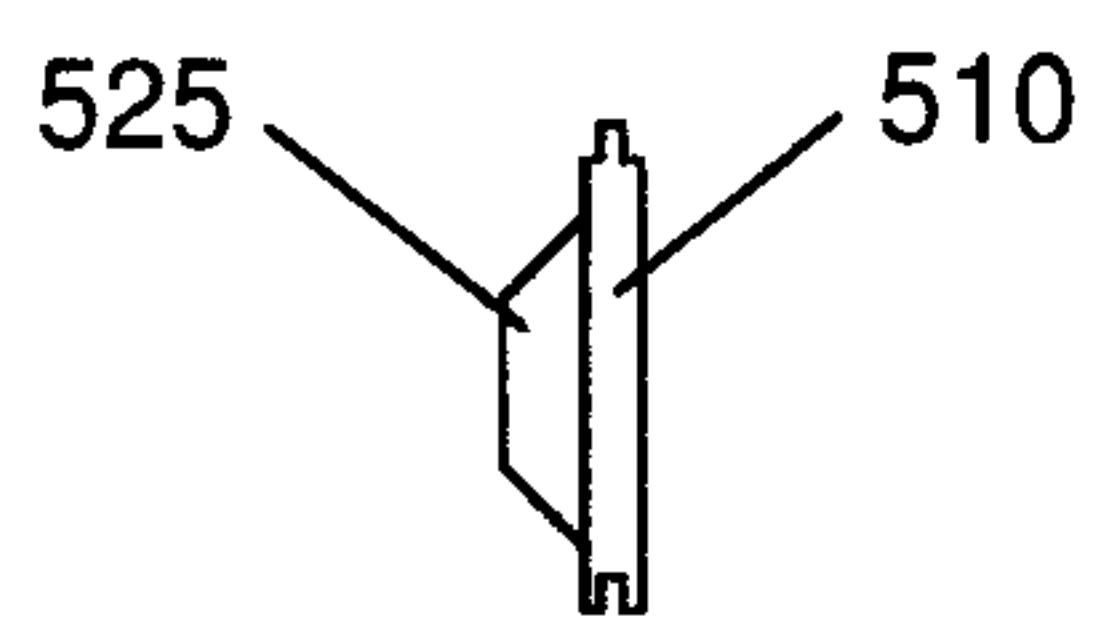


FIGURE 5B

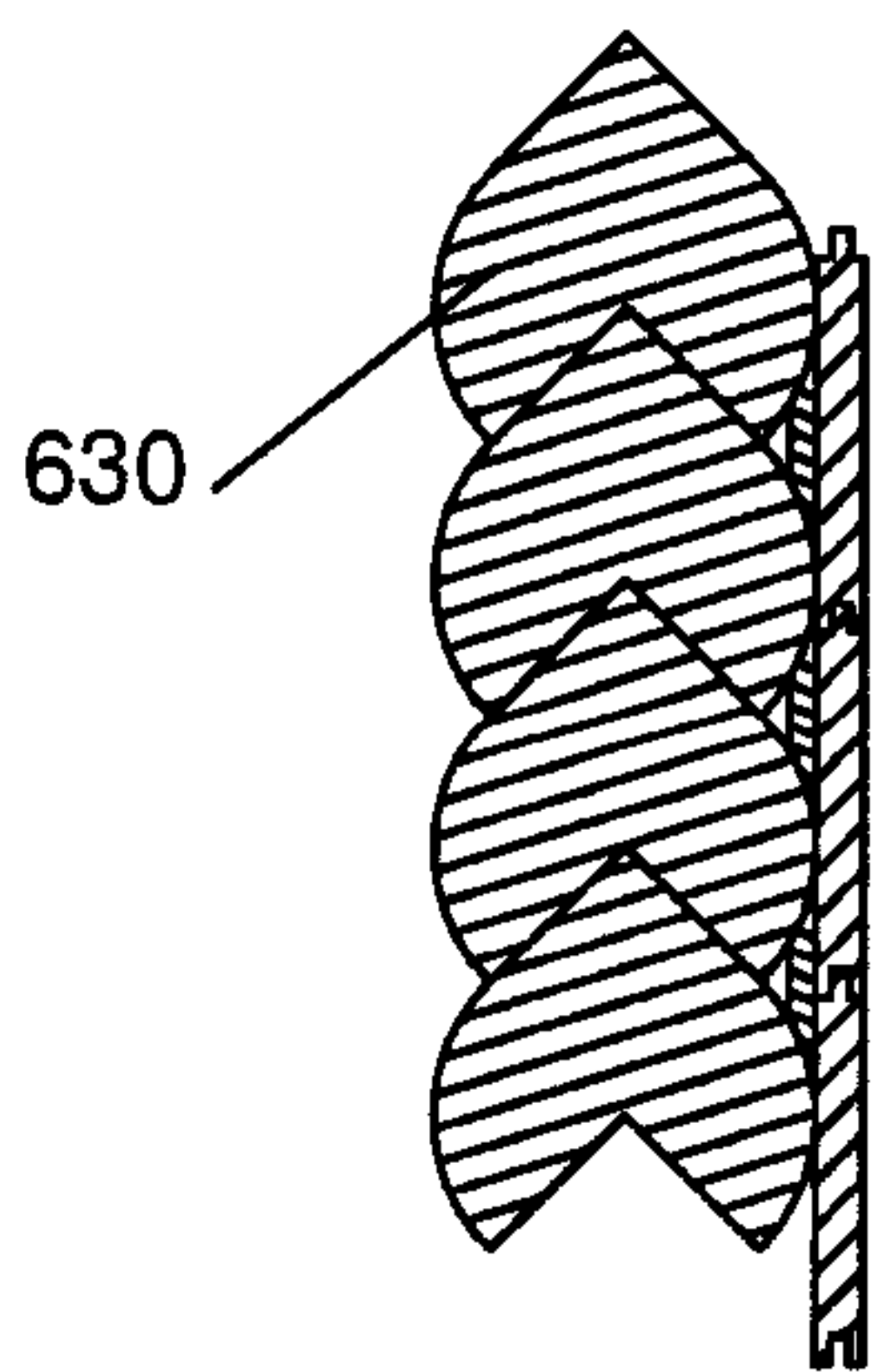


FIGURE 6A

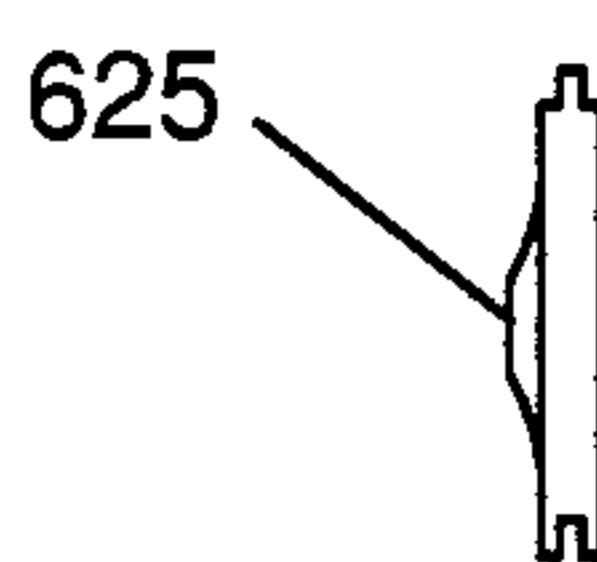


FIGURE 6B

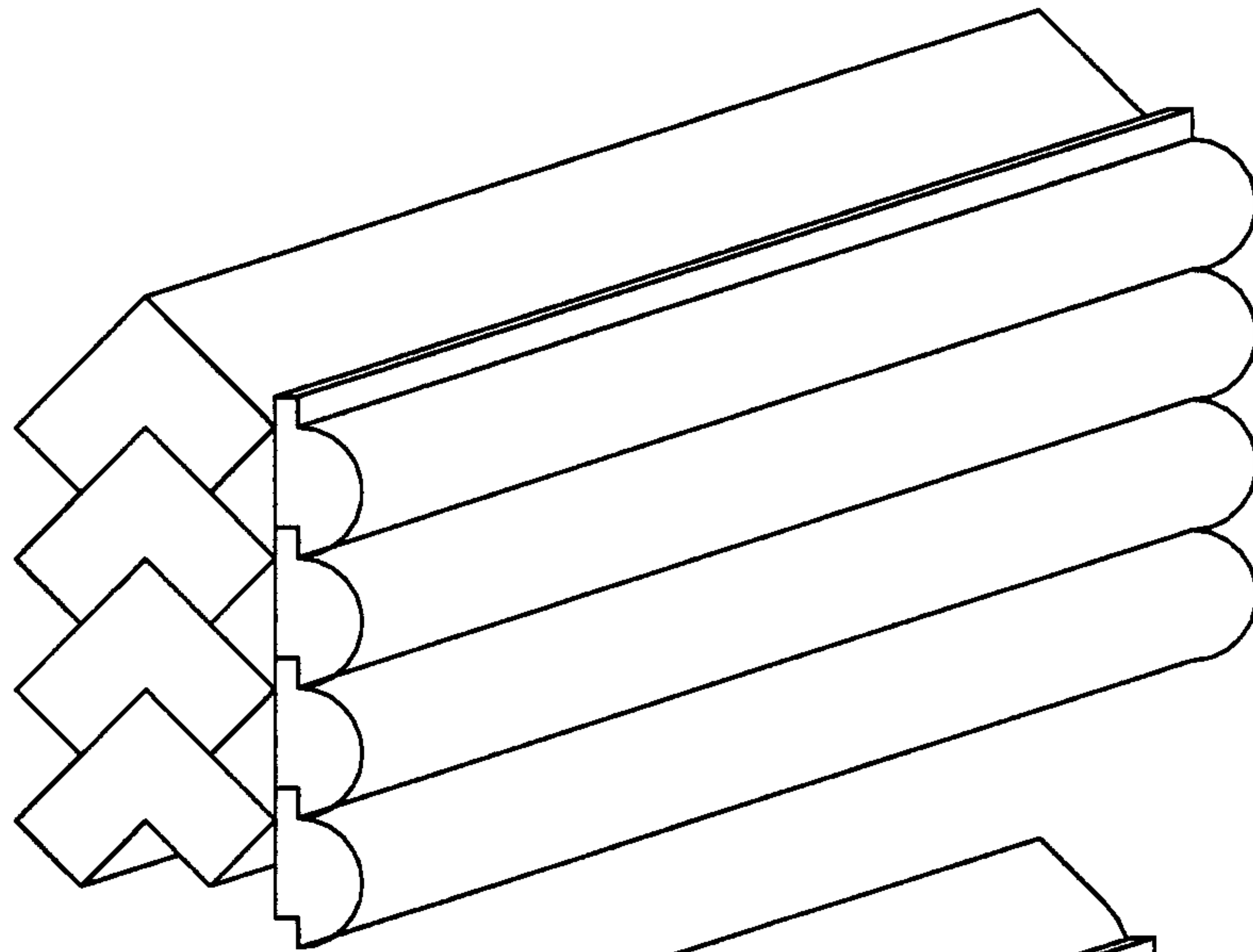


FIGURE 7A

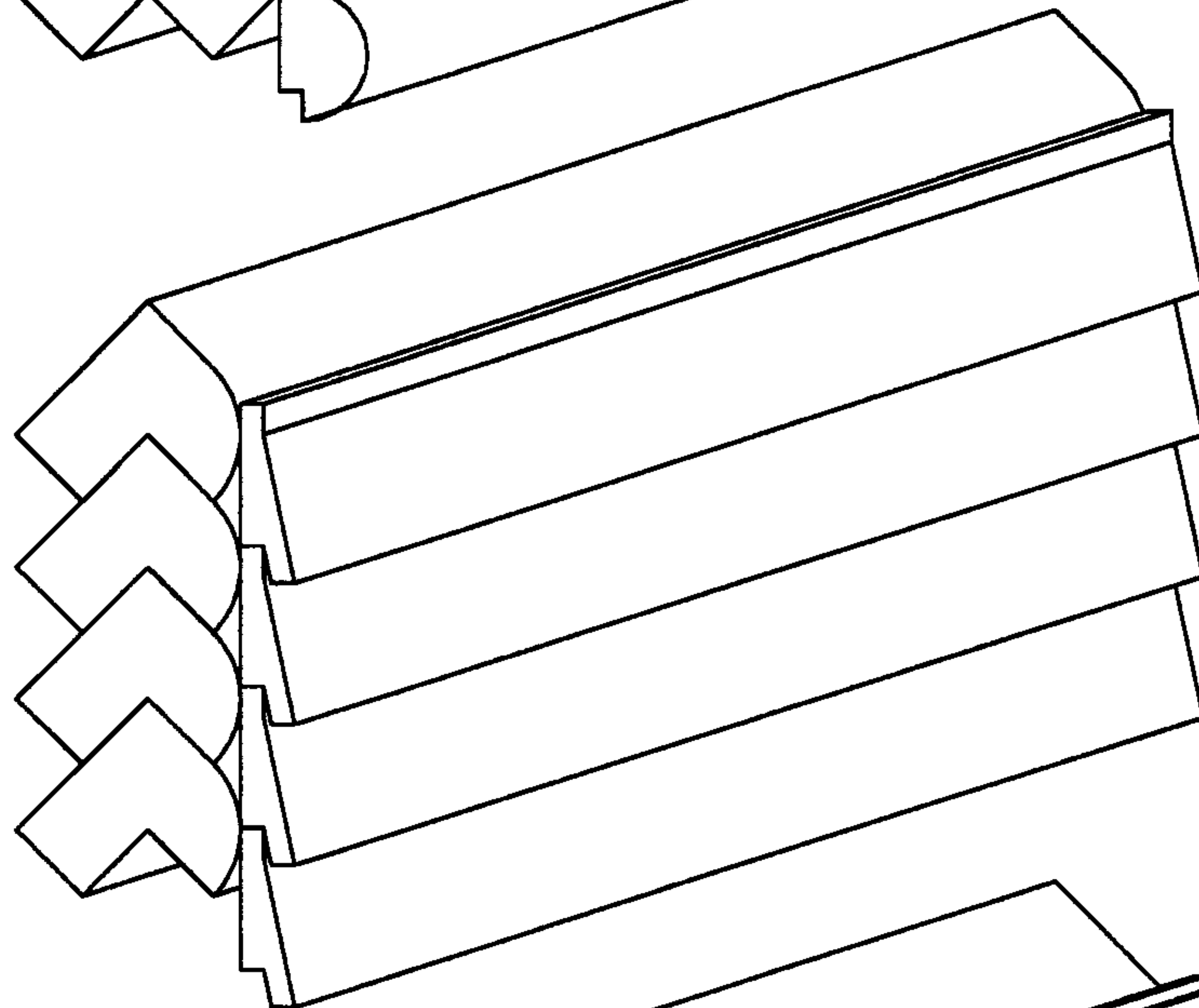


FIGURE 7B

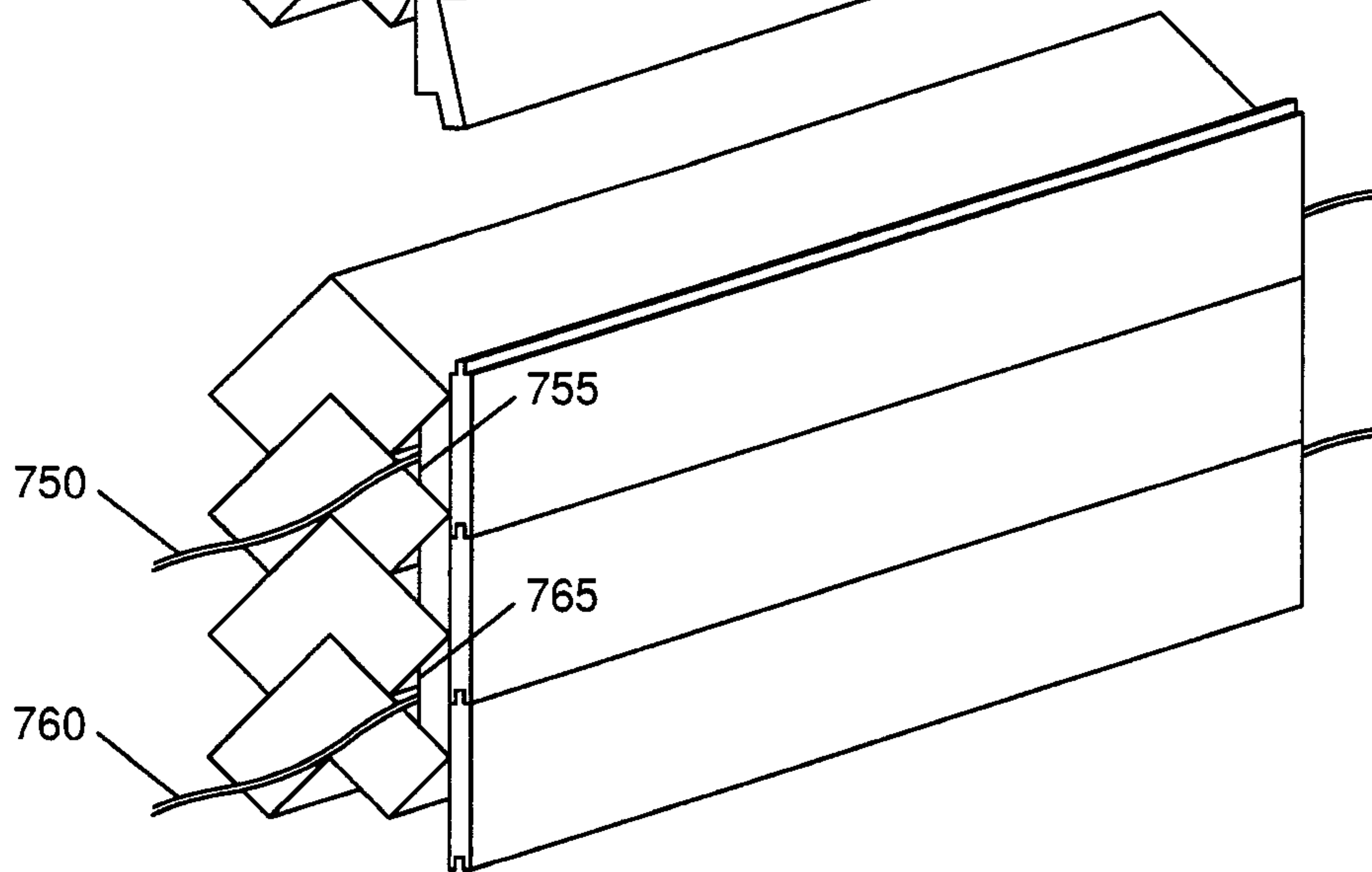


FIGURE 7C



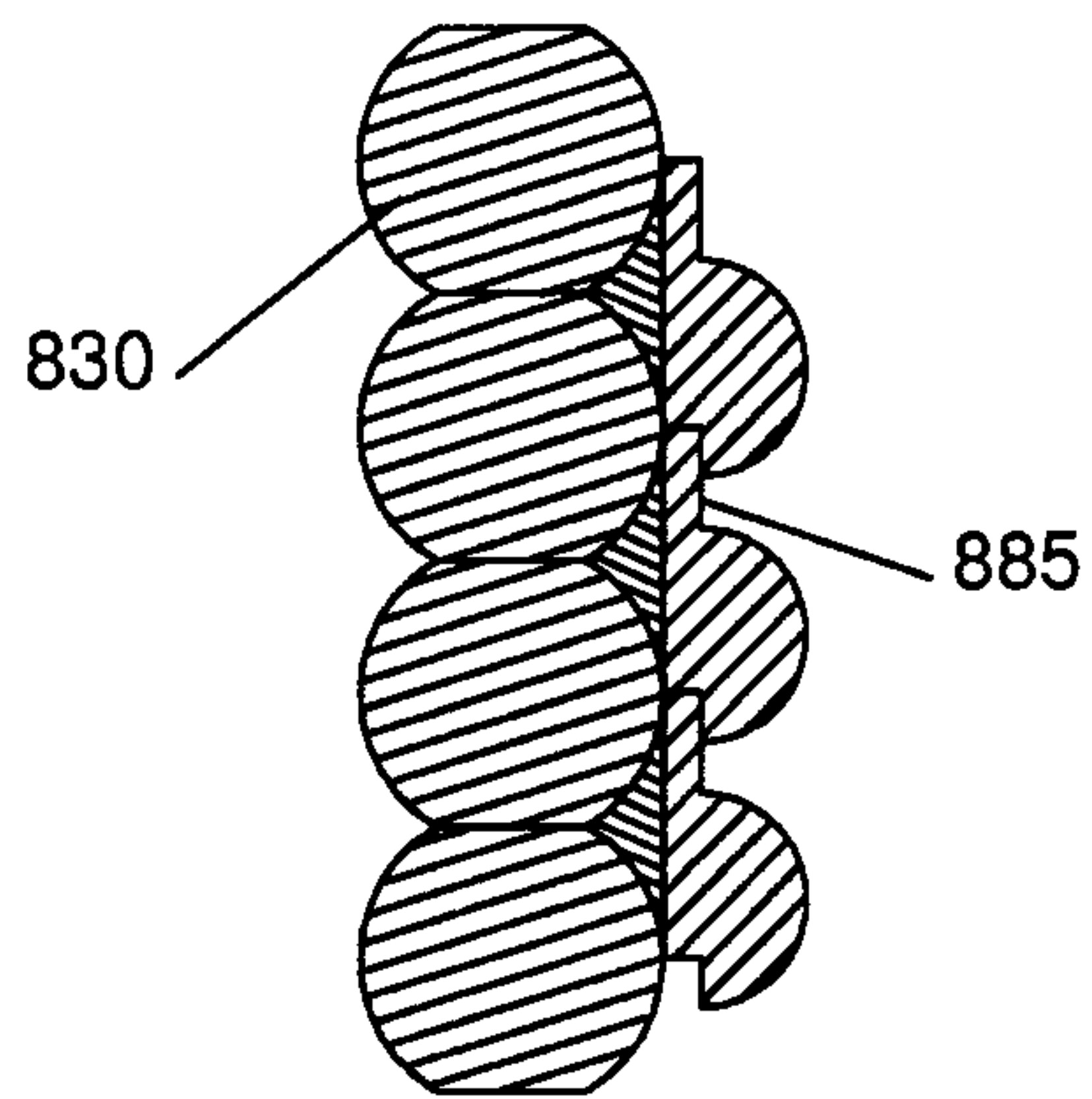


FIGURE 8A

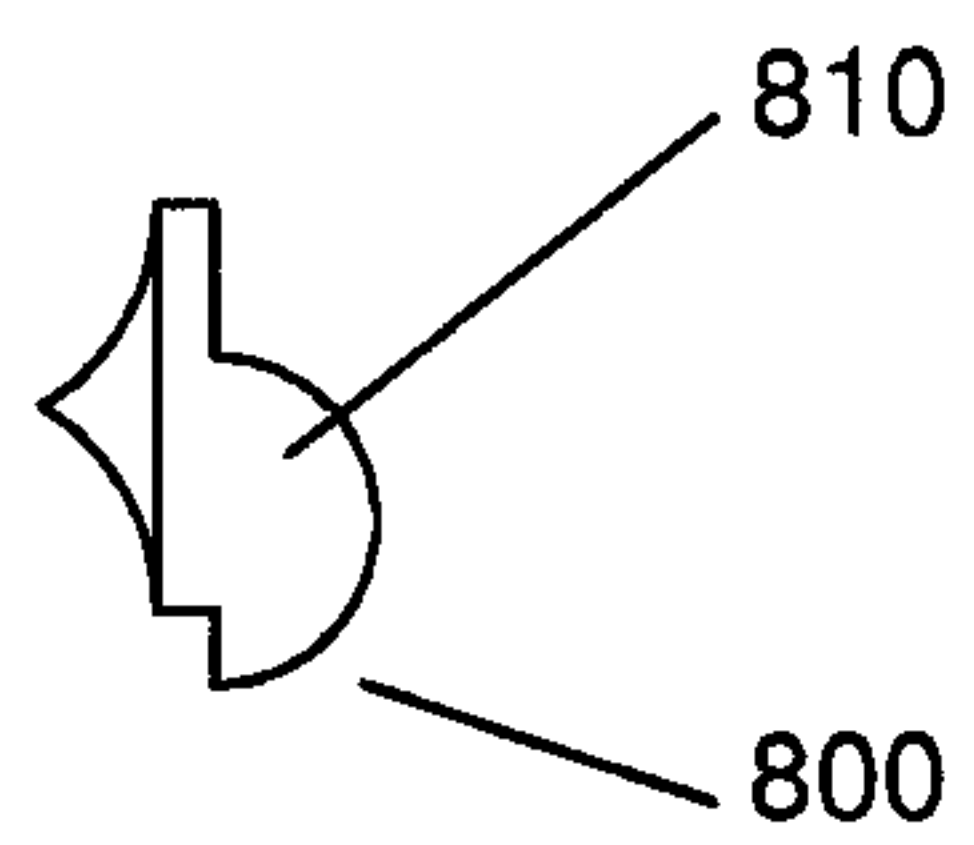


FIGURE 8B

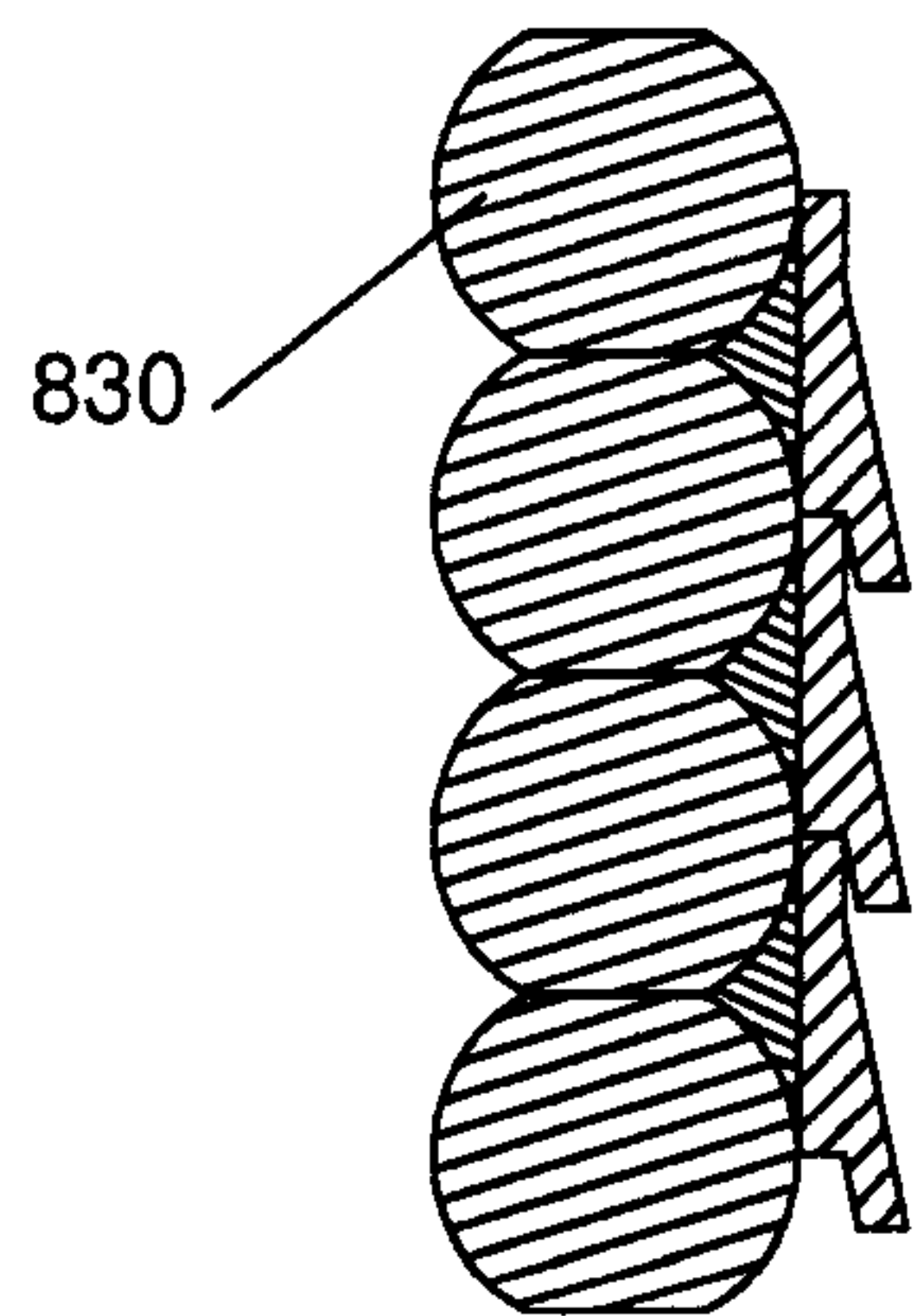


FIGURE 8C

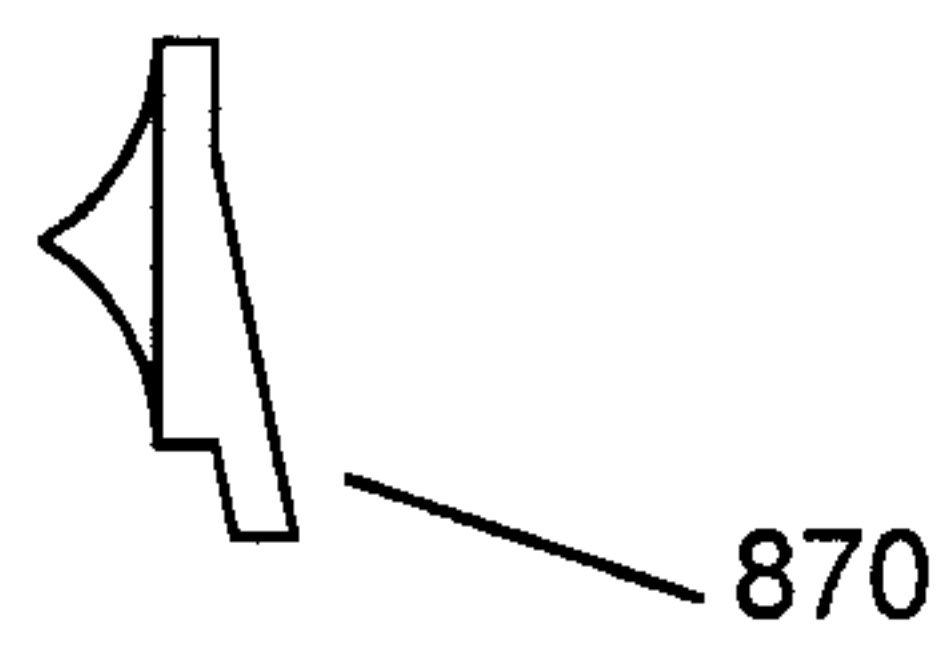


FIGURE 8D

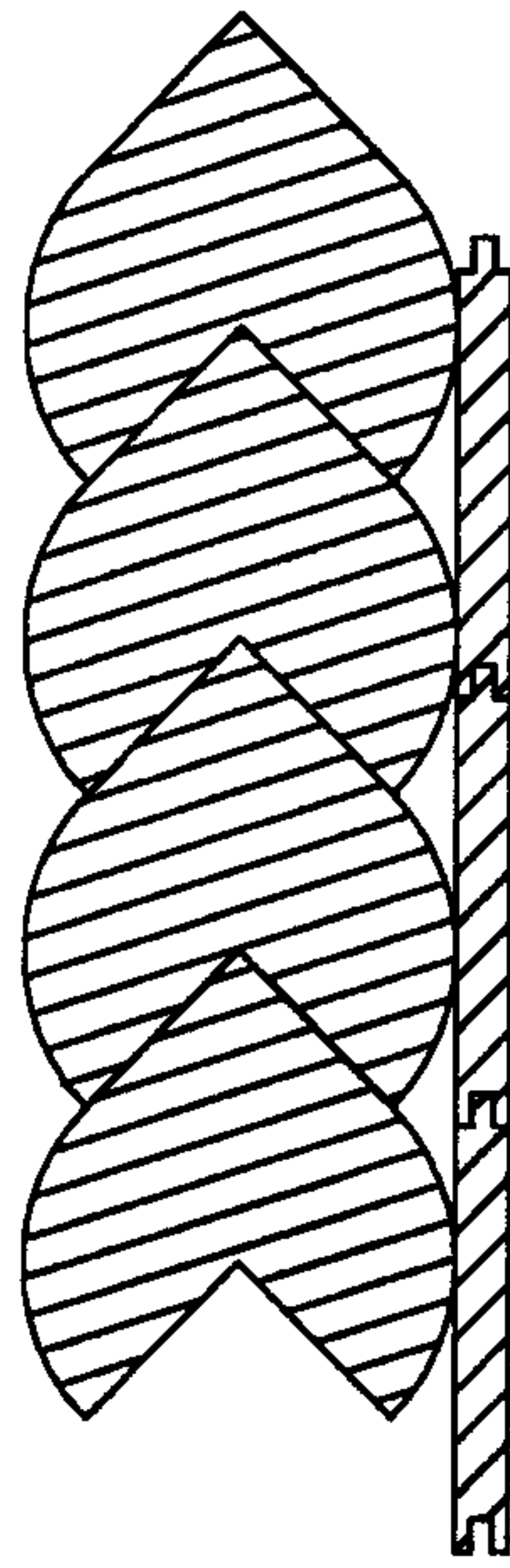


FIGURE 9

