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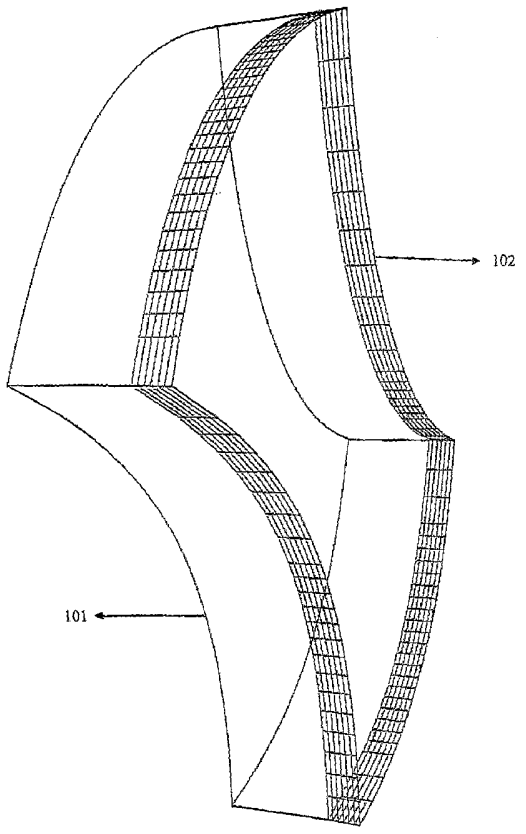
(54) **Title:** AN INTERLOCKABLE BRICK/BLOCK WITH A TOP FINISH SURFACE OF GRANITE, MARBLE, CERAMIC, PORCELAIN OR TERRA COTTA OR IMITATIONS



(57) **Abstract:** An interlockable brick/block can be interlocked side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape. The brick/block comprises a lower block portion (101,201,301) and a top finish layer (102,202,302) of granite, marble, ceramic, porcelain or terra cotta or imitations thereof that is permanently or removably fixed on the lower block portion. The lower block portion (101,201,301) has a side of given peripheral shape that defines an interlocking periphery for side-by-$jde fitting with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape, The top finish layer (102,202,302) is flat but can have a beveled edge. The brick/block is suitable for applying a top finish surface of granite, marble, ceramic, porcelain or terra cotta or imitations to a floor, pavement or the like.

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An interlockable brick/block with a top finish surface of granite, marble, ceramic, porcelain or terra cotta or imitations

Field of the Invention

This invention relates to an interlockable brick/block for applying an outer top finish surface of granite, marble, ceramic, porcelain or terra cotta or imitations thereof to a floor, wall, pavement or the like by interlocking of the brick/block side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape.

Summary of the Invention

An object of the invention is to provide an improved construction of interlocking bricks/blocks inbuilt with or fitted with granite stone, marble, ceramic, porcelain or terra cotta tiles or the like on their top face to facilitate the operation of laying the bricks/blocks so that such operation can be performed easily and accurately by relatively unskilled laborers, or by skilled laborers, so that the resulting structure will have a high degree of inherent rigidity as well as offering more options to avoid plastering expenses, while providing for a pleasing and luxurious appearance in keeping with the beneficiary's lifestyle.

According to the invention there is provided an interlockable brick/block for applying an outer top finish surface of granite, marble, ceramic, porcelain or terra cotta or imitations thereof to a floor, pavement or the like by interlocking of the brick/block side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape, wherein the brick/block comprises a lower block portion and a relatively thin and substantially flat upper top finish layer of granite, marble, ceramic, porcelain or terra cotta or imitations thereof that is permanently or removably fixed on the lower block portion.

The brick/block has a side of given peripheral shape that defines an interlocking periphery for side-by-side fitting with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape.

The generally flat upper top finish layer of granite, marble, ceramic, porcelain or terra cotta or imitations has substantially the same shape and dimensions as the lower block portion when seen in plan view and overlays on the top of the lower block portion substantially co-extensive therewith such that the outer edge of the top finish layer is

substantially in extension with the side of the lower block portion, or optionally has a peripheral skirt that fits over the side of the lower block portion, this skirt when present forming the side of the brick/block

When a brick/block according to the invention is fitted together side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape, the side of the lower block portion of the brick/block or when present the skirt of the upper top finish layer defines a peripheral joint with the adjacent bricks/blocks fitted side-to-side.

In accordance with its concept and purpose, the brick/block is adapted to be placed/laid accurately and speedily by skilled and unskilled labour with no need to cement or concrete the surface or floor or place where the brick/blocks are placed/laid.

Each interlockable brick/block according to the invention can be of the usual dimensions (notably in plan view) for laying in broken course joints; it can have a length as per requirements or to order, that can for example be approximately twice its width. Its top face is complemented to finish with a layer of granite, marble or a ceramic tile such as terra cotta or porcelain. In another aspect this top finish layer can have a folding bracket or other fixing means so any kind of stone or plaster finishing shape, e.g. marble, granite or ceramic tiles including terra cotta and porcelain could be inserted, thereby avoiding the need for plastering expenses to fix the upper top finish layer. By providing for removable fixing of the top finish layer, this also gives more options to the building owner for making present or future changes since, if they wish to change the upper top finish layer, it will be easily removable from the lower block section and a different one inserted, at choice.

Further, the invention concerns an improvement in interlocking bricks/blocks and provides an improved brick/block of the above-mentioned kind that can be erected accurately and speedily without the use of mortar or cement, as well as providing a wide choice for the builder to use marble or granite tiles or other ceramic tiles such as terra cotta or porcelain, allowing the optional use of a finishing touch of plaster to fix the top finish layer as per requirements. It also keeps open options for color and design choice as well as material choice to remove the upper top finish layer from the brackets or removable fixing means where provided, and insert new layers of marble/granite/ceramic or other top finish layers.

In some embodiments of the invention, the full body of the interlocking brick will have one particular shape and will always be manufactured from the same material, with male and/or female fixtures on one or both faces for securing the upper top finish layer and on the sides for interlocking with other blocks. The bricks/blocks can be made in shapes and sizes as per demand and requirements.

The manufacturing process of the interlocking brick/block is well known in the art and can follow the design of most common bricks/blocks. The bricks/blocks can be substantially square, rectangular or oblong with different dimensions in both planes (vertical and horizontal), or can have other shapes, and the bricks/blocks can have male and female shapes or flat faces, or other shapes, on both sides, according to the demand and requirements.

Advantageously, the top face of the lower block portion and the underneath face of the upper top finish layer have complementary means for securing the top finish layer on the lower block portion, for example the complementary securing means comprise facing protrusions and recesses on the top face of the lower block portion and the underneath face of the top finish layer.

When convenient or required, the top finish layer is secured to the top of the lower block portion layer by an adhesive. Alternatively, the top finish layer is inbuilt with the lower block portion during its manufacture.

In advantageous embodiments, the top finish layer has a bevel whose outer beveled edge comes to meet usually against the side of the lower block portion.

In some embodiments, the top finish layer has an integral peripheral skirt that fits over the side of the lower block portion. In a modification, the top finish layer fits in a recess in the top of the lower block portion.

The invention also covers a structure with an outer top finish surface of granite, marble, ceramic, porcelain or terra cotta, or imitations, provided by a series of interlocked bricks/blocks as herein defined. Possibly, in this structure, the joints between the adjacent bricks/blocks and between the bricks/blocks and the surface or floor where they are placed are free from mortar, cement or the like.

Brief Description of the Drawings

Embodiments of the brick/block according to the invention will now be described by way of example with reference to the accompanying schematic drawings showing

various bricks/blocks as they are adapted for laying, but without any restriction on the size and shapes of the blocks shown as examples. In the drawings:

Fig. 1 is a perspective view of a first embodiment of brick/block according to the invention;

Fig. 2 is a perspective view of a second embodiment of brick/block according to the invention;

Fig. 3 is a perspective view of a third embodiment of brick/block according to the invention;

Fig. 4 is a perspective view of a fourth embodiment of brick/block according to the invention;

Fig. 5 is a perspective view of a fifth embodiment of brick/block according to the invention;

Fig. 6 is a perspective view of a sixth embodiment of brick/block according to the invention;

Fig. 7 is a perspective view of a seventh embodiment of brick/block according to the invention;

Fig. 8 is a perspective view of a lower block portion of another embodiment of brick/block according to the invention, the lower block portion having apertures for cooperating with complementary fixing studs on a top finish layer as in Fig. 9; and

Fig. 9 is a perspective view of a covering layer of brick/block according to the invention, the top finish layer having fixing studs for cooperating with complementary apertures on a lower block portion as in Fig. 8;

Fig. 10 is a perspective view of a lower block portion of another embodiment of brick/block according to the invention, the block portion having fixing studs for cooperating with complementary apertures in a top finish layer as in Fig. 11;

Fig. 11 is a perspective view of a top finish layer of a brick/block according to the invention, the top finish layer having apertures for cooperating with complementary fixing studs on a lower block portion as in Fig. 10;

Fig. 12 is a perspective view of a brick/block like in Fig. 1, but showing the top finish layer separated from the lower block portion; and

Fig. 13 is a perspective view of a brick/block having the same overall shape as in Fig. 1, but wherein the schematically-represented top finish layer has a peripheral skirt that covers at least partially the lower block portion.

Detailed Description

The drawings illustrate different embodiments of interlockable brick/block for applying an outer top finish surface of granite, marble, ceramic, porcelain or terra cotta or imitations thereof to a floor, wall, pavement or the like. The bricks/blocks can be interlocked side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape. Each brick/block comprises a lower block portion and a relatively thin and substantially flat top finish layer of granite, marble, ceramic, porcelain or terra cotta or imitations thereof that is permanently or removably fixed on the lower block portion.

For example, Fig. 1 shows a lower block portion 101 of concrete or equivalent material, fitted with a top finish layer 102 of granite or marble or a ceramic tile such as terra cotta or porcelain.

The lower block portion 101 has a flat top and bottom and a side of given peripheral shape that defines an interlocking periphery for side-by-side fitting with identical bricks/blocks having sides of complementary shape. In the case of Fig. 1, two opposite sides of the block are incurved concave and the other two opposite sides of the block are outwardly convex. When the blocks are fitted together, the convex sides of one block fit in the concave sides of another block.

The upper top finish layer 102 is flat and has substantially the same shape and dimensions as the lower block portion 101, when seen in plan view. The top finish layer 102 overlays on the top of the lower block portion 101 co-extensive therewith such that the outer edge of the top finish layer is substantially in extension with the side of the lower block portion.

When this brick/block 101/102 is fitted together side-by-side with identical bricks/blocks 101/102, the outer edge of the top finish layer 102 and the side of the lower block portion 101 of the brick/block define a peripheral joint with the adjacent bricks/blocks fitted side-to-side.

Fig. 2 shows a lower block portion 201 of concrete or equivalent material fitted with a top finish layer 202 of granite or marble or a ceramic tile such as terra cotta or porcelain.

The lower block portion 201 has a flat top and bottom and a side of given peripheral shape that defines an interlocking periphery for side-by-side fitting with identical bricks/blocks having sides of complementary shape. In the case of Fig. 2, two opposite end sides of the block each have two flats joined by an inclined section and the other two opposite sides of the block each have three flats joined by two inclined sections. When the blocks are fitted together, the end face of one block fits in the complementary end face of another block, and the side face of one block fits in the complementary side face of another block.

As before, the top finish layer 202 is flat and has substantially the same shape and dimensions as the lower block portion 201 when seen in plan view. The upper layer 202 overlays on the top of the lower block portion 201 co-extensive therewith such that the outer edge of the top finish layer is substantially in extension with the side of the lower block portion.

When this brick/block 201/202 is fitted together side-by-side with identical bricks/blocks 201/202, the outer edge of the top finish layer 202 and the side of the lower block portion 201 of the brick/block define a peripheral joint with the adjacent bricks/blocks fitted side-to-side.

Fig. 3 shows a lower block portion 301 of concrete or equivalent material fitted with an upper covering layer 302 of granite or marble or a ceramic tile such as terra cotta or porcelain.

The lower block portion 301 has a flat top and bottom and a side of given peripheral shape that defines an interlocking periphery for side-by-side fitting with similar bricks/blocks having sides of complementary shape. In the case of Fig. 3 the sides of the block are composed of a series of flats, inwardly concave surfaces and outwardly convex surfaces.

As before, the top finish layer 302 is flat and has substantially the same shape and dimensions as the lower block portion 301 when seen in plan view. The top finish layer 302 overlays on the top of the lower block portion 301 co-extensive therewith such that the outer edge of the top finish layer is substantially in extension with the side of the lower block portion.

When this brick/block 301/302 is fitted together side-by-side with identical bricks/blocks 301/302 and with similar blocks of complementary shape, the outer edge of the top

finish layer 302 and the side of the lower block portion 301 of the brick/block define a peripheral joint with the adjacent bricks/blocks fitted side-to-side.

Fig. 4, Fig. 5 and Fig. 7 show embodiments of a brick/block that are similar to those of Fig, 2, Fig. 1 and Fig. 3 respectively, but here the top finish layer is no longer uniformly flat but has a beveled edge around its periphery leaving a flat central part. In these embodiments, it is the narrow outer edge of the bevel that meets with and is substantially in extension with the side of the lower block portion. These bevels provide for a decorative effect when the bricks/blocks are fitted together. Also, in this case the peripheral joint is formed between the sides of the lower block portions and only the extreme thin edge of the top finish layer's bevel which comes to meet with and form part of this peripheral joint.

Fig. 6 also shows an embodiment having an upper layer with beveled edges. In this case the brick/block is substantially in the form of a rectangular parallelepiped with approximately square ends and rectangular sides about twice as wide as the ends.

Fig. 8 shows a block portion in the shape of a rectangular parallelepiped having in its upper face (and possibly also in its lower face) an array of for instance six cylindrical apertures 802 arranged in two rows of three, for receiving a corresponding array of six protruding studs 902 (see Fig. 9) that are arranged only on the underneath face of an upper top finish layer of granite, marble, ceramic, porcelain or terra cotta or imitations thereof, to enable the top finish layer to be secured to the block portion to form a unitary brick/block. This can provide for removable securing of the top finish layer; however, it is possible to use an adhesive cement or glue to make a firm connection. The apertures 802 can be formed in the block portion during its manufacture. The studs 902 can be formed by machining the bottom surface of the top finish layer of granite or marble, or formed when a ceramic tile is produced, or they can be fitted.

Alternatively, it is possible to secure the top finish layer of granite, marble, ceramic, porcelain or terra cotta to the block portion during production of the block.

Figs. 10 and 11 show the reverse securing arrangement to that shown in Figs. 8 and 9, namely where the block portion has an array of for example six fixing studs for cooperating with a complementary array of apertures in a top finish layer as shown in Fig. 11. The apertures can be formed in the top finish layer during its manufacture. The studs can be formed by machining the top surface of the block portion or preferably formed when the block portion is manufactured, or they can be fitted.

Fig. 12 is a perspective view of a brick/block like in Fig. 1, but showing the top finish layer 1202 separated from the lower block portion 1201.

Fig. 13 is a perspective view of a brick/block having the same overall shape as that of Fig. 1, but wherein the schematically represented upper top finish layer 1301 has a peripheral skirt that covers at least partially the lower block portion 1302. The height of the lower block portion and of the peripheral skirt is according to requirements. In this example, it is the outer periphery of the upper top finish layer 1301's skirt that forms the interlocking periphery of the overall brick/block. The same principle can be applied to bricks/blocks of other shapes.

In a modification, the top finish layer fits in a recess in the top of the lower block portion (1301 would be the lower block portion of Fig. 13, and 1302 the top finish layer). In this modification, the upper top finish layer would extend to close to the peripheral side of the lower block portion whose side extends upwardly by a peripheral rim that could be beveled if desired.

The shape of the bricks/blocks shown in the drawings is given by way of example. Other shapes are possible, and the bricks/blocks can be of different sizes and thicknesses according to demand and requirements. The top finish layer will generally be substantially thinner than the overall brick/block. The overall thickness of the brick/block should be sufficient to form an interlocking block whose side defines an interlocking periphery.

Imitations of granite and marble cover generally any imitation stone of similar appearance and hardness. Imitations of ceramic tiles cover generally any material of similar appearance, texture and rigidity.

The blocks/bricks of the invention are particularly suitable for flooring, pavements, passageways, paths and the like.

CLAIMS

1. An interlockable brick/block for applying an outer top finish surface of granite, marble, ceramic, porcelain or terra cotta or imitations thereof to a floor, pavement or the like by interlocking of the brick/block side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape, wherein the brick/block comprises a lower block portion (101,201,301) and a relatively thin and substantially flat top finish layer (102,202,302) of granite, marble, ceramic, porcelain or terra cotta, or imitations thereof, that is permanently or removably fixed on the lower block portion (101,201,301),

the brick/block having a side of given peripheral shape that defines an interlocking periphery for side-by-side fitting with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape,

the top finish layer (102,202,302) having substantially the same shape and dimensions as the lower block portion (101,201,301) when seen in plan view and overlaying on the top of the lower block portion (101,201,301) substantially co-extensive therewith, the top finish layer having a peripheral edge that extends to the side of the lower block portion (101,201,301) and optionally having a peripheral skirt that fits over the side of the lower block portion, said skirt when present forming the side of the brick/block,

whereby when the brick/block is fitted together side-by-side with identical bricks/blocks and/or with similar bricks/blocks having sides of complementary shape, the side of the lower block portion (101,201,301) of the brick/block or when present the skirt of the top finish layer defines a peripheral joint with the adjacent bricks/blocks fitted side-to-side,

the brick/block being adapted to be placed/laid accurately and speedily by skilled and unskilled labour with no need to cement or concrete the surface or floor where the bricks/blocks are placed/laid.

2. The interlockable brick/block of claim 1, wherein the top face of the lower block portion (101,201,301) and the underneath face of the top finish layer (102,202,302) have complementary means for securing the top finish layer (102,202,302) on the lower block portion (101,201,301).

3. The interlockable brick/block of claim 2, wherein the complementary securing means comprise facing protrusions and recesses on the top face of the lower

block portion (101,201,301) and on the underneath face of the top finish layer (102,202,302).

4. The interlockable brick/block of any preceding claim, wherein the top finish layer (102,202,302) is secured to the top of the lower block portion (101,201,301) by an adhesive.

5. The interlockable brick/block of claim 1, wherein the top finish layer (102,202,302) is inbuilt with the lower block portion (101,201,301) during its manufacture.

6. The interlockable brick/block of any preceding claim, wherein the top finish layer (102,202,302) has an outer beveled edge comes to meet the lower block portion (101,201,301).

7. The interlockable brick/block of any one of claims 1 to 5, wherein the top finish layer has an integral peripheral skirt that fits over the side of the lower block portion.

8. The interlockable brick/block of any one of claims 1 to 5, wherein the top finish layer fits in a recess in the top of the lower block portion.

9. A floor, pavement or the like with a top finish surface of granite, marble, ceramic, porcelain or terra cotta, or imitations, provided by a series of interlocked bricks/blocks according to any one of claims 1 to 8.

10. The floor, pavement or the like of claim 9 wherein joints between the adjacent bricks/blocks and between the bricks/blocks and the surface or floor where they are placed are free from mortar, cement or the like.

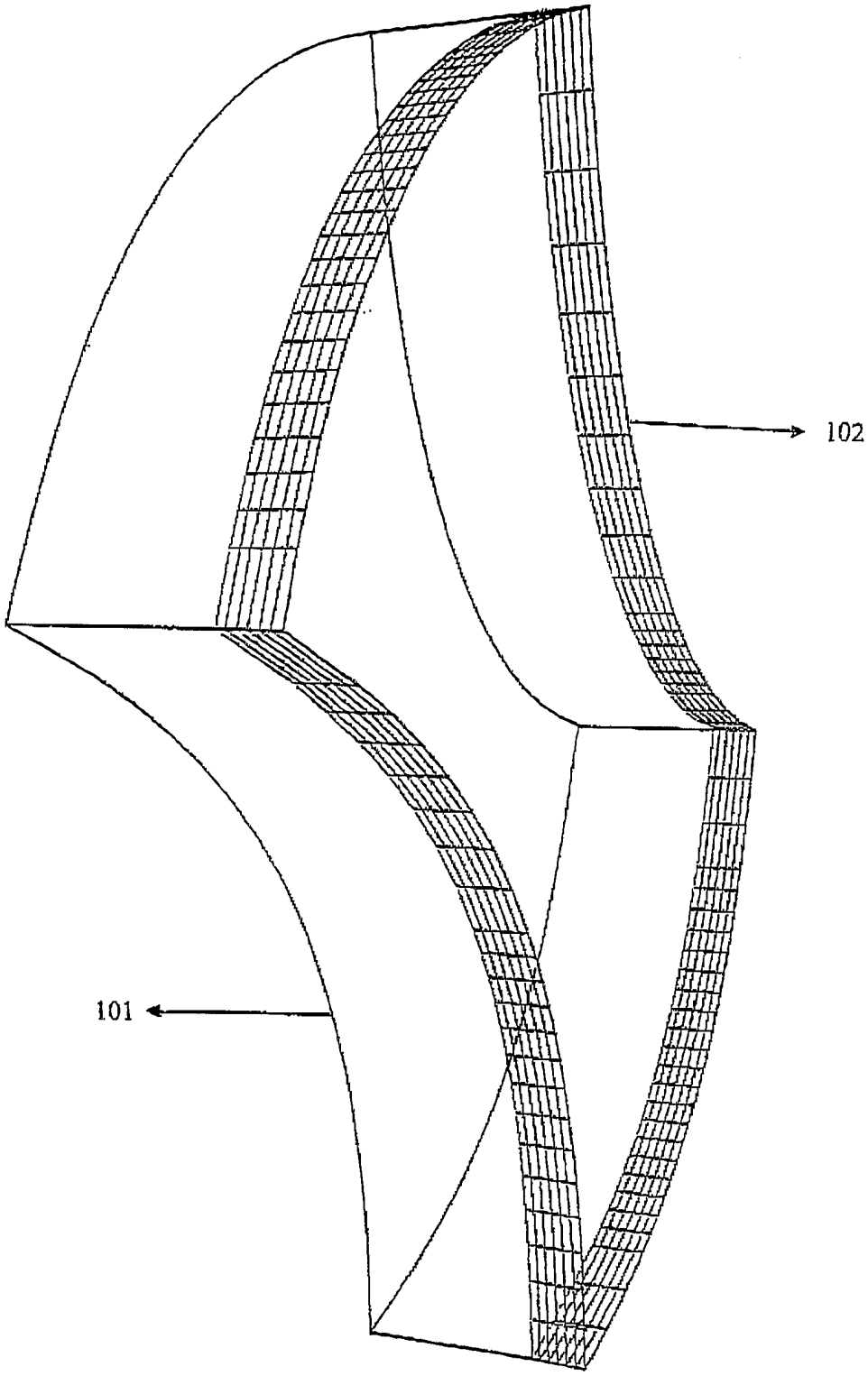


Figure 1

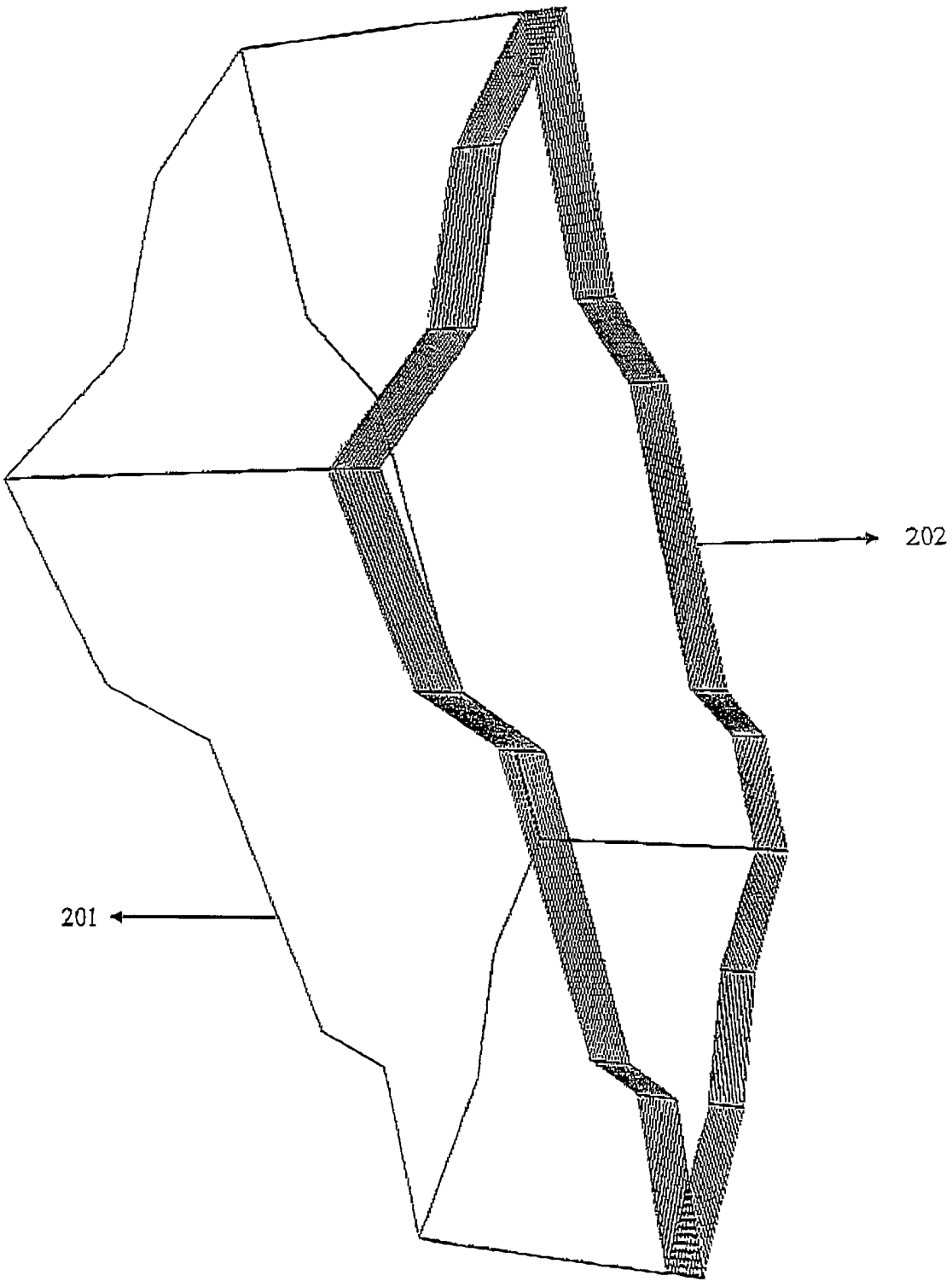
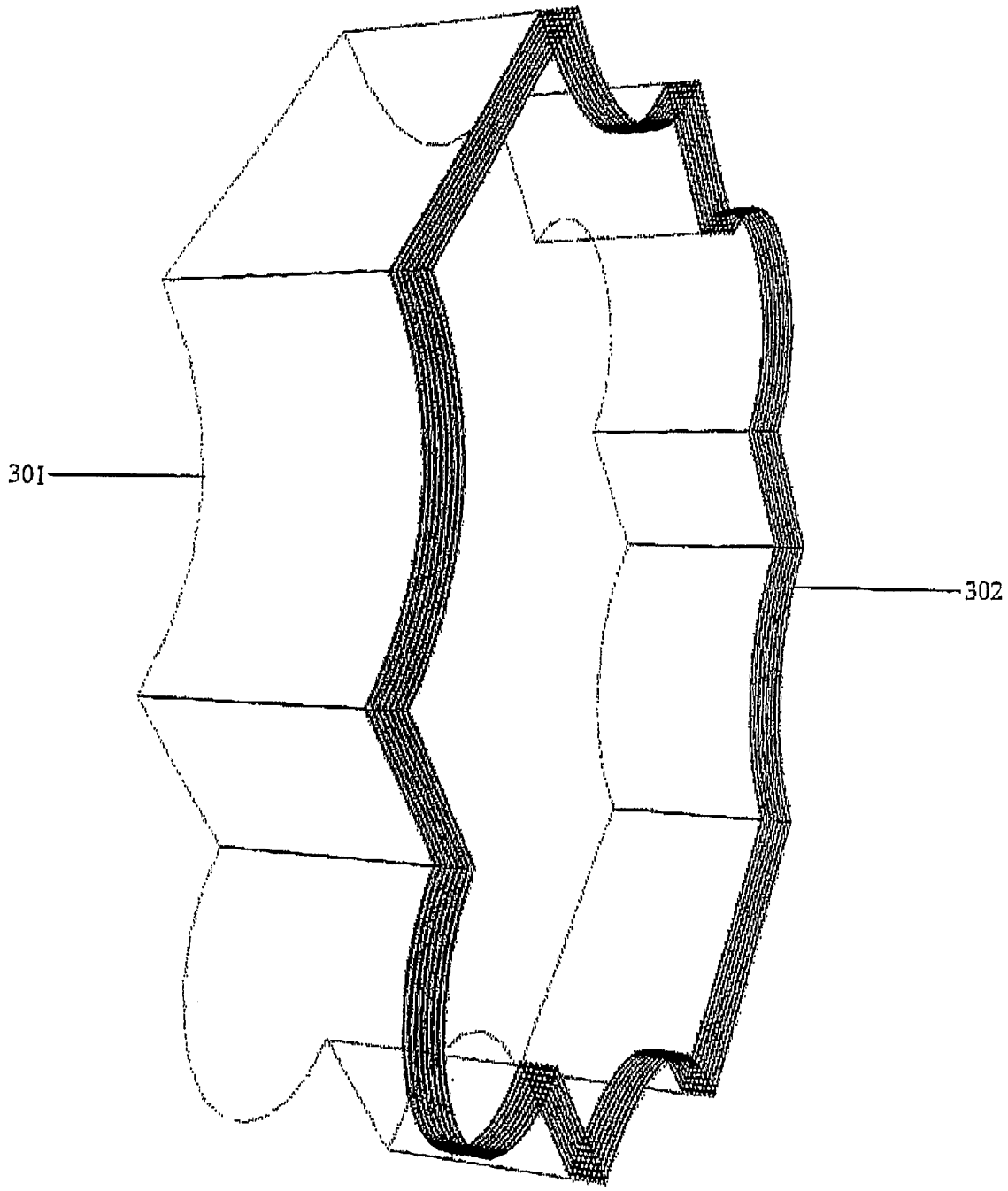


Figure 2



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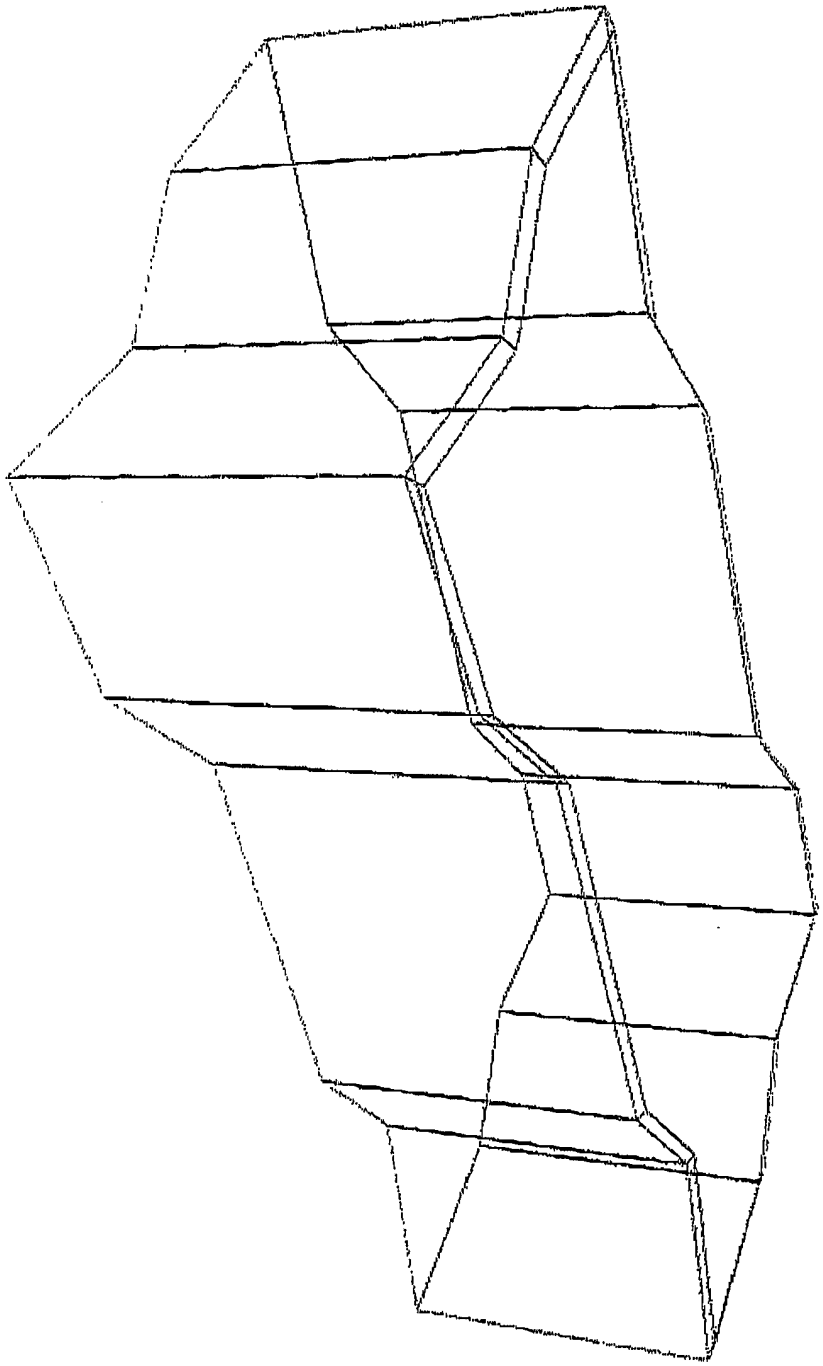

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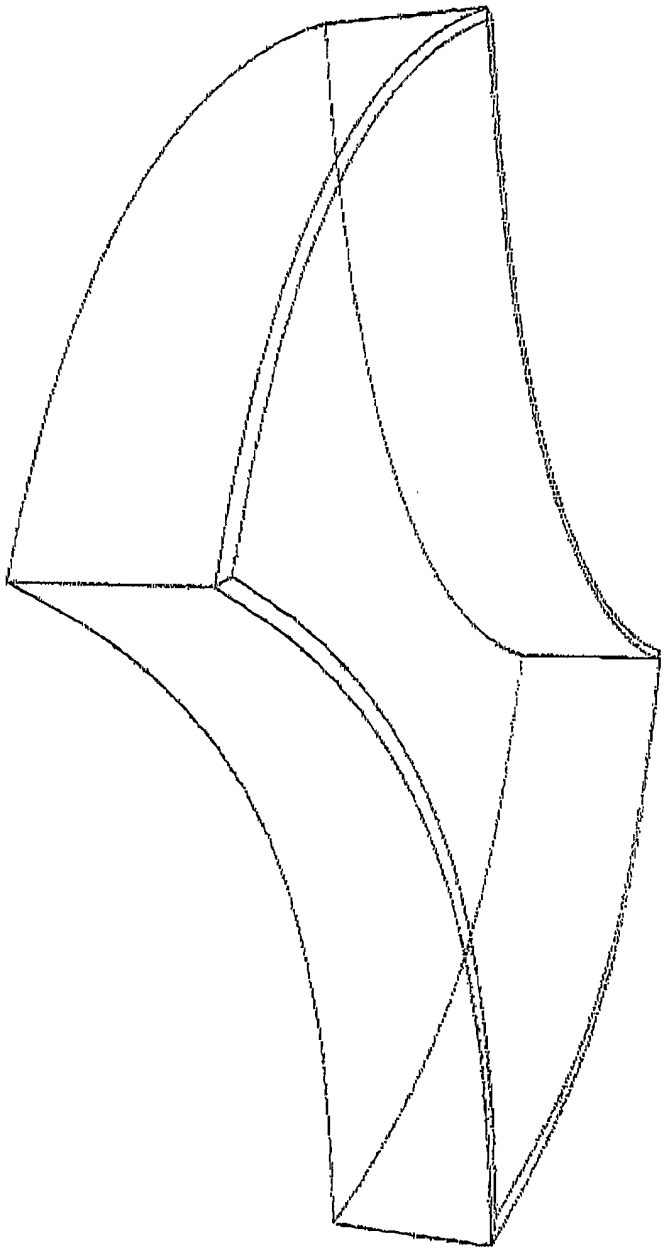

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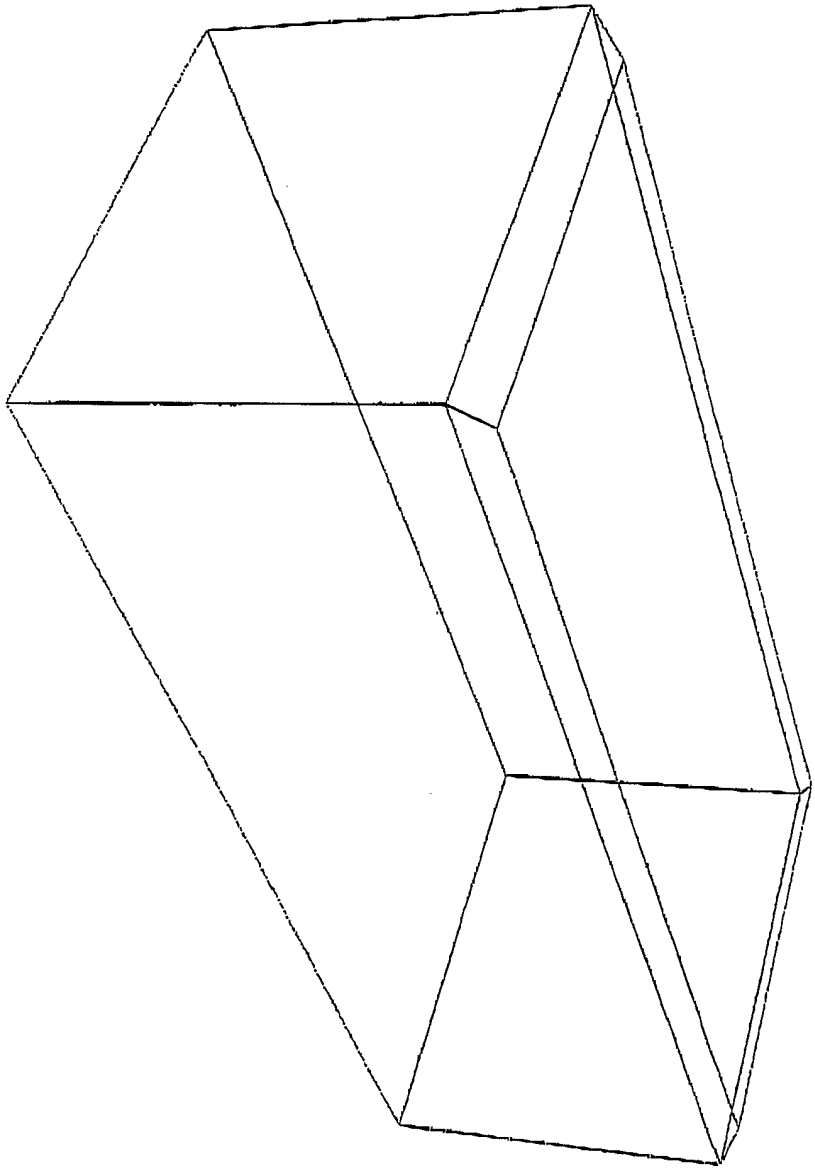
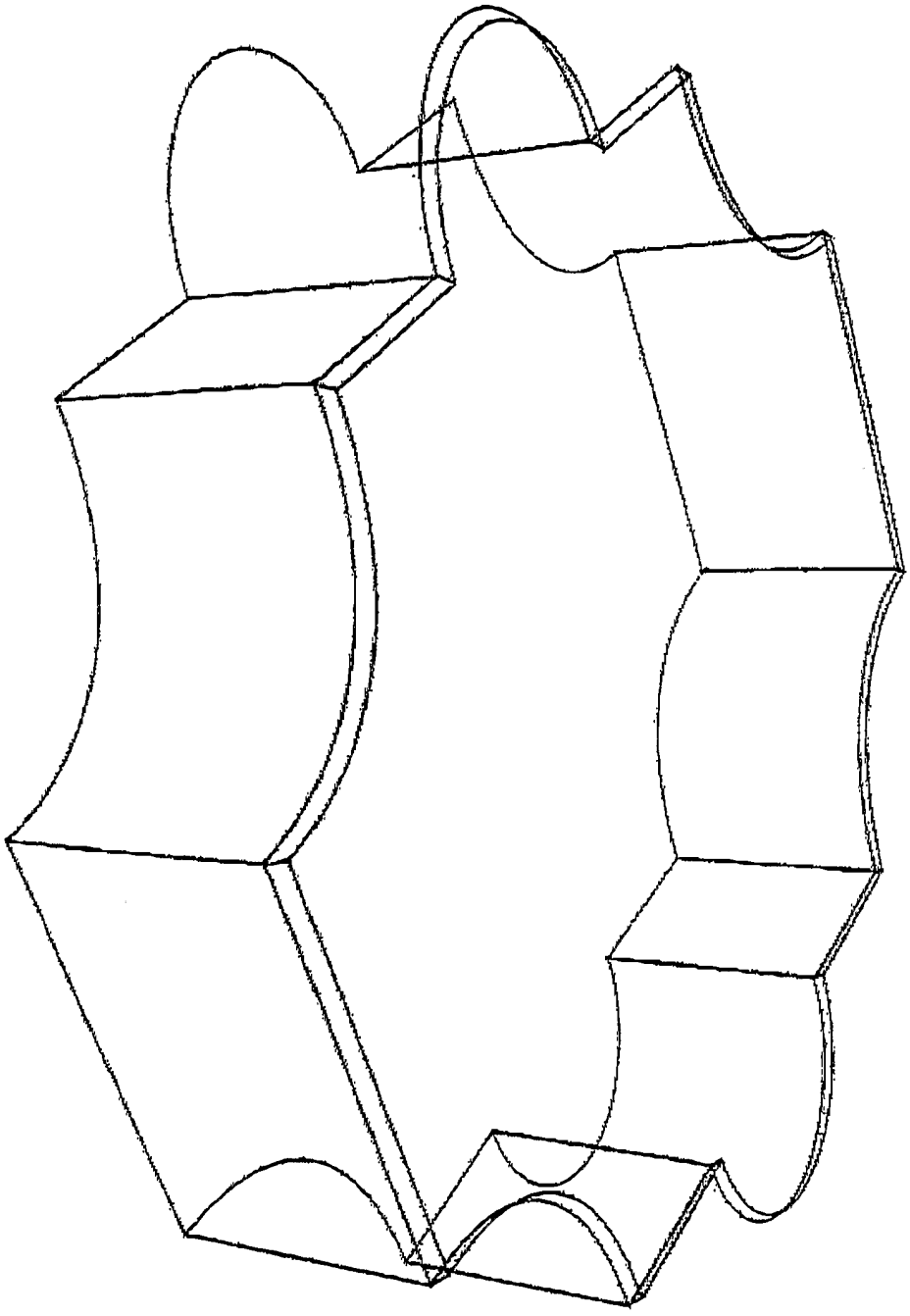


Figure 6



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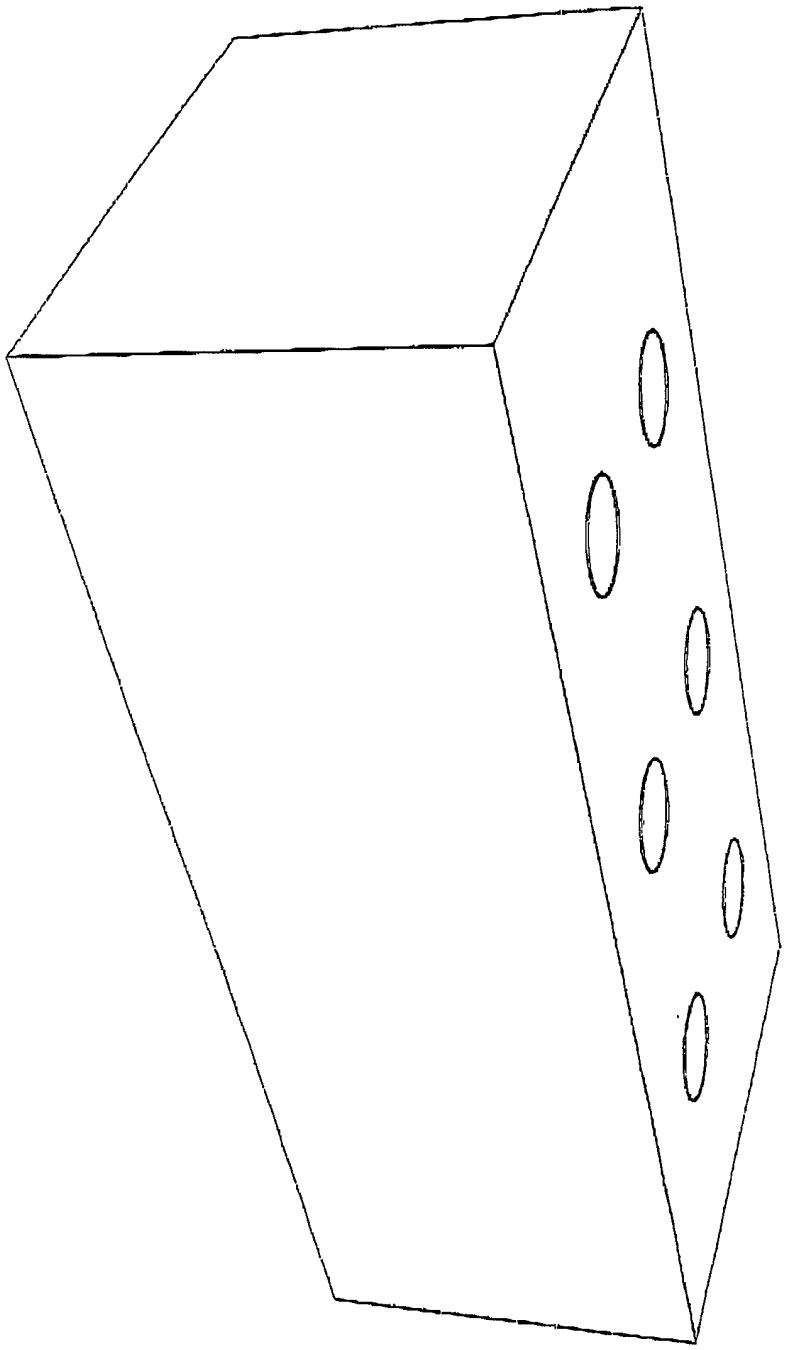

Figure 8

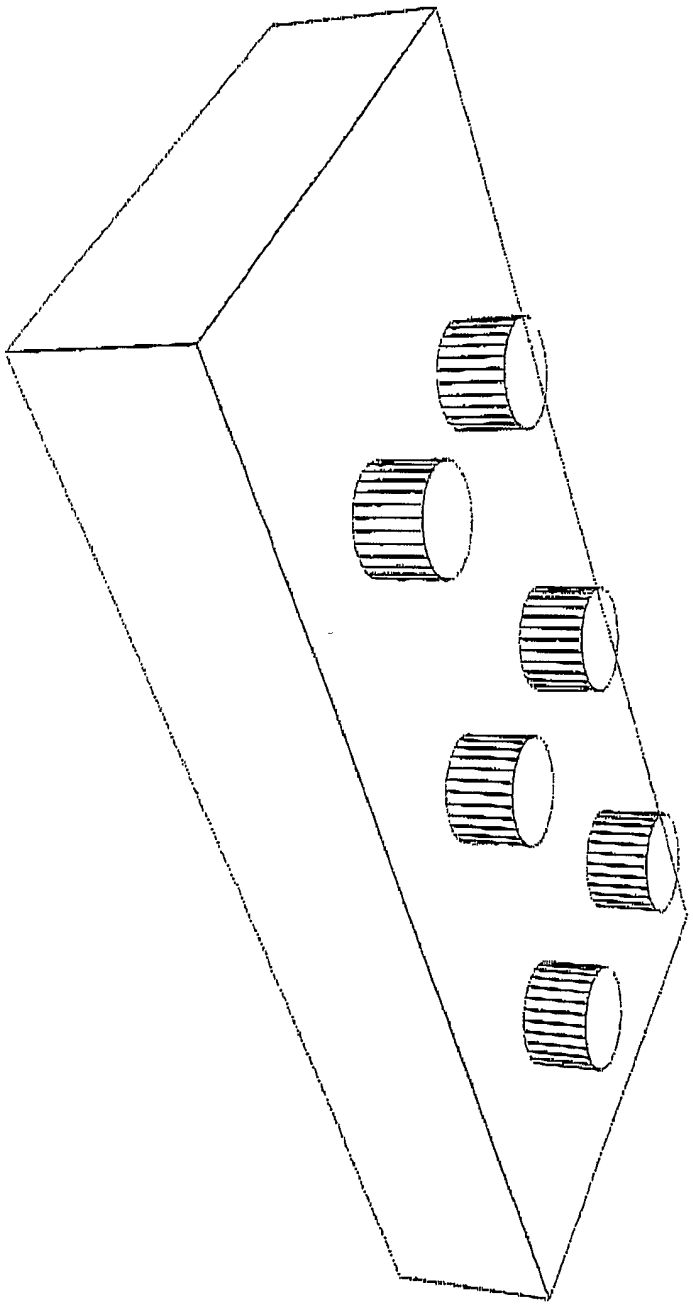

Figure 9

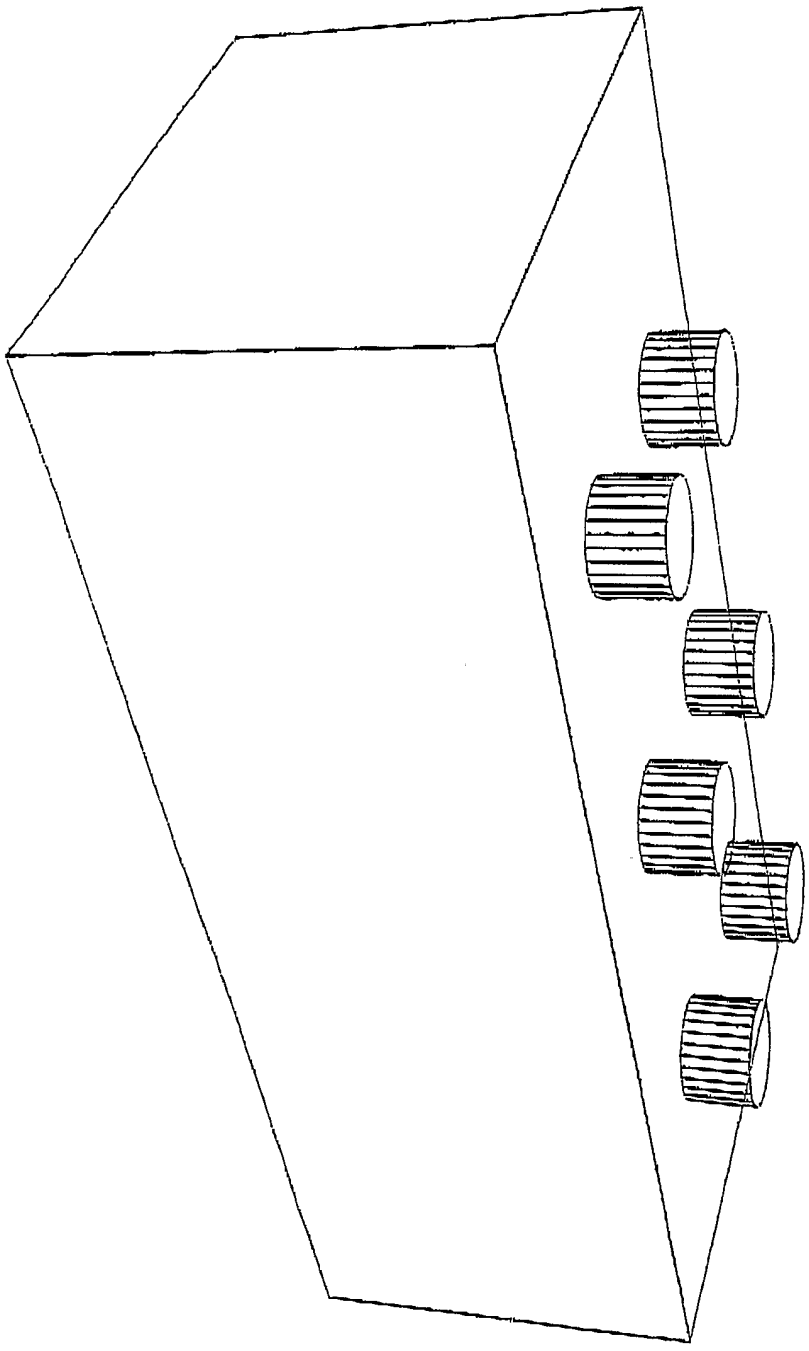

Figure 10

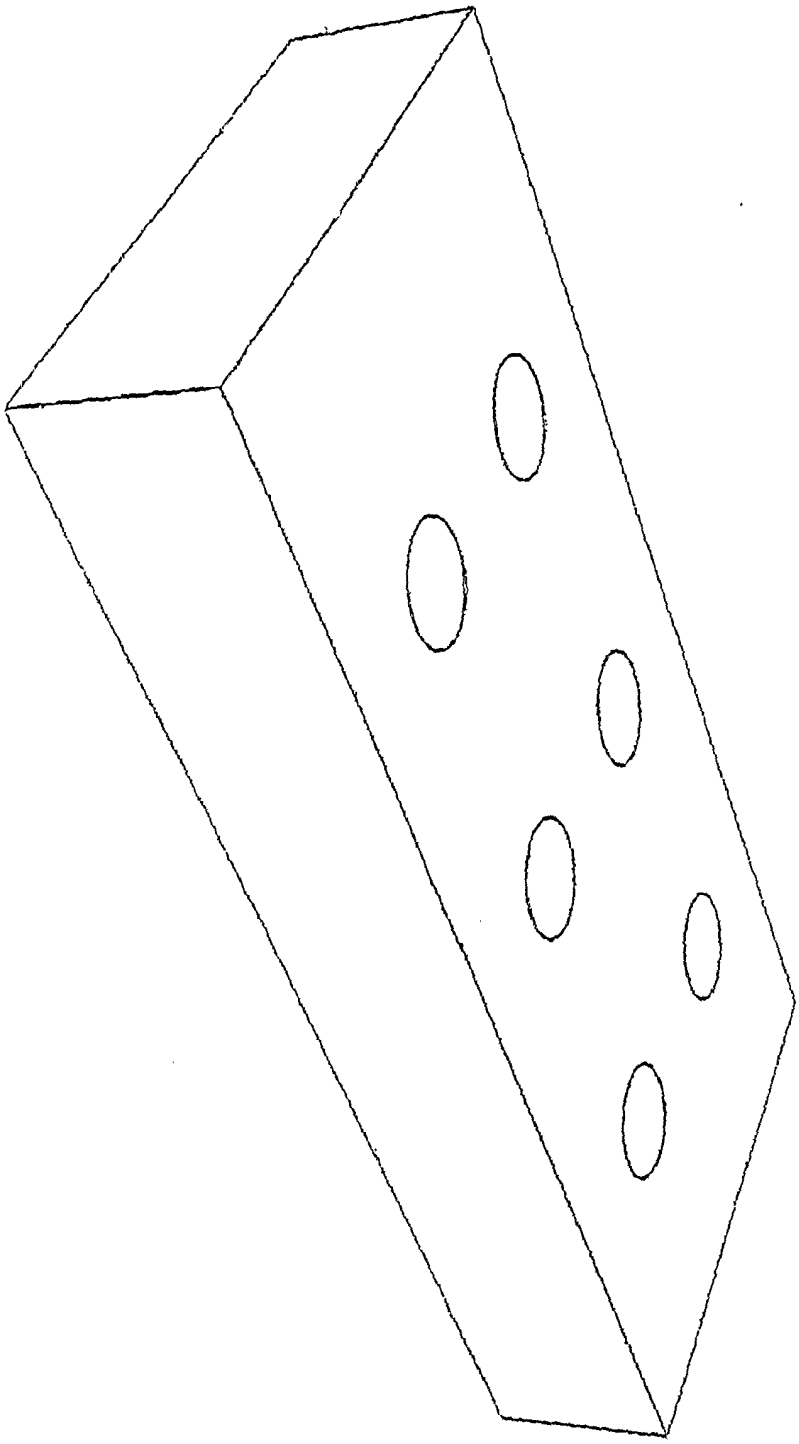

Figure 11

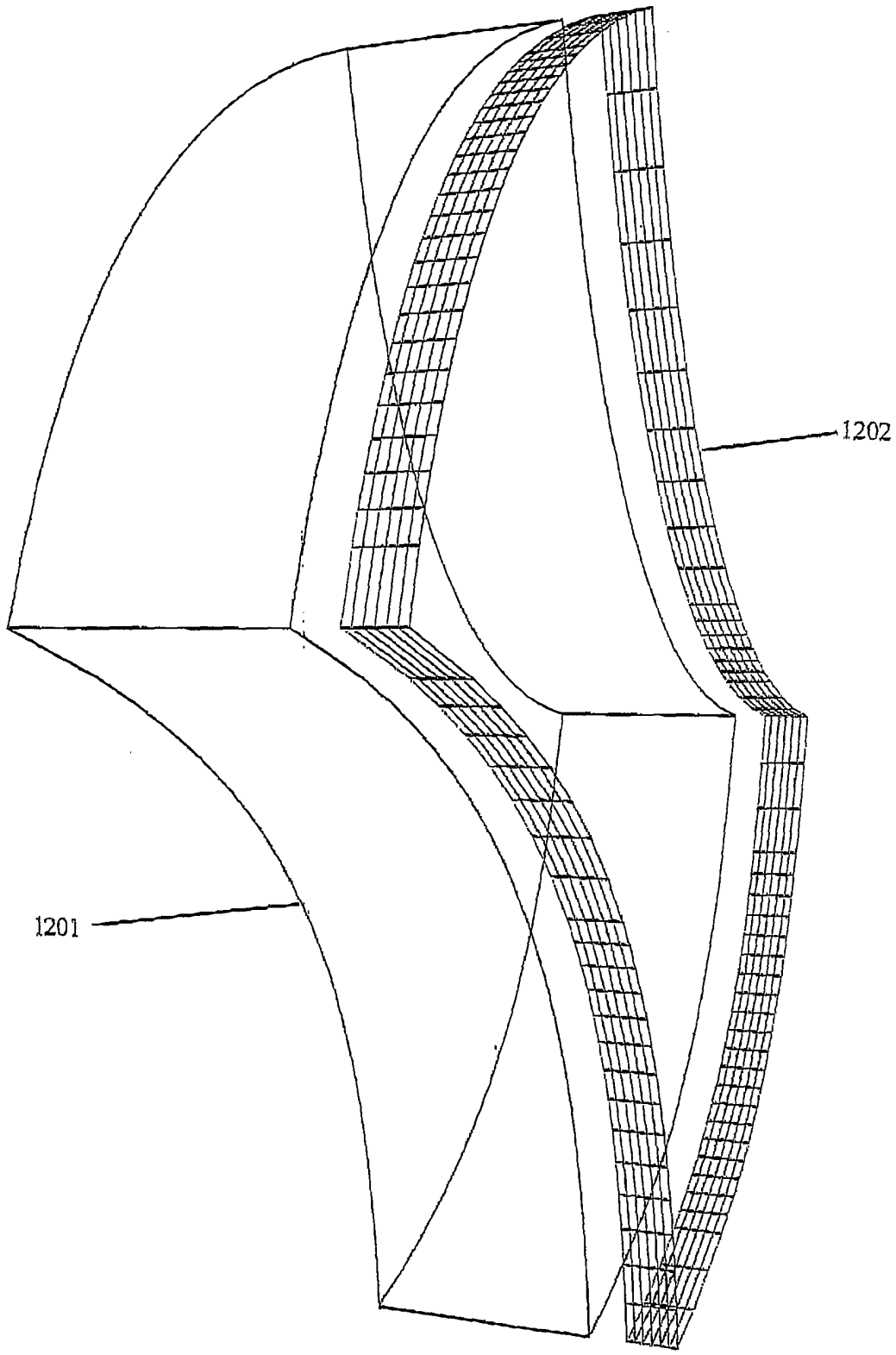

Figure 12

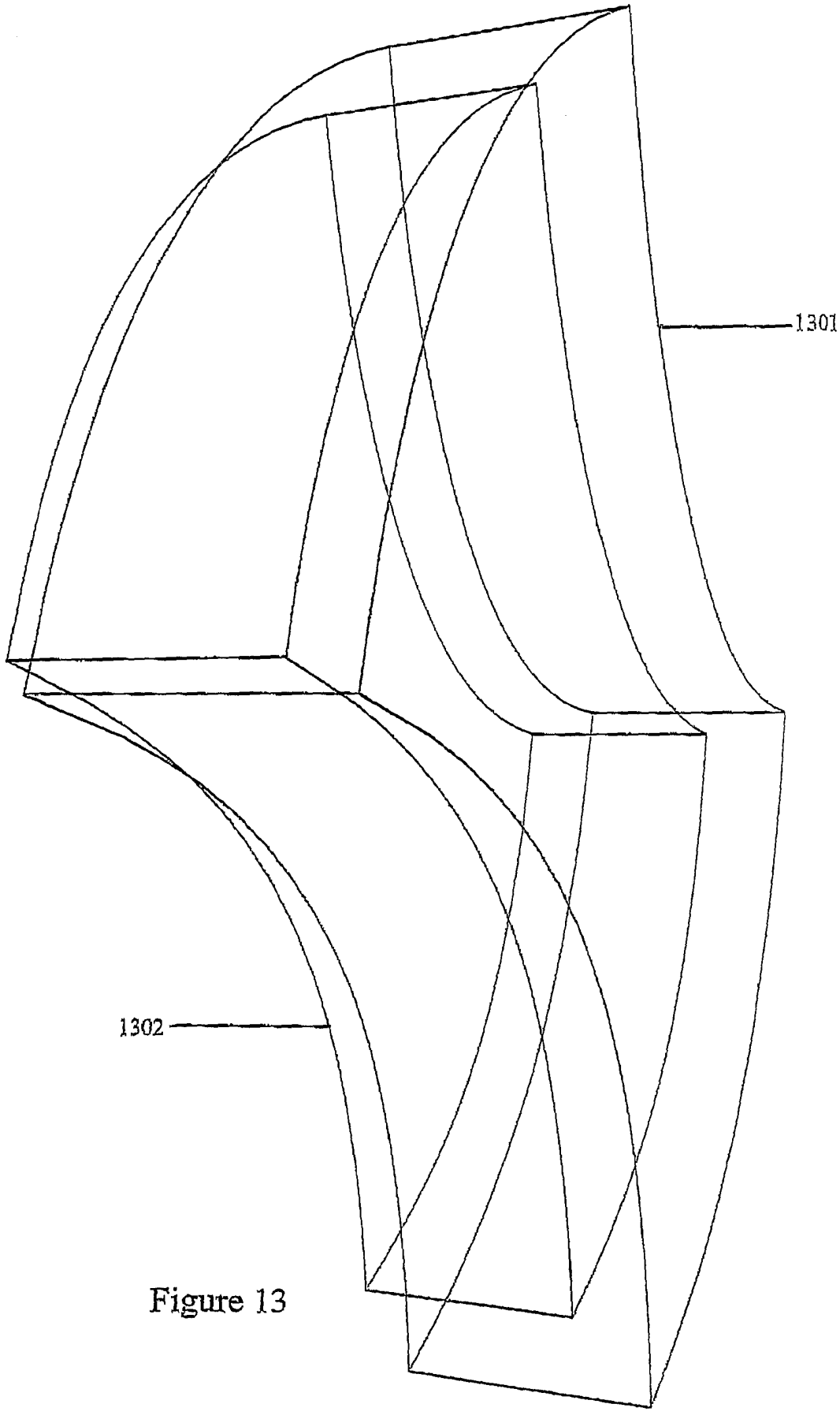

Figure 13