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**Mounting Brick**

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ABSTRACT

A brick for mounting objects to a wall comprising a rectangular prism wherein the front face incorporates at least one threaded hole.

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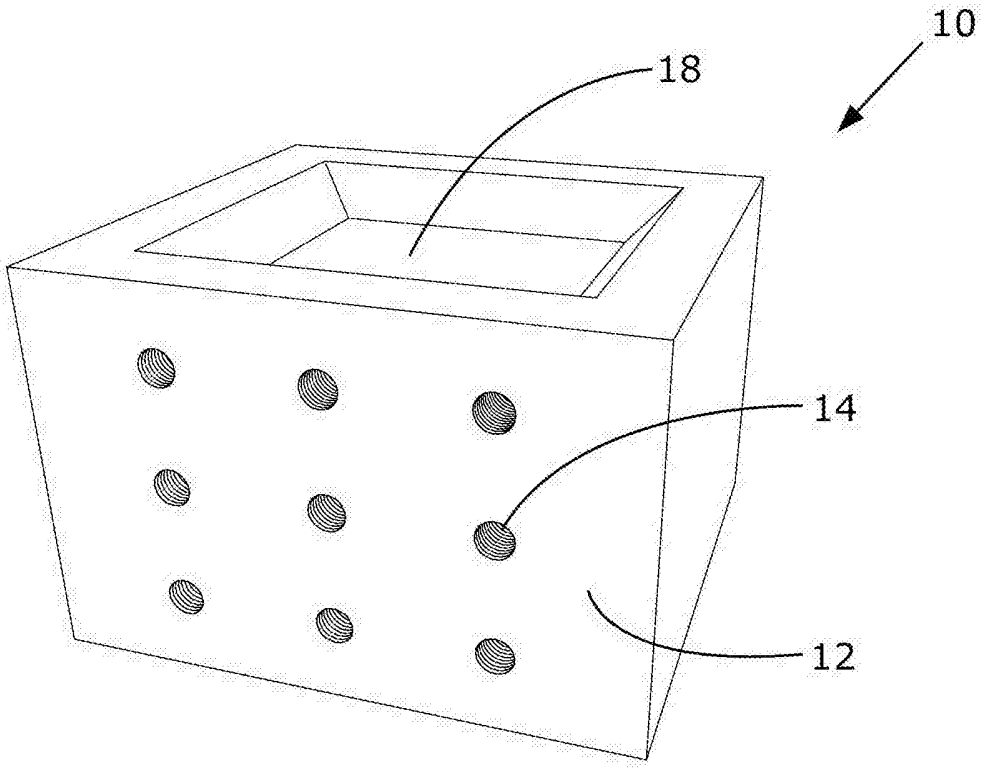


Fig. 1

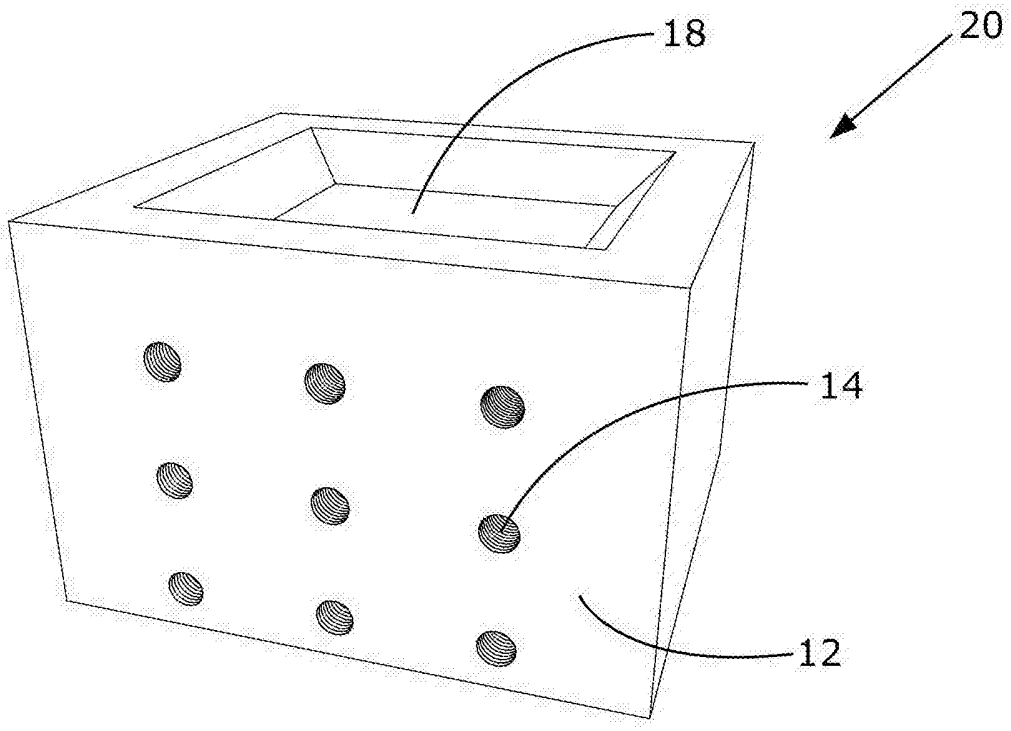


Fig. 2

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# Mounting Brick

## FIELD OF THE INVENTION

This invention relates to means for mounting articles to a wall, in particular a mounting brick that is embedded in a wall during its construction and upon which heavy articles can be mounted.

## BACKGROUND TO THE INVENTION

During building construction or renovation the need often arises for mounting heavy objects such as a roller door, gate or a clothes line to a wall. For mounting such devices to masonry or concrete brick walls various methods are available such as; screws and plugs; threaded rods and glue; and expanding anchor bolts such as a Ramset Dynabolt TM. To employ one of these known methods one must first drill a hole into the wall and then insert the attachment means.

Drilling holes into masonry brick walls can often lead to cracks developing in a brick. Such a crack is not only unsightly but can also lead to catastrophic failure of a mounting. Even if drilling of the hole is successful, an expanding device may cause a crack to develop whilst being expanded. Even after an attachment is made to a wall the load passing through the attachment device may also lead to cracking as the load is concentrated in a small area.

Problems with cracking are exacerbated when multiple mounting devices are required in close proximity.

Further problems are had with traditional mounting devices when hollows or voids are encountered in a brick, giving the mounting device insufficient material on which to grab.

The object of this invention is to provide a mounting brick that alleviates the above problems, or at least provides the public with a useful alternative.

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## SUMMARY OF THE INVENTION

Therefore in one form of the invention there is proposed a mounting brick comprising a rectangular prism with top, bottom front, rear and two side faces; wherein the front face incorporates at least one threaded hole.

Preferably the top face includes an indentation for accepting mortar.

In preference the threaded holes are located in an asymmetric arrangement with respect to the centre point of said front face.

Preferably the brick made from steel.

A further form of the invention is a wall incorporating the brick.

It should be noted that any one of the aspects mentioned above may include any of the features of any of the other aspects mentioned above and may include any of the features of any of the embodiments described below as appropriate.

## BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate various implementations of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings:

Figure 1 is a perspective view of a mounting brick of a preferred embodiment of the invention;

Figure 2 is perspective view of a mounting brick according to a second embodiment of the invention;

Figure 3 shows a wall incorporating the mounting block of Figure 1;

Figure 4 depicts the wall of Figure 3 with a post mounted thereto with the aid of the mounting block;

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Figure 5 is perspective view of a mounting brick according to a third embodiment of the invention;

Figure 6 depicts the slotted front face of the mounting block of Figure 5;

Figures 7A and 7B show a movable boss component of the mounting block of Figure 5 in front and side perspective views; and

Figures 8A and 8B are cutaway rear perspective and side views of the mounting brick of Figure 5.

LIST OF COMPONENTS

| | |
|---|---|
| 10 | mounting brick (first embodiment) |
| 12 | front face |
| 14 | threaded holes |
| 16 | top face |
| 18 | mortar indentation |
| 20 | mounting brick (second embodiment) |
| 30 | mounting brick (third embodiment |
| 31 | mortar pipes |
| 32 | front plate |
| 33 | inner plate |
| 34 | boss slot |
| 36 | drain slot |
| 38 | boss hole |
| 40 | boss |
| 42 | boss shaft |
| 43 | shaft flat |
| 44 | threaded hole |
| 46 | front flange |
| 47 | middle flange |
| 48 | rear flange |
| 50 | wall |
| 51 | full bricks |

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| | |
|---|---|
| 52 | half bricks |
| 53 | mortar |
| 54 | post |
| 55 | bolts |

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

The following detailed description of the invention refers to the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings and the following description to refer to the same and like parts. Dimensions of certain parts shown in the drawings may have been modified and/or exaggerated for the purposes of clarity or illustration.

The present invention is in essence a mounting brick with threaded holes that is built into a wall in place of a conventional brick where it is desired to mount a heavy item such as a clothes line, gate or a roller door. The heavy item can then be easily bolted to the mounting brick by means of conventional bolts. By using the mounting brick a robust mount is provided which can handle larger loads than conventional means as the load is spread over a large area. As no drilling is required the integrity of the wall is maintained.

Turning now to the drawings, Figure 1 shows a preferred embodiment of the mounting brick 10. The mounting brick 10 is a rectangular prism with a front face 12 in which a number of threaded holes 14 have been formed.

The mounting brick 10 is the size and shape of half a standard house brick allowing it to be fitted readily into a brick wall as it is being constructed. The mounting brick 10 could readily be made to match the size and shape of a full brick or non-standard bricks if required.

The mounting brick 10 is preferably cast out of steel, stainless steel or iron, however other materials and means of manufacture could also be used. The mounting brick is preferably solid, however it could be made

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hollow to minimize weight and material usage as long as the front face 12 is of a thickness such that the threaded holes 14 provide ample thread for a bolt to engage. The mounting brick 10 could also be made from a plastic or resin material with the threaded holes either cast or tapped into the brick or provided by means of threaded inserts molded into the brick.

The mounting brick 10 has an indentation 18 on its top surface to allow mortar to key the brick into the normal course of mortar that would surround a brick in a wall. Likewise the bottom surface has a further indentation (not shown). The surfaces of the mounting brick 10 may also be textured (not shown) to aid mortar adhesion to the brick or to match the texture of surrounding conventional bricks for aesthetic purposes.

The threaded holes 12 are arranged in a grid on the front face 12 to provide a selection of mounting positions. The threaded holes are nominally 25 mm deep with an M8 threads, obviously other hole depths and threads could be utilized.

The embodiment of Figure 1 shows the threaded holes 12 in a symmetrical arrangement on the front face 12. Having such an arrangement will ensure that the holes 12 will be located at the same position on a wall (horizontal displacement relative to the edge of the wall and/or vertical displacement relative to the floor) regardless of the orientation that the brick is mounted. This will ensure that an item requiring two spaced apart mounting bricks is provided with vertically or horizontally aligned mounting holes.

In a second embodiment shown in Figure 2 the threaded holes are positioned in a non-symmetrical vertical arrangement. Whilst inviting the danger of misaligning holes between horizontally arranged bricks, this arrangement provides more options for positioning the mounting holes relative to a fixed floor, or a second vertically aligned mounting brick. This is particularly advantageous where the device to be mounted has fixed mounting holes or needs to be mounted in a specific position.

Quite clearly further embodiments with different degrees of asymmetry in hole arrangements in the horizontal and/or vertical direction would provide for a number of hole positioning options. Even further options could be provided with a larger number of holes or by utilising the rear face of the brick to provide an alternative set of holes. Still further options could be provided by utilising the side faces of the mounting brick for mounting holes.

In a further embodiment (not shown) of the invention the mounting brick is made smaller than a half standard brick. This would provide the option of varying the amount of mortar surrounding a brick thus allowing a threaded hole to be mounted exactly where desired.

Figure 3 shows a wall 50 made from a combination of full bricks 50 and half bricks 52 held together with mortar courses 53. In place of two of the half bricks at the end of the wall, mounting bricks 14 have been substituted. The mounting bricks 14 blend visually into the wall as they are of the same size and shape as the bricks that they replace; and are held in place with a mortar course 53 as per the traditional bricks.

Figure 4 shows the wall 50 of Figure 3 with a post 54 mounted thereto. The post 54 is mounted to the wall 54 with the aid of bolts 55 which pass through the post 55 and engage with the threaded holes 14 of the mounting bricks 10. If desired unused holes in the mounting brick may be filled by means of a plastic or metal plug (not shown) or even filled with a filler material such as putty or mortar. The mounting brick may also be painted to match the surrounding conventional masonry.

In a further embodiment of the invention a mounting brick 30 is shown in Figure 5. The mounting brick 30 is the size and shape of a conventional brick and includes mortar pipes 31 to help key the brick into a wall. The mounting brick comprises a hollow steel body with a slotted front plate 32 and parallel spaced apart matching slotted inner plate 33. The profile of the slotted front plate 32 is shown in Figure 6. A boss 40 sits between the slotted plates 32 and 33 and is free to move both horizontally and vertically, being guided by the slots 34 in the front plate 32.

The boss 40 comprises a cylindrical shaft 42 with a concentric threaded hole 44 and front flange 46, middle flange 47 and rear flange 48. The flanges are spaced apart such that the front flange 46 will sit just behind the front plate 32; and the middle flange 47 and the rear flange 48 will sit either side of the inner plate 33. This arrangement is shown in Figures 8A from a rear perspective view and in Figure 8B in a side view and allows the boss 40 to remain perpendicular to the plates 32 and 33 as it moves throughout the slots 34. The plates 32 and 33 include a hole 38 that allows the boss to be inserted into or removed from the mounting brick 30. If required, more than one boss 40 can be fitted to a mounting brick 30. The mounting brick 30 further comprises drain slots 36 to ensure that water is not retained by the brick.

In use, a bolt would pass through the item to be mounted and engage with the threaded hole 44 of the boss 40. As the bolt is tightened the front flange 42 would be pulled against the front plate 32, thus preventing any further movement of the boss 40. Similarly the rear flange 48 would pull against the inner plate 33. The boss 40 also includes flats 43 that act against the side of the slots 34 to prevent the boss from rotating whilst a bolt is being tightened or loosened.

The reader will now appreciate how the invention provides an improved means for securing heavy objects to a brick wall.

Further advantages and improvements may very well be made to the present invention without deviating from its scope. Although the invention has been shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope and spirit of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus. Any discussion of the prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms part of the common general knowledge in this field.

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In the summary of the invention, except where the context requires otherwise due to express language or necessary implication, the word "comprising" is used in the sense of "including", i.e. the features specified may be associated with further features in various embodiments of the invention.

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CLAIMS

1. A brick for mounting objects to a wall comprising a rectangular prism with top, bottom front, rear and two side faces; wherein the front face incorporates at least one threaded hole.

2. A brick as in claim 1 wherein said to top face includes an indentation for accepting mortar.

3. A brick as in claim 1 wherein said at least one threaded hole is located in an asymmetric arrangement with respect to the centre point of said front face.

4. A brick as in claim 1 made from steel.

5. A brick wall incorporating a brick as in any of the preceding claims.

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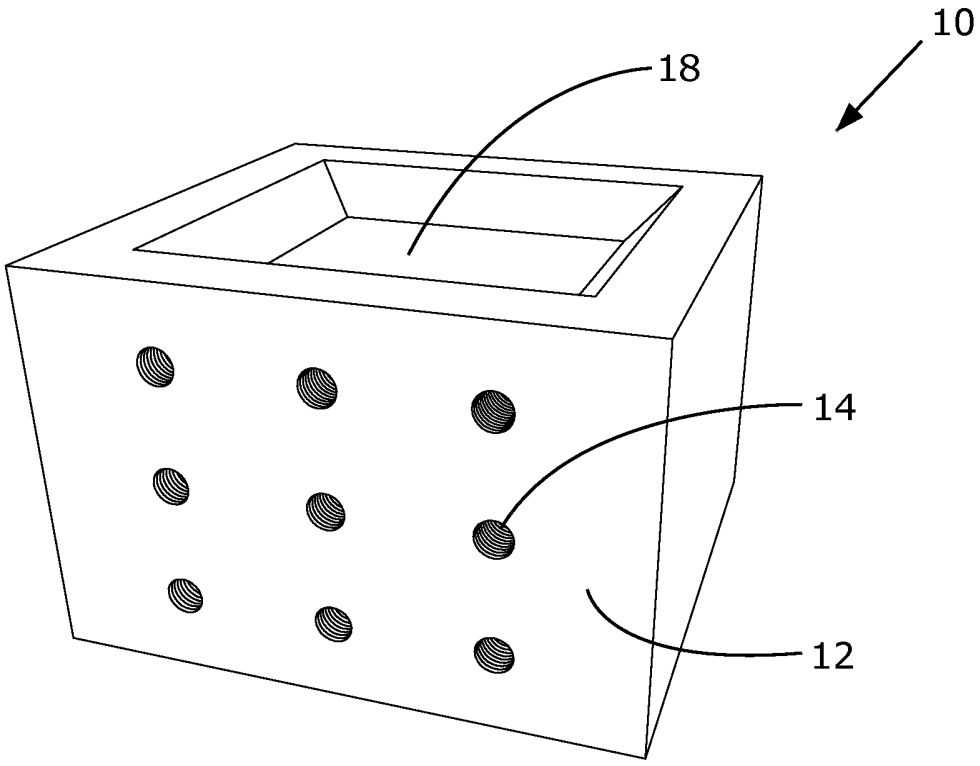


Fig. 1

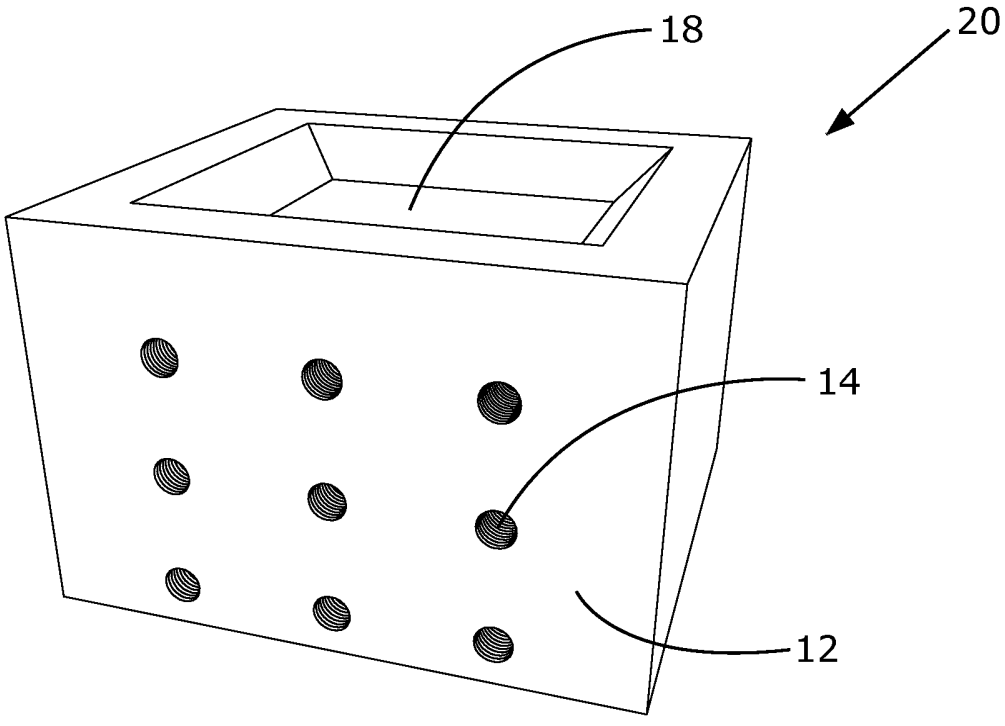


Fig. 2

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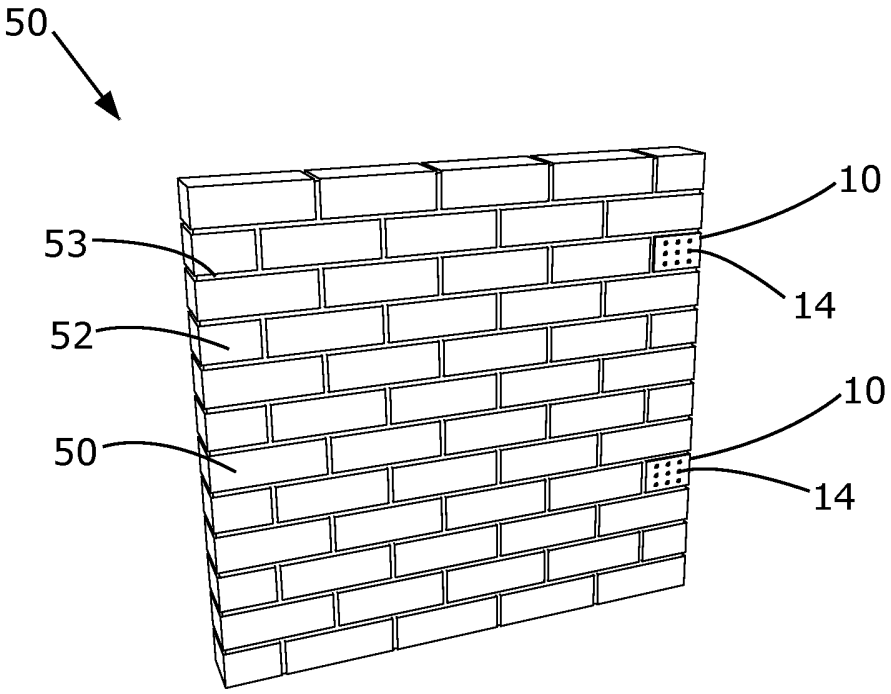


Fig. 3

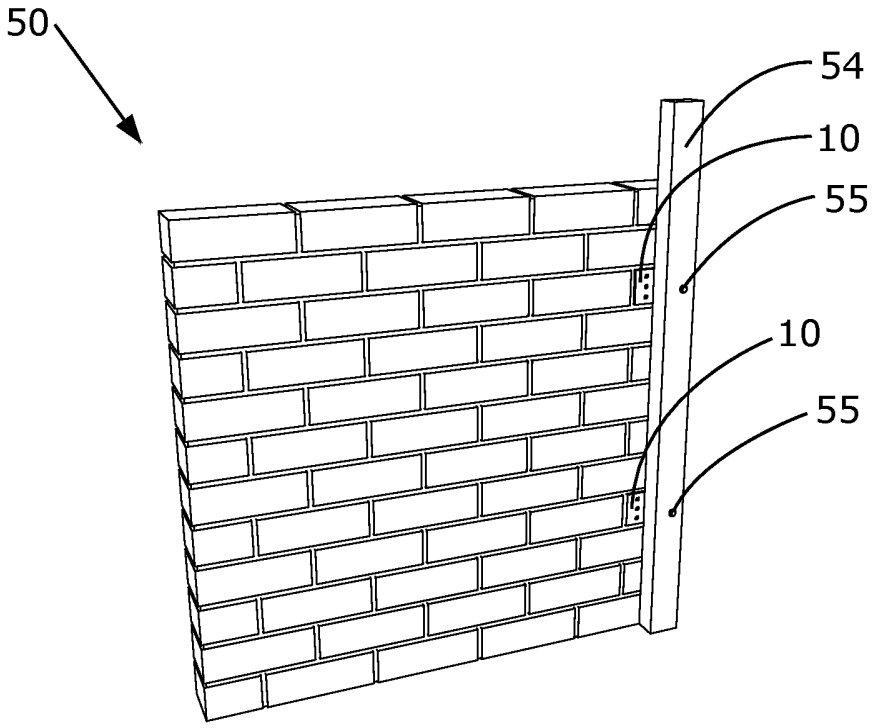


Fig. 4

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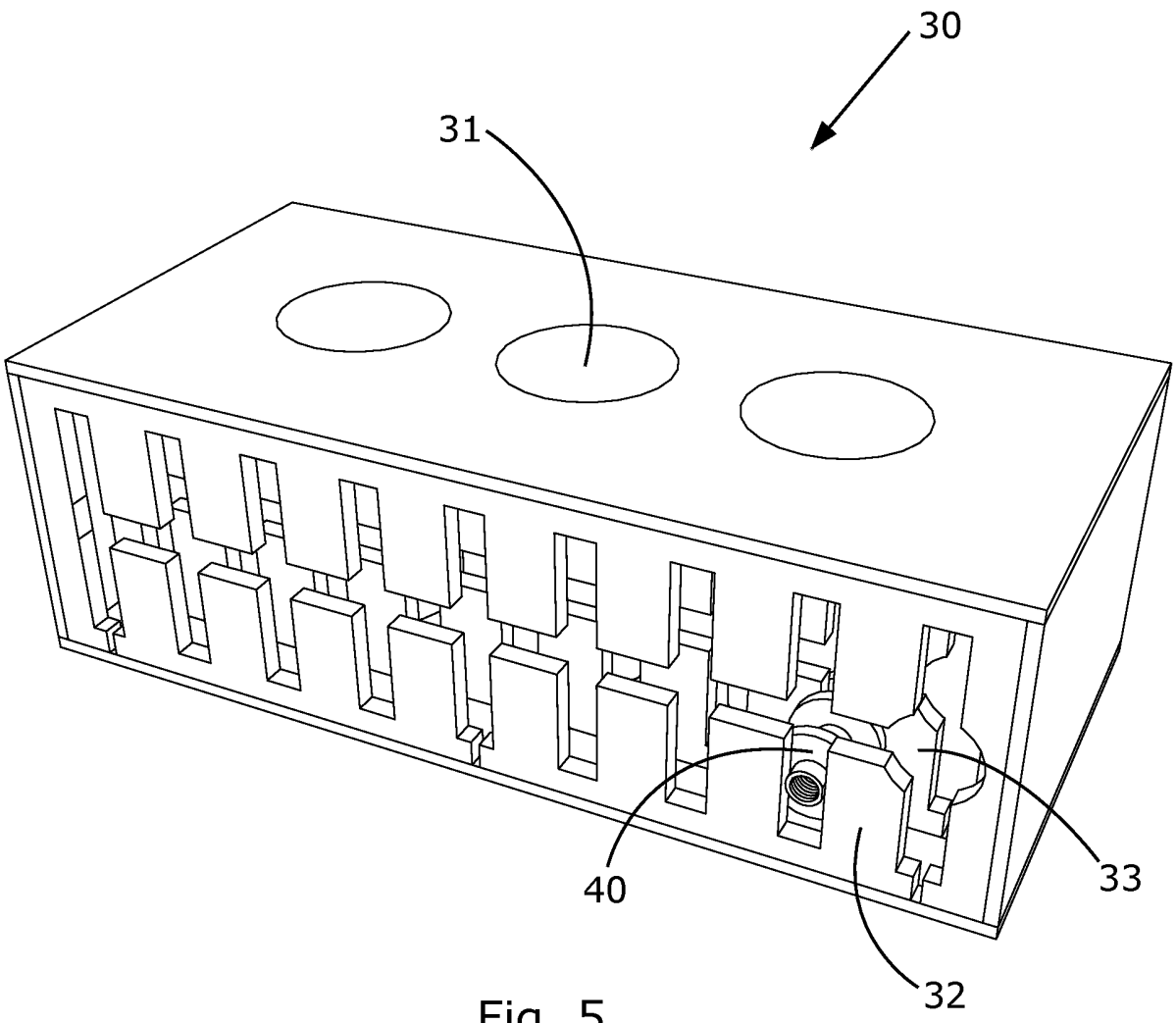


Fig. 5

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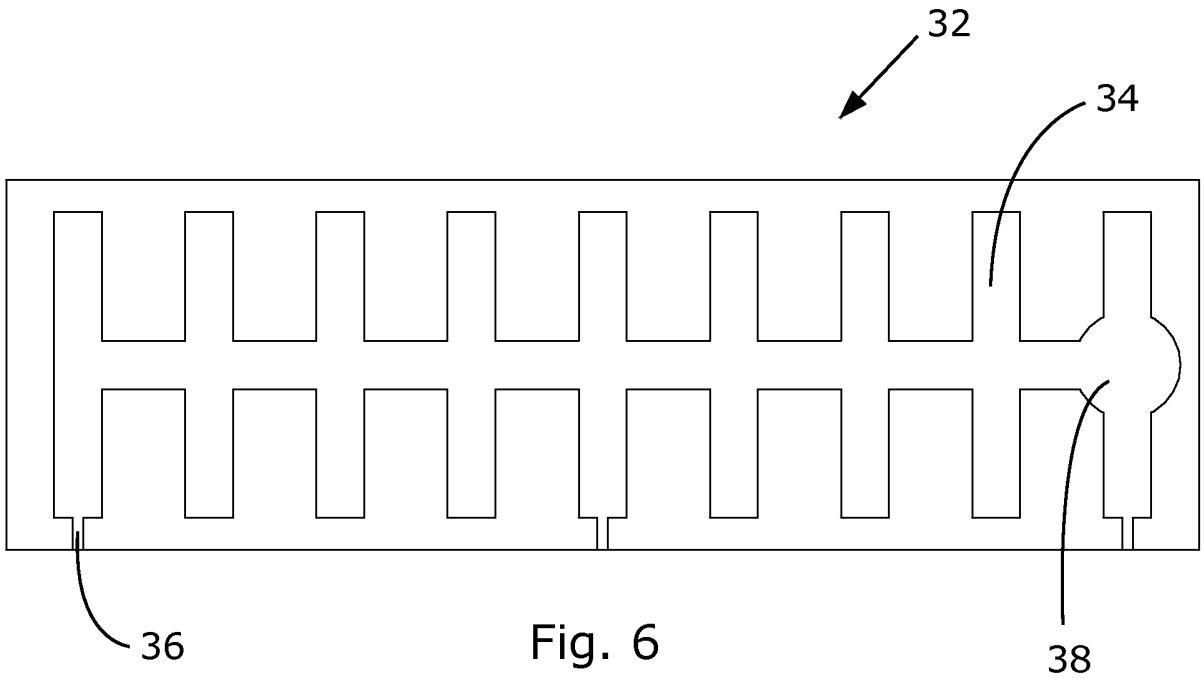


Fig. 6

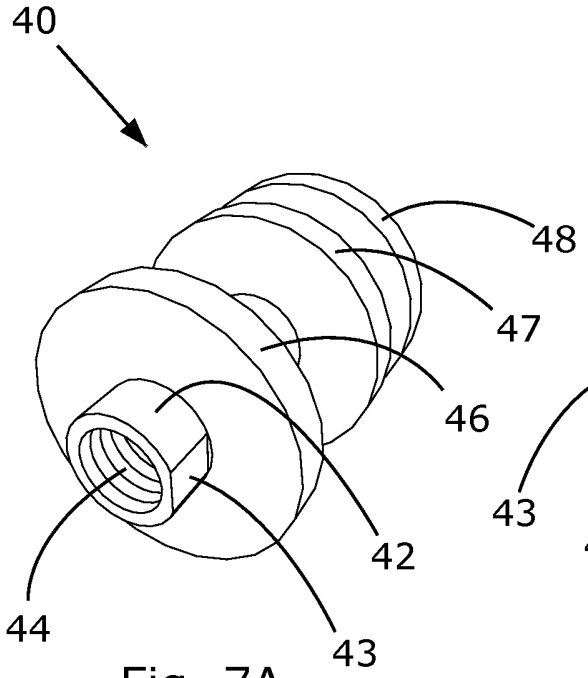


Fig. 7A

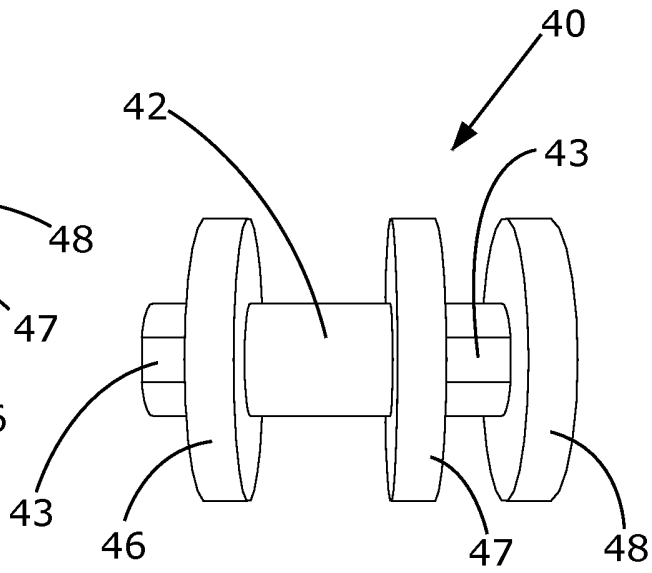


Fig. 7B

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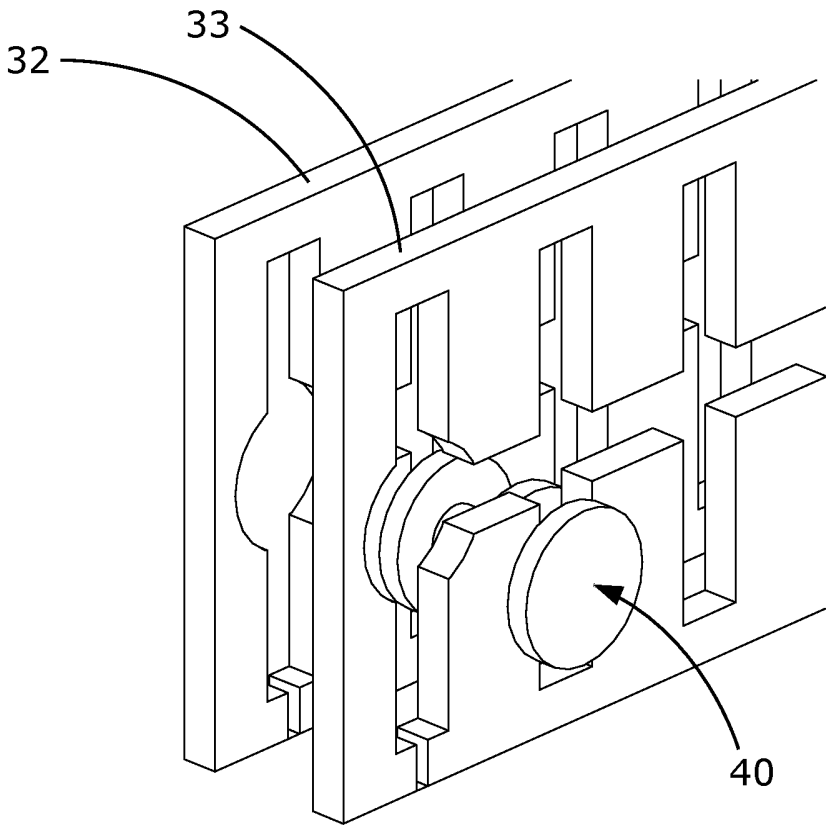


Fig. 8A

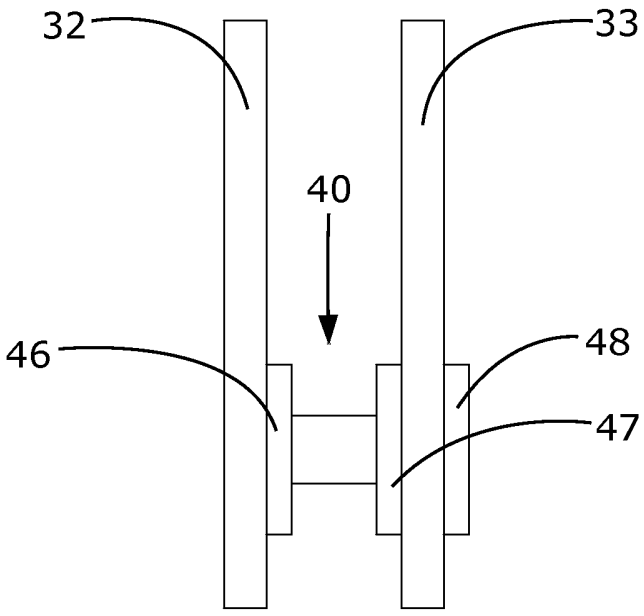


Fig. 8B