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(71) Applicant: **Guangzhou Seagull Kitchen And Bath Products Co., Ltd.**  
**Guangzhou, Guangdong 511400 (CN)**

(72) Inventor: **Tang, Tai-ying**  
**Guangzhoe, Guangdong (CN)**

(74) Representative: **Rau, Schneck & Hübner Patentanwälte Rechtsanwälte PartGmbB**  
**Königstraße 2**  
**90402 Nürnberg (DE)**

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(54) **In-wall mountable boundary box for tap**

(57) This present application concerns a boundary box for a tap that can be mounted in the wall. The boundary box comprises a housing (3) and a fixture frame (1) which is slidable mounted on the housing. The position of fixture frame can be fixed using a linkage mechanism whereby a first notch (7) on the inner side of the frame facing the housing interacts with a first rib (4) on the outer

wall of the housing. The frame is provided with a passage (6) extending from the outer side of the frame to the inner side. The passage ends in the notch. The boundary box further comprises a plug (2) that can be inserted in the passage such that the plug cooperates with the rib on the housing and fixes the position of the frame relative to the housing.

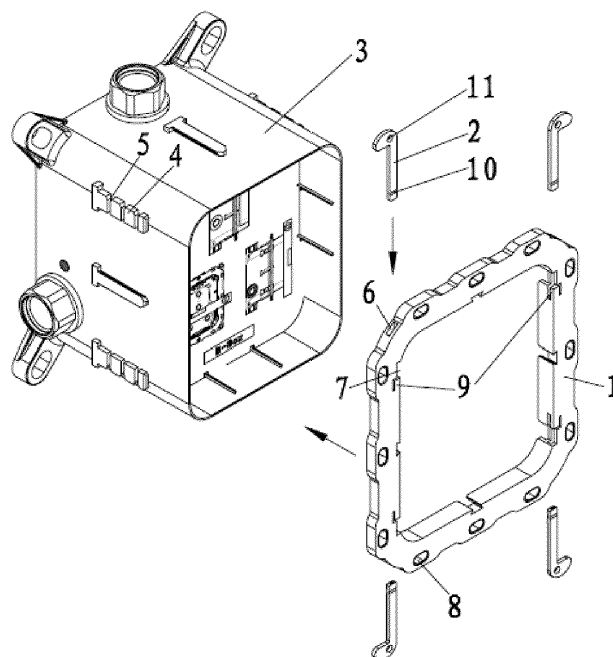


Figure 5

## Description

### Technical field

**[0001]** This design patent is referring to a pre-mounted installation box for faucets. 5

### State of the art

**[0002]** A kind of the pre-mounted installation box is circular, where the fixture frame is usually also circular. The fixture frame may be installed directly on the installation box. By means of threads on the fixture frame and the box, or alternatively by means of buckles, the fixture frame and the pre-mounted installation box can be connected tightly. During the installation, the fixture frame and installation box must be rotated about each other, which may lead to a restriction: when the installation box is non-circular, the fixture frame can not be installed. 10

**[0003]** When the installation box is non-circular, the fixture frame is usually separated into two parts, i.e. two fixture planks. The fixture plank has buckles in its inner side, which can match to the other joints on the outer wall of the installation box. Additionally, the fixture plank has plug on one end and socket on the other end. The fixture frame may be formed by connecting both fixture planks by plugging the plugs to the sockets on each other, yet the strength is reduced significantly and the connection is weakened. Due to the fixture frame is separable, when the fixture planks are under strong external force, the connection may be broken and the installation box may become unstable. 15 20

### Contents of the design patent

**[0004]** This design patent introduces a pre-mounted installation box for faucets. By using plugs to fix the fixture frame to the box body, the shape of the fixture frame is no longer restricted by the shape of the installation box. This design not only simplifies the installation of the installation box, but also strengthens the stability of the installation box. 25 30

**[0005]** The technical solutions introduced by this design patent are:

A pre-mounted installation box for faucets, comprising:

- a) Box body.
- b) Circular fixture frame, which is installed around the box body and connected with the box body via at least one linkage mechanism.
- c) The linkage mechanism includes:

- i. First notch, which is located on the inner side of the fixture frame.
- ii. Slot, which is the hole on the end surface of the fixture frame, extends through the 35 40 45

frame to the first notch.

iii. First rib, which is located on the outer side of the box body, has at least one socket and goes through the first notch, leading the slot to one of the sockets.

iv. Plug, which may be plugged into the slot and reach the socket, is designed to lock up the position of the fixture frame.

**[0006]** Preferably, in the pre-mounted installation box for faucets, the linkage mechanism also includes:

a) The slot goes through the first notch and forms an extension part below the first notch.

b) Bar-shape buckle, which locates at one side of the fixture frame, with its root connected to the fixture frame, becomes a part of the fixture frame. The first notch is between the head of the bar-shape buckle and the fixture frame. The extension of the slot is between the first side wall and the fixture frame, where the first side wall has a linear bump that is perpendicular to the extension. The second side wall and the fixture frame are separated by a narrow groove. 15 20 25

c) The bottom of the plug may be inserted to the extension part and has a groove that fits to the linear bump on the first side wall.

**[0007]** Preferably, in the pre-mounted installation box for faucets, the first rib comprises the first rectangular part, the first tail, which is wider than the first rectangular part, and the triangular first head. 30

**[0008]** Preferably, in the pre-mounted installation box for faucets, the linkage mechanism also includes:

a) Second notch, which is located on the inner side of the fixture frame.

b) Second rib, which is located on the outer side of the box body, goes through the second notch and comprises the second rectangular part, the second tail, which is wider than the second rectangular part, and the triangular second head. 35 40 45

**[0009]** Preferably, in the pre-mounted installation box for faucets, the fixture frame has several first installation holes.

**[0010]** Preferably, in the pre-mounted installation box for faucets, the plug is an L-shape component that consists of the horizontal part and the vertical part. The horizontal part has second installation hole.

**[0011]** Preferably, in the pre-mounted installation box for faucets, at least one linkage mechanism includes four linkage mechanisms. Each two first ribs are located on the same side wall and close to the edges of the installation box separately.

**[0012]** Preferably, in the pre-mounted installation box for faucets, at least one linkage mechanism includes four linkage mechanisms. Each two first ribs are located on

the same side wall and close to the edges of the installation box separately. Four second ribs are located on four side walls of the box body.

**[0013]** Preferably, in the pre-mounted installation box for faucets, the cross section of the box body is rectangular.

**[0014]** In order to break the restriction of the existing pre-mounted installation box and its installation method, this design patent introduces a new pre-mounted installation box for faucets. Firstly, the fixture frame is designed to have a circular structure, which is inseparable. This design not only may fix the installation box, tighten its installation, but also may simplify the installation and break the restriction of the shape of the fixture frame. Secondly, in this design patent, plugs, first ribs, second ribs along with sockets, first notches and second notches that may fit to them, are able to fix the fixture frame and the installation box into one piece tightly. At last, in this design patent, the plug is fixed by the bar-shape buckle in the fixture frame, which may tighten the connection between the fixture frame and the box body. The designed structure is concise, it not only may simplify the installation and operation of the pre-mounted installation box in the hollow wall, but also may adapt the fixture frame with a certain shape to the box body that in different shape.

#### Figure description

#### **[0015]**

- Figure 1 is the main view of the fixture frame described by this design patent;
- Figure 2 is the pictorial drawing of the fixture frame described by this design patent;
- Figure 3 is the structural representation of the plug described by this design patent;
- Figure 4 is the structural representation of the box body described by this design patent;
- Figure 5 is the assembly drawing of the fixture frame and the box body described by this design patent;
- Figure 6 is the schematic drawing after the assembly of the fixture frame and the box body described by this design patent;
- Figure 7 is the schematic drawing of the box body installed with the fixture frame described by this design patent.

#### Application modes

**[0016]** Following are detailed explanations for this design patent with the schematic drawings. It serves the technicians in this field, so that one may apply these modes according to the guideline.

**[0017]** As shown in Figure 1-7, this design patent introduces a pre-mounted installation box, comprising:

Circular fixture frame 1, plug 2, box body 3, first rib 4, socket 5, slot 6, first notch 7, first installation hole 8, bar-shape buckle 9, groove 10, second installation hole 11, inlet 12, outlet 13, fixture foot 14, second rib 15, vertical part 18, horizontal part 17.

**[0018]** The box body 3, which has a rectangular cross section, has at least one inlet 12 and outlet 13. There is one fixture foot 14, which may be used for mounting the box body 3, on each corner of the box body 3.

**[0019]** Several first installation holes 8 are distributed equally on the circular fixture frame 1. The linkage mechanism includes: first notch 7, slot 6, first rib 4, bar-shape buckle 9, second rib 15, plug 2, and second notch 16. First notch 7 is located on the inner side of the fixture frame 1. Slot 6, which is the hole on the end surface of the fixture frame 1, extends through the frame to the first notch 7. Additionally, Slot 6 goes through the first notch 7 and forms an extension part below the first notch 7. First rib 4 comprises the first rectangular part, the first tail, which is wider than the first rectangular part, and the triangular first head. First rib 4 is located on the outer side of the box body 3 and has at least one socket 5. Second notch 16 is located on the inner side of the fixture frame 1. Second rib 15, which is located on the outer side of the box body 3, comprises the second rectangular part, the second tail, which is wider than the second rectangular part, and the triangular second head. Bar-shape buckle 9, which locates at one side of the fixture frame 1, with its root connected to the fixture frame 1, becomes a part of the fixture frame 1. The first notch 7 is between the head of the bar-shape buckle 9 and the fixture frame 1. The extension of the slot 6 is between the first side wall and the fixture frame 1, where the first side wall has a linear bump that is perpendicular to the extension of slot 6. The second side wall and the fixture frame 1 are separated by a narrow groove. Plug 2 is an L-shape component that consists of the horizontal part 17 and the vertical part 18. The horizontal part 17 has a second installation hole 11. The bottom of plug 2 has a groove 10 that fits to the linear bump on the first side wall. Four linkage mechanisms are included in this application mode. Each two first ribs 4 are located on the same side wall and close to the edges of the box body 3 separately. Four second ribs 15 are located on four side walls of the box body 3.

**[0020]** As shown in Figure 5 and 6, the installation process is:

Fixture frame 1 is installed around the box body 3. First rib 4 goes through first notch 7, leading the slot 6 to one of the sockets 5. Second rib 15 goes through second notch 16. Plug 2 is inserted into slot 6. The horizontal part 17 of plug 2 remains outside the slot. The bottom of the plug may be inserted into the extension of the slot, where the groove at the bottom should match to the linear bump. The mounted installation box is shown in the Figure 7.

**[0021]** Although the application schemes of this design patent are published as above, it shall not be restricted by the application in the manual and the application modes as described. This design patent can be easily adapted to situations where it may be used. For the professions in this field, it is very easy to realize modifications. Therefore, under the lawful claimed rights, this design patent is not restricted to the specific details or the schematic drawings shown and described in the manual.

## Claims

1. A pre-mounted installation box for faucets, comprising:

- a) Box body.
- b) Circular fixture frame, which is installed around the box body and connected with the box body via at least one linkage mechanism.
- c) The linkage mechanism includes:

- i. First notch, which is located on the inner side of the fixture frame.
- ii. Slot, which is the hole on the end surface of the fixture frame, extends through the frame to the first notch.
- iii. First rib, which is located on the outer side of the box body, has at least one socket and goes through the first notch, leading the slot to one of the sockets.
- iv. Plug, which may be plugged into the slot and reach the socket, is designed to lock up the position of the fixture frame.

2. A pre-mounted installation box for faucets according to claim 1, wherein the linkage mechanism also includes:

- a) The slot goes through the first notch and forms an extension part below the first notch.
- b) Bar-shape buckle, which locates at one side of the fixture frame, with its root connected to the fixture frame, becomes a part of the fixture frame. The first notch is between the head of the bar-shape buckle and the fixture frame. The extension of the slot is between the first side wall and the fixture frame, where the first side wall has a linear bump that is perpendicular to the extension. The second side wall and the fixture frame are separated by a narrow groove.
- c) The bottom of the plug may be inserted to the extension part and has a groove that fits to the linear bump on the first side wall.

3. A pre-mounted installation box for faucets according to claim 1 or 2, wherein the first rib comprises the first rectangular

part, the first tail, which is wider than the first rectangular part, and the triangular first head.

4. A pre-mounted installation box for faucets according to claim 1 or 2, wherein the linkage mechanism also includes:

- a) Second notch, which is located on the inner side of the fixture frame.
- b) Second rib, which is located on the outer side of the box body, goes through the second notch and comprises the second rectangular part, the second tail, which is wider than the second rectangular part, and the triangular second head.

5. A pre-mounted installation box for faucets according to claim 1, wherein the fixture frame has several first installation holes.

6. A pre-mounted installation box for faucets according to claim 1, wherein the plug is an L-shape component that consists of the horizontal part and the vertical part. The horizontal part has second installation hole.

7. A pre-mounted installation box for faucets according to claim 1, wherein at least one linkage mechanism includes four linkage mechanisms. Each two first ribs are located on the same side wall and close to the edges of the installation box separately.

8. A pre-mounted installation box for faucets according to claim 4, wherein at least one linkage mechanism includes four linkage mechanisms. Each two first ribs are located on the same side wall and close to the edges of the installation box separately. Four second ribs are located on four side walls of the box body.

9. A pre-mounted installation box for faucets according to claim 1, wherein the cross section of the box body is rectangular.

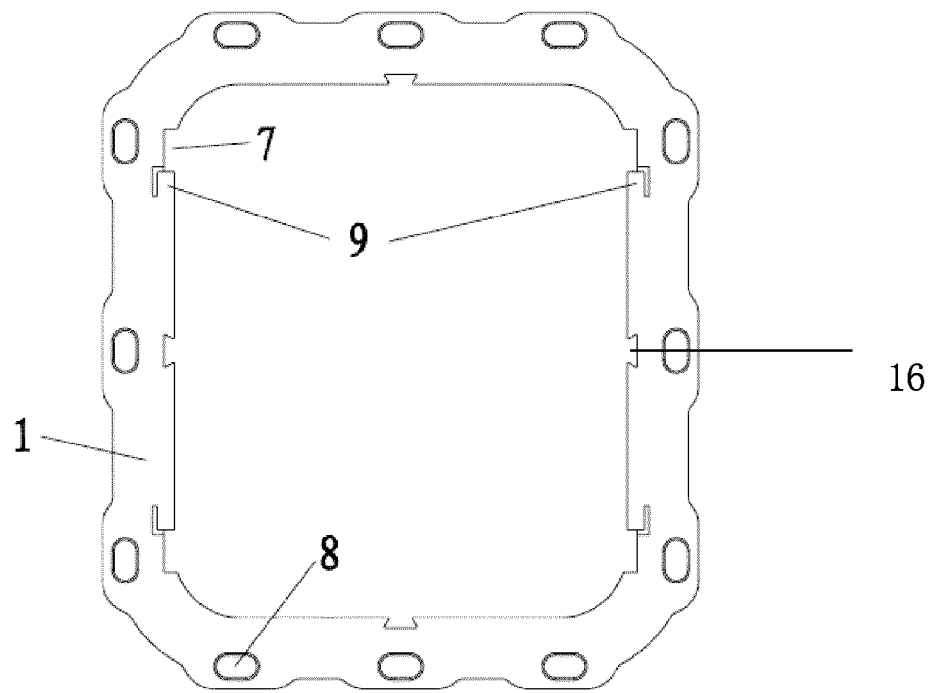


Figure 1

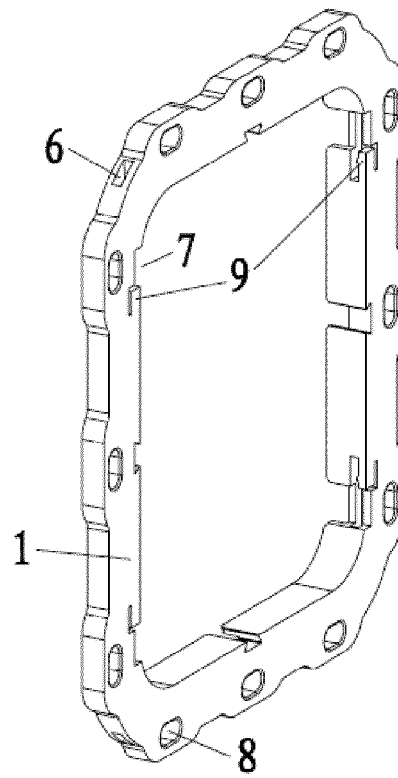


Figure 2

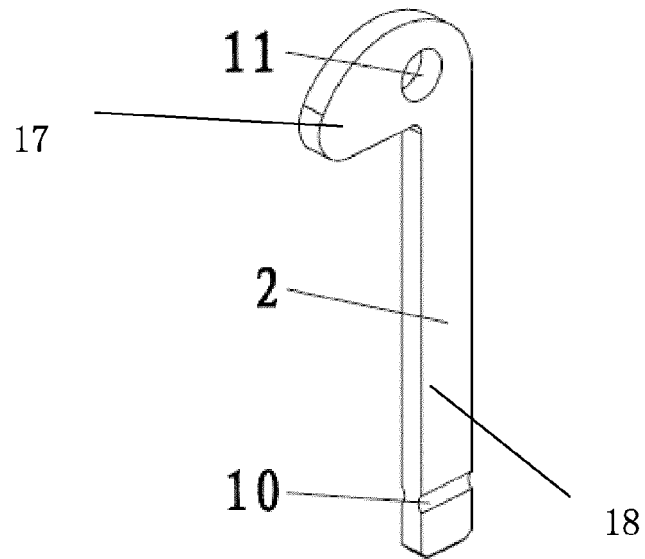


Figure 3

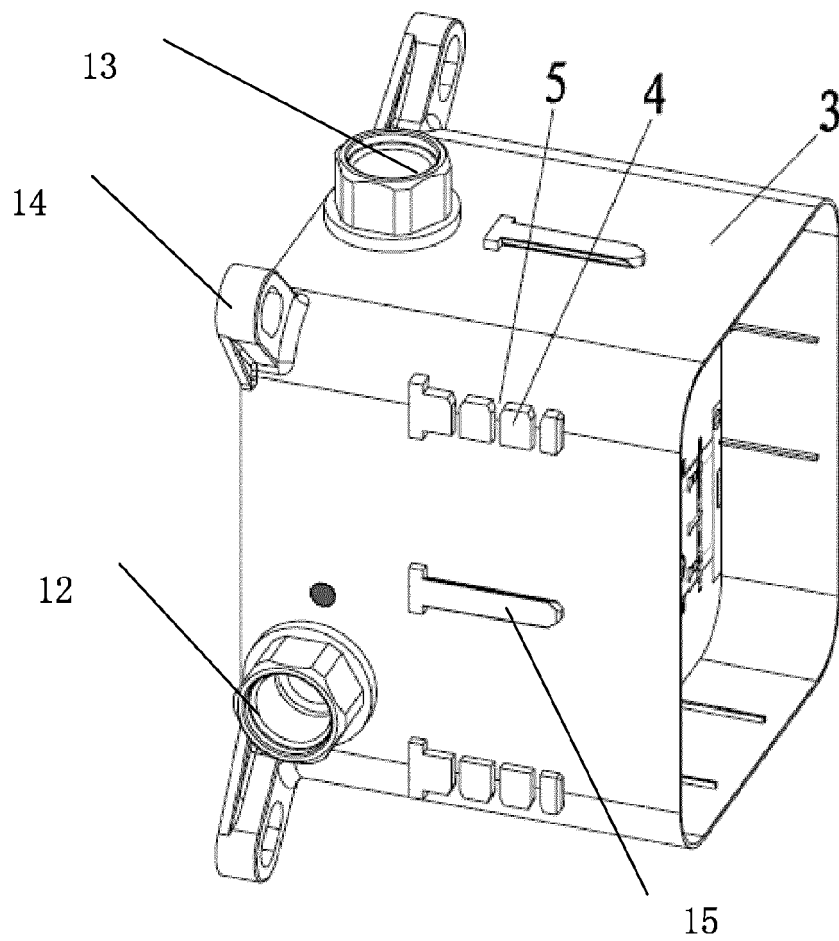


Figure 4

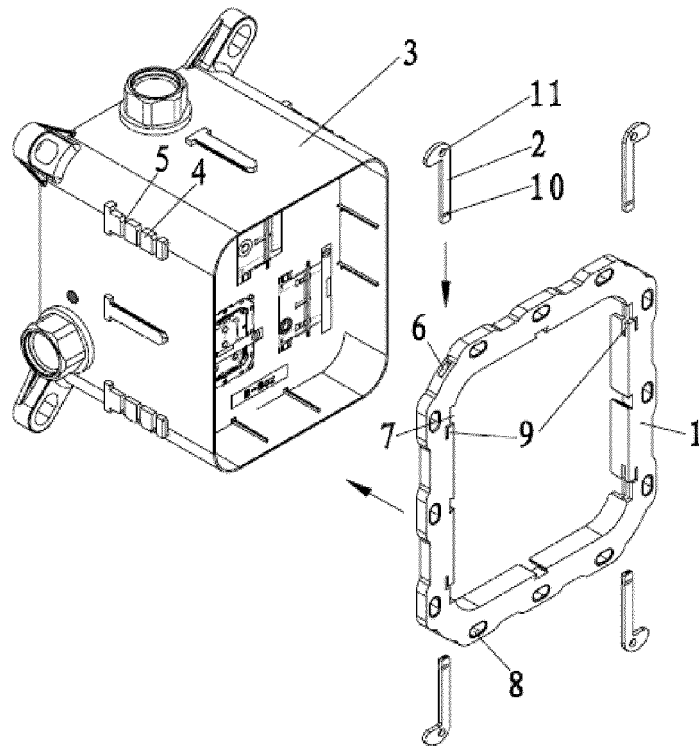


Figure 5

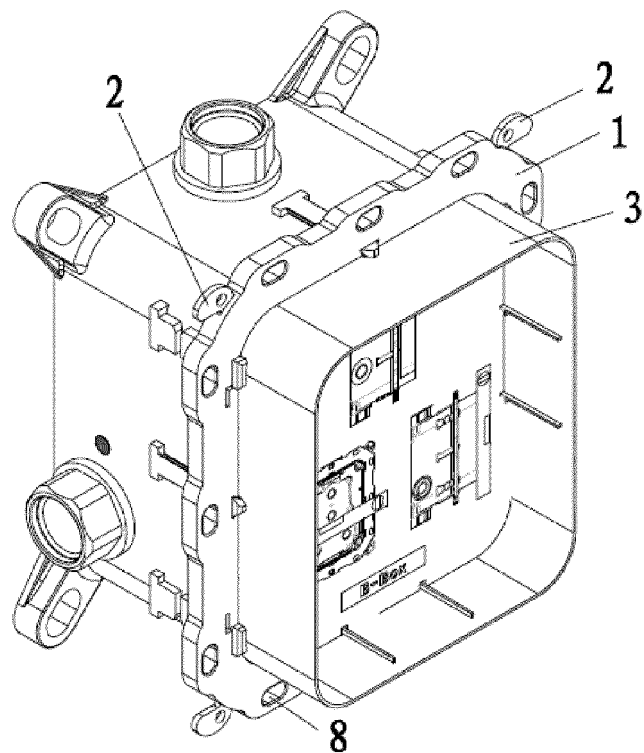


Figure 6

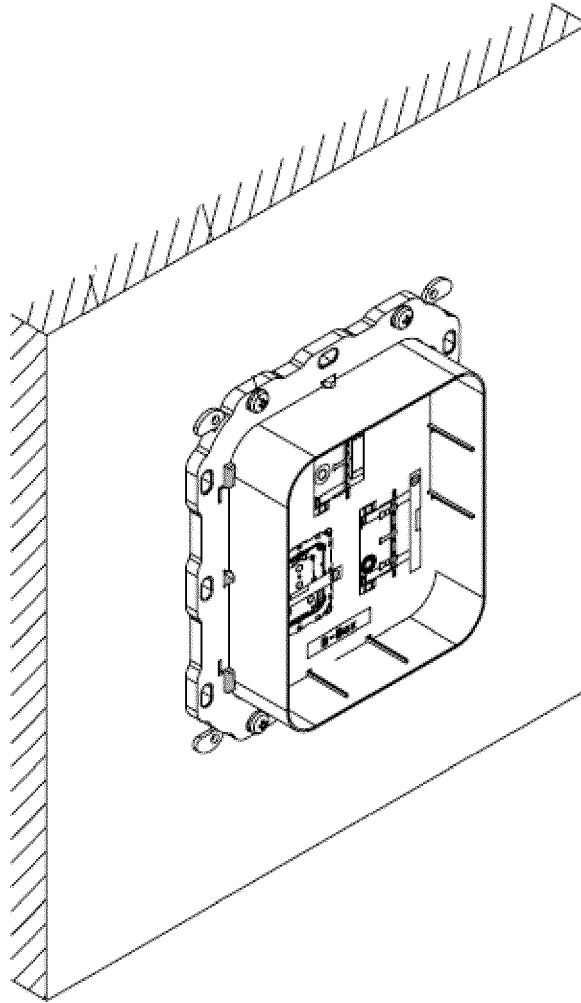


Figure 7





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Application Number  
EP 15 17 1118

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