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(54) MOUNTING APPARATUS FOR FIRE SUPPRESSION SYSTEM

(57) A mounting apparatus 100, for a fire suppression system that includes a cylinder, comprises a support body 120, defining an interior mounting space for the cylinder in use, and at least one retaining member 130, for securely retaining the cylinder in the mounting space. The body has a wall arranged in use to extend around more than 50% of the circumference of the cylinder when the cylinder is in the mounting space.

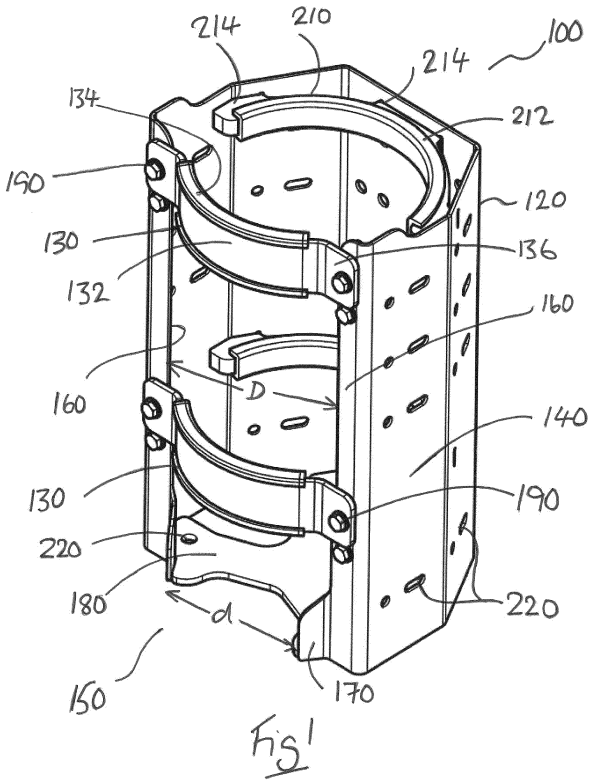

Fig 1

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Description

[0001] The present invention relates to a mounting apparatus for a fire suppression system, and is concerned particularly, although not exclusively, with a mounting apparatus for a fire suppression system comprising a pressurised cylinder, such as may be mounted on a vehicle.

[0002] Fire suppression systems including pressurised cylinders, for example containing powder or liquid, are used in many environments. When the cylinder is located on a vehicle it is typically retained securely in mounting apparatus, such as a frame or a cradle having retaining arms and/or straps which pass around the cylinder.

[0003] Repeated movement of the vehicle, particularly over rough or uneven terrain, places stress on the mounting apparatus and may cause it to fracture, or otherwise fail, which may render the fire suppression system inoperable.

[0004] Embodiments of the present invention aim to provide a mounting apparatus for a fire suppression system in which the aforementioned problem is at least partly addressed.

[0005] The present invention is defined in the attached independent claims, to which reference should now be made. Further, preferred features may be found in the sub-claims appended thereto.

[0006] According to one aspect of the present invention, there is provided a mounting apparatus for a fire suppression system including a cylinder, the apparatus comprising a support body and at least one retaining member, wherein the body defines a mounting space for receiving a cylinder and has a wall arranged in use to extend around more than 50% of the circumference of the cylinder when the cylinder is in the mounting space.

[0007] The wall is preferably arranged in use to extend around more than 70%, and more preferably more than 75% of the circumference of the cylinder.

[0008] Preferably, the wall does not extend around 100% of the circumference of the cylinder.

[0009] Preferably, the one or more retaining members are releasably mounted on the body. There are preferably a plurality of retaining members and they are preferably axially spaced with respect to the body.

[0010] The or each retaining member may be secured to the body by fixing devices, such as threaded fixing devices which may be arranged in use to engage with a socket portion on the body. The socket portion may include a clamping plate mounted on the body.

[0011] Preferably the retaining member comprises a substantially arcuate portion for contacting the cylinder in use. The arcuate portion may include a compression material, such as silicone for example, which may be arranged to compress when the arcuate portion is pressed against the cylinder.

[0012] In a preferred arrangement, the apparatus includes one or more arcuate support brackets/ribs arranged on an interior of the body for supporting the cylinder when in the mounting space.

[0013] There is preferably a plurality of arcuate support brackets axially spaced within the body.

[0014] The or each arcuate support bracket may comprise an arcuate cylinder support portion for supporting a cylindrical surface of a cylinder in use and may include one or more bracket mounts for mounting the arcuate support bracket on the body.

[0015] The bracket mount may be at least partly embedded in a keying aperture in the wall of the body. The bracket mount is preferably welded to the wall of the body.

[0016] The cylinder support portion preferably includes compressible material, such as silicone, which is arranged to become compressed when a cylinder is pressed against the cylinder support portion in use.

[0017] In a preferred arrangement, the body defines an axially extending opening for placing a cylinder within the mounting space and withdrawing it therefrom.

[0018] The axially extending opening preferably comprises a first and a second edge portions, being preferably edge portions of the wall defining said opening. The edge portions are preferably spaced apart by a first separation distance at a first axial region of the body and by a second separation distance at a second axial region of the body. The first and second separation distances may be unequal, providing a wider part of the opening. This enables the cylinder to be placed within, and withdrawn from, the mounting space through the wider part of the opening, whilst retaining the cylinder in the body at the narrower part of the opening.

[0019] The body may include an end support for supporting an end surface of the cylinder in use. The end support may be located at an axial end of the body and may comprise a plate, which is preferably integral with the body.

[0020] The body may comprise a sheet, preferably of metal, more preferably of steel and still more preferably of laser-cut steel. In a preferred arrangement the body comprises a unitary sheet of folded metal.

[0021] Preferably the body, together with the or each retaining member, is arranged in use to extend around substantially the entire circumference of a cylinder located in the mounting space.

[0022] The invention may include any combination of the features or limitations referred to herein, except such a combination of features as are mutually exclusive, or mutually inconsistent.

[0023] A preferred embodiment of the present invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a schematic perspective view of a mounting apparatus in accordance with an embodiment of the present invention;

Figure 2 shows the apparatus of Figure 1 in partly exploded view; and

Figure 3 shows the apparatus of Figures 1 and 2 from above.

[0024] With reference to Figures 1-3, there is shown generally at 100 a mounting apparatus for mounting a cylinder (not shown) of a fire suppression system.

[0025] The mounting apparatus 100 comprises a generally elongate body 120 defining an interior mounting space for the cylinder in use, and two removable retaining members 130 for securely retaining the cylinder in the mounting space.

[0026] The body comprises a wall 140 which, at least in places, is arranged to enclose more than 50% of the circumference of the cylinder when the cylinder is located within the mounting space. The wall is formed of a single sheet of laser cut steel that has been folded to create an enclosure with an opening on one (front) side.

[0027] Edge portions 160 of the wall define the opening and are spaced from each other by a gap D that is spanned by the retaining members 130. At a bottom portion of the body, the edges include flanges 170 that project towards one another and are separated by a smaller gap d. At the base of the body is a support plate 180, which is integrally formed with the wall, and is for supporting a cylinder standing upright, i.e. on its base, in use.

[0028] The retaining members 130 each comprise a convex, arcuate portion 132 on which is mounted a silicone-padded compression strip portion 134 for pressing against the cylinder in use. The retaining members also have fixing tabs 136 at each end for engagement with the edge portions 160 of the wall 140, in this case by means of bolts 190. The bolts threadably engage clamping plates 200 (see Figure 2) on the reverse side of the wall. The retaining members can be removed readily by unscrewing the bolts from the apertures in the clamping plates.

[0029] On an internal surface of the wall 140, facing the retaining members 130, is a pair of axially spaced cylinder support brackets 210. The support brackets 210 each comprise a concave arcuate cylinder support portion 212 (with a radius of curvature substantially matched to that of the cylinder) and three circumferentially spaced bracket mounts 214. Each of the mounts 214 is located in a keying aperture (not shown) in the wall 140 and is also welded to the wall.

[0030] The cylindrical support portions 212 have silicone compression strips 216 thereon for pressing against the cylinder in use.

[0031] The wall 140 and support plate 180 are provided with a plurality of mounting apertures suitable for receiving fixtures (not shown) for mounting the body on a wall, such as a wall of a vehicle for example.

[0032] The shape and structure of the apparatus, in particular the enclosure of a greater proportion of the cylinder by the body, means that it is stronger than previously considered designs and can therefore be made from thinner sheet steel, making it lighter. The structure is also easier to manufacture than prior mounting apparatus.

[0033] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance, it should be understood that the applicant claims protection in respect of any patentable feature or combination of features referred to herein, and/or shown in the drawings, whether or not particular emphasis has been placed thereon.

Claims

1. A mounting apparatus for a fire suppression system including a cylinder, the apparatus comprising a support body and at least one retaining member, wherein the body defines a mounting space for receiving a cylinder and has a wall arranged in use to extend around more than 50% of the circumference of the cylinder when the cylinder is in the mounting space.

2. Apparatus according to Claim 1, wherein the wall is arranged in use to extend around more than 70 of the circumference of the cylinder.

3. Apparatus according to Claim 1 or Claim 2, wherein the one or more retaining members are releasably mounted on the body.

4. Apparatus according to any of the preceding claims wherein there are plural retaining members and they are axially spaced with respect to the body.

5. Apparatus according to any of the preceding claims, wherein the or each retaining member is secured to the body by fixing devices, such as threaded fixing devices arranged in use to engage with a socket portion on the body.

6. Apparatus according to any of the preceding claims, wherein the or each retaining member comprises a substantially arcuate portion for contacting the cylinder in use.

7. Apparatus according to Claim 6, wherein the arcuate portion includes a compression material, such as silicone for example, arranged to compress when the arcuate portion is pressed against the cylinder.

8. Apparatus according to any of the preceding claims, wherein the apparatus includes one or more arcuate support brackets/ribs arranged on an interior of the body for supporting the cylinder when in the mounting space.

9. Apparatus according to Claim 8, wherein there are plural arcuate support brackets axially spaced within the body.

10. Apparatus according to Claim 8 or 9, wherein the or each arcuate support bracket comprises an arcuate cylinder support portion for supporting a cylindrical surface of a cylinder in use.

11. Apparatus according to any of Claims 8-10, wherein the or each arcuate support bracket includes one or more bracket mounts for mounting the arcuate support bracket on the body.

12. Apparatus according to Claim 11, wherein the bracket mount is at least partly embedded in a keying aperture in the wall of the body.

13. Apparatus according to any of the preceding claims, wherein the body defines an axially extending opening for placing a cylinder within the mounting space and withdrawing it therefrom.

14. Apparatus according to Claim 13, wherein the axially extending opening comprises a first and a second edge portions defining said opening.

15. Apparatus according to Claim 14, wherein the edge portions are spaced apart by a first separation distance at a first axial region of the body and by a second separation distance at a second axial region of the body, the first and second separation distances being unequal, providing a wider part of the opening.

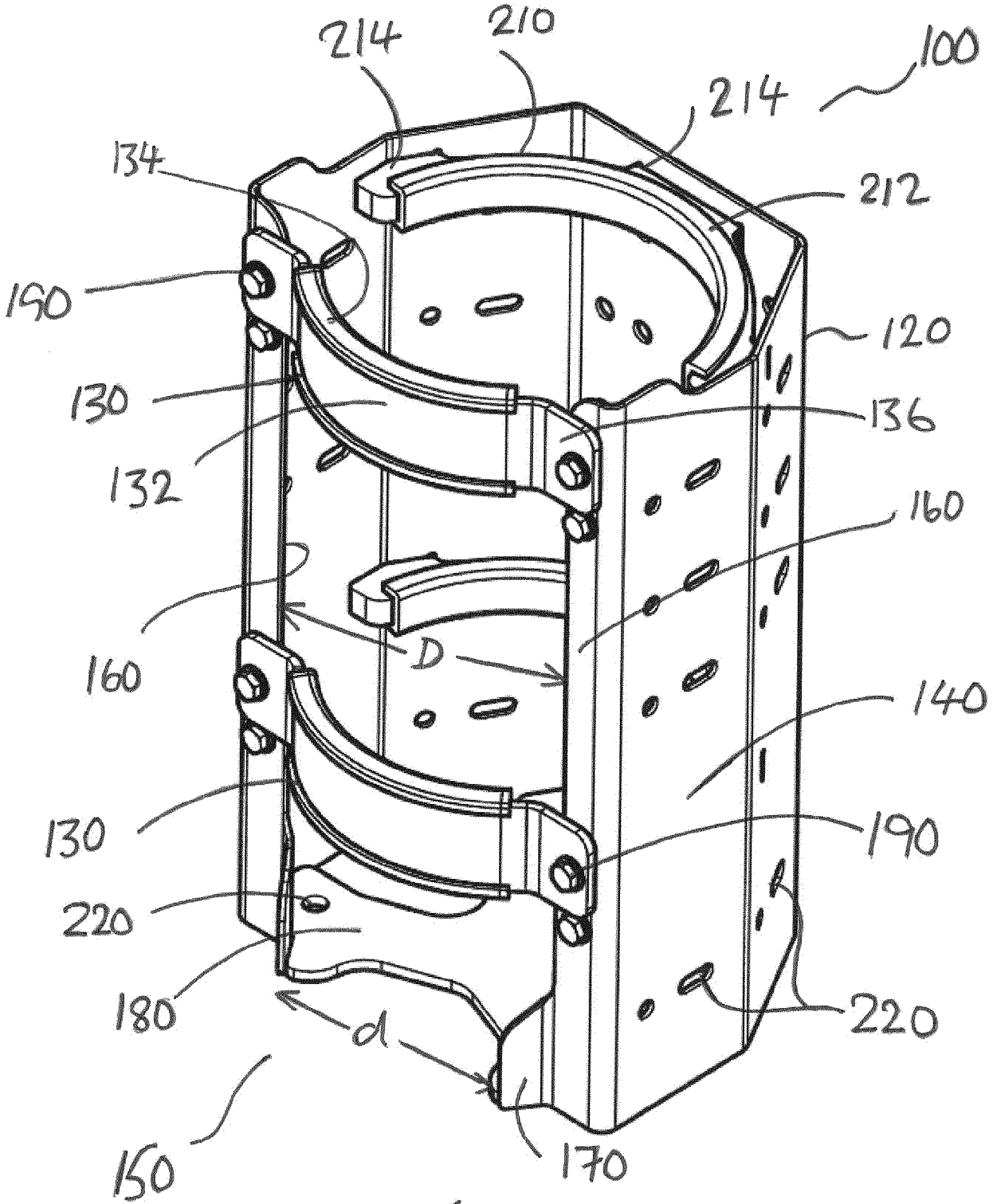
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Fig 1

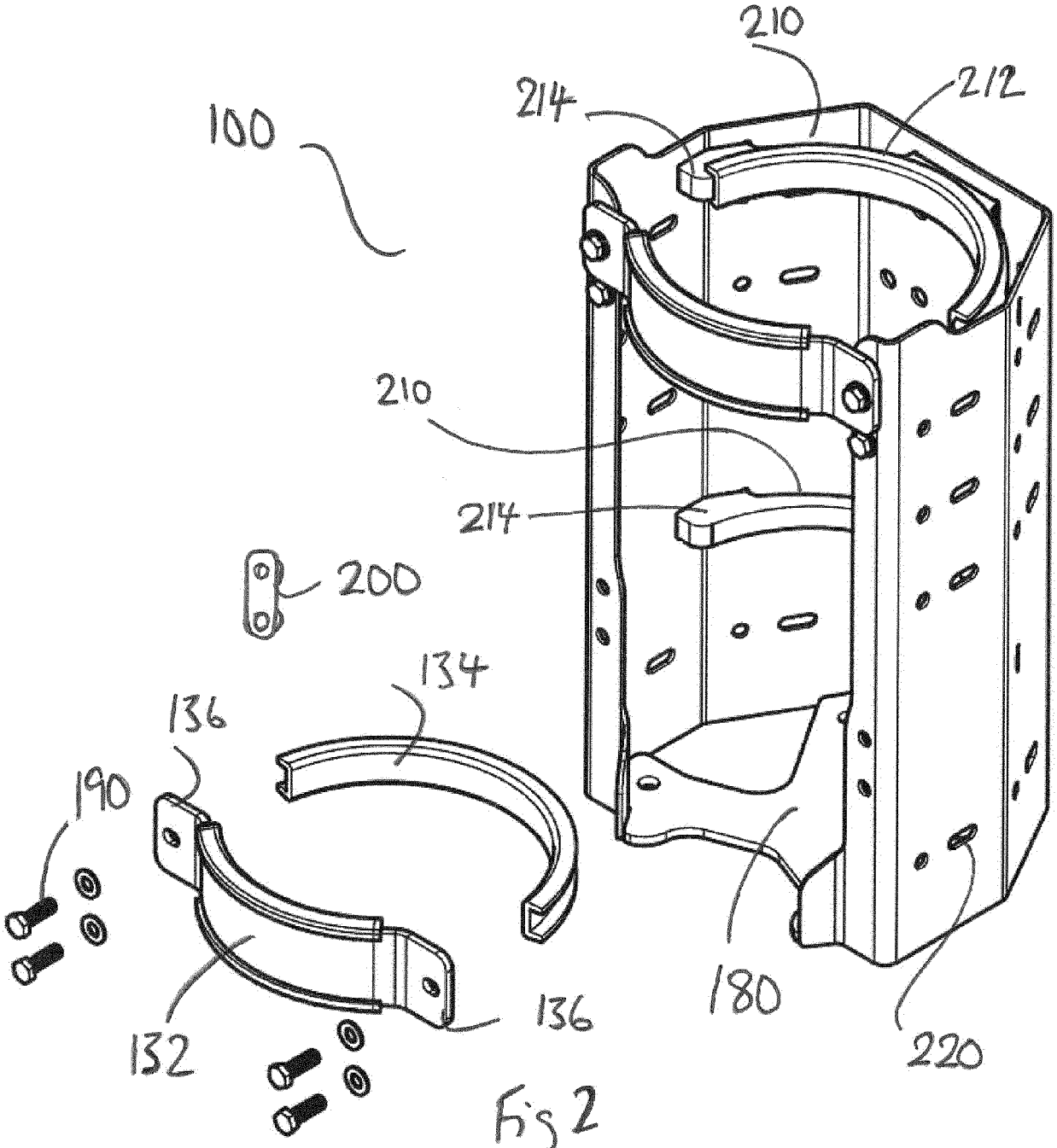

Fig 2

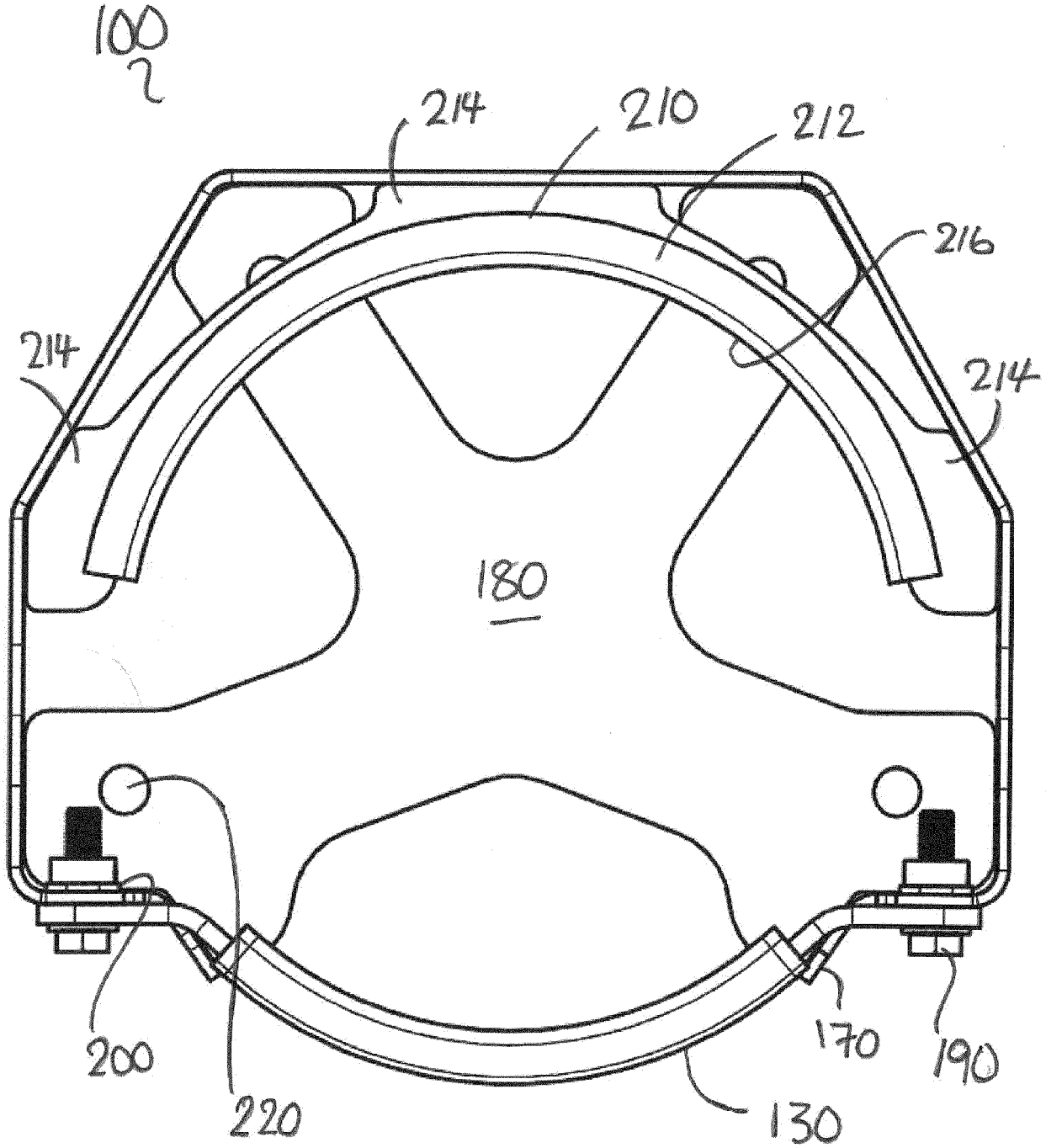

Fig 3

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EUROPEAN SEARCH REPORT

Application Number
EP 21 15 4103

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	18 June 2021	Neiller, Frédéric

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EUROPEAN SEARCH REPORT

Application Number
EP 21 15 4103

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