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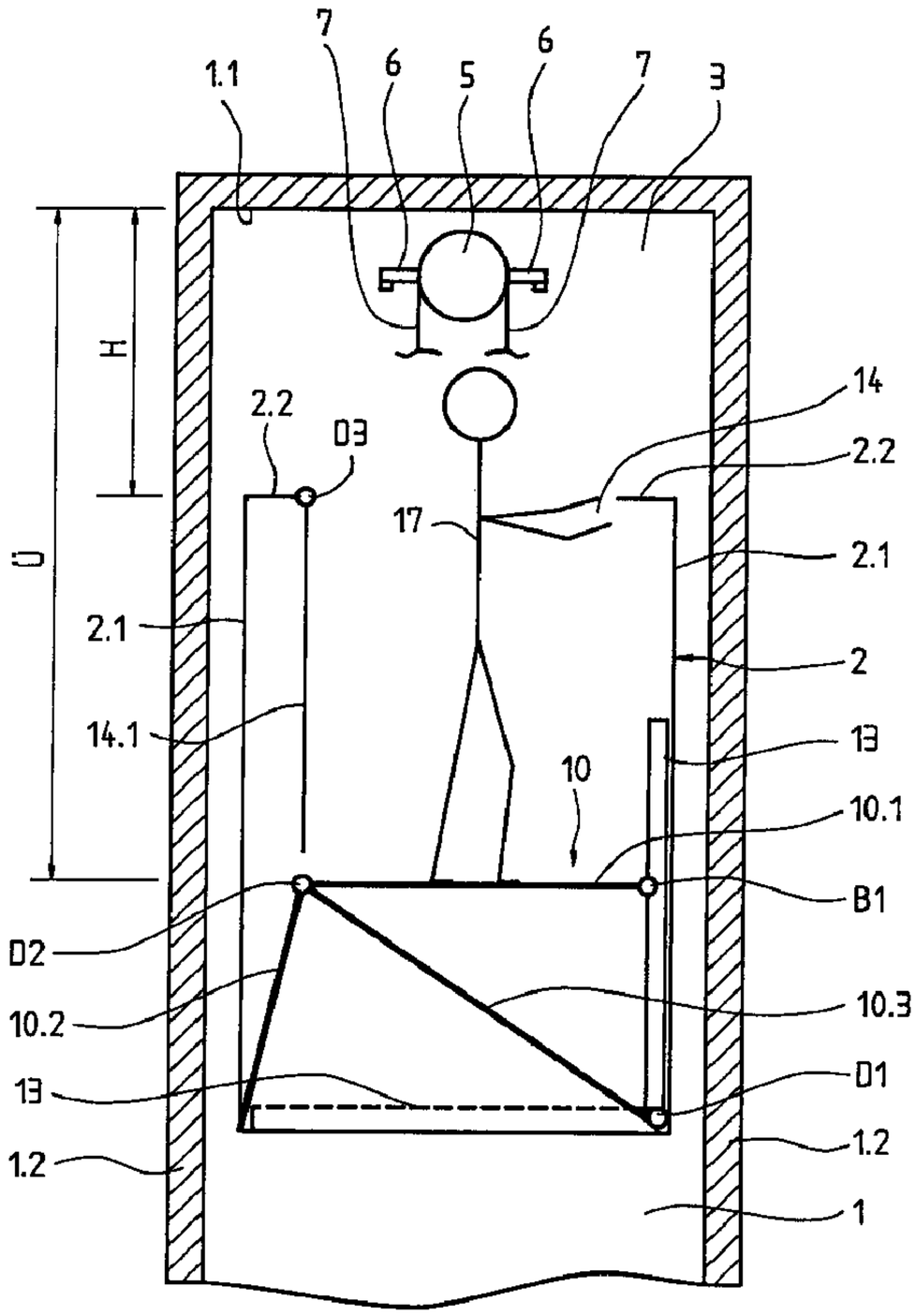
(54) Title: EQUIPMENT FOR CARRYING OUT OPERATIONS IN A LIFT SHAFT




(57) Abrégé/Abstract:
This maintenance trestle (10) is stowed in folded-together form in the floor (13) of the lift cage (2). For erection of the maintenance trestle (10), the floor (13) is tilted up towards the cage wall (2.1) about a first fulcrum (D1). The maintenance trestle (10) is now accessible in folded-together form for erection. The platform (10.1) is connectible in accordance with the respective width to at least

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(57) Abrégé(suite)/Abstract(continued):
one fastening point (B1) disposed at the rear side of the tilted-up floor (13). At least one support (10.2) is hingedly arranged at the platform (10.1) at the opposite side, wherein the support (10.2) is tiltable about a second fulcrum (D2). For stabilising the maintenance trestle (10), at least one stay (10.3) for example a rod or a cable, is provided, which is arranged between the fulcra (D1, D2). With the maintenance trestle (10) in work setting, the safety of the engineer (17) is taken care of and the prescribed over-travel (Ü) achieved, because the distance between the cage ceiling (1.1) and the platform (10.1) is determinative for that.

Summary:

This maintenance trestle (10) is stowed in folded-together form in the floor (13) of the lift cage (2). For erection of the maintenance trestle (10), the floor (13) is tilted up towards the cage wall (2.1) about a first fulcrum (D1). The maintenance trestle (10) is now accessible in folded-together form for erection. The platform (10.1) is connectible in accordance with the respective width to at least one fastening point (B1) disposed at the rear side of the tilted-up floor (13). At least one support (10.2) is hingedly arranged at the platform (10.1) at the opposite side, wherein the support (10.2) is tiltable about a second fulcrum (D2). For stabilising the maintenance trestle (10), at least one stay (10.3) for example a rod or a cable, is provided, which is arranged between the fulcra (D1, D2). With the maintenance trestle (10) in work setting, the safety of the engineer (17) is taken care of and the prescribed over-travel (Ü) achieved, because the distance between the cage ceiling (1.1) and the platform (10.1) is determinative for that.

(Fig. 1)

# EQUIPMENT FOR CARRYING OUT OPERATIONS IN A LIFT SHAFT

The invention relates to equipment for carrying out operations in a lift shaft, in which a lift shaft with a maintenance trestle, from which the operations can be carried, is movable.

Equipment for the servicing of shaft equipment of a lift installation has become known from the specification JP 05097357. A platform which is tiltable out of the cage wall and serves as a standing surface for the engineer during servicing operations is provided in a lift cage. Provided in the roof of the lift cage is a hatch which is closable by means of a cover and which affords access to the shaft equipment. The engineer stands up on the platform and can carry out the operations in the shaft with his upper body protruding out of the cage.

A disadvantage of the known equipment resides in the fact that the cage wall supporting the platform has to be mechanically reinforced and in addition fittings for the tilting and fixing of the platform are necessary, at which the lift users can be caught by articles of clothing or objects, because the platform is disposed in the standing region of the lift users.

Here, the invention will create a remedy. The present invention meets the object of avoiding the disadvantages of the known equipment and of creating equipment for operations in a lift shaft, which equipment does not represent a risk either for the engineer or for the lift users in the lift cage.

The advantages achieved by the invention are essentially to be seen in that there is no risk for the lift cage users of injury on parts of the maintenance trestle, because the maintenance trestle is located outside the standing region of the lift cage users. Moreover, there are no attack points for vandalism such as, for example, edges, hinges, joints, etc., at the cage walls. The cage interior is not adversely affected by the maintenance trestle. In terms of selling strategy the aesthetic presentation of the cage interior is of great economic significance. The maintenance trestle according to the invention completely and entirely meets this requirement, for example by the invisible arrangement of the maintenance trestle. The maintenance trestle according to the invention also has an increased load-bearing capability, so that parts to be mounted or demounted in the shaft can be intermediately placed on the maintenance trestle. The position of the hatch or the ceiling opening in the roof of the lift

cage can be so selected for the performance of operations in the lift shaft that the hatch is not overlapped by shaft equipment arranged in the shaft head, wherein in this case the maintenance trestle lies in the projection of the hatch and moreover has a sufficiently large standing area. The position of the hatch, the sufficient standing area and the increased load-bearing capability of the maintenance trestle guarantee the safety of the engineer. Moreover, the maintenance trestle is extremely simple in operation and is quickly ready for use without effort.

Accordingly in one aspect, the present invention resides in equipment for carrying out operations in a lift shaft, in which a lift cage with a maintenance trestle, from which the operations can be carried out, is movable, characterised in that the maintenance trestle is stowable in the floor of the lift cage and in working setting has a platform, from which the operations in the lift shaft can be carried out.

The invention is explained in more detail in the following by reference to a drawing illustrating an example of embodiment.

There:

Fig. 1 shows a schematic illustration of a lift cage, which is stopped at the top stopping point and which has a maintenance trestle, in a lift shaft with shortened shaft head.

A lift shaft, in which a lift cage 2 is movable, bounded by shaft walls 1.2 is denoted by 1 in Fig. 1. A drive pulley 5, which is connected with a drive that is not illustrated, is arranged in the shaft head 3. The drive pulley 5 and/or the drive is supported by, for example, a wall bracket 6. A carrying cable 7 has a cable course which is not illustrated, for example from a fixed point over a deflecting roller of the lift cage 2 or, in the case of a looping underneath, over two deflecting rollers, further over the drive pulley 5, further over a deflecting roller of a counterweight which is not illustrated and further to a further fixed point.

A maintenance trestle denoted by 10 is arranged in the lift cage 2 and serves for the maintenance of lift equipment, such as, for example, drive pulley 5, drive, support cable 7,

guide rails, lift switches, etc. A standing area from which the operations in the lift shaft 1 are carried out is designated in the following by platform 10.1. For the transport of persons and goods, the maintenance trestle 10 is stowed in the cage floor 13. For maintenance operations in the lift shaft, the maintenance trestle 10 can be erected as shown in Fig. 1.

The maintenance trestle 10 is stowed in folded-together form in the floor 13 of the lift cage 2. On erection of the maintenance trestle 10, floor 13 is, for example, tilted up about the

first fulcrum D1 towards the cage wall 2.1. The maintenance trestle 10 is now accessible, in folded-together form, for erection. The platform 10.1 is connectible in accordance with the respective width to at least one fastening point B1 disposed at the rear side of the folded-up floor 13, wherein the floor 13 serves as a support for the platform 10.1. At least one support 10.2 is hingedly arranged at the platform 10.1 at the opposite side, wherein the support 10.2 is tiltable about a second fulcrum D2. For stabilising the maintenance trestle 10, at least one strut 10.3, for example a rod or a cable, is provided, which as shown in Fig. 1 is arranged between fulcra D1 and D2.

In a further variant of embodiment, the platform 10.1 is adjustable in height. For that purpose the fastening point B1 is, for example, slidably arranged at a vertically extending rail of the floor rear side. After selection of the desired height, the fastening point B1 is fixed to the rail. The support 10.2 and the stay 10.3 are, for example, constructed to be telescopic and are extensible or retractible to the desired length.

In a further variant of embodiment the floor 13 is removable in the region of the maintenance trestle 10. In this case, the maintenance trestle 10 has supports 10.2 on each side and at least one stay 10.3 per diagonal. The removable floor part then serves as the platform 10.1.

In a further variant of embodiment the maintenance trestle 10 can be inflatable, wherein the floor 13 serves as the platform 10.1. Foldable lifters operated by pressure medium and, for example, in bellows form serve as the platform lift and as supports and bring the platform 10.1 into working setting.

A hatch 14, which is closable by means of the hatch cover 14.1, is provided in the roof of the lift cage 2. As Fig. 1 shows, the hatch cover 14.1 is tiltable about the first fulcrum D1, but it can also be constructed as a removable hatch cover 14.1.

The position and the size of the hatch 14 are so selected that the hatch 14 is not overlapped by shaft equipment, such as, for example, the drive pulley 5 and/or by the drive, arranged in the shaft head 3. The shown lift disposition, without a machine room, offers, by its shortened shaft head 3, for the maintenance of the cage roof an insufficient height H for a prescribed over-travel (distance between cage ceiling 2.2 and shaft ceiling 1.1) of, for example, one metre. With the maintenance trestle 10 according to the

invention in the shown working setting, the safety of the engineer 17 is taken care of and the required over-travel Ü achieved, because the distance between the cage ceiling 2.2 and the shaft ceiling 1.1 is no longer determinative, but rather the distance between the platform 10.1 and the shaft ceiling 1.1, and because no shaft equipment in the shaft head 3 overlaps the hatch 14.

We claim:

1. Equipment for carrying out operations in a lift shaft, in which a lift cage with a maintenance trestle, from which the operations can be carried out, is movable, characterised in that the maintenance trestle is stowable in the floor of the lift cage and in working setting has a platform, from which the operations in the lift shaft can be carried out.

2. Equipment according to claim 1, characterised in that the maintenance trestle is collapsible.

3. Equipment according to claim 1 or 2, characterised in that the maintenance trestle comprises supports which hold the platform in the working setting.

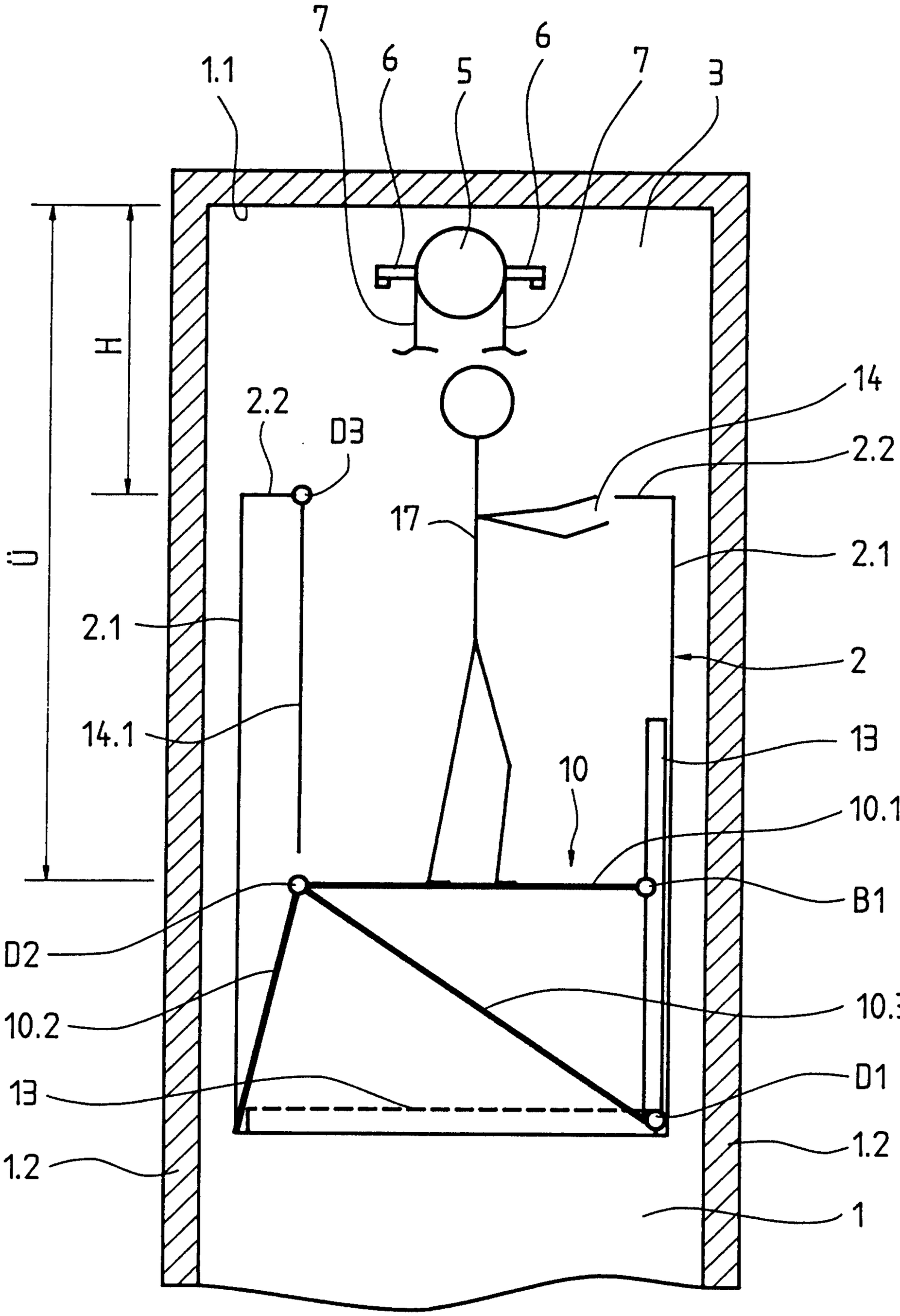
4. Equipment according to claim 3, characterised in that stays are provided for stabilising the maintenance trestle.

5. Equipment according to claim 3 or 4, characterised in that the floor or parts thereof are provided as the platform.

6. Equipment according to any one of claims 1 to 5, characterised in that the maintenance trestle is adjustable in height.

7. Equipment according to claim 1 or 2, characterised in that the maintenance trestle comprises lifters which are operated by pressure medium and which bring the platform into, and hold it in, working setting.

Fig. 1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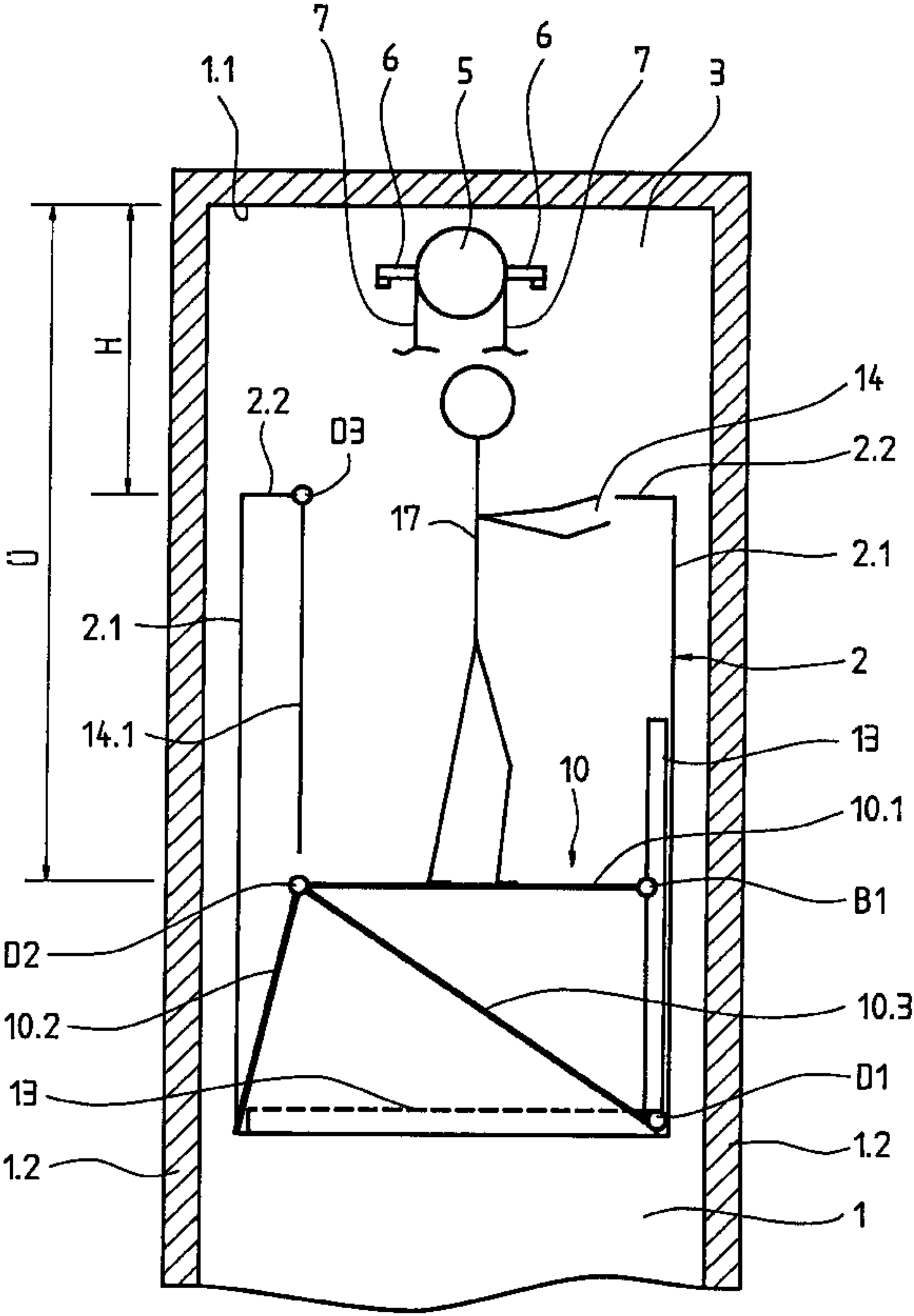
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