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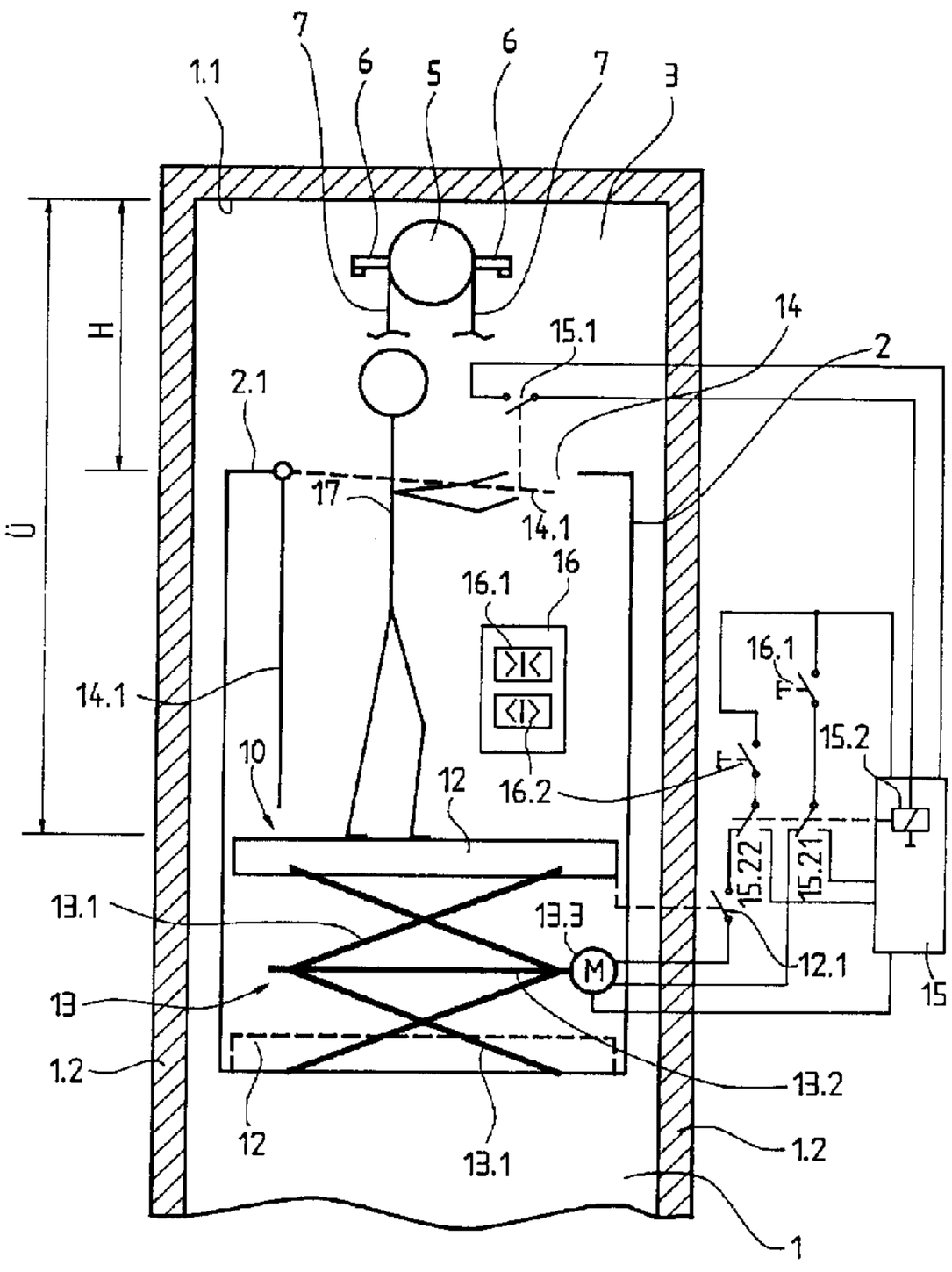
(54) **EQUIPEMENT DE TRAVAIL DANS UN PUITS D'ASCENSEUR**
(54) **EQUIPMENT FOR CARRYING OUT OPERATIONS IN A LIFT SHAFT**



(57) This maintenance trestle (10) is arranged in the lift cage (2). A platform (12), from which the operations in the lift shaft (1) are carried out, is at the same time also the floor of the lift cage (2). The platform (12) is adjustable in height by means of lifting equipment (13) operating on the scissors principle. For the transport of persons and goods, the platform (12) is in the position shown by dashed lines, in which the lifting equipment (13) is stowed under the platform (12) or under the cage floor (12). For maintenance operations in the lift shaft (1), the platform (12) is steplessly adjustable in height up to the illustrated position. With the maintenance trestle (10) in work setting, the prescribed over-travel (Ü) is 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 arranged in the lift cage (2). A platform (12), from which the operations in the lift shaft (1) are carried out, is at the same time also the floor of the lift cage (2). The platform (12) is adjustable in height by means of lifting equipment (13) operating on the scissors principle. For the transport of persons and goods, the platform (12) is in the position shown by dashed lines, in which the lifting equipment (13) is stowed under the platform (12) or under the cage floor (12). For maintenance operations in the lift shaft (1), the platform (12) is steplessly adjustable in height up to the illustrated position. With the maintenance trestle (10) in work setting, the prescribed over-travel (Ü) is achieved, because the distance between the cage ceiling (1.1) and the platform (10.1) is determinative for that.

(Fig. 1)

Description:

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 invention, as it is characterised in claim 1, 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, raised and lowered 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 steplessly adjustable in height, extremely simple in operation and is quickly ready for use without effort.

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 12, which at the same time forms the floor of the lift cage 2. The platform 12 is adjustable in height by means of lifting equipment 13 operating on the scissors principle. For the transport of persons and goods, the platform 12 is in the position shown by dashed lines, in which the lifting equipment 13

is stowed under the platform or under the cage floor 13. For maintenance operations on the lift shaft 1, the platform 12 is steplessly adjustable in height up to the shown position.

The lifting equipment consists of a double scissors 13.1 which is drivable in the middle by means of a motorised spindle 13.2. In the illustrated example, a motor 13.3 is provided as spindle drive. Instead of the motor 13.3, a hand crank can also serve as spindle drive. The lifting equipment 13 can also be driven pneumatically or hydraulically, for example on the piston-cylinder principle.

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, but it can also be constructed as a removable hatch cover 14.1.

The setting of the hatch cover 14.1 is monitored by a lift control 15, for example by means of a first limit switch 15.1. As soon as the hatch is opened, as shown in Fig. 1 by a dashed line, the lift drive is converted from normal operation to revision operation by means of, for example, a relay 15.2, which is actuable by the first limit switch 15.1, of the lift control 15, wherein the functions of two buttons of a cage control panel 16 are changed. In the case of normal operation, a first button 16.1 has the function of a manual door closer and a second button 16.2 has the function of a manual door opener, wherein the storey door and cage door are closable or can be opened by means of the lift control 15 and the door drive. In the case of revision drive, the two contacts 15.21, 15.22 of the relay 15.2 are in the illustrated setting, in which the motor 13.3 is controllable in drive by means of the buttons 16.1, 16.2 directly in downward direction or in upward direction. The travel of the platform 12 in upward direction is limited by a second limit switch 12.1, which is open in the illustrated position of the platform 12 and interrupts the current circuit for the upward movement. As variant, the UP/DOWN button for the height adjustment of the platform 12 can be, for example, integrated into the closable cage control panel to be invisible and to be accessible only for the engineer 17.

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, 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 required over-travel Ü is achieved, because the distance between the cage ceiling 2.1 and the shaft ceiling 1.1 is no longer determinative, but rather the distance between the platform 12 and the shaft ceiling 1.1, and because no shaft equipment in the shaft head 3 overlaps the hatch 14.

Patent Claims:

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 floor of the lift cage forms a platform, which serves as a standing surface, of the maintenance trestle, from which the operations in the lift shaft can be carried out.

2. Equipment according to claim 1, characterised in that the platform is adjustable in height.

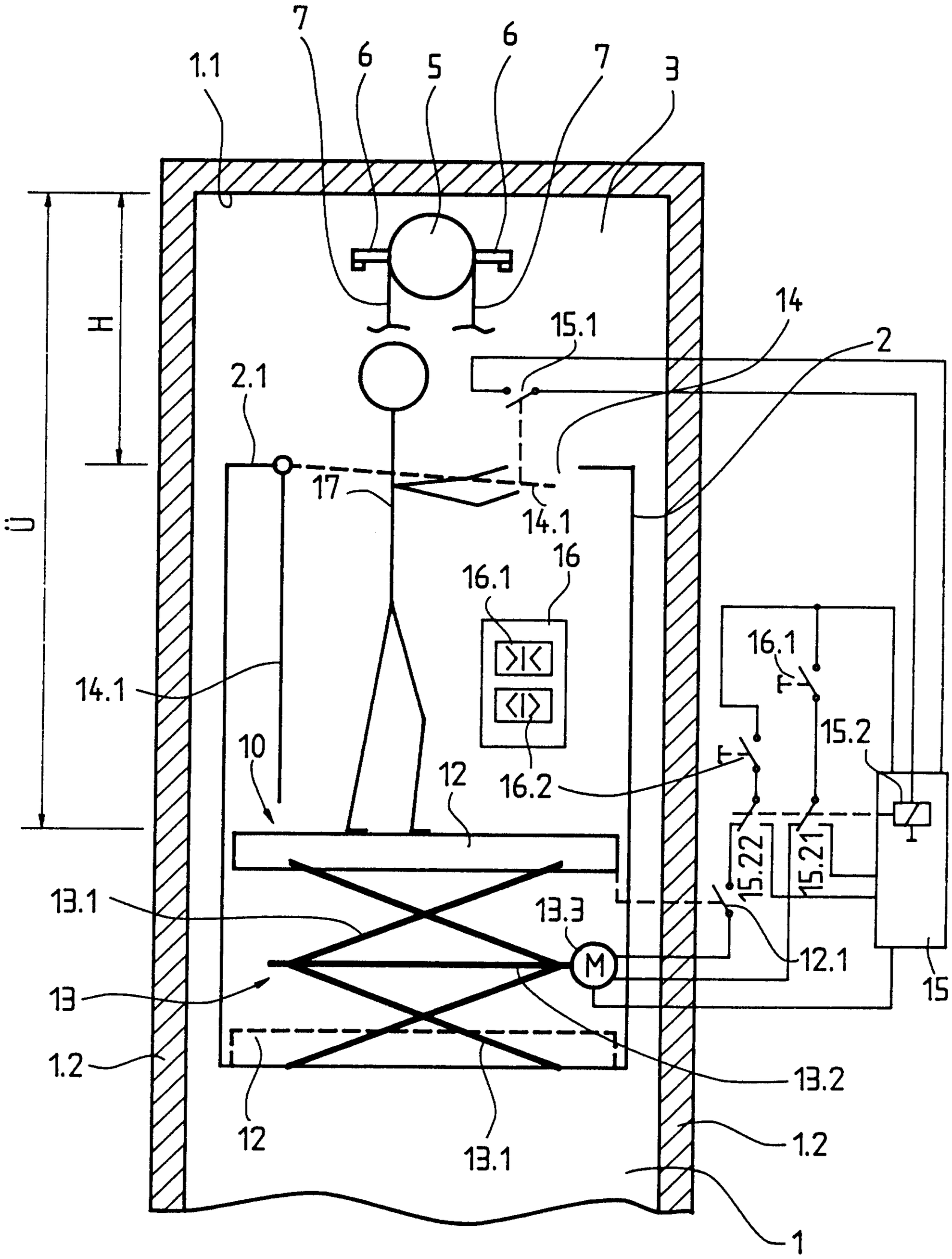
3. Equipment according to claim 1 or 2, characterised in that the maintenance trestle is stowable in the floor of the lift cage.

4. Equipment according to one of the preceding claims, characterised in that the platform is steplessly adjustable in height by means of drivable lifting equipment.

5. Equipment according to claim 4, characterised in that the lifting equipment operates on the scissors principle and is motor-driven.

6. Equipment according to claim 5, characterised in that the lift operation on opening of a hatch cover of the lift cage is convertible from normal operation to revision operation, wherein specific buttons of a cage control panel are usable for control of the lifting equipment.

Fig. 1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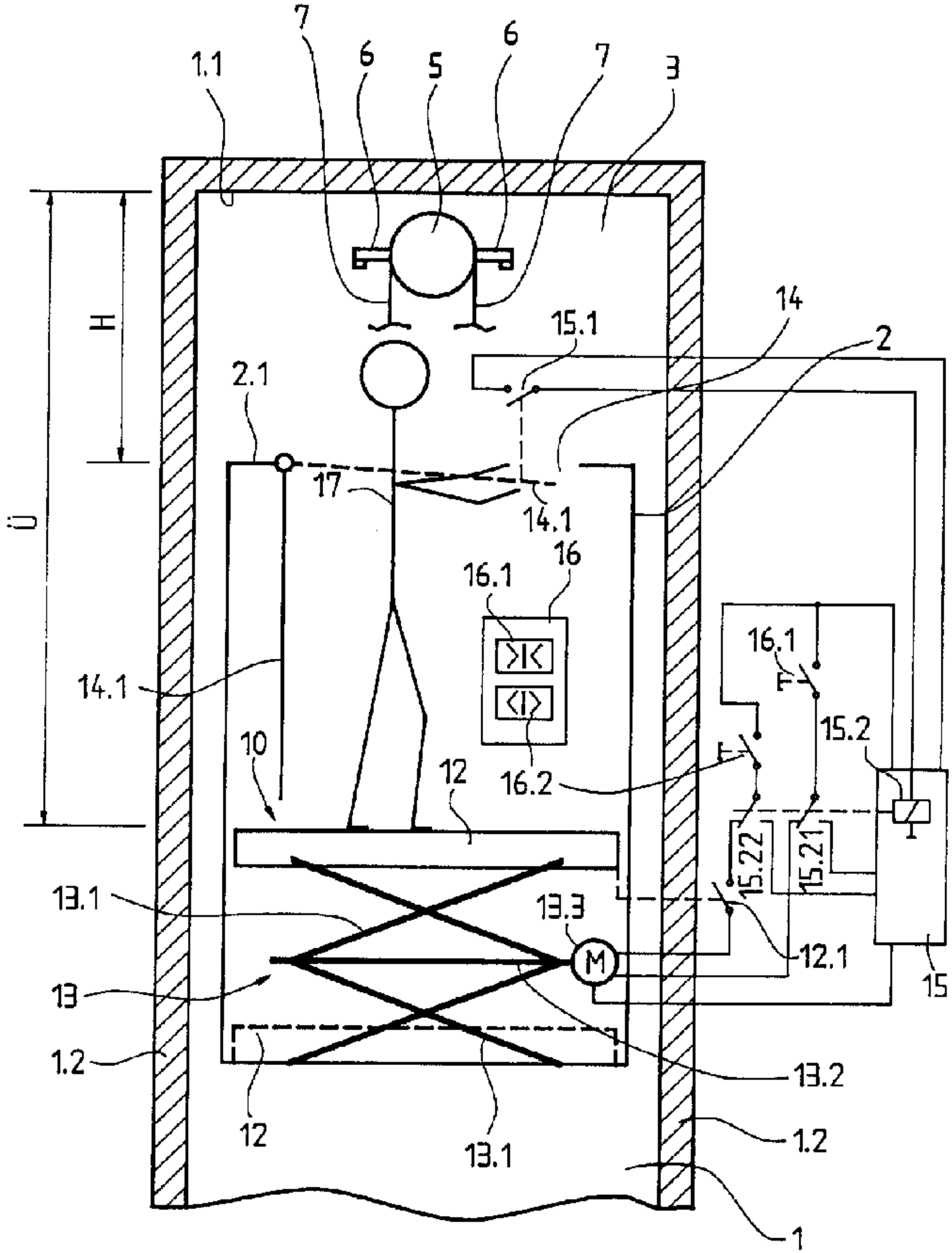
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