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(54) **A SANITARY FITTING FOR DISPENSING WATER**

(57) A sanitary fitting (10) for dispensing water, comprising a main body (12), a base portion (16) configured to be non-rotatably mounted to a stationary object of a sanitary installation, and a water outlet segment (14) to eject water from the sanitary fitting. The water outlet segment (14) is displaceable between at least two positions with respect to the base portion (16). The sanitary fitting (10) further comprises a water release device comprising a valve (38) for allowing or disallowing the release of water from the water outlet segment (14). The water release device is configured to disallow the release of water from the water outlet segment (14) when the water outlet segment is in a first position and to allow the release of water from the water outlet segment (14) when the water outlet segment is in a second position.

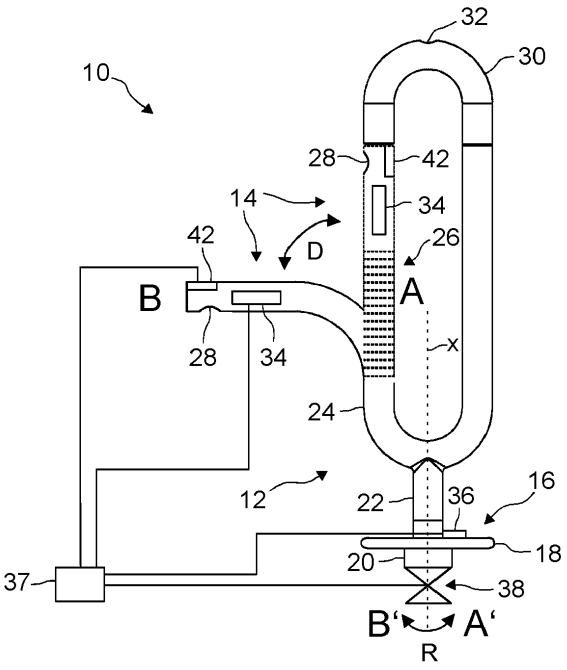

Fig. 1

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a sanitary fitting for dispensing water.

2. Description of the Prior Art

[0002] Sanitary fittings are commonly used in sanitary installations to allow users to dispense water. The sanitary fittings are mounted to a wash basin or a wall or other stationary objects arranged in the environment of the sanitary installation, thereby protruding from the mounting surface.

[0003] Although sanitary fittings mounted in the above described manner fulfil their primary function of dispensing water, protruding sanitary fittings hinder the user's movements near the sanitary installation and thereby reduce the space close to the sanitary installation available to the user.

[0004] Furthermore, although sanitary fittings are often seen as mere functional objects to dispense water, they are often aesthetically deigned to provide a visual object of interest.

[0005] It is therefore desirable to enhance the sanitary fitting to be less obtrusive and have a better visual appearance.

SUMMARY OF THE INVENTION

[0006] It is therefore an object of the present invention to provide an improved sanitary fitting for dispensing water, which in particular may allow for a more aesthetically appealing and space efficient design, while not compromising its functionality.

[0007] This object is achieved by a sanitary fitting for dispensing water, comprising:

a) a main body;

b) a base portion configured to be non-rotatably mounted to a stationary object of a sanitary installation;

c) a water outlet segment to eject water from the sanitary fitting, wherein the water outlet segment is displaceable between at least two positions with respect to the base portion; and

d) a water release device comprising a valve for allowing or disallowing the release of water from the water outlet segment.

[0008] The water release device is configured to disallow the release of water from the water outlet segment when the water outlet segment is in a first position and to allow the release of water from the water outlet segment when the water outlet segment is in a second position.

[0009] By providing the water outlet segment with at least one degree of freedom between at least two positions it is possible to stow the water outlet segment into a more retracted position when it is not desired to dispense water. This gives the user more space when the sanitary fitting is not in use. Furthermore it provides an uncluttered and more appealing visual impression of the sanitary installation.

[0010] The first position represents the stowed position or a stand-by position. In this position the water outlet segment is typically retracted away from a sink or other means of water collection or disposal. Because the water cannot be collected and drained it is not desirable to dispense water in this position.

[0011] According to the invention the water release device therefore provides the function of disallowing the release of water from the water outlet segment when the water outlet segment is in the first position. This prevents water from being released in the first position, for example when a user unintentionally triggers a water release control element on the sanitary fitting or is not familiar with the ergonomics of the sanitary fitting.

[0012] The second position represents the functional or "active" state of the sanitary fitting, in which water is intended to be released. In this position the water outlet segment is positioned near a water drain. Any water released from the sanitary fitting in this state would be collected by the drain so that there is no safety requirement to stop water from being released when a user desires to dispense water. Therefore the valve of the water release device does not restrain the water outlet segment from releasing water in the second position.

[0013] However, positioning the water outlet segment into the second position does not necessarily trigger the water release. Further elements, such as further valves, can disallow the release of water from water outlet segment even when the water outlet segment is in the second position.

[0014] The stationary object of a sanitary installation which the base portion is configured to be mounted to can in particular be a wall or a wash basin. The object is stationary in that the object typically is not moved. This does not imply that the object cannot be moved, however, as the stationary object can also be an underbody or piece of furniture which can be moved if desired, for instance by means of wheels.

[0015] Advantageously the valve of the water release device is an electrically actuated valve and the water release device comprises a position sensor configured to detect the position of the water outlet segment and to operate together with the electrically actuated valve to disallow the release of water when the first position is detected and to allow the release of water when the second position is detected.

[0016] The position sensor detects the position of the water outlet segment and may communicate with a control unit. The control unit may then send signals to the electrically actuated valve to open and/or close an opening of the valve in order to allow or disallow the release of water.

[0017] Alternatively the valve of the water release device can be mechanically triggered when the water outlet segment is displaced, for example via a mechanical coupling between the water outlet segment and the valve of the water release device.

[0018] Advantageously the position sensor is an inclinometer which senses the inclination of the water outlet segment. Inclination is defined as the angle between the water outlet segment and a horizontal plane. Depending on the inclination of the water outlet segment, the water release device either allows or disallows the release of water. The inclination is determined as being zero when the water outlet segment is parallel to the horizontal plane.

[0019] Advantageously the second position, in which the release of water is allowed, is determined as the horizontal position of the water outlet segment having no inclination, as in this position the water outlet opening of the water outlet segment faces towards the water drainage. It is also feasible, however, that the water outlet segment is constructed such that the outlet opening faces towards the drain when the water outlet segment is not in the horizontal position, but rather for example in a vertical position. In this case the vertical position of the water outlet segment would be determined as the second position.

[0020] In general the second position is determined as the position in which the water outlet opening and hence the dispensed water stream is substantially directed vertically downwards and towards a water collection or a water drain means.

[0021] The second position can be determined as having an inclination within +-30 ° with respect to the horizontal position, in particular within +- 20 °, in particular within +-10 °, in particular within +-5 °.

[0022] Alternatively the position sensor can also be an electrical contact which detects the first and/or the second position by making contact and creating a signal when in the first and/or the second position.

[0023] Advantageously the water outlet segment is moveable between the first position and the second position by displacing the water outlet segment relative to the main body.

[0024] Alternatively the water outlet segment can be displaced together with the main body relative to the base portion.

[0025] Advantageously the main body comprises a flexible section connected to the water outlet segment, via which flexible section the water outlet segment is displaceable by bending the flexible section in at least one direction.

[0026] Alternatively the water outlet segment can be connected to the main body via a hinge or socket element, via which the water outlet segment can be displaced relative to the main body.

[0027] The flexible section may be configured such that when a user bends the flexible section a plastic deformation of the material of the flexible section is affected. This allows the shape and/or orientation of the flexible section relative to the water outlet segment, the main body and the base portion to be changed by the user such that the change in shape and/or orientation of the ends of the flexible section remain until another change is conducted by the user. This allows the user to move the water outlet segment to a position in which it remains without having to manually hold the water outlet segment in that position.

[0028] Advantageously the displacement of the water outlet segment comprises a rotation of the water outlet segment and the main body with respect to the base portion about a substantially vertical axis x.

[0029] Therefore it is possible to move the water outlet segment between the first and second position by rotating the water outlet segment and the main body. This allows a simple and effective movement to stow the water outlet segment out of the way.

[0030] It is advantageous if the displacement between the first and the second position is a combination of a rotation of the water outlet segment and the main body about a vertical axis x and a movement of the water outlet segment relative to the base portion.

[0031] The rotation between a first rotational position and second rotational position can switch the sanitary fitting between an active mode and a stand-by mode, as described above. The rotation in addition to the movement of the water outlet segment relative to the base portion further enhances the stowability of the sanitary fitting and aesthetics of the sanitary fitting.

[0032] Advantageously the water release device comprises a rotational position sensor configured to detect a rotation of the main body with respect to the base portion and

a) to disallow the release of water when the first position is detected and to allow the release of water when the second position is detected and/or

b) to switch the sanitary fitting from a stand-by mode in the first position to an active mode in the second position.

[0033] The stand-by mode can be a mode in which the user can easily visually identify that the sanitary fitting is inactive without knowing the specific ergonomics of the controls of the sanitary fitting. The active mode can be characterized for example by decorative lighting and/or illumination of optical control elements. In the inactive stand-by mode the lighting and the illumination can contrarily be turned off, visually signalling to the user that the sanitary fitting is not active.

[0034] The stand-by mode reduces energy-consumption of the sanitary fitting and may provide an additional safety measure, in that the user must first "activate" the sanitary fitting by rotating the sanitary fitting before water can be dispensed.

[0035] The rotational position sensor can be a single sensor which detects more than one rotational position of the main body. It can, however, also be an electromechanical switch which is contacted when the main body is rotated to a given position. In the latter case, only one position may be detected by the switch. By using more than one mechanical switch it is however also possible to detect a plurality of positions using electromechanical switches.

[0036] Advantageously in the first position of the water outlet segment at least a portion of the main body and the water outlet segment form a substantially closed loop shape. It is uncommon for elements of a sanitary fitting to form a closed loop, therefore creating an unordinary visual object of interest. Such a closed loop shape becomes possible with a water release safety mechanism according to the invention described above.

[0037] Advantageously the sanitary fitting further comprises an operating element by means of which the volume flow and/or the temperature of the water to be released from the sanitary fitting can be controlled by a user.

[0038] Advantageously the operating element is a touch element, such as a capacitive sensor, which a user operates by merely touching and/or sliding over the touch element with at least a portion of the user's hand, such as a finger. The operating element can also be a switch, dial or knob, which can be turned or moved manually by the user.

[0039] Advantageously the operating element is arranged on the water outlet segment in view of the user. However it is possible to arrange the operating element on another portion of the sanitary fitting, such as on the main body.

[0040] The operating element is advantageously configured such that the water temperature and/or volume flow is adjusted by sliding the user's finger across at least a portion of the operating element, wherein this movement across the surface of the operating element increases or decreases the water temperature and/or volume flow.

[0041] The control of water temperature and/or volume flow on the operating element can be distinguished from one another in that the control of water temperature is achieved by sliding a finger in a direction that differs from the direction in which a finger is slid to control the volume flow.

[0042] It is also possible to combine the control of water temperature and volume flow in that the volume flow of hot water can be controlled via one operating movement, such as sliding a finger across a surface of the operating element, and the volume flow of cold water can be controlled via another operating movement.

BRIEF DESCRIPTION OF THE DRAWINGS

[0043]

Figure 1 shows a side view of the sanitary fitting according to the invention with the water outlet segment in a first position and a second position;

Figure 2 shows a further side view of the sanitary fitting of figure 1; and

Figure 3 shows a top view of the sanitary fitting of figure 1.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0044] Figure 1 shows a sanitary fitting 10 with a main body 12, a water outlet segment 14 and base portion 16. The base portion 16 comprises a bezel 18 and mounting portion 20, via which the base portion 16 can be mounted to a wash basin 44 (compare figure 3), wall or any other stationary object of a sanitary installation with fixture means not displayed in figure 1, such as a bolt and a corresponding nut.

[0045] The main body 12 comprises a bottom portion 22 rotatably connected to the base portion 16, a top portion 24 and a flexible section 26. The top portion 24 is u-shaped and provides two paths for the water to be ejected from the sanitary fitting 10. The main path leads to the water outlet segment 14 connected to the top portion 24 of the main body 12 via the flexible section 26. The water is ejected from an outlet opening 28.

[0046] The top portion 24 also provides a path to a second water outlet segment 30, which is detachably connected to the main body 12 via a hose arranged within the top portion 24. The user can grasp the second water outlet segment 30 and remove it from the main body 12. The water can be release from the second water outlet segment 30 by means of an operating element 32, which the user can activate by touching or pressing. This may trigger a diverter which may be arranged in the top portion 24, for instance by pressure activation known from the state of the art.

[0047] The sanitary fitting 10 further comprises a water release device comprising a position sensor 34 and a rotation sensor 36 which communicate with a control unit 37 connected to the sensors 34 and 36. The control unit 37 sends signals to a valve 38 via a connection to allow and disallow water release from the water outlet segment 14 depending on the position of the water release segment 14 detected by the position sensor 34 and the rotation sensor 36.

[0048] The dashed lines in figure 1 depict the water outlet segment 14 in a substantially vertical position, resembling an inactive first position A. The water outlet segment 14 can be can be displaced from the first posi-

tion A to an active second position B in a direction D by bending the flexible section 26. A position sensor 34 configured as an inclinometer is arranged within the water outlet segment 14 and detects whether the water outlet segment 14 is in position A or B.

[0049] When the water outlet segment 14 is in position A the position sensor 34 detects an inclination which substantially deviates from a horizontal position. The position sensor 34 therefore disallows the release of water via the valve 38.

[0050] When the water outlet segment 14 is in position B the position sensor 34 does not detect an inclination which substantially deviates from a horizontal position. The position sensor 34 therefore allows the release of water via the valve 38.

[0051] Furthermore the water outlet segments 14, 30 and the main body 12 can also be rotated about a vertical axis x by a rotation R between the positions A' and B'. The base portion 16 remains stationary during the rotation. This rotation can resemble switching the sanitary fitting between a "stand-by" mode and an "active" mode. As can be seen in figure 3, this rotational movement brings the water outlet segment to rest above a water drain 46 of the wash basin 44 in position B'.

[0052] The rotational sensor 36 arranged near the main body 12 and the base portion 16 detects the rotation of the main body 12. When the main body 12 is in position A' the rotational sensor 36 disallows the release of water via a valve 38.

[0053] When the main body 12 and the water outlet segment 14 are in position B' the rotational sensor 36 does not disallow the release of the water via the valve 38. However if in this case the water outlet segment 14 is in position A then the position sensor 34 disallows the release of water from the water outlet segment 14.

[0054] Therefore, in order for water to be allowed to be released from the valve 38 the main body 12 and the water outlet segment 14 must be in rotational position B' and the water outlet segment 14 must also be in position B. Otherwise the position sensor 34 and/or the rotational sensor 36 will disallow the release of water.

[0055] The sanitary fitting 10 can also include further valves or other water flow restricting elements that are controllable via an operating element 42 arranged on the surface of the water outlet segment 14 and also connected to the control unit 37. By means of the operating element 42 the volume flow and/or the temperature of the water to be released can be adjusted by a user.

[0056] Alternatively the operating element 42 can be arranged on a portion of the main body 12.

[0057] Figure 2 shows a side view of the sanitary fitting 10 of figure 1. The water outlet segment is also depicted in the first position A in which water release is disallowed and in the second position in which water release is allowed.

[0058] Figure 3 shows a top view of the sanitary fitting 10 of figure 1. In addition to figures 2 and 3, a wash basin 44 having a water drain 46 is also illustrated. By means of the rotation R about the axis x from the position A' to the position B' the water outlet segment 14 is moved from a stowed position to a position above the water drain 46 of the wash basin 44. The water can be released from the water outlet segment 14 and collected by the water drain 46 in position B'. The "stand-by" position A' of the water outlet segment 14 is illustrated in figure 3 with dashed lines.

Claims

1. A sanitary fitting (10) for dispensing water, comprising:

   a) a main body (12);
   b) a base portion (16) configured to be non-rotatably mounted to a stationary object of a sanitary installation;
   c) a water outlet segment (14) to eject water from the sanitary fitting (10), wherein the water outlet segment (14) is displaceable between at least two positions (A; A', B; B') with respect to the base portion (16); and
   d) a water release device comprising a valve (38) for allowing or disallowing the release of water from the water outlet segment (14),

   wherein
   the water release device is configured to disallow the release of water from the water outlet segment (14) when the water outlet segment (14) is in a first position (A; A') and to allow the release of water from the water outlet segment (14) when the water outlet segment (14) is in a second position (B; B').

2. The sanitary fitting (10) according to claim 1, **characterized in that** the valve (38) of the water release device is an electrically actuated valve and the water release device comprises a position sensor (34) configured to detect the position of the water outlet segment (14) and to operate together with the electrically actuated valve to disallow the release of water when the first position (A; A') is detected and to allow the release of water when the second position (B; B') is detected.

3. The sanitary fitting (10) according to claim 2, **characterized in that** the position sensor (34) is an inclinometer which senses the inclination of the water outlet segment (14).

4. The sanitary fitting (10) according to any one of the preceding claims, **characterized in that** the water outlet segment (14) is moveable between the first position (A) and the second position (B) by displacing the water outlet segment (14) relative to the main body (12).

5. The sanitary fitting (10) according to claim 4, wherein the main body (12) comprises a flexible section (26) connected to the water outlet segment (14), via which flexible section (26) the water outlet segment (14) is displaceable by bending the flexible section (26) in at least one direction.

6. The sanitary fitting (10) according to any one of the preceding claims, **characterized in that** the displacement of the water outlet segment (14) comprises a rotation of the water outlet segment (14) and the main body (12) with respect to the base portion (16) about a substantially vertical axis x.

7. The sanitary fitting (10) according to claim 6, wherein the water release device comprises a rotational position sensor (36) configured to detect a rotation of the main body (12) with respect to the base portion (16) and

   a) to disallow the release of water when the first position (A') is detected and to allow the release of water when the second position (B') is detected and/or
   b) to switch the sanitary fitting (10) from a standby mode in the first position (A') to an active mode in the second position (B').

8. The sanitary fitting (10) according to any one of the preceding claims, **characterized in that** in the first position (A) of the water outlet segment (14) at least a portion of the main body (12) and the water outlet segment (14) form a substantially closed loop shape.

9. The sanitary fitting (10) according to any one of the preceding claims, **characterized in that** the sanitary fitting (10) further comprises an operating element (42) by means of which the volume flow and/or the temperature of the water to be released from the sanitary fitting (10) can be controlled by a user.

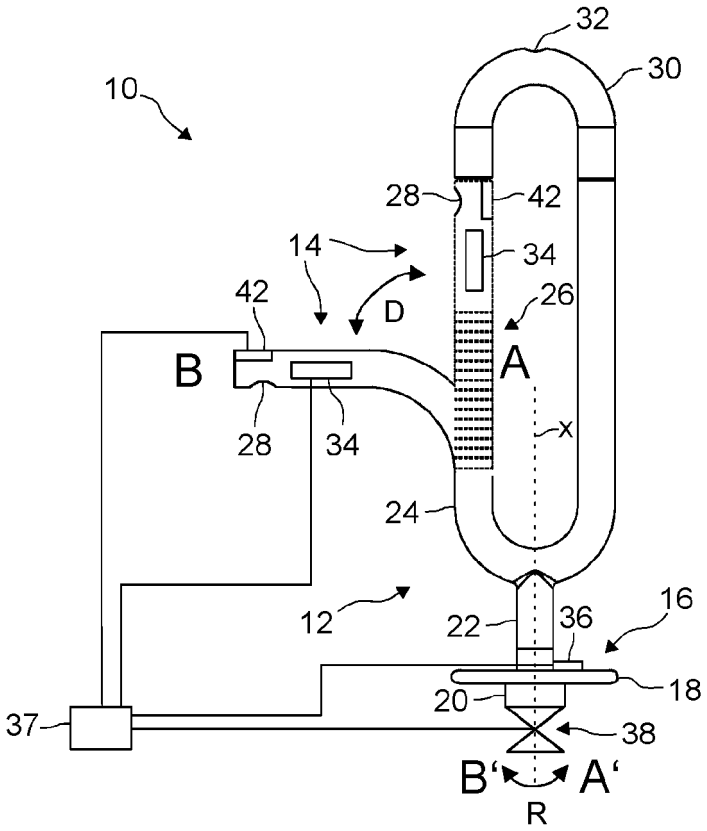
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Fig. 1

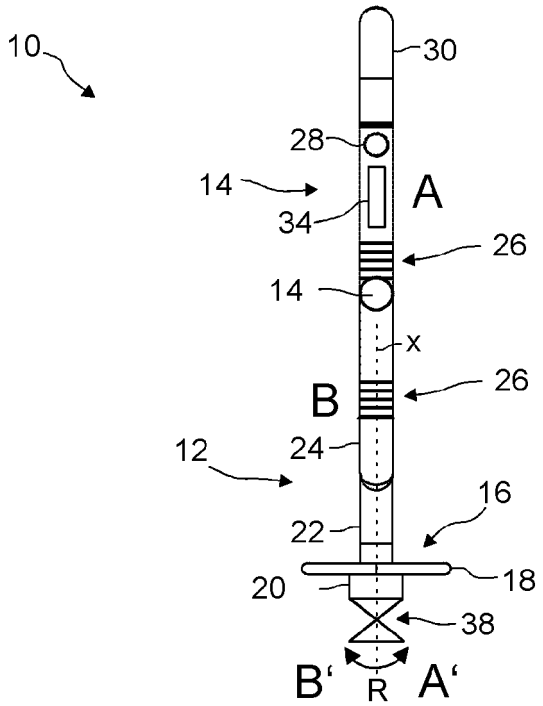
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Fig. 2

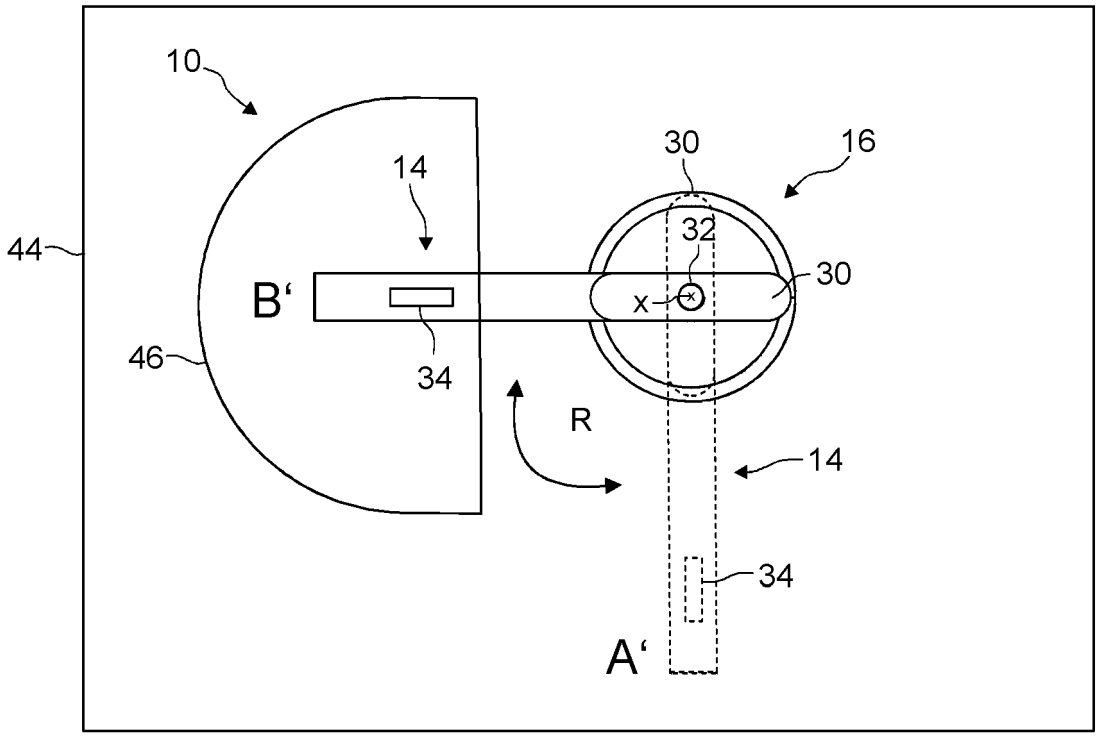

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 20 16 0578

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

E03C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 July 2020	Isailovski, Marko

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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09-07-2020

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