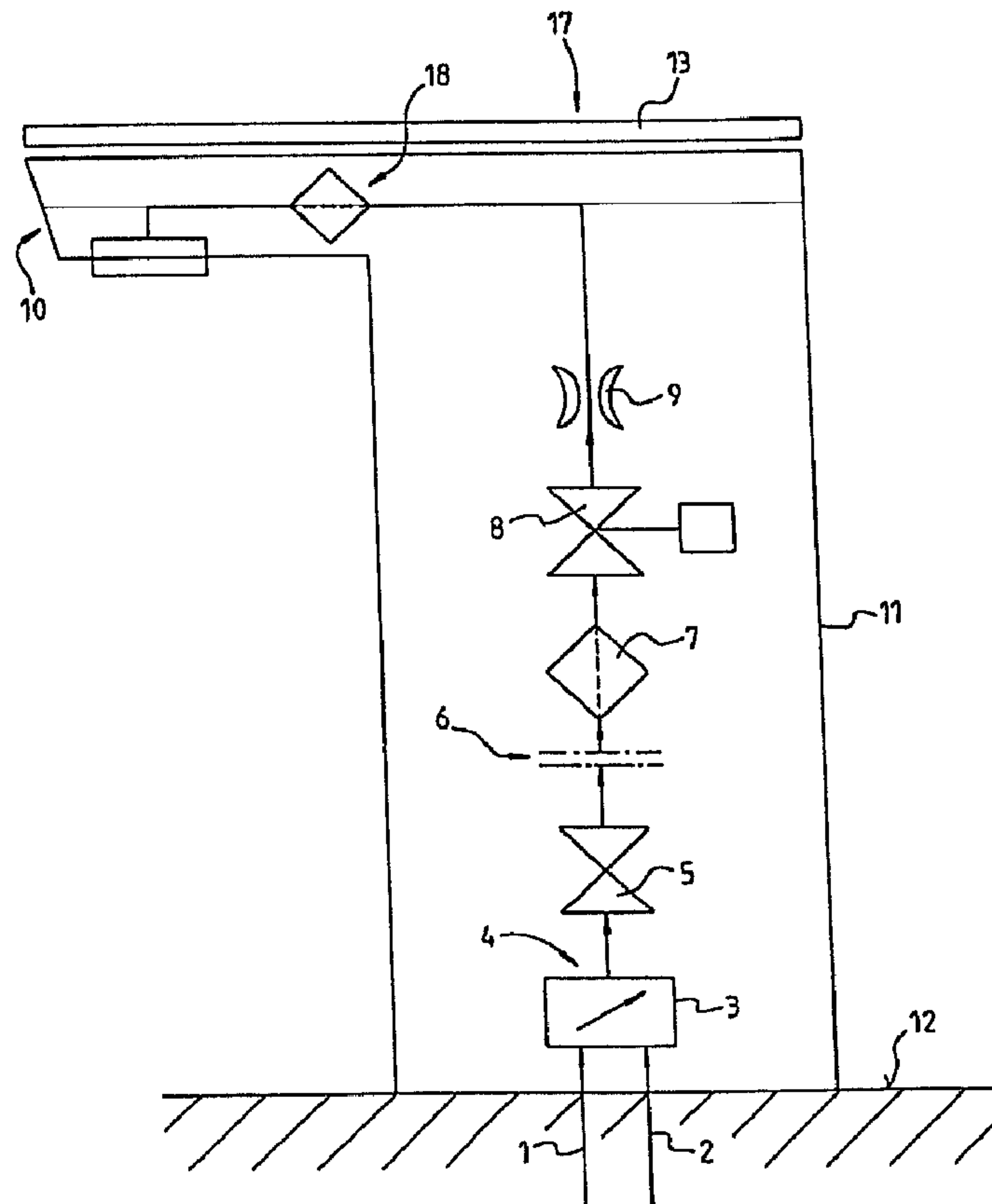




(86) **Date de dépôt PCT/PCT Filing Date:** 2012/03/14  
(87) **Date publication PCT/PCT Publication Date:** 2012/09/20  
(45) **Date de délivrance/Issue Date:** 2019/04/23  
(85) **Entrée phase nationale/National Entry:** 2013/09/12  
(86) **N° demande PCT/PCT Application No.:** EP 2012/001133  
(87) **N° publication PCT/PCT Publication No.:** 2012/123113  
(30) **Priorité/Priority:** 2011/03/14 (DEDE 10 2011 013 916.8)

(51) **Cl.Int./Int.Cl. E03C 1/05** (2006.01),  
**F16K 15/18** (2006.01)  
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(54) **Titre : ROBINETTERIE SANITAIRE POURVUE D'UN BOITIER DE ROBINETTERIE ET D'UNE UNITE DE CONTROLE**  
(54) **Title: SANITARY FITTING COMPRISING A FITTING HOUSING AND A CONTROL UNIT**



(57) **Abrégé/Abstract:**

A sanitary fitting with a fitting housing and a control unit to control the flow of water through at least one water line is disclosed. The control unit has a first actuating element. The fitting housing is arranged at a mounting location. A fitting main body may be fixed at

**(57) Abrégé(suite)/Abstract(continued):**

the mounting location as well as a mounting cover that covers a housing opening and may be removed from the fitting main body in order to open the fitting housing for maintenance and/or service purposes. At least one shut-off device, including a second actuating element to shut off the water line, is arranged inside the fitting main body. The second actuating element allows a separation at a separation point and is so actuated that the first actuating element is closed at the same time.

## Abstract

A sanitary fitting with a fitting housing and a control unit to control the flow of water through at least one water line is disclosed. The control unit has a first actuating element. The fitting housing is arranged at a mounting location. A fitting main body may be fixed at the mounting location as well as a mounting cover that covers a housing opening and may be removed from the fitting main body in order to open the fitting housing for maintenance and/or service purposes. At least one shut-off device, including a second actuating element to shut off the water line, is arranged inside the fitting main body. The second actuating element allows a separation at a separation point and is so actuated that the first actuating element is closed at the same time.

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"Sanitary fitting comprising a fitting housing and a control unit"

The invention relates to a "sanitary fitting having a  
5 fitting housing and a control unit".

Documents DE 100 22 350 A1 or DE 10 2006 060 929 B4,  
for example, disclose sanitary fittings having a  
10 fitting housing and having a control unit, wherein a  
shut-off valve is arranged within a fitting holder. The  
fitting holder is, and remains, fixedly connected to  
the installation site of the fitting. The installation  
site may in this case be a sanitary body such as a  
15 washbasin, etc., or may be a countertop.

By contrast, the fitting housing can be easily removed  
from the fitting holder, wherein, at the same time, one  
or more shut-off valves shut off or lock the water  
20 lines. Correspondingly, the water lines are  
simultaneously opened again when the fitting housing is  
connected to the fitting holder.

Said fittings permit, for example, maintenance or  
25 repair of individual components of the fitting, such as  
for example mixing valve or dirt filter, or an exchange  
of the batteries/storage batteries or of further  
electrical components in the case of electrical  
fittings, without water escaping from the lines and  
30 without it being necessary to close the angle valves,  
which are normally arranged below the washbasin, of the  
water lines.

This is advantageous because, for example in the case  
35 of bathtubs or the like, such angle valves are not  
(easily) accessible or are not provided. The latter  
applies in particular also in public or semi-public  
areas where such angle valves would be manipulated or  
even damaged through vandalism.

Specifically for applications in public or semi-public areas, however, easily dismountable fittings mentioned in the introduction cannot be used specifically owing  
5 to the problem of vandalism, because such fittings would already be damaged or even removed within a short period of time.

10 It is an object of the invention to propose a sanitary fitting of the type mentioned in the introduction which can be maintained or repaired with particularly little effort, specifically also in applications in which the demands with regard to vandalism are of considerable significance.

15

Advantageous embodiments and refinements of the invention are possible by means of the measures specified in the dependent claims.

20

Accordingly, a sanitary fitting according to the invention is characterized in that the fitting housing comprises at least one fitting main body that can be  
25 firmly fixed at the installation site and comprises an assembly cover, which can be released from the fitting main body and which covers a housing opening, for the opening of the fitting housing for maintenance and/or servicing purposes, and in that, within the fitting  
30 main body, there is provided at least one shut-off device which has a second control element and which serves for shutting off the water line.

By means of the assembly cover according to the  
35 invention in combination with the second control element, preferably shut-off valve, arranged within the fitting main body firmly fixed at the installation site, it is possible for individual components or all

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of the relevant components of the fitting to be serviced or exchanged/repaired. Here, the second control element preferably shuts off the water flow or the water line/water lines in an advantageous manner such that downstream hydraulic and if appropriate electrical components, such as for example dirt filter, mixing valve, throughflow valve, throughflow limiter, jet regulator, water turbine with electrical generator, water line sections, seals or the like, can be serviced, in particular removed, that is to say dismantled, and replaced or repaired without water escaping. For this purpose, no angle valve conventionally arranged below the sanitary body such as washbasin or the like is necessary, or said angle valve need not additionally be turned off or closed. Accordingly, said angle valve or upstream shut-off valve may also be completely or always omitted when using the sanitary fitting according to the invention, which reduces costs and assembly outlay.

The assembly cover is preferably arranged or mounted on the fitting main body so as to be secured against vandalism. For this purpose, said assembly cover can advantageously be fitted in an inconspicuous manner. For example, the edge may be "concealed" or disguised as a design line, such that inexperienced persons cannot even recognize that a separate cover is provided here.

Secondly, a special tool may be provided for releasing or dismantling the assembly cover. In this way, too, it is possible, as an alternative to or in combination with the "disguise", for dismantling through vandalism to be prevented in an effective manner.

The second control element is advantageously arranged upstream of the first control element as viewed in the flow direction of the water flow. In this way, the

first control element or valve does not need to be actuated in order, if required, to dismount or service relevant components of the fitting according to the invention.

5

The cross section of the housing opening is advantageously larger than a cross section of the first control element and/or of a dirt filter for filtering the water flow and/or of at least one throughflow  
10 regulator for regulating the water flow rate and/or of at least one turbine, which drives an electrical generator, for utilizing the flow energy of the water flow. In this way, the first control element and/or the dirt filter and/or the throughflow limiter etc. may  
15 advantageously be removed in each case individually, and/or jointly as a service unit or structural unit, from the fitting main body via the free assembly opening. Dismounting of the entire fitting or of the fitting main body can be dispensed with. This is highly  
20 advantageous, in particular for maintenance/service or repair, specifically with regard to vandalism in public or semi-public areas. Not only hydraulic components but also electrical components can, according to the invention, be advantageously removed and reinstalled  
25 through the assembly opening.

It is advantageous for the first control element to comprise at least one dirt filter for filtering the water flow and/or at least one throughflow regulator  
30 for regulating the water flow rate and/or at least one turbine, which drives an electrical generator, for utilizing the flow energy of the water flow. It is achieved in this way that the electrical or first control element or throughflow valve is formed as a  
35 service unit or a valve unit together with essential hydraulic components, and can be dismounted from and reinstalled in the fitting main body in an advantageous manner. This may be necessary for example for

maintenance, servicing, repair and replacement. This improves the economical operation of the sanitary fitting according to the invention.

5 It is preferable for at least one actuation unit to be provided for the actuation of the second control element. In the case of a mechanical first control element or throughflow valve, this may be in the form of a rotary handle and/or lever and/or in the form of  
10 the assembly cover.

In one particular refinement of the invention, the actuation unit is in the form of a fixing device for fixing and releasing of the first control element  
15 and/or the service unit. It is achieved in this way that the water line or the water flow is shut off or blocked already during the dismounting or release of the first control element or of the service unit. A corresponding arrangement may also be realized with  
20 regard to the dirt filter and/or throughflow limiter and/or the turbine and/or the electrical generator or the like. That is to say that simply the release/dismounting or removal of the first control element and/or of the service unit has the effect that,  
25 simultaneously or in a manner directly coupled therewith, the second control element/shut-off valve or shut-off device that has hitherto been open is closed too. Thus, the shut-off water line is simultaneously severed. A corresponding situation applies to the  
30 mounting process or the fixing of the first control element/service unit, and the opening, coupled therewith, of the second control element or of the shut-off device.

35 The shutting-off of the second control element preferably takes place at least partially by means of a rotational movement or a rotational travel, in particular by means of rotation during the release of

the first control element or of the service unit or valve unit. For example, the fixing device is in the form of a bayonet coupling. An advantageous shutting-off and sealing of the water line or of the water flow in the fitting is attained in this way. The valve unit or the first control element or the like is rotated for example counterclockwise for example by means of a bayonet (for example 60°), the second control element or service valve is then closed, and the first control element or the entire valve unit together with filter, throughflow regulator and magnetic valve etc. can be removed. Installation takes place in the reverse sequence.

It is basically possible for the first and/or indeed the second control element to be formed as a purely mechanical shut-off valve with an actuation element in the form of a rotary handle, lever or the like. Alternatively, or in combination with this, it is also possible for an electrical and if appropriate also manually actuable first control element/valve, by means of which the water outlet is regulated, to be provided. In the case of an electrical actuation, this may advantageously be realized by means of a sensor, infrared sensor or the like, and/or by means of an electrical switch as an actuation element.

It is also conceivable for the assembly cover to be formed as an actuation element of the second control element or shut-off valve and/or for a blocking unit to be placed in operative connection with the assembly cover, such that for example a mechanism actuates the second control element. It is achieved in this way that the water flow is shut off or blocked already upon the dismounting or opening of the assembly cover.

In one advantageous variant of the invention, the assembly cover comprises at least one actuation element

for actuating in particular the first and/or if appropriate the second control element. It is advantageously possible in this way for the outflow of water to be manually started and/or stopped by the  
5 user.

The assembly cover advantageously comprises at least one solar cell for solar electricity generation and/or comprises a display unit for displaying parameters of  
10 the water flow and/or parameters of the control unit. In this way, it is possible to realize substantially energy-autonomous operation, and/or to provide for the user an advantageous display of essential parameters or information relating to the sanitary fitting according  
15 to the invention. Such parameters or information may for example be actual temperature of the water, set nominal temperature, whether or not a fault is present and/or at which component a fault is present, automatic timing, a set water outflow duration, energy reserves  
20 of the battery/storage battery, or the like.

Particular designs of the sanitary fitting according to the invention may be in combinations or as alternatives, that it is an electronic sanitary  
25 fitting, wherein, in the fitting body, there is integrated a shut-off valve for the water feed, which shut-off valve can be opened and closed by means of a unit and is opened/closed upon the removal/installation of a service module (unit hereinafter = service module)  
30 - the service module is the actuation element of the shut-off valve,  
- the shut-off valve is opened/closed by means of a rotational movement,  
- in that the service module comprises a valve,  
35 - in that the service module comprises a flow rate limiter,  
- in that the service module comprises a dirt filter,

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- in that the service module is mounted/dismounted by means of a rotational movement, for example bayonet coupling,
  - in that the service module is implemented with a color coding for distinguishing between different designs,
  - in that the service module can be installed/removed only in a positioning manner.
- 10 Particular advantages of the invention:  
Normal washbasin fittings are usually connected by hoses or pipes to angle valves. The angle valves serve for shutting off the water supply when repair or maintenance work has to be performed on the fitting.
- 15 Such maintenance work includes for example the dirt screens having to be cleaned or exchanged. The angle valves are often only poorly accessible, below the washbasin, and are often accessible with particular difficulty owing to fixtures below the washbasin.
- 20 It is achieved according to the invention that the maintenance and repair work is made possible in a particularly simple manner and with easy access. The invention makes it possible for all the work on all of
- 25 the hydraulic components to be performed "above the washbasin", without the fitting being dismounted and without the need to operate any shut-off elements for the water supply.
- 30 The water supply is automatically interrupted/shut off (within the fitting body) as a result of the removal of the service unit. It is thus possible for all maintenance work to be performed in a convenient and simple manner. Upon reinstallation, the integrated
- 35 shut-off valve is opened again, and the fitting is ready for use.

In some embodiments, there is provided a sanitary fitting with a fitting housing and a control unit to control the flow of water through at least one water line, wherein the control unit has at least one first actuating element to close and open the water  
5 line, wherein the fitting housing is arranged at a mounting location, wherein the fitting housing comprises a fitting main body that may be fixed at the mounting location, as well as a mounting cover that covers a housing opening and may be removed from the fitting main body in order to open the fitting housing for maintenance and/or  
10 service purposes, and wherein at least one shut-off device comprising a second actuating element to shut off the water line is arranged inside the fitting main body wherein the second actuating element allows separation at a separation point, wherein the second actuating element is so actuated that the first actuating element is closed at  
15 the same time.

Exemplary embodiment

An exemplary embodiment of the invention is illustrated in the drawing and will be explained in more detail below on the basis of the figures, with further advantages being indicated.

In detail:

10 Figure 1 shows a schematic block circuit diagram of a sanitary fitting according to the invention,

Figure 2 shows a schematic illustration of a sanitary fitting according to the invention, and

15

Figure 3 shows a schematic illustration of a further sanitary fitting with a display according to the invention in a detail and in an exploded illustration.

20

A sanitary fitting may optionally be operated with only one (cold) water feed 1, 2 or with two (hot and cold) water feeds 1, 2. In the latter case, a mixing valve 3 should preferably be provided such that the mixed water flows in a common water line 4.

25

A first control element 5 or shut-off valve 5 permits a separation at a (symbolically indicated) interface 6. The valve 5 is preferably actuated by virtue of a second control element 8 or a so-called valve unit 8 being dismounted, in particular removed by means of rotation or a bayonet coupling, such that the valve 5 is simultaneously closed.

30

35 The valve unit 8 preferably comprises a dirt filter 7 and a throughflow limiter 9 which are arranged, as viewed in the flow direction, downstream of the valve 5 or of the interface 6.

- 10 -

A solar cell 17 and/or a turbine 18 with electrical generator may optionally be provided, such that the flow energy of the water is converted into electrical energy. For example, batteries or storage batteries 14 are provided for supplying energy to the electrical components (if appropriate valve 8, display 16 and/or LED display, sensor not illustrated in any more detail, etc.) and/or for temporarily storing the electrical energy from the turbine 18 and/or solar cell 17.

A fitting main housing 11 is firmly fixed to the washbasin 12 or the like, and an assembly cover 13 can advantageously be released from and mounted/fixed again on the main body 11.

All relevant components can be removed and reinstalled through the free opening 13 of the main body 11. For example, through suitable configuration, it is not possible for an inexperienced user to identify that the cover 13 is removable. This is highly advantageous with regard to protection against vandalism.

List of reference numerals:

- |    |    |                                                                         |
|----|----|-------------------------------------------------------------------------|
|    | 1  | Cold feed                                                               |
|    | 2  | Hot feed (optional)                                                     |
| 5  | 3  | Mixing valve (optional)                                                 |
|    | 4  | Mixed water                                                             |
|    | 5  | Service valve = shut-off valve                                          |
|    | 6  | Hydraulic interface                                                     |
|    | 7  | Filter                                                                  |
| 10 | 8  | Throughflow valve (may be electrical, mechanical valve, etc.)           |
|    | 9  | Throughflow limiter or throughflow regulator                            |
|    | 10 | Outlet                                                                  |
|    | 11 | Fitting housing or fitting main body                                    |
| 15 | 12 | Installation platform (for example washbasin)                           |
|    | 13 | Assembly cover or opening                                               |
|    | 14 | Storage batteries/batteries                                             |
|    | 15 | Electrical button/switch                                                |
|    | 16 | Display                                                                 |
| 20 | 17 | Solar cell (optional)                                                   |
|    | 18 | Turbine with generator (optional)                                       |
|    | 19 | Temperature adjustment lever (in the case of a mixing valve being used) |

CLAIMS:

1. Sanitary fitting with a fitting housing and a control unit to control the flow of water through at least one water line, wherein the control unit has at least one first actuating element to close and open the water line, wherein the fitting housing is arranged at a mounting location, wherein the fitting housing comprises a fitting main body that may be fixed at the mounting location, as well as a mounting cover that covers a housing opening and may be removed from the fitting main body in order to open the fitting housing for maintenance and/or service purposes, and wherein at least one shut-off device comprising a second actuating element to shut off the water line is arranged inside the fitting main body wherein the second actuating element allows separation at a separation point, wherein the second actuating element is so actuated that the first actuating element is closed at the same time.
2. Sanitary fitting according to claim 1, wherein the second actuating element is designed as a shut-off valve.
3. Sanitary fitting according to one of claims 1 or 2, wherein the second actuating element is arranged upstream of the first actuating element in the direction of flow of the water flow.
4. Sanitary fitting according to any one of claims 1 to 3, wherein the cross-section of the housing opening is larger than a cross-section of the first actuating element.
5. Sanitary fitting according to any one of claims 1 to 4, wherein at least one dirt filter to filter the water flow and/or at least one flow regulator to regulate the water flow and/or at least one turbine, which drives an electrical generator, to use of the flow energy of the water flow, are provided.

6. Sanitary fitting according to any one of claims 1 to 5,  
wherein the first actuating element comprises at least the dirt  
filter and/or the flow regulator and/or the electrical generator  
5 and/or the turbine.

7. Sanitary fitting according to any one of claims 1 to 6, wherein  
the first actuating element is designed with at least the dirt  
filter and the flow regulator and/or the electrical generator and/or  
10 the turbine as service units for joint disassembly and/or assembly.

8. Sanitary fitting according to any one of claims 1 to 7,  
wherein at least one actuating unit is provided to actuate the  
second actuating element.  
15

9. Sanitary fitting according to any one of claims 1 to 8,  
wherein the actuating unit is designed as a fixing device to fix  
and release the first actuating element and/or the service unit.

20 10. Sanitary fitting according to any one of claims 1 to 9,  
wherein the fixing device is designed as a bayonet closure.

11. Sanitary fitting according to any one of claims 1 to 10,  
wherein the mounting cover comprises at least one actuating  
25 element to actuate the first and/or the second actuating element.

12. Sanitary fitting according to any one of claims 1 to 11,  
wherein the mounting cover comprises at least one solar cell for  
solar power generation and/or a display unit to display parameters  
30 of the water flow and/or parameters of the control unit.

13. Sanitary fitting according to any one of claims 1 to 12, wherein the first actuating element comprises an electrically-actuatable flow valve.

5 14. Sanitary fitting according to any one of claims to 1 to 13, wherein the mounting location is a wall, a mounting platform and/or a sanitary body.

10 15. Sanitary fitting according to claim 14, wherein the sanitary body is a wash basin or a bathtub.

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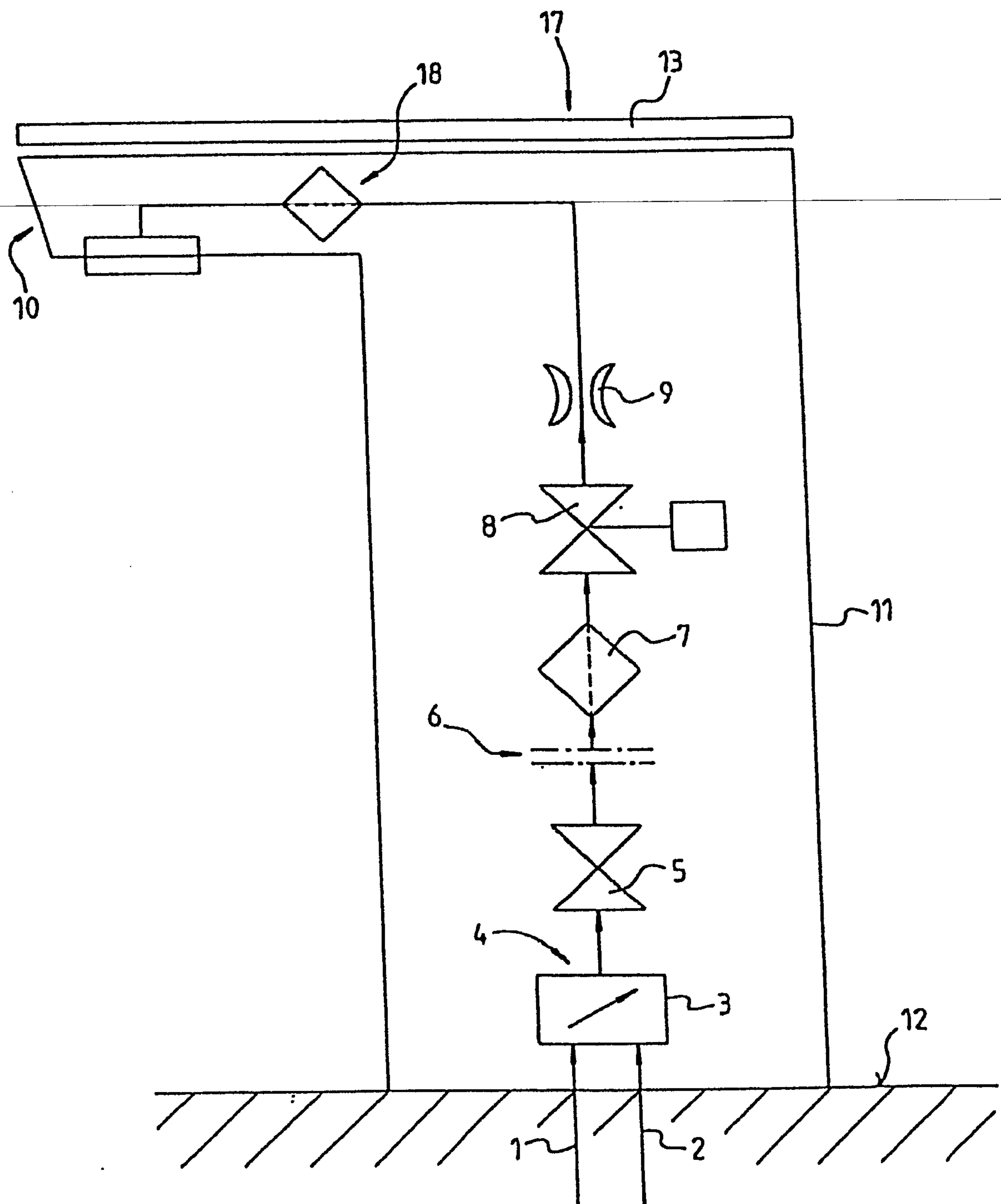


Fig. 1

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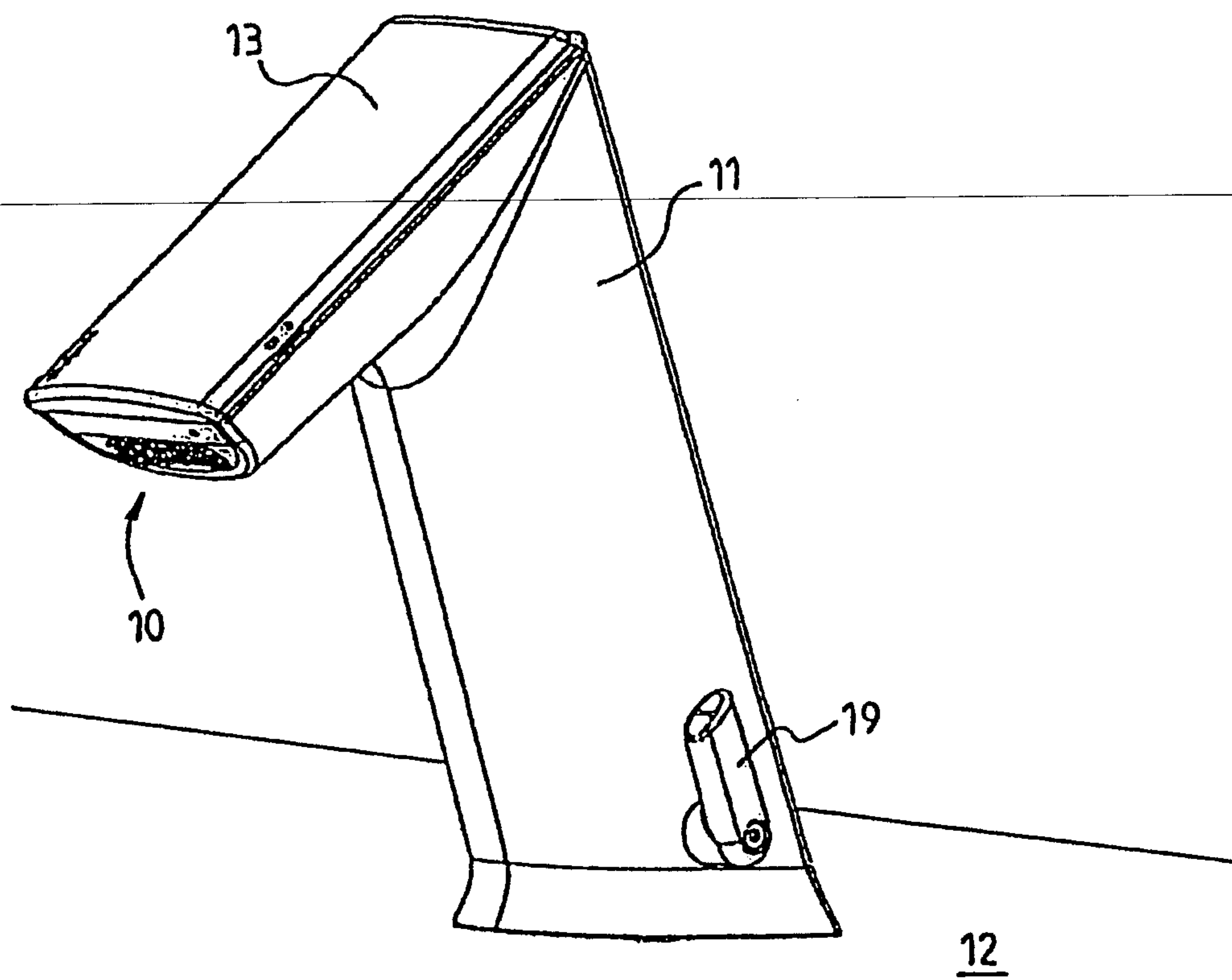


Fig. 2

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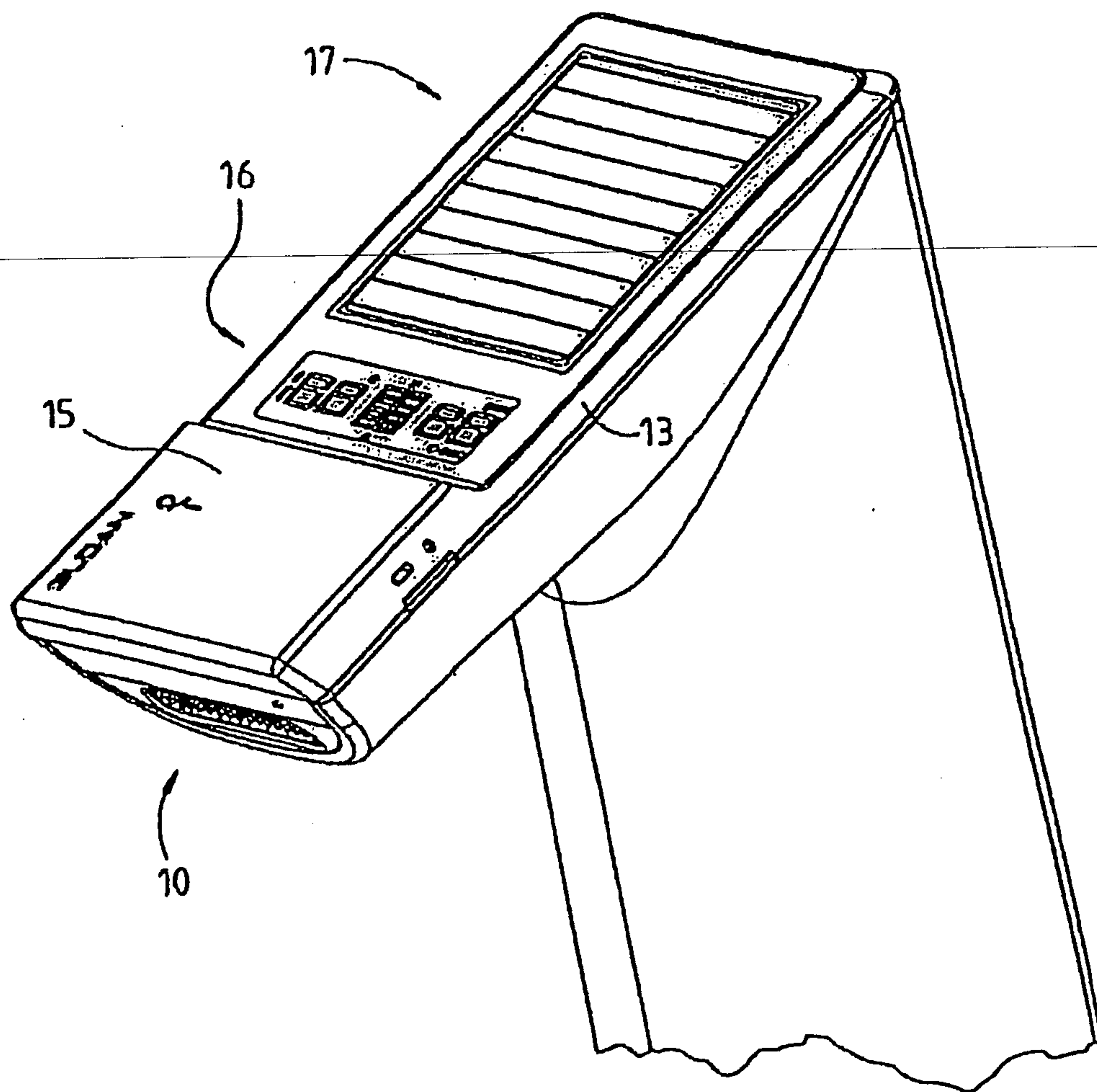


Fig. 3a

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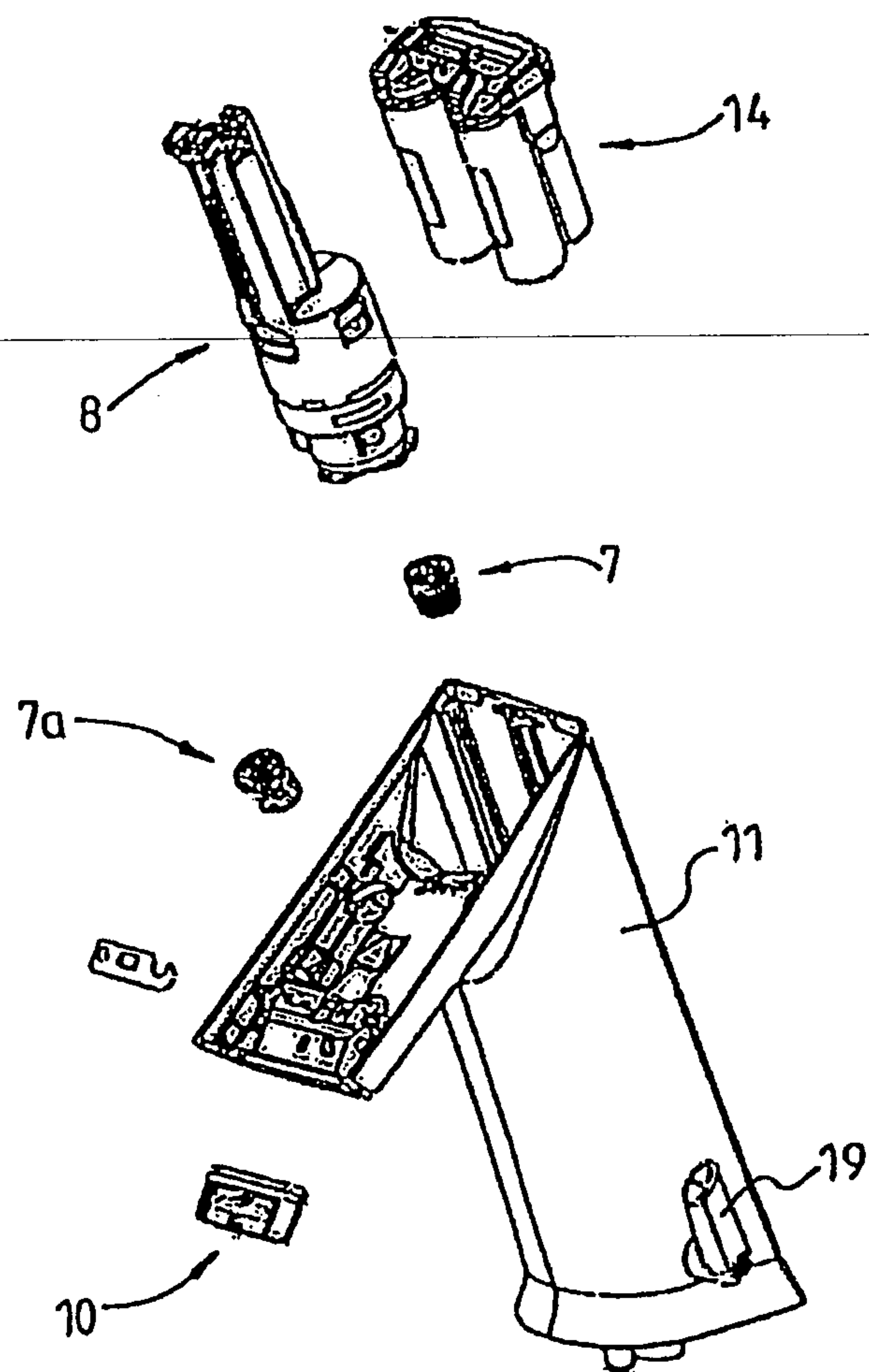


Fig. 3 b

