Oct. 27, 1970 R. J. BOOKER ETAL 3,535,715

LAVATORY UNIT

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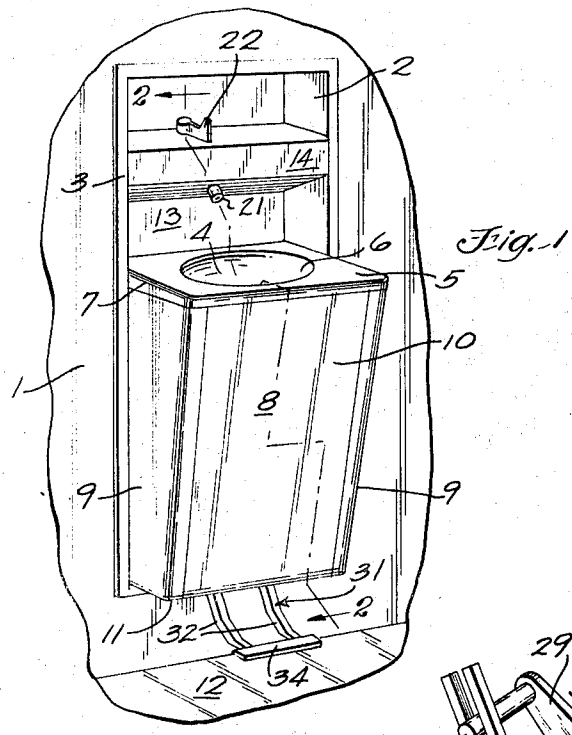


Fig. 1

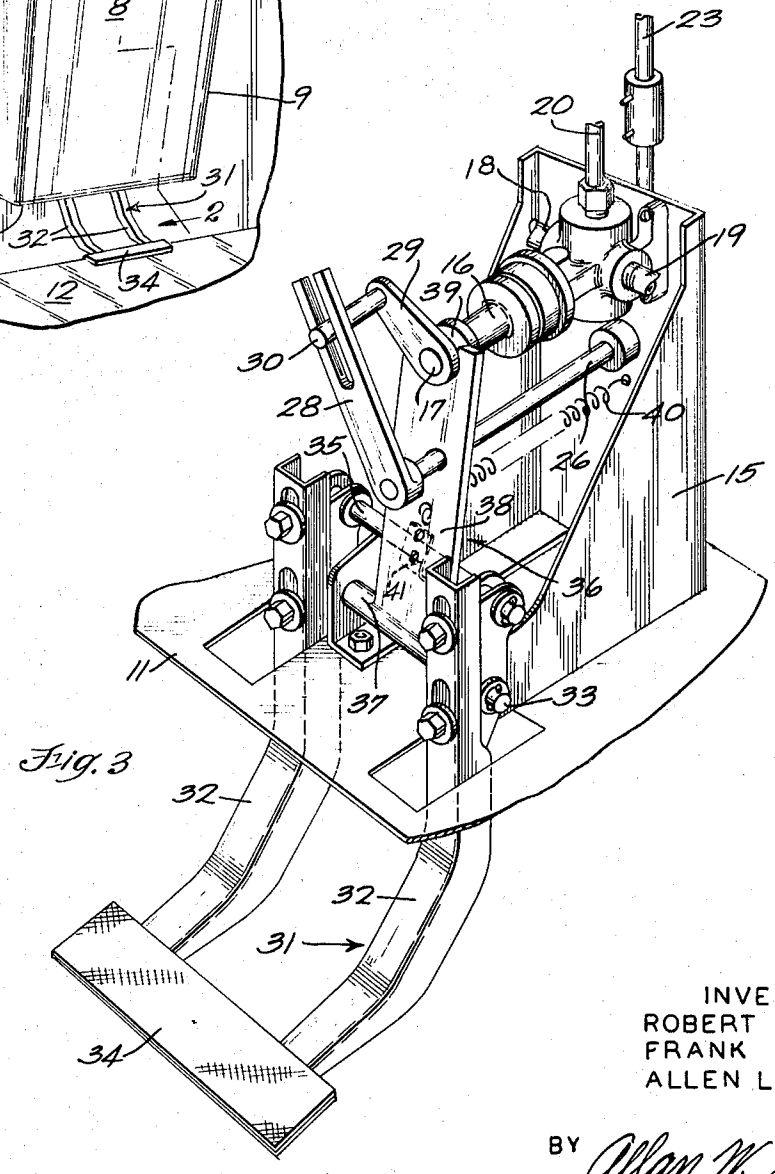


Fig. 3

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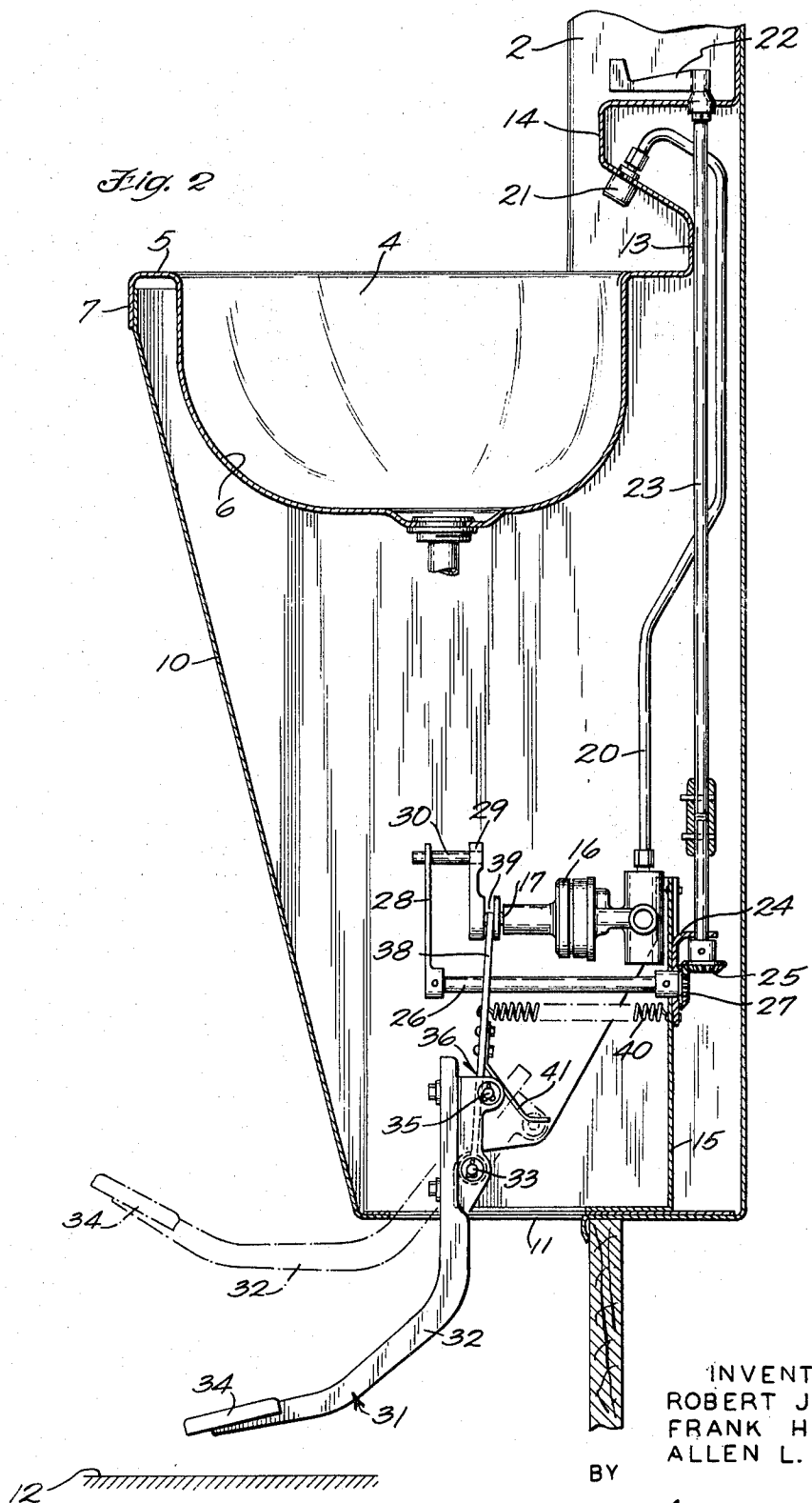
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Fig. 2



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LAVATORY UNIT

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U.S. Cl. 4—167 6 Claims

ABSTRACT OF THE DISCLOSURE

A lavatory unit intended to be set in a wall includes a sink, a housing enclosing the area below the sink, and a vertical panel rising upwardly from the rear of the sink that is shaped to define a channel-shaped ledge spaced above and overhanging the sink. A single control mixing valve is mounted in the housing and is connected to hot and cold water supply lines, and has a stem that is rotatable for temperature control and axially shiftable for volume control. An outlet conduit leads upwardly from the valve into the ledge and terminates in a nozzle that faces downwardly toward the sink through the bottom wall of the ledge. A temperature control handle is mounted on the top wall of the ledge and a linkage extends downwardly from the handle into the housing and is connected to the valve to effect rotation of the stem. A foot pedal is disposed below the housing and forms a part of a lever system engageable with the valve to shift the stem axially for volume control.

Background of the invention

This invention relates to an improved self-contained lavatory unit which is adapted to be mounted or set into a wall. A unit of this type might be useful, for example, in hospitals, commercial kitchens, hotels or public washrooms. Although units of the general type contemplated herein are available, prior units are not fully satisfactory from one or more standpoints, such as sanitation, simplicity, or the like.

Summary of the invention

It is a principal object of this invention to provide a lavatory unit that includes a single control mixing valve in which the valve is operated for volume control by means of a foot pedal and for temperature control by means of a handle above the sink. This enables the user to select a desired temperature and thereafter operate the valve only with his foot, this being particularly satisfactory where a high degree of sanitation is desired such as in hospital washing rooms.

Another object is to provide a construction in which there is a channel-shaped ledge spaced above and overhanging a sink which provides a mounting for the temperature control handle and also a housing for an outlet conduit from the mixing valve, the conduit terminating in a nozzzle extending through the bottom wall of the ledge and facing downwardly toward a sink. This provides a simple, attractive unit which is easy to keep clean.

A further object is to provide a construction in which the foot pedal can be elevated to allow the area under the lavatory unit to be cleaned easily, which is also very important from the standpoint of sanitation.

The invention contemplates a particularly satisfactory operating linkage for the temperature control handle and a lever system for the foot pedal, the latter allowing for the foot pedal to be elevated and held in its elevated position for cleaning purposes.

The foregoing and additional objects and cognate advantages and benefits will become apparent from the following description wherein a specific embodiment of this invention is described in a non-limiting manner for the purposes of illustration and to enable those skilled in the art to practice this invention.

Brief description of the drawings

FIG. 1 is a view in perspective illustrating a lavatory unit according to the invention set into a wall.

FIG. 2 is an enlarged side view, with parts shown broken away and in cross section, further illustrating the unit of FIG. 1.

FIG. 3 is an enlarged fragmentary view in perspective, with the housing shown broken away, illustrating the operating mechanism of the lavatory unit formed according to this invention.

Description of the preferred embodiment

In FIG. 1, the lavatory unit of the drawings is shown set into a wall **1** and includes a generally rectangular frame **2** which is received in an opening in the wall **1** and is shaped to define a decorative peripheral flange **3** that overhangs the wall **1** and closes off the opening therein.

A sink unit designated generally by the reference numeral **4** is mounted between the side pieces of the frame **2** and extends outwardly from the wall. The sink **4** is preferably of a single piece construction formed by stamping to define a flat deck **5**, a bowl portion **6** and a downwardly depending peripheral skirt **7**.

The area below the sink **4** is enclosed by a housing designated generally by the reference numeral **8**. The housing **8** is preferably made up of two side pieces **9** and a front panel **10** which is removable to allow access to the interior of the housing **8**. The upper edges of the pieces **9** and panel **10** are received behind the sink skirt **7** to minimize water catching joints. The bottom of the housing **8** is closed off by a floor **11** which is spaced above the floor **12**.

A vertical panel **13** extends upwardly from the rear of the sink **4** to the top of the frame **2**, and is shaped to define a channel-shaped ledge **14** which is above and overhangs the sink bowl **6**.

A generally L-shaped bracket **15** is mounted on the floor **11**, and mounted on and extending forwardly from the vertical portion of the bracket **15** is a mixing and volume control valve **16**. The valve **16** is of the single control type shown, for example, in the copending application of George S. Cole et al., Ser. No. 477,384, filed Aug. 5, 1965. It has a forwardly projecting stem **17** which is rotatable to effect control of the temperature of the water issuing from the valve and which is axially shiftable to control the volume output. A hot water supply line **18** and a cold water supply line **19** enter opposite sides of the valve **16**, and an outlet conduit **20** leads upwardly. As can be seen most clearly in FIG. 2, the outlet line **20** extends upwardly behind the rear edge of the sink unit **4** and behind the portion of the panel **13** directly thereabove and then into the space enclosed by the ledge **14**. It terminates at a nozzle **21** which faces downwardly through the bottom wall of the ledge **14**, and which is above and facing the sink bowl **6**.

Rotatably mounted on the top wall of the ledge **14** is a temperature control handle **22**. The handle **22** is connected to a vertical shaft **23** which extends downwardly behind the vertical panel **13** and sink unit **4** to the bracket **15**. A support **24** is attached to the rear of the bracket **15** and receives the lower end of the shaft **23**, and immediately below the support **24**, the shaft **23** is provided with a bevel gear **25**. A horizontal shaft **26** extends rearwardly through the bracket **15** and support **24**, and at its rear end has a bevel gear **27** which meshes with the gear **25**. A forked operating arm **28** is keyed to the

forward end of the shaft **26** to be pivotal in a vertical plane. A second operating arm **29** is fixed to the outer end of the valve stem **17** so that it is also pivotal in a vertical plane parallel to and behind the plane of movement of the arm **28**. A horizontal connecting pin **30** is fixed to the outer end of the arm **29** and extends forwardly to be received in the forked arm **28**, the arms **28** and **29** thus being connected for simultaneous movement. The arms **28** and **29**, pin **30**, and shafts **23** and **26** constitute a linkage between the operating handle **22** and valve **16** so that rotation of the handle **22** ultimately causes rotation of the valve stem **17** to control water temperature.

A first volume control lever designated generally by the reference numeral **31** is pivotally connected to the bracket **15**. The lever **31** comprises parallel side pieces **32** which are connected to the ends of a shaft **33** which is rotatably supported by upstanding portions of the bracket **15**. The side pieces **32** are shown as being constructed of several parts. However, they can be of a one-piece construction. A foot pedal **34** extends across and connects the lower and outer ends of the side pieces **32** and is disposed below and somewhat forwardly of the housing **8**. A crossbar **35** extends between and connects the upper and inner ends of the side pieces **32**.

A second operating lever designated generally by the reference numeral **36** is also pivotally mounted on the bracket **15**, and includes a quill portion **37** around the shaft **33** which serves as the pivotal mounting, and an upwardly extending vertical lever portion **38** which is notched and engaged with an annular groove **39** at the forward end of the valve stem **17** just behind the arm **29**. The vertical lever portion **38** is also provided with an opening through which the shaft **26** extends, the portion **38** serving as a support therefor.

The crossbar **35** is behind the vertical lever portion **38** so that depression of the foot pedal **34**, causing counterclockwise movement of the lever **31** as seen in FIG. 2, will cause the lever **36** to be moved in a counterclockwise fashion which will cause the valve stem **17** to be shifted otuwardly with respect to the valve **16**, the spacing between the arms **29** and **28** being sufficient to allow for such movement. A tension spring **40** connected to and operable between the vertical lever portion **38** and the upstanding rear wall of the bracket **15** serves to urge the lever **36** in a clockwise direction and, therefore, to urge the stem **17** inwardly with respect to the valve **16**.

When the valve stem **17** is at is innermost position, to the right as seen in FIG. 2, the valve is shut off. Shifting the stem **17** axially outwardly or to the left as seen in FIG. 2 initially causes the valve **16** to open and further movement causes an increase in volume. Thus, it will be seen that depression of the foot pedal **34** will cause the valve to open and further depression will cause an increased volume of water to flow therethrough. Release of pressure on the foot pedal **34** will, however, allow the spring **40** to move the lever **36** and close the valve **16**.

As can be seen in FIG. 2, as resilient leaf spring **41** is mounted on the rear side of the lever portion **38** and overhangs the crossbar **35**. The lever **31** is pivotal with respect to the lever **36** in a clockwise direction as seen in FIG. 2, this resulting from elevation of the foot pedal **34**, a fully elevated position of the foot pedal **34** being shown in broken lines in FIG 2. During the course of the movement of the lever **31** to elevated position, the crossbar **35** slides along the underside of the spring **41** to the position shown in broken lines in FIG. 2 wherein it is caught and held by a bent free end thereof, this engagement serving to hold the lever **31** and foot pedal **34** in elevated position. When the lever **31** and foot pedal **34** are fully elevated, it is easy to clean the area under the housing **8**.

Having the foot pedal **34** for volume control purposes and the handle **22** for temperature control purposes is quite advantageous, especially from the standpoint of

sanitation. In, for example, a hopsital washing room, there is seldom much occasion for changing the temperature of water desired, but it is still necessary to allow for such change. Assuming a temperature has been preset by movement of the handle **22**, actual operation is controlled only by the foot pedal **34**. Thus, the user need not touch any part of the lavatory unit in order to wash. The overhanging ledge **14** allows space for the operating element connected to the handle **22**, and also is helpful in positioning the nozzle **21** over the sink bowl **6**. It is at the same time simple, attractive and easy to keep clean. The upper surface of the ledge **14** can also be used as a shelf for, for example, soap or other items. The entire unit is self-contained and is obviously relatively easy to manufacture assemble and install. Having the frame **2** which can be received in an opening in the wall **1** provides for an attractive mounting and also minimizes the space occupied by the lavatory unit.

Although a preferred embodiment of the lavatory unit formed according to the invention has been shown and described herein, it will be obvious that modifications might be made wthout departure from the scope of the invention. It is not intended, therefore, that the invention be limited by the disclosure herein, or in any other manner, except insofar as limitations appear specifically in the following claims.

What is claimed is:

1. In a lavatory unit the combination comprising: a sink; a housing enclosing the space below the sink; temperature and volume control valve means disposed in the housing and adapted to be connected to a water supply, said control valve means comprising a single valve unit including an operating stem that is rotatable for temperature control and axially shiftable for volume control; temperature control operating means connected to the stem of the control valve means and leading upwardly therefrom to a temperature operating handle above the sink; and volume control operating means connected to the stem of the control valve means and extending through the housing to present a foot pedal below the sink.

2. The combination of claim **1** wherein there is a vertical panel extending upwardly from the rear of the sink which is shaped to define a channel-shaped ledge above and overhanging the sink, and the temperature operating handle is mounted on the upper surface of the ledge, and the temperature control operating means extends from the handle behind the panel to the control valve means, and an outlet conduit leads upwardly from the control valve means behind the panel into the area enclosed by the ledge to terminate at a nozzle facing downwardly through the lower wall of the ledge that is above and faces the sink.

3. The combination of claim 1 wherein the housing is provided with a bracket; and the volume control operating means comprises a first lever reciprocally pivotally mounted intermediate its ends on the bracket with the foot pedal at the lower end of the first lever; and a second lever reciprocally pivotally mounted on the bracket at its lower end which extends upwardly with the upper end of the second lever being engageable with the operating stem to effect reciprocal axial shifting of the stem in response to reciprocal pivotal movement of the second lever, the first lever being provided with means engageable with one side of the second lever to cause pivotal movement of the second lever in one direction as the foot pedal is depressed; and wherein there is a bias means to urge the second lever in the opposite direction.

4. The combination of claim **3** wherein the first lever is adapted to be moved relative to the second lever to a position wherein the foot pedal is elevated; and there is a resilient means on the second lever engageable with the first lever to hold the foot pedal in such elevated position.

5. The combination of claim **3** wherein the temperature operating means comprises a vertical shaft, the upper end

of which is connected to the operating handle; a horizontal shaft which extends forwardly from the lower end of the vertical shaft through the second lever of the volume operating means; a driving connection between the lower end of the vertical shaft and the rear end of the horizontal shaft; a first operating arm connected at one end to the forward end of the horizontal shaft forwardly of the second lever to be pivoted in a vertical plane and having a forked outer end; a second operating arm connected at one end to the outer end of the valve stem to be pivoted in a vertical plane parallel to and behind the plane of movement of the first operating arm; and a horizontal connecting pin mounted on and extending forwardly from the outer end of the second operating arm that is received in the fork of the first operating arm connecting the arms for simultaneous movement.

6. The combination of claim 1 wherein the temperature operating means comprises a vertical shaft, the upper end of which is connected to the operating handle; a horizontal shaft which extends forwardly from the lower end of the vertical shaft; a driving connection between the lower end of the vertical shaft and the rear end of the horizontal shaft; a first operating arm connected at one end to the forward end of the horizontal shaft to be pivotal in a vertical plane and having a forked outer end; a second operating arm connected at one end to the outer end of the valve stem to be pivoted in a

vertical plane parallel to and behind the plane of movement of the first operating arm; and a horizontal connecting pin mounted on and extending forwardly from the outer end of the second operating arm that is received in the fork of the first operating arm connecting the arms for simultaneous movement.

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