June 22, 1926. 1,589,353

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FLOOR PUSH BUTTON DEVICE FOR PLUMBING

Filed March 30, 1925 2 Sheets-Sheet 1

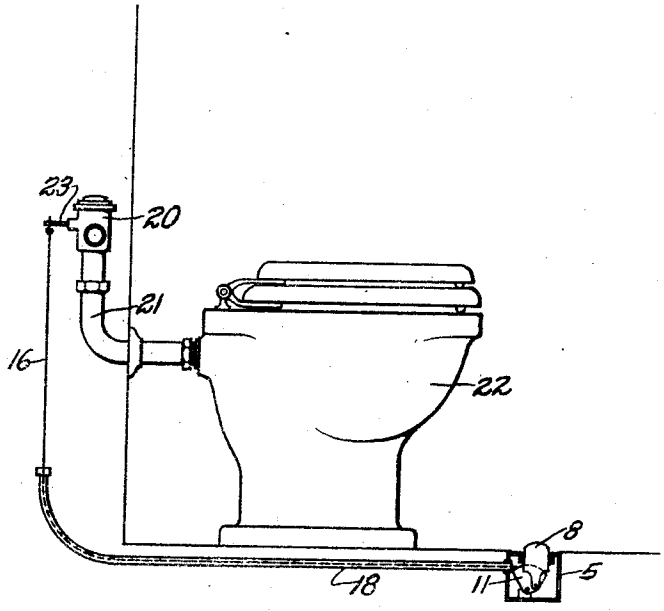


FIG. 1

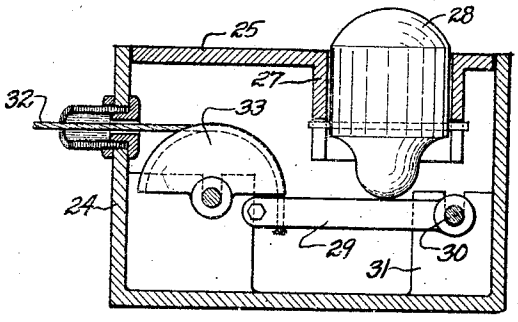


FIG. 5

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FLOOR PUSH BUTTON DEVICE FOR PLUMBING

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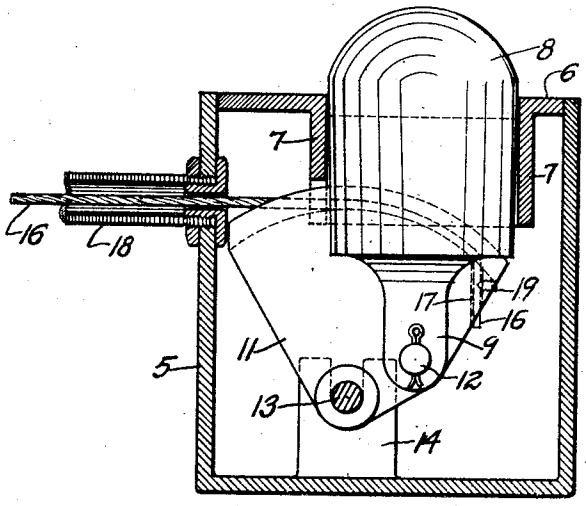


FIG. 2

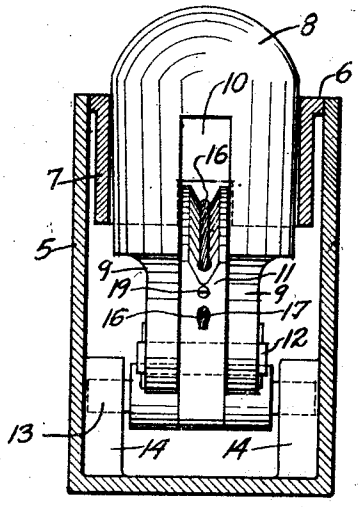


FIG. 3

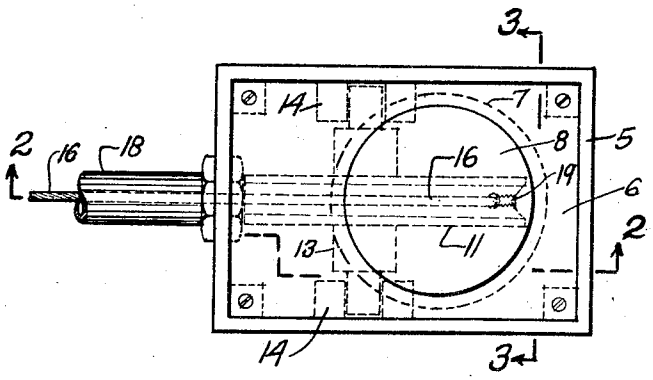


FIG. 4

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UNITED STATES PATENT OFFICE.

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FLOOR PUSH-BUTTON DEVICE FOR PLUMBING.

Application filed March 30, 1925. Serial No. 19,422.

Our invention relates to push button devices for controlling the flushing of plumbing fixtures such as toilets and urinals, said devices being controlled by the pressure of the foot instead of being operated by hand. It comprises a box set in the floor, there being a button projecting through the cover. When said button is stepped on, it is adapted to pull upon a cable suitably connected to a flush tank or valve, which will admit a predetermined measured quantity of water to the fixture even after the foot is removed from the button. There are many of such tanks and valves in use at present. The cable passes through a guide pipe on its way from the button to the flushing device. A particular object of our invention is the compact and simple construction of our push button device enabling it to be made of very small size and to be cheaply produced. The present invention avoids the necessity of burying a water pipe and valve in the floor as is sometimes done with floor devices acting directly upon a control valve. With our device, the water pipe can be in its usual position and have an ordinary flushing device in connection with it. By means of a flexible connection the flushing device can be operated by the push button. Other objects and advantages will become apparent from a further study of the specification and drawings in which:

Fig. 1 is a view of a toilet with its flush valve shown operatively connected to the push button device, the push button device being shown with the front wall of its casing removed, Fig. 2 is a partial sectional view of the device taken substantially along the broken line 2—2 of Fig. 4, Fig. 3 is a section approximately along the line 3—3 of Fig. 4, Fig. 4 is a plan view of the device, and Fig. 5 is a section through a modified construction of our device.

The push button casing comprises a lower box portion 5 preferably of cast iron and an upper cover 6 preferably of brass. Cover 6 is screwed down upon box portion 5, as shown in Fig. 4. Cover 6 is provided with a sleeve 7 formed integrally with it. Button 8 is adapted to slide within sleeve 7. The lower portion of button 8 is formed with a fork 9, and a recess 10 extends upward well within the interior of the button. Button 8 with its recess 10 and fork portion 9 straddles sheave sector 11. Button 8 is pivotally mounted upon sheave sector 11 by means of pin 12. Sheave sector 11 is fixed to an axle 13 which is rotatably mounted in bearing blocks 14 carried by box portion 5. Sheave 11 is provided with a hole 17 into which is inserted the end of wire cable 16. Wire cable 16 extends from hole 17 over the groove of sheave 11 and out of the box into pipe 18. Cable 16 is retained in place in hole 17 by means of set screw 19. Cable 16 runs through pipe or guide 18, which passes through the floor of the toilet room. Cable 16 extends beyond guide 18 up to the handle 23 (Fig. 1) of flush valve 20, which controls the flow of water through pipe 21 to the fixture 22. Valve 20 is preferably of the type well known to the art, where a single impulse given to handle 23 causes a predetermined amount of water to be discharged sufficient to flush the fixture.

Sleeve 7 is formed with a taper (Figures 2 and 3) being of larger diameter at the bottom than at the top. The taper permits of a slight angular motion of button 8 as it moves down with pin 12, there being a slight motion of said pin to the right (Figure 2) as it rotates about axle 13.

In operation, pressure of the foot, depresses button 8, causing a partial revolution of sheave 11, pulling cable 16. This causes handle 23 to be pulled down. When the foot is lifted from button 8, a spring (not shown), forming part of the mechanism of valve 20, pulls up handle 23 causing button 8 to return to its raised position.

A modified form of our construction is shown in Fig. 5, in which the box portion 24 is provided with a removable cover 25 having a sleeve 27 in which the push button 28 is adapted to slide. A lever 29 is provided with an axle 30. Axle 30 is supported in U shaped bearings 31, one only being shown. Push button 28 is adapted to bear down on lever 29. Cable 32 which passes over sheave sector 33 is fastened to lever 29. The other end of cable 32 (not shown) is attached to the flushing mechanism of the plumbing fixture. When push button 28 is depressed, lever 29 pulls on cable 32 flushing the plumbing fixture thereby.

We claim:

1. A floor push button device comprising, a casing adapted to be set into the floor, a sheave rotatably mounted within said casing, a push button adapted to cause rotation of said sheave, and a flexible member adapted

to lie around said sheave for connecting said device with the flushing mechanism of a plumbing fixture, said member adapted to be pulled upon when the button is depressed.

2. A floor push button device comprising, a casing adapted to be set into the floor, a sheave rotatably mounted within said casing, a push button extending within said casing adapted to cause rotation of said sheave, a flexible member, adapted to lie around said sheave, for connecting said device with the flushing mechanism of a plumbing fixture, and a guide, passing through the floor, within which said flexible connection is adapted to move, said member adapted to be pulled upon when the button is depressed.

3. A floor push button device comprising a casing adapted to be set into the floor, a push button adapted to slide in the top of said casing, a rotatable member mounted within said casing adapted to be rotated by the depression of said button, and a flexible member adapted to be pulled upon by said rotatable member for connecting said device with the flushing mechanism of a plumbing fixture.

4. A push button device for plumbing fixtures, comprising a casing, a push button extending within said casing, a rotatable member mounted within said casing adapted to be rotated by said button, and a flexible member for connecting said device with the flushing mechanism of a plumbing fixture, said rotatable member being adapted to cause said flexible member to be pulled upon, effecting the flushing of the fixture thereby.

5. In a push button device for plumbing fixtures, a rotatably mounted sheave, a push button pivotally mounted upon said sheave for rotating same, and a cable for connecting said sheave with the flushing mechanism of a plumbing fixture.

6. A push button device for plumbing fixtures, comprising a casing, a sheave sector rotatably mounted within said casing, a push button extending within said casing adapted to effect the rotation of said sector, and a flexible member for connecting said device with the flushing mechanism of a plumbing fixture, said member adapted to be pulled upon when the button is pushed.

7. A push button device for plumbing fixtures, comprising a casing, a sheave sector rotatably mounted within said casing, a push button, for rotating the sector, rotatably mounted upon said sector with its axis of rotation located intermediate the axis of rotation of the sector and the rim of the sector, and a flexible member fastened at one end to the sector and passing over its rim, and at the other to the flushing mechanism of a plumbing fixture.

8. In a push button device for plumbing fixtures, a rotatably mounted sheave, a push button rotatably mounted upon said sheave for rotating the same, and a member for connecting said sheave with the flushing mechanism of a plumbing fixture, said member adapted to cause the flushing of the fixture when the button is pushed.

9. In a push button device for plumbing fixtures, a rotatably mounted sheave, a push button rotatably mounted upon said sheave for rotating same, said push button being bifurcated for straddling said sheave, and a member for connecting said sheave with the flushing mechanism of a plumbing fixture, said member adapted to cause the flushing of the fixture when the button is pushed.

10. In a push button device for plumbing fixtures, a rotatably mounted sheave, a push button rotatably mounted upon said sheave for rotating same, said push button being bifurcated for straddling said sheave, and a flexible member fastened to the sheave and to the flushing mechanism of a plumbing fixture, said flexible member passing over the rim of the sheave, between said rim and the button.

11. A push button device for plumbing fixtures, comprising a casing, a sheave sector rotatably mounted within said casing having its axis of rotation located up from the floor of the casing a distance less than the radius of said sector, a push button rotatably mounted upon said sector for rotating same and a flexible member for connecting said sector with the flushing mechanism of a plumbing fixture adapted to cause the flushing of the fixture when the sector is rotated.

12. In a push button device for plumbing fixtures, a rotatably mounted sheave sector, a push button adapted to rotate said sector and a flexible member passing over the rim of said sector, said sector having a hole extending from its rim to one edge in which one end of the flexible member is fastened, the other end of said member being fastened to the flushing mechanism of a plumbing fixture.

13. In a push button device for plumbing fixtures, a rotatably mounted sheave sector, a push button having a forked end straddling said sector, a pin passing through said sector and the forked end of the button for rotatably fastening said button to the sector, and a flexible member fastened at one end to the sector and passing over its rim, and at its other end to the flushing mechanism of a plumbing fixture, said pin passing through the sector relatively near the axis of rotation of the sector in comparison with the distance of its rim from said axis, whereby a small displacement of said button results in a relatively large displacement of said flexible member.

14. A push button device for plumbing

fixtures, comprising a casing provided with an opening surrounded by a tapered sleeve, a push button adapted to slide within said sleeve as a guide, a rotatable member mounted within said casing to which said push button is pivotally fastened and means adapted to be actuated by the rotation of said member for causing actuation of the flushing mechanism of a plumbing fixture when said button is pressed, the taper of said sleeve being provided to permit swinging of the button as its pivoted end rotates with said member.

15. A push button device for plumbing fixtures, comprising a push button, flexible means adapted to be pulled by the depression of said button for causing actuation of the flushing mechanism of a plumbing fixture, a hollow guide through which said flexible means is adapted to slide, and a casing provided with one opening through which said button is adapted to slide and another opening adapted to receive the end of said guide.

16. In a push button device of the character described, a casing comprising a box portion, a removable cover with an opening therein for the push button and bearing blocks formed integrally with the walls of said box portion.

17. A floor push button device comprising a casing adapted to be set in the floor, a push button adapted to slide in an opening in said casing and means located within said casing adapted to be actuated by said push button, a flexible member, adapted to be pulled by said means, for connecting said means with the flushing mechanism of a plumbing fixture and a curved tubular guide, passing through the floor, through which said flexible member is adapted to slide.

18. A floor push button device comprising, a push button, a casing through which said button is adapted to slide, a rotatable member, having an axle, adapted to be rotated by said button, bearings within said casing formed with U-shaped journals at the bottom of which said axle rests, and means adapted to be actuated by the rotation of said member for causing actuation of the flushing mechanism of a plumbing fixture.

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