W. MEIER.

PEDAL CONTROLLED MIXING FAUCET.

APPLICATION FILED JULY 2, 1920.

1,402,632.

Patented Jan. 3, 1922.

2 SHEETS—SHEET 1.

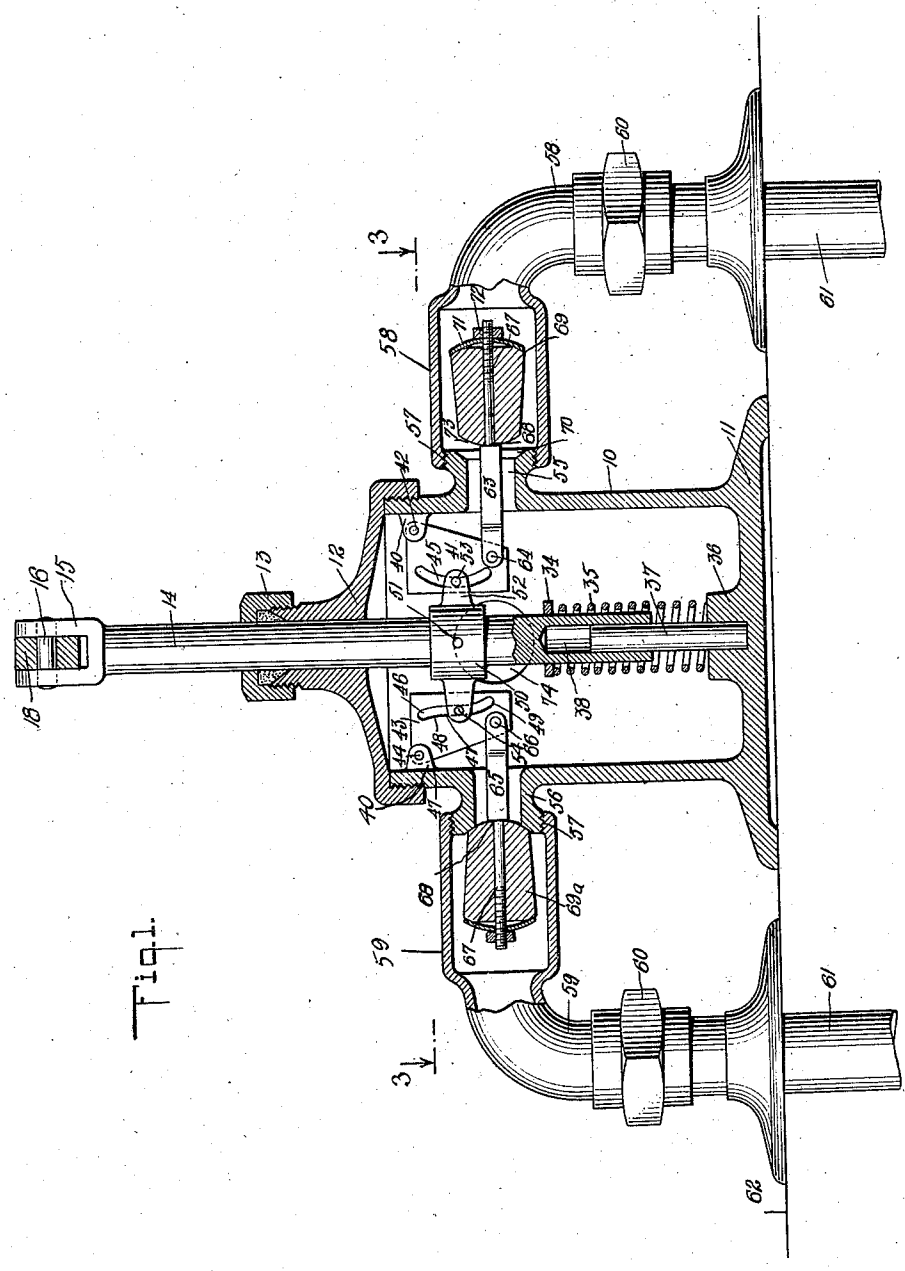


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

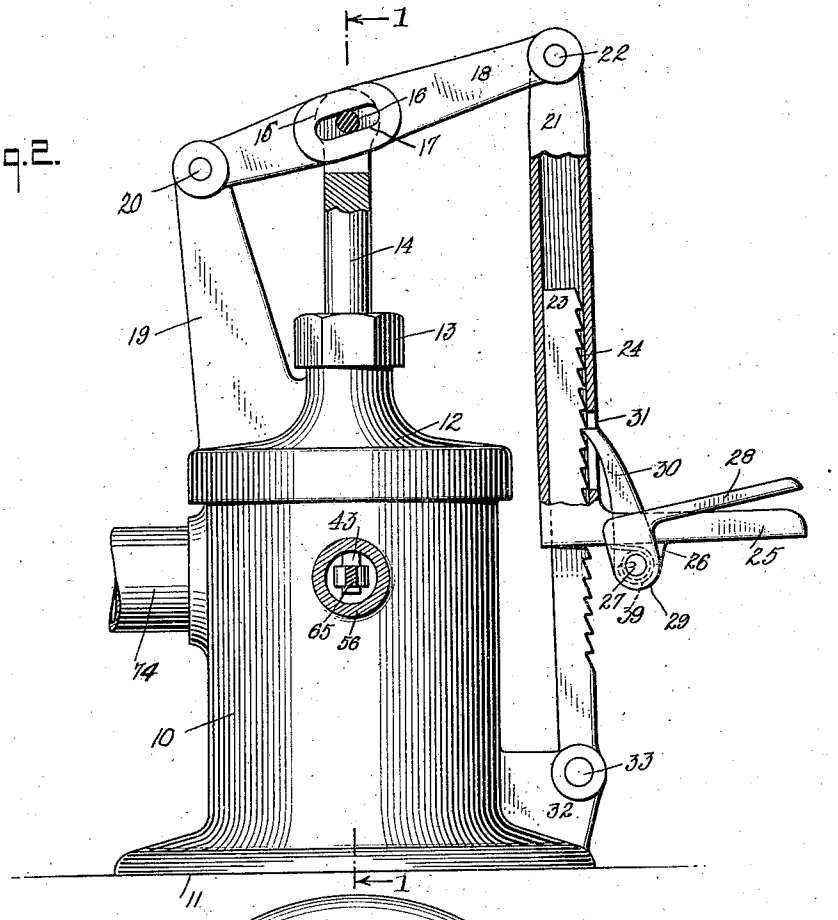
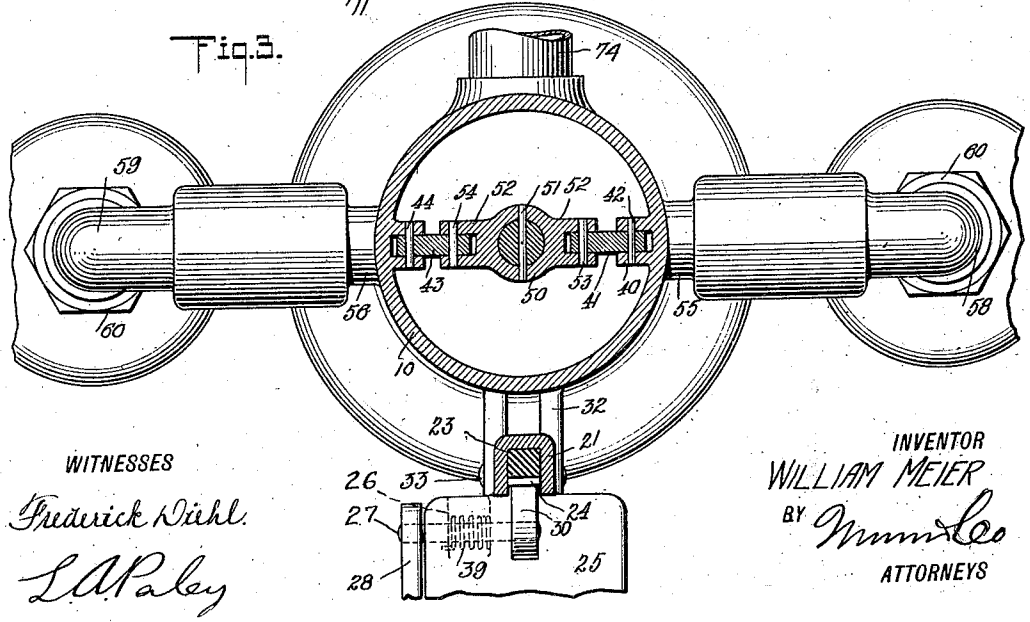


Fig. 3.



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WILLIAM MEIER, OF NEW YORK, N. Y.

PEDAL-CONTROLLED MIXING FAUCET.

1,402,632. Specification of Letters Patent. Patented Jan. 3, 1922.

Application filed July 2, 1920. Serial No. 393,631.

To all whom it may concern:

Be it known that I, WILLIAM MEIER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, county and State of New York, have invented a new and Improved Pedal-Controlled Mixing Faucet, of which the following is a full, clear, and exact description.

This invention relates to liquid mixing means, and has reference more particularly to means for mixing hot and cold water, said means being controlled by a foot pedal so that the water issues from the faucet at the desired temperature.

This application further relates to and is an improvement over the device for which application was filed by me October 25, 1919, Serial Number 333151, and is also an improvement over the device shown in application filed June 19, 1919, Serial Number 305269.

An object of this invention is to provide a device of the class described in which the flow and temperature of the water issuing from the faucet can be accurately controlled by a foot operating device, so that the operator's hands are free for other purposes.

Another object of this invention is to provide a mixing faucet which may be quickly disassembled so that repairs can be made.

A further object of this invention is to provide a mixing faucet which is provided with valves which may be adjusted when necessary due to wear.

Reference is to be had to the accompanying drawings forming a part of this specification, in which it is understood that the drawings illustrate only one form of the invention, and in which—

Figure 1 is a sectional elevation of the mixing faucet being taken on the line 1—1 of Figure 2, with parts broken away to disclose the construction.

Figure 2 is another elevation of the mixing faucet with parts broken away to disclose the construction.

Figure 3 is a sectional view through the mixing faucet on the line 3—3 of Figure 1.

Referring to the accompanying drawing by numerals, 10 indicates a mixing chamber which is preferably cylindrical in shape, said chamber being provided with a base 11 which may be attached to the floor or walls. The upper end of the chamber 10 is threaded to receive a screw cap 12 which is provided with a stuffing box 13. The stuffing box 13 slidably engages a rod 14 so that said rod is positioned co-axial with the chamber 10. The upper end of the rod 14 is formed into a fork 15 through which passes a pin 16, said pin engaging a slot 17 in a lever 18. An arm 19 is formed on the upper surface of the cap 12 and one end of the lever 18 is pivoted to said arm 19 by a pin 20. A hollow arm 21 preferably rectangular in cross section is pivoted to the end of the lever 18 by a pin 22, and said hollow arm 21 is adapted to slidably receive a bar 23 provided with clutch teeth 24 on one edge. A laterally extending pedal support 25 is formed on the lower end of the arm 21, said pedal support being provided with downwardly extending lugs 26 through which transversely passes a pin 27. A pedal 28 is provided with downwardly extending lugs 29 which are pivotally mounted on the pin 27, and a pawl 30 is also pivoted on said pin 27, the upper end extending through an opening 31 in the arm 21 so as to engage the teeth 24. The lower end of the bar 23 is pivoted to a lug 32 on the chamber 10, by means of a pin 33.

An annular shoulder 34 is secured to the lower end of the rod 14, said shoulder serving as a seat for one end of a coil spring 35, the other end of which rests on a seat 36 formed on the inside of the base 11. A stud 37 is secured in the seat 36 extending coaxially through the spring 35, and into a tubular recess 38 formed in the lower end of the rod 14. Thus the spring 35 normally tends to push the rod 14 upwardly so that the lever 18 will be moved about its pivot 20, thus sliding the arm 21 upwardly on the bar 23. In order to resist this action, a coil spring 39 is provided on the pin 27 so that the pedal 28 is normally held in an oblique position as shown in Figure 2, thus pressing the pawl 30, inwardlly against the teeth 24. When it is desired to move the rod 14 downwardly, the pedal 28 is depressed with the foot or otherwise and is pushed downwardly to the desired point, when on releasing the pedal 28, the pawl 30 engages the teeth 24, thus maintaining the rod 14 in its new position.

A pair of outstanding lugs 40 is formed diametrically opposite on each side of the inside surface of the chamber 10 adjacent the cap 12, and a cam block 41 is pivotally suspended between one pair of lugs 40 by means of a pin 42 while a cam block 43 is

similarly suspended between the other pair of lugs 40 by means of a pin 44. Cam slots are formed in each of the blocks 41 and 43, the block 41 being provided with a cam slot 45 which is substantially arcuate in shape, while the block 43 is provided with a cam slot 46 which has a substantially vertical straight section 47, an upper arcuate section 48, and a lower arcuate section 49, the sections 48 and 49 being turned in opposite directions. A collar 50 is secured to the rod 14 by a pin 51, and said collar is provided with diametrically opposite outstanding flanges 52. A laterally extending pin 53 is secured to the end of one of the flanges 52 so as to engage the cam slot 45, and a laterally extending pin 54 is secured to the end of the other flange 52 so as to engage the cam slot 46. The pins 53 and 54 serve to move the cam blocks 41 and 43 about their pivots when the rod 14 is reciprocated vertically by the pedal 28.

An inlet port 55 is provided in the wall of the chamber 10 adjacent the cam block 41 and an inlet port 56 is formed in the wall of said chamber 10 diametrically opposite the port 55 and adjacent the cam block 43. Each of the ports 55 and 56 has a threaded portion 57 to which is secured water pipes 58 and 59 which may be curved, straight, or provided with unions 60 connecting said pipes to service pipes 61 passing through the floor 62. The pipe 58 may supply cold water and the pipe 59 hot water or vice versa. A valve stem 63 is pivoted at one end to the lower end of the block 41 by means of pin 64, and a valve stem 65 is pivoted to the lower end of the cam block 43 by a pin 66, said valve stem extending through the port 56. Each of the valve stems 63 and 65 is provided with a threaded section 67 which forms shoulders 68 with the valve stems 63 and 65. Frusto-conical resilient valve washers 69 and 69_a are mounted coaxially on sections 67, the smaller ends of said washers being adapted to engage a valve seat 70 formed in each of the ports 55 and 56 when the valves are in a closed position. The washers are preferably made of a soft material such as rubber and are held in place by a semi-spherical metal washer 71 secured in place by a nut 72. The contact surface 73 of each of the washers 69 and 69_a with the valve seats 70 is preferably semi-spherical in shape so that as the valve washers become worn, they may be adjusted by tightening the nuts 72 so that the surfaces 73 are flattened out and approach their respective valve seats more closely. An outlet port 74 is provided in the chamber 10 to allow the escape of the mixed water at the temperature desired.

In operation when the pawl 30 is disengaged from the teeth 24, the rod 14 will be moved axially by the spring 35 to its uppermost position in which both of the valve washers 69 and 69_a will be seated on their respective valve seats so that no water will flow into the chamber 10 through the pipes 58 and 59. As the rod 14 is slowly moved downwardly by depressing the pedal 28, the pin 54 will first loosen but not unseat the valve washer 69_a, while the pin 53 will unseat the valve washer 69 due to the sharp curvature of the cam slot 45. As the downwardly motion of the rod 14 is continued, the pin 54 will travel in the straight section 47 of the cam slot 46, while the valve washer 69 is fully opened, and upon further downward movement of the rod 14, the valve washer 69 will slowly close while the valve washer 69_a will slowly open and at the lowest point of the rod, the washer 69 will be closed while the washer 69_a will be open. Thus a thorough mixing of hot and cold water from the pipes 58 and 59 occur in the chamber 10 and the mixed water of the desired temperature will flow out of the pipe 73. This faucet is especially useful for dentists and others who, while working with their hands may desire to control the flow and temperature of the water without the necessity of interrupting the work in hand.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention, I do not limit myself strictly to the mechanical details herein illustrated, since manifestly the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A faucet for mixing liquids, which comprises a mixing chamber, a plurality of valves disposed in said chamber and controlling the admission of liquid to and exhaust from the chamber, a plurality of pivoted plates, a connection between each pivoted plate and a valve, a sliding actuating control rod, a collar on said rod having projecting lugs, a pin on the end of each lug, each of said plates having a curved cam slot adapted to receive one of said pins whereby the movement of the rod will actuate the plates to operate the valve, and a stud projecting from the bottom of the casing in line with the control rod, said rod having a bore adapted to receive said stud whereby the movement of the control rod is reinforced and guided by said stud.

2. A faucet for mixing liquids, which comprises a mixing chamber, a plurality of valves disposed in said chamber and controlling the admission of liquid to and exhaust from the chamber, a plurality of pivoted plates, a connection between each pivoted plate and a valve, a sliding actuating control rod, a collar on said rod having projecting

lugs, a pin on the end of each lug, each of said plates having a curved cam slot adapted to receive one of said pins whereby the movement of the rod will actuate the plates to operate the valve, a stud projecting from the bottom of the casing in line with the control rod, said rod having a bore adapted to receive said stud whereby the movement of the control rod is reinforced and guided by said stud, an annular shoulder on said rod, and a resilient spring under compression between the shoulder and the base of the chamber tending normally to hold the rod in an elevated position in which the valves are closed.

WILLIAM MEIER.