June 24, 1930. O. HAASE 1,765,915

AUTOMATIC APPARATUS FOR WASHING AND DRYING HANDS

Filed Nov. 10, 1928

Fig. 1.

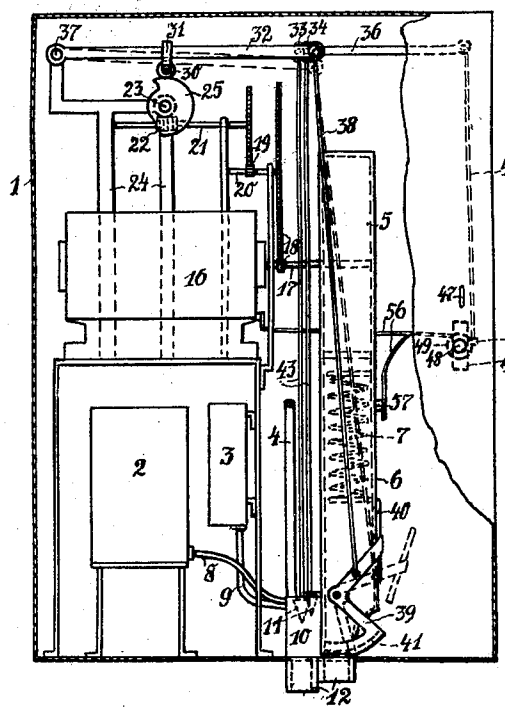


Fig. 2.

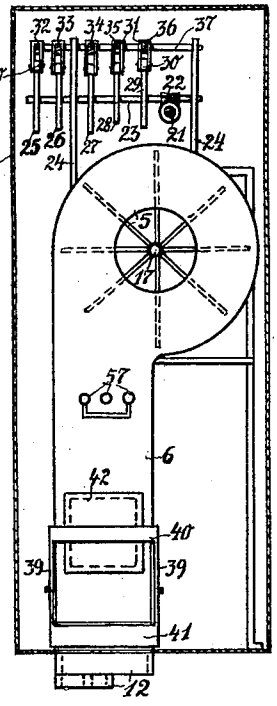


Fig. 3.

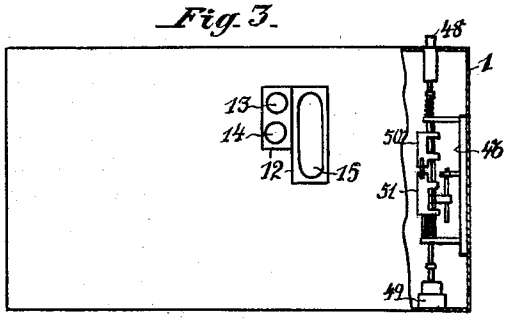


Fig. 4.

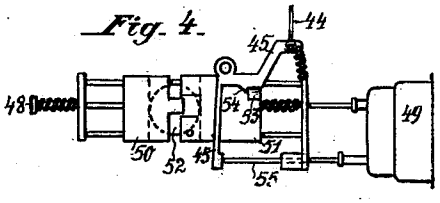
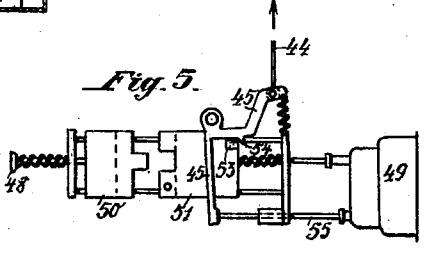


Fig. 5.



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UNITED STATES PATENT OFFICE

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AUTOMATIC APPARATUS FOR WASHING AND DRYING HANDS

Application filed November 10, 1928, Serial No. 318,442, and in Germany March 1, 1928.

This invention relates to a coin-operated automatic apparatus distinguished by the accommodation of water- soap- hot air- and perfume-dispensers in such a manner that these dispensers supply a common discharge tube, the supply to each dispenser being regulated by a common mechanism in dependence of the inserted coin. This automatic apparatus, specially designed for the lavatories in restaurants and the like, is designed to be used for the washing, drying and perfuming of the hands without a towel by means of a hot air current in a manner known per se.

The characteristic feature of the invention is the combination and simplification of the several dispensers to be operated by coin-insertion with positive regulation of the discharge in predetermined succession and at predetermined intervals.

An embodiment of the invention is illustrated by way of example in the accompanying drawing in which

Fig. 1 shows the apparatus in vertical section partly in front elevation.

Fig. 2 is a vertical side elevation in section.

Fig. 3 is an end elevation viewed from below, partly in section.

Figs. 4 and 5 show in two different positions the control mechanism operated by the inserted coin.

In a casing 1 a container 2 for liquid soap, a container 3 for liquid perfume, a pipe 4 connected to a water main or to a water reservoir, a fan 5 with tube 6, and an electric heating resistance in said tube are arranged. This fan is of known type and serves to produce a flow of hot air. The discharge pipe 8 from the container 2, the discharge pipe 9 for the container 3 and the water tube 4 terminate in an intermediate piece 10 containing valves 11 for these tubes. On the bottom plate of casing 1 a common discharge pipe 12 is arranged comprising a bore 13 for the discharging of liquid soap and water, a bore 14 for the discharge of perfume and further a wide slot 15 for the discharge of hot air from the tube 6. The fan 5 is mounted on a horizontal shaft 17 of an electromotor 16, the latter driving through gear wheels 18, 19, shafts 20, 21 and a worm gear 22, a horizontal shaft 23 journaled in a frame 24 and on which a number of eccentric discs 25 . . . 29 are keyed. On these eccentric discs rest rollers 30 mounted in the fork-shaped ends 31 of levers 32 . . . 36, said levers being pivoted at 37 on the frame 24. The lever 32 is connected by a rod 38 with two elbow levers 39 pivotally mounted on the tube 6. These elbow levers 39 carry on their upper arms a plate 40 and on their lower arms a curved plate 41. The curved plate 40 covers a lateral aperture in tube 6 and the curved plate 41 serves to cover the lower mouth of tube 6 in front of the discharge tube 12 and of the wide slot 15 of the same. The mutual position of the plates 40, 41 is selected so that the one plate uncovers the corresponding aperture when the other plate covers the corresponding aperture and inversely.

The levers 33 to 36 are connected each by a rod 43 to the corresponding valves 11, the rods 43 standing the one behind the other. The lever 36 is connected by a rod or pull element 44 with a releasing lever 45 for the slide 46 for the coin underneath the coin slot 47. The coin slide is operated, in a manner known per se, by a push button 48. It acts upon the switch 49 for the electric circuit in which the apparatus is inserted.

The coin slide and its mechanism are shown in Figs. 4 and 5 on enlarged scale. 50 and 51 are the shiftable catch plates for the coin 52 known per se. The catch plate 51 has an abutment 53 by means of which it is retained by a nose 54 of the lever 45, when the mechanism is being shifted towards the switch 49 at depression of the push button 48, i. e., when the circuit of the apparatus is closed.

The catch plate 51 is released only when the pull element 44 lifts the corresponding arm of lever 45 so that the lower arm of this oscillating elbow lever pushes against a rod 55 so that the switch 49 is reversed for interrupting the circuit.

This mechanism might be constructed otherwise and it is illustrated and described

only by way of example to explain the operation of the apparatus.

The conductor 56 of the switch leads to the electromotor and to the contacts 57 for the heating resistance 7.

With the aid of this automatic apparatus the hands can be washed, dried and perfumed. When a coin has been inserted into the slot 47 the circuit is closed by means of the shifting device 46 as soon as the push button 48 is depressed. The electromotor 16 rotates the fan 5, the current flowing through the heating resistance 7 in tube 6, so that the air from fan 5 is heated. The disc 25 is in such position that its lever 32 and rod 38 adjust the elbow lever 39 so that the plate 40 uncovers the aperture 42 in tube 6, plate 41 covering the open end of tube 6 towards the discharge tube 12, (position of the elements 39, 40, 41 indicated in dash lines). The hot air which is produced can flow out from tube 6 in lateral direction. During this position of the elements 39, 40, 41 the eccentric 26 lifts the corresponding lever 33 so that by the rod 43 of this lever the valve 11 for the tube 8 of the container 2 for the liquid soap is opened and liquid soap is discharged for instance during five seconds through the discharge tube onto the hands held under the discharge tube. After disc 26, the shaft 23 driven by the electromotor 16 continuing to rotate, has lowered its lever 33 so that the corresponding valve 11 has been closed, the valve for the tube 4 is opened by means of eccentric 27 and lever 34 and the corresponding rod, for instance twenty seconds, so that water flows out of the discharge tube 12 and the soaped hands can be washed. The eccentric disc 25 adjusts then the elbow lever 39 in such a manner that the aperture 42 is covered by the plate 40 and the lower open end of tube 6 is uncovered by plate 41. The hot air flows out of the discharge tube 12 during forty seconds so that the hands are dried without the use of a towel. For quite a short time, about 3 seconds, perfume is ejected through tube 9 into the discharge tube 12 from container 3 through the intermediary of eccentric disc 28, lever 25 and the corresponding rod and valve, so that the washed and dried hands are perfumed. The rotation of shaft 23 continuing, the eccentric disc 29 reverses, through the intermediary of the lever 26, pull element 44 and, lever 45, the element 46 so that the switch 49 is reversed, the circuit interrupted, the motor 16 stopped and the current cut off from the heating resistance 7.

This apparatus works absolutely automatically and it can be connected to any existing electric line.

I claim:—

An automatic apparatus for washing and drying hands, comprising in combination with a casing, a container for liquid soap, a container for liquid perfume, a tube connected to a water supply, a fan and an electric heating resistance, a tube enclosing said fan and heating resistance, a common discharge tube, means for connecting said several elements with said common discharge tube, an electric motor for the fan, said electric motor and said heating resistance inserted in a circuit, a switch for closing said circuit, and for establishing in predetermined succession and intervals the communication of said containers, water tube and hot air with said common discharge tube.

In testimony whereof I affix my signature.

OSKAR HAASE.