July 8, 1941. L. H. O. STOBBE 2,248,205

SANITARY DEVICE FOR CLEANSING THE HANDS AND ARMS

Filed Sept. 3, 1938

Fig. 1.

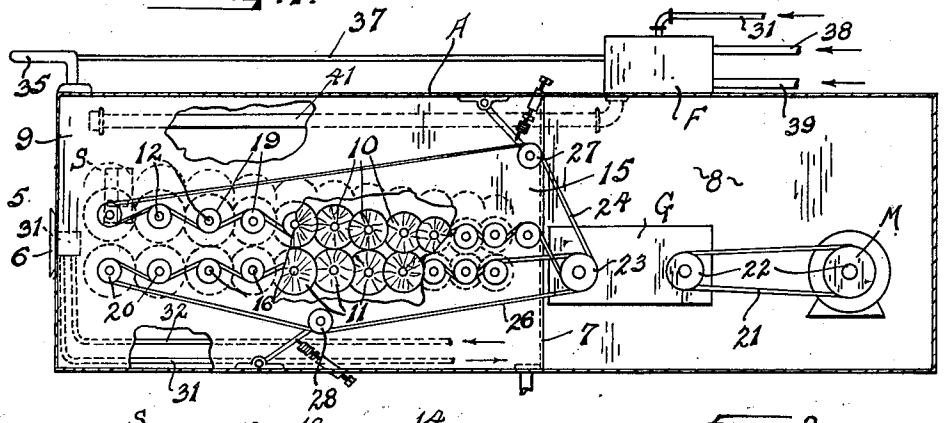
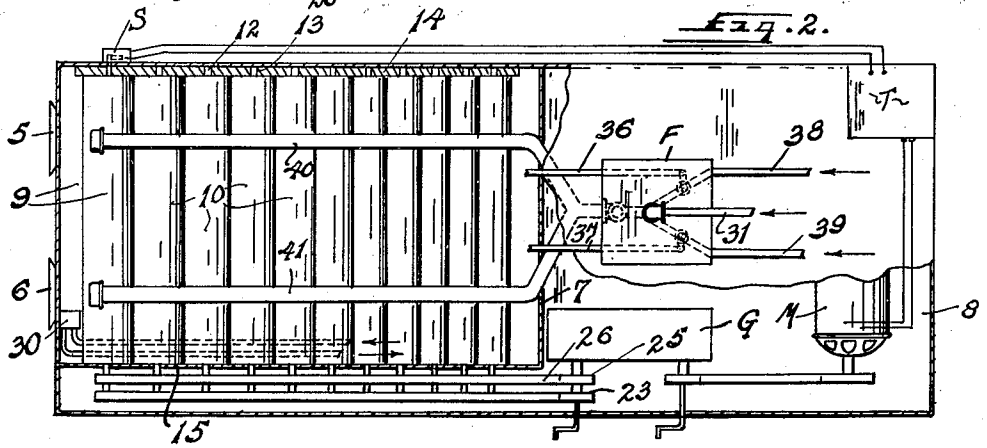


Fig. 2.



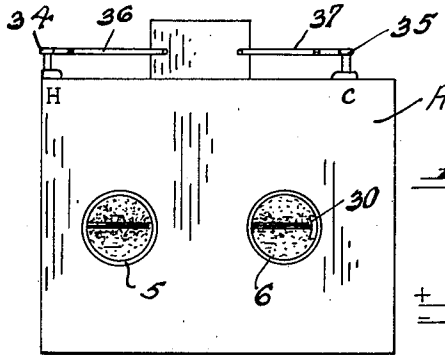


Fig. 5.

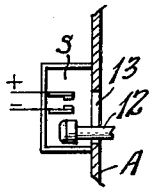


Fig. 4

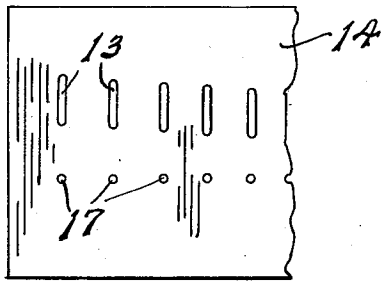


Fig. 3.

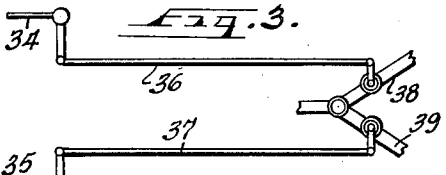


Fig. 6.

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Patented July 8, 1941 2,248,205

UNITED STATES PATENT OFFICE

2,248,205

SANITARY DEVICE FOR CLEANSING THE HANDS AND ARMS

Ludwig Henry Otto Stobbe, Salt Lake City, Utah

Application September 3, 1938, Serial No. 228,409

1 Claim. (Cl. 15—21)

My invention relates to the cleansing of the hands and arms of surgeons prior to surgical operations where sanitation is one of the most important factors in successful operations.

A further object of this invention is to cleanse the skin of a person's hands and arms as sterile as possible in the least possible time. Asepsis and conservation of time are the essence of purpose.

Special application is in reference to hospital scrub rooms where nurses and surgeons scrub their hands and arms preparatory for operations. This invention will aim to eliminate the present inefficient means of fifteen minute scrub periods with its many contaminations and consequent dangers of infections to the patient.

A further object is to standardize the scrubbing means for operations for all doctors, and nurses, providing minimum requirements at measurable standards and producing uniform results.

A still further object is to provide a washing machine for the hands and arms which will be controlled by the user with his shoulders, upper arms or elbows, and will not require the use of the hands on any of the controls and which device may be provided with a time clock to check the time a doctor or nurse starts to scrub and when they stop, one of the essential features of the invention being that it is automatically started when the user inserts his hands or arms into the device.

These objects I accomplish with the device set out in the accompanying drawing reference being made to the numerals and characters thereon and as described in the specification forming a part of this application and pointed out in the appended claim.

In the drawing

Figure 1 is a longitudinal section of the casing showing parts cut away showing the drive and relative position of the brushes.

Figure 2 is a plan view of the device parts cut away, to show the relative positions of the brushes and other working parts.

Figure 3 is a front elevation of the device.

Figure 4 is a view of one of the support side plates showing the slots for permitting vertical adjustment of the upper brushes to fit the arm of the user.

Figure 5 is a diagrammatic sectional view of the control switch for controlling the motor.

Figure 6 is a diagrammatic view of the control means for controlling the hot and cold water.

In the drawing I have shown the casing in which the scrub brush is mounted as A, having spaced apart arm openings 5 and 6 in the front face thereof and having a partition 7 dividing the rear end of the box to provide a driving compartment 8. This device is made primarily for sanitation and clean washing and the washing is accomplished in the front chamber 9 by horizontally mounted upper rows and lower rows of driven bristle brushes 10 and 11. The two rows of brushes are mounted with the coacting brushes in each row parallel to each other and with the front brushes larger and each brush tapering in size to the rear brushes. The rows of brushes are alike and as shown they are mounted with the bearings of the upper rows vertically above those of the lower rows. The upper row of brushes is mounted with the shafts 12 fitting into vertical slots 13 in the side walls 14 and 15 to allow for raising of the upper row of brushes for inserting the hands and arms therebetween. The shafts 16 of the lower row pass through bearing holes 17 in the same side walls.

The partition 7 is extended up one side to the front as the side wall 15 leaving a space along the one side in which the driving mechanism for the brushes is mounted and this driving mechanism as shown consists of mounting sheave wheels 19 in the ends of the shafts 12 and like sheave wheels 20 on the shafts 16. A speed reducer chamber or gear assembly G is mounted in the compartment 8 driven by a motor M, a belt 21, and sheave wheels 22. A driving sheave 23 drives the upper belt 24 and a sheave 25 on the same shaft as the gear speed reducer, drives the lower belt 26. The upper belt 24 is extended up around a spring held idler 27 and forward around the front sheave 19 and this belt is then wound over and under each successive side wall to the extreme rear where it is brought down around the sheave 23 completing its cycle. The lower belt 26 is around the drive sheave 25 down around the idler 28 around the sheaves 20 back to the sheave 25 completing its cycle. Thus, the motor drives both rows of brushes in like manner. It will be obvious that other means may be employed for driving the brushes without changing the principle or rotating the brushes, such as causing each brush to rotate the next succeeding brush and driving only one end brush.

On the outside of the casing A in alignment with the front upper brush and operated by the

extended end of the shaft, there is a sliding switch S which when the brush has been raised the least amount completes an electrical circuit (not shown) to cause the motor to start rotating. This circuit is also connected with a time clock T which circuit starts the clock when the circuit is closed and stops it when the circuit is opened. This clock may or may not be equipped with a recording drum and stylus to show just how long the machine is run. The switch S is of the sliding type of brush and engages its contact as soon as the first brush has been elevated.

The water and soap for the scrub box are provided in a mixing chamber F mounted on top of the casing, the soap being controlled by an elbow control valve 30 mounted adjacent one opening 6 in which the arms are inserted. The person using the device wishing soap moves his elbow to meet the side plate which turns on the soap through the pipe 31 and directs it into the mixing chamber F through the top side thereof. The pipe 31 is cut away and is not continued in the drawing for convenience but is in reality connected as one pipe leading into the top of the chamber F as shown in Figure 1.

The water is controlled by the two shoulder levers 34 and 35 which are mounted on top of the casing A and extend forward in the form of a bell crank lever to control the rods 36 and 37 which lead back to suitable control valves in the pipes 38 and 39 which lead from sources of hot and cold water into the mixing chamber. The levers 34 and 35 are spring controlled bell crank levers so that when moved to one side they introduce flow through the valves and when returned to their initial starting position they turn off the water. The hot and cold water and soap are mixed in the mixing chamber F by the force of the incoming water and soap and discharged through a fork into horizontal distributing pipe jets 40 and 41. These jets extend forward through the casing A above the top row of brushes at right angles thereto and substantially in alignment with that position of the hands and arms when they are placed in the casing. Either hot or cold water may be controlled by the user and the soap may be utilized as needed.

The soap will be stored in a container (not shown) and preferably under pressure to insure a positive flow thereof but it may be a gravity flow if desired, mounting the container above the casing.

Modifications as to the means for driving and permitting vertical movement of the brush shafts and other like mechanical changes are considered within the spirit of this invention and the scope of the appended claim.

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

A device of the class described, comprising a casing having arm holes in the front face thereof; two rows of transversely mounted brushes, one above the other, with the upper row adapted to be elevated when the hands are inserted thereinto; and means responsive to upward movement of the upper row of brushes to start the brushes rotating.

LUDWIG HENRY OTTO STOBBE.