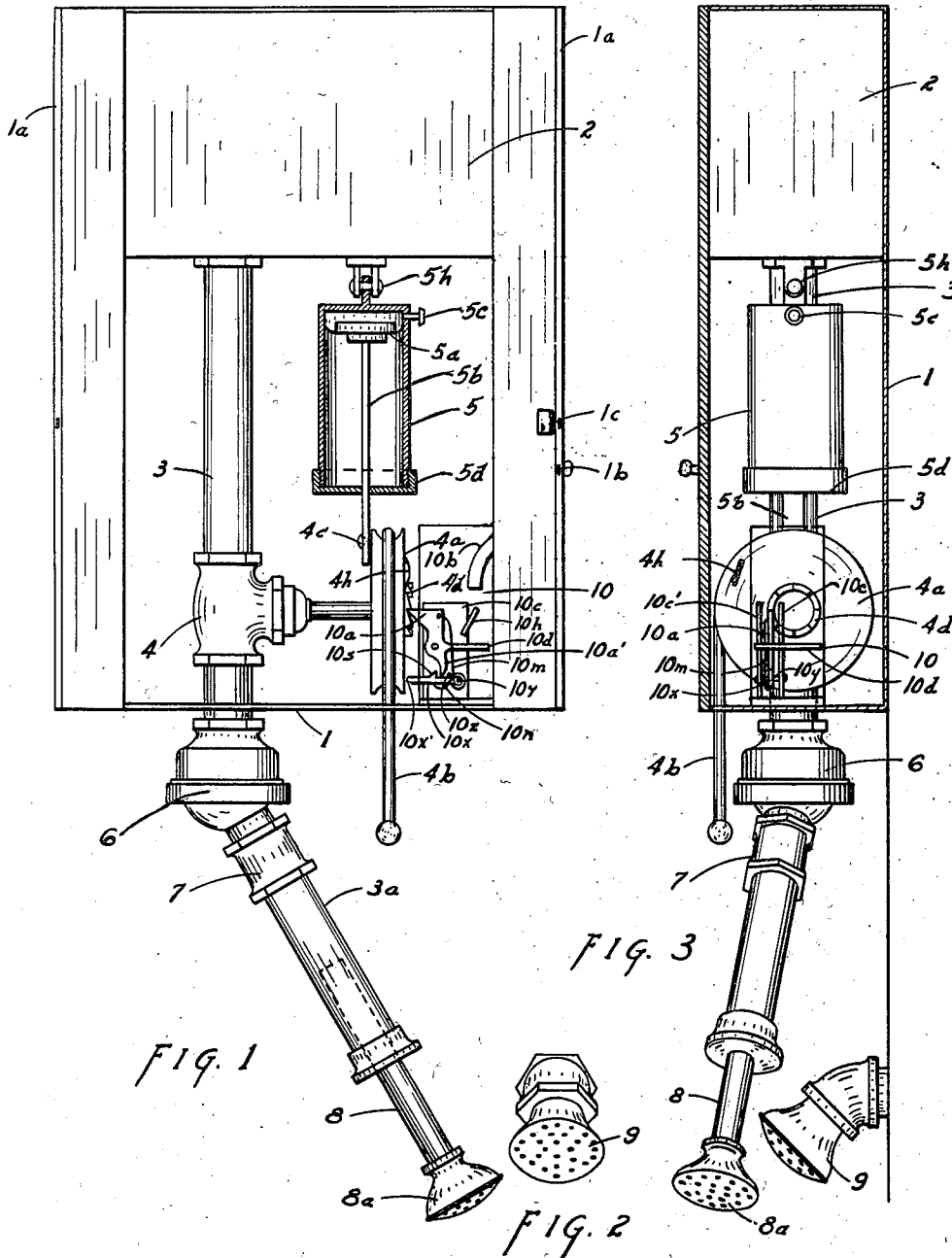


April 13, 1943.

H. YOUNG

2,316,307

AUTOMATIC MECHANISM FOR FURNISHING INTERMITTENT
SPRAYS OF LIQUID SOAP FOR BATHS
Filed April 21, 1941



Inventor - Herring Young.
Attorney, Eugene S. Stern

UNITED STATES PATENT OFFICE

2,316,307

AUTOMATIC MECHANISM FOR FURNISHING
INTERMITTENT SPRAYS OF LIQUID SOAP
FOR BATHS

Herring Young, Louisville, Ky.

Application April 21, 1941, Serial No. 389,636

1 Claim. (Cl. 299—73)

My invention relates to storage tanks for liquids and the essential equipment for delivering the contents thereof in the form of intermittent sprays. And the principal object of my invention has been to devise a complete mechanism adapted to furnish a predetermined amount of sanitary liquid soap intermittently in the form of a light spray for the bath, in connection with a conventional shower or other bathing facilities. Another object of my invention has been to prevent the useless waste of the liquid soap by means of a self-closing valve controlled by an adjustable timing device; and as a still further object, I have had in mind was the provision of means to prevent the free use of the liquid soap of this device, in the bath-rooms of clubs and gymnasiums, by means of the interposition of a conventional coin-operative device for use in such places, to allow the service valve to be opened. Other objects of my invention will be disclosed in the process of this specification.

The foregoing objects have all been attained in my present invention; and my new and useful automatic mechanism for furnishing intermittent sprays of liquid soap for baths, illustrated in the accompanying drawing which forms a part of this specification, is a practical device embodying the aforesaid novel means and other new and useful details of construction, arrangement and combination of parts, all of which together with their functions, will be described in detail with reference to said drawing and will be definitely pointed out in the claim that follows this description, so that any person skilled in the art may be able to construct and use this invention.

In said drawing,

Fig. 1 is a front elevational view of my mechanism and its protective cabinet with the double doors of the cabinet in perspective standing open, showing my automatic valve-timing device partly in section.

Fig. 2 is an adjacent conventional bath-room shower-head of use in connection with my liquid-soap spray.

Fig. 3 is a side elevational view of my mechanism for supplying the intermittent liquid-soap sprays, with its protective cabinet in section, showing the outline of the coin-operative box with its obverse and reverse sides removed to show the circular ratchet on the sheave wheel of the self-closing valve and the detaining pawl of the coin-operative box. In this Fig. 3 is shown, also, an adjacent conventional bath-room shower-head.

This invention has been designed and prac-

tically developed in its details of construction for the very desirable purpose of producing, at a comparatively low cost, an efficient mechanical appliance for furnishing a bather with light intermittent sprays of sanitary liquid-soap in connection with a shower or a tub bath. And with said purpose and the above mentioned objects in view, I will describe my invention in detail, pointing out the new and useful features in the construction and arrangement of the individual parts and the combinations thereof, as illustrated in the drawing hereinabove described, in which similar letters and characters refer to similar parts throughout the several views.

In the invention and development of my automatic mechanism for furnishing sprays of liquid-soap for the bath, I have tested out every detail of the complete mechanism in an assemblage of the different parts involved in a working model thereof; and I have found in the operation of the self-closing valve with its adjustable timing device, the flexible joint and telescoping attachment, not only complete success in the functions; but the combination affords a very convenient and efficient adaptability of the mechanism for personal use in connection with the bath under normal conditions in any place. For in the design and the construction of my novel device, although I have made use of several conventional details, I have, by thoughtful designing and experimenting, managed to assemble these parts in a novel combination in my new mechanism, that has produced very desirable results, when considered from novel, convenient, economical and sanitary points of view.

For appropriate neatness in appearance in a bath-room I have enclosed my sanitary liquid-soap tank 2 and the vital operative parts of my said mechanism within a protective cabinet 1, which may be made of polished alcoa or any other suitable material, having on its front side double doors, 1a, 1a, provided with a latch 1b and a lock 1c.

The liquid-soap pipe-line

The pipe 3 leads from the liquid-soap tank 2 down to the self-closing valve 4 in the liquid-soap pipe-line before it passes through the bottom of the protective cabinet 1, and then to the flexible joint 6, where, with the telescoping attachment 8 and its spray-head 8a, these parts are installed below said cabinet, for the purpose of changing the position of the soap-spray head relative to the adjacent conventional shower-head 9, for the convenience of the individual

bather. That portion 3a of the soap-pipe, in which the telescoping attachment 8 slides in and out, is joined to the flexible joint 6 by means of the connecting nipple 7. This part of the soap-pipe can be readily swung on the flexible joint 6 in any desirable direction; and it will rest in that position until forcibly moved again.

Operation of the self-closing valve

The self-closing valve 4 is provided with a sheave wheel 4a over which the operative cord 4b is wound is provided with a crank-pin 4c to which the plunger 5b of the air dash-pot 5 is loosely connected for the purpose of holding said self-closing valve open for predetermined time for the liquid-soap spray to run.

The time-controlling device

The air dashpot 5 attached to the underside of the liquid-soap tank 2 in a hinge 5h to allow it to swing back and forth in its operative connection with the sheave wheel 4a, is provided with a conventional dasher 5a adapted to compress the enclosed air forcing it to escape slowly through the adjustable controller-valve 5c, as the spring-pressed self-closing valve 4 forces said dasher inwardly by means of the plunger 5b attached to the receding sheave wheel, as the valve 4 is closing. The threaded cap 5d, through a slot in the central part thereof, guides said plunger sliding in and out of the dashpot 5, as the sheave wheel 4a is operated for the intermittent soap-spray. The controller-valve 5c, of the needle-valve type, is operated by means of fine threads thereon; and can be set to allow the air in the dashpot to pass out through it in any desirable time from a few seconds to a period many times as long. When the operative cord 4b on the sheave wheel 4a is pulled, the sheave wheel is forced to rotate opening the self-closing valve 4 and drawing the plunger 5b and its attached dasher 5a outwardly to the limit of its stroke. And when the operative cord 4b is released, the conventional helical spring in the self-closing valve rotates said sheave wheel back to its original position of rest, as shown in Fig. 1; and the valve 4 is then closed.

The conventional slotted coin-box

Around the center of the sheave wheel 4a I have fastened thereto a circular ratchet 4d, a plan view of which is shown on said sheave wheel in Fig. 3. The purpose of this ratchet 4d, fastened on the sheave wheel 4a, is to prevent the opening of the valve 4 when the liquid-soap tank is installed in the bath-rooms where it is intended that payment shall be made for the use of the liquid-soap spray in connection with the bath, as in bath-rooms of social clubs or of gymnasiums. In such places, there may be installed in the bottom of the protection cabinet 1 adjacent said sheave wheel, a coin-box 10 provided with a detaining pawl 10a mounted on a pintle-hinge on an upright plate 10c in said box and adapted, by force of the spring 10m, to pass through a vertical slot in the adjacent side of said coin-box and to rest normally in detaining contact with said ratchet. Said pawl is provided on its back with a broad horizontally-disposed plate 10d designed to catch and hold the operative coin 10h falling through the conventional coin-chute 10b, which has a convenient opening in the outside of the protective cabinet 1; said opening having been adjusted to the size of the predetermined coin to be used. The momentum

of the dropped coin 10h on the outer portion of the horizontal plate 10d, overcoming the tension of the spring 10m, causes said plate to dip downward a predetermined distance, which forces the detaining pawl 10a back away from the ratchet 4d, thus freeing the sheave wheel 4a for rotation by means of the operative cord 4b, and thus opening the valve 4, so the bather will get his required spray of liquid-soap in connection with his bath.

But to assist in the complete and practical operation of the pawl 10a, I have extended the lower part thereof in an integral auxiliary hook 10a' slightly curved towards said vertical slot, as shown in Fig. 1, and below said hook, I have mounted on a pintle-hinge 10y on the upright plate 10c the horizontally disposed lever 10x held in its operative position pressed up against a detent stud 10z, by means of the spring 10n wound around the pintle 10y; the spring 10n being the lower end of the spring 10m also wound around the pintle 10y. And on the upper edge of said lever I have made an integral catch 10s designed to catch and hold temporarily the pointed hook 10a' as it moves forward when the broad plate 10d moves downward under the momentum and weight of the bather's coin 10h, as it drops from the chute 10b. The lever 10x I have designed to extend a predetermined distance out through the lower end of the same vertical slot through which the pawl 10a operates, in the side of the coin-box adjacent the sheave wheel 4a. If I did not have the detaining catch 10s on said lever adapted to arrest temporarily in a certain position the forward-moving hook 10a', the broad plate 10d under the weight of the coin 10h, would continue to dip downward until the coin thereon would slide off; and the plate 10d impelled by the tension of the spring 10m would again go back to its original horizontal position and the pawl 10a would swing back again into detaining contact with the ratchet 4d, likely, before the bather could pull the cord 4b to open the valve 4 to give him his liquid-soap spray.

We can now readily understand that the catch 10s, in arresting the forward movement of the hook 10a', detains the broad plate 10d in a inclined position with the bather's coin thereon holding the pawl 10a back away from the teeth of the ratchet 4d, so that the sheave wheel 4a may be rotated to open the valve 4 at the option of the bather.

We should now notice the cam 4h fastened on the side of said sheave wheel adjacent the coin-box 10, in a certain position designed to contact and push downward the protruding end 10x' of the hinged lever 10x when said sheave wheel has been rotated downward far enough to open the valve 4 to deliver the liquid-soap spray to the bather. And as the protruding end of the hinged lever 10x is pushed downward by the contact of the cam 4h, the hook 10a' is released from the catch 10s and the plate 10d under the weight of the coin 10h moves quickly downward far enough to allow the coin 10h to fall off and the plate 10d impelled by the force of the spring 10m goes back again to its horizontal position and the pawl 10a swings again into its detaining contact with the ratchet 4d, locking the sheave wheel 4a and thus preventing its valve-opening rotation, until another coin is inserted in the coin-chute 10b. This coin-box could be adjusted to be operated with plain metal slugs of a certain dimension and weight for use in army barracks

or other desirable places to prevent wasteful practices with this soap spray in the bath.

In Fig. 1 in the coin-box 10, I have shown only the rear vertical plate 10c supporting the mechanism for operating the pawl 10a; the rear plate 10c' having been removed to show clearly the details of said pawl-operating mechanism in the coin-box.

But, in closing, I think I should add that, in this description of my new and useful automatic mechanism for furnishing intermittent sprays of liquid soap for baths, as set forth in the foregoing specification, it should be understood that the specific detail of the various parts of the instant embodiment of my present invention, as I have illustrated in the drawing thereof and fully described, are not to be considered as limitations in the construction of my new device; and that, while keeping within the scope of my invention and claim, I may make desirable modifications in these details to facilitate quantity-production or to economise in the fabrication of the parts thereof, provided I keep within the spirit and scope of my invention and claim.

Now, having described the various features of my invention, the detail construction, arrangement and combination of its parts, as well as their functions and their ways and means of assemblage, operation and application; those features, accessories and combinations of my new automatic mechanism for furnishing intermittent

sprays of liquid-soap for baths, on which I desire Letters Patent granted to me, I have set forth specifically in the following claim.

I claim:

5 An automatic mechanism for furnishing intermittent sprays of liquid soap for baths, as herein above described, comprising,—a tank of liquid soap fixed in the upper end of a protective cabinet; a pipe-line leading from said tank down 10 through the bottom of said cabinet; an automatic spring-pressed self-closing valve in said pipe-line; a rotary sheave wheel operatively connected with said valve and provided with an operative cord thereon for rotating said wheel to open said 15 valve; an adjustable air dashpot operatively connected with said sheave wheel and adapted to coact with the rotation of said wheel, controlling the backward movement thereof in holding the self-closing valve from closing for a predetermined time; a flexible joint in said pipe-line, 20 installed below said protective cabinet and adapted to carry an extension pipe; and a telescoping attachment having a spray-head on the outer end thereof, said attachment being adapted to slide back and forth in said extension-pipe, said 25 extension pipe with its telescoping attachment being adapted to be swung and adjusted for the convenience of the individual bather using said liquid soap-spray in connection with his bath.

HERRING YOUNG.