Aug. 23, 1927. 1,640,111

W. CLAUSON

SPRAYING APPARATUS

Filed Feb. 24, 1921

Fig. 2

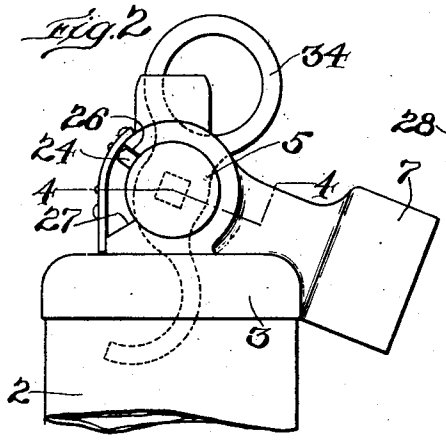


Fig. 3

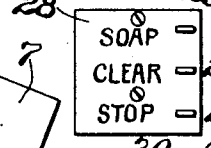


Fig. 1.

Fig. 4

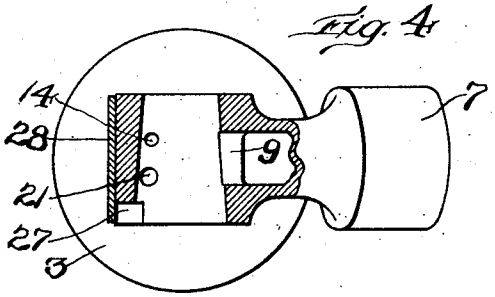


Fig. 5

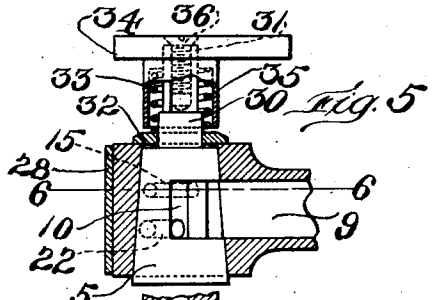
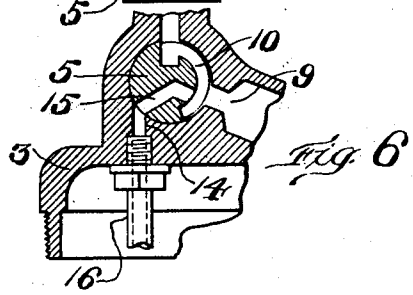


Fig. 6



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his Atty.

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UNITED STATES PATENT OFFICE.

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SPRAYING APPARATUS.

Application filed February 24, 1921. Serial No. 447,492.

This invention relates to apparatus of the character used in spraying liquids, either for the purpose of washing or coating the material on which the spray is directed. The invention will be herein disclosed as embodied in an apparatus designed especially for use in washing relatively extensive surfaces or large objects such as automobiles, although it will be understood that the invention is not limited in its application to such uses.

It is the chief object of the invention to devise a simple and compact apparatus of the general character above indicated which shall be convenient to operate, economical to manufacture, and which can be readily taken apart for cleaning or repairing.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

Referring now to the drawings,

Figure 1 is a longitudinal cross sectional view of an apparatus or device embodying the invention in the form at present preferred;

Fig. 2 is a side elevation of the upper part of the device shown in Fig. 1;

Fig. 3 is a front elevation of the indicator plate secured to the upper part of the device;

Fig. 4 is a cross sectional view taken substantially on the line 4—4, Fig. 2, the valve, however, being removed;

Fig. 5 is a horizontal cross sectionl view through the valve and the parts adjacent thereto; and

Fig. 6 is a cross sectional view on the line 6—6, Fig. 5.

The construction shown comprises a container consisting of a tubular shell or body 2, a head 3 and a base 4, both the head and the base being threaded into the opposite ends of the tubular body. The head 3 contains a valve 5 and it is provided with a discharge nozzle 6 and a member 7 by means of which a hose may be coupled to the device to connect it to a water supply or other source of fluid under pressure. The water or other fluid which is to be used is led through the connector 7 to a port 9 that opens into the valve chamber, and the valve plug 5 has a wide groove 10 formed therein to provide communication between this port and the discharge port 12 formed in the nozzle 6.

This construction permits a flow of water directly through the valve between the supply and discharge ports. A by-pass also is provided to divert a certain part of this flow, when desired, through the container. For this purpose the head 3 has an inlet port 14, Figs. 4 and 6, formed therein that communicates in certain positions of the valve with a passage 15 which, as shown in Fig. 6, leads almost directly through the valve plug from the supply port 9 to the port 14. The port 14 opens into a tube 16 that extends down close to the bottom of the container and has a narrow inclined discharge slot or opening 17 formed therein, as clearly shown in Fig. 1. The lower end of this tube is threaded to receive a screw 18 which can be turned in or out as desired to close more or less of the opening 17 and thus to regulate the flow through the container. The tube 16 is threaded into the head 3 as shown in Fig. 1 and is held therein by a check nut 19, a washer 20 being located under the check nut to form a tight joint. The by-pass also includes an outlet port 21 which is formed through the head 3 and leads from the container into the valve chamber, a passage 22 being drilled through the valve plug 5, as as shown in Fig. 1, to conduct the liquid flowing through said port to the discharge port 12.

It will be seen that the passages 15 and 22 are drilled through the valve plug at the proper angles to utilize the pressure of the main stream of water to create a flow through the container. That is, the passage 15, as shown in Fig. 6, is directed toward the supply port 9, while the passage 22, Fig. 1, opens into the groove 10 at an acute angle to the groove so that the flow through this groove tends to create a suction through the passage 22.

When the apparatus is to be used for washing purposes, as above described, the container is filled with soap or washing compound which may be either in the form of a powder, paste, or liquid. The water flow-

ing through the by-pass mixes with this soap compound and flows out through the passage 22, mixing with the stream flowing through the groove 10, and this mixture is discharged through the nozzle 6. Due to the arrangement and construction of the ducts or passages in the apparatus the mixture is ejected in the form of a spray which, when the valve is turned to open the by-pass, has a soapy consistency and therefore is very effective in cleaning. When a spray of clear water is desired for the purpose of rinsing the article or surface to be washed, the valve plug 5 is turned in a counter-clockwise direction, with reference to Figs. 1 and 2, to close the ports 14 and 21 and thus cut off the flow of water through the by-pass and through the container. The groove 10, however, still permits a flow between the ports 9 and 12. A further turning movement of the valve in the same direction will cut off the flow through the supply port 9.

For the purpose of indicating to the user the various positions of the valve, the valve plug 5 is provided with a short pin 24, Fig. 2, which projects into a cut-away portion in the head 3, this portion terminating in upper and lower shoulders 26 and 27, respectively. A plate 28 bearing the words "Soap", "Clear", and "Stop", as shown in Fig. 3, is secured to the front of the head 3 with its edge overlying the path of movement of the pin 24 so that these two parts cooperate to indicate the results that will be obtained by the different adjustments of the valve

The container 2 preferably is made of suitable dimensions to be held in the operator's right hand for convenience in using the apparatus the handle of the valve 5 is so mounted that it can be operated by the same hand. For this purpose the valve plug is provided with an extension 30 having a square end 31. The plug is tapered, as shown, and a washer 32 encircles the extension 31 and is backed up by a spring 33 which bears at its outer end against the handle 34, the handle being provided with a sleeve 35 to encircle the spring. A screw 36 secures the handle in place. The spring serves to hold the valve plug in its seat or chamber in the head 3. The handle is of peculiar shape, as best shown in Fig. 2, having a ring above the valve and a curved hook-like member below the valve, these parts providing convenient holds for the fingers so that the valve can be turned in either direction. The ring portion of the handle also may be utilized to suspend the apparatus from a hook, nail, or similar support when the device is not in use.

Since the base 4 of the device is threaded into the body portion 2 it can be easily removed to permit the filling of the container. A gasket 36 is provided between the flange of this base and the end of the body 2 to form a tight joint at this point. A screen 37 is secured to the head 3 by a screw 38 where it prevents any powdered or granular materials used in the container from escaping directly into the outlet port 14.

It will now be appreciated that this invention provides a device which is very simple and compact in construction, which is convenient to use, can be economically manufactured, and in which all the parts are very accessible so that it is a simple matter to clean the parts or to repair or replace any of them.

It will also be understood that while I have herein disclosed my invention as embodied in a device or apparatus designed especially for use in washing large objects such as automobiles, that the invention is not limited in its application to a washing apparatus, but that it is also applicable to many other uses.

What is claimed as new is:

1. An apparatus of the character described comprising a container provided with a head having a valve chamber therein, with supply and discharge ports leading into and out of said chamber, respectively, and having inlet and outlet ports leading from said chamber into said container, a valve mounted in said chamber and controlling the flow of fluid through said head, a by-pass controlled by said valve to direct a portion of said flow through said container, and means independent of said valve for regulating the flow through said by-pass.

2. An apparatus of the character described comprising a container provided with a head having a valve chamber therein with supply and discharge ports leading into and out of said chamber, respectively, and having inlet and outlet ports leading from said chamber into said container, and a valve mounted in said chamber and having a groove therein permitting fluid to flow between said supply and discharge ports in certain positions of the valve, said valve also having a passage therethrough to lead fluid directly from said supply port into said inlet port and having another passage leading from said outlet port into said groove at an acute angle to the groove.

3. An apparatus of the character described comprising a container adapted to hold a quantity of soap, said container being provided with a head having a valve chamber therein with supply and discharge ports leading into and out of said chamber, respectively, and having inlet and outlet ports leading from said chamber into said container said head being constructed for connection to a hose for conducting water thereto, a tube for conducting water from said inlet port into the body of the container, a strainer located across the end of the chamber in said container adjacent to said head, a removable

cap for closing the end of the container opposite to said head, said cap being removably secured to said container, and a valve mounted in said valve chamber and adjustable to permit a flow of water from said supply port through said head, either mixed with soap delivered through said by-pass or without such soap, said valve being adjustable to cut off all flow of water through said head.

In testimony whereof I have signed my name to this specification.

WILLIAM CLAUSON.