April 25, 1933. L. L. STRASBURGER 1,905,953

APPARATUS FOR PRODUCING SUDS

Filed Dec. 23, 1930

Fig. 1.

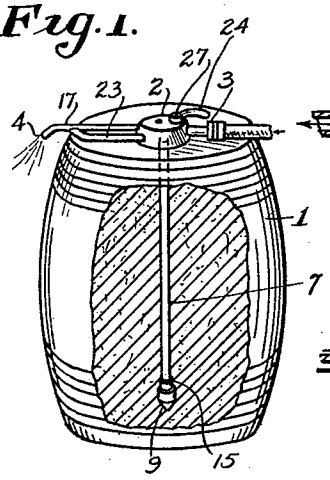
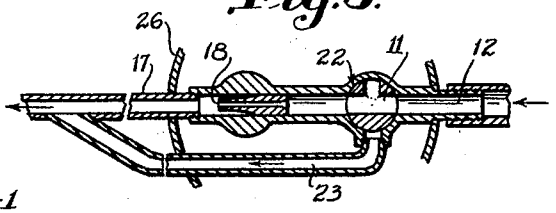


Fig. 3.



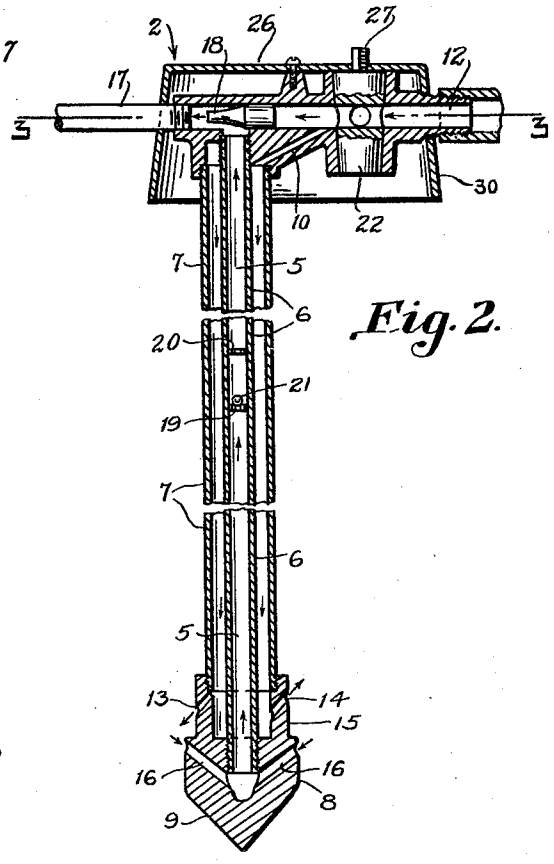


Fig. 2.

Fig. 4

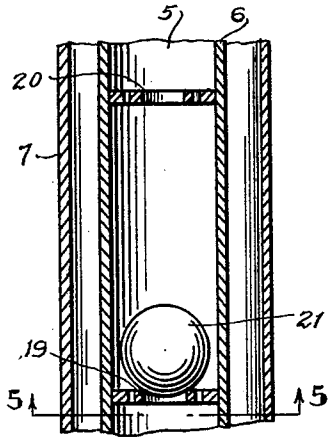
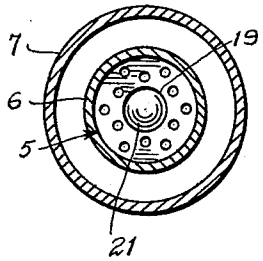


Fig. 5.



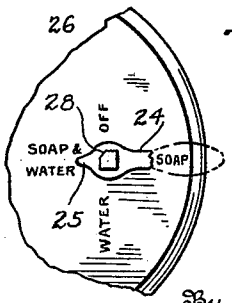


Fig. 6.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR PRODUCING SUDS

Application filed December 23, 1930. Serial No. 504,334.

This invention relates to suds producing apparatus and has for its general object the construction of improved devices for producing and delivering a continuous flow of suds, preferably under public service water pressure.

Another object of the invention is the provision of a suds producing apparatus including means for diluting the suds subsequent to the region of its generation.

A further object of the invention is to provide means for mechanically beating or churning the suds for more complete mixing of the same and the breaking up and dissolving of any particles of soap which may be entrained in the emulsion.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

Referring now to the accompanying drawing which forms a part of the specification and in which the same characters of reference have been used throughout the several figures to designate identical parts:

Figure 1 is a perspective view of a barrel with which the apparatus of the present application has been correlated;

Figure 2 is a vertical section through the suds forming apparatus;

Figure 3 is a cross section taken along the line 3—3 of Figure 2;

Figure 4 is a vertical enlarged sectional view of the churning device;

Figure 5 is a section taken along the line 5—5 of Figure 4; and

Figure 6 is a fragmentary plan view of the apparatus showing the valve handle and indicating its several positions.

Referring now in detail to the several figures, the numeral 1 represents a barrel which is typical of any desired container, on the top of which the sudser 2 is installed, said sudser having a coupling 3 adapting it to be connected by means of a hose to a pressure water supply. The sudser is also provided with an outlet coupling 4 to which the delivery hose may be connected.

Referring to Figure 2, it will be noted that the sudser comprises a vertical column 5 consisting of inner and outer concentric pipes 6 and 7. Said pipes are connected at their lower ends to a header 8, said header preferably having a conical end 9, adapting it to be thrust into a body of solid or semi-solid soap. A casing 26 is secured to the tops of pipes 6 and 7 and provides a housing for the valve mechanism. This casing 26 includes an annular depending apron 30 which surrounds the upper ends of pipes 6 and 7 and may be used as a seal for the hole in the mass of soap where the container has no head.

Figure 1 shows the column 5 and the header 8 in position in a body of soap. The annular space between the inner pipe 6 and outer pipe 7 communicates by way of a passage 10 and valve bore 11 with the coupling 12 which is connected to the source of water under pressure. The lower portion of the header 8 is larger in diameter than the portion which immediately adjoins the column 5 so that when the column is thrust into the soap body an annular space 15 is formed surrounding the lower end of said column. The space between the inner and outer pipes communicates with said annular space by a downwardly directed passage 13 on one side and an upwardly directed passage 14 on the other so that jets of water under pressure emerge from said passages and impinge upon the surrounding body of soap dissolving and emulsifying the latter and forming a suds which is forced into the passages 16 and up the inner pipe 6 with which said passages communicate. The emulsion which thus ascends the pipe 6 is a concentrated soap emulsion which upon reaching the lateral conduit 17 is mixed with pure water coming through the ejector 18, reducing the concentration of the soap emulsion to a practical and economical strength.

Within the inner pipe 6 is a cage defined by spaced perforate disks 19 and 20, enclosing a loosely fitting ball 21 or other form of striker or agitator. As the emulsion passes upwardly through the pipe 6 this ball will vibrate and bounce about within its cage as it is acted upon by the flowing stream and the effect of its movement will be to thoroughly and mechanically assist in the complete solution of any small flake or particle of soap which may rise with the soap emulsion.

A control valve 22 is provided in the conduit 11, said valve having an on or off position with respect to the pressure source and the ejector 18 and also with respect to the pressure source and the passage 10 which supplies water to the column 5.

In the event that pure water is desired at the ultimate nozzle, a by-pass 23 is provided extending from the valve 22 and communicating directly with the outlet connection 4. The valve is of the three-way type as shown in Figure 3, and can supply water simultaneously to the ejector and to the suds generating column or it can be turned to supply water to the ejector and suds generating column and to the dilution by-pass 23 as well. Or it can be so positioned as to cut off the water supply from the ejector and column 5 maintaining water communication only through the by-pass 23 so as to deliver water to the outlet 4.

This sudser is particularly adapted for washing and rinsing automobiles and it is clear that after the automobile has been thoroughly washed with suds of any determined strength or concentration, the suds supplying elements may be cut off and pure water under pressure delivered for rinsing purposes.

Figure 6 shows that the valve 22 may be provided with a removable handle 24 having an indicator 25 adapted to coact with the necessary indicia which may be formed on the top of a casing 26 forming a base of support for the column 5 and its appurtenant conduits as well as the valve 22. In order that the valve handle 24 can only be replaced in one way, the polygonal boss 27 which extends from the valve 22 is cut off or rendered irregular at one corner as indicated at 28 in Figure 6 and the handle formed with a corresponding irregularity. Thus, regardless of the position of the valve when the handle is taken off, the indicator will always point to the index designating the actual position of the valve.

While I have in the above description disclosed what I believe to be a preferred and practical form of my invention, it is to be understood that alterations and modifications may be made in the details of construction without transcending the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. A device for removing a solid or plastic material such as soap from a mass comprising an imperforate tubular member, a spear head of greater diameter than the tubular member on one end thereof, passages in said spear head extending from its outer face to the bore of the tubular member, means for forcing water from the tubular member through the spear head into the hole in the mass formed by forcing the spear head therein and surrounding the tubular member and means for withdrawing liquid from the said hole in said mass.

2. A device for removing a solid or plastic material such as soap from a mass, comprising a tubular member, a spear head of greater diameter than the tubular member on one end thereof with a return conduit in the tubular member and ports affording communication between said return conduit and the exterior of the spear head and ports between the exterior of the tubular member and the bore thereof above the enlarged part of the spear head.

3. The structure of claim 2 and a mechanical agitator in said return conduit.

4. The structure of claim 2, with valve means on the end of the tubular member opposite the spear head adapted to control the water admitted to the tubular member and the mixture discharged from the device.

5. The structure of claim 2, with an ejector on the end of the tubular member opposite the spear head, valve means controlling admission of fluid to the ejector, a by-pass from the valve around the ejector, and in which the return conduit and the bore of the tubular member communicate with opposite sides of the ejector.

6. The structure of claim 2, with valve means carried by the tubular member at the end opposite the spear head adapted to control the water admitted to the tubular member, and an annular apron adapted to form a housing for said valve means and to surround and seal the upper end of the hole in the mass formed by passage of the spear head therein.

In testimony whereof I affix my signature.

LEE LEWIS STRASBURGER.