W. C. SUTHERLAND, JR

RESEVOIR FOR EMBALMING FLUID

Fig. 1

INVENTOR.
Wm. C. Sutherland, Jr.

BY
Howdor & Howdor

Attorneys
This invention relates to embalming apparatus, and particularly to a tank for supplying embalming fluid during the embalming process. The fluid customarily used in modern embalming practice consists of a formaldehyde solution which is subject to deterioration if exposed to air. Therefore, it is important that an embalming fluid container be completely emptied once its seal is broken. For this reason, fluid is supplied to embalmers in relatively small containers, usually having a capacity of two quarts.

A disadvantage of this practice, however, resides in the fact that it is frequently difficult to estimate the exact amount of fluid required for any given embalming operation. Furthermore, it is extremely desirable that no interruption occur in the flow of fluid, otherwise poor results are obtained. It becomes an important problem in embalming technique to supply a continuous flow of fluid without interruption, and at the same time to utilize a container of limited capacity.

An object therefore of my invention is to provide a reservoir for embalming fluid which can be replenished without interrupting the continuous flow of fluid, once the embalming operation has begun.

A further object is to provide a reservoir for embalming fluid having dual selectively valued pressure chambers.

A further object of the invention is to provide a reservoir for embalming fluid having an automatic valve preventing the pumping of air, should the reservoir become empty.

A further object is to provide an embalming fluid reservoir adapted to be used with either compressed air or pump injection without modification of the reservoir.

A further object is to provide an embalming procedure permitting uninterrupted flow of embalming fluid from relatively small containers.

The invention resides further in certain structural and procedural details contributing to the aforesaid primary ends, said details being herein after described and illustrated in the attached drawings, in which

Fig. 1 is a side elevation of my embalming fluid tank showing the external fittings; and

Fig. 2 is a plan view of the tank shown in Fig. 1.

Referring now more particularly to the drawings, the fluid tank indicated generally by 5 has an upper chamber 6 and a lower chamber 7, separated by wall 8. The upper chamber is provided with a large threaded cap 9 on which is a manually controlled air vent 10. Connection between the upper chamber 6 and lower chamber 7 is established through external lines 11 and 12, line 11 communicating with the top of each chamber, whereas line 12 communicates with the bottom of each chamber. Lines 11 and 12 are provided with manually operated plug valves 13 and 14. Lower chamber 7 has a conventional glass gauge 16 externally mounted on tank for the purpose of indicating liquid level within chamber 7. Lower chamber 7 is provided also with a connection 18 affording access to the top of the lower chamber and adapted for attachment to a source of air pressure, not shown.

Lower chamber 7 has a safety blow-off valve 11, also located near the upper portion of this chamber. Fluid egress through lower chamber 7 is afforded through port 18 which has a float operated valve 19 of conventional design connected to float 20 by means of arm 21. When float 20 is in the position illustrated in Fig. 1, valve 19 closes, thereby preventing further flow of fluid, or air, out of chamber 7. Preferably a manually actuated valve 16a is provided for closing the port 18 when occasion may require.

Ordinarily port 18 will be connected directly to an injection line or tube, since air pressure in chamber 7 is sufficient for purposes of injecting the embalming fluid. In the event that a fluid pump is employed in the injection line, compressed air is not required and therefore connection 18 is not utilized and may be closed by valve 16a.

The capacity of chambers 6 and 7 is approximately two quarts each, since this is the amount of embalming fluid in each container supplied to the embalming trade. Ordinarily, this amount of fluid is enough for a single embalming operation, but should more fluid be required, it is desirable that no interruption in the flow of fluid occur.

In the use of my improved tank, the fluid is poured into upper chamber 6, cap 9 having been removed and valves 13 and 14 closed. The cap 9 is then tightened in place and valves 13 and 14 opened, permitting the fluid in chamber 6 to flow downwardly into chamber 7 through line 12. Chamber 7 is vented into chamber 6 by means of line 11. The amount of fluid in chamber 7 is readily detected by reading sight gauge 15. When the fluid ceases to flow, valves 13 and 14 are closed, the compressed air line applied to air connection 16, thereby subjecting fluid in chamber 7 to air pressure. The embalming operation,
in so far as the fluid is concerned, may then be begun. When it appears from an inspection of the fluid level in gauge 15 that more fluid will be needed for the operation, cap 9 is removed and another container of fluid emptied into upper chamber 6. Since the capacity of upper chamber 5 is substantially equal to the amount of fluid in the container, the chamber will be filled by this operation. After cap 9 has been securely replaced, valves 13 and 14 are opened, and although the pressure in chamber 7 is greater than the pressure in chamber 6, the pressure drop in chamber 7 due to the opening of valve 13 will be negligible. Fluid continues to pass through line 12 from chamber 6 into chamber 7, thereby replenishing the supply in the lower chamber. As soon as all, or substantially all of the fluid has passed into the lower chamber, valves 13 and 14 may again be closed and the process repeated, if necessary. However, since there is now pressure in upper chamber 6, an additional filling of the chamber first requires that this air pressure be vented by means of valve 10.

The construction of my fluid tank is such that it is readily adapted for use with a fluid pump or with compressed air. When injection pressure is supplied by means of a pump, valves 13 and 14 may be left open during the operation, it being only necessary to renew the fluid as required.

As a safety measure, should the fluid in lower chamber 7 become exhausted inadvertently, float 28 will close valve 19, thereby preventing the passage of any air into the injection apparatus through fitting 16. This is an important feature, since it has been found extremely undesirable to have any air injection take place during the embalming process.

It will therefore be apparent that my improved fluid tank provides an inexpensive, simple means whereby the pumping of embalming fluid may be continued uninterruptedly once the operation is started, without the necessity of breaking the seal on more than one container of fluid at a time, thereby reducing waste and deterioration of fluid to a minimum.

While certain novel features of the invention are disclosed herein in considerable detail with respect to certain particular forms of the invention, it is not to be assumed that the invention is limited to such details since many changes and modifications may well be made without departure from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. A reservoir for embalming fluid comprising an upper chamber and a lower chamber, an external air connection between the upper and lower chambers, a manually operated valve for said air connection, an external fluid connection between the upper and lower chambers, a manually operated valve for said fluid connection, means for introducing compressed air to the top of the lower chamber, a pressure tight lid for the upper chamber, a manually operated air vent for the upper chamber, a fluid delivery connection at the bottom of the lower chamber, and a float operated valve in the fluid delivery line of the lower chamber.

2. In embalming apparatus, a container comprising an upper chamber and a lower chamber, a connection for passage of gas from the upper part of the lower chamber to the upper chamber, a valve for said connection having a manual actuator at the outside of the container, means for introducing a pressure gas into the lower chamber, a liquid supply port in the upper chamber, a pressure tight manually releasable closure for said port, a liquid delivery connection at the lower end of the lower chamber, a valve for said liquid delivery connection, and float means in the lower chamber for actuating the valve.

3. Embalming apparatus according to claim 2 including a manually operated vent for relieving gas pressure in the upper chamber.

WILLIAM C. SUTHERLAND, Jr.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>742,534</td>
<td>Kirkwood</td>
<td>Oct. 27, 1903</td>
</tr>
<tr>
<td>916,131</td>
<td>Evans</td>
<td>Mar. 23, 1909</td>
</tr>
<tr>
<td>1,552,601</td>
<td>Strobel</td>
<td>Jan. 13, 1925</td>
</tr>
<tr>
<td>1,759,727</td>
<td>Baccich et al.</td>
<td>May 20, 1930</td>
</tr>
<tr>
<td>1,956,006</td>
<td>Coons</td>
<td>Apr. 34, 1934</td>
</tr>
</tbody>
</table>