

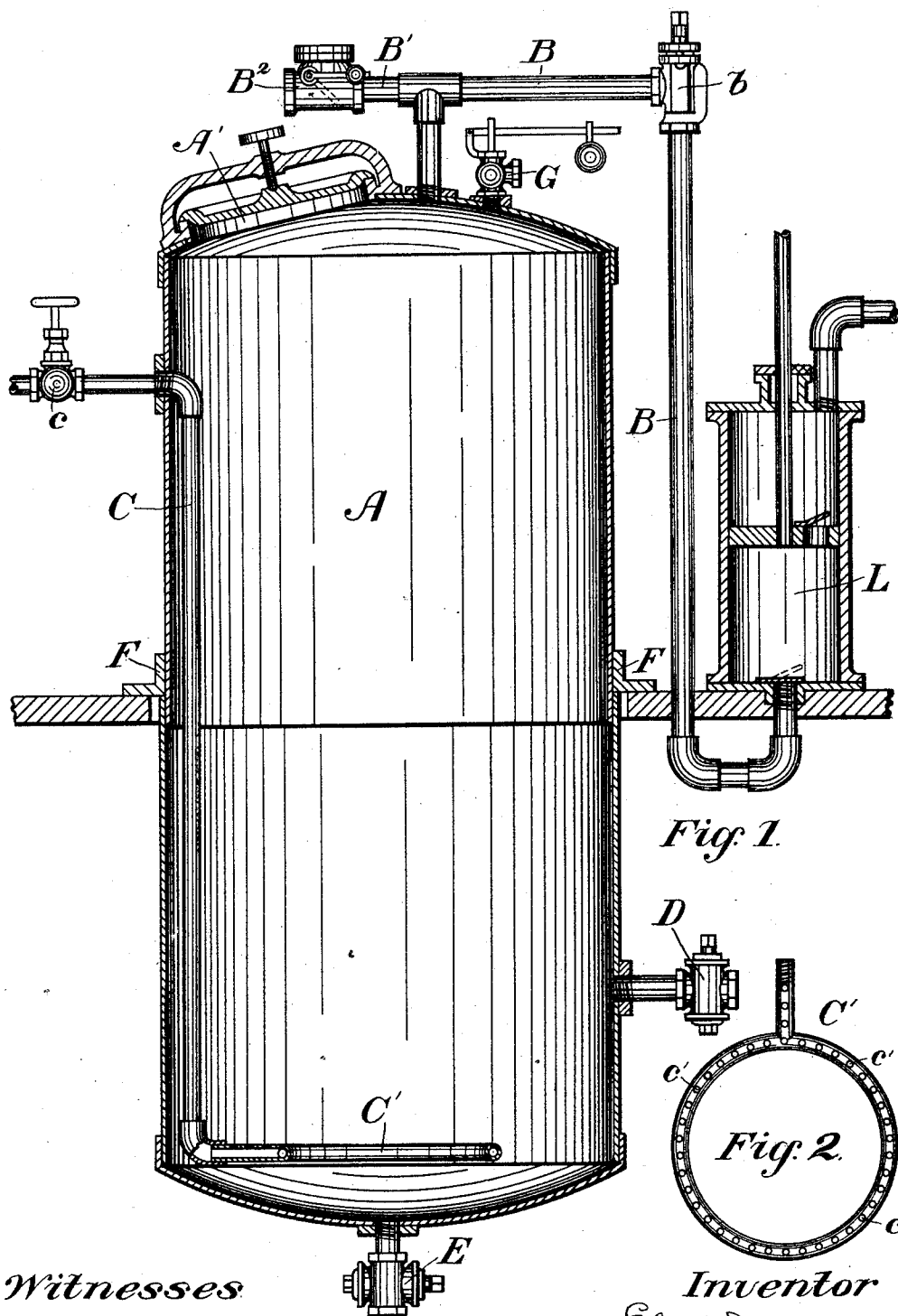
(No Model.)

E. D. MELLEN.

SIMULTANEOUS MANUFACTURE OF SOAP AND CARBONIC ACID.

No. 424,991.

Patented Apr. 8, 1890.



Witnesses

Albert E. Leach.
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Inventor

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Att'y.

UNITED STATES PATENT OFFICE.

EDWIN D. MELLEN, OF CAMBRIDGE, MASSACHUSETTS.

SIMULTANEOUS MANUFACTURE OF SOAP AND CARBONIC ACID.

SPECIFICATION forming part of Letters Patent No. 424,991, dated April 8, 1890.

Application filed September 20, 1889. Serial No. 324,543. (No model.)

To all whom it may concern:

Be it known that I, EDWIN D. MELLEN, a citizen of the United States, residing at Cambridge, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and Improved Process for the Simultaneous Manufacture of Soap and Carbonic Acid from Alkaline Bicarbonate or Carbonate, of which the following is a full specification, reference being made to the accompanying drawings, forming a part thereof.

Figure 1 is a sectional elevation of my apparatus, and Fig. 2 is a plan view of the distributing steam-pipe or rose.

My invention consists of the process hereinafter described for making soap from alkaline, bicarbonate, or carbonate, preferably from bicarbonate of sodium, and at the same time utilizing the carbonic acid thus formed either for the carbonation of soap-lyes or for any other purpose.

For the manufacture of soap from carbonate or bicarbonate of soda or any other alkali rosin free fatty acids or any organic acids capable of forming a soap may be used. I prefer to use rosin, and proceed in the following manner:

The bicarbonate of soda or other alkaline bicarbonate or carbonate is introduced into a cylindrical iron tank or reservoir A, which I term a "digester," either in solution in water or as a solid and water added. The rosin is then introduced, and the mixture is gently warmed by allowing steam to spray through it, the steam being admitted through the pipe C and the perforated rose C'. The steam as it circulates through the mixture causes the rosin to act upon the bicarbonate of sodium, setting free carbonic acid, a rosin soap being left in solution. The soap is then salted out from this solution, when the action is complete, or the solution may be mixed with a water solution of a common soap, if preferable, the soap being drawn off from the digester through the faucet D, communicating with the interior of the digester at some distance from the bottom thereof. The carbonic acid formed by the action accumulates in the upper part of the digester and is removed therefrom as fast as formed through the outlet-pipe B by means

of a suitable pump or blower L, of any approved construction, connected with the pipe B, and the gas is thus conveyed to wherever it is desired to use it.

I preferably use this process in connection with my improved process for the recovery of alkali and glycerine in soap-lye, for which I have applied for United States Letters Patent, the serial number of which application is 324,544, in which the gas is pumped into a tower, as therein described, and used for the saturation of soap-lyes therein contained.

Owing to the tendency to a continual vacuum maintained within the digester by the action of the pump or blower L, the chemical action would naturally become so strong were it not for the balanced regulating-valve B² as to cause violent frothing of the liquid in the digester, resulting in the pumping out of a part of the liquid, together with the gas. In order to prevent this frothing from taking place, the balanced valve B², which opens inward, is adjusted to open by reason of the difference in pressure and let in at times just enough atmospheric air from the outside to prevent the air within from becoming so attenuated as to produce the frothing action, as above explained, thus acting as an automatic regulator.

The safety-valve G acts in the usual manner to allow the gas to escape should the pressure within the digester become too great. The lye is drawn off from the digester through the outlet-tap E at the bottom, while at the top of the tank is the opening A', which serves as a man-hole and as a means for introducing the various ingredients into the digester.

I claim—

1. The herein-described process for the simultaneous manufacture of soap and carbonic acid from alkaline carbonate or bicarbonate, the same consisting of mixing the said carbonate or bicarbonate with rosin or any suitable organic acid in a digester provided with suitable means both for regulating the chemical action and for withdrawing the gas and spraying the mixture with fine jets of steam, substantially as described.

2. The herein-described process for the si-

multaneous manufacture of soap and carbonic
acid from alkaline carbonate or bicarbonate,
the same consisting of mixing the said car-
bonate or bicarbonate with rosin or any suit-
5 able organic acid in a digester provided with
pressure-regulating devices whereby the
chemical action is controlled, spraying the
mixture with fine jets of steam, and removing

the gas from the digester by means of a pump
or blower, substantially as described. 10

In witness whereof I have hereunto set my
hand.

EDWIN D. MELLEN.

Witnesses:

W. B. H. DOWSE,
ALBERT E. LEACH.