

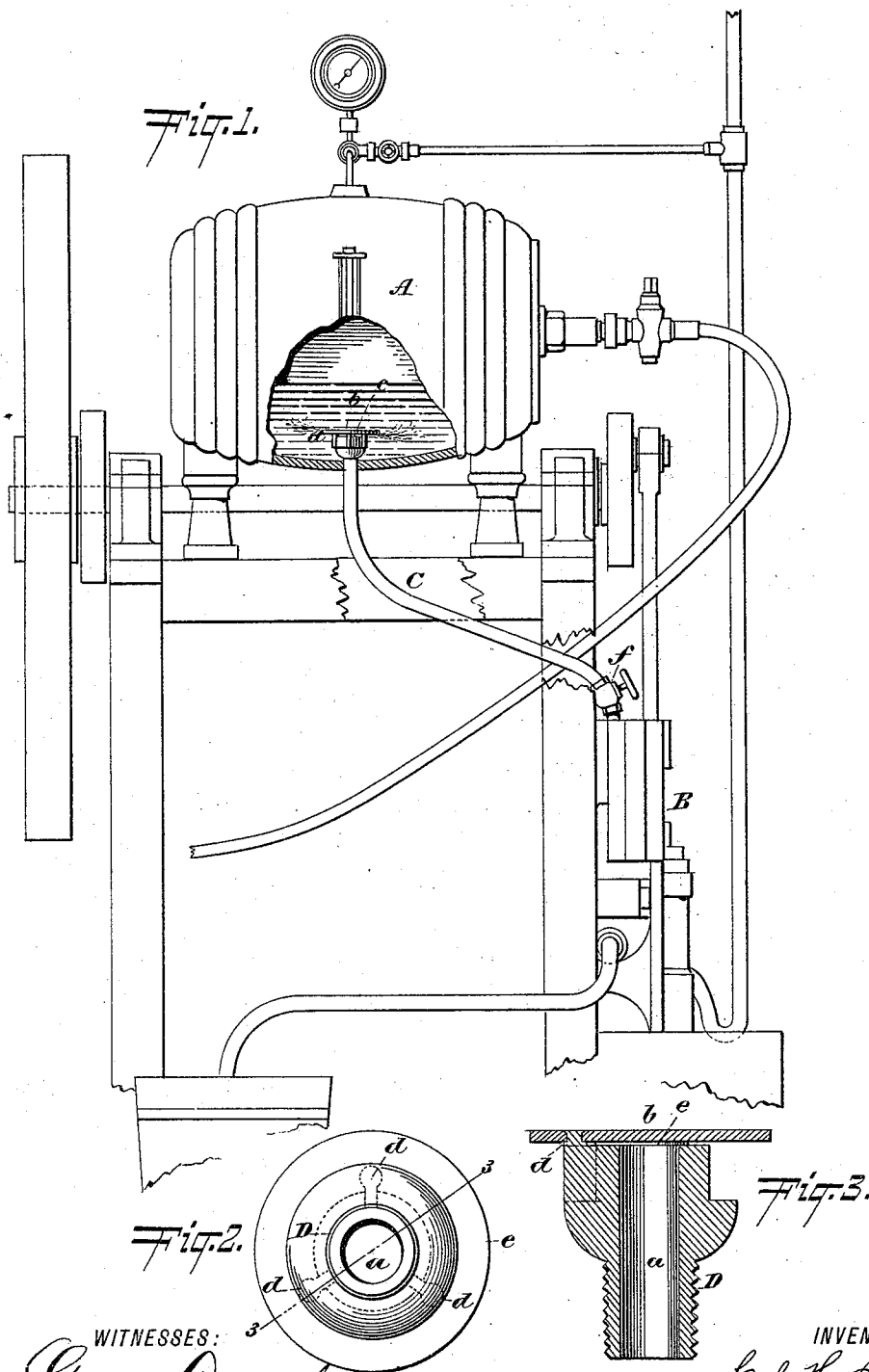
(No Model.)

C. H. SCHULTZ.

PROCESS OF AND APPARATUS FOR AERATING LIQUIDS.

No. 485,665.

Patented Nov. 8, 1892.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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PROCESS OF AND APPARATUS FOR AERATING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 485,665, dated November 8, 1892.

Application filed February 13, 1892. Serial No. 421,391. (No model.)

To all whom it may concern:

Be it known that I, CARL H. SCHULTZ, a resident of the city, county, and State of New York, have invented an Improved Device for and Process of Aerating Liquids, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a side view, partly in section, of my improved device for aerating liquids. Fig. 2 is a detail bottom view, on an enlarged scale, of the compression-cup, which constitutes the main feature of my invention; and Fig. 3 is a vertical central section of the same on the line 3 3, Fig. 2.

This invention relates to a new method and mechanism for intimately mixing air or gases with liquids in vessels that are to contain the aerated liquids under pressure. The invention relates, mainly, to the class of liquids to which soda-water belongs. Heretofore it was deemed necessary in order to obtain the requisite admixture of air or gas and liquid to agitate the liquid in the fountains or vessels which contained them, the mechanism for agitation being expensive, liable to get out of order, and for other reasons quite objectionable. It has been my endeavor to seek for means for producing the most intimate admixture of air or gas and liquid without the necessity of any agitating contrivance or its equivalent. I have succeeded in accomplishing the desired result by a very simple contrivance, which, briefly stated, is a compression-cup placed over the end of the pipe that leads the gas and liquid into the fountain or receiving-vessel, said compression-cup closing the inlet-pipe in the direction in which the liquid and gas flow through it and being provided with narrow slits at about right angles to the bore of said cup, through which said narrow slits the mixed gas and liquid are forced to enter the vessel after having been intimately admixed the one with the other in the pipe beneath the compression-cup.

In the drawings the letter A represents the vessel to be charged with the aerated liquid.

The letter B represents a suitable pump for forcing gas and liquid (we will say water) into the vessel A through the pipe C. It is not deemed necessary here to specify mechanism

for operating the pump or the means for supplying it with gas and water. It will suffice to state that the pump is adapted to force both gas and water at the same time through the pipe C into the vessel A in a well-known and ordinary manner. The pipe C contains a check-valve *f* to prevent return-pressure. The contrivance, as shown, with the exception of the compression-cup hereinafter described, is entirely old and well known, and I will repeat that in the mechanism, as shown (excepting the compression-cup) and as heretofore used, it was essential and absolutely necessary that the vessel A contain an agitator of some kind in order to produce the aeration of the liquid to the proper degree. I attach to the end of the pipe C, within the lower part of the vessel A and below its water-line, a cup-like structure D, which I call the "compression-cup." This compression-cup has an inner bore *a* in alignment with the bore of the tube C; but above the upper end of this bore *a* is placed a cap *b*, which is a solid plate having, by preference, a diameter greater than the lower portion of the cup, as shown in Fig. 3. Between the lower surface of the plate *b* and the upper surface of that portion of the cup which comprises the tubular bore *a* are three (more or less) very short studs *d*, which connect the two parts of the cup last above mentioned, and between which studs are exceedingly narrow slits *e*. In other words, the compression-cup D consists of a lower portion having a bore *a*, of an upper cap *b*, which is placed over the outlet of the bore *a*, and of narrow passages *e*, extending at about right angles to the bore *a* beneath the cap *b*.

I have found that when the vessel A is first charged with gas and water and the pump then forces gas and water through the pipe C, said pipe carrying the compression-cup D, the contents of the tube or pipe C are abruptly arrested in their passage through the pipe by the cap *b* and, so to speak, constipated and forced to enter beneath the water-line of the vessel A through the slits or apertures *e*, and that by this abrupt change of direction the pressure within the vessel and by the very much reduced size of outlet *e* (as contrasted with *a*) the gas and water in the pipe C become so intimately admixed that they

will retain their admixed condition within the vessel A and that further agitation of the contents of the vessel when charged is no longer necessary.

5 Having now described my invention, what I claim is—

1. The compression-cup D, having lower bore *a*, upper cap *b*, placed over the end of the bore *a*, and narrow outlet-passage *e* below the cap *b* and at about right angles with the bore *a*, substantially as and for the purpose herein shown and described.

2. In an apparatus for aerating liquids, the combination of the pump B and its gas and water discharge pipe C with the compression-cup D, placed on the discharge end of the pipe C, said compression-cup having narrow lat-

eral outlets *e* beneath a solid cap *b*, all as and for the purpose herein shown and described.

3. The process herein described of aerating liquids, which process consists in forcing air and liquid from separate receptacles through a single conduit into a receiver and in constipating said air and liquid within said receiver and simultaneously changing the direction of their flow below the water-line of and within said receiver, so that said constipation, change of direction, and pressure within the receiver will cause the aeration of the liquid, as specified.

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Witnesses:

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