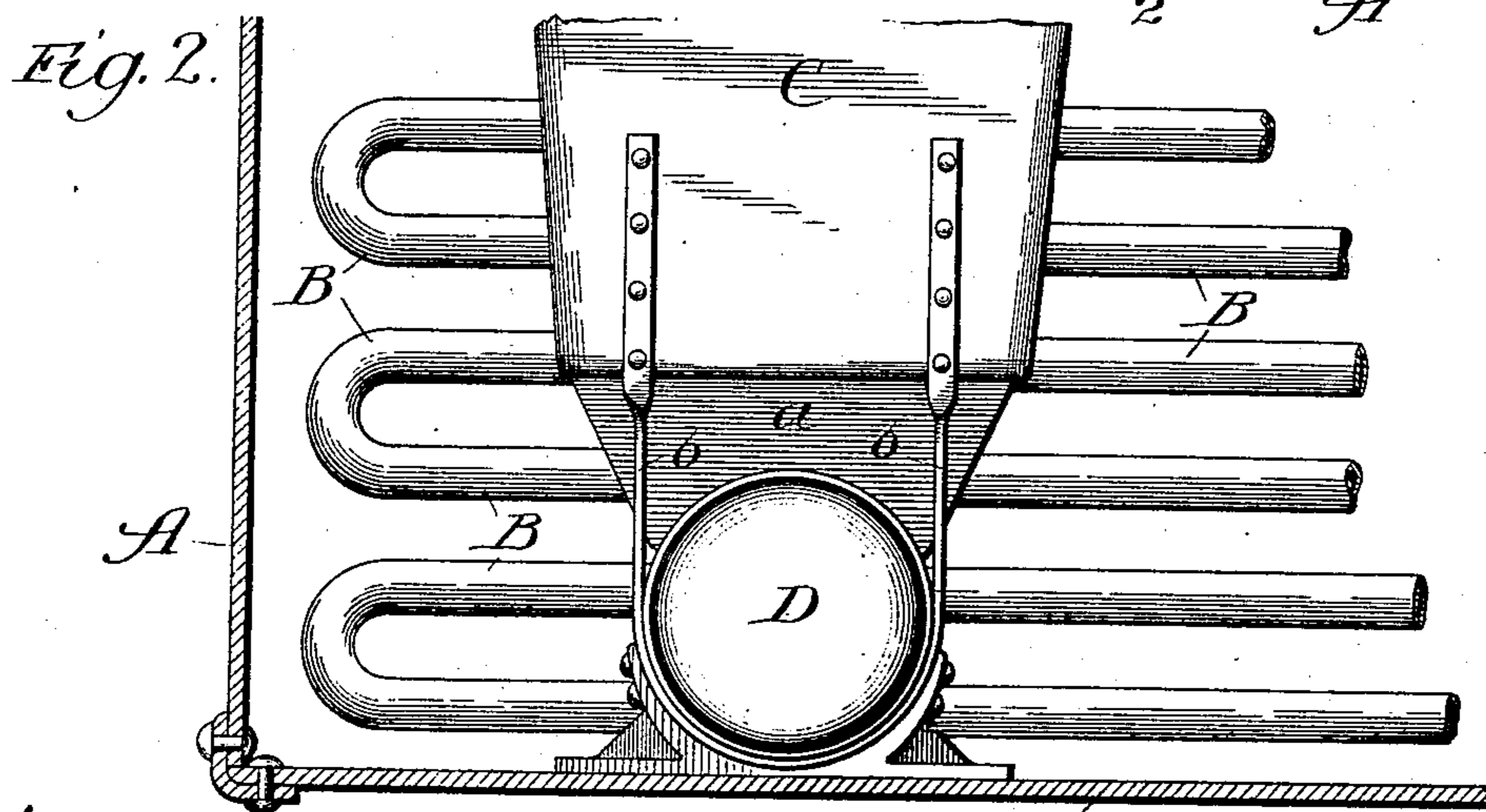
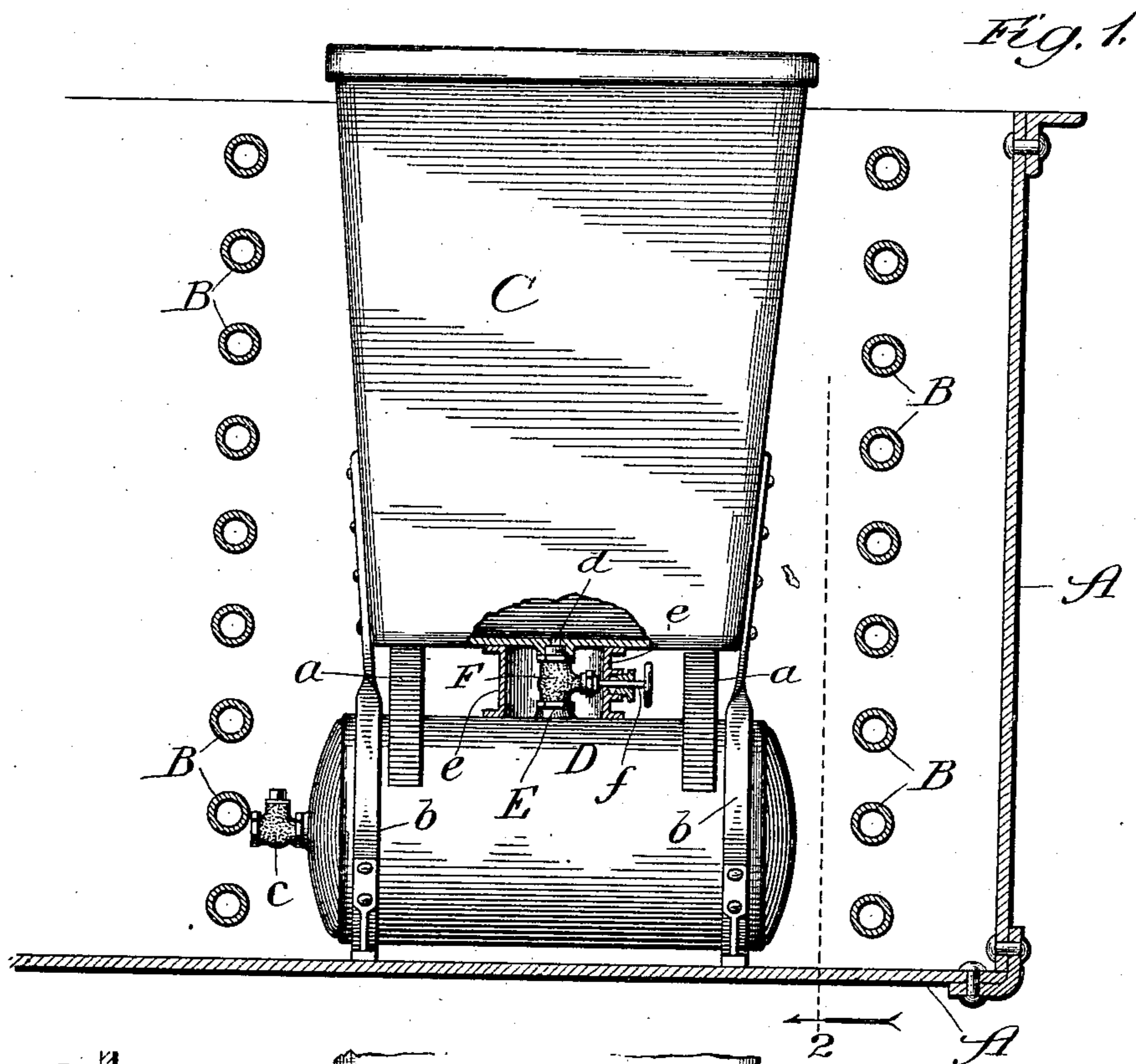


No. 680,088.

Patented Aug. 6, 1901.

E. J. ULLRICH.  
ICE MAKING APPARATUS.  
(Application filed Feb. 16, 1901.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

EDGAR J. ULLRICH, OF COLORADO SPRINGS, COLORADO.

## ICE-MAKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 680,088, dated August 6, 1901.

Application filed February 16, 1901. Serial No. 47,576. (No model.)

*To all whom it may concern:*

Be it known that I, EDGAR J. ULLRICH, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented a new and useful Ice-Making Apparatus, of which the following is a specification.

My invention relates to improved apparatus for use in the manufacture of ice by the can system according to the deaerating process.

My improvements are adapted more especially for use where only a limited quantity of ice is to be made and in comparatively small cakes, though it may be found desirable both where ice in large quantities is to be made and in large cakes.

In the ice-making system to which my invention is adapted a can of water to be frozen is placed between the coils of refrigerating-pipes and usually immersed in brine or the like refrigerating liquid, and deaeration of the water in the can during the freezing process is produced by compressed air or gas pipes discharging into the lower part of the can. It is inconvenient sometimes for various reasons to pipe the compressed air or gas to the cans from a compressing-machine, and my object is to provide a construction which dispenses with such piping.

In carrying out my invention I provide in connection with each can a reservoir for containing compressed air or gas and a preferably valved passage between the reservoir and can through which the compressed air or gas may pass in a comparatively fine jet into the bottom of the can. The can and reservoir are in one piece or secured together in such a way that they may be inserted into and removed from the brine-tank or refrigerating-coils together.

In the drawings I show one approved way of carrying out my invention.

Figure 1 is a broken sectional view of a brine-tank and refrigerating-coils with the ice-making can in place and provided with an air or gas supply reservoir, and Fig. 2 a broken view showing the end of a can and reservoir.

A represents a brine-tank, and B refrigerating-coils therein; C, an ice-making can,

and D a compressed air or gas reservoir. The reservoir may extend between lugs *a a* on the under side of the can and be fastened in place by means of straps *b b*, which are secured to the can and pass around the reservoir. Extending, preferably, from the center of the top of the reservoir to the center of the bottom of the can is an air or gas conducting pipe E, provided with a valve F. The valve F may be a regulating, shut-off, and check valve. Also upon the reservoir D is a valve *c*, through which the reservoir may be charged with compressed air or gas.

In operation while the can and reservoir are withdrawn from the tank A the reservoir D is filled with air or gas, preferably under great pressure, and the can C is filled with water to be deaerated and frozen. The valve F is then opened to permit air or gas under pressure to flow through the very small opening *d* into the base of the can. The degree of pressure under which the reservoir is charged, the size of the reservoir, and the size of the passage *d* should be such with relation to each other that a jet of air of sufficient size and force will be injected into the base of the can during the entire freezing operation. Proportions in the drawings are necessarily exaggerated for the purpose of illustration. When the cake of ice is formed in the can C, the can, with the reservoir D and the pipe connection, may be withdrawn from the tank, the cake of ice discharged, and the apparatus made ready for a second operation. It is desirable that the compressed air or gas contained in the reservoir D shall be perfectly dry in order that no moisture may collect in the reservoir or pipe E which might be frozen during the ice-making operation. As an additional safeguard I prefer to insulate the reservoir D, pipe E, and valve F, and particularly the said pipe and valve, so that the surrounding cold may not penetrate it and freeze any moisture contained in the passage *d*. The pipe E and valve may be surrounded by a wall *e*, forming a dead-air space about them, and the stem *f* of the valve F may pass through a stuffing-box in the wall *e*.

The construction shown and described may

obviously be modified in the matter of details without departing from the spirit of my invention as defined by the claims.

What I claim as new, and desire to secure  
5 by Letters Patent, is—

1. In an ice-making apparatus, the combination with the freezing means, of an ice-making can, a closed compressed air or gas supplying reservoir, and an air or gas discharge passage extending from the reservoir  
10 into the lower part of the can, the said can and reservoir being attached to each other and adapted to be inserted into and removed from the said freezing means together.

15 2. In an ice-making apparatus, the combination with the freezing means, of an ice-making can, a closed compressed air or gas supplying reservoir, and a valved air or gas

discharge passage extending from the reservoir into the lower part of the can, the said  
20 can and reservoir being attached to each other and adapted to be inserted into and removed from the said freezing means together.

3. In an ice-making apparatus, the combination with the freezing means, of an ice-  
25 making can, a closed compressed air or gas supplying reservoir, and an insulated air or gas discharge passage extending from the reservoir into the lower part of the can, the said  
30 can and reservoir being attached to each other and adapted to be inserted into and removed from the said freezing means together.

EDGAR J. ULLRICH.

In presence of—

J. H. LEE,

ALBERT D. BACCI.