H. MÜLLER.

REFRIGERATING AND CARBONATING APPARATUS.

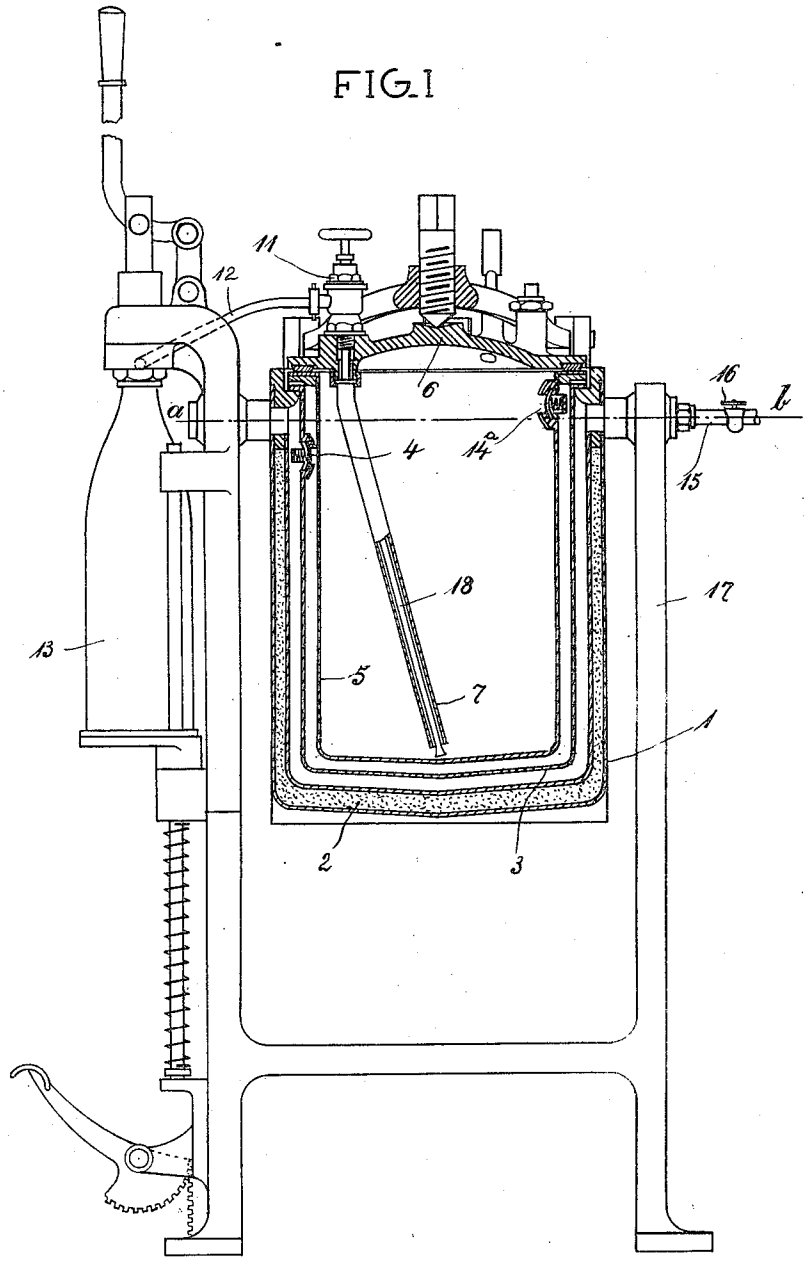
APPLICATION FILED MAR. 30, 1910.

1,046,482.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 1.

FIG. 1



Witnesses:

C. D. Swett.

Herbert H. Bosley.

Inventor

H. Müller

by F. Dittmar

Attorney

H. MÜLLER.

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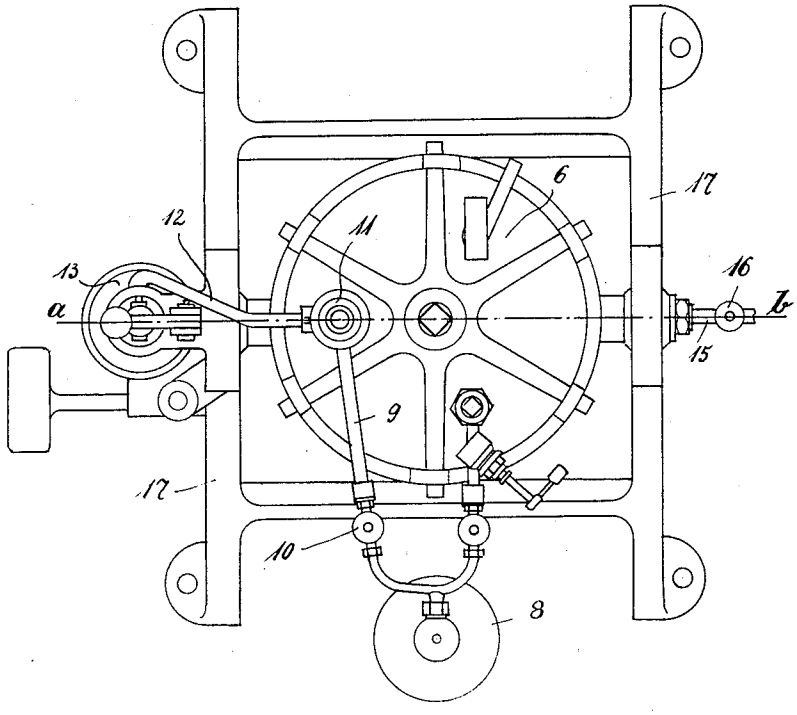
2 SHEETS—SHEET 2.

FIG. 2



Witnesses:
C. D. Smith.
Herbert H. Bosley.

Inventor
H. Müller
by F. Dittmar
Attorney.

UNITED STATES PATENT OFFICE.

HERMANN MÜLLER, OF LEIPZIG, GERMANY.

REFRIGERATING AND CARBONATING APPARATUS.

1,046,482. Specification of Letters Patent. Patented Dec. 10, 1912.

Application filed March 30, 1910. Serial No. 552,470.

To all whom it may concern:

Be it known that I, HERMANN MÜLLER, subject of Saxony, residing at No. 1 Thomasiusstrasse, Leipzig, Kingdom of Saxony, German Empire, have invented new and useful Improvements in Refrigerating and Carbonating Apparatus, of which the following is a specification.

My invention relates to an improved refrigerating and carbonating apparatus, adapted to prepare ice cream and aerated drinks.

An object of my invention is to provide an apparatus of great simplicity and efficiency.

To make my invention perfectly understood, I have illustrated the same in the accompanying drawings in which:

Figure 1 is a sectional elevation of the apparatus, and Fig. 2 is a plan of the same.

In my apparatus three receivers are employed, placed inside each other. The largest or outside receiver 1, is jacketed and the space between this receiver and its jacket is filled with a suitable insulating material, *i. e.*, a bad conductor of heat, as at 2. The intermediate receiver 3 has a valve 4, arranged in its side, for admitting the gas to said outside receiver 3. The innermost receiver 5, is provided with a cover 6, closing tightly, while the annular spaces between the receivers 5 and 3, and 3 and 1 are closed at the top of said receivers by overlapping flanges of the receivers, as clearly illustrated in Fig. 1. From the cover 6 of the innermost receivers 5, a pipe 7 descends to, or about to, the bottom of said receiver 5, the said pipe being adapted to be connected to a flask 8 containing carbonic acid, or another suitable gas, under pressure, as shown in Fig. 2. The connection is made by a suitable pipe 9, containing a valve 10. Within said pipe 7, another tube 18, of smaller diameter is arranged, said pipe 18 being adapted to be connected to a pipe 12, by means of a valve 11. The bottle 13 or any other suitable receptacle intended to receive the aerated drink, is placed below the discharge opening of said pipe 12. The receivers 5 and 3 communicate with each other through an aperture 14, which may be provided with a suitable valve 14^a. The outermost receiver 1 connects with a pipe 15, containing a valve 16. The three receivers 1, 3 and 5 are carried by a frame 17.

In employing the apparatus, I proceed as follows: The mass to be cooled and carbonated is placed in the receiver 5, upon which the cover 6 is tightened up, and the valve 10 opened. Carbonic acid in liquid form is then fed from the reservoir 8 through pipe 9 into the receiver 5, where the said acid becomes vaporized and by its vaporization lowers the temperature of the mass. The carbonic acid gas then escapes through the valve guarded aperture 14, into the receiver 3, surrounding the receiver 5, thereby cooling the latter around about. By withdrawing heat from the receiver 5, the carbonic acid within the receiver 3, will increase its temperature and its pressure will be raised accordingly; the raised pressure of the gas will cause the valve 4 to open toward the receiver 1, into which the gas escapes; on opening the valve 16, the gas will issue through the pipe 15.

I claim as my invention:

1. In a refrigerating and carbonating apparatus, a freezing chamber, a closure fitting tightly thereon, a jacketed receiver containing insulating matter between its walls, an inside receiver located within said jacketed receiver with a free space between them, a gas-pipe for leading gas under pressure into said inside receiver, a discharge-pipe leading out from said inside receiver and means for introducing gas under pressure into the space between the two receivers, substantially as and for the purpose set forth.

2. In a refrigerating and carbonating apparatus, the combination, with an outside jacketed receiver containing insulating material between its walls, of an inside receiver adapted to serve as a freezing and aerating chamber, a pipe leading into and a pipe leading out of said inside receiver, an intermediate receiver located between the said inside and outside receivers with free spaces between it and each of said first mentioned receivers, and valves adapted to feed gas under pressure and to discharge such gas into and from the space surrounding the innermost receiver, substantially as and for the purpose set forth.

3. In a refrigerating and carbonating apparatus, the combination, with an outside jacketed receiver containing insulating material, of an inside receiver, with a space between the same and the said outside receiver, means for feeding gas under pressure into said space between the two receivers, a pipe for feeding gas under pres-

sure down to the lower part of the inside receiver, and an outlet pipe within said gas-feed pipe and leaving a space between the two pipes, substantially as and for the purpose set forth.

4. In an apparatus of the character described, a jacketed receiver containing insulating material, an inside receiver within said jacketed receiver and spaced therefrom, a freezing chamber, within said inside receiver and spaced therefrom, a tightly fitting closure on said freezing chamber, pipes conveying gas into said freezing chamber, one of said pipes 7 extending to near the bottom of said freezing chamber, an exit pipe 18 within, and spaced from said pipe 7, exit valve guarded passages between said freezing chamber and said inside receiver and between said inside receiver and said jacketed receiver, there being a vent in said jacketed receiver connecting with an exit pipe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMANN MÜLLER.

Witnesses:
HENR. WERNER,
RUDOLPH FRICKE.