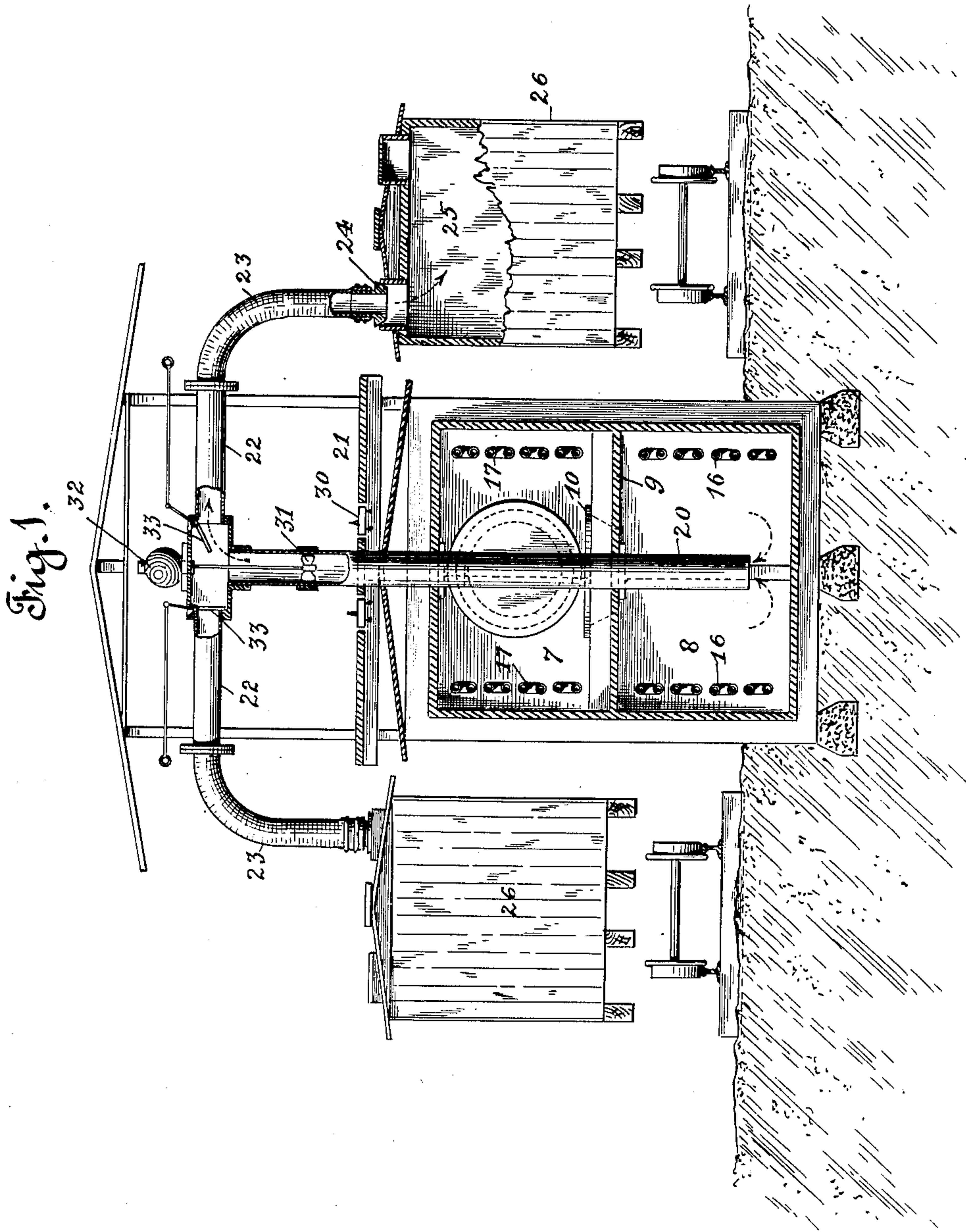


C. M. GAY.  
REFRIGERATING APPARATUS.  
APPLICATION FILED APR. 6, 1908.

940,590.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.



Witnesses.

*H. Monteverde.*  
*S. B. Austin.*

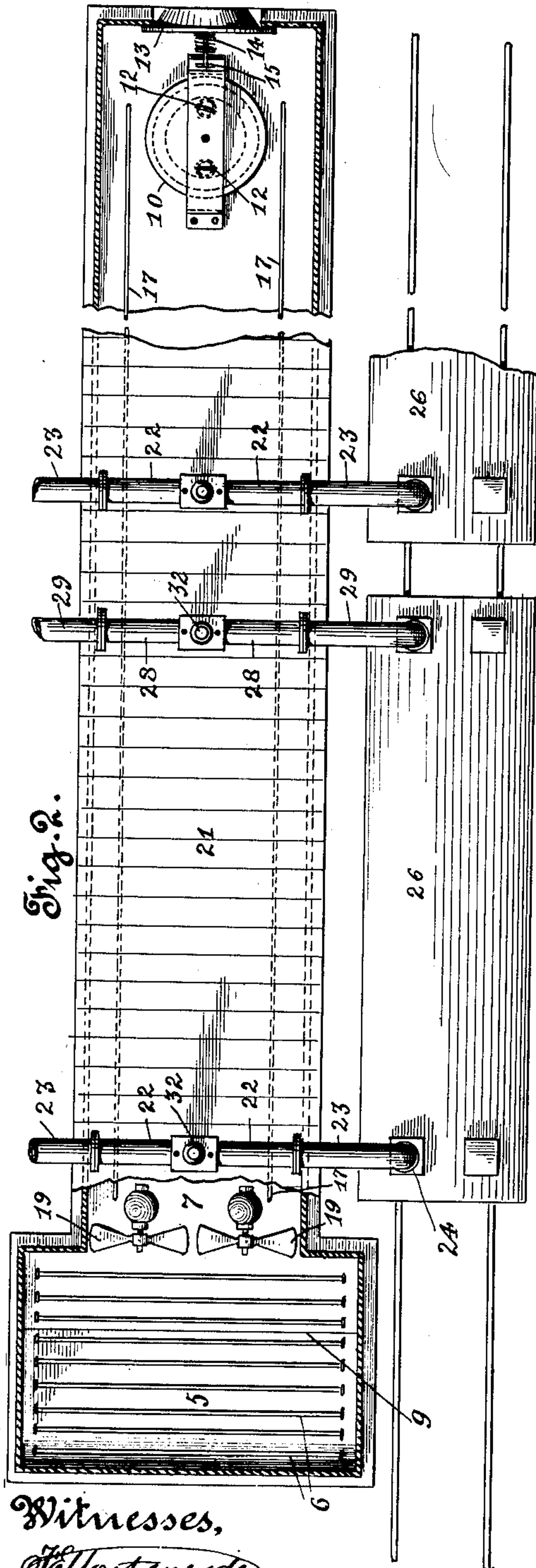
Inventor,  
Cassius M. Gay,  
By *E. D. Harpham*  
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2 SHEETS—SHEET 2.



Witnesses,  
*H. J. Monteverde*  
*S. B. Quistin*

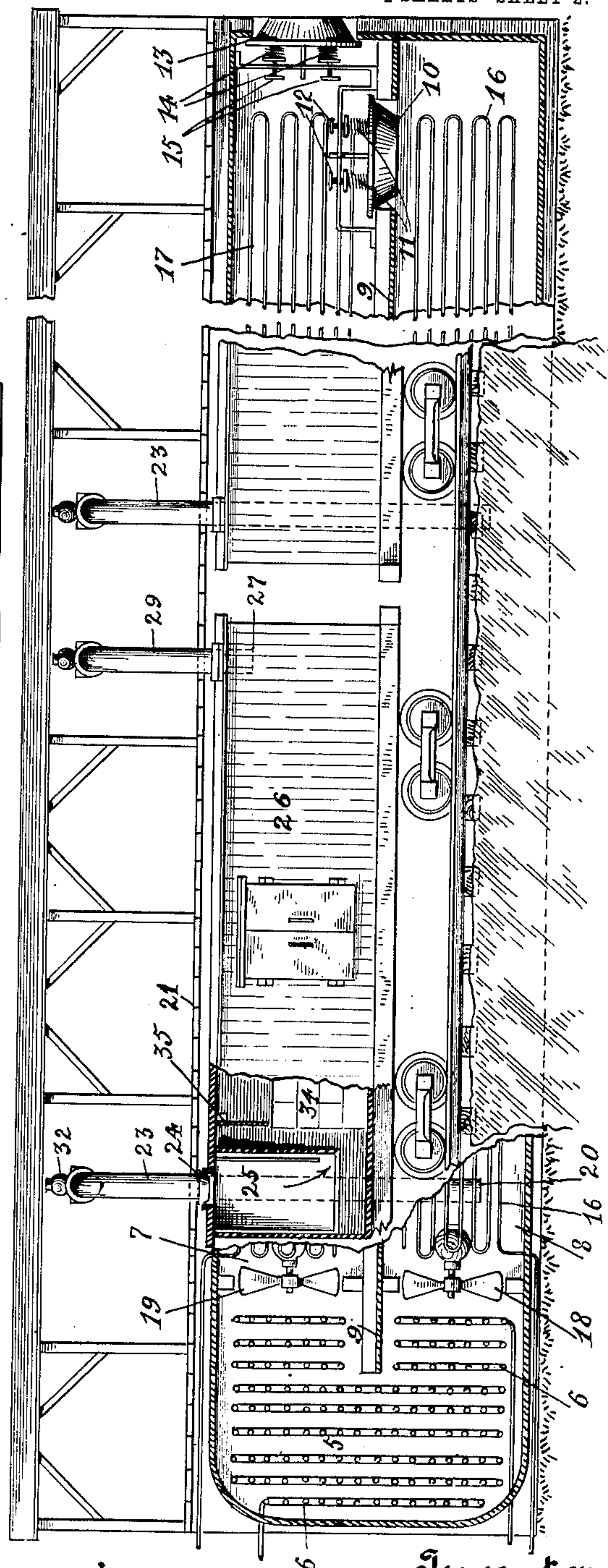


Fig. 3.

Inventor,  
Cassius M. Gay,  
By *E. D. Orphan*  
Attorney



# UNITED STATES PATENT OFFICE.

CASSIUS M. GAY, OF LOS ANGELES, CALIFORNIA.

## REFRIGERATING APPARATUS.

940,590.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed April 6, 1908. Serial No. 425,384.

*To all whom it may concern:*

Be it known that I, CASSIUS M. GAY, a citizen of the United States, residing at Los Angeles, county of Los Angeles, State of California, have invented new and useful Improvements in Refrigerating Apparatus, of which the following is a specification.

My invention relates primarily to an apparatus designed for refrigerating the contents of a plurality of separated units such as separated rooms in a packing house or refrigerator cars such as are used for transportation, and the object thereof is to provide an apparatus in which the refrigeration of a plurality of separated units may be carried on at the same time and at the same rate of speed in refrigeration, or if desired at different rates of speed of refrigeration in different units.

Another object is to provide automatically regulated means for maintaining in one part of the apparatus a pressure above atmospheric pressure and in the other part of the apparatus a pressure below atmospheric pressure, and to admit automatically a quantity of exterior air into the apparatus when required.

I accomplish these objects by the mechanism described herein and illustrated in the accompanying drawings, showing its application to refrigerating fruit cars, in which:

Figure 1 is an end elevation partly in section and partly broken away, showing my apparatus designed for refrigerating fruit cars. Fig. 2 is a plan partly in section and partly broken away, of a portion of my improved apparatus. Fig. 3 is a side elevation partly in section and partly broken away of my improved apparatus.

In the drawings 5 is a refrigerating chamber which is filled with pipes 6 which may be cooled in the usual manner by ammonia gas, or may be cooled in any other suitable manner. Leading from the refrigerating chamber are the high and low pressure ducts 7 and 8 which are separated from each other by a partition 9. In the outer end of this partition is a regulating valve 10 which when moved from its seat affords communication between said ducts at the outer ends. Springs 11 are provided to regulate the pressure at which said valve will open. These springs are regulated by tension screws 12. The outer end of the high pressure duct is closed and in the outer end of the low pressure duct is an inwardly open-

ing valve 13 which is provided with springs 14 to regulate the pressure at which said valve will open. These springs are regulated by tension screws 15.

Along the sides and the top of the high and low pressure ducts are coils of pipe 16 and 17 which are refrigerated in the same manner as the coils in the refrigerator chamber. In the inner end of the high pressure duct is suction force fan 18 which draws air from the refrigerator chamber and forces the air to the outer end of the duct. In the inner end of the low pressure chamber is suction force fan 19 which draws the air out of the duct and forces it into the refrigerator chamber. Extending from the lower portion of the high pressure duct and extending upwardly through the low pressure duct and out of the top thereof are the pressure air pipes 20, of which there are as many as there are separate units to be treated by the plant. These pipes extend upwardly a sufficient distance above the icing platform 21, so that a man can walk along said platform without interfering with the branches 22 which extend at right angles to the vertical section of the pipe to a point beyond the vertical plane extended of the outside walls of the duct, where they unite to a flexible hose 23 having a cover cap 24, which when the device is used for refrigerating fruit cars, fits upon and closes the top of the ice bunker 25 in the car 26. At a suitable distance from the air pressure pipes which when the apparatus is used for refrigerating fruit cars would be the distance between the ice bunkers of the car are the exhaust pipes 27 which open out of the top of the low pressure duct and extend upwardly above the icing platform and are provided with branches 28 which extend a like distance as the branches of the air pressure pipes, and are provided with flexible sections 29 which connect with the ice bunker at the other end of the car when desired. The icing platform is provided with a continuous conveyer 30 by means of which a suitable supply of ice, not shown, may be distributed along the icing platform for use in the ice bunkers when the cars have been refrigerated to the desired temperature. The pressure air pipes are also provided with suction force fans 31 which may be operated by motors 32 to produce a greater movement of the air in the car than in the other cars connected up to the system



if desired. The exhaust pipes may also be provided with independently operated fans if desired for the same purpose. When the apparatus is to be used in permanent structures, as disconnected storage rooms, the pressure pipes would preferably open into such storage room at one end of the top thereof and the exhaust pipes would open from the other end of the chamber at the top thereof.

In the operation of my apparatus as applied to refrigeration of fruit cars there would preferably be a track on each side of the air ducts. After the cars were placed on the tracks and loaded with fruit the pressure pipes would be connected into the ice bunkers, at, we will say, the forward end of the car. The fan in the pressure duct would be set in motion so as to force the refrigerated air through the duct and out through the pipes connected therewith into the respective cars. At the beginning of the operation the ice bunkers at the rear end of the cars would be left open and would remain open until such time as the air forced out from the car reached the temperature of the outside air, when these ice bunkers would be connected up to the exhaust pipes, and the fan in the exhaust duct would then be operated, so as to increase the circulation of the air through the cars. If any car desired a higher refrigeration than any of the other cars, the fans in the pressure and exhaust pipes of that particular car would be independently operated, whereby an increased circulation of air would be obtained in that particular car. Should it be desired to operate the cars at only one side of the air ducts, valve gates 33 are provided to close off the branch pipes on the side of the ducts where there are no cars. When the boxes of fruit 34 do not reach to the top of the car, I provide baffle curtains 35 to cause the air to circulate around and between the boxes.

Having described my invention what I claim is:

1. In a refrigerating apparatus an internally refrigerated air chamber; a low pressure duct connected to the upper portion of said chamber; a high pressure duct connected to the lower portion of said chamber, said two ducts being connected at their outer ends; a pressure regulated valve on the communication between said ducts, said valve

controlling the admission of air from the high pressure duct to the low pressure duct; a pressure regulated valve opening into the low pressure duct at its outer end; and means to maintain in the low pressure duct a pressure below atmospheric pressure and in the high pressure duct a pressure above atmospheric pressure.

2. In a refrigerating apparatus, a high pressure duct and a low pressure duct, connected together; means to internally refrigerate said ducts; means to cause a circulation of air through said ducts; an outlet pipe leading from the high pressure duct and connected to the interior of the place to be refrigerated; an inlet pipe leading from the low pressure duct and connected to the interior of the place to be refrigerated.

3. In a refrigerating apparatus a refrigerating chamber; two ducts opening into said chamber, one at the top and one at the bottom thereof, the other ends of said ducts being connected; a valve on the connection between said ducts; means to cause a circulation of air through said ducts and through the refrigerating chamber; an outlet pipe from the lower of said ducts to a place of use; an inlet pipe from the upper of said ducts to the interior of the place of use; means in said ducts to exhaust air through said inlet pipe and to force air through said outlet pipe.

4. In a refrigerating apparatus an internally refrigerated chamber; two ducts leading from said chamber one from the top and one from the bottom thereof, said ducts communicating at their outer ends; a valve on said last communication; means to maintain the lower of said ducts with air at a pressure above atmospheric pressure, and the upper of said ducts with air at a pressure below atmospheric pressure; a plurality of pipes leading from the lower of said ducts and opening into separate places of use; a plurality of pipes leading from the upper of said ducts and opening into the interiors of said separate places of use.

In witness that I claim the foregoing I have hereunto subscribed my name this 27th day of March, 1908.

CASSIUS M. GAY.

Witnesses:

G. E. HARPHAM,  
S. B. AUSTIN.