

Dec. 1, 1925.

1,563,331

G. B. BRIGHT

AIR SYSTEM FOR ICE FREEZING PLANTS

Filed Aug. 21, 1922

3 Sheets-Sheet 1

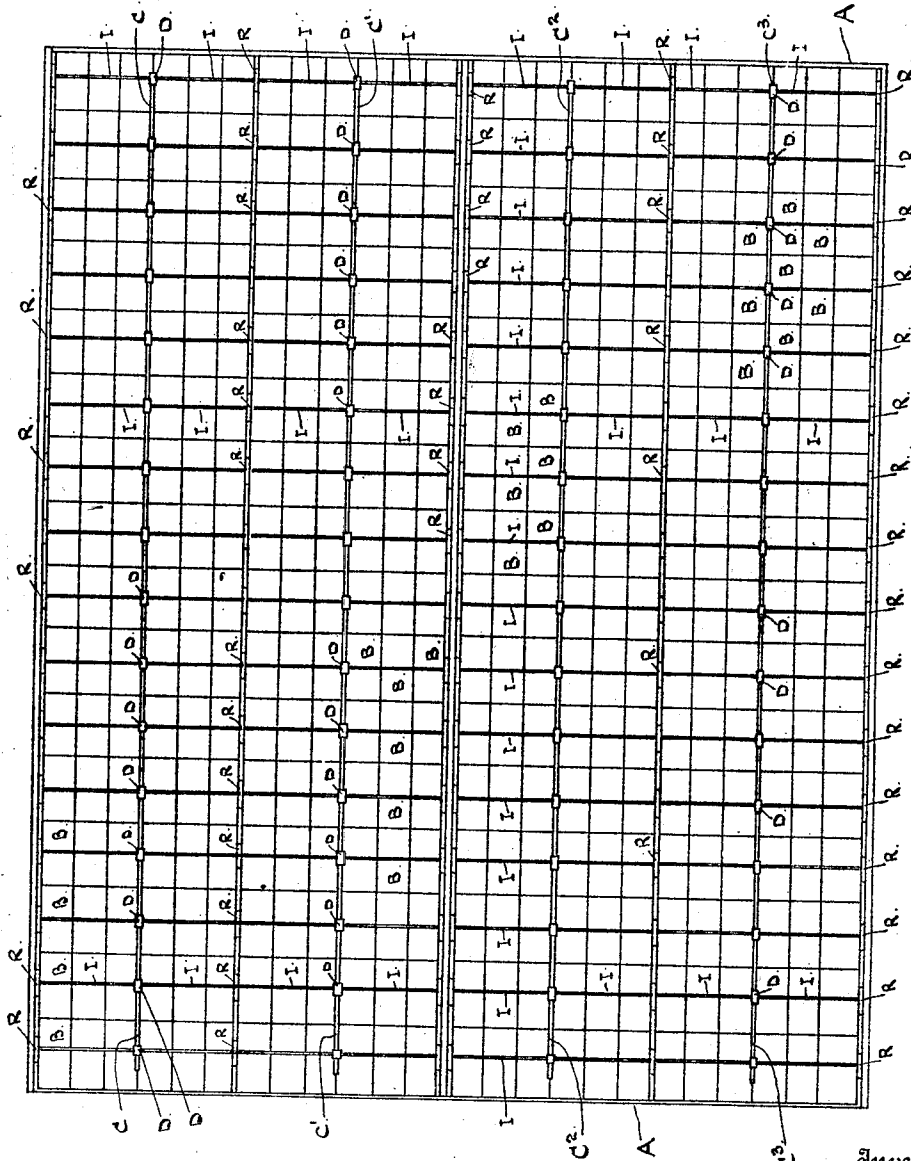


FIG. 1.

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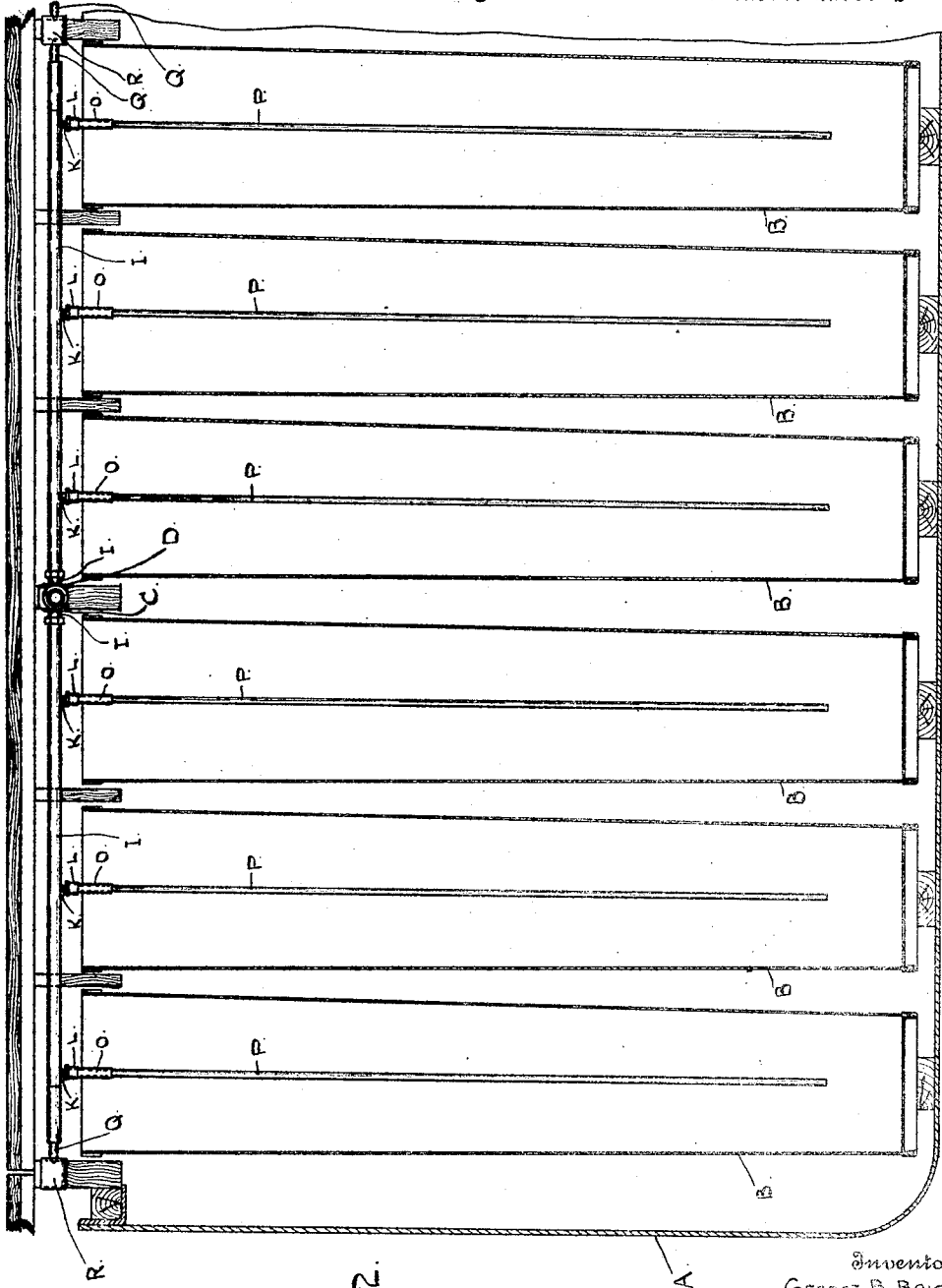


Fig. 2.

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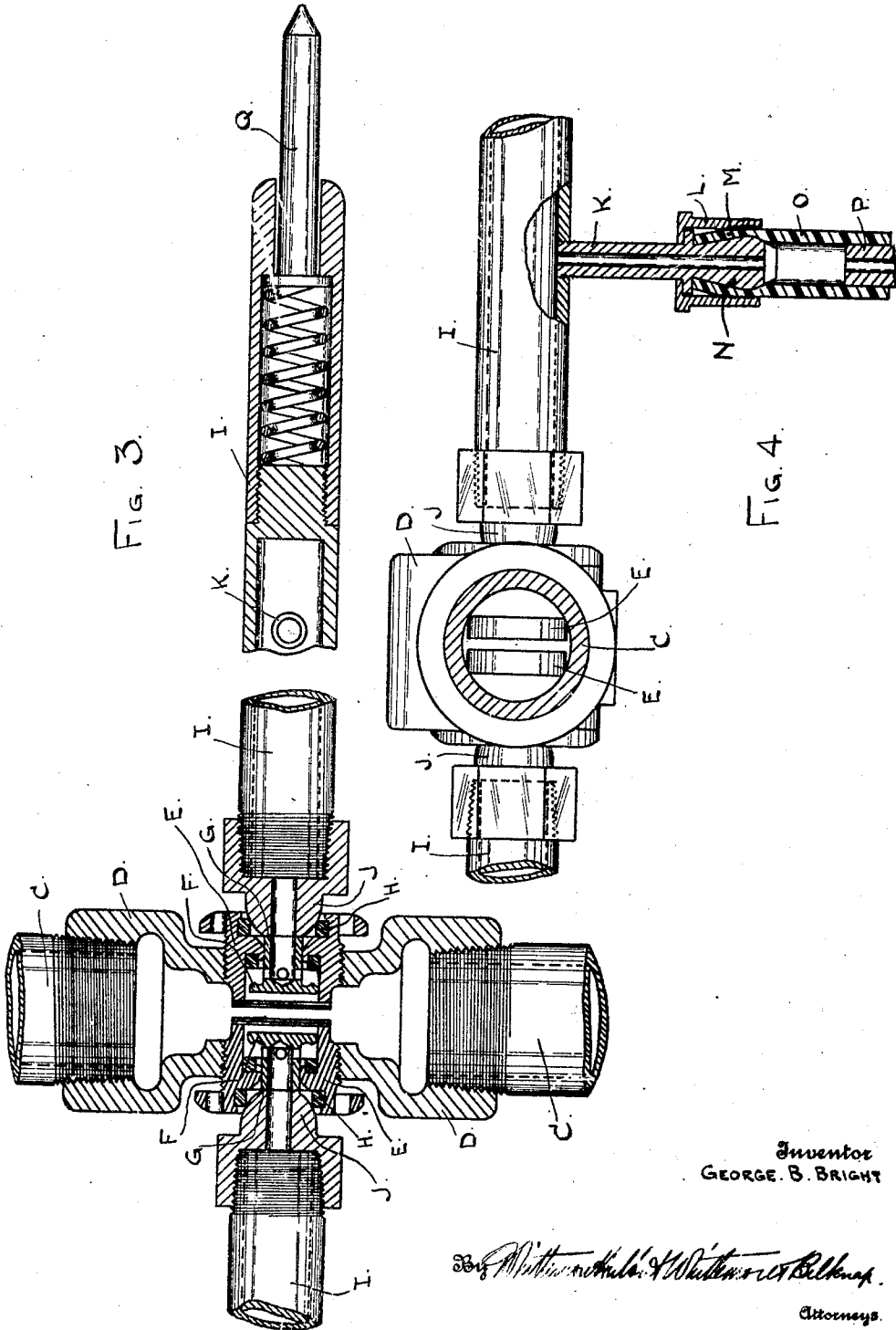
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# UNITED STATES PATENT OFFICE.

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## AIR SYSTEM FOR ICE-FREEZING PLANTS.

Application filed August 21, 1922. Serial No. 583,335.

*To all whom it may concern:*

Be it known that I, GEORGE B. BRIGHT, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Air Systems for Ice-Freezing Plants, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to the manufacture of artificial ice and has for its object the obtaining of a simplified pneumatic system for distributing the air under pressure which is used in agitating the water in the ice cans during freezing. In the present state of the art it is usual to agitate the water in the freezing cans so as to avoid the freezing in of sediment and other impurities. The air is blown into the center near the lower end of the can, or at the point which is the last to freeze, and in this way the agitation is continued until the end of the freezing process. If, however, the blowing is continued to the finish, the blow pipe will be frozen into the cake of ice and provision is therefore necessary for detaching the pipe from the air distributing system. Furthermore, as each ice can must be supplied by a separate blow pipe and as all of these blow pipes must be connected to the supply system, there is a complexity of connections which interfere with expeditious removal of the ice cans when the freezing is completed.

It is the object of the present invention to obtain an air distributing system which permits of quickly attaching and detaching the individual blow pipes and which does not interfere with the removal and insertion of the ice cans. To this end the invention consists in the construction as hereinafter set forth.

In the drawings:

Figure 1 is a plan view showing the arrangement of my improved system;

Figure 2 is a vertical cross-section through a portion of the brine tank showing the blowing system in connection with the ice cans;

Figure 3 is a horizontal section through a portion of the air supply conduit and detachable headers; and

Figure 4 is a sectional elevation.

A is the brine tank. B are the ice cans arranged therein in longitudinal and transverse series. C, C', etc. are a series of air

conduits which extend longitudinally of the tank above the same and between adjacent longitudinal rows of cans. Each of these conduits is provided with a series of valve fittings D which are arranged centrally of each transverse row of ice cans. These fittings may be of any suitable construction, but, as shown in detail in Figure 3, E are seats for poppet valves F, which valves have outwardly extending tubular stems G adapted, when pressed inward, to unseat the valve. Surrounding each tubular stem is a gasket H. I is a header having at the end thereof a rounded centrally apertured bearing J which, when pressed inward against the stem G, will unseat the valve and at the same time will form a sealing joint with the gasket H.

The headers I are adapted to extend along the transverse rows of cans and are provided with nipples K which register with the center of each can. L are couplings on the nipples K, which, as shown, consist in interiorly threaded swivelled and longitudinally slidable sockets M surrounding a double tapered portion N of the nipple. O is a rubber tube adapted to be sleeved over the portion N and then secured by screwing onto the same the member L. The tube O is attached to the upper end of a blow pipe P, which extends downward centrally within the ice can.

With the construction as thus far described, when the cans are first inserted into the brine tank, all of the headers I are removed and as the conduits C, C', etc. are between longitudinal rows of cans, they will not interfere with the spacing of the latter. As soon as each transverse row of cans is placed, a header I is engaged with one of the fittings D to extend transversely therefrom and over the row of cans. For holding this header in place the opposite end thereof is provided with a spring-pressed bearing pin Q, which may be engaged with a stationary bearing R above the tank. The pressure of the spring is sufficient to overcome the pressure on the valve F, so that when the header is engaged with the bearing R and also with the fitting D, the spring pressed plunger Q will open the valve S and force the rounded bearing J against the gasket H. This will establish air communication between the conduit C and the header I. From the latter the air will pass through

the couplings L and rubber tubes O into the blow pipes P, which, being immersed in the different cans, will blow air through the water in said cans during the freezing

5 process.

When the freezing is complete, the header I is removed either with the blow pipes attached thereto, or, in case the latter are frozen into the ice cake, the couplings L are detached so that the header will be removed, leaving the pipes in the cans. The removal of the header clears the path for the removal of the ice cans and the replacement of the refilled cans. My improved construction is therefore less of an obstruction to the handling of the cans than anything which has heretofore been used.

What I claim as my invention is:

1. The combination with a brine tank and transversely arranged rows of ice cans removably inserted therein, of an air supply conduit extending longitudinally of said tank, fittings in said conduit registering with the respective transverse rows of cans, inwardly opening valves controlling outlets in said fittings, a header having one end adapted for engaging each fitting, said header extending transversely over the row of cans and provided with depending blow pipes engaging the respective cans, and a resilient bearing for the opposite end of said header exerting sufficient pressure thereon to open the valve and establish air communication with the header.

2. The combination with a brine tank and transversely arranged rows of ice cans removably inserted therein, of an air conduit extending longitudinally of said tank and provided with outlet fittings registering with the respective rows of cans, each of said fittings being provided with a seat for a header and an inwardly opening valve, a header having at one end a bearing for engaging said seat adapted to also open said valve, blow pipes depending from said

header and immersed in the respective cans, and a resilient bearing for the opposite end of said header exerting sufficient pressure on said header to force the same to said seat and to open said valve.

3. The combination with a brine tank and transversely extending rows of ice cans removably inserted therein, of an air supply conduit extending longitudinally of said tank and provided with outlet fittings registering with the respective rows of cans, a header having one end adapted for engaging each fitting, blow pipes detachably coupled to said header, a valve in said fitting normally closed by the pressure of the air therein and adapted to open inwardly, and a resilient bearing on the opposite end of said header adapted to exert sufficient pressure thereon to open said valve and establish air communication with the header and blow pipes.

4. The combination with a brine tank and transversely arranged rows of ice cans removably inserted therein, of an air supply conduit extending longitudinally of said tank and provided with outlet fittings registering with the respective rows of cans, a header having one end thereof adapted for engaging each fitting and provided at its opposite end with a resilient bearing, valves in said fittings normally closed by the pressure of the air therein and adapted to be opened inwardly by the pressure of said resilient bearings, a plurality of transversely extending nipples upon each of said headers aligned with the centers of the ice can, blow pipes extending from said nipples into said cans, said nipples being provided with double tapered stems, and rubber tubes for detachably coupling the blow pipes to said nipples.

In testimony whereof I affix my signature.

GEORGE B. BRIGHT.