

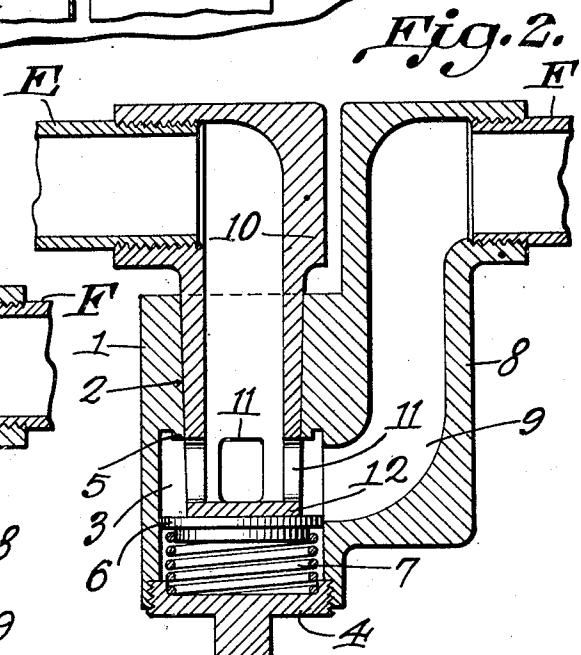
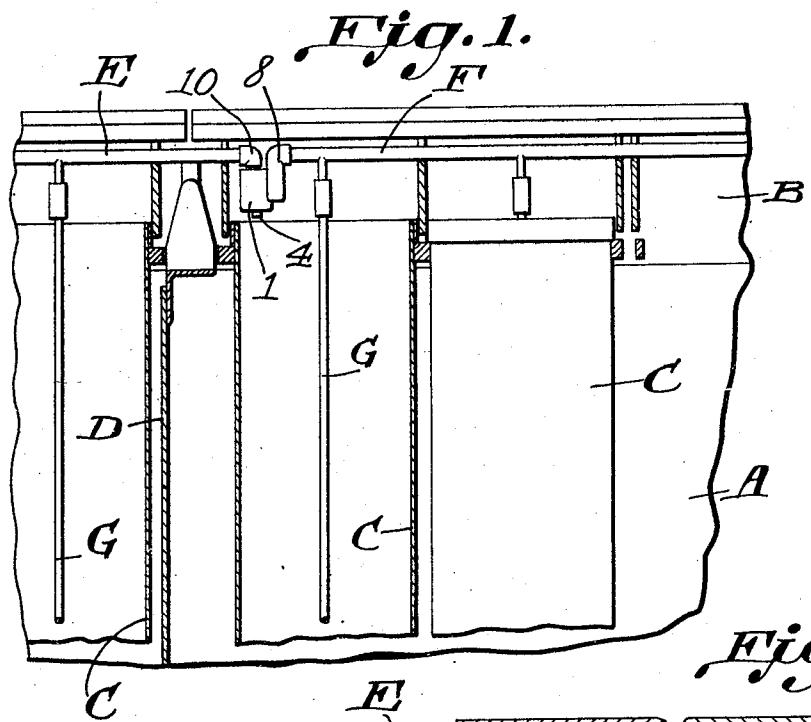
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COUPLER FOR ICE MANUFACTURING APPARATUS

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UNITED STATES PATENT OFFICE

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COUPLER FOR ICE MANUFACTURING APPARATUS

Application filed July 12, 1930. Serial No. 467,559.

This invention relates to a coupler designed more especially for use in connection with a header or air lateral such as used for example in the apparatus disclosed in my co-pending application filed August 10, 1928, Serial No. 298,784.

In ice manufacturing apparatus of the type mentioned, it is desirable that a quick-detachable connection be provided between 10 aligning headers or air laterals, so that one of them can be separated from the other for the purpose of withdrawing its drop tubes from their cans.

One of the objects of the invention is to 15 provide a coupler having interfitting members upon the respective headers or laterals forming a tight but readily separable connection in which is included a check valve which is held unseated as long as the parts 20 are assembled, but will automatically seat when the parts are disconnected, thereby to prevent escape of air under pressure from the coupler.

Another object is to provide a coupler 25 which is simple and compact, can be manufactured readily at low cost, and constitutes an efficient valved connection for the purposes intended.

With the foregoing and other objects in 30 view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes 35 may be made in the precise embodiment of the invention herein disclosed, within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings:

Figure 1 is a vertical section through a portion of the tank, grid, and cans of an ice manufacturing apparatus equipped with the present improvement.

Figure 2 is a vertical section through the complete coupler assembled.

Figure 3 is a section through the casing of 50 the coupler from which the coupling stem

has been withdrawn, the check valve being shown on its seat.

Referring to the figures by characters of reference, A designates a portion of the tank of an ice manufacturing apparatus and extended thereover is a grid B from which the cans C are suspended. In the structure illustrated, the tank has a partition D and extending over the cans and supported by the grid are headers or air laterals E and F for receiving air under pressure and discharging it through drop tubes G into the water contained in the respective cans. Any suitable means can be provided for rotating the laterals back and forth so that the drop tubes will swing like pendulums.

The structure thus far described constitutes no part of the present invention, but has already been disclosed in my application herein mentioned.

It has been the practice heretofore to utilize aligning headers or laterals which are separate and do not communicate, separate means being provided for directing air under pressure into the separate groups of laterals from 75 opposite sides, respectively, of the tank.

The present invention provides a means whereby the aligning laterals or headers can be connected detachably and supplied with air from one air pipe at one side only of 80 the tank. For this purpose, the particular coupler constituting this invention has been employed. This includes a casing 1 having a tapered bore 2 extending thereinto from one end and opening into a chamber 3, the 85 bottom of which is closed by a screw plug 4 or the like. A valve seat 5 is provided about the inner end of the bore 2 and is adapted to be engaged tightly by a valve 6 in the form of a disc which is slidable in the chamber 3 and is supported by a spring 7 resting on the plug 4.

An extension 8 is formed in the casing 1 and projects beyond that end in which the bore 2 is provided. This extension 8 has a 95 passage 9, one end of which opens into the chamber 3 while the other end opens through the side of the projecting portion of the extension and is adapted to receive the open end of the header or lateral F.

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A tapered tubular stem 10 is connected to and extended downwardly from the end of the header or lateral E. This stem has radial ports 11 near its small closed end 12 and it is of such length that when the stem is seated in the casing 1 and tightly engages the wall of the bore 2, the valve 6 will be held away from its seat 5 so that air can flow freely from the header or lateral F through 10 the coupler to the header or lateral E.

When it is desired to remove the lateral E and the tubes G depending therefrom, the stem 10 is withdrawn from the bore 2 and the valve 6 is promptly seated by its spring 15 to prevent loss of air under pressure.

What is claimed is:

1. In an ice manufacturing machine, the combination with coaxial alining headers detachably mounted for rotation, and drop 20 tubes carried thereby for suspension in the cores of ice blocks, of a casing opening into and supported by one header and extending radially therefrom, said casing having a tapered bore the axis of which intersects the 25 axis of the headers, a valve in the casing normally closing communication between the bore and the header on which the casing is mounted, and a tubular stem opening into and supported by the other header, said stem 30 extending radially from its head and adapted to seat in the bore and hold the valve unseated, there being a port in the stem for opening into the casing adjacent to the unseated valve, the header being shiftable bodily out of coaxial relation to the other header and in the direction of the length of its 35 depending tubes to withdraw the stem from the bore.

2. In an ice manufacturing machine the combination with separate coaxial alining headers detachably mounted for rotation, and drop tubes on the headers for suspension within ice blocks, of a tapered tubular stem carried by one header and having an opening adjacent to its small end, the longitudinal axis of the stem being substantially at a right angle to the axis of the headers, a casing carried by the other header having a tapered bore to receive the stem when the 40 headers are moved into alinement, a spring-pressed valve normally seated in the casing to close the bore, said stem, when inserted into the bore, constituting means for holding the valve unseated and the stem opening in communication with the interior of the casing.

3. In ice manufacturing apparatus coaxial alining headers, drop tubes carried thereby for suspension in separate ice blocks, interfitting coupling members carried by the 45 respective headers and having a common longitudinal axis intersecting the axis of the headers at right angles thereto, one of the headers being bodily liftable in the direction of the length of the tubes to withdraw one 50 of the coupling members from the other, and

means released by said withdrawal for closing the other coupling member, said coupling members constituting a positive driving connection between the headers.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

GEORGE LANGE.