

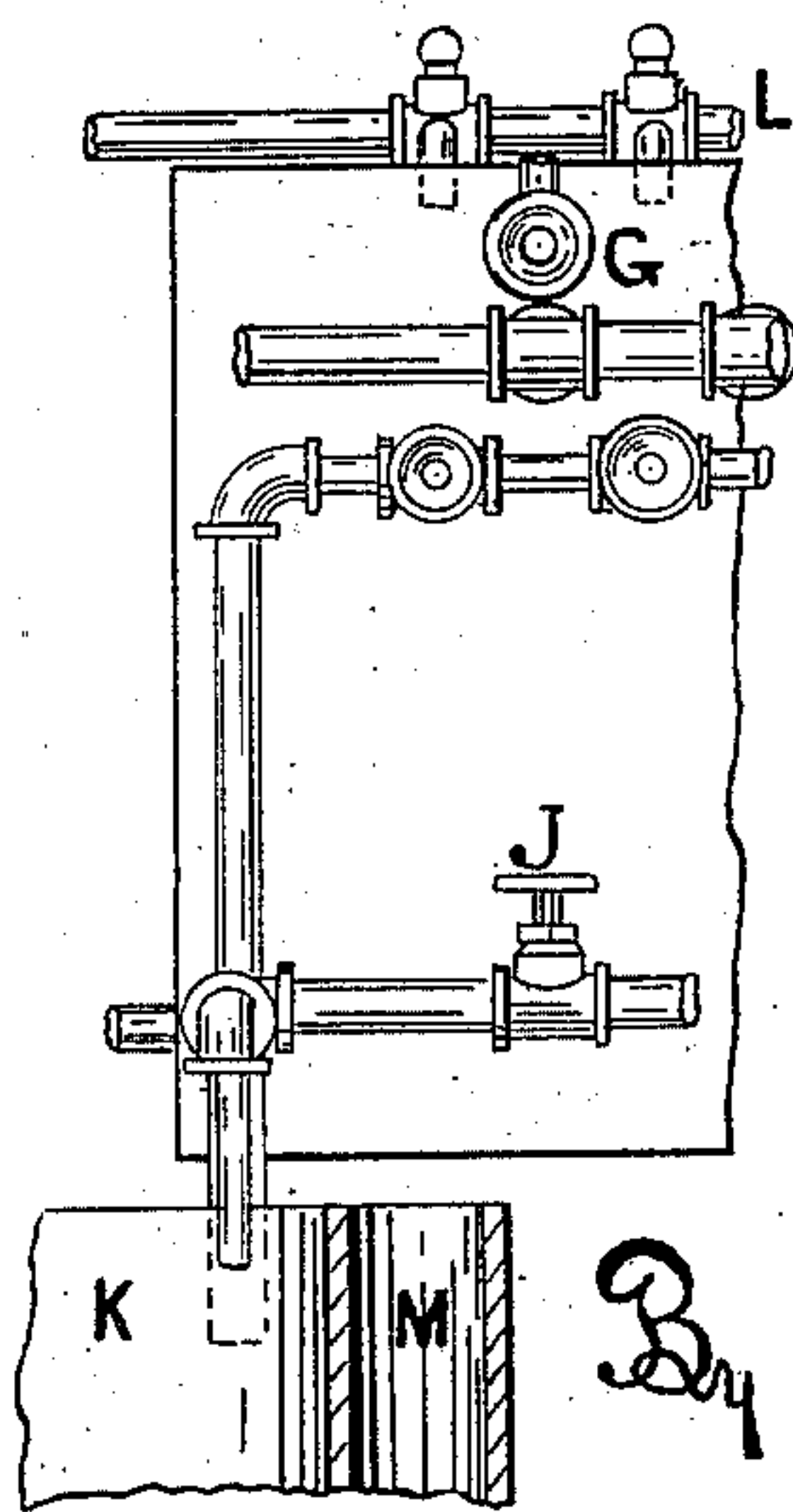
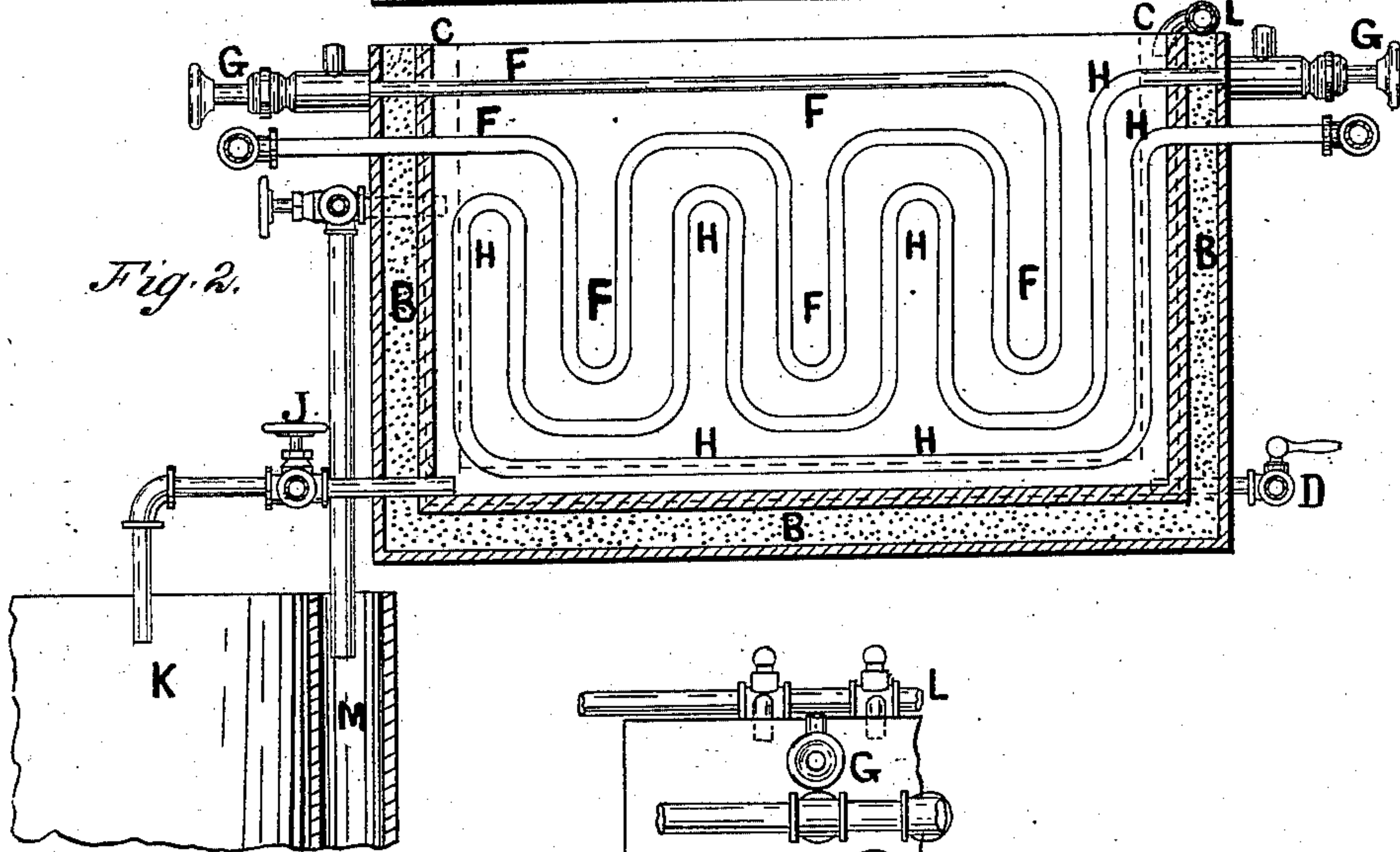
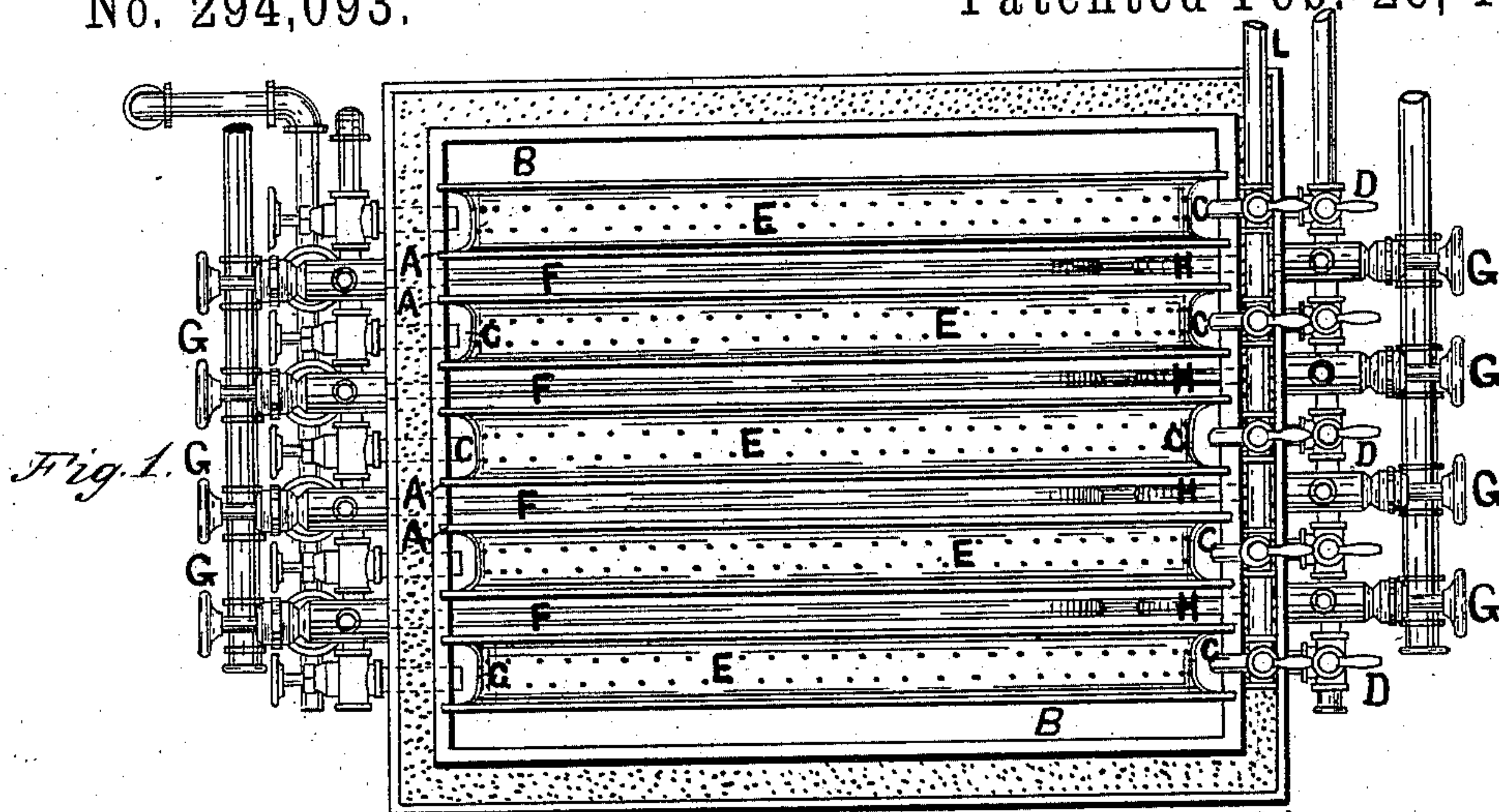
(No Model.)

G. TAYLOR.

ICE MACHINE.

No. 294,093.

Patented Feb. 26, 1884.



Witnesses:

Chas. S. Goring

W.R. Marble

Inventor:

George Taylor.

Sylvanus Walker  
Atty.



# UNITED STATES PATENT OFFICE.

GEORGE TAYLOR, OF EVERETT, MASSACHUSETTS.

## ICE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,093, dated February 26, 1884.

Application filed September 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE TAYLOR, of Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Ice-Machines, of which the following is a specification.

This invention relates to that part of an ice-machine known as the "congealer;" and it consists of a water-tight freezing-box of suitable size for the work intended to be accomplished, constructed of thin metallic plates, within which are arranged or through which pass two vertical zigzag pipes, which contain and conduct the freezing agent, the space between and around the pipes being filled up with a non-congealable liquid in a state of rest. This box is immersed in or surrounded by pure water, and the ice is formed on the outside and against the sides of the box as the freezing agent passes through the pipes, one of which passes up and down above the other. The freezing at the upper and lower or top and bottom portions of the said box may be regulated by valves, so as to cause the water to congeal and form the cake of ice uniformly throughout or from top to bottom, as hereinafter more fully described; and it further consists in details of construction hereinafter described, and set forth in the claims.

Figure 1 represents a plan of an ice-machine constructed according to my invention. Fig. 2 represents a vertical section of the same. Figs. 3 and 4 represent detached views of portions of the same.

The congealer is constructed in the form of a long narrow box of sufficient width to receive the two evaporating-pipes, one above the other, by employing two sheets of metal, A A, the ends and bottom edges of which are fitted tightly within corresponding grooves formed across the inner surface of the ends and bottom of the tank B, which is built of wood or iron, with double walls or sides, ends, and bottom, and the space between is filled with sawdust, charcoal, or any other non-conducting material desired, these congealers being arranged across the tank B at short intervals, leaving narrow spaces between, forming the ice-boxes, within the bottoms of which are fitted perforated plates E, leaving a shallow space beneath, into which any sediment or dirt from the water placed therein may settle

and be drawn off through the outlet-pipe D, and upon this plate the bottom of the cake of ice congeals. Each of the opposite ends of the said ice-box is provided with a vertical plate, C, leaving a narrow passage connecting with the space beneath the said perforated plate E, and against which plates the ends of the cakes of ice congeal. Within each congealer is arranged a pipe, F, which enters the same through the sides of the tank B, near the top thereof, and passes horizontally within the congealer nearly to the opposite end thereof, thence downwardly to a point about three-fourths of the depth of the same, thence turns backward and upward nearly to the first horizontal portion, thence backward and downward and upward, in the same manner as before, forming several such zigzag curves, and thence outward through the congealer and tank a short distance below the point of entrance. Through the opposite side of the tank and end of the congealer passes a corresponding pipe, H, thence downward beneath the lower coil of the former pipe F, thence upward and forward and downward, corresponding with the said former pipe F, until the opposite end of the congealer is nearly reached, thence to a point near the bottom thereof, thence horizontally back toward or nearly to the former end, thence upward and outward beneath the point of entrance, the two coils of pipes F and H being arranged at equal distances from each other throughout the congealer; or as shown, or nearly so. The said congealer-pipes F and H are each provided at the outside of the tank with a valve, G, and the inlet-pipes connecting with the receiver of liquid from the condenser and the opposite ends thereof with the outlet-pipe or with the pump, and when the apparatus is charged with ammoniacal gas, and the tank and ice-boxes are filled with pure clear water, and the congealing-boxes are filled with brine around the said coils of pipes F and H, the circulation begins as the pumps are put in motion.

It will be seen that by means of the two congealer-pipes F and H passing through the congealer-box from end to end, and as each passes vertically above and below the center thereof equally, that, by means of the said valves connected with each of said pipes F and H, the freezing of the ice within said ice-boxes



may be regulated and controlled, so as to cause it to be congealed uniformly at the top and bottom or upper and lower portions thereof, by allowing more or less of the ammoniacal gas to be forced through the upper or lower pipe as an examination thereof may seem to require. When the ice has been formed in the ice-box, it is easily detached by drawing off the brine or non-congealable liquid from the boxes by the cocks J into a suitable tank, K, and then filling the boxes from the pipe L with cold water, it melts the ice slightly from the sides of the ice-box, so as to free it therefrom, which also reduces the temperature of this water, which is then drawn off into the tank M, and then pumped back into the ice-box, when the cake or former ice has been removed, ready to be congealed as before. In order to free the ice from the end plates, C, and perforated bottom plate, E, water is let into the spaces formed thereby from the faucets or cocks N, and then drawn off therefrom through the said sediment-cock and outlet-pipe D, as shown.

Having thus described my invention, what I claim is—

1. In a congealer, the evaporating-pipe F,

arranged so as to extend horizontally through the upper portion thereof, and thence downward below the center thereof, and upward and backward and downward with two or more of such angular turns or vertical zigzag curves, and thence outward below the point of entrance, as shown and described, as and for the purposes set forth.

2. In a congealer, the two evaporating-pipes F and H, provided with valves, and each arranged so as to extend through the same in two or more vertical zigzag curves passing upward and downward above and below the central horizontal plane thereof, and nearly equidistant at all points, and thence outward therefrom near the point of entrance, as shown and described, as and for the purposes set forth.

3. In combination with the ice-box, the perforated bottom plate, E, and vertical end plates, C, as and for the purposes set forth.

GEORGE TAYLOR.

Witnesses:

SYLVENUS WALKER,  
CHESTER L. RIX.