

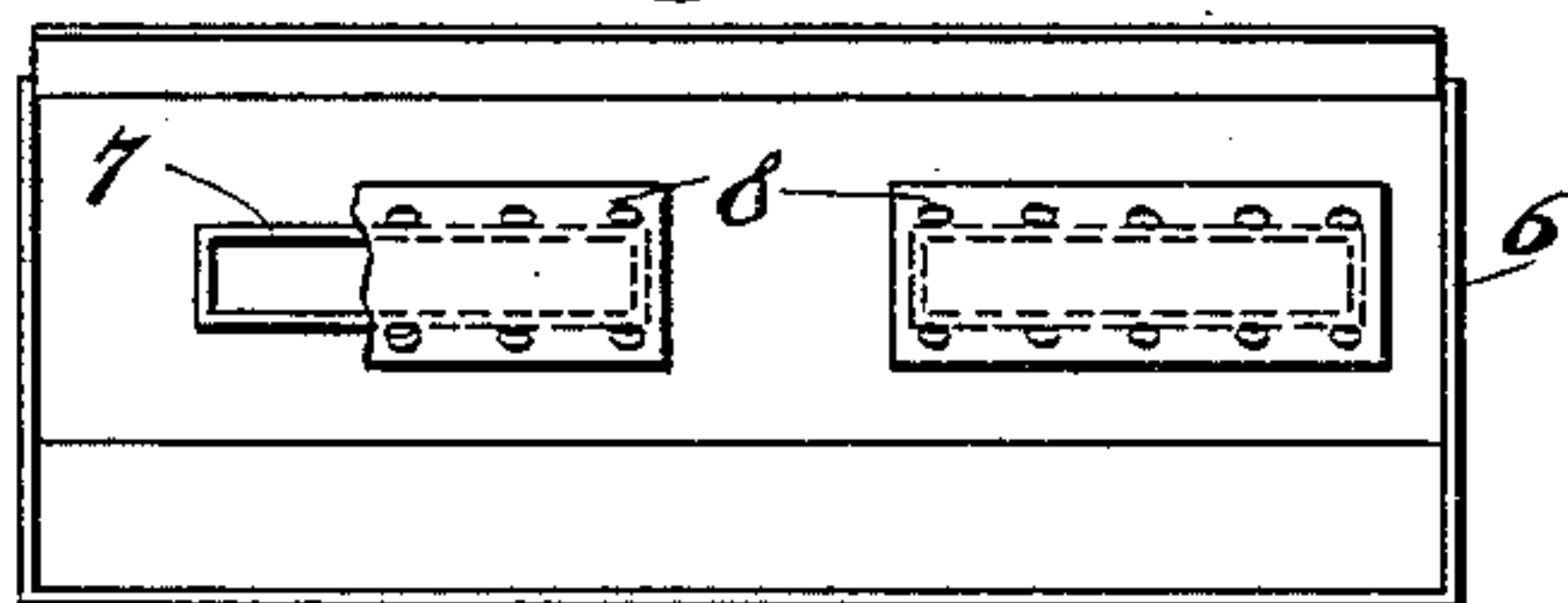
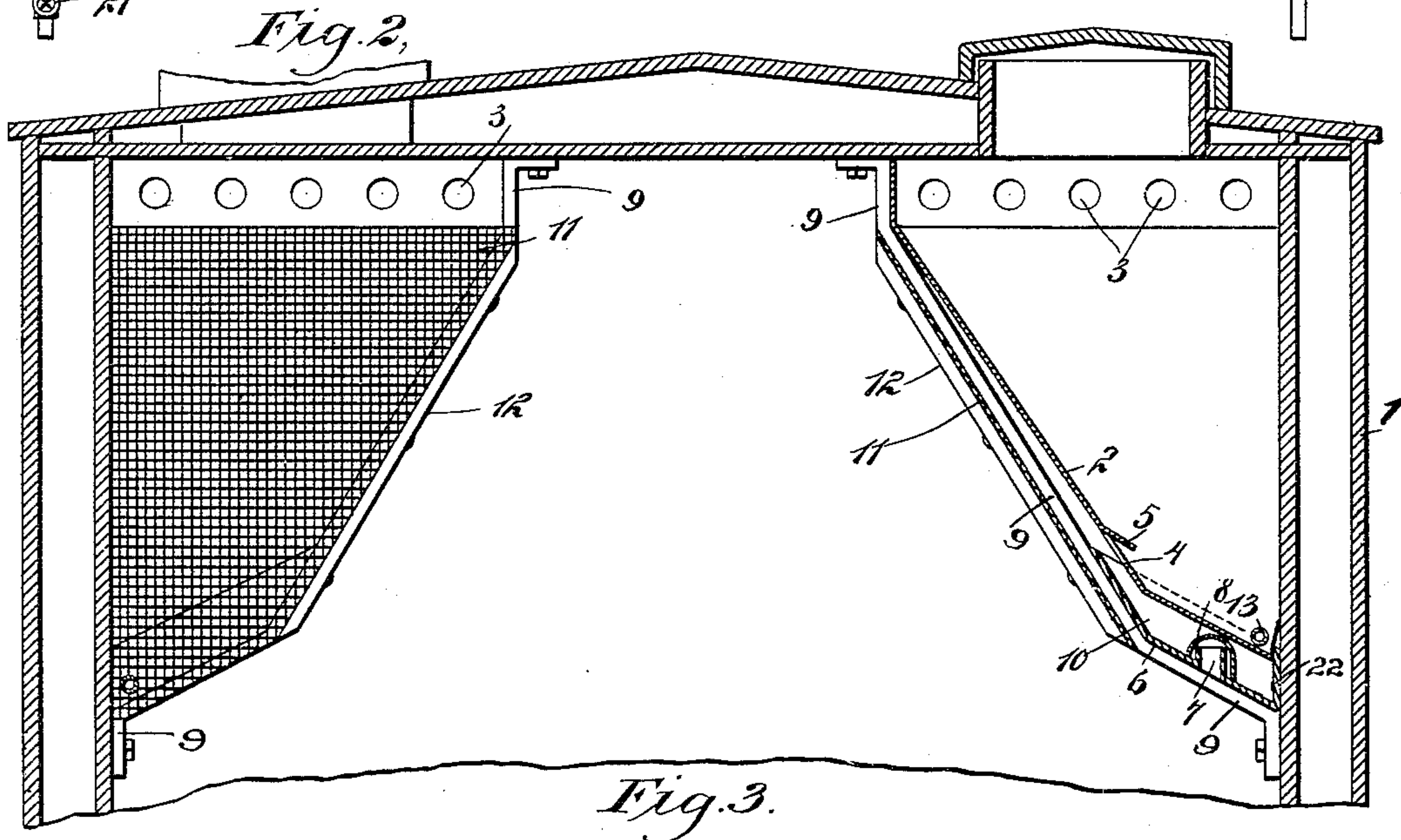
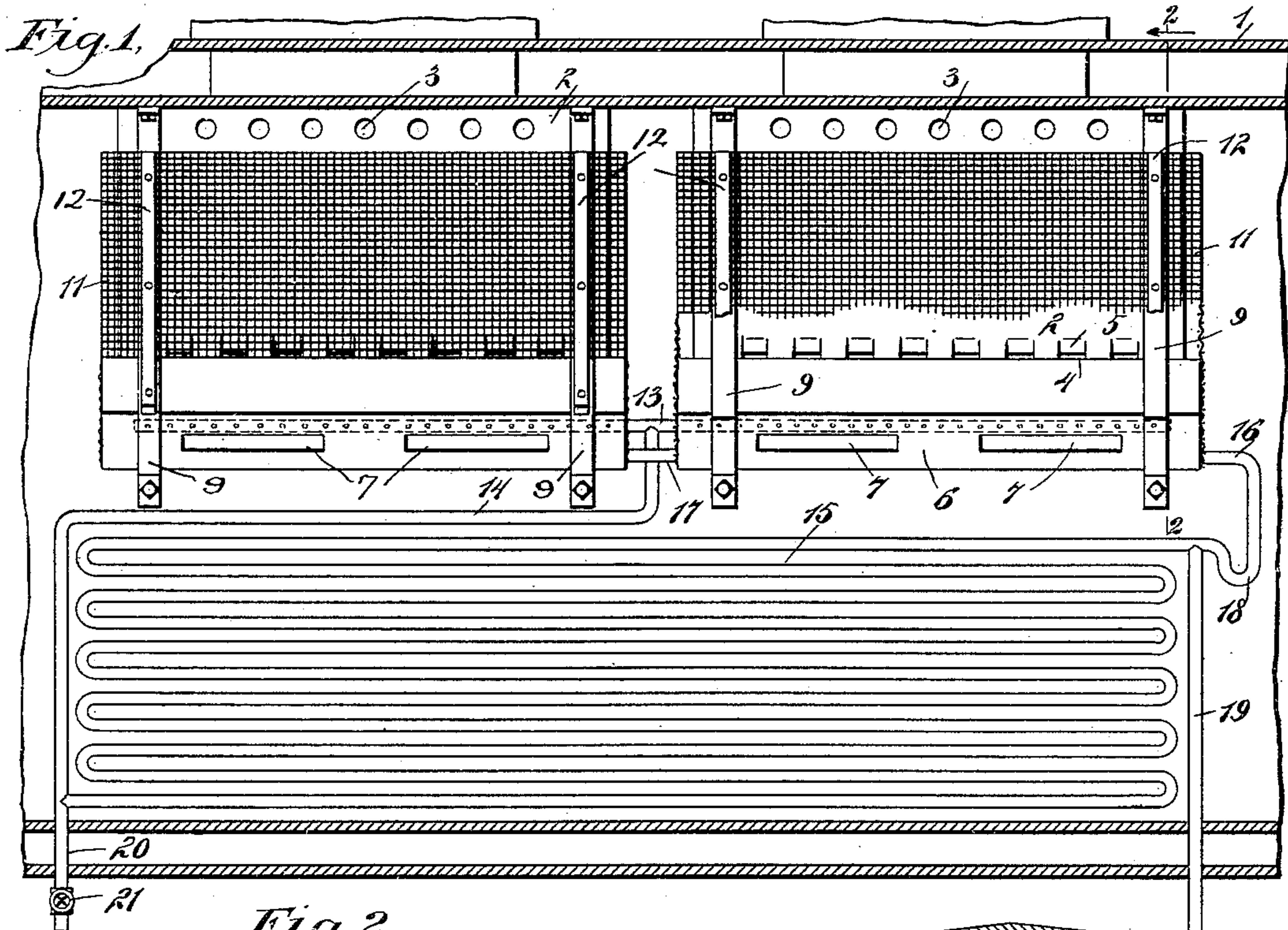
No. 618,281.

Patented Jan. 24, 1899.

A. J. McARTHUR.  
REFRIGERATOR CAR.

(Application filed May 17, 1897.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ANDREW J. MCARTHUR, OF GAINESVILLE, FLORIDA.

## REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 618,281, dated January 24, 1899.

Application filed May 17, 1897. Serial No. 636,922. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. MCARTHUR, of Gainesville, in the county of Alachua and State of Florida, have invented a new and Improved Refrigerator-Car, of which the following is a full, clear, and exact description.

This invention relates to refrigerator-cars; and the object is to so construct the ice-tanks that a large area of ice will be exposed to the interior of the car, whereby the heat of the load will be condensed very quickly, and, further to so construct the parts that the condensation will be carried off, thus resulting in a perfectly dry car.

I will describe a refrigerator-car embodying my invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of a portion of a car, illustrating my invention. Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a plan view of a safety-tray employed.

Referring to the drawings, 1 designates a car of any desired construction. Arranged along the sides of the car is a series of ice-tanks 2, preferably constructed of galvanized iron. The front walls of the tanks are inclined downward and outward, and the bottom walls are also inclined. Each tank is provided at its top with a series of holes 3 to allow the entrance of hot air from the car, and the front wall of each tank is provided near its lower end with outlets 4 for the discharge of any overflow of water that may occur should the circulating-pipes (to be hereinafter described) become clogged. Each opening 4 has a downwardly and inwardly inclined deflector-plate 5 at its top, which will prevent the escape of small pieces of ice.

Below each tank 2 is a safety-tray 6, designed to receive overflow from the tank or the water of condensation flowing down the outer surface of the tank-walls. The openings 4 will also permit the escape of cold air from the ice-tank, and this cold, air having a downward tendency, will escape from the tray 6 through pipes 7, extended upward in the tray sufficiently high to prevent the water that might be in the tray from overflowing

into the car. The pipes 7 are elongated or extend lengthwise of the tray, and over each pipe 7 is a shield or cap 8, open at its ends and provided with perforations in its sides to allow a free circulation of air. The cap or shield is transversely rounded, and therefore any condensation dropping off the bottom of the tank will flow over said shield and into the safety-tray. The safety-tray is supported by means of brace-bars 9, bolted to the roof of the car and also to the side wall, and the ice-tank is supported by means of blocks 10 in the safety-tray.

Surrounding each tank and spaced therefrom is a jacket 11, of wire-netting, designed to keep the goods in the car from coming in contact with the ice-tank and becoming wet by condensation thereon. The jacket 11 may be secured to the brace-bars 9 by wooden strips 12, engaging the outer sides of said jackets and having bolts passing into the brace-bars.

In practice there may be two ice-tanks at each side of the central door of a car, and each pair of tanks will be connected by means of a pipe 13, said pipe 13 being extended longitudinally through the bottoms of the tanks, and the portion of the pipes within the tanks will be provided with perforations to allow the entrance of cold water from the ice. The pipe 13 communicates through a pipe 14 with a coil of pipe 15, extended longitudinally of the car and along the side wall thereof, and also connected with this coil 15 is a pipe 16, leading from one of the safety-trays, the two safety-trays of a pair being connected by means of a pipe 17. The pipe 16 will be provided with a trap 18, and extended from the coil 15 at a point adjacent to the traps 18 is an overflow-pipe 19, leading through the bottom of the car. A drain-pipe 20 extends from the lower portion of the coil 15 through the bottom of the car, and this pipe 20 is provided with a valve 21. The walls of the safety-tray 6 extend upward around the lower portion of the ice-tank to catch any condensation that may occur on the outside of the tank and direct said condensation to the safety-tray.

22 indicates the rear wall of the safety-tray.

In operation when the tanks are filled with ice the warm air which rises to the top of the car will enter the tanks through the openings



3, and the cold air will circulate through the openings 4 and the pipe 7. This downward tendency of cold air will be augmented by the front wall of the safety-tray, which extends  
5 somewhat above the bottom of the openings 4, thus acting as a deflector for the air. The cold water from melted ice will flow through the pipes 13 and 14 into the coils 15, thus providing for an equal temperature and saving  
10 of ice.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a refrigerator-car, an ice-tank provided with openings near its top for the admission of air and openings near its bottom for the outlet of air, a pipe connected with the ice-tank to conduct the water therefrom, a safety-tray under the ice-tank and having  
20 its walls extending upward to a level with the air-openings in the lower part of the ice-tank, a trap connected with the said tray and a pipe leading from said trap whereby should the pipe leading from the ice-tank become obstructed the water accumulating in the ice-tank will pass through the air-outlet openings into the safety-tray and out through the trapped pipe and flooding of the car be prevented, substantially as described.

2. In a refrigerator-car, a pair of ice-tanks each provided with openings near its bottom, a drainage-pipe extending longitudinally within the said tanks a safety-tray underneath each tank and having its walls extending upward to a level with the openings near the  
35 bottom of the ice-tank, the said trays being arranged to receive any water that may pass from the ice-tanks through the said openings, a pipe connecting the inner or adjacent ends of said trays and a pipe provided with a trap and connected with one of said trays, substantially as specified.

3. In a refrigerator-car, an ice-tank supported from the side wall and roof of the car, the said ice-tank having its front wall inclined downward and toward the wall of the car and having its bottom also inclined downward and toward the wall of the car, the front wall and bottom meeting at an obtuse angle, the said ice-tank having openings at its upper portion for the admission of air and openings at the lower portion of its front wall for the outlet of air, the said tank being also provided with a drainage-pipe, a tray underneath the tank and having its walls extended upward to a level with the openings at the bottom of the tank, the said tray being provided with an air-outlet pipe, a circulating-pipe having connection with the drainage-pipe, and a trap connected  
60 with the tray and also with the circulating-pipe, substantially as specified.

4. In a refrigerator-car, a pair of ice-tanks, each tank having its wall inclined downward and toward the wall of the car, and also having its bottom inclined downward and toward  
65 the wall of the car, the said wall and bottom of the tank meeting at an obtuse angle, the said tanks each having openings at its top for the admission of air and openings at its bottom for the outlet of air, a safety-tray under  
70 each tank, the said trays being longer than the bottoms of the tanks and the sides and ends of said trays extending upward even with the lower openings of the tanks elongated air-outlet pipes in the bottoms of said  
75 trays and extending upward in the tray and a curved shield or cap over each pipe, substantially as specified.

5. In a refrigerator-car, a pair of ice-tanks each having its front wall inclined downward  
80 and toward the wall of the car and also having its bottom inclined downward and toward the wall of the car, a perforated pipe extending along the inner side of each tank at the lowest portion of its bottom, a circulating-coil  
85 extending along the car-wall and having connection with the said perforated pipe, a tray under each tank, the said trays having their adjacent ends connected by a pipe and one of said trays being connected at its other end  
90 with the said circulating-coil, substantially as specified.

6. In a refrigerator-car, a pair of ice-tanks, a circulating-coil extending along the wall of the car, a perforated pipe extending through  
95 the pair of tanks and having connection with said coil, a tray under each tank, the said trays being connected by a pipe and one of said trays having a trap connection with the circulating-coil, an overflow-pipe extending  
100 from the coil at a point adjacent to the trap and a drain-pipe connected with the lower portion of the coil, substantially as specified.

7. In a refrigerator-car, a pair of ice-tanks, a circulating-coil extending along the wall of  
105 the car, a perforated pipe extending through the pair of tanks, a pipe leading from the perforated pipe at a point between the tanks and connected with the lower portion of the coil, a tray under each tank, the said trays being  
110 connected by a pipe, a pipe leading from one of said trays and connected with the circulating-coil, the said pipe being provided with a trap, an overflow-pipe extending from the coil adjacent to the trap and a valved drain-pipe  
115 extending from the lower portion of the coil, substantially as shown and described.

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Witnesses:

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