

(No Model.)

W. S. PARKER.
CAR REFRIGERATING APPARATUS.

No. 450,976.

Patented Apr. 21, 1891.

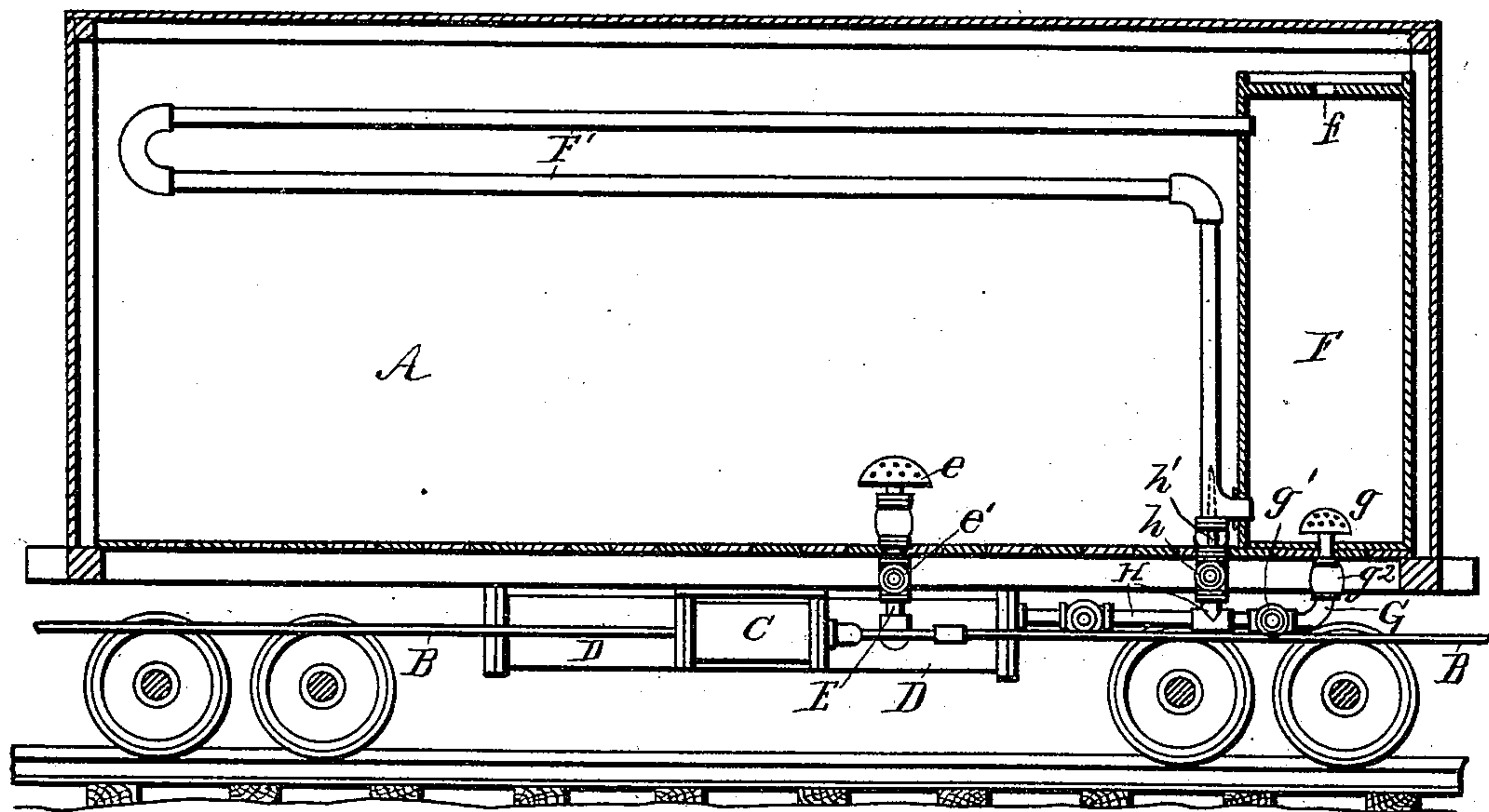


FIG-1-

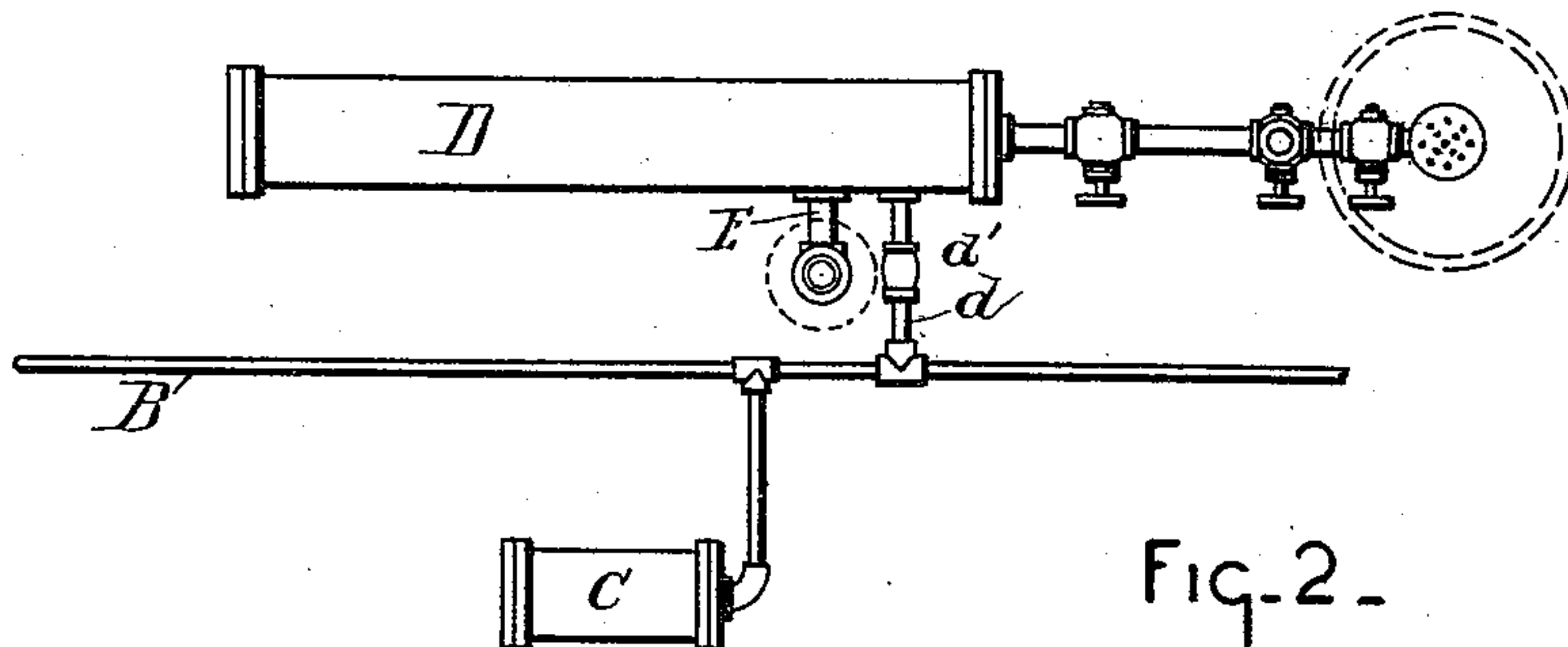


FIG-2-

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UNITED STATES PATENT OFFICE.

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CAR-REFRIGERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 450,976, dated April 21, 1891.

Application filed August 11, 1890. Serial No. 361,700. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. PARKER, a citizen of the United States, residing at Pontiac, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Car-Refrigerating Apparatus; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the drawings, Figure 1 is a sectional view of a car illustrating my invention. Fig. 2 is a separate view in plan showing the relative relations of the different parts.

The invention has for its object to provide novel means for cooling or refrigerating a car by connections with the train-pipe or auxiliary-reservoir of the air-brake system; and to such end the invention consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed.

In carrying out my invention, A represents any ordinary refrigerating or other car.

B is the train-pipe of its air-brake mechanism; C, its auxiliary reservoir from which air is supplied to the brake-cylinder. (Not shown.)

D is my air-storage chamber, which is preferably made as large as convenient in order to accumulate as large a charge of air as possible.

d is a pipe or conduit leading from the auxiliary reservoir or train-pipe to the storage-chamber D. In the drawings it is shown as leading directly from the train-pipe. *d'* is a check-valve located therein to prevent backflow toward the train-pipe.

E is a discharge-pipe leading from the storage-chamber up into the car where the air may be discharged in spray form, if desired, at *e*.

e' represents a pressure-regulating device of any usual construction through which the compressed air may be caused to discharge at a predetermined rate.

F is a brine-tank in the car, and F' represents any suitable system of radiating pipes leading therefrom, through which said brine

may be caused to circulate. G is a discharge-pipe leading up into the bottom of said tank and provided, if desired, with a spray *g* at the end.

g' is a pressure-regulating valve similar to *e'*, and *g''* a check-valve to prevent backflow of brine.

H is another discharge-pipe leading up and arranged to discharge into one of the brine-circulating pipes, so as, if desired, to produce an enforced circulation, it being also provided with a pressure-regulator *h* and check-valve *h'*, the same as above described, to regulate the rate of discharge of the air and prevent backflow of brine.

The top of the brine-tank is preferably open at *f*.

The operation is as follows: It is well known that the air-compressor on the locomotive compresses a very much greater amount of air than is needed for braking purposes, and that it is generally kept running nearly all the time, and the excess of air is permitted to escape. In my apparatus, however, this excess of air is permitted to flow into the said storage-chambers whenever there is a preponderating pressure in the train-pipe. This it accomplishes without robbing the pipe of the pressure required for the air-brakes. This air thus stored is fed off into the car, as may be most expedient. If discharged directly into the car through a pipe or spray *e*, it will serve to quickly cool the apartment, proper apertures being provided in all cases for the escape of the excess of air in the car. So again, if discharged into the bottom of a brine-tank, it will at once refrigerate the lower portion by its immediate expansion, yet being still partly compressed by the water-pressure it gradually expands more as the pressure diminishes on its rise through the brine, and so constantly adds to its refrigerating capacity, and finally discharging at the top into the car it reaches its full expansion and produces a corresponding refrigerative effect at this point in the top of the car. Again, if discharged into one of the circulating-pipes through H, it will operate to make an enforced circulation of the brine through the said pipes. If the air is discharged, as above, into the brine, the effect is not only to cool the

car, but to so thoroughly cool the brine that it may operate for some period like so much ice to maintain the low temperature, even though temporarily the air may have been exhausted from the storage-chamber. An advantage derived from this construction is that a refrigerator-car provided with this apparatus may be coupled into any train having air-brakes regardless of whether any of the other cars have the same apparatus. It may also be used for cooling passenger-coaches, if desired.

It is manifest that even though a refrigerator-car had no air-brake it might be provided with a section of train-pipe and an air-storage chamber, and this pipe be provided with means for coupling it into a train with other cars that had air-brake apparatus, or into cars having a similar arrangement as that just explained, and I would have it understood that my invention contemplates such a variation.

What I therefore broadly claim is—

A refrigerating apparatus for railroad-cars, consisting of the combination, with the train-pipe or other compressed-air compartment of the air-brake system, of a brine-tank having circulating-pipes in the car, an air-storage chamber connected with the car and communicating with the said train-pipe or compartment, a discharge-pipe leading from the air-storage chamber and connecting with the circulating-pipes for conducting the air thereinto and refrigerating and causing the brine to traverse the brine-tank and its circulating-pipes, and means for regulating the rate of discharge through the discharge-pipe, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM S. PARKER.

Witnesses:

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