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Patented Nov. 25, 1902.

J. B. HALL.
WATER HEATING APPARATUS.

(Application filed July 5, 1901.)

(No Model.)

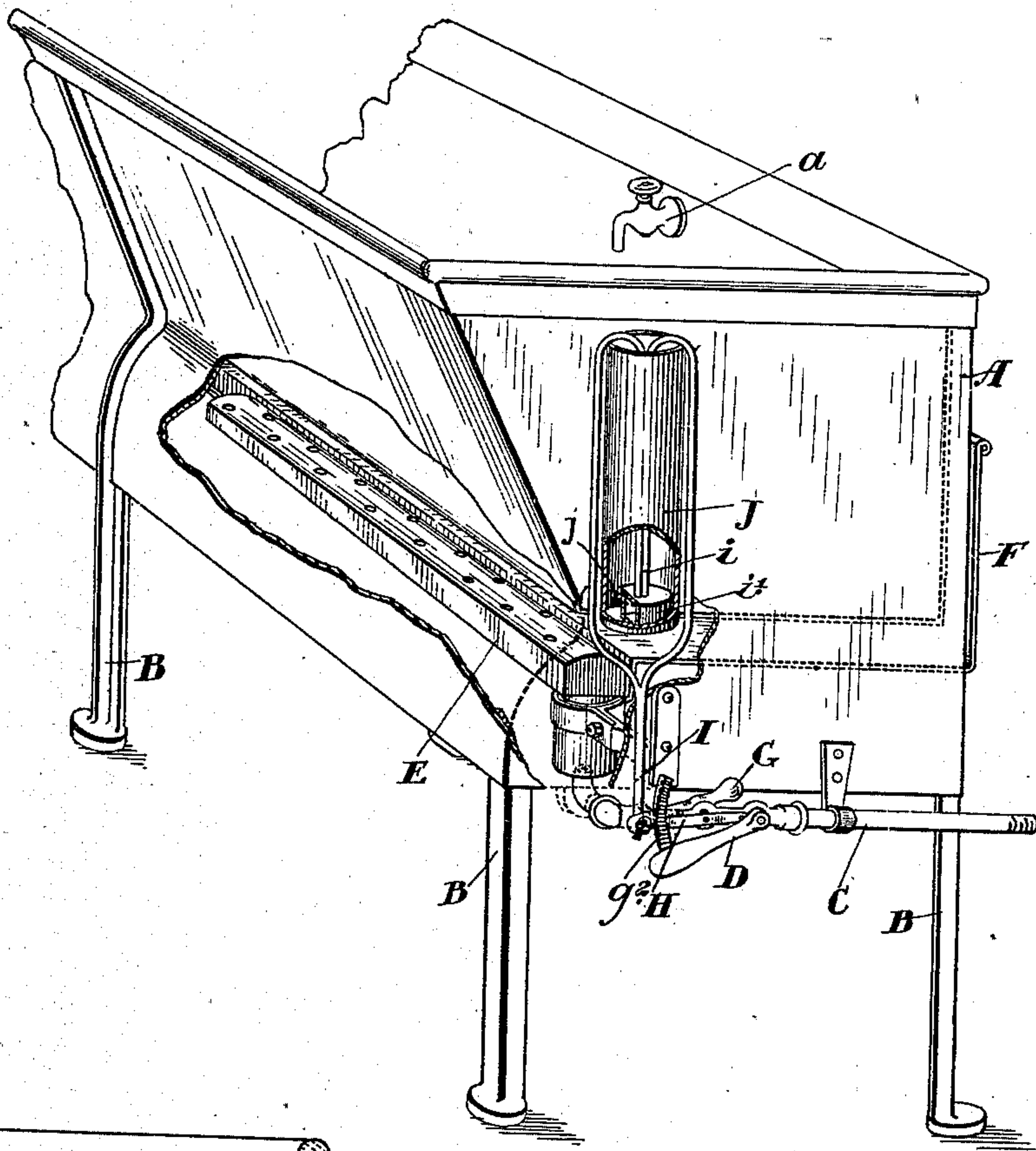


Fig. 1.

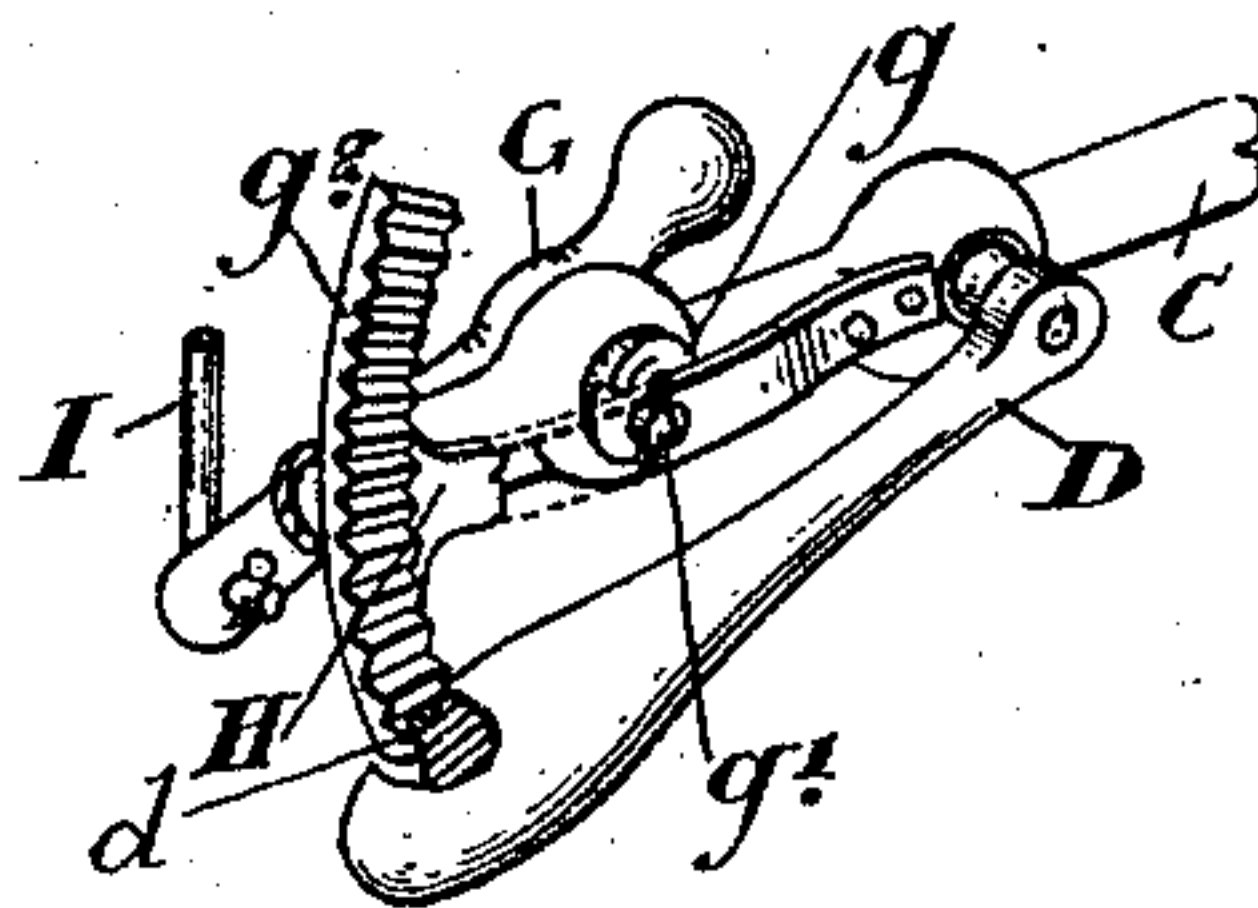


Fig. 3.

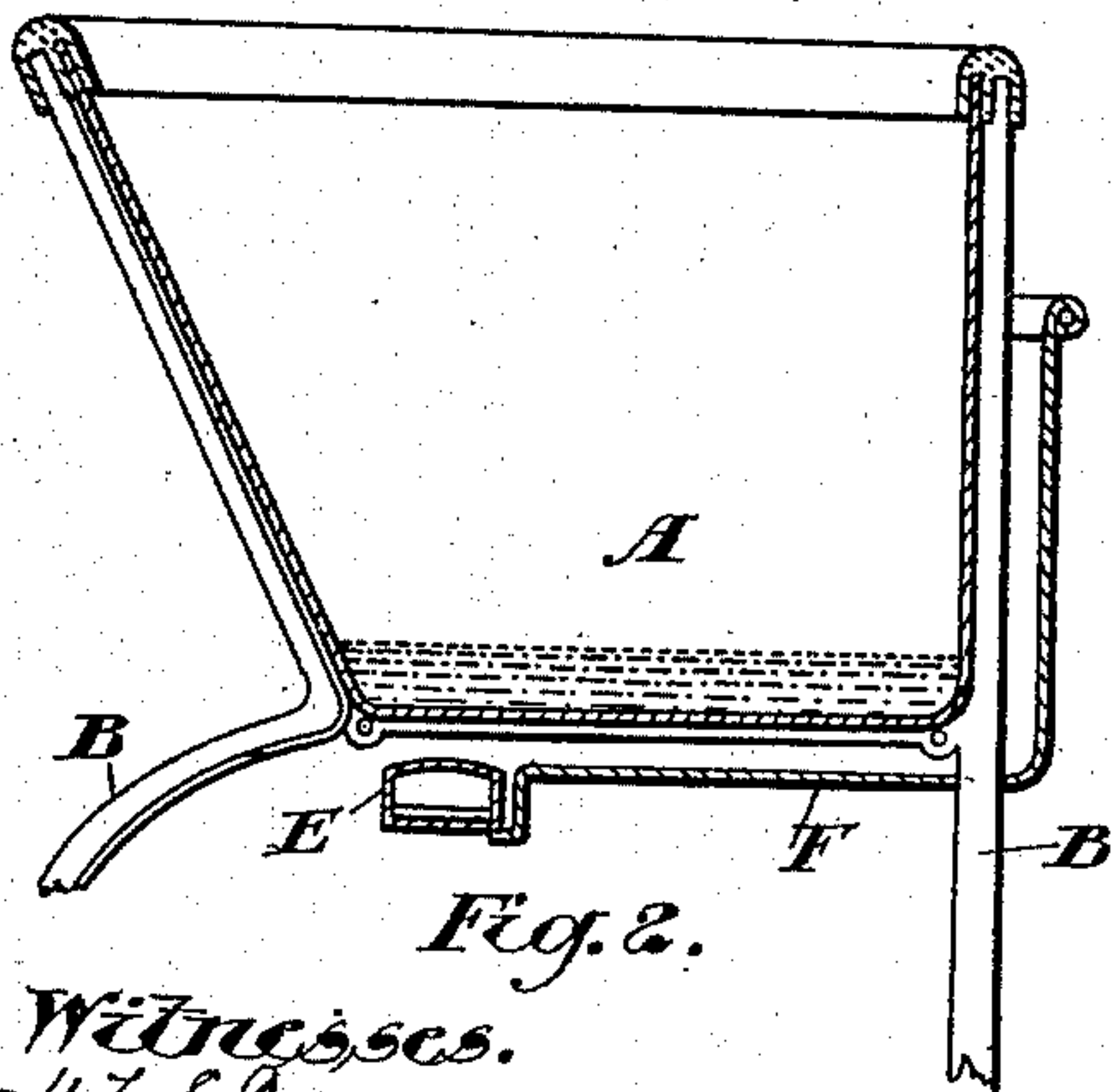


Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES BOOMER HALL, OF TORONTO, CANADA.

WATER-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 714,478, dated November 25, 1902.

Application filed July 5, 1901. Serial No. 67,176. (No model.)

To all whom it may concern:

Be it known that I, JAMES BOOMER HALL, machinist, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Water-Heating Apparatus, of which the following is a specification.

My invention relates to improvements in heating apparatus for water for laundry-tubs, &c.; and the objects of the invention are, first, to devise an automatic safety gas-controlling device which will absolutely prevent any danger of the gas being turned on when there is no water in the tub or receptacle, and, secondly, to provide means to accelerate the heating of the water; and it consists, essentially, first, of a controlling gas-pipe having connected thereto a forked rod, which has connected to one end of it a piston-float, which fits in a cylinder communicating with the laundry-tub, so that the rise and fall of the water will raise and lower the piston-float, so as to open and close the gas-supply valve, as hereinafter explained, and, secondly, of a heat-confining plate, which extends from the gas-burner under and to the back of the laundry-tub, as hereinafter more particularly explained.

Figure 1 is a perspective view of a laundry-tub, showing the parts involved in my invention. Fig. 2 is a cross-section. Fig. 3 is a detail of the faucets or taps.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the laundry-tub, and B represents the legs supporting the tub.

C is the gas-supply pipe, and D one of the gas-taps, said tap D being weighted to close by gravity.

E is a burner, which extends longitudinally underneath the laundry-tub, and F is a heat-confining plate, which extends from the burner rearwardly and upwardly along the bottom and back of the tub, as indicated.

G is a gas-tap, on one end of the stem g' of which is located the face-cam g .

H is a spring-arm which is suitably fastened to a portion of the casing of the gas-tap D and extends over the stem g' of the gas-tap G and is provided at the end with a toothed quadrant g^2 . The gas-tap has a tooth d , which is designed to engage with one of the teeth of

the quadrant g^2 , but is not normally in engagement therewith.

I is a rod pivotally connected at the bottom end to one end of the gas-tap G. The other end of the gas-tap G is a weighted end, as indicated. The upper end of the rod I is forked and is provided with a depending portion i , on which is located a piston-float i' . The ends of the rod I and the piston-float i' are located in the cylinder J, which communicates by a passage-way j with the laundry-tub.

a is one of the taps of the tub.

It will now be seen that should a person using the tub wish to turn on the gas and light it at the burner E before he puts the water into the tub he cannot be forgetful in the matter, for in the first place he cannot move the weighted gas-tap D and cause it to remain open, as the tooth d of such tap is normally out of engagement with the quadrant and it will fall back into the closed position, the tap G also being closed. Immediately, however, he allows the water to run through the tap a the gas-tap G is turned by the upward movement of the piston-float as the water rises in the cylinder J until the gas-tap G has been caused to move up as far as it is possible, this, of course, being limited by the distance between the fork and the bottom of the cylinder J. When the piston-float has moved a sufficient distance upwardly, the gas-tap G will of course be opened, and any further water that is put in the tub will submerge the piston-float i' , which of course will not matter. When, however, the gas-tap G has been given its turn so as to open the cam g on the stem of the same will have turned so as to cause the quadrant g^2 on the spring H to move outwardly and cause the tooth d of the gas-tap D to engage the quadrant sufficiently to retain it in position wherever placed. The gas-tap may be then turned as required so as to open the supply of gas, and as the gas-tap G is already open it will be seen that the burner may be lighted and the water heated in the usual manner. Should the plug in the tub be removed, it will be seen that the piston-float falling will close the valve, allow the quadrant to move inwardly, and consequently release the tap D, which would fall to the closed position.

By such a device as I describe I am enabled

to prevent any danger of water-tubs, boilers, and various other hot-water heating devices from being injured by having the gas-burner ignited before the water is put into the tub or other receptacle or the gas being left turned on after the water is run out.

Should the water boil away in the tub, the piston-float *i'* will fall in the cylinder and automatically shut off the gas by means of the tap G and tap D.

What I claim as my invention is—

1. In a device of the class described, the combination with a suitable receptacle, and a gas-supply pipe and burner for heating the same, of a gas-tap on said pipe, means controlled by the rise and fall of the water in the receptacle for opening and closing said tap, a hand-operated tap on said pipe, adapted to normally remain closed, and means for holding the same open against closing, substantially as described.

2. In a device of the class described, the combination with the receptacle and the gas-supply pipe and burner thereof, of a gas-tap on the supply-pipe and means for holding such gas-tap open, a second gas-tap and means operatively connected to such gas-tap operated by the rise and fall of the water in the tub for respectively engaging or releasing the holding means of the first gas-tap and at the same time respectively opening or closing the second tap as and for the purpose specified.

3. In a device of the class described, the combination with the receptacle and the gas-supply pipe and burner thereof, of a gas-tap on the supply-pipe having a projection, a second gas-tap having a stem and a face-cam on the end of the stem, a spring-arm abutting the stem and having a quadrant on the end designed to be engaged by a projection on the first gas-tap to hold the same open, and means operated by the rise of the water for turning the second gas-tap, so as to open it and throw the quadrant into engagement with the projection on the first gas-tap as and for the purpose specified.

4. In a device of the class described, the combination with the receptacle and the gas-supply pipe and burner thereof, of a gas-tap on the supply-pipe having a projection, a second gas-tap having a stem and a face-cam on the end of the stem, a spring-arm abutting the stem and having a quadrant on the end designed to be engaged by a projection on the first gas-tap and a rod connected with the second tap and provided with a forked end, a piston-float connected with said forked end and a cylinder within which such piston-float is located, such cylinder communicating with the receptacle as and for the purpose specified.

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Witnesses:

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