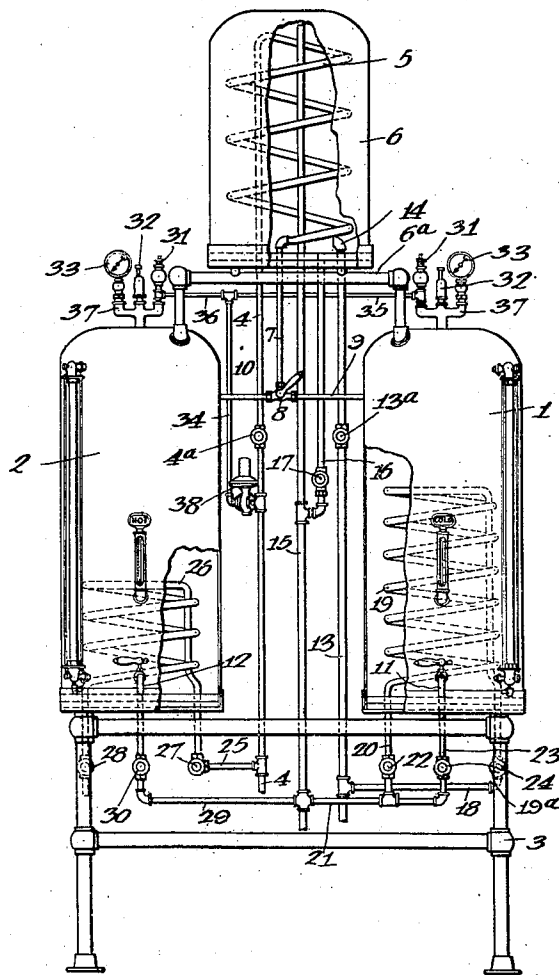


G. H. NOBLE.
WATER STERILIZER.
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1,246,146.

Patented Nov. 13, 1917.



Inventor:
George H. Noble
by 182. R. L. R. atty.

UNITED STATES PATENT OFFICE.

GEORGE H. NOBLE, OF ATLANTA, GEORGIA, ASSIGNOR TO AMERICAN STERILIZER COMPANY, OF ERIE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

WATER-STERILIZER.

1,246,146.

Specification of Letters Patent.

Patented Nov. 13, 1917.

Application filed April 15, 1913. Serial No. 761,198.

To all whom it may concern:

Be it known that I, GEORGE H. NOBLE, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Water-Sterilizers, of which the following is a specification.

The invention relates to water sterilizers and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

One of the difficulties encountered in water sterilizers as heretofore made has been to prevent the sterilized water from coming in contact with the unsterilized medium. It will be understood that as the water is withdrawn from the receptacle in which the sterilized water is stored there is a tendency to form a vacuum or partial vacuum in the receptacle unless some means is provided to prevent this condition. It will be readily understood that if such a condition does exist the air pressure without the receptacle will soon prevent the discharge of water from the receptacle. The principal object of this invention is to overcome the difficulties just enumerated, that is, to maintain a pressure on the sterilized water so that it will be readily discharged from the receptacle and at the same time prevent a contact of the sterilized water with an unsterilized medium.

The invention is illustrated in the accompanying drawing showing my improved apparatus in elevation wherein 1 marks the tank for cold sterilized water and 2 the tank for hot sterilized water. These tanks are mounted on a frame 3.

Steam is supplied to a pipe 4. This steam usually comes from the general supply of the hospital and may be of any convenient pressure usually varying from thirty-five to one hundred pounds. The steam is controlled by a valve 4^a and passes to a condensing coil 5 arranged in a receptacle 6. This receptacle is supported on a frame 6^a arranged on the top of the receptacles 1 and 2. The steam is discharged from the coil by way of a pipe 7 and passes a three-way valve 8. The condensed water which, of course, is sterilized as well through this heat, passes by way of the pipe 9 to the receptacle 1 or by the pipe 10 to the receptacle 2.

Water is withdrawn from the receptacle 1 by means of a faucet 11 and from the receptacle 2 by means of a faucet 12.

Cold water is admitted from the pipe 13. This discharges at 14 into the receptacle 6 and the waste pipe 15 extends to the top of the receptacle 6 so that there is a circulation of cold water in the receptacle 6 around the condensing coil 5. The pipe 13 is supplied with a valve 13^a. A drain pipe 16 extends from the bottom of the receptacle 6. This drain pipe is controlled by the valve 17.

A pipe 18 extends from the water pipe 13 and leads to a cooling coil 19 in the receptacle 1. The pipe 18 is controlled by a valve 19^a and the coil 19 discharges by way of a pipe 20 and pipe 21 to the discharge pipe 15. The pipe 20 is controlled by a valve 22. By the circulation of water through this coil 19 the temperature of the water in the receptacle 1 is lowered to the degree desired. A blow-off or drain pipe 23 is supplied for the receptacle 1. It leads to the pipe 21 which is controlled by a valve 24. The pipe 25 leads from the steam pipe 4 to a coil 26 in the receptacle 2. The pipe 25 is controlled by a valve 27. A valve 28 is arranged at the opposite end of the coil 26. By means of this heating coil the temperature of the water in the receptacle 2 may be maintained at any point desired, the tank 2 being for hot water and the tank 1 for cold water. A blow-off pipe 29 is provided for the receptacle 2. This is controlled by the valve 30. The blow-off pipe 29 connects with the discharge or waste pipe 15.

Each of the receptacles is supplied with the usual safety valve 31, air valve 32 and pressure gage 33. The idea of the air valve is to allow the escape of the air trapped in the receptacle with the initial filling of the receptacle. These parts are of ordinary construction.

A steam pipe 34 leads from the pipe 4 and by way of the branch pipes 35 and 36 to the fittings 37 connecting the receptacles 1 and 2 with the safety valves. By way of these passages steam is delivered to the tops of the receptacles and supplies a sterilized medium which exerts pressure on the surface of the water so that there will be a free discharge of the water from the faucets. Whatever condensation there is of the steam supplying this pressure and thus preventing the

formation of a vacuum forms a part of the accumulation of sterilized water.

Ordinarily it is not desirable to have the full steam pressure on the receptacles and therefore it is desirable to control the flow of steam from the main steam supply to the receptacles and this may be done by a valve 38. I prefer that this valve be in the form of a reducing valve of ordinary construction which will reduce the pressure on the receptacles to one or two pounds. This will assure a breaking of the vacuum under all conditions and give a mild pressure at the faucets and it also relieves the receptacles of the high pressure which may be in the line.

In the operation of the device steam enters by way of the pipe 4 and is condensed in the coil 5 and delivered to the receptacles by way of the three-way valve. By the operation of this valve the sterilized water may be delivered to both receptacles or to either or shut off entirely. Steam is delivered to the receptacles by way of the reducing valve 38. In this way a sterilized medium is on the water in the receptacles at all times. The water in the receptacle 1 is cooled by the coil 19 and heated in the receptacle 2 by the coil 26. Notwithstanding the presence of steam over the surface of the water in the receptacle 1 there is no difficulty in maintaining the water in this receptacle at as low temperature as is ordinarily desired.

What I claim as new is:—

1. In a water sterilizer, the combination of a closed receptacle in which sterilized water is stored and from which it is drawn; means for supplying steam by which the sterilized water is formed; and a by-pass from said steam supply to the receptacle whereby air is excluded from the receptacle and a vacuum prevented.

2. In a water sterilizer, the combination of a closed receptacle in which sterilized water is stored and from which it is drawn; means for supplying steam by which the sterilized water is formed; a by-pass from said steam supply to the receptacle whereby air is excluded from the receptacle and a vacuum prevented; and a valve controlling the by-pass.

3. In a water sterilizer, the combination of a closed receptacle in which sterilized water is stored and from which it is drawn; means for supplying steam; a condenser for condensing the steam; a connection between the condenser and the receptacle for conveying condensed water to the receptacle; and a bypass from the steam supply to the receptacle whereby air is excluded and a vacuum prevented.

4. In a water sterilizer, the combination of a closed receptacle in which sterilized water is stored and from which it is drawn; means for supplying steam; a condenser for condensing the steam; a connection between the condenser and the receptacle for conveying condensed water to the receptacle; a bypass from the steam supply to the receptacle whereby air is excluded and a vacuum prevented; and a valve controlling the bypass.

5. In a water sterilizer, the combination of a closed receptacle in which sterilized water is stored and from which it is drawn for use; means for supplying steam by which the sterilized water is formed; a bypass from said steam supply to the receptacle whereby air is excluded from the receptacle and a vacuum prevented as the water is drawn off; and a reducing valve on said bypass for reducing the pressure of the steam supply to the receptacle.

6. In a water sterilizer, the combination of a closed receptacle in which sterilized water is stored and from which it is drawn for use; means for supplying steam; a condenser for condensing the steam; a connection between the condenser and the receptacle for conveying the condensed water to the receptacle; a bypass from the steam supply to the receptacle whereby air is excluded and a vacuum prevented; and a reducing valve on said bypass for reducing the pressure of the steam supply to the receptacle.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. H. NOBLE,

Witnesses:

LOUIS ESTES,

EVELYN BENTLEY.