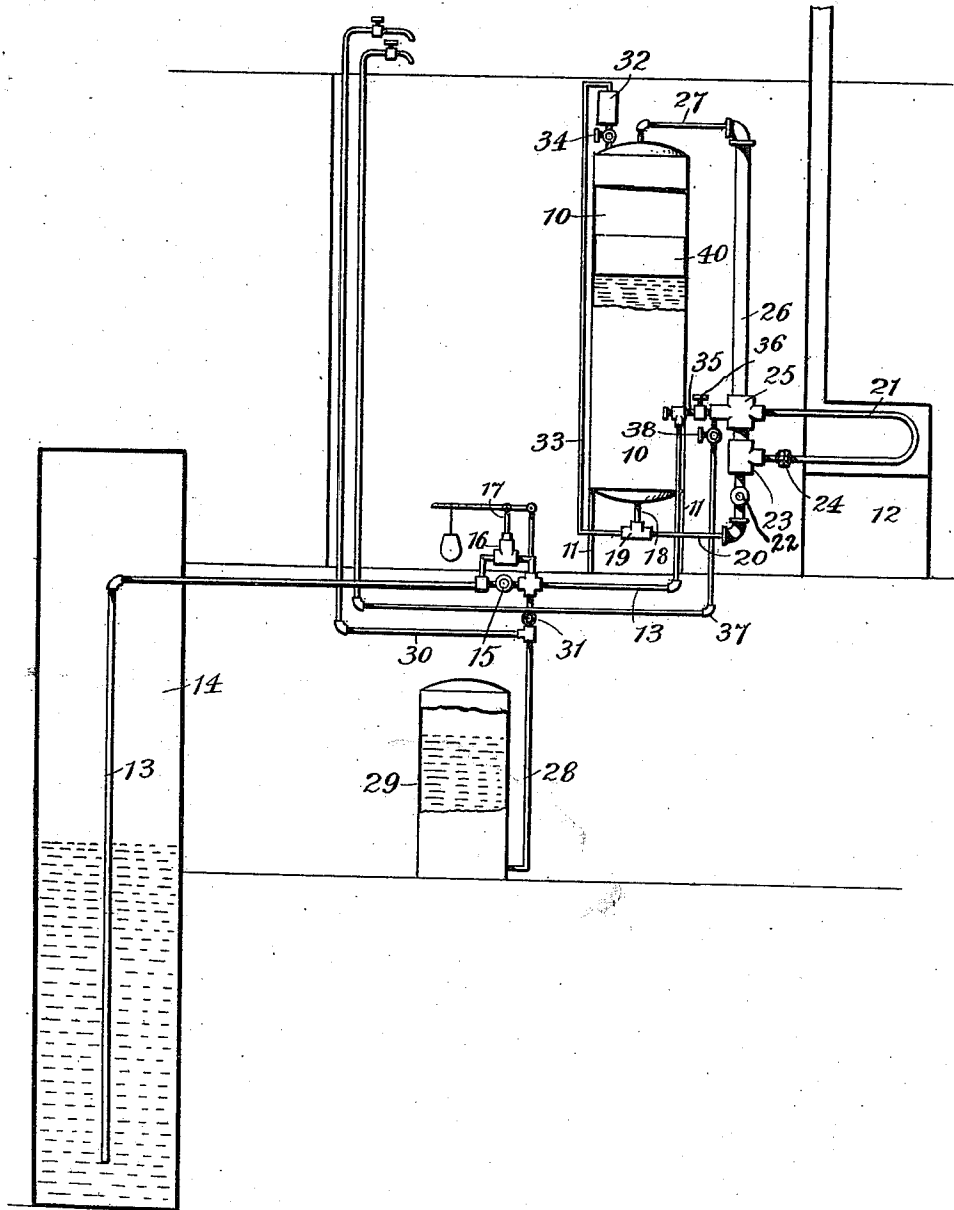


C. D. SAXTON.
 WATER SUPPLY SYSTEM FOR HOUSES, &c.
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Witnesses:
Jas. Hutchinson
C. J. Williamson

Inventor:
Charles D. Saxton
 By *Chas. H. Fowler* Attorney:

UNITED STATES PATENT OFFICE.

CHARLES D. SAXTON, OF BOISE, IDAHO.

WATER-SUPPLY SYSTEM FOR HOUSES, &c.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES D. SAXTON, a citizen of the United States, residing at Boise, in the county of Ada and State of Idaho, have invented certain new and useful Improvements in Water-Supply Systems for Houses, &c., and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

My invention relates to water supply systems especially adapted to individual houses or buildings that are dependent upon a local well or cistern as the source of supply, and my object is to provide such a system that will be automatic to the end that its operation may require no special attention and be inexpensive. For the attainment of this object, as well as others that will hereinafter appear, my invention consists in the method and the apparatus constructed substantially as hereinafter specified and claimed.

Referring to the accompanying drawings, the figure illustrates a view in the nature of a diagram, parts being in section and parts being in elevation, illustrating an embodiment of my invention.

Generally described, my invention comprehends the use of two tanks, one of which constitutes a pump of the vacuum type into which water is drawn from the well or cistern, and from which it is forced to the other tank which is a pressure tank from which the water is forced by pressure to the desired points in or about the house, and, for the generation and supply to the pumping tank of the steam for operating the same, connections are made between said tank and the house stove or range so that the generation or production of the required steam is inexpensively accomplished by being made incidental to the use of the stove or range for cooking or heating purposes.

Proceeding now with a detailed description of the apparatus illustrated in the drawings, the pump forming tank may be a common range boiler 10 of, say, twenty

gallons capacity, supported by legs or a stand 11 from the kitchen floor contiguous to the cooking range 12. Piping 13 runs from the well or cistern 14 to the lower portion of the tank or boiler 10 for the flow of water from the well or cistern to the boiler 10, a globe check valve 15 being provided in said piping to prevent the direct back flow of water from the tank 10 to the well or cistern, although under conditions of abnormal or undesired pressure, the water may return to the well or cistern through a by-pass 16 containing a pressure valve 17 which opens automatically when a predetermined pressure is reached. This provision of the by-pass pressure valve is desirable to save the apparatus from damage from abnormal pressure, and by providing for the return of water to the well or cistern under such conditions avoids waste of the water. From the bottom of the tank or boiler 10, a pipe 18 extends to a T fitting 19, from which a pipe 20 runs to a water back or a coil 21 in the stove or range 12, a globe check valve 22 being provided in the pipe 20, the pipe 20 beyond said check valve being connected with a T 23 with which one leg of the coil 21 is connected by a union 24. The other leg of the coil is connected to a cross 25, from which a pipe 26 runs vertically, and at its upper end is connected by a pipe 27 of a smaller diameter to the top of the tank or boiler 10, whereby steam generated in the coil 21 will be delivered to the upper end of the tank or boiler 10, and by its pressure in the boiler 10 force water therefrom through the pipe 13 and through a pipe 28 extending therefrom at a point between the check valve 15 and the boiler or tank 10 to the pressure tank 29 from which the water may subsequently be drawn by a pipe 30 connected with the pipe 28 and leading to the desired points in or near the house.

A globe check valve 31 is provided in the pipe 28 between its connection with the pipes 13 and 30 to prevent back pressure into the tank or boiler 10, from the pressure tank 29 and the supply pipes leading therefrom. The pressure tank 29 is a closed one,

the pressure being obtained by the compression of the air imprisoned therein. On the condensation of the steam in the tank or boiler 10, caused, for example, by the going
 5 out of the fire in the range or stove 12, there will be a partial vacuum produced in the tank or boiler 10 which will result in water being drawn from the well or cistern 14 into the tank or boiler for subsequent ex-
 10 pulsion therefrom when steam is again generated by the making of the fire in the range or stove and delivered to the top of the tank. Since ordinarily the kitchen fire is made or replenished three times a day, there is an
 15 ample supply of steam for pressure and condensation purposes to assure an abundance of water under pressure in the tank 29 to supply the house. To provide, however, for the contingency that it may be neces-
 20 sary to condense the steam independently of the lowering or extinguishment of the stove fire, I place at the top of the tank or boiler 10 a tank 32 of small capacity, say, a gallon, which is connected by a pipe 33 with
 25 the T 19 so as to take water from the bottom of the boiler 10 and from which a pipe provided with a hand valve 34 runs to the top of the tank or boiler 10 so that by opening the valve 34 water may be discharged into
 30 the upper end of the tank or boiler 10 and any steam therein be thereby condensed.

Back circulation of water from the coil 21 is prevented by the check valve 22, but it is desirable as a further precaution in this
 35 regard to place the bottom of the tank or boiler 10 on about the level of the bottom leg of the coil 21, and to place the pipe 20 about six inches lower than the bottom of the tank or boiler 10.

It may at times be desirable to prevent steam pressure in the tank or boiler 10. For this purpose, a connection 35, having a valve 36 is made directly between the fitting
 45 25 to which the upper leg of the coil 21 is connected, and the boiler 10, so that by opening the valve 36, the water in the boiler 10 will circulate through the coil, and thus no steam generated until the entire body of water in the boiler has been heated to the
 50 boiling point. I also utilize the direct connection 35 to supply hot water to the house. For this purpose, running from said connection 35 is a supply pipe 37 that goes to the desired points in the house, and which
 55 has preferably contiguous to the connection 35 a hand valve 38, by which the supply of hot water may be controlled. Of course the connection between the pipe 37 and the connection 35 is between the valve 36 and the
 60 coil 21, so that the hot water may be taken directly from the coil 21.

When a low pressure, say not higher than forty pounds per square inch, is sufficient, it is not necessary to interpose any dia-
 65 phragm or piston between the steam and

the water in the tank or boiler 10, but where a high pressure is desired, then, as illustrated in the drawings, I place in the tank or boiler 10, a piston in the form of a float
 70 40, preferably hollow and made of steel so as to stand the high pressure to which it may be subjected. Said float is made to fit loosely in the tank so that it may readily rise and fall therein. By its employment any de-
 75 sired pressure can quickly be obtained.

In starting the use of my apparatus, it is necessary, of course, to provide the tank or boiler 10 with water, the quantity required, however, not being greater than to fill the coil 21, it being necessary therefore merely
 80 to fill the tank to the level of the top leg of the coil. This having been done, and the valve 36 closed to prevent water circulation in the tank or boiler, upon the building of the fire in the stove or range 12, steam will
 85 be generated and delivered to the top of the tank or boiler 10. In consequence of the going out of the fire in the range, the steam in the boiler will condense, and as the result thereof water will be drawn into the
 90 tank or boiler 10 from the well or cistern 14, which on the subsequent building of a fire in the range or stove and the production or generation of steam, and its supply to the upper end of the tank or boiler 10,
 95 will be forced from the tank 10 into the pressure tank 29. No further description of the operation of my apparatus is believed to be necessary, because from what has already been said, especially in view of its
 100 simplicity, it will be readily understood. The advantages of my invention in respect to the matter of the economic and automatic operation of the system will be evident.

It is to be understood that though the ap-
 105 paratus that I have illustrated and described in detail is an admirable embodiment of my invention, nevertheless my invention may be differently embodied and the scope of my claims is to be determined in the light of this
 110 statement.

What I claim is—

1. The combination of a tank, water heating means, two water connections between
 115 said means and said tank, one of said connections being valved, said valved connection when opened permitting the water to circulate between the heating means and the tank, a steam pipe leading from said valved
 120 connection to the top of the tank the valve in said connection being situated between said steam pipe and the tank, and a water outlet leading from the lower part of the tank.

2. The combination of a water and steam receiving tank, a stove having water heating
 125 means, a steam connection between the latter and the top of the tank to deliver steam thereto for the expulsion of water, a pressure tank to which the expelled water is delivered, service pipes leading from said
 130

pressure tank, a pipe connecting the two tanks for the passage of expelled water to the pressure tank, a pipe branching from said tank connecting pipe and leading to a source of supply of water, so that a portion of said connecting pipe also serves to convey water into the water and steam receiving tank, and a check valve intermediate the pressure tank and the source of water supply.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES D. SAXTON.

Witnesses:

J. L. NIDAY,
W. S. WALKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
