

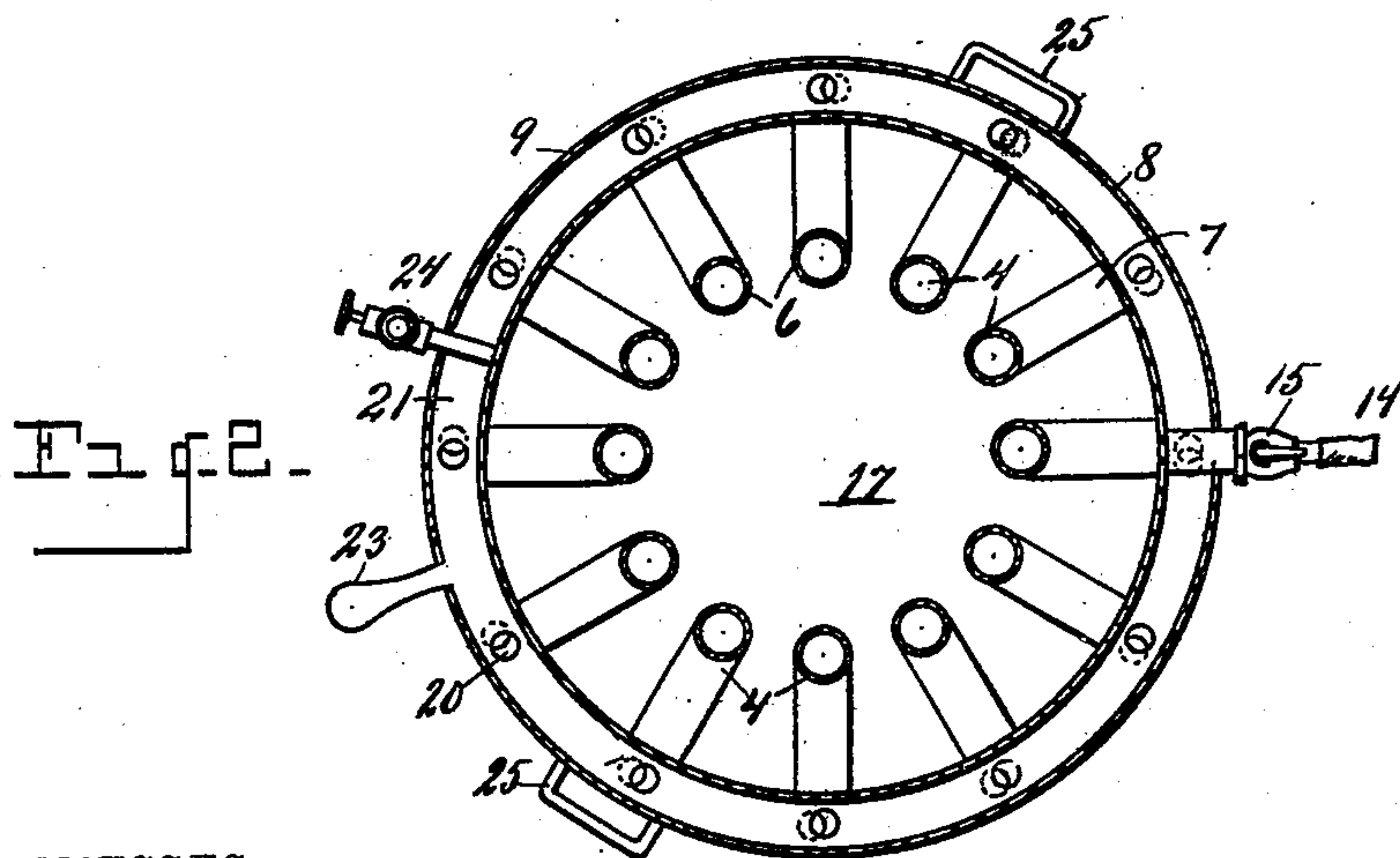
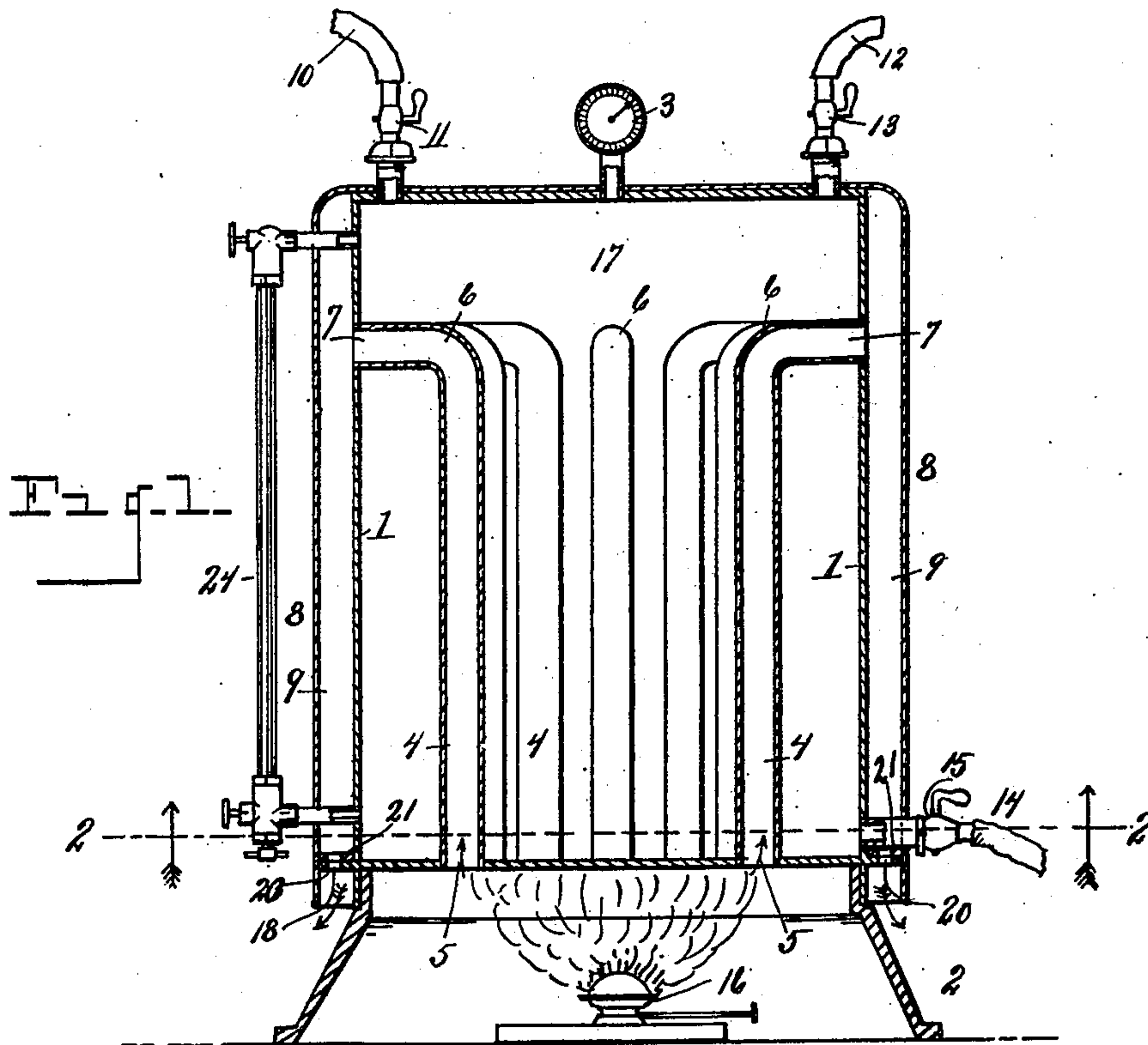
No. 677,859.

Patented July 9, 1901.

T. E. COOK & G. J. STRENG.  
WATER HEATER AND PIPE CLEANING APPARATUS.

(Application filed Sept. 14, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

THOMAS E. COOK AND GEORGE J. STRENG, OF DETROIT, MICHIGAN.

## WATER-HEATER AND PIPE-CLEANING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 677,859, dated July 9, 1901.

Application filed September 14, 1900. Serial No. 29,999. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS E. COOK and GEORGE J. STRENG, citizens of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Water-Heaters and Pipe-Cleaning Apparatus; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a water-heater and pipe-cleaning apparatus; and it consists in the construction and arrangement of parts hereinafter more fully set forth, and pointed out particularly in the claims.

The object of the invention is to produce a portable apparatus in which water may be heated to any desired temperature and in which the arrangement is such that the water after being heated may be subjected to an air-pressure to force the heated water through pipes which may be attached thereto for the purpose of cleaning them.

The above object is attained by the device illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section through the apparatus embodying our invention. Fig. 2 is a horizontal section as on line 2 2 of Fig. 1. Referring to the characters of reference, 1 designates a water-receptacle, which is preferably cylindrical in form and is mounted upon a suitable base 2. Located at the top of said receptacle is a pressure-gage 3 to indicate the pressure within said receptacle. Arranged in a circle within said receptacle is a series of vertical hot-air flues 4, whose lower ends open through the bottom of said receptacle, as shown at 5, and whose upper ends are provided with elbows 6, which direct said flues outwardly through the side wall of the water-receptacle, as shown at 7.

A hood or jacket 8 surrounds the receptacle and is spaced therefrom, forming an air passage-way 9 between said hood and the outer wall of the receptacle. The lower end of the hood is normally open and terminates

at the base of the receptacle, allowing the passage of hot air from the lower end thereof.

Communicating with the upper end of the water-receptacle is a water-supply pipe 10, having a controlling-valve 11. Also communicating with said receptacle is an air-pipe 12, to which an air-pump (not shown) may be attached, said pipe having a controlling-valve 13. The discharge-pipe 14 communicates with the bottom of the water-receptacle and is provided with a valve 15. Through said discharge-pipe the contents of the heater may be discharged and forced through a series of pipes or into any receptacle with which said pipe 14 may be connected.

Any suitable burner 16 or other heating device whereby a flame may be generated is placed under the bottom of the water-receptacle and the heat produced by the flame passes upward through the flues 4 and is discharged from the upper end of said flues into the air-space 9 between the water-receptacle and the hood 8. The heated air occupies said space until forced out by the pressure at the top, so that the entire exterior surface of the water-receptacle is subjected to the action of the heated air, as well as the inner surface of the flues 4. It will be understood that the water in the chamber 17 of the receptacle surrounds the tubes 4, so that said tubes are entirely submerged. The presence of the heat within said tubes, which pass through the water, and the contact of the heated air against the exterior wall of the water-receptacle tend to quickly heat the water within said receptacle to a high temperature.

The heater being portable enables it to be carried to a bath-room, if desired, after the water has been heated and the contents of the heater discharged into a bath-tub or other receptacle. The presence of the heater in the bath-room tends to heat said room should it be cold.

Where it is desired to force the heated contents from the water-receptacle under pressure, any suitable air-pump is connected to the pipe 12 and such pressure created within the receptacle of the heater as may be desired, the valve 13 serving to retain said pressure.



Should it be desired to use the heated water under pressure for the purpose of cleaning beer-pipes, &c., the discharge-pipe 14 is suitably connected to said beer-pipe or other  
5 pipes to be cleaned and the valve 15 opened, when the pressure within the receptacle will force the contents therefrom through the connected pipe or pipes.

Should it be found that ordinary water at  
10 a high temperature is insufficient for thoroughly cleansing beer-pipes, any well-known cleansing solution may be employed, which when heated to a high temperature and forced from the heater under pressure will serve to  
15 thoroughly cleanse the pipes to which the heater may be connected.

For the purpose of closing the opening at the bottom of the air-space 9 between the hood and receptacle a transverse plate 18 is  
20 located therein, having a series of apertures 20. Mounted upon said plate is a rotary ring or damper-plate 21, having apertures 22, which register with the apertures of the plate 18. Attached to said ring or damper is an  
25 operative handle 23. By means of said handle the damper-plate 21 may be rotated to close the openings in the plate 18 and confine the heat within the air-space 9. When said  
30 damper-plate is moved to cause its apertures to register with those in the plate 18, openings are formed which allow of the unobstructed passage of heated air from said air-space at the bottom.

A water column or gage 24 is connected with  
35 the water chamber or receptacle, so as to indicate at all times the water-level therein.

Suitable handles 25 are provided to enable the heater to be moved from place to place.

Having thus fully set forth our invention, what we claim as new, and desire to secure by  
40 Letters Patent, is—

1. In a water-heater and pipe-cleaning apparatus, the combination of the water-receptacle, a series of flues passing upwardly through the bottom of said receptacle and  
45 discharging through the side wall thereof, a hood embracing said receptacle and spaced therefrom forming an annular air-space between the receptacle and hood opening at its lower end, induct water-pipe and an induct  
50 pressure-pipe communicating with the interior of said receptacle, an educt-pipe leading from said receptacle and a burner or heater located below the bottom thereof.

2. The combination of a water-receptacle,  
55 having a series of vertical flues passing upwardly through the bottom thereof and provided with right-angled bends which direct the upper ends of the flues through the side wall of the receptacle, a hood forming an air-  
60 space into which said flues discharge, said air-space being closed at the top and normally open at the bottom and communicating directly with the exterior air, means for regulating the bottom opening of said air-space,  
65 a heater communicating with the lower end of said flues, water induct and educt pipes and an exterior pressure-pipe communicating with the interior of said receptacle.

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

THOMAS E. COOK.  
GEORGE J. STRENG.

Witnesses:

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