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REMOVING DEPOSIT FROM HOT WATER PIPING

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FIG. 1

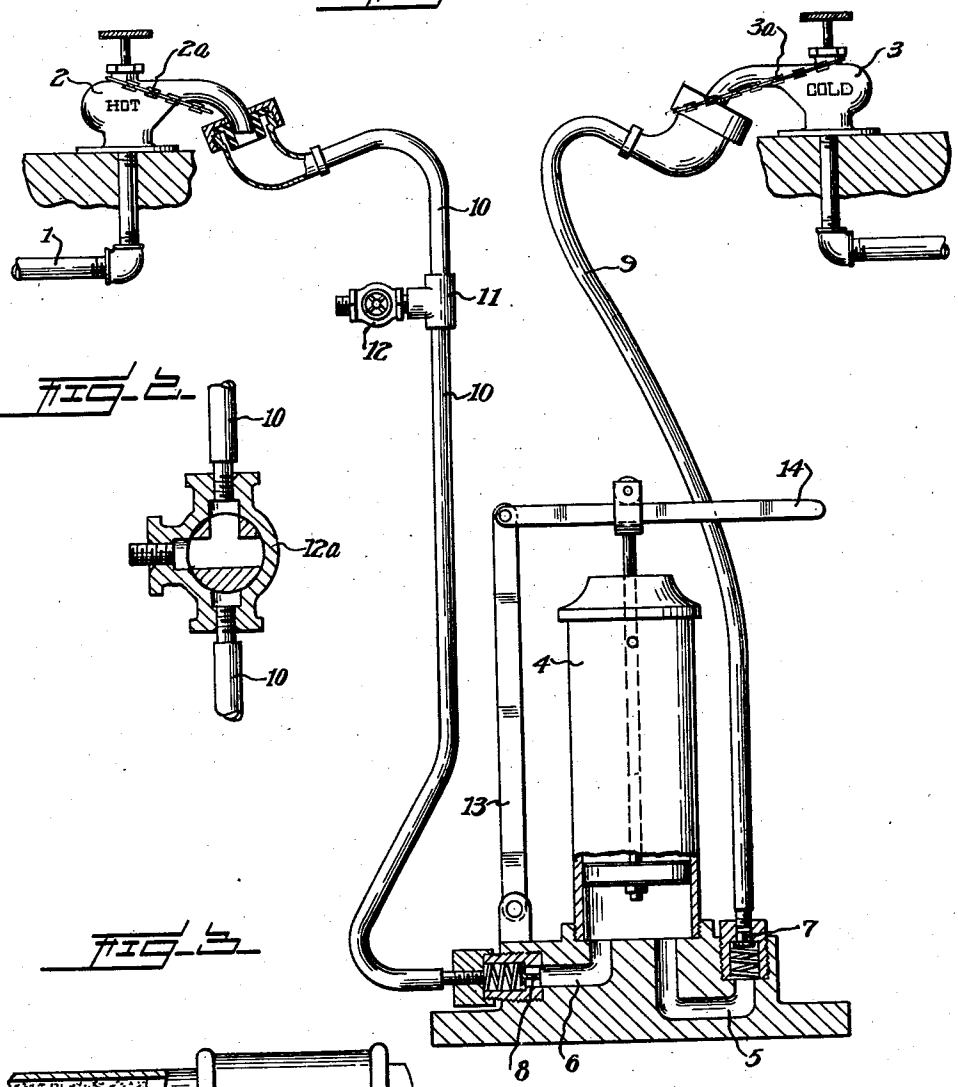
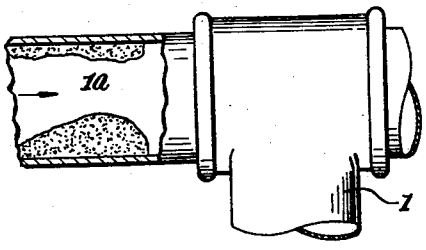


FIG. 2

FIG. 3



INVENTOR.
LOUIS A. KLING

BY Elliott J. Goddard
ATTORNEY.

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REMOVING DEPOSIT FROM HOT WATER PIPING

Louis A. Kling, Detroit, Mich.

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3 Claims. (Cl. 141—1)

My invention relates to removing deposit from hot water piping.

In buildings in which the temperature of the hot water runs high, the pipes become clogged by a deposit that is very difficult to remove. I have devised a method, and apparatus for performing the same, by which such deposit can be readily and effectively removed.

In the accompanying drawing:

Figure 1 is an elevation partly in section of an apparatus used in, and embodying my invention;

Figure 2 is a detail sectional view showing a modified form of operating valve;

Figure 3 is a view of a pipe partly in section showing a form of the deposit.

1 indicates the piping to be cleaned. A high temperature causes local deposits which usually take the form of a ring, 1*a*, having a conical inferior surface diverging toward both ends, but the divergence on the discharge side is much more abrupt as shown in Figure 3. Sometimes the ring is not complete but is discontinuous at the top.

2 is a hot, and 3, a cold water faucet in a water pipe system. 4, is a pump having an intake passage 5 and a discharge passage 6. 7, is a check valve opening inward in the passage 5 and 8 a check valve opening outward in the passage 6. 9, is a hose leading from the cold water faucet 3 to the intake 5 of the pump and 10 is a similar hose leading from the discharge port 6 to the hot water faucet. 11, is a T-connection in the hose 10, having a cock 12 in its lateral branch.

The ends of the hose are preferably firmly secured to the faucets 2 and 3 by chains 2*a* and 3*a* and the conventional coupling shown.

The operation of the above described apparatus is as follows:

The faucets 2 and 3 being closed, the hot water faucet 2 is opened and then the cock 12 is also opened allowing the water to run from the hot water piping until it has become thoroughly heated to its highest temperature. The cock 12 is then closed and the cold water faucet 3 opened. The cold water then runs from the latter through the hose 9 and 10 past the valves 6 and 7, pressing the hot water back in the piping 1, coming in contact with and suddenly cooling the deposit on the wall of the hot water piping 1, causing said deposit to crack and become loose.

The pump 4 is very forcibly operated imparting a strong impulse, or blow through the cold water in the pipe 1, breaking up the cracked and loosened deposit. The cold water faucet 3 is now closed and the cock 12 opened wide allowing the water to flow out of the pipe 1 carrying with it the loosened deposit. The broken-up deposit as it moves along with the discharging water has a scouring action removing any remnant deposit in the piping. This operation may be repeated several times if required.

The cold water forced into the pipe 1 comes first into direct contact with the hot inner surface of the deposit and also acts first upon the steeper side, or end, of the same as does also said impulse or blow from the action of the pump while the cold water is entering the conduit 1 and is in motion which is varied by the impulse given it by the pump.

Should it be desirable to give a stronger impulse, or blow, to the water than can conveniently be given by the direct manipulation of the piston and piston rod from the handle at the upper end of the latter, I have pivoted a link 13 at its lower end to the base of the pump 4, and a horizontal lever 14 to the upper end of said link, the latter being also pivoted intermediate its ends to the upper end of the piston rod of the pump. In this way the force applied by hand to the free end of the lever 14 is multiplied. With larger pipes a larger pump would be used and it may be desirable at times to have it power driven.

The deposit may be removed without shutting off the pressure in either faucet. It is not necessary to shut off the water from the main.

Obviously the connections can be reversed to clean the cold water conduit.

The deposit must be broken in small pieces to allow them to pass through the small passage in the faucet.

In case a cold water faucet is not available, a reservoir, or pail, 15, may be substituted and the end of the hose 9 may be inserted therein, and the cold water drawn from the pail 15 and forced into the hot water piping as above described.

If desired, a three-way cock 12*a* (Figure 2) may be substituted for the cock 12 and fitting 11.

I claim:

1. A method of removing a deposit from the interior of a conduit comprising running hot liquid through the conduit in one direction until the conduit is raised to a high temperature, running cold liquid through the conduit in the opposite direction to crack the deposit by sudden change in temperature, and applying a series of

sharp, percussive impulses directly to the cold liquid while flowing through the conduit to break the deposit into small particles.

2. A method of removing a deposit from the interior of a conduit comprising running hot liquid through the conduit in one direction until the conduit is raised to a high temperature, running cold liquid through the conduit in the opposite direction to crack the deposit by sudden change in temperature, applying a series of sharp, percussive impulses directly to the cold liquid while flowing through the conduit to break the deposit into small particles, and running liquid through the conduit in the first-named direction to flush out the particles of deposit.

3. A method of removing a deposit from a conduit comprising heating the conduit and deposit by running hot liquid through the conduit, suddenly cooling the deposit by running cold liquid through the conduit in the reverse direction causing cracking of the deposit, simultaneously applying a series of sharp, hammer-like blows to the cold liquid by means of a water pump intermediate the source of cold liquid and the conduit to break the deposit into small particles, and flushing out the particles of deposit by running liquid through the conduit.

LOUIS A. KLING.