

April 27, 1937.

E. STAHL

2,078,740

CLEANING DEVICE FOR COIL SYSTEMS

Filed Aug. 6, 1935

Fig. 1.

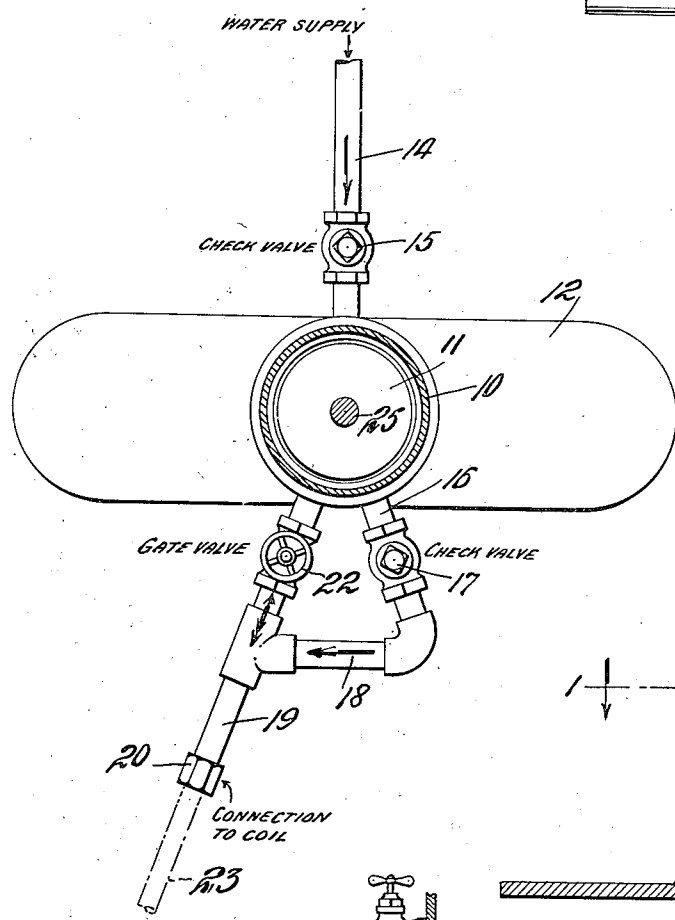
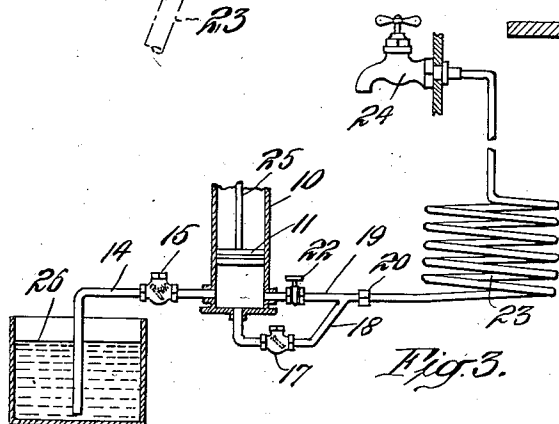
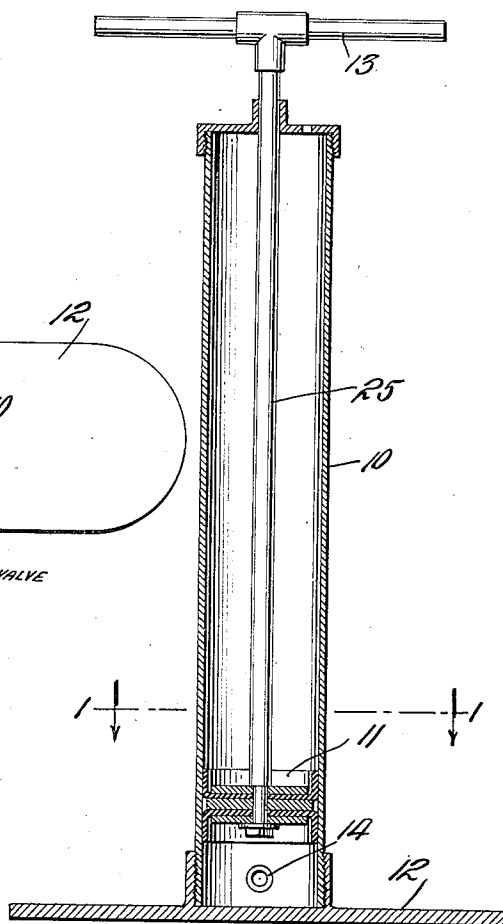


Fig. 2.



INVENTOR
EMIL STAHL
BY *Julius H. H. H.*
ATTORNEY

UNITED STATES PATENT OFFICE

2,078,740

CLEANING DEVICE FOR COIL SYSTEMS

Emil Stahl, Jersey City, N. J.

Application August 6, 1935, Serial No. 34,881

2 Claims. (Cl. 225—13)

This invention relates to an improvement in cleaning devices for pipe coil systems, and particularly for those systems used for cooling beverages such as beer, cider, milk and the like, which because of the nature of the liquids passing through the coils, require periodic cleaning not only for the purpose of providing a clear and clean passage for the liquid, but for reasons of sanitation.

The object of the invention is to provide a cleaning device of this character which uses water only, as its cleaning medium, and which, by a novel manipulation of a body of water, creates both a suction and a frictional force tending to loosen and completely remove sediment, slime, bacteria and any foreign matter gathering in the coils. With this improved arrangement, the use of cleansing fluids, preparations, acids and the like is completely dispensed with so that the inner surfaces of the coil are, after the cleaning operation, left not only thoroughly clean, but uncontaminated.

More particularly, the invention contemplates the utilization of a relatively small, hand-operated pump so connected to the coil that water may first be forced through the coil, then a body of water maintained in the coil and drawn back and forth in the coil by pump manipulation until all sediment, slime and other accumulation in the coil and connected piping has been loosened, whereupon the body of water and the loosened accumulation is discharged leaving the coil and piping completely clean and ready for further use.

In the accompanying drawing, wherein an illustrative embodiment of the invention is shown, Fig. 1 is a sectional view on the line I—I of Fig. 2 looking in the direction of the arrows, of a cleaning device constructed in accordance with the invention; Fig. 2 is a vertical sectional view through the pump; and Fig. 3 is a diagrammatic view of the cleaning device attached to a coil and in readiness for the cleaning operation.

In the drawing 10 indicates the body or cylinder of a conventional form of hand-operated pump, within which the piston 11 is reciprocated in the usual manner by means of the piston rod 25 and attached handle 13. A base or foot plate 12 is attached to the lower end of the cylinder 10. Connected to the cylinder 10 at a point below the piston 11 is a pipe 14 in which is located a check valve 15. Also connected to the cylinder is a pipe 16 in which the check valve 17 is located. The end of the pipe 16 beyond check valve 17 is joined by pipe 18 to pipe 19 which is connected to the cylinder 10 and which has a gate valve 22

located between its point of connection to the cylinder and the point at which it is connected to pipe 18. Pipe 19 is provided at its end with a threaded union 20 by which it may be connected to the end of the coil to be cleaned, shown at 23. Coil 23 is usually connected by a suitable pipe line to a spigot or tap 24.

The operation of the cleansing device is as follows:

The union 20 is connected to the end of the coil 23, thereby coupling the coil with pipe 19. Pipe 14 then has its end placed in a receptacle of water, indicated at 26 in Fig. 3. Gate valve 22 is closed and tap 24 is opened. Pump is operated, this action drawing water from supply 26, forcing it through pipe 16, through connecting pipe 18, into pipe 19, through the coil 23 and out of the open tap 24. When water begins to flow out of the open tap 24, the gate valve 22 is then manually opened and this action stops normal pumping action. When the pump is then reciprocated, with gate valve 22 in open position, the body of water then in the coil 23 is, on every upstroke of piston 11, drawn back into the pump and on every down stroke is forced through the coil, so that a body of water is, during operation of the pump with valve 22 in open position, moved backward and forward or reciprocated through the coil. While this is occurring valve 15 is preventing flow of water from the source of supply 26. It has been found that this reciprocating movement imparted to a body of water applies both a suction force and a frictional action on the inner surfaces of the coil and connected piping, which renders these surfaces exceptionally clean, loosening all sediment, slime and all other accumulations. After the pump has been manipulated for a relatively short time, valve 22 is manually closed and the next pump manipulation will deliver the stream of water out of tap 24 together with all of the sediment and other accumulation loosened by the cleaning operation just described. The pumping of water through the system, with valve 22 closed, is then continued until the entire system is cleaned, the entire operation consuming but a matter of minutes and resulting in a thorough and complete cleaning without the use of chemicals or other contaminating influences.

What I claim is:

1. An apparatus of the character described comprising a pump, a water supply pipe connected to the pump, a check valve interposed in said pipe between the source of water supply and the pump, a pipe leading from the pump for

attachment to the end of a coil to be cleaned, a third pipe connected to the pump and also to the second pipe, a check valve located in the third pipe, and a manually operated valve in the second pipe, said manually operated valve being located in said pipe between its point of connection to the pump and its point of connection with the third pipe.

2. An apparatus of the character described comprising a pump having three pipes extending from it, the first of said pipes leading to a source

of water supply, a check valve in said pipe, the second pipe leading to a coil to be cleaned, and the third pipe connecting the pump with the second pipe, a gate valve located in the second pipe between the pump and the point of connection of the second pipe with the third pipe, and a check valve in the third pipe between the point of connection of the third pipe with the pump and its connection with the second pipe.

EMIL STAHL.