April 5, 1938. O. C. STRAUBEL 2,113,203

VALVED COUPLING

Filed June 8, 1937

Fig. 1.

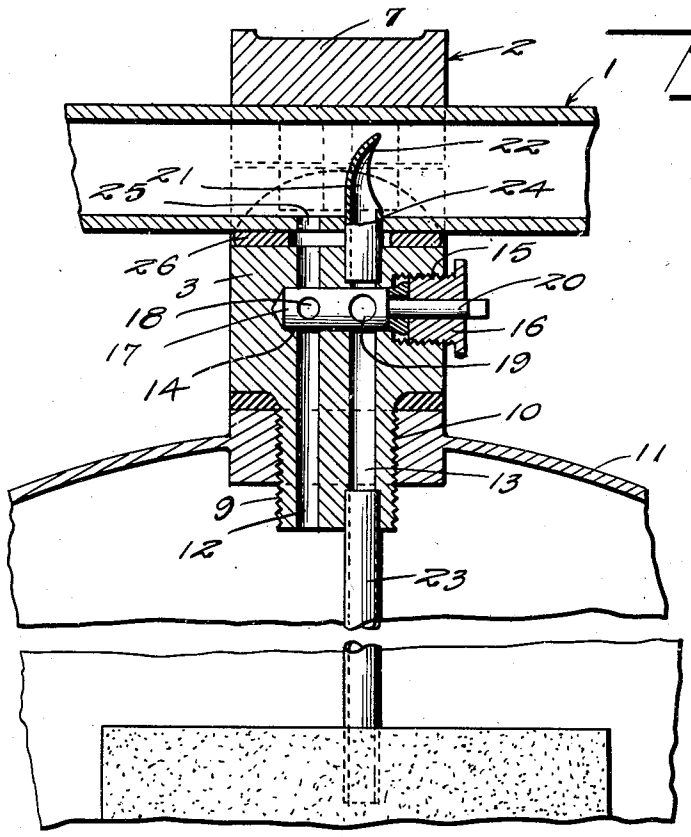
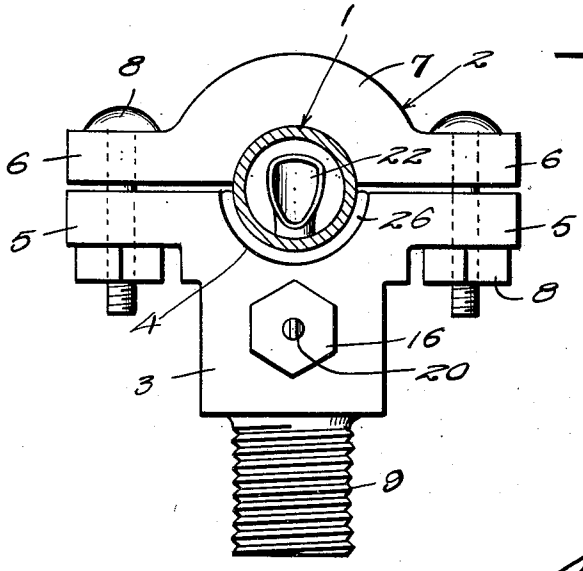


Fig. 2.



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VALVED COUPLING

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Application June 8, 1937, Serial No. 147,087

2 Claims. (Cl. 137—69)

This invention relates to improvements in valved connections and pertains particularly to an improved valve connection for use in water softening systems.

The present invention has for its primary object to provide an improved valve connection by means of which a water softening unit may be easily and quickly coupled into the water pipe line leading to a water heater or similar device so that the softening agent may be added to the water as it flows to the heater, in which such action may take place without the attendant difficulty of clogging which occurs in valves of the type at present in use.

Another object of the invention is to provide a valve connection of the above described character which is of simple construction and which may be installed without requiring any changes in the construction of the water system other than the formation of a pair of apertures in the pipe line with which the device is to be connected.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Figure 1 is a vertical sectional view through the coupling embodying the invention, showing the same applied to a water pipe and a chemical holder.

Fig. 2 is a view in side elevation of the coupling.

Referring now more particularly to the drawing, the numeral 1 generally designates a water pipe line in association with which the improved valve is joined. This pipe is intended to represent the water line of a heating system which carries cold water to a water heating tank. In such systems it is highly desirable that the water, if it is of a hard character, may be softened or have removed from it those substances which are deposited in the boiler when the water is heated and have the effect of scaling and damaging the boiler by eating away the metal of the same.

The device embodying the present invention is indicated by the numeral 2 and constitutes a casting 3 having a top portion of semicircular outline, as indicated at 4, to receive a part of the water pipe to which the device is attached. At the top of this casting are the laterally extending attaching ears 5 and when the device is placed in working position these have in opposed relation therewith similar ears 6 forming an integral part of the semicircular cap 7 which is positioned over the top of the pipe. The ears 5 and 6 of the body and cap are secured together in the usual manner by the use of bolts 8.

The casting at the opposite end has formed therewith the exteriorly threaded stud 9 which is adapted for threadable engagement in the aperture 10 in the top of a tank 11 in which the water softening material is placed.

The casting body 3 has the two passages 12 and 13 formed longitudinally therethrough so that the same open at one end through the end of the stud 9 and at the other end through the semicircular area formed in the top of the casting, in which area the pipe 1 is intended to position.

Formed in the side of the casting 3 is a rotary plug valve bore 14 which passes through the two passages 12 and 13 and which at its outer end is slightly enlarged as indicated at 15, and threaded to receive a packing gland securing nut 16. Positioned in the bore 14 is a rotary plug valve 17 which is provided with the two apertures 18 and 19 which are designed to be brought into alinement simultaneously with the passages 12 and 13 when the plug is rotated to the proper position. The outer end of the plug carries the stem 20 which passes through the nut 16 and is formed at its outer end to facilitate attachment of a wrench or other suitable tool thereto so that it may be turned.

The passage 13 in the casting has secured in its upper end one end of a pipe 21. The other or free end of this pipe is cut obliquely and spread to form a water intercepting baffle 22. This spread end of the pipe 21 is intended to position in the central part of the pipe line 1 with the open side directed in opposition to the water flow through the pipe so that some of the water will be deflected to pass downwardly through the passage 13. The lower end of the passage 13 has secured thereto the outlet pipe 23 and this is intended to have its lower end extended into the water softening substance which the tank 11 contains.

In the installation of the present valve coupling, the pipe line 1 is provided with two openings 24 and 25 which are spaced the same distance apart as the passages 12 and 13 in the casting. There is then placed in the semicircular

area 4 at the top of the casting a suitable washer 26. This washer is preferably of lead so that it may be deformed when the cap 7 is drawn into position by the bolts 8 and thus made to conform to the surfaces of the pipe and the casting between which it is secured. The central part of the washer is open so that water may flow freely through the passage 12 and the opening 25 into the pipe and so that the water deflecting pipe 21 can be conveniently extended into the pipe line.

The present valve coupling is intended for use primarily with those water softening systems in which the tank 11 is provided with the water softening chemical in the form of a solid or semi-solid cake, and the outlet pipe 23 for the casting has its lower end extending into this chemical cake so that the water which is deflected from the pipe 1 down through the passage 13 will be immediately brought into contact with the softening chemicals and will be in a thoroughly softened condition when it flows back through the passage 12 and into the pipe line to pass on to the heating boiler.

By means of the valve 17 the quantity of water softening material taken from the tank 11 may be conveniently controlled in proportion to the character of the water under treatment, and in addition by forcing the deflected water down directly into the body of chemicals, precipitation of all removable substances will take place in the tank and thus the valve coupling will not become obstructed through the formation of precipitates around the valve body and at the points where the water emerges from the casting into the pipe line.

From the foregoing it will be readily apparent that the device herein described is of relatively simple construction but will operate efficiently to deflect the water into the softening tank and will also efficiently operate to regulate the amount of water softening chemicals contributed to the pipe line in proportion to the hardness of the water being treated.

What is claimed, is:

1. In a valve coupling of the character described, a body having a threaded stud extending from one end and having its opposite end formed to receive a water pipe line, said body having a pair of passages extending longitudinally therethrough and opening through the two ends thereof, a pipe having an end secured in one end of one of the passages and having its other end formed to provide a water deflecting baffle, the water opposing face of the baffle being turned away from the adjacent passage, a single valve body rotatably mounted within the first body and extending transversely of said passages, and said valve body having a pair of openings therethrough whereby the said passages may be simultaneously opened or closed.

2. A valve coupling of the character described comprising a casting having an end formed to facilitate securing a water pipe line transversely thereof, a threaded stud extending from the other end of the casting, said casting having a pair of water passages extending longitudinally therethrough and opening through its ends, the casting having a valve plug bore formed therein from one side face and extending through the two passages, a single rotary plug valve positioned in said bore and having two openings therethrough facilitating the simultaneous opening of the two passages, a pipe having one end secured in that end of one of said passages which opens into the pipe receiving end of the casting, said last mentioned pipe having its other end cut to form a water deflecting baffle, a pipe secured in and extending from the other end of said last mentioned passage, and said water deflecting baffle having the water intercepting face thereof directed away from the adjacent passage.

OTTO CHRISTIAN STRAUBEL.