June 25, 1935. J. F. ARTHUR 2,006,139

BOILER COUPLING DEVICE

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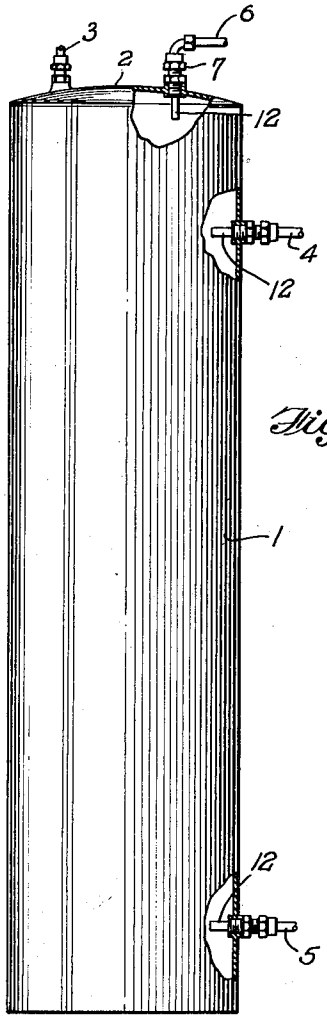


Fig. 1.

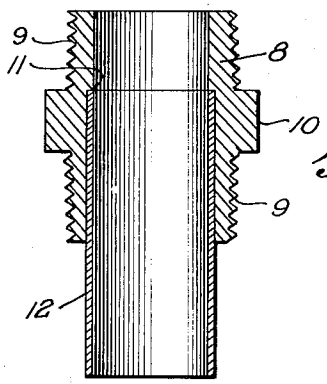


Fig. 2.

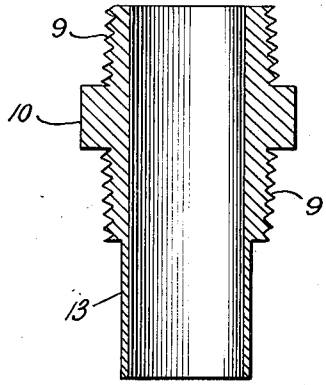


Fig. 3.

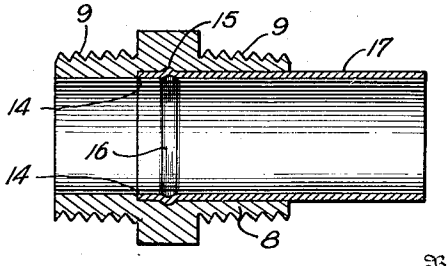


Fig. 4.

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# UNITED STATES PATENT OFFICE

2,006,139

## BOILER COUPLING DEVICE

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Application June 26, 1933, Serial No. 677,736

1 Claim. (Cl. 285—30)

My invention relates to couplings for domestic hot water boilers and more particularly to an improved nipple used in connection with couplings if various kinds.

In conventional forms of domestic hot water heating boilers, the boiler is provided with spuds set into the heads and shell. In order to couple the boiler with the source of water supply and heating system, fittings having screw threaded nipples adapted to thread into the spuds are used. The threaded ends of the nipples are turned into the various spuds until the end of the nipple is flush with the interior of the boiler, after which the external connections with the boiler are made.

It is well known that domestic hot water boilers, particularly those made of galvanized iron, are subjected to interior corrosion and that after an extended period of use, a coating of rust is formed on the inside surfaces of the body and heads of the boiler. The formation of rust gradually builds up in and around the ends of the nipples, and although the fittings are usually made of brass or other non-corrodible materials, the accretion of rust has been found to seriously interfere with the water circulation and in some instances it has practically closed the internal bore of the nipple.

The purpose of the present invention is to overcome the inherent defects of conventional forms of hot water boiler couplings and to provide an arrangement whereby the coating of rust on the inside of the boiler is prevented from building up over the ends of the nipples used in connection with the boiler couplings.

An object of the invention is to provide couplings for hot water boilers adapted to prevent rust, formed within the boiler, from interfering with the free circulation of water through the boiler.

Another object of the invention is to provide an improved coupling for hot water boilers and the like, adapted to prevent accumulation of rust and sediment at the end of the coupling which is interior of the boiler.

Still another object of the invention is to provide a hot water boiler coupling wherein the nipple, forming part of the coupling, is provided with an extension piece adapted to extend a short distance within the boiler shell, when the coupling is attached thereto.

With these and other objects in view, which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements, comprising my invention may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claim.

In order to make my invention more clearly understood, I have shown in the accompanying drawing means for carrying the same into practical effect, without limiting the improvements in their useful applications to the particular constructions, which for the purpose of explanation, have been made the subject of illustration.

In the drawing:

Figure 1 is a perspective view of a hot water boiler showing the improved coupling attached thereto.

Fig. 2 is a sectional view of one form of the coupling.

Fig. 3 is a modification showing an extension formed integral with the nipple; and

Fig. 4 is a sectional view of a modified arrangement of attaching the extension to the nipple.

Referring to the drawing and more particularly to Figure 1, there is shown a hot water boiler of the conventional type comprising a shell or casing 1 and upper and lower heads 2, 2'. A cold water inlet pipe 3 and suitable connections through pipes 4 and 5 to a hot water front or heating device are provided. A hot water outlet pipe 6 is coupled into a boss 7 at the top of the boiler or tank. The coupling members, by means of which the hot water outlet pipe and connections to the heating device are coupled to the boiler, are formed with nipples as shown in Figure 2.

The nipple comprises a body portion 8 provided with screw threads 9 and an enlarged portion 10 in the form of a hexagon adapted to receive a wrench or other tool whereby the nipple is turned into tight engagement with the threaded portion of the casing of the boiler. The interior of the nipple is recessed as at 11 and a cylindrical tube 12 seated in the recess projects beyond the threaded portion of the nipple. In attaching the coupling to the boiler, the nipple is threaded into one of the openings in the boiler and a pipe associated with the water circulating system is attached to the other end of the nipple by means of suitable coupling devices in the form of bosses or screw caps adapted to receive the end of the pipe. When the nipple is in position on the boiler, the end of the extension member or tube 12 projects within the boiler and sufficient space is provided between the end of the nipple and the end of the tube to prevent an accumulation of rust from bridging over the end

of the tube and interfering with the circulation of water therethrough. It will be noted that the extension member is of the same internal diameter as the bore of the nipple and that it is adapted to be held in frictional engagement with the recessed portion of the nipple.

Referring to Figure 3, there is shown a modification of the arrangement disclosed in Figure 2, wherein the extension member 13 is formed integral with the nipple.

In Figure 4, the nipple is recessed as at 14 and is further provided with an internal groove 15 adapted to receive a bead 16 formed on the tube extension 17. In this arrangement, the tube is inserted in the recessed portion and the bead 16 is formed by expanding the material of the tube out into contact with the internal groove 15.

It will be appreciated that instead of providing a threaded nipple, formed with an extension member in combination with screw caps or other fastening devices by means of which the pipes of the water circulating system are connected with the boiler, that the pipes may be provided with extension members and thread directly into a spud attached to the boiler. The invention in its broader aspect, comprehends an arrangement in the form of an extension member associated with the ends of pipes of a water circulating system which are internal of a boiler tank or other vessel and exposed to rust accumulation.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claim.

What is claimed is:

In a domestic hot water boiler having a plurality of openings formed in the walls thereof for the introduction and withdrawal of water, means to prevent accretion of rust on the interior walls of the boiler from building up over said openings and interfering with the free circulation of liquid therethrough, comprising a nipple, one end of which is threaded into an opening in the wall of the boiler, the other end being connected with the water circulating system, said nipple being provided with an extension member in the form of a thin walled tube secured to a portion of the interior surface of the nipple, said extension tube projecting internally of the boiler a distance slightly greater than the depth of the rust accretion normally formed on the interior surfaces of the boiler.

JAMES F. ARTHUR.