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NONTURNABLE SPUD

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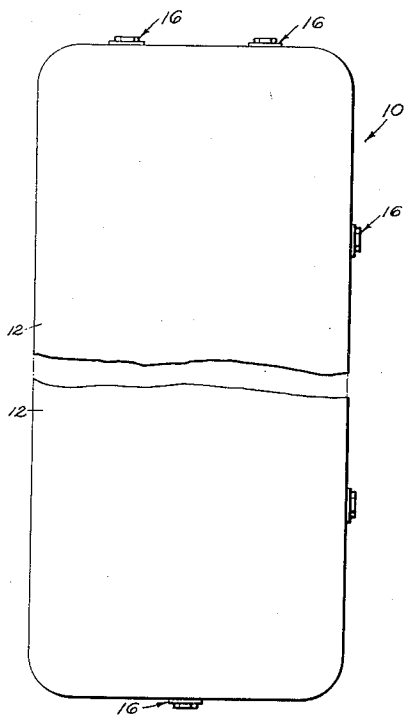


Fig. 1

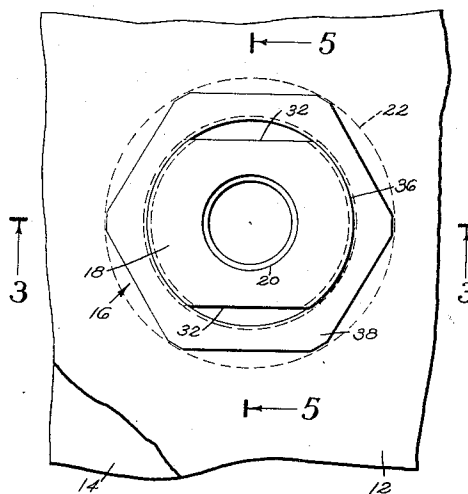


Fig. 2

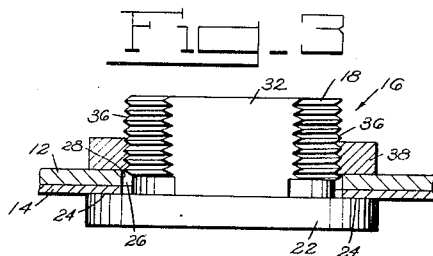


Fig. 3

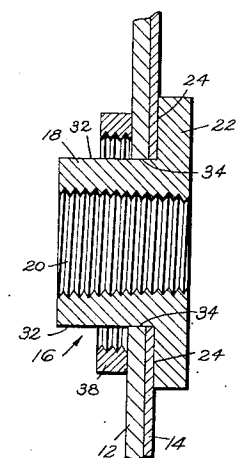


Fig. 4

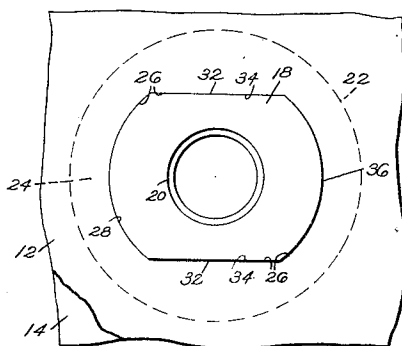


Fig. 5

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NONTURNABLE SPUD

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The present invention relates to lined water heaters or boilers and more particularly to such heater or boiler which comprises an outer steel shell and a comparatively thin metal lining, usually made of sheet copper.

One object of the present invention is to provide a lined water heater with spuds which are of such construction and are so connected to the shell and to the lining as to prevent impairment of the connection between the spud and the lining and to prevent damage to the lining especially when the pipe connections to the boiler are being made.

More specifically it is an object of the present invention to provide a spud connection which is of such construction and is so related to the outer shell of the boiler as to prevent the spud from being turned about its axis by force applied to the spud in connecting the water inlet or outlet pipe thereto.

A further object is, generally to provide a lined tank with a spud connection of improved construction.

The above and other objects, features and advantages of the invention which might hereinafter appear will be fully understood from the following description considered in connection with the accompanying illustrative drawings.

In the drawings:

Fig. 1 is a side elevation view of a water heater embodying the present invention;

Fig. 2 is a view on a larger scale of a spud connection and the adjacent part of the heater;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2, showing the spud in elevation;

Fig. 4 is a view similar to Fig. 2, the outer spud-fastening nut being removed for the purpose of illustration;

Fig. 5 is a sectional view on the line 5—5 of Fig. 2.

Briefly described, the tank or container of the present invention here shown as a water heater or boiler 10, comprises an outer steel shell 12 having a copper lining 14 and provided with a plurality of spuds 16 for connection to the boiler of the several water inlet and outlet pipes (not shown). As the lining 14 is formed of thin sheet copper or other suitable metal or material which is relatively weak or fragile in comparison with the steel shell 12, and as the spud connections 16 must each have a fluid-tight joint with the lining, it is of the utmost importance that provision be made for protecting the lining and the water-tight connections between the latter and the spuds against impairment under various condi-

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tions and especially when force is applied to the spuds in connecting the water inlet and outlet pipes thereto. Pursuant to the present invention provision is made for preventing the application to the spud connections of any force which would tend to turn the spuds around their respective longitudinal axes, as for example, when the water pipes are being connected to the spuds, in the installation of the water heater or at some other time.

Referring now to the drawings in greater detail, the spud 16 comprises a tubular part 18 threaded internally, as indicated at 20 for connection thereto of the companion water pipe. Said spud has a fluid-tight connection with the adjacent part of the lining 14 of the boiler, and for this purpose the flange 22 of said spud is brazed or otherwise secured and sealed to the peripheral portion 24 of the lining completely around the opening 26 through which the tubular part 18 of the spud projects. The outer surface of tubular part 18 and the edge 28 of the opening 26 in the shell 12 and lining 14 are shaped, in complementary relation, in such manner as to prevent turning of the spud axially of opening 26. More specifically, said edge 28 of the opening and the outer surface of tubular part 18 of the spud are both non-circular and interfit so as to prevent turning of said spud in the opening 26. While the non-circular configuration of the edge 28 of the opening and the outer surface of tubular part 18 of the spud may vary, as will be readily understood, the presently preferred construction, as shown by the drawings, comprises the provision of one or more flat planar surfaces 32 on the tubular part 18 of the spud and the provision of corresponding rectilinear edge portions 34 on the edge 28 of the opening 26. The outer cylindrical surface portions 36 of the spud are screw threaded for engagement by the nut 38 which secures the spud against the adjacent outer surface of the shell 12 around the opening 26 and prevents movement of the spud longitudinally of the axis of the shell opening.

It will be understood that the water heater 10, in respect to its outer shell and its lining and the relation therebetween may be of any known or suitable construction, and therefore does not require any specific illustration or description herein, particularly since the water heater and its lining considered apart from the spud connections of the present invention do not per se constitute part of the present invention. On the other hand, it is to be understood that the construction and arrangement of the spud connec-

tion with the lining and the outer shell in accordance with the present invention, may be embodied in lined water heaters or boilers or other tanks or containers of any of the various known or suitable constructions.

While I have shown and described the preferred embodiment of my invention it will be understood that various changes in the details of construction and in the form and arrangement of parts may be made without departing from the underlying idea or principles of the invention within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A heater comprising a hard outer shell and a softer inner lining with registering openings therethrough for communication of the interior of the heater with a pipe, and a spud having a fluid tight joint with said lining and being provided with a tubular part projecting through said registering openings of the lining and shell for the connection of said pipe thereto, the edge of said shell at said opening thereof being non-circular and said tubular part of the spud having a non-circular outer portion fitted in said shell opening whereby the shell prevents turning of the spud axially of said shell opening, said tubular part having outer screw-threaded portions co-extensive at least in part with said non-circular portion of said tubular part axially of the latter, and a nut threaded on said tubular part and engaging the outer surface of the shell around the shell opening for securing the spud to the shell and thereby preventing movement of the spud longitudinally of the axis of the shell opening.

2. A heater comprising a hard outer shell and a softer inner lining with registering openings therethrough for communication of the interior of the heater with a pipe, and a spud having a fluid tight joint with said lining and being provided with a tubular part projecting through said registering openings of the lining and shell for the connection of said pipe thereto, said shell and said tubular part having non-circular interengaging parts at said shell opening to prevent turning of the spud axially of said opening of the shell, said tubular part having outer screw-threaded portions coextensive at least in part with said non-circular part of said tubular part axially of the latter, and a nut threaded on said tubular part and engaging the outer surface of the shell around the shell opening for securing the spud to the shell and thereby preventing movement of the spud longitudinally of the axis of the shell opening.

3. A heater comprising a hard outer shell and a softer inner lining with registering openings therethrough for communication of the interior of the heater with a pipe, and a spud having a fluid tight joint with said lining and being provided with a tubular part projecting through said registering openings of the lining and shell for the connection of said pipe thereto, said shell and said tubular part having fixed parts, respectively, in interengagement with each other to prevent turning of the spud axially of said opening of the shell, said tubular part having outer screw-threaded portions coextensive at least in part with said fixed part of said tubular

part axially of the latter, and a nut threaded on said tubular part and engaging the outer surface of the shell around the shell opening for securing the spud to the shell and thereby preventing movement of the spud longitudinally of the axis of the shell opening.

4. A heater comprising a hard outer shell and a softer inner lining with registering openings therethrough for communication of the interior of the heater with a pipe, and a spud having a fluid tight joint with said lining and being provided with a tubular part projecting through said registering openings of the lining and shell for the connection of said pipe thereto, the edge of said shell at said opening thereof having opposite rectilinear portions and said tubular part of the spud having opposed outer flat portions in complementary interfitting relation with said edge portions of the shell whereby the latter prevents turning of the spud axially of the shell opening, said tubular part having outer screw-threaded portions between said flat portions, and a nut threaded on said tubular part and engaging the outer surface of the shell around the shell opening for securing the spud to the shell and thereby preventing movement of the spud longitudinally of the axis of the shell opening.

5. A spud for a tank having an outer shell provided with a non-circular opening and a lining provided with an opening in registry with said shell opening, said spud comprising an outer peripheral part adapted to be sealed to said lining around the opening thereof and a tubular part adapted to project through the opening of the shell and having a non-circular outer peripheral portion adapted to interfit with the shell opening and thereby held against turning about the axis of the tubular part, said non-circular tubular part having a screw-threaded arcuate portion for a nut adapted to be threaded thereon for clamping the spud to the shell of the tank.

6. A spud for a tank having an outer shell provided with a non-circular opening and a lining provided with an opening in registry with said shell opening, said spud comprising a flanged part adapted to be sealed to said lining around the opening thereof and a tubular part adapted to project through the opening of the shell and having a non-circular outer peripheral portion adapted to interfit with the shell opening and thereby held against turning about the axis of the tubular part, said non-circular tubular part having circumferentially spaced screw threaded arcuate portions adapted to have a nut threaded thereon for clamping the spud to the shell of the tank.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
431,791	Aldrich	July 8, 1890
556,755	Kelley	Mar. 24, 1896
1,086,949	Speakman	Feb. 10, 1914
2,456,165	Yuza	Dec. 14, 1948