To all whom it may concern:

Be it known that we, MARTIN A. GILMORE and WILLIAM E. WOODARD, both of Schenectady, in the county of Schenectady and State of New York, have invented a certain new and useful Improvement in Washout-Plugs for Steam-Boilers, of which improvement the following is a specification.

The object of our invention is to provide a wash-out plug which will be held securely in an outer shell of a steam boiler, and leakage of water at the joint thereof be effectually prevented.

The improvement claimed is hereinafter fully set forth.

Much difficulty is experienced in practice in keeping the removable plugs fitted in steam boilers, tight against leakage. These plugs are ordinarily applied on the corners of the water legs of boilers of the locomotive type, in which location, by reason of the bend of the sheets, there may be only one or two continuous screw threads therein. Further, by reason of the necessity of frequent removal and replacement of the plugs, for washing and inspecting the boilers, the threads wear rapidly and retapping becomes necessary. Our invention is designed to obviate this difficulty by the provision of a plug having ample bearing on the boiler sheet as to render its connection therewith an absolutely secure and tight one.

In the accompanying drawings: Figure 1 is a plan or top view of a steam boiler wash out plug embodying our invention, in position in an outside firebox sheet; Fig. 2, a longitudinal central section through the seat of the plug and the adjoining portion of the firebox sheet, with the plug shown in elevation; and, Fig. 3, a similar view, illustrating a structural modification.

Referring first to Figs. 1 and 2, in the practice of our invention, we provide a cylindrical wash out plug, 1, having a squared head, 1', for the application of a wrench, and having a screw thread cut upon the periphery of its body, which screw thread engages a corresponding internal thread in a tubular seat, 2, of steel or iron.

The bore of the seat, 2, is tapered or inclined outwardly toward the inner side of the boiler sheet, 3, to which the plug, 1, is to be connected, in order to facilitate access to the interior of the boiler, and the seat is secured to the sheet, 3, by being first fitted tightly into a hole tapped therein, which it may, if desired, also engage by screw threads, as shown, and thereafter welded thereto by the oxy-acetylene or other suitable known welding process, welding material, 3', being as usual, applied around the joint between the seat and sheet, and forming a separate reinforcing member, which practically doubles the area of the surface on which the seat is permanently connected to the sheet.

The threaded portion of the bore of the seat provides a greatly increased area of bearing surface for the plug above that which would be obtainable if the latter were screwed directly into the sheet, as in ordinary practice, a corresponding increase of the strength of the joint and its resistance to leakage being thereby attained, and the welded connection of the seat to the boiler sheet rendering the seat practically an integral portion of the sheet.

The substantial increase of abutting surface provided by the reinforcing member of welding material, has, as developed in numerous practical applications, enabled the device to be securely held in the rounded corners of water legs, where only a limited area of sheet attachment would be available.

The modification shown in Fig. 3, corresponds, in all essential particulars, with the construction above described, the structural difference being as follows. The body of the wash out plug, 1, is, in this instance, in the form of an internally threaded cylinder, having a squared head, 1', as in the former case, and an external screw thread is cut in the seat, 2, upon which the plug is screwed to a tight bearing. The bore of the seat is not threaded, and, as in the former case, is outwardly tapered or inclined toward the inner side of the boiler sheet, 3. This form is desirable in cases where rods or cleaning irons are used, the insertion and removal of which tends to damage internal threads when such threads are provided for the connection of the plug.

We claim as our invention and desire to secure by Letters Patent:

1. The combination, with a steam boiler sheet having an independent connected reinforcing member, of a tubular seat permanently fixed in said sheet and reinforcing member and extending on the outside thereof and having a screw thread on its body,
and a plug on the outside of said sheet having a screw thread engaging the thread of the seat.

2. The combination, with a steam boiler sheet, of a tubular seat which is welded to and extends through said sheet and through a reinforcing member of welding material fixed thereon, and is provided with a screw thread on its body, and a plug on the outside of said sheet having a screw thread engaging the thread of the seat.

3. The combination, with a steam boiler sheet having an independent connected reinforcing member, of a tubular seat permanently fixed in said sheet and reinforcing member and extending on the outside thereof, and having a screw thread on its body, and a bore which is tapered outwardly toward the inner side of the sheet, and a plug on the outside of said sheet having a screw thread engaging the thread of the seat and a squared head on its outer end.

4. The combination, with a steam boiler sheet having an independent connected reinforcing member, of a tubular seat permanently fixed in said sheet and reinforcing member and extending on the outside thereof, and having an external screw thread and a plain surface bore tapered outwardly toward the inner side of the sheet, and a cylindrical plug on the outside of said sheet having an integral screw thread engaging the thread of the seat.

5. The combination, with a steam boiler sheet which is bent into an outwardly rounded corner, of a tubular seat which is permanently fixed in an opening in said rounded corner and in a surrounding separate reinforcing member, and is provided with a screw thread on its body, and a plug on the outside of said sheet having a screw thread engaging the thread of the seat.

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Witnesses:
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