May 14, 1929. P. E. McINTOSH 1,713,345

BOILER PLUG

Filed Feb. 19, 1926

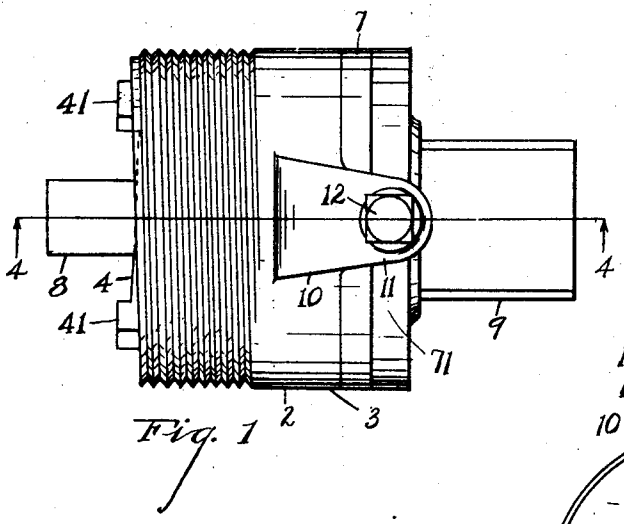


Fig. 1

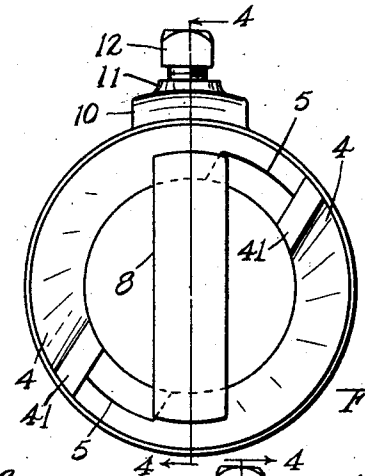


Fig. 2

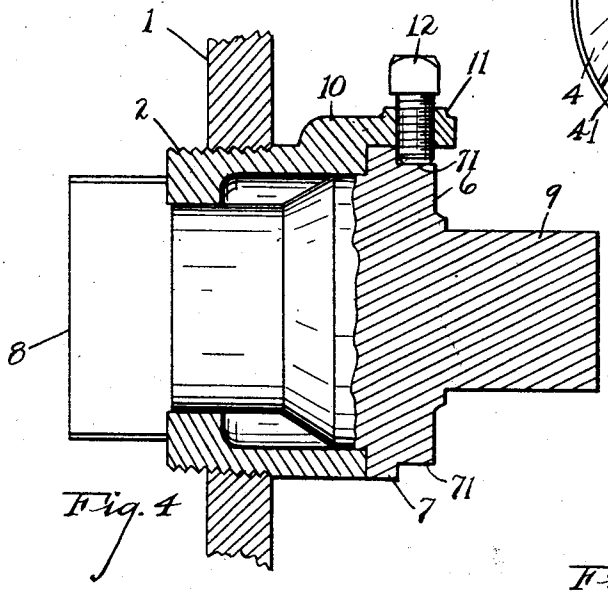


Fig. 4

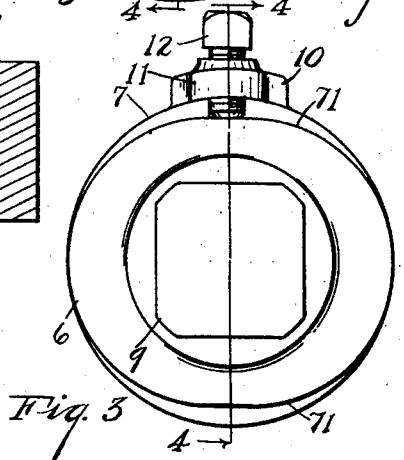


Fig. 3

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UNITED STATES PATENT OFFICE.

PETER E. McINTOSH, OF KALAMAZOO, MICHIGAN, ASSIGNOR OF ONE-EIGHTH TO CHARLES R. ALLEN, OF KALAMAZOO, MICHIGAN.

BOILER PLUG.

Application filed February 19, 1926. Serial No. 89,367.

This invention relates to improvements in boiler plugs for locomotives, although the invention is adaptable to a great variety of uses. The invention is particularly an improvement and development of the boiler plug of United States Letters Patent No. 1,457,911, issued June 5, 1923, to myself and Russell O'Connell.

The object of the invention is to provide such a plug which is very secure and strong and which can be readily detached and removed. It is a special object to facilitate operation, improve the locking means and simplify the plug part.

Objects pertaining to details and economies of construction and operation will appear from the detailed description to follow. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of the invention is illustrated in the accompanying drawing, forming a part of this application, in which:

Fig. 1 is a side elevational view of my improved boiler plug structure in assembled position ready for the bushing to be inserted into the wall or plate of a boiler, taken looking onto the end of the plug across bar.

Fig. 2 is an end elevation view of the structure appearing in Fig. 1, taken from the left hand end with the cross bar turned to vertical.

Fig. 3 is an end elevation view of the right hand end of Fig. 1.

Fig. 4 is a horizontal sectional view, part of the plug being shown in full lines, taken on line 4—4 of Figs. 1, 2 and 3, shown in place in a boiler plate or wall.

The parts of the drawing will be considered by their numbers, which identify like parts in all the views.

1 is a section of the boiler plate. 2 is the threaded bushing inserted into the plate, the outer end 3 of which bushing is flat forming a bearing for the flange of the plug. The inner end of the bushing is divided into two oblique spiral surfaces 4, 4, there being longitudinal notches 5, 5 separating these two oblique surfaces, and stop projections 41 at the end of each spiral insure a full guide and turning in the right direction and prevent any possibility of turning the plug too far.

The plug 6 is provided with an outwardly-projecting collar-like flange 7 at its outer end having a bearing seat against the outer end 4 of the bushing. Back of this collar is an elliptical annular groove or seat 71. The inner end of the plug 6 is provided with a cross arm or oppositely-projecting lugs 8, 8 of such dimensions as to pass readily through the longitudinal slots 5, 5, so that they may be turned into engagement with the spiral surfaces 4, 4 at the inner end of the bushing, thus producing a joint similar to a bayonet joint except that the oblique ends enable the tightening of the flange of the plug against the bushing. Correct manipulation is insured by the stops 41. A square projecting end 9 is provided on the outer end of the plug to enable the same to be turned into position by the use of a wrench.

A laterally-projecting lug 10 carries the overhanging ear 11 which overhangs the end flange of the plugs. A set screw 12 fits into the screw hole 13 through the said ear to engage the periphery of the projecting end of the plug back of the flange 7 in the elliptical part 71 to lock the same against rotation.

It will thus be seen that the plug can be brought against its bearing surface by very strong pressure by the use of the wrench and that when the same is thus urged into position it may be very readily secured in that position by the set screw. The plug can be readily removed by hand by simply releasing the set screw, a matter of advantage in the speedy handling of such structures, there being a large number of them on each locomotive.

The elliptical seat 71 for the set screw insures its effective seating and action, it being disposed in proper relation to the cross arm.

These plugs for use on locomotives are required to resist very high steam pressure and they must be adjusted very tightly and securely.

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

1. In a boiler plug the combination with a one piece externally threaded bushing having its outer end faced to provide a bearing seat and its inner end conformed to provide oppositely disposed symmetrical spiral surfaces and having stop lugs at the ends of said spiral surfaces, said bushings having opposed internal longitudinal grooves extending from end to end thereof and leading to said spiral surfaces, and a lateral lug with projecting ear, a radially disposed set screw through said ear, and a one piece plug having a collar-like peripheral flange at its outer end faced on its

inner side to coact with said bearing seat of said bushing and having an elliptical seat outside of said flange for engagement by said set screw, said plug having opposed lugs at its inner end adapted to be introduced through the said longitudinal grooves of said bushing into engagement with the said spiral surfaces thereof, whereby the bearing faces of said bushing and plug are clamped together by a rotative movement of the plug, said plug being adapted to receive a wrench.

2. In a boiler plug the combination with a one-piece externally-threaded bushing having its outer end faced to provide a bearing seat and its inner end conformed to provide oppositely disposed symmetrical spiral surfaces, and a one-piece plug having a collar-like peripheral flange at its outer end faced on its inner side to coact with said bearing seat of said bushing, said plug having opposed lugs at its inner end adapted to be introduced through the said longitudinal grooves of said bushing into engagement with the said spiral surfaces thereof, and lock means for said plug and bushing comprising a flange collar on one part and an overhanging part having a cooperating set screw disposed to engage back of said collar flange, whereby the bearing faces of said bushing and plug are clamped together by a rotative movement of the plug, said plug being adapted to receive a wrench.

In witness whereof I have hereunto set my hand.

PETER E. McINTOSH.