H. HOWARD.

WASHOUT PLUG.

APPLICATION FILED MAR. 5, 1921.

1,408,944. Patented Mar. 7, 1922.

Fig. 1.

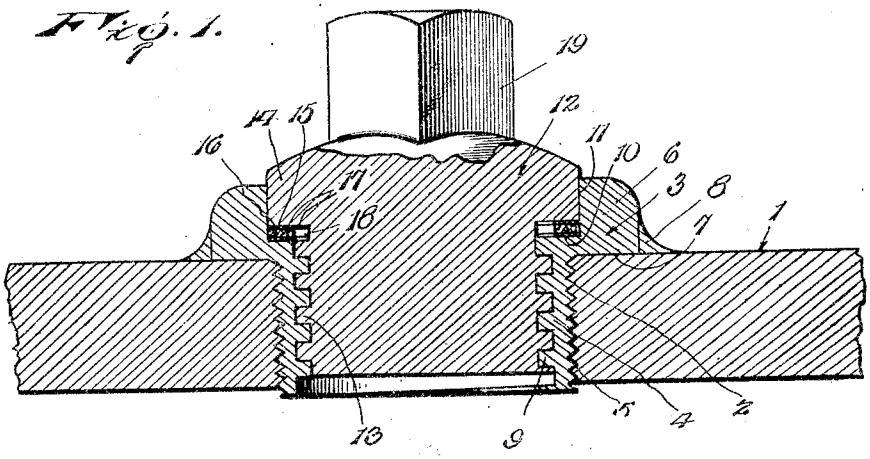


Fig. 2.

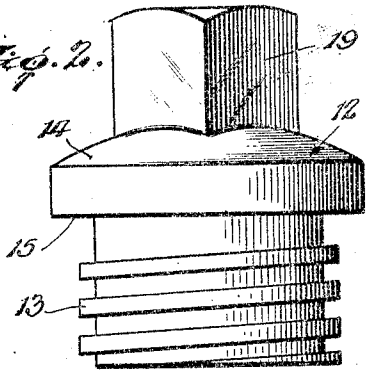
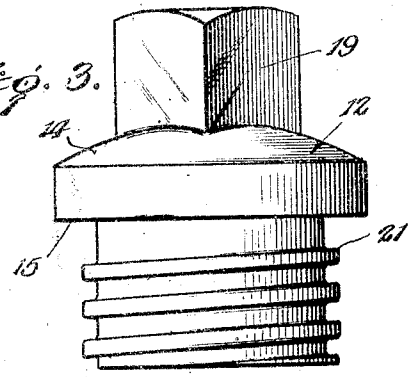


Fig. 3.



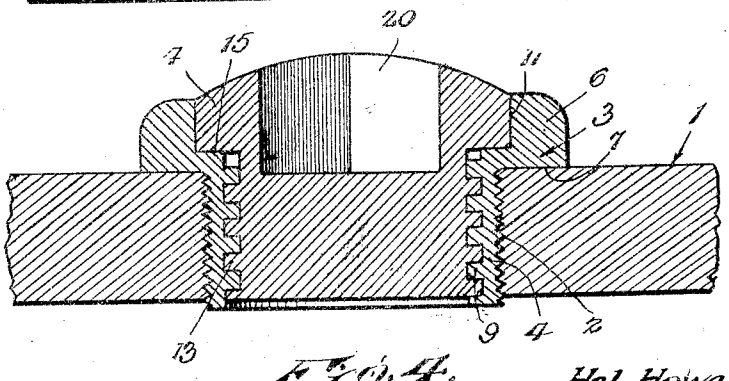


Fig. 4.

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WASHOUT PLUG.

1,408,944. Specification of Letters Patent. Patented Mar. 7, 1922.

Application filed March 5, 1921. Serial No. 449,862.

To all whom it may concern:

Be it known that I, HAL HOWARD, a citizen of the United States, residing at Jackson, in the county of Madison and State of Tennessee, have invented certain new and useful Improvements in Washout Plugs, of which the following is a specification.

This invention relates to improvements in washout plugs and is adaptable for use in connection with locomotive boilers, tanks, drums, barrels, and other containers for oil, gasolene, or explosive fluids. The ordinary washout plug is removably threaded directly into the opening in the boiler shell, or the wall of the tank or other container in connection with which it is used, and the plugs require to be removed and replaced at more or less frequent intervals in order that the boiler, tank, or the like, may be flushed or otherwise cleaned to remove sediment or other accumulations. Such a plug, and the wall of the opening provided for its reception, are ordinarily formed with relatively fine threads and because of corrosion of the threads or an improper fitting of the plug into the opening at the time it is replaced after removal, the threads are liable to become distorted, stripped, or otherwise damaged with the result that leakage occurs or the plug is liable to be blown out if subjected to pressure, as for example where employed in connection with a locomotive boiler. The blowing out of such a plug or even the leakage referred to is liable to produce serious results and especially by endangering the lives of workmen employed in the vicinity of the locomotive or tank or the like in connection with which the plug is employed. It is therefore one of the primary objects of the present invention to provide a plug so constructed that all of the foregoing disadvantages will be overcome, the plug being so constructed and fitted that it may be readily and conveniently removed and replaced without any likelihood of injury to its threads and in less time than required for the removal of the ordinary plug and being furthermore so constructed as to provide against leakage.

Another object of the invention is to form the plug and the bore of the bushing in which it is received with threads of a steeper inclination than the threads by which the bushing is fitted into the opening in the boiler shell, so that when the plug is rotated it will be quickly withdrawn from or drawn into the bushing thereby providing for its more rapid removal and replacement than if its threads were of the same inclination as the threads establishing connection between the bushing and the boiler shell.

Another object of the invention is to provide a plug of the class described so constructed and fitted that it will be more substantial than the ordinary plug and will have its threads protected from corrosion.

A further object of the invention is to so construct the plug and its seat as to provide a seal in addition to that afforded by the matching threads of the plug and seat.

In the accompanying drawings:

Figure 1 is a diametric sectional view through one form of the plug and its seat;

Figure 2 is a side elevation of the plug removed;

Figure 3 is a similar view illustrating a slightly modified form of plug;

Figure 4 is a view similar to Figure 1 illustrating a further modification of the invention.

In the drawings, the numeral 1 indicates one wall of a locomotive boiler shell or a wall of a tank or other container, and the numeral 2 indicates an opening which is formed in this wall and the wall of which opening is threaded. The seat for the plug is in the nature of a bushing which is indicated in general by the numeral 3 and which comprises a hollow cylindrical body 4 exteriorly threaded, as indicated by the numeral 5, so as to fit within the opening 2, the threads 5 and the threads of the opening 2 being relatively fine and gradually pitched. At its outer end the body is formed exteriorly with a circumscribing collar 6, which may be of any shape desired such as octagonal, hexagonal or circular, having a relatively flat bearing face 7 which, when the bushing is threaded into place, bears snugly against the outer face of the wall 1. If desired, as illustrated in Figure 1 of the drawings, the collar 6 may be welded, as at 8, to the said wall 1 so as to permanently secure the bushing in place within the opening 2 in the said wall, although it is not absolutely essential that this be done, as the bushing may be of tapered form and screwed into the shell of the boiler tank or container. Interiorly, the body 4 of the bushing is formed with threads 9 which are preferably considerably larger

than the threads which unite the bushing and wall 1 and which are rectangular in cross section. The threads 9 are likewise preferably more sharply pitched than the threads 5 and extend from the inner end of the bushing body to a shoulder 10 which is formed interiorly of the body 3 and extends circumferentially of the wall thereof and is spaced inwardly from the outer end of the collar 6, this shoulder being formed by interiorly enlarging the bore of the body 4 at its outer end, as indicated by the numeral 11.

The plug is indicated in general by the numeral 12 and the same comprises a cylindrical body formed throughout the major portion of its length from one end with threads 13 shaped and pitched to conform to the threads 9 and adapted to coact therewith when the plug is threaded into the bushing. The body 12 is formed at its outer end with a circumscribing shoulder 14 having a seating face 15 which is to oppose the face of the shoulder 10 when the plug is fitted into place, the enlargement 14 of the plug body being received within the enlargement 11 of the bushing, as best illustrated in Figures 1 and 4 of the drawings. If desired, as illustrated in Figure 1, a packing washer 16 comprising soft metal rings 17 and an asbestos or other suitable intermediate compressible ring 18, is disposed within the enlarged end 11 of the bore of the bushing and is to be compressed between the faces of the shoulders 10 and 14 when the plug is threaded into place and tightened. If this washer is not employed, the said faces of the said shoulders will mutually contact as illustrated in Figure 4 of the drawings.

In order that the plug may be rotated upon application of a wrench thereto, it is formed upon its outer end, as illustrated in Figures 1, 2 and 3 of the drawings, with a polygonal head 19. If desired however, this end of the plug may be formed with a polygonal socket 20 as in Figure 4, when it is desired or required to employ a different type of wrench because of a relatively inaccessible location of the plug. It is stated above that the threads 9 and 13 are rectangular in cross section but if desired the edges of these threads might be rounded to a greater or less extent, as indicated by the numeral 21 and as clearly shown in Figure 3 of the drawings.

Having thus described the invention, what is claimed as new is:—

A washout plug comprising a bushing exteriorly threaded whereby to adapt it to be fitted into a wall and formed interiorly with relatively coarse threads of a different inclination from those upon the exterior of the bushing, the bushing being provided exteriorly at one end with a circumscribing outstanding flange formed with a collar upon its outer face surrounding the said end of the wall of the bushing and providing a relatively deep recess, and a plug removably fitted into the bushing and having relatively coarse threads fitting the threads of the bushing, the plug being provided with a circumscribing shoulder fitting relatively snugly within the said recess and having a flat seating face for coaction with the end face of the wall of the bushing.

In testimony whereof I affix my signature.

HAL HOWARD. [L. S.]