

No. 629,092.

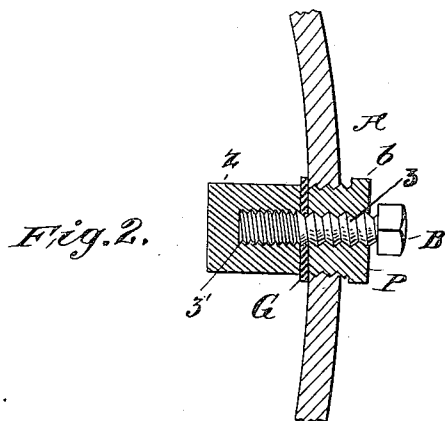
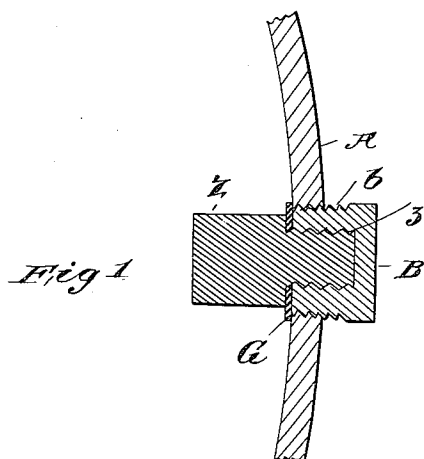
Patented July 18, 1899.

H. S. ROSS.

MEANS FOR PROTECTING BOILERS, PIPES, &c., FROM CORROSION.

(Application filed Jan. 25, 1898.)

(No Model.)



WITNESS

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HENRY SCHUYLER ROSS, OF NEW YORK, N. Y.

MEANS FOR PROTECTING BOILERS, PIPES, &c., FROM CORROSION.

SPECIFICATION forming part of Letters Patent No. 629,092, dated July 18, 1899.

Application filed January 25, 1898. Serial No. 667,876. (No model.)

To all whom it may concern:

Be it known that I, HENRY SCHUYLER ROSS, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Means for Protecting Boilers, Pipes, &c., from Corrosion, of which the following is a specification.

The object of my invention is to provide a simple, effective, and easily-applied means for protecting the interior walls of boilers, pipes, and other vessels from corrosion. It has long been known that such corrosion can be prevented by placing on the interior of said vessels pieces of zinc or other metal of a nature to corrode more easily than the metal to be protected and establishing close metal contact between them. Many difficulties have attended the commercial application of this well-known fact, among which may be mentioned the necessity for blowing off the boiler or otherwise emptying the vessel when the corroded zinc has to be replaced, the short time during which the protection is effective, and the uncertainty of action of the various devices employed. My invention overcomes these difficulties and others; and it consists of a plug of brass or other comparatively non-corroding metal and provided with a tip of zinc or other more easily corroded metal interlocking with the body of said plug by a joint which is thoroughly protected or sealed by a gromet or otherwise from the attack of the corrosive substance in which said zinc tip is submerged, said composite plug being adapted to be inserted through the wall of a boiler, pipe, or other vessel in such manner as to resist the pressure created therein.

In the accompanying drawings, Figure 1 shows my composite plug arranged with the zinc tip screwing into the brass plug. Fig. 2 shows the plug so arranged that the zinc tip surrounds the interlocking parts of the brass plug.

The same letters indicate similar parts in the different figures.

A is a fragment of the wall of a boiler, pipe, or other vessel the interior of which is to be protected from corrosion.

B is the body of the plug, which may be made of brass or other comparatively non-corroding metal.

Z is the zinc tip.

When used in the form shown in Fig. 1, the plug is formed with an external screw-thread *b*, which engages with a thread cut in the opening through the wall A.

When the plug is made in the form shown in Fig. 2, the body of the plug consists of a piece of piping P, which has the same external screw-thread *b* for the same purpose, and the brass piece B passes through said piping into the tip Z. Where the tip screws into the body of the plug, a simple screw-thread *z*, external on the reduced end of the tip and internal on the plug, is sufficient. When, on the other hand, the plug screws into the tip, it is desirable to have the threads *z z'*, (shown in Fig. 2,) by means of which the two parts can be drawn together by turning the brass plug B.

G is a gromet or gasket of rubber or other impervious material, which serves to protect not only the joint made between the zinc tip and the brass plug, but also the joint between the plug and the metallic wall of the vessel. These plugs are to be inserted through the wall of the vessel below the water-line and at such intervals as may be necessary for the thorough protection of the interior. Each plug by corroding protects the surrounding wall for a radius which varies with the exposed surface of the plug. It is better, however, to have smaller plugs at shorter intervals than larger plugs at larger intervals. A plug one inch in diameter, with an effective protecting radius of about two feet, makes a convenient size and can be of course used at intervals of every four feet.

The protection of the joints from attack by the corrosive liquids which may be present in the interior of the vessel is of very great importance, as will be readily understood when the action which takes place is analyzed.

A current of a voltaic character is established through a circuit of which the metals of the plug and vessel, with their interlocking joints and a portion of the corrosive liq-

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uid, form parts. This current, however, is
very gentle, and the creation of even a slight
resistance in the circuit practically acts as a
break in the circuit, causing the current to
5 cease flowing. This resistance is created by
even a slight amount of oxidation at any of
the joints, and this oxidation is sure to take
place if the corrosive fluids have access to
the joints made by the dissimilar metals. A
10 gasket or ring of cement or other non-cor-
roding material, which extends over all of
these joints wherever they would otherwise
be subject to contact with the corrosive li-
quid, I have found to be an effective way of se-
15 curing protection of the joints.

I claim—

The above-described means for protecting
boilers, pipes, &c. from corrosion, which con-
sists of a plug of comparatively non-corrod-
ing metal provided with means for securing 20
it in electrical contact with the boiler or other
vessel a tip of more easily corrodible metal
secured thereto and in metallic contact there-
with, and means, covering the joint between
the plug and the tip, for protecting said joint 25
against corrosion.

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Witnesses:

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