

Nov. 11, 1924.

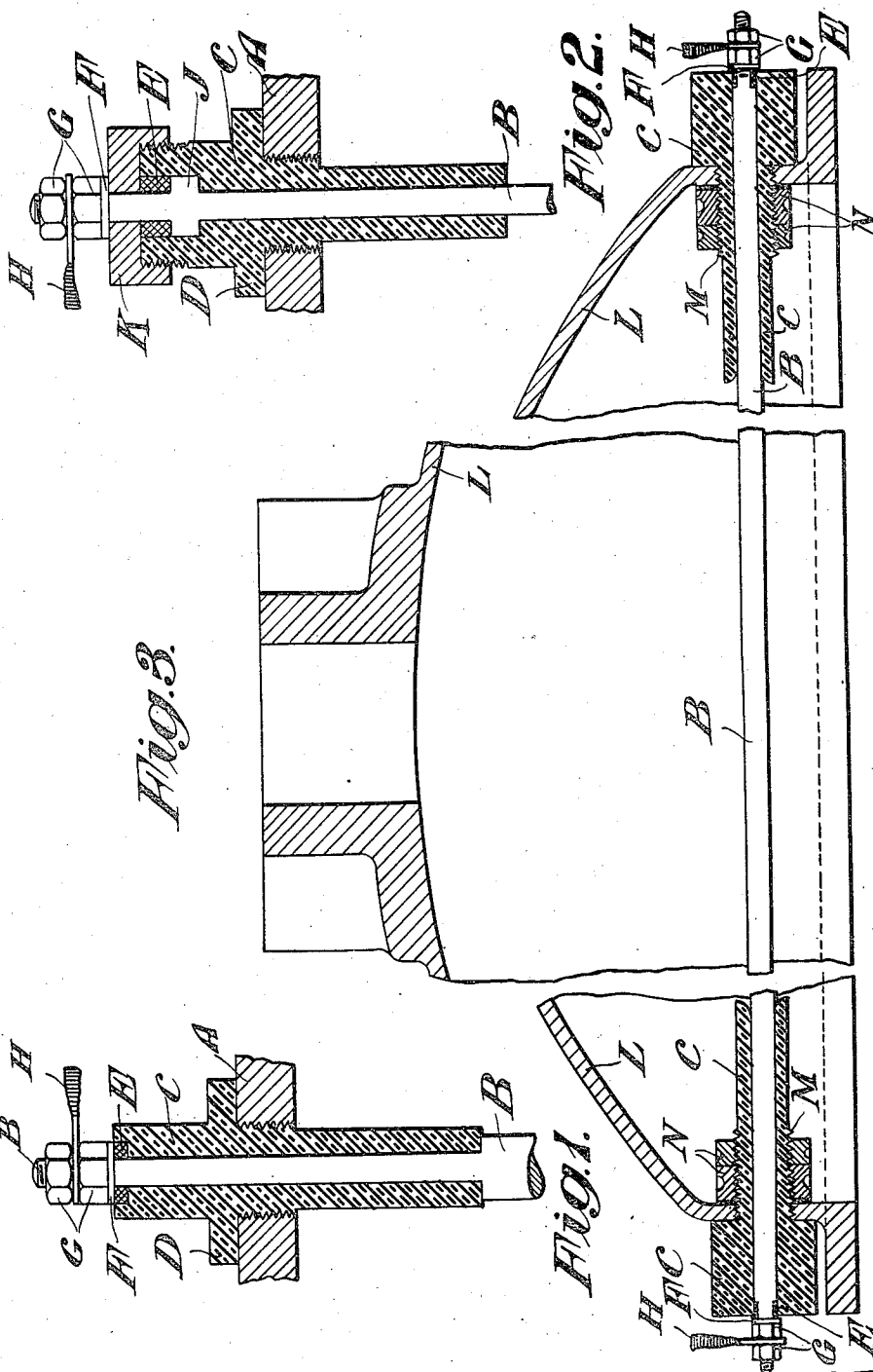
1,514,903

A. S. GUSH

ELECTROLYTIC ANTICORROSION SYSTEM

Filed April 18, 1924

2 Sheets-Sheet 1



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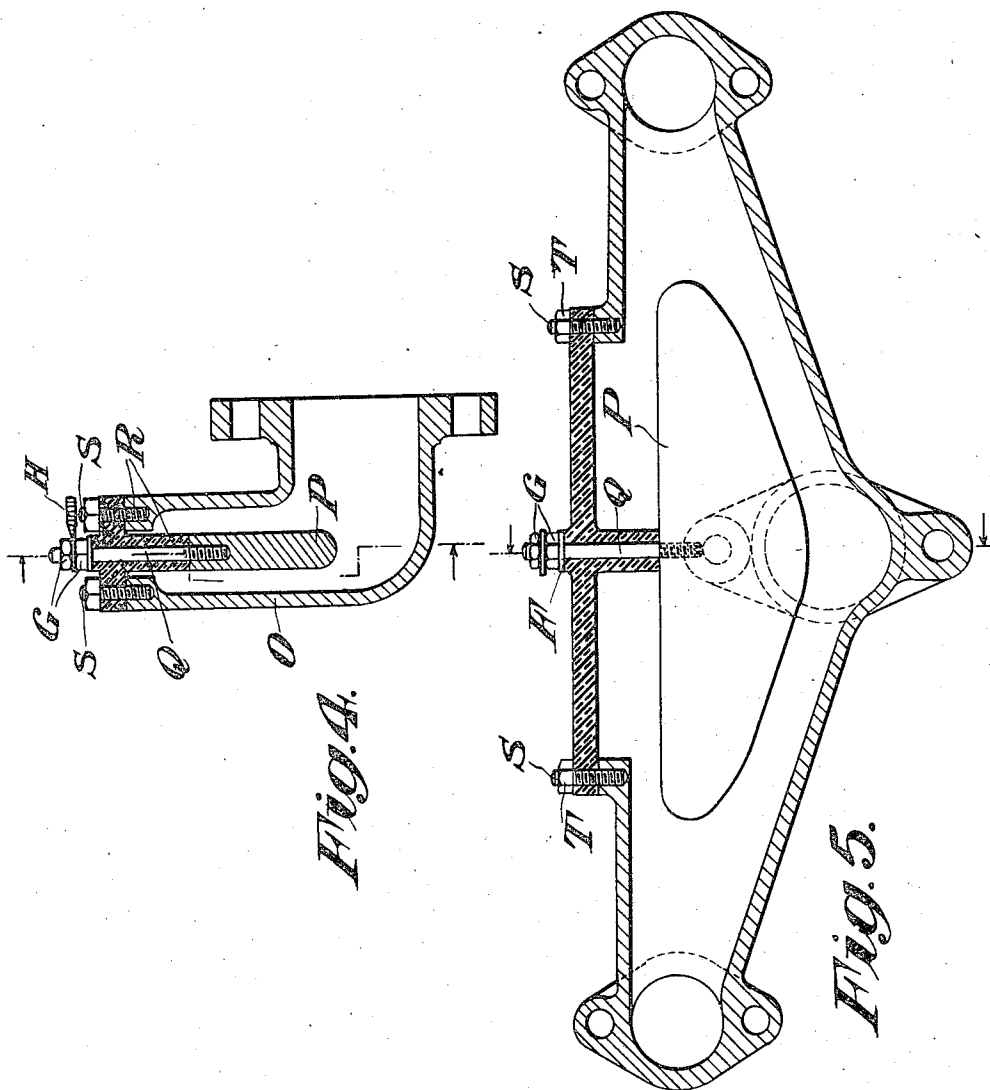
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE.

ARTHUR SYDNEY GUSH, OF HOVE, ENGLAND.

## ELECTROLYTIC ANTICORROSION SYSTEM.

Application filed April 18, 1924. Serial No. 707,450.

*To all whom it may concern:*

Be it known that I, ARTHUR SYDNEY GUSH, a subject of the King of Great Britain, residing at 23 Salisbury Road, Hove, Sussex, England, have invented new and useful Improvements Relating to Electrolytic Anticorrosion Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electrolytic anticorrosion systems and refers more particularly to a system intended for operation in the water-cooling apparatus of internal combustion engines especially those engines carried by the heavier motor road vehicles such as lorries and omnibuses; and the invention has for its object to simplify the construction also to cheapen the cost of production of the elements of the system.

The electrodes commonly used in these systems have either been mounted on a separate distance piece or bolt of metal encased in a sleeve of insulating material or covered with an integral coating of insulating material, or have been mounted on and carried by a distance piece or support composed of insulating material, and it is now desired to produce an economical and yet equally practical construction in order to render the system especially applicable to motor road vehicles, and for general use with all types of internal combustion engines.

According to the present invention therefore the metal electrode in passing through the necessary aperture in the structure is supported by, a detachable closure or cover composed of insulating material preferably one of the phenol formaldehyde condensation products or syntheses of same, the electrode being capable of insertion into or withdrawal from the structure, with or without the closure without otherwise opening up the structure for that purpose.

If desired an external sleeve of metal or other easily worked material may be utilized for any threaded portion of the closure which passes through the wall of the structure.

Thus the end plate or cover plate of the structure containing the water to be subjected to the electrolytic action may be composed wholly of insulating material and may be formed or moulded with a boss that

is apertured for the passage of the electrode which is suitably secured thereto. Or, if desired both ends of a container may be provided with or closed by plates of insulating material through each of which an electrode passes or which combine to support an electrode extending between the two.

Where circumstances permit or where the form of the structure does not embody a detachable end plate, as for example the radiator of a lorry or an omnibus, an aperture may be formed in the body of the radiator to permit the insertion of a closure of insulating material formed so as to be secured in place by being bolted to or screwed into the body of the radiator or other structure, through which closure the electrode is passed.

The invention is illustrated by way of example in the accompanying drawings, in which:—

Figures 1 and 2 are sectional views showing two forms of the invention.

Figure 3 is a longitudinal section through the upper portion of the radiator of a motor vehicle showing the application of the invention thereto.

Figures 4 and 5 are a transverse section and longitudinal section respectively showing the application of the invention to the cooling water manifold of an internal combustion engine.

Referring to Figures 1 and 2, A represents the wall of the structure by which the metal electrode B is carried in a sleeve C of insulating material screw-threaded externally to take into a correspondingly threaded aperture formed in wall A, and constructed adjacent to said externally screwthreaded portion with a peripheral flange or shoulder D which is drawn up against wall A.

In Figure 1 the electrode B is reduced in diameter—at that part of it which is received in the bore of the insulating supporting sleeve or closure C, and at the outer end of said closure C a recess is sunk into which packing or jointing material E is inserted.

Above the jointing material E a metal washer F is placed and nuts G are screwed onto the outer threaded end of the electrode B; the terminal of a lead H being secured between said nuts G. The lead H is taken to a suitable source of electricity.

In Figure 2 the parts have a modified shape, thus the electrode B is formed near

its outer end with a collar or enlargement J that is accommodated in an enlarged bore at the upper end of the insulating supporting member C the top periphery of which is screw-threaded and receives a threaded cap K also of insulating material which screws thereonto and compresses the packing material E against the collar J; the electrode B passing through an aperture in said cap K and having a washer F and nuts G fitted thereto as before.

In Figure 3 the electrode B consists of a rod extending across within the top of a radiator L to which it is attached by fittings substantially like that shown in Figure 1, except that the exterior of a portion of the insulating sleeve C within the radiator is screwthreaded at M and receives lock nuts N, N, N, N.

Figures 4 and 5 show the invention applied to the cooling water manifold O of an internal combustion engine, and in this case the electrode P is carried by a stud Q which passes through a cover plate R of insulating material and is secured thereto by washer F and nuts G, G; said closure R being in the nature of a cover plate fixed over an opening in the manifold O by studs S, S, and nuts T, T.

In this manner the necessity for applying an insulating coating to the support carrying the electrode is obviated and the elimi-

nation of this integral coating simplifies the formation and fitting of the electrodes.

Suitable apertures can be made in the water jackets or radiators of internal combustion engines, and closures of insulating material are affixed thereto. The electrodes are then inserted in the closures and subsequent inspections and renewals of same can be effected, without opening up the radiator or water jackets, by removal and replacement of the electrode and insulating closure en bloc or of the electrode only.

What I claim is:—

In an electrolytic anti-corrosion system, the combination with a water container having an aperture, of a cover of insulating material detachably secured over said aperture, and an electrode carried by said cover whereby it is detachable as a unit with the latter from said container, said electrode having a detachable connection with said cover, whereby it is removable from said cover when the latter is attached in covering relation to the aperture in said container.

In witness whereof I have signed this specification in the presence of two witnesses.

ARTHUR SYDNEY GUSH.

Witnesses:

T. O. HUGHES,  
K. WELCH.