Oct. 19, 1948. T. A. WALB 2,451,523

CORROSION INHIBITOR

Filed June 30, 1945

FIG. 1.

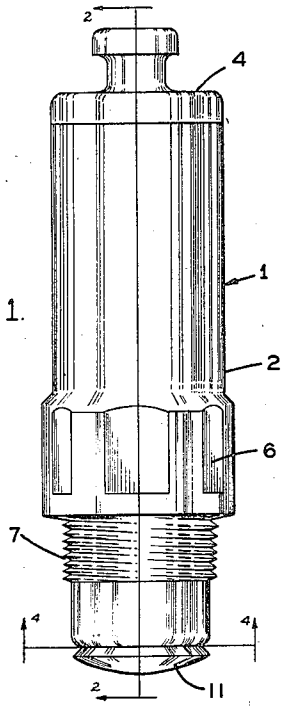
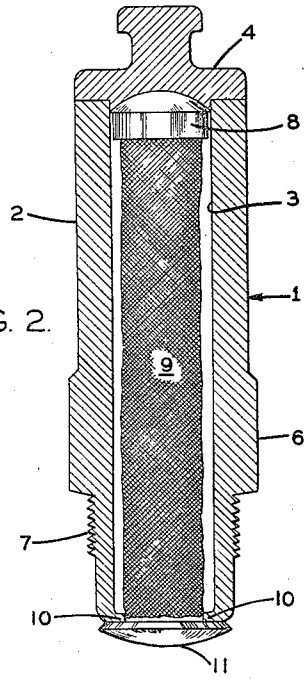


FIG. 2.



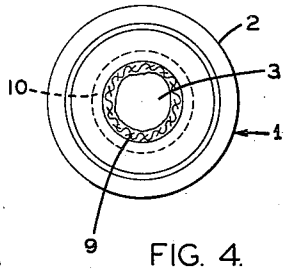
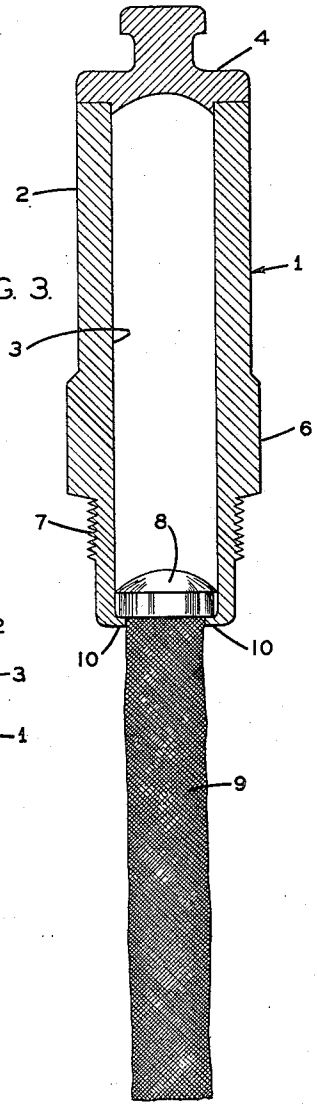


FIG. 4.

FIG. 3.



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CORROSION INHIBITOR

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2 Claims. (Cl. 299—20)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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This invention relates to new and useful devices for preventing corrosion of enclosed metal surfaces, and more particularly to corrosion preventing devices of the nondehydrating or inhibitor type for use in protecting the enclosed metal surfaces, for example, of internal combustion engines, fuel and other tanks, and the like, during shipment and storage thereof.

It is currently the practice to protect the enclosed metal surfaces of engines, tanks and other objects during storage and shipment by providing a protective finish upon such surfaces and then inserting into the engine or tank, through a plug therein, a suitable dehydrating agent which absorbs moisture from the enclosed area and metal surfaces and thereby seeks to maintain the relative humidity within the enclosure below the value or point at which corrosion of the metal surfaces takes place. This method does not afford complete protection, and numerous instances of corroded enclosed metal surfaces have been found to exist upon inspection of the equipment after shipment or removal from storage. This is due apparently to the fact that the dehydrating agents become relatively weaker with the passage of time thus losing their effectiveness and the ability to maintain the relative humidity within the enclosed area below the required percentage. Furthermore, this method of corrosion prevention, requiring both a protective coating upon the metal surfaces and the use of a dehydrating device, is expensive and this is particularly so in view of the relatively inadequate results obtained.

With the foregoing in mind, the principal object of the present invention is to provide novel means that is operable effectively to inhibit corrosion of enclosed metal surfaces due to weathering during storage and shipment.

Another object of the invention is to provide novel means of the character set forth which is effective to inhibit corrosion of enclosed metal surfaces regardless of the amount of moisture present within the enclosure.

Another object of the invention is to provide novel means having the stated features which is constructed and arranged so as to be readily and easily inserted into an enclosure whose metal surfaces are to be protected against corrosion.

A further object of the invention is to provide novel means for preventing corrosion of enclosed metal surfaces having the features and advantages described, which is of relatively simplified construction, comparatively inexpensive to manufacture and use, and highly efficient in operation.

These and other objects of the invention and

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the various features and details of the construction and operation thereof, are hereinafter fully set forth and described with reference to the accompanying drawing, in which:

Fig. 1 is an elevational view of a device embodying the present invention operable to prevent the corrosion of enclosed metal surfaces.

Fig. 2 is a sectional view taken on line 2—2, Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing the relationship of the parts of the device when in use; and

Fig. 4 is a sectional view taken on line 4—4, Fig. 1.

Referring now to the drawing, and more particularly to Figs. 1, 2 and 4 thereof, a corrosion inhibiting device made according to the present invention may comprise, for example, a cylindrical casing structure 1 having a body portion 2 provided with a tubular bore 3 extending axially therethrough, the bore 3 of the body being permanently closed at one end by means of a suitable closure or cap 4. The end closure 4 is secured to the body 2 in any suitable manner and the joint between the body 2 and closure 4 preferably is fluid tight.

A portion of the exterior surface of the body 2 is of slightly larger diameter than the remainder thereof and provided with a circumferentially arranged polygonal surface, as indicated at 6, for the reception of a wrench or like tool. Intermediate the polygonal surface 6 and the end of the body 2 remote from the closure 4, the exterior surface of the said body 2 is provided with a series of threads 7 by means of which the device may be secured in an appropriately threaded opening in the wall of an enclosure whose inner metal surfaces are to be protected against corrosion.

Disposed within the bore 3 of the body 2 and arranged for sliding movement axially lengthwise thereof is a disc element 8 which has cemented or otherwise secured thereto one end of a generally tubular wick 9 fabricated of suitable cloth, fabric or the like. The wick 9 is substantially co-extensive in length with the bore 3 of the body 2 so that when the disc 8 is positioned inwardly of said body 2 and against the end closure 4 thereof, the wick 9 resides entirely within the body of the device as shown in Fig. 2 of the drawing. At the other end of the bore 3 from the closure 4, the body 2 is provided with an inwardly extending flange 10 that serves to prevent removal of the disc 8 entirely from the body.

The wick 9 is impregnated with a suitable corrosion inhibitor compound of the nondehydrating

type such as, for example, tertiary alkylated phenolic amines, di-isopropyl ammonium nitrite crystals dissolved in isopropyl alcohol, and the like, whose physical and corrosion inhibiting properties are known in the art. Prior to use of the device, the flanged end of the body 2, remote from the end closure 4, has secured thereto a cover disc or the like 11 which closes that end of the bore 3 and seals the impregnated wick 9 therein to preserve the inhibitor with which the wick is impregnated. The cover disc 11 is secured upon the end of the body 2 for example, by a suitable cement, to provide a tight joint therebetween while at the same time providing a joint that may be manually broken to permit removal of the cover disc 11 preparatory to using the device.

To use the device, and by way of illustration and explanation reference will be made to use of the device to prevent corrosion of the inner metal surfaces of an internal combustion engine, the cover disc 11 is first removed, and the wick 9 is withdrawn from the bore 3 of the body 2 to the extent limited by engagement of the disc 8 with the inner face of the flange 10 previously described (see Fig. 3). The impregnated wick 9 then is inserted into the engine, for example, through one of the threaded spark plug openings therein and the threaded portion 7 of the body 2 of the casing structure 1 is screwed into the plug opening to close the same, being tightly secured therein by a wrench or the like applied to the polygonal surface 6. In this manner, the impregnated wick is freely suspended within the enclosed area and corrosion of the surrounding metal surfaces is inhibited without contact therewith. In the case of an internal combustion engine one such device is inserted in the manner described into each of the spark plug openings of the engine as well as into other threaded openings provided in the crank case and other parts thereof.

The device of the present invention is effective to prevent corrosion of enclosed metal surfaces even in the presence of large amounts of moisture, and this effectiveness is not dissipated over substantial periods of time and exposure regardless of the occurrence of small leaks into the enclosed area. The casing structure 1 including the body 2 and end closure 4, as well as the disc 8 and cover disc 11, may be fabricated of plastic or metal as desired, although the use of plastic materials is preferred due to the less expensive cost of manufacturing the device and the less critical category of such materials.

From the foregoing, it will be apparent that the present invention provides a novel device that is operable effectively to inhibit corrosion of enclosed metal surfaces during storage and shipment thereof regardless of the amount of moisture present within the enclosure. The invention also provides a novel corrosion prevention device that is constructed and arranged so as to be readily and easily inserted into an enclosure whose metal surfaces are to be protected against corrosion. Furthermore, the device of the present invention is of relatively simplified construction, comparatively inexpensive to manufacture and highly efficient in use and operation.

It will be apparent that a device embodying the present invention may be used effectively to prevent corrosion of metal surfaces in any enclosed area, and while a particular embodiment of the invention has been illustrated and described herein, it is not intended that the invention be limited to such disclosure, and changes and modifications may be made therein and thereto within the scope of the claims.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

I claim:

1. A device of the character described comprising a casing having an elongated open-ended chamber therein, a member disposed in said chamber and arranged for sliding movement lengthwise thereof, a flange at the open end of said casing extending into the path of said member to prevent withdrawal thereof entirely from said chamber, a wick secured to said member and extending lengthwise within the body substantially the entire length thereof, said wick being impregnated with a corrosion inhibitor material and arranged for withdrawal from the chamber to the extent limited by engagement of said member with said flange, and a cover cap on the open end of the casing to close the chamber and seal the wick therein, said cover cap being removable when it is desired to withdraw the wick from the casing preparatory to using the device.

2. A device of the character described comprising a casing including a tubular body closed at one end thereof, a disc member disposed in said body and arranged for sliding movement axially therein, a flange at the other end of said body extending into the path of said disc member to prevent withdrawal thereof entirely from said body, a wick secured to said disc member and extending lengthwise within the body substantially the entire length thereof, said wick being impregnated with a corrosion inhibitor material and arranged for withdrawal from the body to the extent limited by engagement of said disc member with said flange, and a cover cap on the said other end of the body to close the same and seal the wick therein, said cover cap being removable when it is desired to withdraw the wick from the body preparatory to using the device.

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