April 23, 1929. V. V. VAUGHN 1,710,127

BATTERY CONNECTER CLEANING DEVICE

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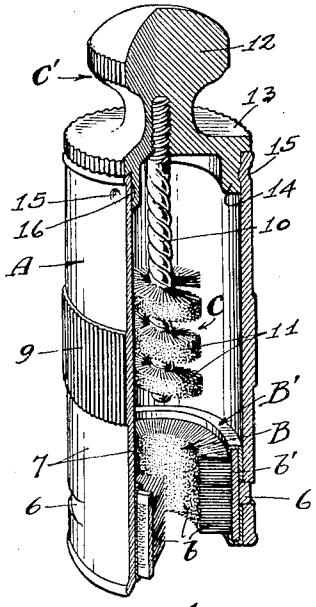


Fig. 1

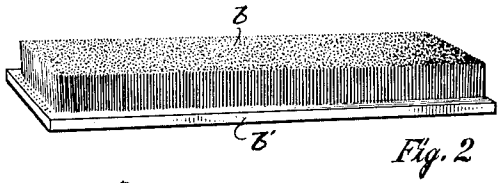


Fig. 2

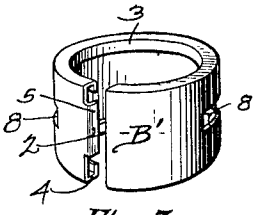


Fig. 3

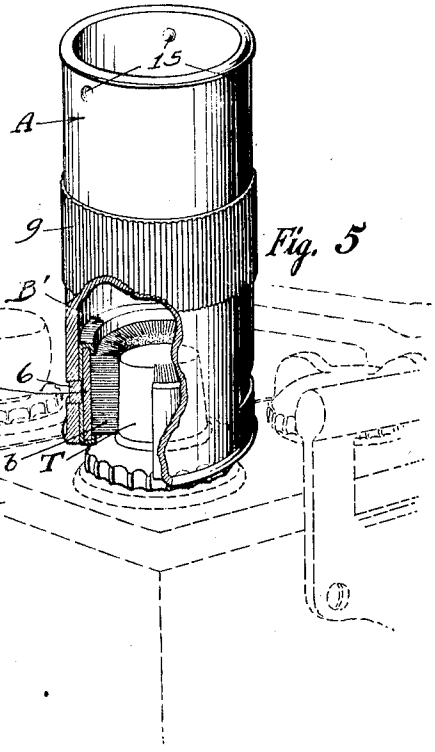


Fig. 5

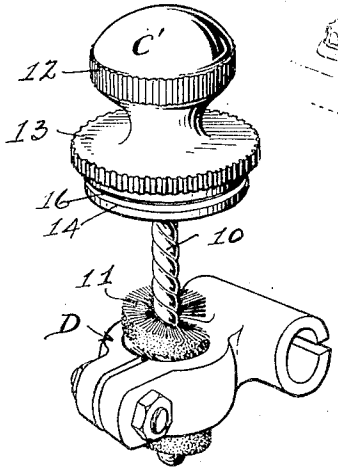


Fig. 4

INVENTOR.
Versal V. Vaughn,
BY Arthur A. Mac
ATTORNEY.

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UNITED STATES PATENT OFFICE.

VERSAL V. VAUGHN, OF LOS ANGELES, CALIFORNIA.

BATTERY-CONNECTER-CLEANING DEVICE.

Application filed March 24, 1928. Serial No. 264,355.

This invention relates to cleaners for battery terminals and connecters, and the main object is to provide a compact, simple and economical device embodying separate elements carried in a suitable container and adapted, respectively, for cleaning the corroded and incrusted matter from battery terminals and connecters.

Another object is to provide in a device of the character mentioned male and female cleaning elements including brush like members formed of steel wire and arranged to be inserted on battery terminals and in battery connecters and rotated for freeing such elements from rust, scale or other corroded or incrusted substances.

An object is to so arrange the cleaning elements that they may be readily removed from their supporting devices for the purpose of cleaning, repair or replacement. Other objects will appear as the description progresses.

I have shown a preferred form of device in the accompanying drawing, subject to modification within the scope of the appended claims without departing from the spirit of my invention.

In said drawing:

Fig. 1 is a perspective view of the assembled device, partly in section;

Fig. 2 is a perspective view of a suitable battery terminal cleaning element, prior to insertion in a suitable holder for use.

Fig. 3 is a perspective view of a suitable retainer for the battery terminal cleaner shown in Fig. 2;

Fig 4 is a perspective view of a form of battery connecter or cleaner shown in operative position with respect to a connecter during a cleaning operation.

Fig. 5 is a perspective view of the battery terminal cleaner and holder operatively positioned with respect to a battery terminal, during a cleaning operation.

Briefly described my improvements consist of a cylindrical holder A which serves to operatively support a terminal cleaner B, and to further support a connecter cleaner C when the same is not in use.

The cleaning element B is formed of a brush like member composed of wire bristles *b* firmly mounted on and attached to a flexible strip *b'* of leather or fabric, and bent into circular form within a retainer ring B'. The retainer is of thin metal capable of being readily bent and preferably of spring metal and split at 2 so that the tension thereof will cause the ring to closely fit the interior of the holder A.

The edges of the retainer B' may be turned inwardly at 3 and 4, and may be further bent downwardly and upwardly, respectively, if desirable, so as to form a neat holder for the brush *b*. One or both of the ends of the retainer ring, as at 5 may be bent inwardly so as to engage the end of the strip *b'* on which the brush is mounted, for the purpose of preventing the turning of the member B within the retainer.

The element B is removably but stationarily held in the lower end of the holder A by means of a pair of slit segments 6, 6 formed in the wall 7 of the holder which are adapted to seat in correspondingly formed peripheral slots 8, 8 in the wall of the retainer B', as shown in Fig. 1. In lieu of the portions 6 and slots 7 I may provide slight indentations in the wall 7 of the holder which will cause portions to protrude inwardly, and corresponding apertures or indentations may be formed in the retainer ring to receive the same. In any event it is only necessary to prevent the upward thrust of the ring in the holder and the rotation thereof during a cleaning operation.

The holder A is open at both ends and may be provided midway of its ends with a knurled portion by means of which the holder may be rotated during a cleaning operation for moving the cleaner B over the battery terminal T, as shown in Fig. 5.

The cleaner C is adapted for use in connection with a battery connecter D and is composed of a twisted wire stem 10 and a helical brush 11 formed of wire bristles held between the twists of the stem and trimmed so as to provide a round brush reamer. The upper end of the stem 10 may be threaded into or otherwise suitably secured to a supporting member C' which may serve as a closure for the upper open end of the holder A, as shown in Fig. 1.

Said holder has a knurled knob 12, a flange 13 which overlies the end of the holder A and a depending annular portion 14 which extends downwardly into the holder. The member C' may be frictionally held in the holder A by means of one or more indentations 15, 15, and corresponding indentations 16 formed in the wall of the holder and the portion 14, respectively.

The holder A serves as a suitable handle

or operating member for the terminal cleaner B and as a carrier for both of the cleaners B and C. The internal diameter of the brush *b* of cleaner B is slightly less than that of the terminal T so that the brush may be forced downwardly over the terminal and turned backwardly and forwardly, or in a single direction. The movement of the brush *b* over the terminal T will effectively clean the same of scale or other incrusted substances which accumulate thereon during the use of the battery E.

The cleaner B may be contracted substantially when the brush *b* is mounted therein so that the assembled element B may be inserted in the lower end of the holder A and forced upwardly until the portions 6 seat in the slots 8. Thereafter the tension of member B′ will expand the ring and hold the same in position in the holder and in readiness for use.

The cleaner C is a type of reamer which is adapted to be inserted in and turned within the opening of the connecter D, as shown in Fig. 4. As the brush 11 thereof is forced downwardly through and turned in the connecter the wall of the connecter will be cleaned effectively, as in the case of the cleaner B. The stem 10 and brush 11 of the element C may be removed from its holder C′ and replaced when necessary.

I have found that in many cases a cleaner of this type is more satisfactory than a shaver or metal reamer for the reason that the terminals and connecters are not unnecessarily trimmed of metal, and such elements may be thoroughly freed of incrusted substances without greatly impairing the parts cleaned.

What I claim is:

1. A cleaner of the character described comprising a holder, a retainer ring held therein, and a wire brush removably held in said retainer and arranged for operative connection with a battery terminal for removing the incrusted substances therefrom.

2. A device of the character described comprising a cylindrical holder, a flexible wire brush bent into annular form with the bristles thereof extended inwardly and forming an opening for the reception of a member to be cleaned thereby, and a retainer ring for said brush removably supported in said holder.

3. A device of the character described comprising a holder having an opening therein, a split retaining ring removably and securely held therein, a flexible wire brush bent into annular form within and supported by said ring, said brush having the bristles thereof extended inwardly and forming an opening for the reception of a member to be cleaned.

4. A device of the character described comprising a holder having an opening therein and portions extended inwardly into said opening, a split metal retaining ring removably held in said opening, and having apertures engaged by said inwardly extended portions for rendering the ring immovable in said holder, and wire brush of annular form removably held in said ring arranged for engagement with the periphery of a member adapted to be inserted in said brush.

5. A device of the character described comprising a cylindrical holder, a closure for an end of said holder including a handle arranged to support a brush within said cylinder, means to hold a brush in the other end of said cylinder, said closure and handle being removable from the cylinder for using the attached brush.

VERSAL V. VAUGHN.