

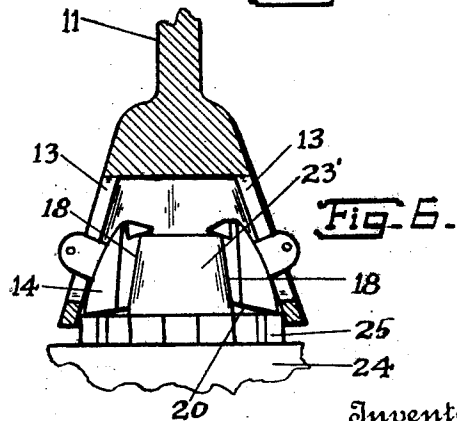
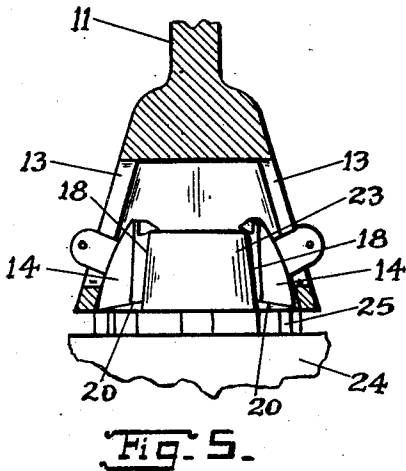
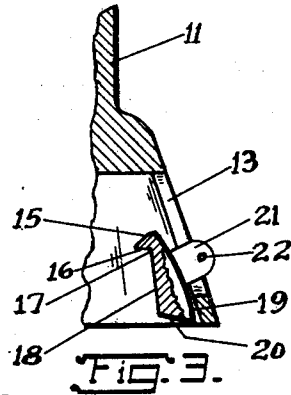
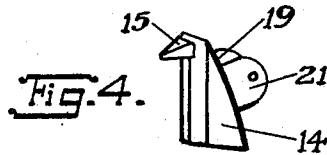
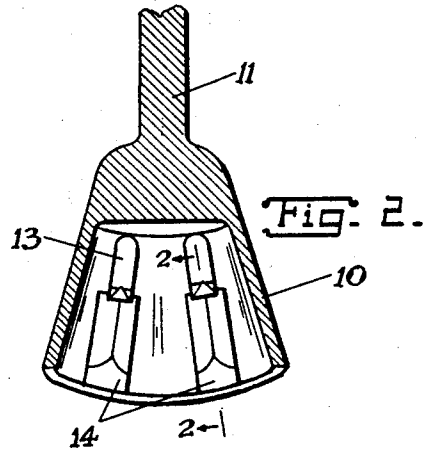
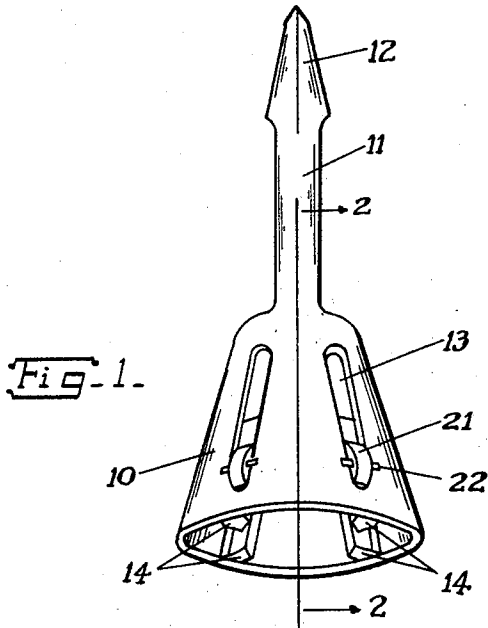
Sept. 2, 1930.

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1,774,567

SELF ALIGNING SELF ADJUSTING BATTERY TERMINAL SCRAPER

Filed Aug. 13, 1929



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UNITED STATES PATENT OFFICE

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SELF-ALIGNING, SELF-ADJUSTING BATTERY-TERMINAL SCRAPER

Application filed August 13, 1929. Serial No. 385,648.

This invention relates to new and useful improvements in battery terminal scrapers and has more particular reference to a novel self aligning, self adjusting scraper. As is well known, excessive corrosion takes place at the terminals of a battery during use, and upon recharging of the battery it is necessary to remove the corrosion for permitting efficient passing of current. When the battery is replaced for use again, the terminals must be clean and free from erosion matter. Conventional battery terminals are slightly tapered so that the clips which engage thereon may grip tightly and form a positive connection.

Many attempts have been made to provide apparatus for the cleaning of the terminals but all of these contrivances have numerous defects which the present invention eliminates. One form of cleaner consists in providing wire brushes arranged to slide at an inclination substantially equal to that of the taper of a battery terminal, and supported in a holder capable of being turned around the terminal. Many faults are inherent in this construction, the main one being the scratching of the terminals by the bristles. Since the bristles are depended upon to do the cleaning necessarily they must be straight, and it has been found that in use they bend thus becoming inoperative. The scratching of the terminals is highly undesirable in that upon subsequent use of the battery and further corrosion, the scratches become filled with the erosion material, which then cannot be removed with the specific cleaner. In addition, the continual scratching wears out the terminal in a short period of time.

The present invention is calculated to provide self aligning, self adjusting scrapers arranged to be turned around a battery terminal and remove the corrosion material. Since the scraping surfaces are continuous without breaks, they will leave the battery terminal with a very smooth surface. It is known that this condition of the terminal is best for the passage of currents. In addition, the scraping of the terminals produces negligible wear and does not provide any scratches whereby subsequent corrosion material may fill in.

It is proposed to provide each of the scraper tools used in the instant device with a top lip providing a corner for pivoting against the upper corner of a battery terminal, an inner scraper edge for acting against the sides of the terminal, an outer rocking face for providing self aligning features, and a bottom inward thrust face for automatically forcing the scraping edge firmly against the sides of the terminal. It is manifest that this construction automatically accomplishes alignment and adjustment of the scraping edges against the terminal irrespective of slight differences in diameters which may exist. The positive and negative terminals of existing batteries are of slightly different diameters providing a foolproof construction against interchanging. The instant scraper is adapted to readily clean these terminals irrespective of their different diameters.

The invention further proposes the provision of a device of the class mentioned which is of simple durable construction, dependable in use and efficient in action, and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:—

Fig. 1 is a perspective view of a device constructed according to this invention.

Fig. 2 is a fragmentary perspective view taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a perspective detailed view of one of the scraping tools.

Fig. 5 is a fragmentary vertical sectional view of the device shown engaged upon one terminal of a battery, and

Fig. 6 is a similar view of the other terminal of the battery.

The reference numeral 10 indicates generally a hollow conical base portion of a body

for the device and is opened at the bottom, and at its top connects with a vertical stem 11. The top of the stem 11 is provided with a tapered shank 12 adapted for engaging customary turning tools. The sides of the conical portion are formed with vertical slots 13 extending from a slight distance from the bottom edge to the top.

In each of the slots of the conical base portion, a scraping tool 14 is slidably, adjustably and alignably mounted. The tool 14 includes a protruding top lip 15 with a bottom face 16 downwardly and outwardly inclined for extending over the top of a battery terminal, and providing a corner 17 engageable with the top edge of the terminal for permitting pivoting, an inner scraping edge 18 substantially vertical but slightly inclined outwards from the top down for engaging against the tapered sides of the battery terminal, an outer aligning side 19 curved outwardly for pivotally seeking an adjusted position against the inner surface of the hollow conical base portion of the body, and an inner thrust-forming bottom surface 20 substantially horizontal but slightly inclined downwards from its inner to its outer side for engaging against the customary terminal nut of the terminal of a battery and pivoting the tool about the corner 17 for urging the scraping edge 18 against the sides of the battery terminal.

Each of these tools 14 is formed with an outer projecting lug 21 engaging thru the slot 13 of the conical base portion and extending from the outer side of this portion. A pin 22 is engaged thru the lug 21 and serves to maintain the tool against displacement. Manifestly, the tool may be moved up and down along the slot 13 and may be rocked on its surface 19 as is permitted by the pin 22.

In operation of the device, the shank 12 is engaged in a turning tool and then it is placed upon the terminal of a battery as illustrated in Figs. 5 and 6. Next the body is rotated and at the same time forced downwards. The lip 15 engages against the top of the terminal so that the corner 17 rests against the corner of the terminal. The inner face of the conical base portion of the body acts against the curved outer face 19 for urging the tools inwards. In addition, the bottom face 20 of each of the tools acts against the nut of the battery for urging the scraping face against the sides of the terminal. In Fig. 5 a large diameter battery terminal 23 has been illustrated upon a battery 24 and provided with the conventional terminal nut 25. The outer edge of the bottom surface 20 is shown engaged against the top surface of the nut 25 and acting to urge the scraping edge 18 against the sides of the terminal.

In Fig. 6 the same arrangement has been shown as in Fig. 5 excepting that the terminal

23' is of smaller diameter than 23. It will be noticed that the scraping tools assume the same positions in each case. The only difference in the condition of the device is that the body member is lower in the case where the terminal is of smaller size. A close inspection of Fig. 5 shows the bottom of the body substantially equal with the top of the nut 25, while in Fig. 6 the bottom is shown below the top surface of the nut. Attention is called that in conventional batteries, the positive and negative terminals are of the same heights and have the same tapers but are of slightly different diameters.

While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations therein may be made. I therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit or the scope of the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:—

1. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip for engaging the top of a battery terminal, an inner scraping element substantially vertical for engaging against the sides of the battery terminal, an outer aligning side for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body and pivoting the tool for urging the scraping element against the sides of the battery terminal, and a projection from its outer face extending thru the slot, and means for slidably holding the projection in the slot.

2. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip with a bottom downwardly and outwardly inclined surface for extending over the top of a battery terminal and providing a corner engageable with the top edge of the terminal, an inner scraping edge substantially vertical but slightly inclined outwards from the top down for engaging against the sides of the battery terminal, an outer aligning side curved outwardly for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body, an inward-thrust-forming bottom surface substantially horizontal but slightly inclined downwards from its inner to its outer side for engaging against a portion of the battery adjacent the terminal and pivoting the tool about the corner formed by

the top lip for urging the scraping edge against the sides of the battery terminal, and a projection from its outer face extending thru the slot, and means for slidably holding the projection in the slot.

substantially vertical but slightly inclined outwards from the top down for engaging against the sides of the battery terminal, an outer aligning side for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body, an inward-thrust-forming bottom surface substantially horizontal but slightly inclined downwards from its inner to its outer side for engaging against a portion of the battery adjacent the terminal and pivoting the tool about the corner formed by the top lip for urging the scraping edge against the sides of the battery terminal, and a projection from its outer face extending thru the slot, and means for slidably holding the projection in the slot.

3. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip for extending over the top of a battery terminal and providing a corner engageable with the top edge of the terminal, an inner scraping edge substantially vertical but slightly inclined outwards from the top down for engaging against the sides of the battery terminal, an outer aligning side curved outwardly for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body, an inward thrust-forming bottom surface substantially horizontal but slightly inclined downwards from its inner to its outer side for engaging against a portion of the battery adjacent the terminal and pivoting the tool about the corner formed by the top lip for urging the scraping edge against the sides of the battery terminal, and a projection from its outer face extending thru the slot, and means for slidably holding the projection in the slot.

6. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip with a bottom downwardly and outwardly inclined surface for extending over the top of a battery terminal and providing a corner engageable with the top edge of the terminal, an inner scraping edge substantially vertical but slightly inclined outwards from the top down for engaging against the sides of the battery terminal, an outer aligning side curved outwardly for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body, an inward-thrust-forming bottom surface slightly inclined downwards from its inner to its outer side for engaging against a portion of the battery adjacent the terminal and pivoting the tool for urging the scraping edge against the sides of the battery terminal, and a projection from its outer face extending thru the slot, and means for slidably holding the projection in the slot.

4. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip for engaging the top of a battery terminal, an inner scraping edge substantially vertical but slightly inclined outwards from the top down for engaging against the sides of the battery terminal, an outer aligning side curved outwardly for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body, an inward-thrust-forming bottom surface substantially horizontal but slightly inclined downwards from its inner to its outer side for engaging against a portion of the battery adjacent the terminal and pivoting the tool for urging the scraping edge against the sides of the battery terminal, and a projection from its outer face extending thru the slot, and means for slidably holding the projection in the slot.

5. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip with a bottom downwardly and outwardly inclined surface for extending over the top of a battery terminal and providing a corner engageable with the top edge of the terminal, an inner scraping edge

7. A battery terminal scraper, comprising a body with a hollow conical base portion open at the bottom, the sides of the conical portion being formed with vertical slots, and a scraping tool mounted in each slot and including a top lip with a bottom downwardly and outwardly inclined surface for extending over the top of a battery terminal and providing a corner engageable with the top edge of the terminal, an inner scraping edge substantially vertical but slightly inclined outwards from the top down for engaging against the sides of the battery terminal, an outer aligning side curved outwardly for pivotally seeking an adjusted position against the inner surface of the hollow conical portion of the body, an inward-thrust-forming bottom surface substantially horizontal but slightly inclined downwards from its inner to its outer side for engaging against a portion of the battery adjacent the terminal and pivoting the

tool about the corner formed by the top lip
for urging the scraping edge against the
sides of the battery terminal, and a projec-
tion from its outer face extending thru the
5 slot, and a pin engaged thru the projection
and on the outside of the body for slidably
holding the projection in the slot.

Signed at New York in the county of
New York and State of New York this 10th
10 day of August A. D. 1929.

ALBERT RAPHAEL.

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