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L. RENARI

BATTERY CLAMP REMOVING TOOL

Filed May 6, 1924

Fig. 1

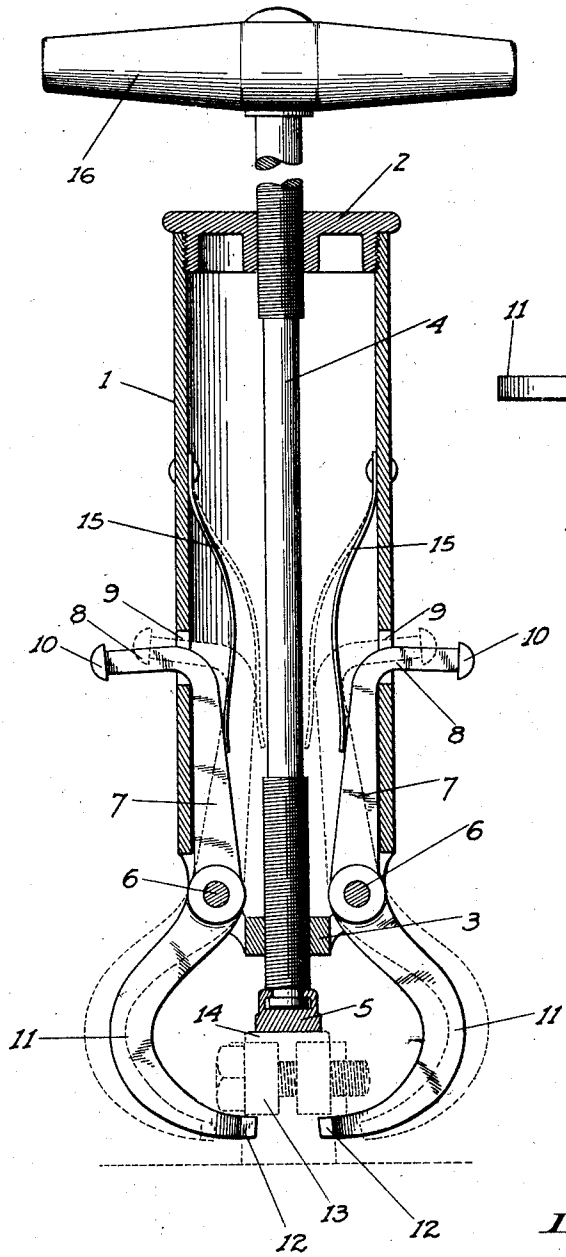
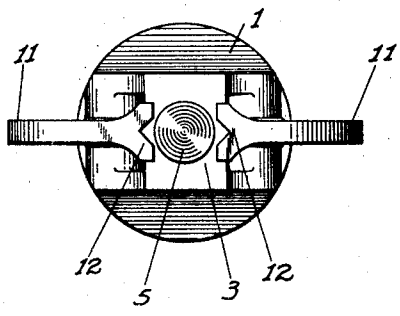



Fig. 2




INVENTOR

Louis Renari

BY Percy S. Webster

ATTORNEY

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# UNITED STATES PATENT OFFICE.

LOUIS RENARI, OF SANTA ROSA, CALIFORNIA.

## BATTERY-CLAMP-REMOVING TOOL.

Application filed May 6, 1924. Serial No. 711,403.

This invention relates to a tool for removing the ordinary split cable terminal clamps used in connecting the current cables to the posts of storage batteries of the usual wet-cell type widely used in automobiles and the like.

At present, when it is desired to remove the battery from the car or other location, the clamps, which have a wedge fit on the posts, are loosened and pried up with any implement handy, such as a screw-driver, pliers and the like. The posts being of lead, are very easily damaged and the clamps being nonresilient, tend to grip the same very firmly even when the clamping screws are loosened. This is especially true if the clamp is corroded, as is frequently the case with the crude methods of removing the clamps now employed, the post or clamps are apt to be ruined, and internal and unseen injury is sometimes done to the parts of the battery to which the posts are connected.

The principal object of my invention therefore is to provide a tool by means of which a clamp, no matter how tightly fastened it may be to the post, may be easily and quickly removed from the latter, without possibility of damage to the post, clamp or battery.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a sectional elevation of my improved tool.

Fig. 2 is a bottom plan view of the same.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes a hollow shell or barrel of a size such as enables it to serve as a hand-grip member. The opposite ends of the barrel are provided with upper and lower transverse members 2 and 3 respectively, threaded in longitudinally alined relation and centrally of the cross sectional area of the barrel to receive a screw stem 4, on the lower end of which, beyond the member 3, is turnably mounted a head 5.

Pins 6 are journaled in the barrel transversely thereof on opposite sides of and adjacent the member 3. Opposed arms 7 are pivoted on these pins and project upwardly therefrom and inside the barrel for a certain distance. The upper ends of these arms are formed with outwardly extending portions 8 which project through slots 9 cut in the barrel, the said portions 8 having finger buttons or pads 10 on their outer ends. Below the pins and barrel the arms 7 are formed with hook-like jaw members 11, whose lower ends are substantially horizontally disposed and lie in opposed alinement with each other. Said lower ends are widened as at 12 so as to provide ample surface for engagement with the under face of a common battery clamp 13 on opposite sides thereof, the adjacent edges of said widened portions being concaved so as to partially surround the post 14 on which the clamp is fixed.

Springs 15 are fixed at one end in the barrel 1 above the arms 7 and bear at their lower ends against the said arms. These springs act to force the arms against the barrel 1, and consequently normally hold the lower ends of jaw or clamp engaging members 11 adjacent each other. The contact of the arms with the barrel prevents the springs from forcing said jaws towards each other closer than a definite distance, so that said jaws will not grip the post 14 when applied thereto.

A handle 16 is fixed on the upper end of the stem 4 so that the latter may be readily turned and hence advanced or retracted in the barrel.

To operate the tool, the stem is first retracted, and the jaws 11 are spread, by pressing the pads 10 toward the barrel, sufficiently to enable the portions 12 to clear the opposite sides of the clamp 13.

The tool is then lowered so that the portions 12 are below the clamp, and the pads are then released, permitting the parts 12 to close under the clamp. The spread of the portions 11 is sufficient so that they never come in contact with the sides of the clamp when the ends 12 are about the post 14.

The stem is then advanced in the barrel, the head 5, which is of smaller diameter than the post 14, being engaged with the top of the latter. It will then be evident that as the head 5 and ends 12 approach each other with such stem-advancing movement, the clamp will be pulled from the post. At

the same time no actual downward pressure is exerted on the post such as would tend to depress it into the battery, since the tool is nowhere in contact with the battery box itself.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A battery clamp removing tool comprising a barrel serving as a hand grip member, a stem extending through the barrel lengthwise thereof and threaded therein, opposed arms pivoted in the barrel adjacent one end thereof and projecting thence into the barrel, angled extensions at the free ends of said arms projecting through slots provided in the barrel, spring means normally holding the arms against the barrel, and cooperating and opposed jaw means incorporated with the arms beyond their pivotal connections and projecting beyond the barrel.

2. A battery clamp pulley including a stem adapted at one end for engagement with the top of a battery-post, a support in which said stem is threaded for longitudinal movement, opposed jaw members pivoted on said support, and adapted to pass under a clamp on the post, spring means forcing the jaws toward each other, means limiting the action of the spring whereby to prevent the jaws frictionally engaging the post, and means for spreading the jaws at will.

In testimony whereof I affix my signature.

LOUIS RENARI.