April 28, 1931. F. HOFBAUER 1,802,381

ELECTRICAL CONNECTER

Filed Oct. 13, 1928

Fig. 1.

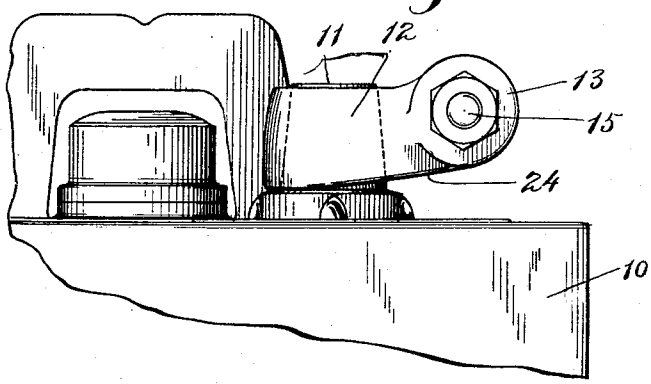


Fig. 2.

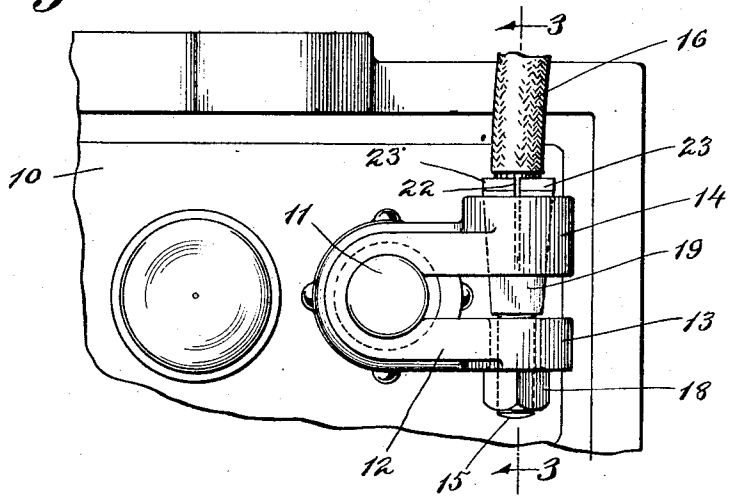


Fig. 3.

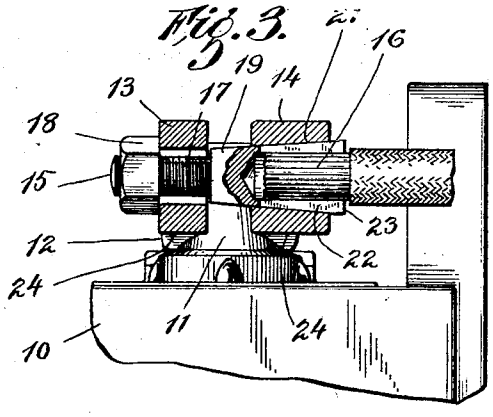
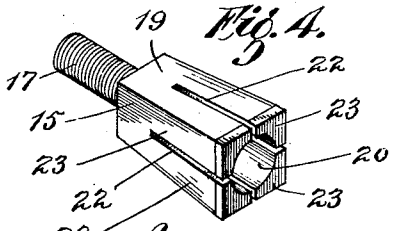


Fig. 4.



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UNITED STATES PATENT OFFICE

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ELECTRICAL CONNECTER

Application filed October 13, 1928. Serial No. 312,229.

This invention relates to electrical connecters and has for its object to provide an improved means for attaching a conductor to a terminal member such as a storage battery post-clamp without the use of solder, and also to provide a novel and useful combination of such attaching means and post-clamp.

Of the accompanying drawings, Fig. 1 is an elevation showing a portion of a storage battery having a terminal post provided with a preferred form of my improved clamp and wire connecter.

Fig. 2 is a plan view of said parts.

Fig. 3 is a vertical section on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the wire-gripping clamp-bolt.

In the drawings, 10 is a storage battery having the usual tapered terminal posts of which one is shown at 11. 12 is a split clamp in the form of a loop embracing the post 11 and having arms 13 and 14 transversely apertured to receive a clamping bolt 15. 16 is the lead-wire forming a part of the external circuit and made up, as usual, of a plurality of individual wire strands enclosed in an insulating sheath except at the end where it makes electrical connection.

For electrically connecting the lead-wire to the post-clamp, the practice almost universally employed prior to my invention has been to solder the wire to the clamp, but this forms a rather stiff connection which is hard to manipulate and makes it difficult to clean off the corrosion from the interior of the clamp. Said construction is also relatively expensive and often gives trouble from corrosion and breakage of individual wires adjacent the clamp. My present invention provides a solderless connection which is superior to the old form in many ways.

The stem 17 of the clamping bolt 15 is screw-threaded and provided with the usual adjusting nut 18 bearing against the clamp arm 13. The head or body 19 of said bolt, however, is formed with an axial-bore or aperture 20 to receive the end of the wire 16, and is externally tapered or wedge-formed to fit in a complementally-tapered aperture 21 in the clamp arm 14, said tapered parts being preferably faceted or square in cross-section as shown, to prevent turning.

It is further provided with longitudinal clefts or saw-cuts 22 in two planes at right-angles, which divide the body 19 into four jaws or grippers 23 having some spring or resilience permitting them to contract radially upon the wire 16 when the wedge-formed member 19 is forced into the tapered aperture 21 by drawing up the nut 18 on the end of the bolt. The parts may be made of suitable material such as bronze or steel or both, and are preferably lead-coated to resist acid.

It will be seen that the arms 13, 14 are drawn together to tighten the clamp 12 upon the post 11, and the jaws 23 are radially contracted upon the wire 16 through wedging action, by the single operation of turning up the nut 18 against the clamp arm 13. To loosen the connection, nut 18 is backed off and the arms 13, 14 may, if necessary, be spread by a screw-driver inserted between them, the downward pressure of which aids in the spreading through the tilting of clamp 12 which is permitted by the upwardly-slanting form given to the lower edges 24 of said arms as indicated in Figs. 1 and 3. The wedge-formed body 19 of the bolt may be loosened from the arm 14 by tapping the opposite end of the bolt and said bolt can then be withdrawn and the wire 16 readily released from the gripper jaws 23.

Thus I provide a wire attachment and clamping device occupying no more space than the ordinary soldered connection but superior thereto in many ways. Since the clamp 12 is detachably connected to the wire 16, it may be easily manipulated independently thereof in applying it to and removing it from the battery post, and may be readily freed from corrosion when necessary. The wedging reaction between the arm 14 and jaws 23 causes a powerful gripping action of said jaws upon the wire which firmly secures the latter and forms a good electrical connection, with only a moderate exertion of power in turning the nut 18. The wire is not substantially deformed by the jaws, but may be repeatedly attached and detached with little or no reshaping and it may have

contact with the jaws over a maximum proportion of its surface. This device has the further advantage of low cost of manufacture.

While a preferred form of the invention has been described, it will be understood that the details of construction and arrangement are subject to modification within the scope of the appended claims.

I believe myself to be the first to provide a combined post-clamp and wire grip in which a wedging bolt performs the dual function of gripping the external circuit wire and also closing a split clamping collar upon the post and I do not wholly limit the form of the invention, for example, to one in which the gripper encloses the wire on all sides.

I claim:

1. An electrical connecter comprising a battery-post clamp having a pair of transversely-apertured arms, and a bolt occupying the apertures in said arms for drawing said arms together to grip the post, said bolt having radially-acting wire-gripping jaws which are externally wedge-formed where they pass through one of said arms.

2. An electrical connecter comprising a battery-post clamp having a pair of clamping arms, and a clamp-operating bolt passing through said arms and having a radially-acting wire-gripper mounted in non-turning, wedging relation to one of said arms.

3. An electrical connecter comprising a battery-post clamp having a pair of clamping arms, and a clamp-operating bolt passing through said arms, and having a body divided into radially-acting wire-gripping jaws, said body and the clamp-arm through which it passes being complementally faceted to prevent turning of the bolt.

4. An electrical connecter comprising a battery-post clamp having a bolt hole and a wire-gripping, clamp-operating bolt in said hole having radially-acting, externally wedge-formed jaws whose gripping faces collectively form a longitudinal wire aperture whose cross-sectional outline is a complete circle interrupted by relatively narrow clefts between the jaws.

5. An electrical connecter comprising a battery-post clamp including a pair of clamping arms, one of which has a squared aperture, and a bolt having on one end a threaded stem provided with a nut engaging the other of said clamp arms, and on the other end an externally wedge-formed body squared to fit said squared aperture, said body being divided into four radially-acting jaws enclosing a longitudinal wire aperture between them.

In witness whereof I have hereunto set my hand this 9th day of October, 1928.

FRANK HOFBAUER.