H. DALITZ.

ELECTRICAL TERMINAL.

APPLICATION FILED MAR. 1, 1919.

1,319,760.

Patented Oct. 28, 1919.

FIG. 1.

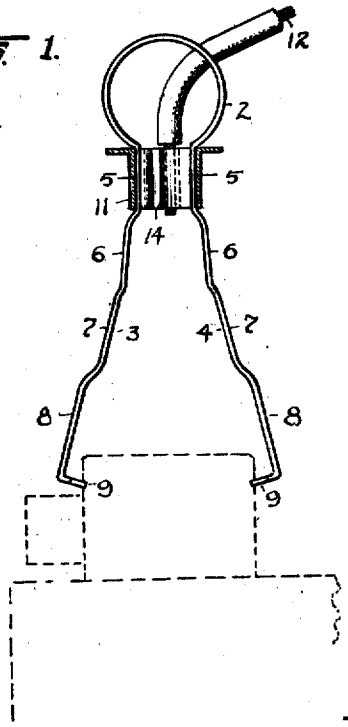


FIG. 2.

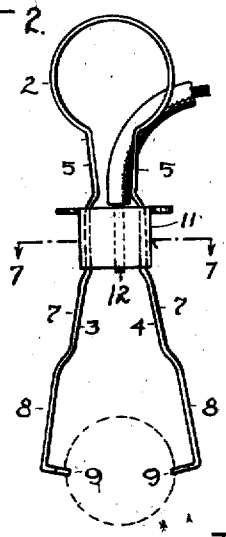


FIG. 3.

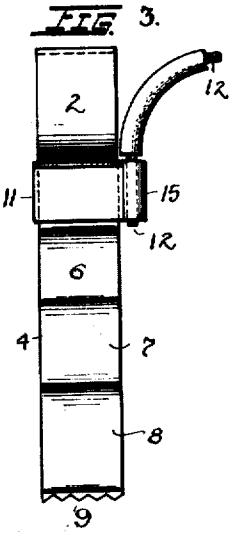


FIG. 6.

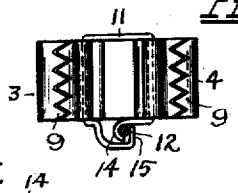


FIG. 4

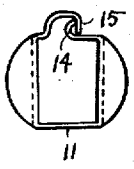


FIG. 5.

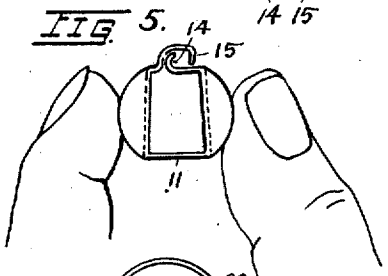


FIG. 7.

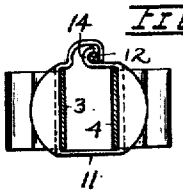
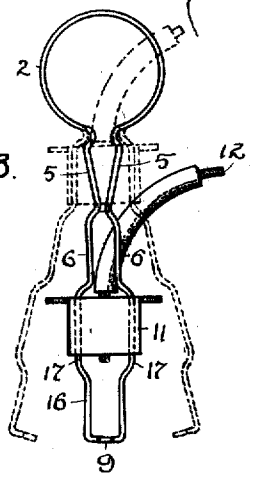


FIG. 8.



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ELECTRICAL TERMINAL.

1,319,760. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed March 1, 1919. Serial No. 279,934.

To all whom it may concern:

Be it known that I, HARRY DALITZ, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electrical Terminals, of which the following is a specification.

My invention relates to electrical terminals, and the object of the invention is to provide a spring connector for electric wires adapted to permit quick and positive attachment and detachment of a wire conductor with a storage battery or other electrical apparatus.

Thus referring to the drawing forming part of this application, Figure 1 is a front view of a spring connector constructed according to my conception, showing the compression band in cross section and encircling the upper steps of the spring shanks, the extremities of said shanks being spread apart substantially to their maximum and engaged with a terminal lug of a battery shown in dotted lines. Fig. 2 is a view corresponding to Fig. 1 but with the band slipped down and around the second step on the shanks which are thereby pressed correspondingly nearer as in gripping a smaller conductor or terminal lug of a battery. Fig. 3 is a side view of the connector shown in Fig. 1. Fig. 4 is a plan view of the wire gripper and compression band, without a wire, and Fig. 5 shows the band compressed between a thumb and finger as in opening the wire gripping jaws. Fig. 6 is a bottom view of Fig. 2, and Fig. 7 a cross section on line 7—7, Fig. 2, showing a wire clamped within the gripping jaws. Fig. 8 is a front view of a modified form of the invention showing the shanks completely closed in full lines and wide open in dotted lines.

The invention comprises a connector made of flat spring metal bent double or into bow form with a round spring loop 2 and two diverging spring shanks 3 and 4. Each shank has stepped surfaces 5, 6, 7 and 8 which are flat but slightly inclined relatively to each other successively from top to bottom thereof and the lower end or extremity of each shank is bent inward a short distance and serrated or provided with sharp teeth 9 adapted to afford a good grip and electrical contact, especially where soft material is engaged as in a battery lug or terminal made of lead. The inherent spring in the loop 3 spreads the shanks apart, and a metal band 11 is sleeved over both shanks and is adapted to be slipped up or down over the stepped surfaces to compress the shanks and bring them together so that terminal lugs of different sizes or any conducting part in a battery may be gripped and positively clamped between the serrated ends 9 of the shanks. Each pair of steps is also of substantially the same length as the band, and by inclining the stepped surfaces slightly in respect to each other the band is adapted to make a flush or flat seating engagement the full length of each pair of steps when engaged successively therewith. The inherent spring in the shanks also permits the shanks to flex when gripping an object, and the tension may be varied by shifting the band from one pair of steps to another, although the several steps permit positive clamping of the shanks upon objects of different size without springing the shanks excessively or to their injury. Moreover, the flat surfaces of each pair of steps lie in substantially parallel planes when the band is slipped thereover, and therefore the tendency of the parts is to remain in this locked relation notwithstanding that the shanks are otherwise extended on diverging lines.

An electrical wire 12 may be coupled to either one of the two parts described by suitable binding means, but preferably to the band 11, and a quick detachable binding coupling for the bare end of wire 12 is provided by dividing the band longitudinally at one side and forming a curled flange and semi-circular seat 14 for the wire in one divided portion of the band and an overlapping hook with a straight inturned flange 15 in the adjoining portion of the band. This band is also made of spring metal and the tendency of the divided parts is to spread so that the curled and straight flanges are held in engagement, but by compressing the band between the finger and thumb, whether the band is pressed alone or together with the spring shanks of the connector, the said flanges 14 and 15 are pressed apart sufficiently to permit the straight bare wire to be inserted. Upon relieving the compression on the band, the inherent spring will lock the wire in place, and in use the band also confines the spring shanks which impart a still stronger

spreading pressure upon the band and wire. It is possible, however, to compress the band and remove the wire without unclamping the spring shanks from the battery lug, and this is sometimes an advantage in making or changing connection. On the other hand the band may be slipped from one pair of steps to another to clamp the shanks upon battery lugs of varying width and shape without releasing the grip on the wire, and by having the wire coupled to the band the electrical resistance offered by the shanks is lessened the nearer the band is slipped or engaged with the serrated clamping ends of the shanks. A positive clamping action is also obtained by using the band as described and the connection is a permanent one and not one which will break or loosen and cause trouble during battery charging operations.

In Fig. 8 I show a modified form of connector 16 having shanks with stepped enlargements 17 near the lower clamping ends thereof, and these enlargements permit the shanks to be placed under tension by the band when the serrated ends are closed upon each other, although substantially the same effect is obtained in the other form of shank shown in Fig. 1, providing the band encircles the lower ends of the shanks.

What I claim is:

1. An electrical terminal connector, comprising a spring bow having diverging shanks, and a split spring band for said shanks having flanged portions adapted to detachably bind a wire therebetween.

2. An electrical terminal connector, comprising a spring-bow having stepped shanks, and a flat spring-metal band in slip engagement with said stepped shank having overlapping divisional portions adapted to detachably bind a wire therebetween.

3. An electrical terminal connector, comprising a pair of stepped spring shanks having serrated clamping ends, and a divided band of spring-metal having a semi-round seat for a wire and a binding member for the wire opposite said seat.

Signed at Cleveland, in the county of Cuyahoga, and State of Ohio, this 17th day of February, 1919.

HARRY DALITZ.