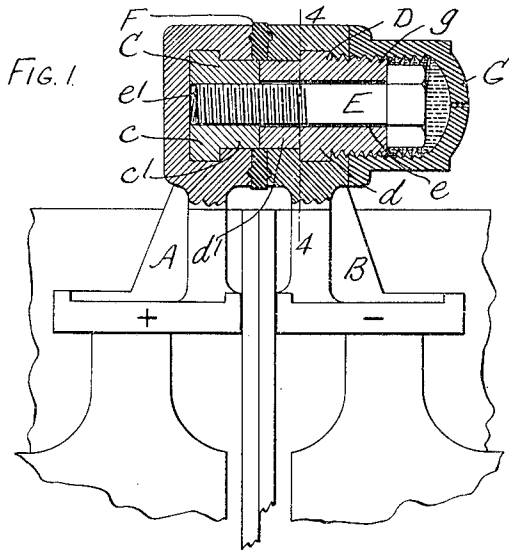
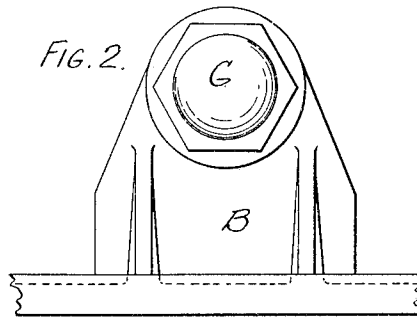
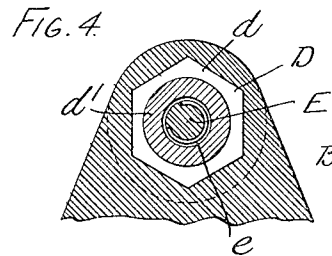
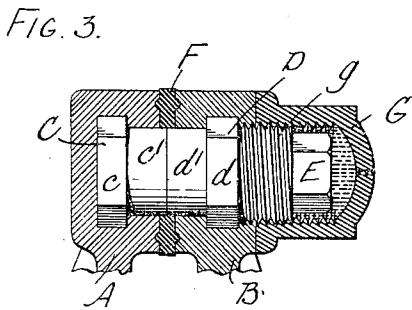
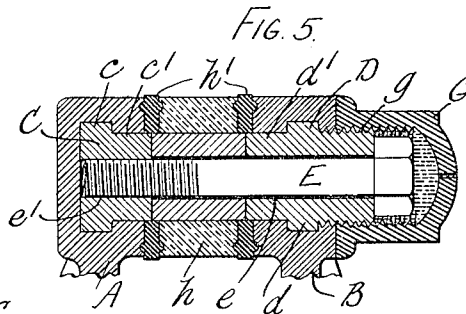
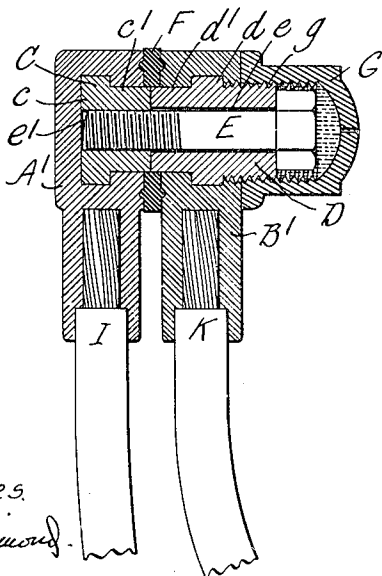


A. H. SNYDER.
CONNECTOR FOR BATTERY TERMINALS AND OTHER ELECTRICAL CONDUCTORS.
APPLICATION FILED AUG. 13, 1913.

1,120,554.

Patented Dec. 8, 1914.



Witnesses.
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UNITED STATES PATENT OFFICE.

ALMOND H. SNYDER, OF LANCASTER, NEW YORK, ASSIGNOR TO GOULD STORAGE BATTERY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CONNECTOR FOR BATTERY-TERMINALS AND OTHER ELECTRICAL CONDUCTORS.

1,120,554.

Specification of Letters Patent.

Patented Dec. 8, 1914.

Application filed August 13, 1913. Serial No. 784,523.

To all whom it may concern:

Be it known that I, ALMOND H. SNYDER, a citizen of the United States, residing at Lancaster, in the county of Erie and State of New York, have invented a new and useful Improvement in Connectors for Battery-Terminals and other Electrical Conductors, of which the following is a specification.

This invention relates more particularly to connecting devices for storage battery terminals and conductors which are liable to corrosion from contact with acids and acid fumes.

The object of the invention is to produce a connection of simple construction and composed of the minimum number of parts, which has hard metal contact pieces insuring a mechanically strong and electrically superior connection and in which the contact pieces are effectually inclosed and protected from attack by acid or acid fumes.

In the accompanying drawings: Figure 1 is a sectional elevation of a connection embodying the invention, showing the same connecting the terminals of adjoining storage battery cells. Fig. 2 is an end elevation thereof. Fig. 3 is a sectional view showing the contact pieces in elevation. Fig. 4 is a cross-section thereof in line 4-4, Fig. 1. Fig. 5 is a view similar to Fig. 1 showing the provision of an adapter for lengthening the connection. Fig. 6 is a view similar to Fig. 1 showing the application of the connection to conductors.

Like reference characters refer to like parts in the several figures.

Referring first to Figs. 1-5, A and B represent the terminals of adjoining storage battery cells. These terminals may consist, as usual, of lead pieces attached to the battery plates by burning. Secured in and surrounded by one of the terminals, for example the terminal A, is a contact piece C, and secured in and surrounded by the other terminal B is a contact piece D. These contact pieces are made of brass or other suitable hard metal which will insure a good electrical and mechanical contact and are secured in the terminals when molding the latter by casting the metal of the terminals around the contact pieces. The contact piece C preferably has a portion *c* of polygonal shape and a reduced portion *c'* which

may be of circular cross-section, and the other contact piece has similar polygonal and circular portions *d* and *d'*, respectively. By making the contact pieces of this shape they are securely anchored and held in the terminals, both against turning and endwise movement, and they can be readily and cheaply turned from a rod of polygonal cross-section. The contact pieces can, however, be made of any other suitable shape which will securely anchor them in the terminals. The adjacent ends of the contact pieces are exposed and adapted to bear end to end against the other. A bolt E passing through a hole *e* in the contact piece D and screwed into a threaded hole *e'* in the contact piece C clamps the contact pieces together and connects the terminals in which they are fixed. Since the contact pieces are made of hard metal and bear directly against each other they can be bolted tightly together, and thus insure a very secure and firm connection between the terminals.

F represents a yielding washer of rubber, soft metal, or other suitable material, clamped between the adjacent ends of the terminals A and B surrounding the exposed ends of the contact pieces so as to prevent the access of acid or acid fumes to the contact pieces and the bolt through the joint between the terminals.

G represents a cap nut which is screwed on the threaded outer end *g* of the contact piece D and incloses and protects this end and the head of the bolt E. This cap nut can be made of antimony, hard rubber or other material which is not attacked by acid. It is preferably filled with grease and is provided with a small hole *g'* which allows the excess grease to exude so that the nut can be screwed up tight.

An adapter of suitable length can be interposed between the contact pieces as shown in Fig. 5, if this is necessary in order to lengthen the connection so as to adapt it to batteries in which the terminals are spaced farther apart. This adapter consists of a tubular core of brass or other suitable hard metal which is arranged between and contacts at its ends with the ends of the contact pieces C and D, and a covering *h* of lead or other suitable protecting material. The bolt passes through the core of the

adapter. When the adapter is used two washers *h'* are placed between the ends thereof and the terminals A and B.

When the connection is used for joining flexible or wire conductors I and K, as shown in Fig. 6, the terminals A' and B' are made of appropriate shape for this purpose and are secured to the conductors in any usual or suitable way. Otherwise the construction of this connection is the same as before described.

In the claims the word "terminals" is employed to designate the conducting parts to be connected, whether they be battery terminals as shown in Figs 1-5, or portions of electrical conductors as shown in Fig. 6.

I claim as my invention:

1. The combination of two terminals, contact pieces fixed in said terminals, said contact pieces having exposed inner contact ends, the outer end of one of said contacts being inclosed in its terminal, a bolt passing through one of said contact pieces and screwed into the other for forcing said contact pieces toward each other and connecting said terminals, and a cap inclosing the head of said bolt, substantially as set forth.

2. The combination of two terminals, contact pieces fixed in said terminals, said contact pieces having exposed inner contact ends, the outer end of one of said contacts being inclosed in its terminal and the outer end of the other contact piece being screw threaded, a bolt passing through said latter contact piece and screwed into the former contact piece, and a cap nut screwed on said threaded end of the latter contact piece and inclosing the head of said bolt, substantially as set forth.

3. The combination of two terminals, contact pieces fixed in said terminals, said con-

tact pieces having exposed inner contact ends, a bolt passing through one of said contact pieces and screwed into a threaded hole in the other for forcing said contact pieces toward each other and connecting said terminals, a cap inclosing the head of said bolt, and an adapter arranged between the adjacent ends of said terminals and having a contact core clamped between the ends of said contact pieces and a surrounding protecting cover whereby said contact pieces and bolt are entirely inclosed and protected, substantially as set forth.

4. The combination of two terminals, contact pieces fixed in said terminals, said contact pieces having exposed inner ends adapted to bear one against the other, the outer end of one of said contacts being inclosed in its terminals, a clamping member for securing said contact pieces together, and a cap inclosing the outer end of the other contact and said clamping member, substantially as set forth.

5. The combination of two terminals, contact pieces fixed in said terminals, said contact pieces having exposed inner contact ends, the outer end of one of said contacts being inclosed in its terminal and the outer end of the other contact piece being screw threaded, a cap nut screwed on said threaded end of said latter contact piece, and means for drawing said contact ends of the contact pieces together, said means being entirely inclosed by said cap nut and said terminals, substantially as set forth.

Witness my hand, this 11th day of August, 1913.

ALMOND H. SNYDER.

Witnesses:

C. FITZGERALD,
C. W. ENGLISH.