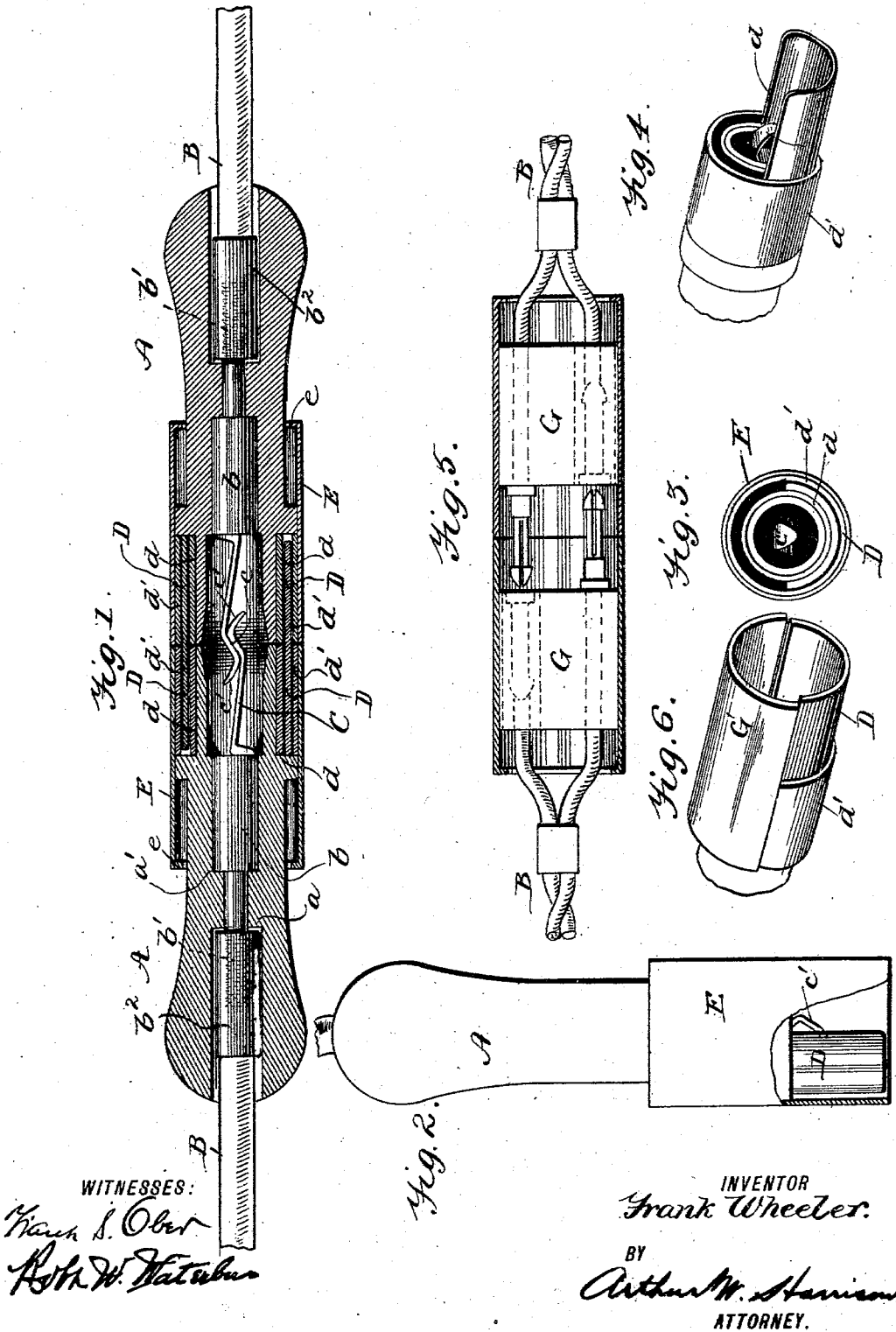


(No Model.)

F. WHEELER.
ELECTRIC CONNECTOR.

No. 453,225.

Patented June 2, 1891.



UNITED STATES PATENT OFFICE.

FRANK WHEELER, OF MERIDEN, CONNECTICUT.

ELECTRIC CONNECTOR.

SPECIFICATION forming part of Letters Patent No. 453,225, dated June 2, 1891.

Application filed December 30, 1890. Serial No. 376,297. (No model.)

To all whom it may concern:

Be it known that I, FRANK WHEELER, of Meriden, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Electric Connectors; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in electric connectors, and has particular reference to that class of such devices in which the main object is to obtain an immediate and automatic separation of the two parts when from any cause an unusual tension strain occurs in the electric conductor.

My object is to simplify the construction of such devices and to provide means for preventing injury to a person who might come in contact with one portion of the connector of a live wire while another portion of the body is in contact with some short-circuiting medium.

My invention consists in the construction and combination of parts, as hereinafter described and claimed.

In the drawings which accompany and form a part of this specification, Figure 1 is a longitudinal section of my connector uniting two portions of a conductor-wire. Fig. 2 is a side elevation of one of the pair of terminals, the two being exact duplicates of each other, a portion of the sliding protector being broken out in said figure. Fig. 3 is an end view of the same. Fig. 4 is a perspective view of the same, the sliding protector being omitted. Fig. 5 is a longitudinal section of a modification hereinafter referred to, and Fig. 6 is a perspective view of a modification hereinafter referred to.

Each terminal consists of a handle A, of wood or other non-conducting material, longitudinally bored, said boring being contracted at one portion to form two shoulders *a* and *a'*. In the front enlargement of the handle is a metallic block *b*, having a screw-threaded pin *b'* extending rearwardly and fitting the internally-threaded thimble *b²* of the conducting-wire B. Upon screwing these parts together the terminal is firmly secured to the

wire, owing to the rear end of the block *b* and the front end of the thimble *b²* being held closely to the shoulders *a a'*.

To the front end of the block *b* is secured by any suitable means a contact-spring C, having its end bent at an obtuse angle in one direction, and then at a similar angle in the reverse direction, thus forming a contact and holding surface *c* and a guiding-lip *c'*, whereby when two similar terminals are to be united the two lips ride over each other, guiding each in outward deflection, and then when the apexes of the two springs pass over each other the surfaces *c* will be in contact and serve to hold the two terminals against separation, owing to the resistance of the springs, until a tension is exerted of sufficient force to overcome the strength of the springs. These springs when united complete the circuit of the conductor, and to provide against accidental contact with the end of the spring when two terminals or parts of the connector are separated I have invented the following construction: To the front end of the handle are secured an inner and an outer ferrule *d* and *d'*, respectively, between which is secured a semi-tubular protector D, which extends outwardly nearly as far as the end of the contact-spring. Since the inner end of the protector D occupies but one half of the annular space between the two ferrules, the other half of said space is free to receive the end of the protector of another terminal of the same construction. This semi-tubular extension or protector D serves to prevent, under ordinary circumstances, any contact by accident with the spring C when the connectors are separated, and it also serves to guide the parts together in uniting, so that the springs will be properly presented to each other.

As an additional means of guarding against danger to human life, I show in Figs. 1, 2, and 5 a sliding protector E, which consists of a cylindrical or other shaped tube, according to the shape of the terminal over which it is to slide, and having an inwardly-projecting flange *e*, to serve as a stop to prevent its dropping off the terminal when the two are separated and have dropped to the hanging position shown in Fig. 2. A shoulder on the handle forms an abutment for said stop *e*. When the two terminals or parts of the connector

are united, as in Figs. 1 and 5, the outer ends of the sliding protectors abut against each other and are pushed back; but when the two are pulled apart and they hang downward the protector drops to the position as shown in Fig. 2, and a person passing and touching it cannot accidentally come in contact with the spring C.

In Fig. 5 the terminals or parts of the connector are also duplicates of each other, but are for double-wire connection. In this figure the two wires are connected one to a socket in the insulating-block G and the other to a split pin projecting therefrom.

The object of forming the two parts of the connector exactly alike, it will be understood, is that when used for an electric conductor in a railway-car no difference will result when a car of a train is turned about or end for end.

In Fig. 6 I illustrate a modification in which, instead of a sliding or a sleeve protector, I secure to the outside of the outer ferrule d' a second semi-tubular protector G' , of the same shape as the protector D, but of course larger in diameter, and its location being diametrically opposite the protector D. In slipping two such terminals or parts of the connector together the action is the same as in the construction shown in Fig. 1; but, the sliding tubes being omitted and the fixed semi-tubes taking their place, the edges or sides g of the latter engage each other outside the ferrules precisely the same as do the sides of the semi-tubes D inside the outer ferrules.

Having, thus described my invention, I claim—

1. An electric connector consisting of a pair of duplicate parts, each of said parts having

a semi-tubular projection and a semi-annular recess, and a flat contact C, of spring material, rigidly secured at one end to the terminal of the conductor and having its other end bent at an obtuse angle in one direction and then at a similar angle in the other direction, substantially as described.

2. An electric connector consisting of a pair of duplicate parts, each having a semi-tubular projection and diametrically opposite thereto a semi-annular recess of a depth equal to the length of the projection, substantially as and for the purpose described.

3. An electric connector consisting of a pair of duplicate parts, each having a spring-contact, semi-tubular extension D, and semi-tubular extension G, of a larger diameter and diametrically opposite the extension D, substantially as described.

4. In an electric connector, the combination, with a handle having the conductor and contact, of two ferrules secured thereto and forming an annular space, and a semi-tubular protector having one end secured in said space, substantially as described.

5. The combination, with the handle A, longitudinally bored and having shoulders a' of the block b , having contact-spring C and the screw-threaded pin b' , and the conductor B, having threaded thimble b^2 , substantially as described.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

FRANK WHEELER.

Witnesses:

D. N. WILLIAMS,
LOUIS FISK.