June 12, 1923. 1,458,811

G. E. ECKERT

INSULATOR CONNECTOR

Filed Sept. 30, 1920

Fig. 1.

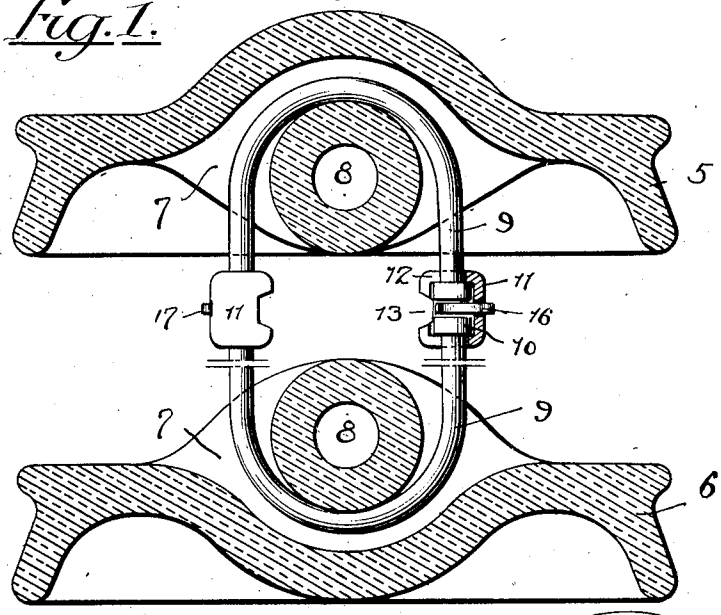


Fig. 2.

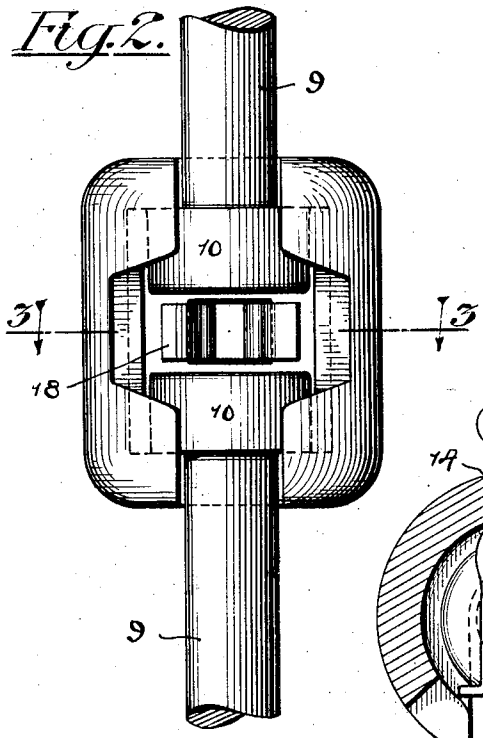


Fig. 4.

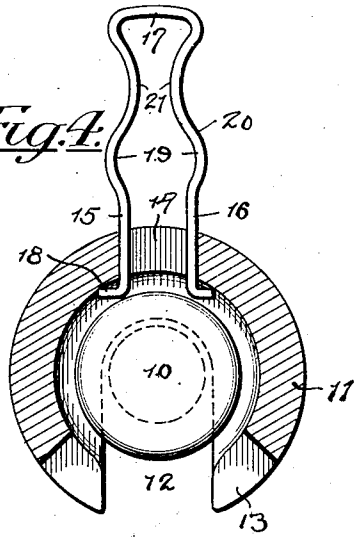
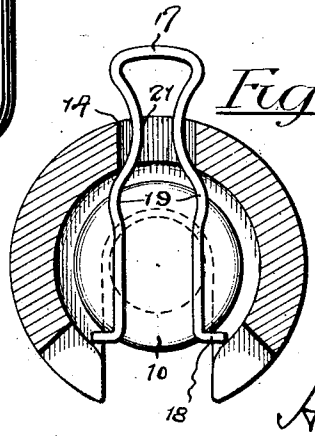


Fig. 3.



Inventor
Grandon E. Eckert
by his Attorneys,
Howson and Howson

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UNITED STATES PATENT OFFICE.

GRANDON E. ECKERT, OF EAST LIVERPOOL, OHIO, ASSIGNOR TO THE R. THOMAS & SONS CO., OF EAST LIVERPOOL, OHIO, A CORPORATION OF OHIO.

INSULATOR CONNECTOR.

Application filed September 30, 1920. Serial No. 413,855.

To all whom it may concern:

Be it known that I, GRANDON E. ECKERT, a citizen of the United States of America, residing at East Liverpool, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Insulator Connectors, of which the following is a specification.

My invention relates to insulator connectors, and particularly to connectors for suspension insulator links. The object of my invention is to provide a connector of the type shown in the co-pending application of Richard H. Marvin, filed September 29, 1919, Serial No. 327,027, with an improved filler pin serving to hold the link ends against accidental escape from the connectors.

In the accompanying drawings—

Fig. 1 is a vertical section through adjacent insulator units, showing their links united by a connector in which the present invention is embodied;

Fig. 2 is a side elevation of the connector showing the link ends assembled therewith;

Figs. 3 and 4 are cross sections on the line 3—3, Fig. 2, but showing the filler pin in different positions.

In its main features the present device resembles that disclosed in the Marvin application above mentioned, and as there disclosed, is shown in connection with a suspension insulator comprising units 5 and 6, each pierced by passages 7 and 8 lying at right angles to each other and adapted to receive the flexible metal links 9 passed therethrough. The links are provided with enlarged heads 10 engaged by connectors 11, to which the invention particularly relates.

Each connector comprises a hollow body member with end slots 12 communicating with the lateral entry opening 13 at one side through which the heads 10 of the links enter the chamber of the connector. The entry opening 13 is preferably of a size predetermined with relation to the heads 10 of the links, so that while it affords a port of sufficient area to admit one link head, its size is insufficient to permit the introduction of both link heads simultaneously. The walls of the connector form wells at opposite ends of the latter in which the link heads 12 are seated in operative position, and held against escape. Should slack occur between the links, however, there is a possibility that one of the heads might be sufficiently displaced to come into register with the entry port 13 and become disengaged from the connector. To avoid this possibility and to lock the heads 10 in their wells, I have provided a filler device of improved construction, which while serving to prevent the escape of the link heads from their wells may be readily moved out of obstructing position without becoming disengaged from the connector body with which, however, it is readily assembled.

As here shown the present filler comprises a spring pin passing through the hole 14 formed in the body of the connector 10 opposite the entry opening 13 thereof. The pin is shaped from spring sheet or strap metal, and comprises a pair of legs 15 and 16 integral with the head 17. At their free ends the legs 15 and 16 are offset to form oppositely angled feet 18, while the shanks of the legs are oppositely bowed away from each other at 19. To assemble the filler pin with the connector the legs 15 and 16 are sprung toward each other to permit the feet 18 to pass through the hole 14 into the chamber of the connector. Upon release of pressure the legs spring apart and the feet 18 engage the inner walls of the chamber of the connector adjacent the opening 14. In this position the pin lies out of obstructing position so that the link heads 10 may be freely inserted through the entry port 13 and drawn into the wells at opposite ends of the connector chamber. After the link heads are so positioned the spring pin is pushed in through the opening 14, past the outwardly bowed areas 19 thereof, the head 17 being of a size greater than that of the opening 14 and forming a stop which prevents the pin from being pushed inward through the hole 14 and becoming disengaged from the connector. In this position the legs 15 and 16 lie between the heads 10 of the links 9 and form a filler element which, while loosely engaged between the heads 10 prevents their displacement into register with the entry port 13, and thus prevents their escape from the connector. Inasmuch as the legs 15 and 16 are presented edgewise to the heads of

the links, the latter can exert no pressure upon the pin tending to press the legs toward each other, and thus to bring about a condition in which the pin can escape from the connector. The outwardly bowed areas 19 impart to the pin an over-all width, at this point greater than the width of the pin hole 14, and thus afford retaining shoulders 20 which, in the inserted position of the pin, engage the inner margin of the hole and prevent the pin from working out of its inserted filler position (Fig. 3). Between the outwardly bowed areas 19 and the head 17 of the pin the legs may be bowed toward each other to form a neck 21 which, in inserted position, lies in the hole 14 and permits the legs to expand, thus insuring the engagement of the shoulders 20 with the inner margin of the hole.

The present filler pin construction is of particular advantage in that the pin remains engaged with the connector 11 under all conditions, since it need not be removed, but merely withdrawn to the position shown in Fig. 4 upon the assembly or disassembly of the link heads with the connector. The lineman is thus reminded by the projecting pin that the latter should be inserted upon the completion of the assembly of the links with the connector in order to lock the link heads against escape. The pin is simply made and readily assembled, while it effectively performs its function of retaining the link heads against escape from the connector.

Obviously the lock pin may be variously modified in shape and construction without departing from what I claim as my invention.

I claim—

1. A cotter pin for use with an apertured supporting member, said pin being formed from a strip of spring sheet metal of materially greater width than thickness, and comprising a pair of legs integral with and connected by spring bends to the head end of the pin, said legs being spaced apart and oppositely offset to form retaining abutments adapted to automatically engage the walls of the apertured supporting member and to prevent accidental disengagement of the pin after its insertion.

2. In a connector of the type described, a chambered body laterally apertured to admit cooperating link heads, and a spring locking pin carried by the connector and movable into and out of spacing position between the assembled link heads, said pin being shaped to afford a spring pressed engagement with the connector in both of said positions.

3. In a connector of the type described, a chambered body laterally apertured to admit cooperating link heads, and also apertured to receive a locking pin, in combination with a spring locking pin engaged in said pin aperture and movable into and out of spacing position between the assembled link heads, said pin being shaped to afford a spring engagement with the connector body serving to maintain the pin in its spacing position.

4. The combination with a chambered connector apertured to receive a locking pin, of a spring locking pin having a pair of legs with oppositely offset feet adapted to engage the inner margin of the aperture to hold the pin against accidental withdrawal, a head engaging the outer margin of the aperture to prevent the pin from being pushed therethrough, and intermediate offset leg portions engaging the inner margin of the aperture to hold the pin in inserted position.

5. The combination with a chambered body member having its side wall apertured to admit the head of an associated connector element and being supplementarily apertured to admit a retaining member of a cotter formed from spring strip metal, comprising a pair of legs integral with and connected by spring bends to the head of the cotter, said cotter being adapted for insertion through said supplemental aperture in the side wall of the body member to present its legs with their edges opposed to the head of the associated connector element, said legs being oppositely offset and serving to automatically engage the margins of the supplemental hole through which the pin is passed to prevent the accidental escape of the pin from inserted position.

6. A pin for use with an apertured supporting member, said pin comprising a pair of spring legs offset in opposite directions at their free ends to form retaining feet on its insertion through said aperture, said legs being outwardly bowed in opposite directions intermediate their ends to afford retaining shoulders adapted to engage the margins of the aperture, and the head of the pin being of a size sufficient to prevent the passage of the pin through said aperture.

7. A pin for use with an apertured supporting member, said pin comprising a pair of spring legs offset in opposite directions at their free ends to form retaining feet on its insertion through said aperture, said legs being outwardly bowed in opposite directions intermediate their ends to afford retaining shoulders adapted to engage the margins of the aperture, and the head of the pin being of a size sufficient to prevent the passage of the pin through said aperture, together with a narrow neck area between said head and outwardly bowed portions of the legs to permit the free expansion of said legs on the insertion of the pin through the aperture.

8. A pin for use with an apertured sup-

porting member, said pin being formed from spring sheet metal having a width many times its thickness and comprising a pair of spring legs at least one of which has its free end offset away from the other leg to form a detaining foot adapted to prevent the accidental withdrawal of the pin after its insertion in said aperture, said pin having at its outer end an enlargement of sufficient size to prevent its passage through the aperture in the supporting member.

In testimony whereof I have signed my name to this specification.

GRANDON E. ECKERT.