(No Model.)

W. E. BANTA.

WIRE COUPLING.

No. 484,842. Patented Oct. 25, 1892.

Fig. 1.

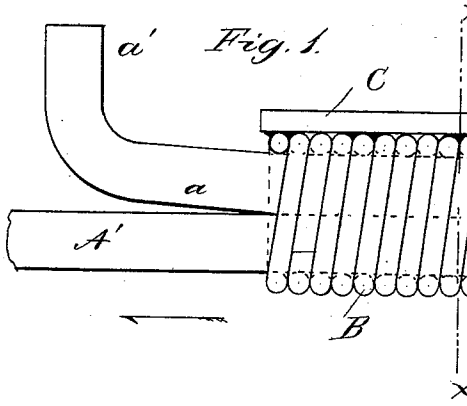


Fig. 2.

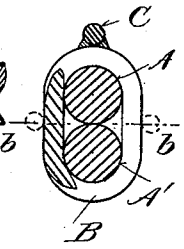


Fig. 3.

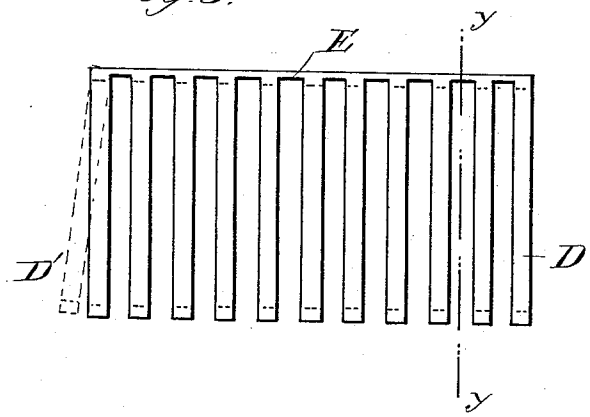
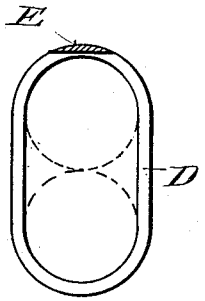


Fig. 4.



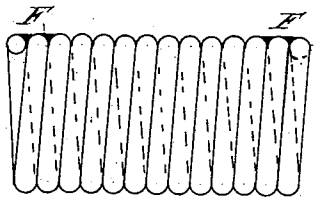


Fig. 6.

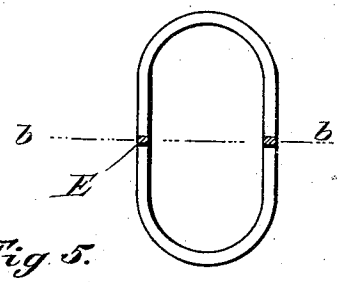


Fig. 5.

WITNESSES:

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WILLIAM E. BANTA, OF SPRINGFIELD, OHIO.

WIRE COUPLING.

SPECIFICATION forming part of Letters Patent No. 484,842, dated October 25, 1892.

Original application filed June 11, 1890, Serial No. 354,988. Divided and this application filed September 29, 1890. Renewed July 1, 1892. Serial No. 438,657. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BANTA, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Wire Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in wire couplings, the peculiarities of which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, forming a part of this specification and on which like reference-letters indicate corresponding parts, Figure 1 represents a side view of my device employed to couple the joining ends of wires; Fig. 2, a section on the line *x x* of Fig. 1; Fig. 3, a side view of a convenient form for manufacture; Fig. 4, a section on the line *y y* of Fig. 3, and Fig. 5 a modification of Fig. 4; Fig. 6, a slight modification of Fig. 1.

The letters A A′ designate the joining ends of telegraph or other wires which it is desired to couple. The letter B represents a helical connector of encircling pieces, coils, or wires, either in the form of a coil or otherwise, and adapted to be slipped over the joining ends of the line-wires A A′ and to bite onto the same under the strains to which the said wires are subjected. The helical connector B is preferably joined by a longitudinal piece C, brazed or otherwise joined longitudinally of said connector and conveniently formed by turning up one end of the encircling wire and extending it longitudinally, as shown in Fig. 1. This will connect a portion of each piece or coil to the longitudinal extension, while the diametrically-opposite portions are free to move sidewise, and by said movement to grip onto the said inclosed wires, as shown in Fig. 1. The ends of the joining-wires are turned outward after the coupling is slipped over them, so that the pull on the wire will cause one portion of the coil to move past the other on the coupled wires. This biting action, caused by the sidewise movement of one portion of the coil past the other portion, will be increased in proportion to the strain put upon the line-wires, and thus the coupling will bite the harder in proportion to the strain. The stiffness of the joining-wires is generally sufficient, so that only a simple outward bend, as at *a*, is enough to engage the coupling. For greater security, however, the end may be turned sharply outward, as at *a′*.

The longitudinal piece C may be formed integrally or otherwise with the helical connector itself and brazed or otherwise attached thereto. If desired, said longitudinal piece may be attached to the sides of each coil, as indicated by the dotted lines in Fig. 2. In this case each coil will move about a central transverse axis *b b*, one portion tending to move in one direction and the opposite portion in the opposite direction, in the same manner as the coupling shown in Fig. 1. If desired, only one longitudinal piece may be used instead of two.

While I have shown this coupling composed of a single piece of wire, it may be otherwise formed as long as the idea of encircling wires adapted to bind upon the line-wires under the coupling strains is carried out. A convenient form of manufacture is shown in Figs. 3 and 4, in which a tube of elliptical or other cross-section is divided into encircling bands D by saw-cuts or otherwise, so that they form a continuous piece by means of the undivided longitudinal portion E, the cross-section of which encircling portions D is rectangular in this case instead of circular; but the action is similar to that of the coupling previously described, as indicated by the dotted lines at D′ under the coupling strains.

Fig. 5 shows another form of dividing the tube, so as to leave an integral longitudinal connecting portion at the side, in which case the encircling pieces will be moved about the axis *b b*, as before described in Fig. 2. The shape of the tube thus divided to allow the above-described action of its component parts may be of any convenient cross-section, either elliptical, as shown in Figs. 4 and 5, or otherwise, if adapted to couple two or more wires, according to circumstances. Thus it will be seen that a simple connector is produced, which is readily applied to couple the joining ends of wires and may be capable of being manufactured in large quantities. The simplicity of the coupling operation will allow of

its use by cheaper labor than is necessary in applying other more complicated forms of coupling, in which the wires must be soldered or otherwise secured in place; also, the line-wires may be readily uncoupled by relieving the strain thereon and straightening the joining ends, whereby they may be readily removed from the coupling without the destruction of the latter.

In Fig. 6 is shown a helical connector in which the ends are brazed, soldered, or otherwise connected to prevent the encircling gripping pieces or coils from pulling apart, as shown at *f f*. Two or more of the end pieces of coils may be connected together by soldering or otherwise, as indicated in this figure. The biting action of the coupling is the same as in those above described, as the parts of the encircling portions at F move in one direction and the diametrically-opposite parts in the opposite direction when subjected to the coupling strains on the line-wires.

This application is a division of the one for wire couplings filed by me June 11, 1890, Serial No. 354,988.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wire coupling, the combination, with the ends of the line-wires bent outwardly, of a connector or coupling composed of encircling coiled wires joined together and adapted to bite onto said line-wires under the coupling strain.

2. The combination, with the ends of the line-wires bent outwardly, of a coupling consisting of surrounding portions and a longitudinal portion integral with and connecting together the said surrounding portions, whereby the said surrounding portions bite upon and grip the line-wires under the coupling strains.

3. In a wire coupling, the combination, with the ends of the line-wires bent outwardly, of a connector composed of encircling coiled wires embracing said line-wires and a connecting bar or piece secured to said encircling coiled wires substantially in line with the axis of the same, whereby all of the encircling wires move in one direction at the part to which said connection is connected and move in the opposite direction at the diametrical part when the coupled line-wires are put under strain, whereby a gripping action is secured.

4. As an improved article of manufacture, a wire coupling composed of encircling coiled wires and a longitudinal connection joining the encircling portions of said wire, whereby one part of each encircling portion is adapted to move in one direction and the diametrically-opposite part in the opposite direction under the coupling strain, thereby gripping the inclosed line-wires.

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

WILLIAM E. BANTA.

Witnesses:
WARREN HULL,
A. N. SUMMERS.