

(No Model.)

W. A. CHILDS & F. SHAW.

TIP FOR ELECTRIC CONDUCTORS.

No. 294,851.

Patented Mar. 11, 1884.

Fig. 1.

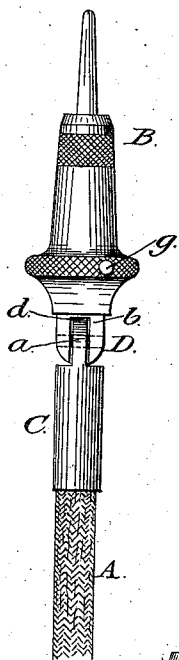


Fig. 2.

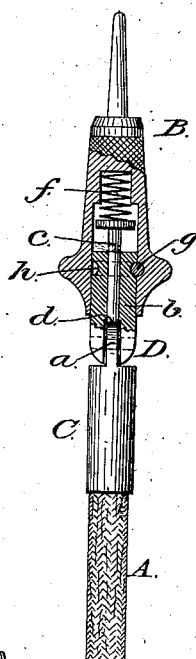
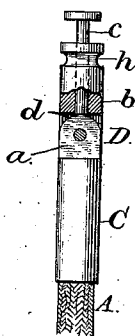


Fig. 3.

Fig. 4.

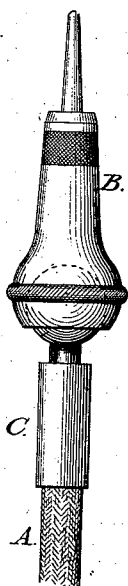
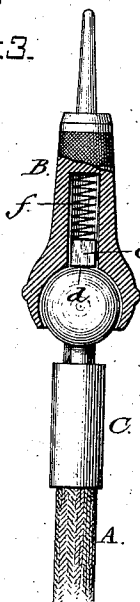


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TIP FOR ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 294,851, dated March 11, 1884.

Application filed October 25, 1883. (No model.)

To all whom it may concern:

Be it known that we, Wm. A. CHILDS and FRANK SHAW, citizens of the United States, and residents, respectively, of Englewood, in the county of Bergen and State of New Jersey, and New York, in the county of New York and State of New York, have invented a certain new and useful Improved Tip for Electric Conductors, of which the following is a specification.

Our invention relates to tips for flexible electric conductors used with electric apparatus; and its object is to so construct the tip as to avoid the breakage of the conductors, owing to bending at their point of junction with the tip.

To this end our invention consists, first, in making the conducting tip in two parts jointed to one another; one part constituting the tip proper, and being adapted to be held by a binding-post, socket, or other connecting device, while the other portion, jointed to the first, forms the terminal of the flexible conductor, in which said conductor is firmly secured.

Our invention consists, secondly, in making the tip in two portions, swiveled or otherwise connected together, so that the tip proper may be turned or twisted without twisting the flexible conductor or switch-cord.

Our invention consists, also, in certain details of construction that will be hereinafter specifically described, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of one form of our improved tip. Fig. 2 is a longitudinal section of the tip proper shown in Fig. 1. Fig. 3 is a detail view, showing the joint and the device for insuring electrical connection. Fig. 4 is a side view of a modification in which another form of joint is employed. Fig. 5 is a partial longitudinal section of the tip shown in Fig. 4.

A indicates a flexible connecting-cord or conductor of any usual or ordinary construction, and B the tip proper for said conductor, which tip is, as usual, adapted to be inserted into a binding-post, a socket, or other device. The tip proper, B, is jointed to the ferrule or sleeve C of metal, to which the end of the con-

ductor is secured and electrically united in any ordinary way. One form of joint adapted for this purpose is shown at D, Figs. 1, 2, and 3, and consists of any ordinary pintle or other joint, one portion, *a*, of which is suitably formed on the end of the ferrule C, while the other portion consists of the bifurcated piece *b*, mechanically and electrically united with the tip proper in the manner hereinafter described, or in any other proper manner.

To assist in preserving the electrical connection between the two portions of the joint, we mount upon one portion a spring-actuated connecting pin or piece, which rubs upon a conducting surface upon the other portion. In the present instance we accomplish this purpose by providing the piece *b* with a longitudinal perforation or way, in which moves a conducting pin or block, *c*, whose end bears upon the curved surface at *d* of the portion *a* of the joint. The pin or block *c* is held in a socket in the base of the tip B, or otherwise held thereon, and is actuated by a coiled spring, *f*, at the bottom of the socket. The tip proper, B, is secured to the portion *b* of the joint by a pin, *g*, which rests in a circumferential groove, *h*, in the portion *b* of the joint, so that the tip proper may be twisted or screwed for the purpose of forcing it into its place in a binding post or block without twisting the cord; or, vice versa, the cord may be turned upon the tip.

Another method of carrying out our invention is illustrated in Figs. 4 and 5. In this instance we employ an ordinary ball-and-socket joint, the ball being attached to the part C, while the socket is formed in the tip proper, or vice versa. This construction gives the desired freedom of movement in any direction, and also permits the tip proper to be turned on its longitudinal axis independently of the other portion of the tip, or vice versa.

By our invention we avoid, to a great extent, the breaking of flexible conductors at their point of connection with their tips—a difficulty that has hitherto been the source of much annoyance and damage.

The pin or piece *c* and its parts might be dispensed with or other devices used for maintaining a good connection between the two

parts of the jointed tip. We find, however, in practice that it is extremely desirable to employ some such device, since, if the joint be made so loose as to give the desired flexibility, the electrical connection without it is liable to be defective.

The tip proper may be connected with the joint without swiveling it, although it is preferable to so unite the tip proper with the cord that at some intermediate point one part of the tip may be turned without turning the other.

What we claim as our invention is—

1. A conducting-tip for electric conductors, made in two portions, as described, one of which constitutes the tip proper and is adapted for insertion into and removal from a binding-post, switch-socket, or such like connecting device, while the other portion is jointed to the first and receives and firmly holds the conductor.

2. A conducting-tip for electric conductors, made in two portions, as described, one of which constitutes the terminal and is adapted for insertion into and removal from a binding-post, switch-socket, or such like connecting device, while the other portion is jointed to the first and receives and firmly holds the conductor, in combination with a supplemental spring-actuated connector secured to one portion and adapted to bear on a suitable contact-surface upon the other part.

3. The combination of the tip B, adapted for insertion into a binding-post, socket, or such like connector of the conductor-holder connected by a joint with said tip, and a swivel for permitting the tip to be turned without turning the conductor, or vice versa.

4. The combination of the ferrule holding the conductor, the piece *b*, jointed to said ferrule, and the tip swiveled on the piece *b*.

5. The combination of the metallic ferrule or sleeve C for the conductor, the tip B, and a connecting-joint, as and for the purpose described.

6. The combination, with the longitudinally-

perforated joint-piece *b*, of the contact-pin *c*, spring *f*, and the socketed tip B, secured to the joint-piece.

7. The combination of the longitudinally-perforated joint-piece *b*, the socketed tip B, swiveled on said joint-piece, and the contact-pin *c* and its spring, as and for the purpose described.

8. The combination, with a flexible conductor, of a terminal ferrule or holder and a jointed tip-piece adapted for insertion into a binding-post or socket, as and for the purpose described.

9. The combination of the joint-piece *b*, having the circumferential groove, the tip-piece B, and the pin *g*, as and for the purpose described.

10. The combination of the socketed tip B, the contact pin and spring in the socket, and the joint-piece *b*, having longitudinal perforation and circumferential groove, and the curved surface *d* upon the other portion of the joint, as and for the purpose described.

11. As a new article of manufacture, a tip for flexible conducting-cords, consisting of the ferrule C, to which the conductor is connected, and the tip B, adapted for insertion into a binding-post or switch-plug socket, and connected with the ferrule by a joint, as and for the purpose described.

12. As a new article of manufacture, the ferrule C and the tip B, adapted for insertion in a binding-post or socket, and having swivel-connection with the ferrule, as and for the purpose described.

13. The combination of the flexible conductor A, ferrule C, and jointed tip B, as and for the purpose described.

Signed a New York, in the county of New York and State of New York, this 10th day of October, A. D. 1883.

WM. A. CHILDS.
FRANK SHAW.

Witnesses:

J. P. GOVIN, Jr.,
R. J. TENETT.