Sept. 4, 1928.

1,683,066

S. COHEN

ELECTRICAL CONNECTER

Filed July 31, 1922

2 Sheets-Sheet 1

Fig. 1.

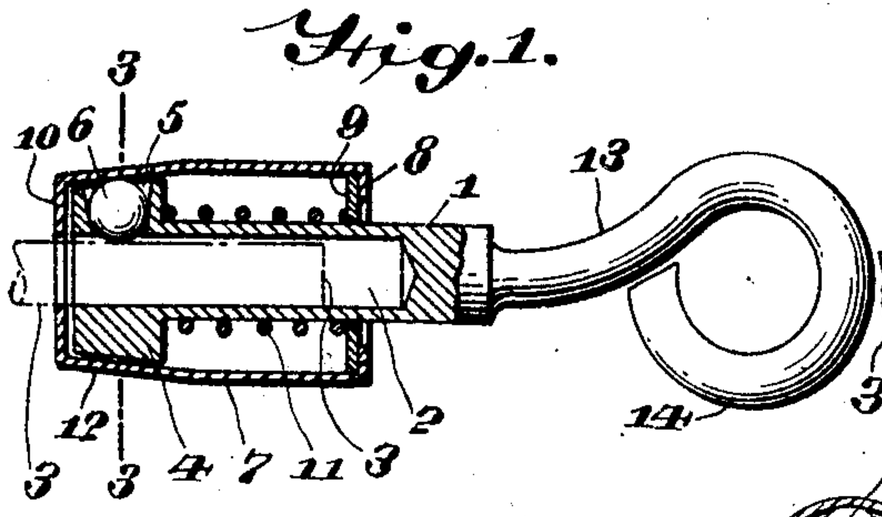


Fig. 2.

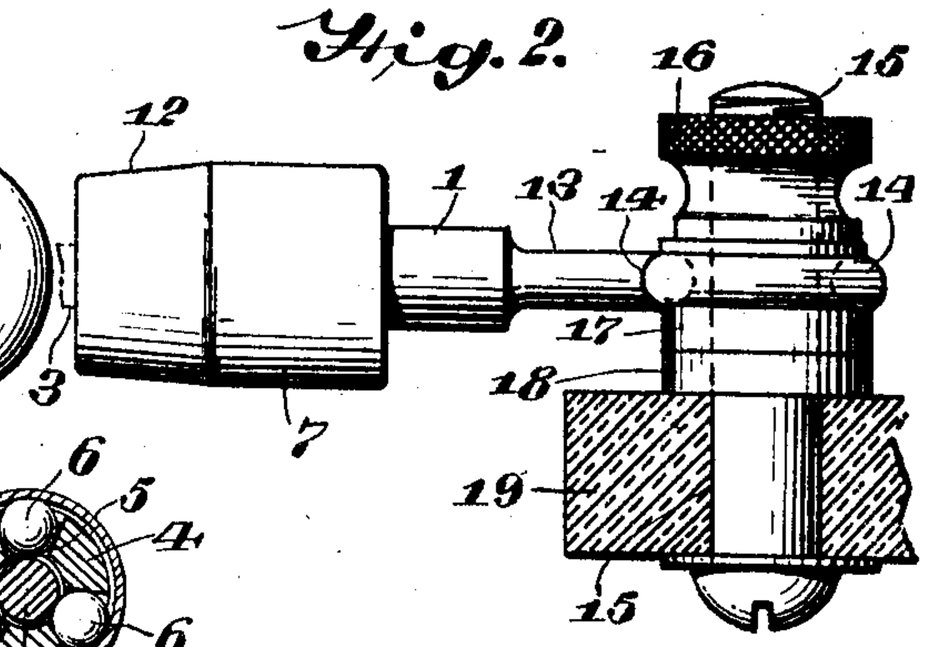


Fig. 3.

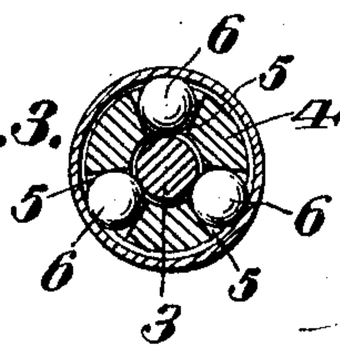


Fig. 4.

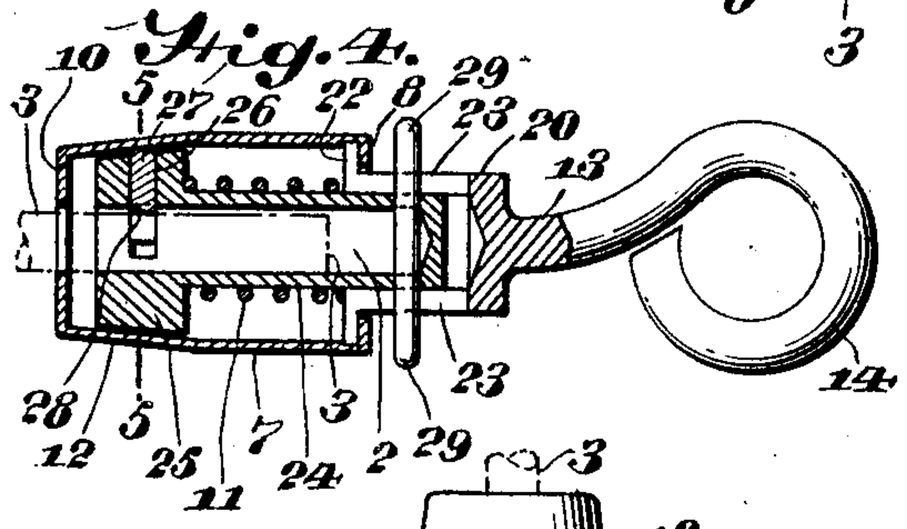


Fig. 5.

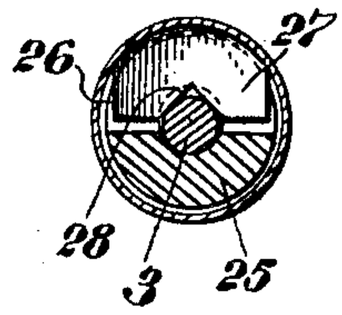


Fig. 6.

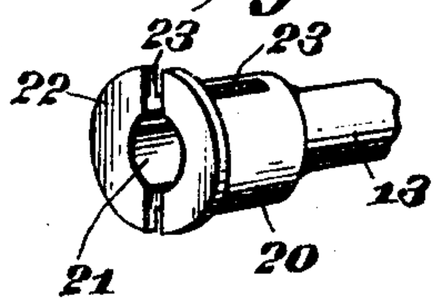


Fig. 7.

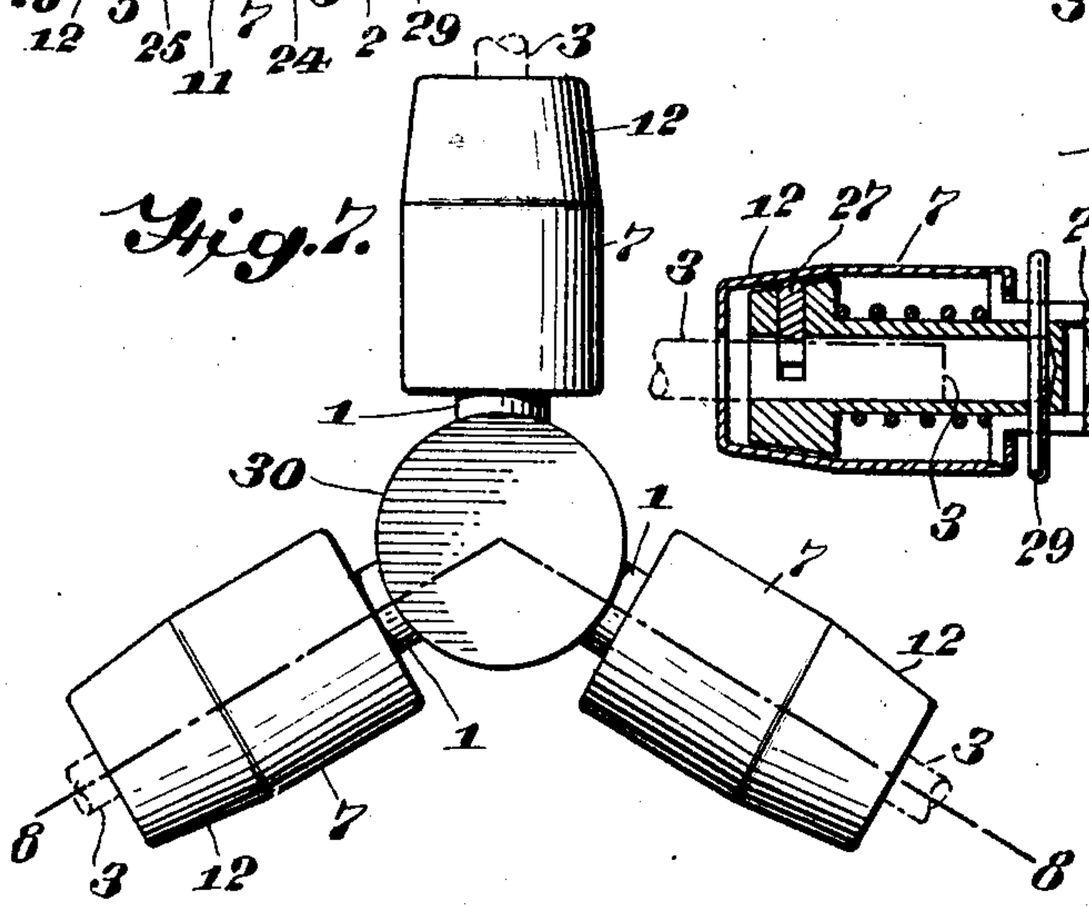


Fig. 9.

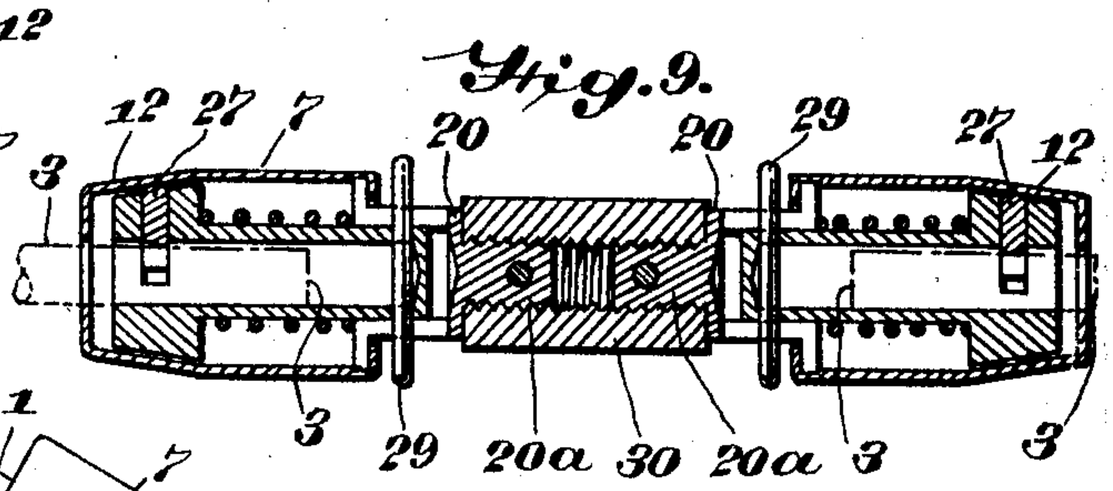
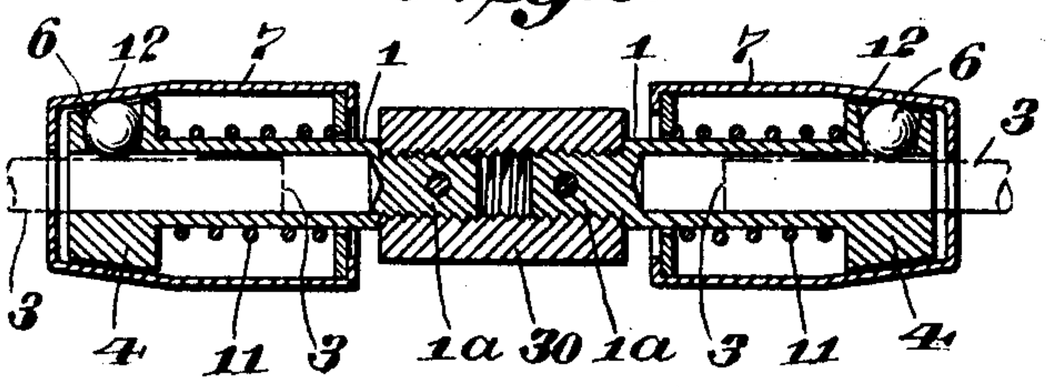


Fig. 8.



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Sept. 4, 1928.

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ELECTRICAL CONNECTER

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Fig. 10.

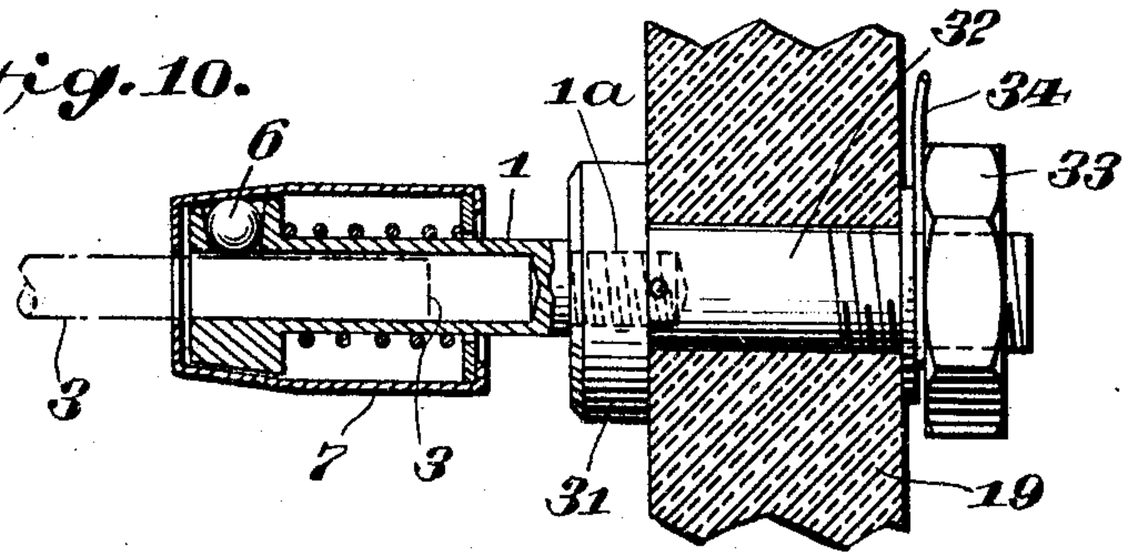


Fig. 11.

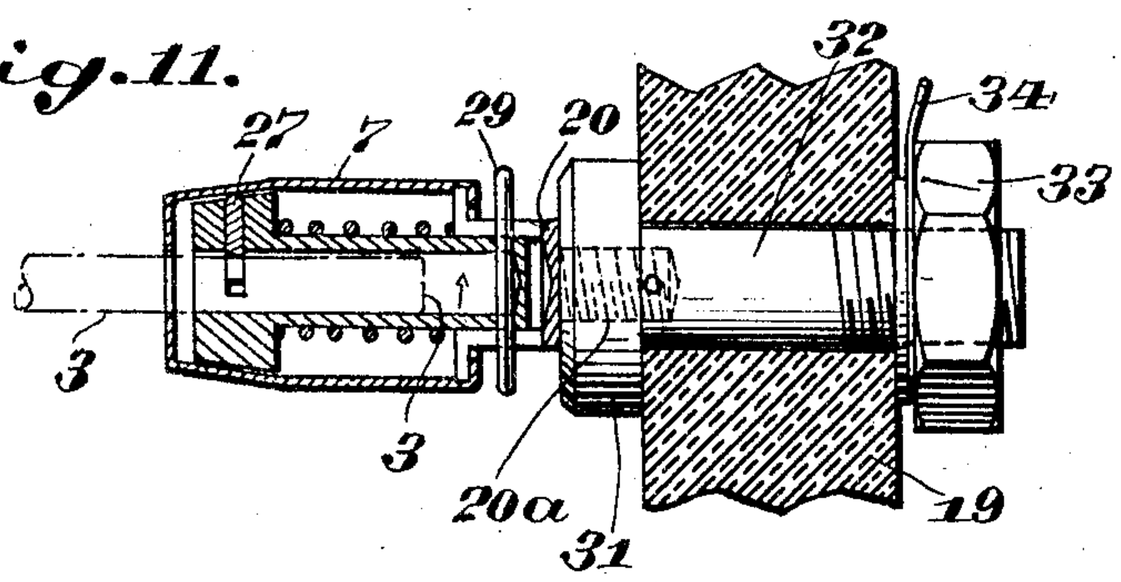


Fig. 12.

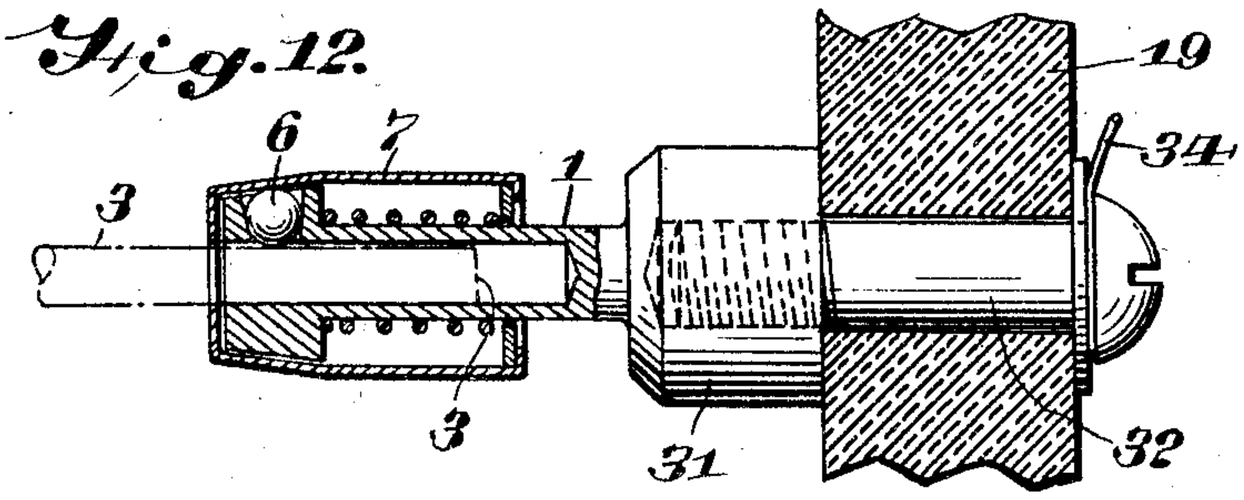
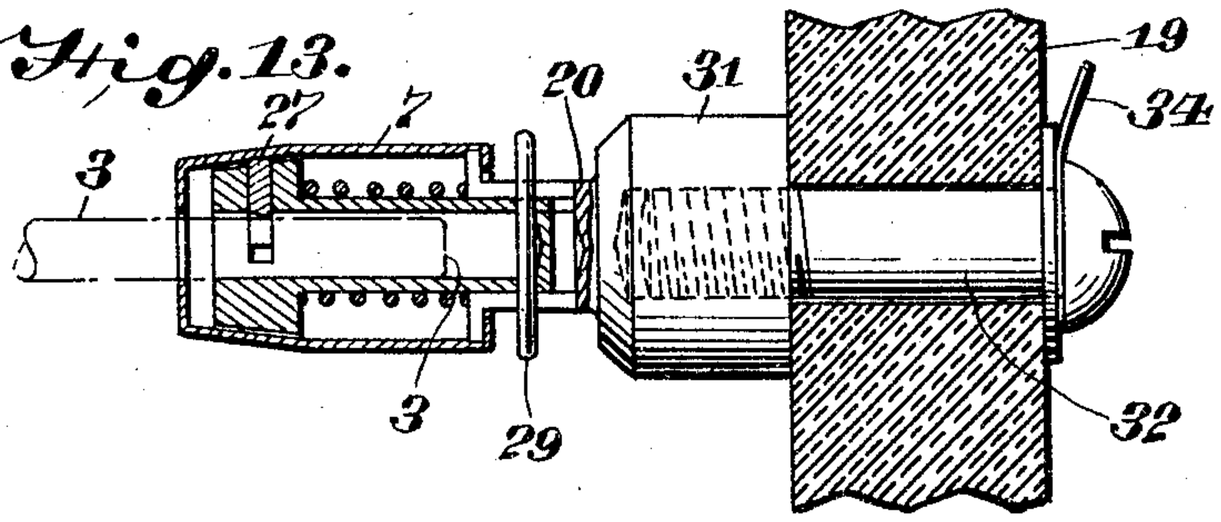


Fig. 13.



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Patented Sept. 4, 1928. 1,683,066

UNITED STATES PATENT OFFICE.

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ELECTRICAL CONNECTER.

Application filed July 31, 1922. Serial No. 578,540.

My invention relates to electrical connecters for effecting easily detachable and yet firm electrical connections between conductors, or between conductors and binding posts, or similar devices.

My invention resides in electrical connecters having the features of structure, arrangement and combination hereinafter described and claimed.

For an illustration of some of the many forms my invention may take, reference is to be had to the accompanying drawings, in which:

Fig. 1 is a cross sectional view, partly in plan, of structure embodying my invention.

Fig. 2 is an elevational view of structure of the character illustrated in Fig. 1 in combination with a binding post.

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a cross sectional view, partly in plan, of a modified structure.

Fig. 5 is a cross sectional view on the line 5—5 of Fig. 4.

Fig. 6 is a perspective view of a portion of the structure shown in Fig. 4.

Fig. 7 is a plan view of a triple connecter structure.

Fig. 8 is a sectional view on the line 8—8 of Fig. 7.

Fig. 9 is a cross sectional view of a similar structure provided with a modified form of gripping connecters.

Figs. 10 and 11 are sectional views, partly in elevation, of combined binding post and detachable connecter.

Figs. 12 and 13 are sectional views, partly in elevation, of modified forms of combined binding post and detachable connecter.

Referring to Figs. 1, 2 and 3, 1 is a stem having a bore 2 adapted to receive the conductor 3, with which electrical connection is to be made. Stem 1 is provided with a tapering head 4 having the pockets or sockets 5 opening into the bore 2 and each containing a movable gripping member, as a ball 6. The sleeve 7 has at its one end the flange 8, within which is disposed the washer or collar 9; at its other end the sleeve 7 has the flange 10, having an opening for the conductor 3 registering with the bore 2. Disposed within the sleeve 7 and surrounding the stem 1 is the helical spring 11 abutting at one end against the head 4 and at the other end against the washer 9, the spring being under compression and tending to force the sleeve 7 toward the right, as viewed in Fig. 1. The sleeve 7, when forced to the right by the spring 11, causes its tapered portion 12 to thrust inwardly upon the balls or gripping members 6, causing them to firmly grip and lock the conductor 3 and effect good electrical connection between the conductor 3 and the stem 1. The conductor 3 may be released by moving the sleeve 7 toward the left, whereupon pressure upon the balls 6 is released and the conductor 3 may readily be withdrawn.

An extension member 13, integral with or secured to the stem 1, has provided thereon any suitable formation for co-acting with a binding post or other structure. In the example illustrated, the extension 13 is formed at its end into a ring or eye 14 which, as indicated in Fig. 2, is passed over the stud or screw 15 of a binding post structure. Upon the stud 15 is threaded the nut member 16, which clamps the eye 14 to the binding post block 17 resting upon the washer or binding post member 18. The stud or screw 15 is adapted to extend through any suitable support or panel, as 19, and is clamped thereto, as in the case when the member 17 or members 17 and 18 are threaded upon the stud 15.

Referring to Figs. 4, 5 and 6, a generally similar structure is shown, the extension member 13 with its eye 14 in this case being integral with or attached to the stem 20 having the bore 21 and the flange 22, the latter and the stem 20 having the transverse slot 23. Movable longitudinally in the bore 21 is the second stem 24 having the bore 2 for receiving the conductor 3, with which a connection is to be made. The stem 24 has the head 25 having the transverse slot 26, in which is disposed the gripping member 27 having an edged notch 28 adapted to engage the conductor 3 to grip and hold it. The sleeve 7 is in this case fixed, as by securing its flange 8 to the aforesaid flange 22. Surrounding the stem 24 is the helical spring 11 under compression between the head 25 and the flange 22, therefore tending to press the head 25 toward the left, Fig. 4, thereby forcing the gripping member 27 inwardly to engage the conductor 3. Extending trans-

versely through the stem 24 and through the slot 23 in the stem 20 is the pin 29, which guides the stem 24 in the bore 21 and holds the members 24 and 20 in assembled relation. The pin 29 serves also as a handle or grip for transmitting longitudinal motion to the stem 24, pressing the pin 29 toward the right, Fig. 4, loosening the gripping member 27 and allowing withdrawal of the conductor 3.

Referring to Figs. 7 and 8, there is provided a plurality of detachable gripping members of the character illustrated in Fig. 1, all connected mechanically and electrically together by attaching the stems 1 to a common connecting unit or member 30. In the example illustrated, the stems 1 have threaded extensions 1^a threaded into the block or member 30, though they may be integral therewith or otherwise attached thereto. If suitable or desirable, the member 30 may be an element of a binding post secured to any fixed or movable support.

By the arrangement shown, a plurality of conductors 3 may be brought into electrical communication with each other through their detachable gripping connecters and the member 30, each conductor 3 being separately and independently removable or detachable by operating the sleeve 7, as described in connection with Fig. 1.

In Fig. 9 an arrangement similar to that indicated in Figs. 7 and 8 is shown, the type of gripping connecter being, however, that illustrated in Fig. 4, in this case the stems 20 having threaded extensions 20^a threaded into or otherwise attached or connected to the member 30.

Referring to Fig. 10, there is shown a detachable connecting and gripping member of the character illustrated in Fig. 1 forming a part of a binding post structure. The stem 1 has an extension 1^a threaded into the block or head 31 integral with the binding post stud 32, upon which is threaded the nut 33 for clamping the conductor 34 and also for holding the block 31 in fixed position upon the support 19.

In Fig. 11 is shown a similar structure utilizing, however, the form of detachable gripping connecter shown in Fig. 4. In this case the stem 20 has the threaded extension 20^a threaded into the block 31.

As to both Figs. 10 and 11, it will be understood that the extensions 1^a and 20^a may be detachable from the blocks 31, as described, or the stems 1 and 20 may be integral with the block 31 and stud 32.

Referring to Fig. 12, there is shown a detachable gripping member of the character illustrated in Fig. 1 forming a part of binding post structure. In this case the stem 1 has integral therewith the block 31 of a binding post structure. In this case also the block 31 is threaded to receive the binding post screw or bolt 32.

In Fig. 13 is illustrated a similar structure involving, however, the type of detachable gripping connecter shown in Fig. 4. In this case the stem 20 is provided with the binding post block 31.

What I claim is:

1. An electrical connecter comprising in combination a hollow stem, a connecting member on one end of said stem, a head having the shape of a frustrum of a cone formed on the opposite end of said stem, a cylindrical casing enclosing said stem, spring means interposed between one end wall of said casing and the head of said stem, said cylindrical casing having the walls thereof adjacent the opposite end of said cylindrical casing shaped to correspond with the shape of the head of said stem, a transverse slot in said head, and a gripping member positioned in said slot, said stem extending opposite the end on which said head is formed and having a guide pin positioned therein, a conducting member extending from said cylindrical casing and having slots therein through which said guide pin is arranged to move, said guide pin providing means for allowing relative movement between said cylindrical casing and said hollow stem for forcing said gripping member against a conductor inserted in said hollow stem.

2. An electrical connecter comprising in combination a hollow stem, a connecting member formed on one end of said stem, a head having the shape of a frustrum of a cone formed on the opposite end of said stem, a cylindrical casing enclosing said stem, spring means interposed between one end wall of said casing and the head of said stem, said cylindrical casing having the walls thereof adjacent the opposite end of said cylindrical casing shaped to correspond with the shape of the head of said stem, a transverse slot in said head, and a gripping member positioned in said slot, a conducting member projecting from said first mentioned end of said cylindrical casing, a guide pin passing through one end of said hollow stem and through slots formed in said conducting member, said guide pin being positioned in a plane at right angles to the plane of said transverse slot, said guide pin providing means for allowing relative movement between said head and said cylindrical casing for forcing said gripping member into said hollow stem for establishing electrical connection with an electrical conductor inserted therein.

In testimony whereof I have hereunto affixed my signature this 28th day of July, 1922.

SAMUEL COHEN.