

March 7, 1950

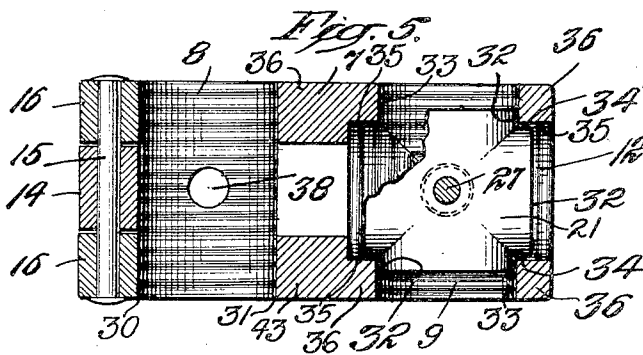
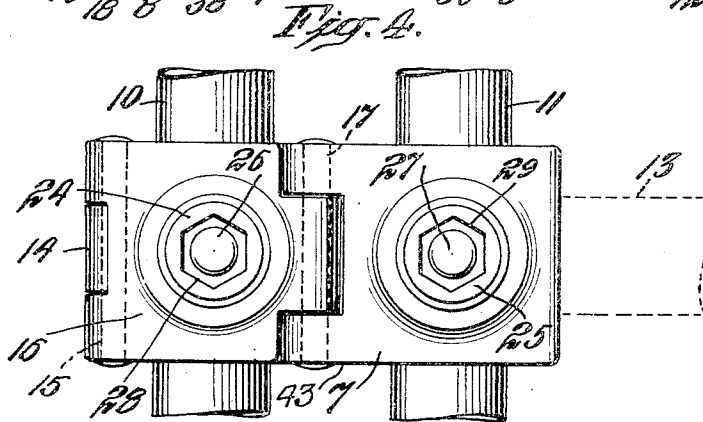
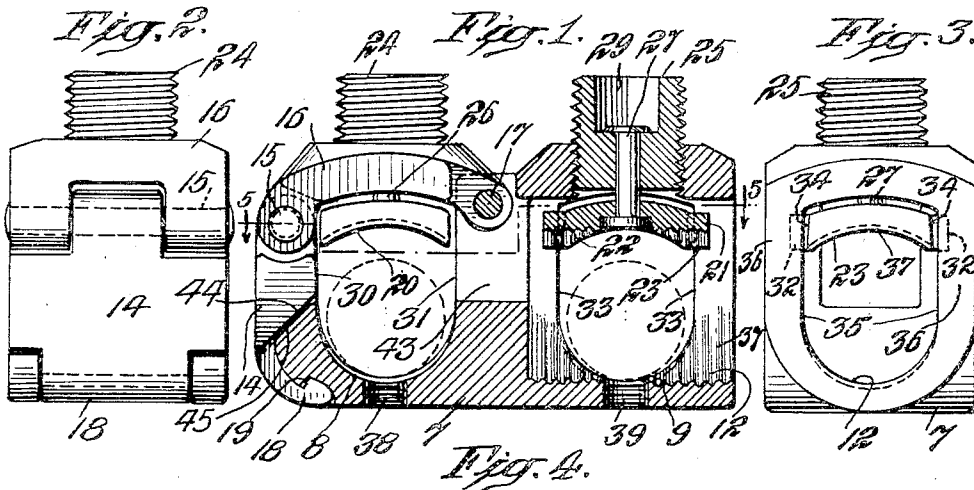
M. J. CAFIERO

2,499,985

COMBINATION CONNECTOR

Filed Feb. 27, 1946

3 Sheets-Sheet 1



MICHAEL J. CAFIERO
INVENTOR

BY *Philip S. [Signature]*
ATTORNEY

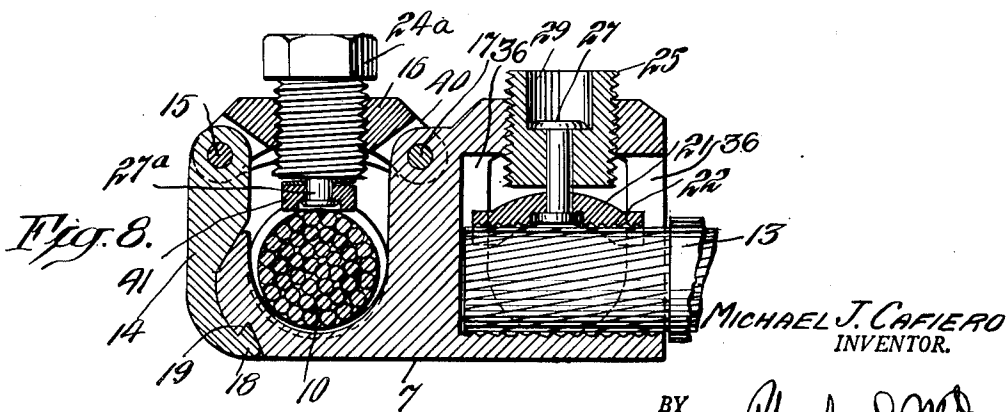
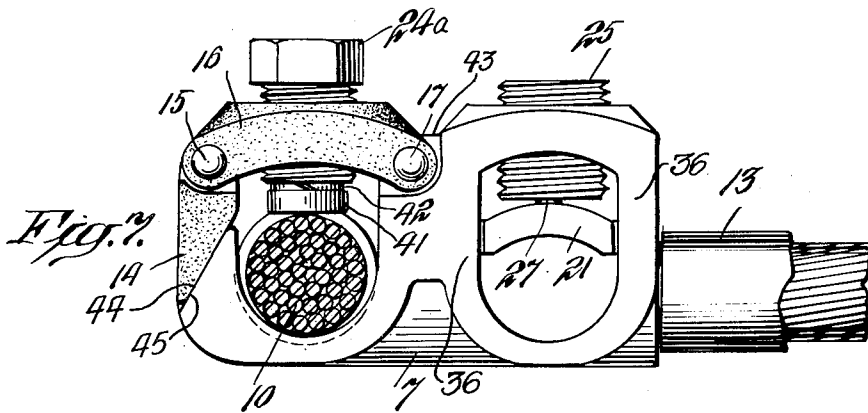
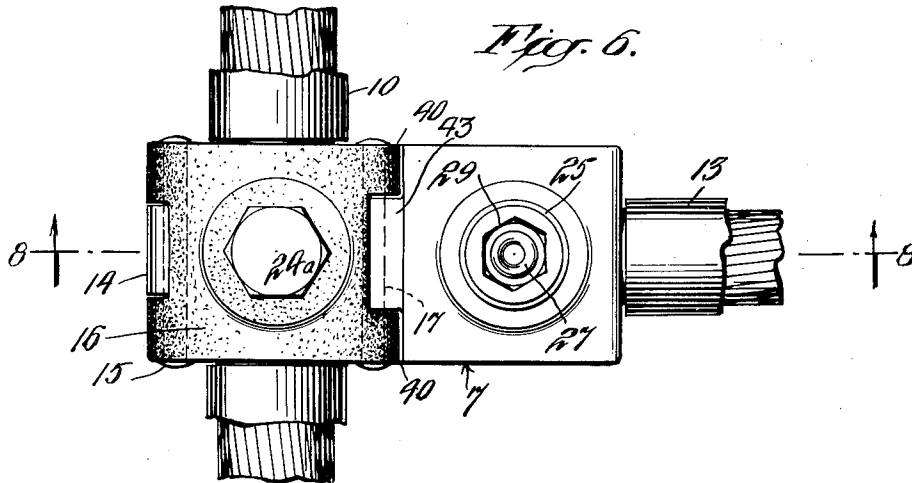
March 7, 1950

M. J. CAFIERO
COMBINATION CONNECTOR

2,499,985

Filed Feb. 27, 1946

3 Sheets-Sheet 2



MICHAEL J. CAFIERO
INVENTOR.

BY

Philip S. Dean
ATTORNEY

March 7, 1950

M. J. CAFIERO
COMBINATION CONNECTOR

2,499,985

Filed Feb. 27, 1946

3 Sheets-Sheet 3

FIG. 9.

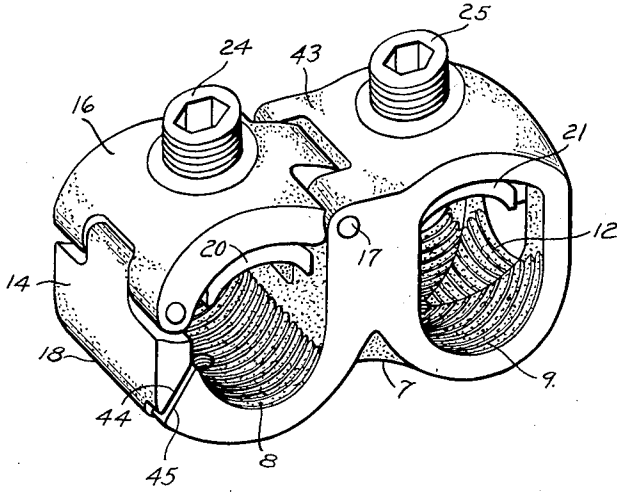
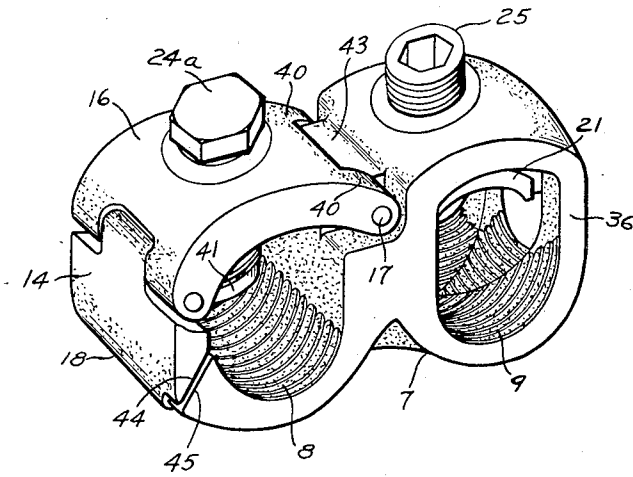


FIG. 10.



MICHAEL J. CAFIERO
INVENTOR.

BY

Philip J. [Signature]
ATTORNEY.

UNITED STATES PATENT OFFICE

2,499,985

COMBINATION CONNECTOR

Michael J. Cafiero, Rockville Centre, N. Y.

Application February 27, 1946, Serial No. 650,674

1 Claim. (Cl. 24-81)

1

The invention here disclosed relates to electrical connectors for wires, cables, tubes or other forms of conductors.

Special objects of the invention are to provide a universal type of connector which may be used interchangeably for making T taps, parallel taps, couplings or other more or less standard forms of connections and which in such use will accommodate and be adaptable to conductors of the same or different sizes and conductors within a considerable range of sizes.

Other special objects of the invention are to provide a connector which may be readily applied to conductors of existing transmission systems, which will make good, firm, secure mechanical and electrical engagement with conductors of different sizes and which with all such advantages will occupy but small space so as to be useable in all ordinary locations and which will be of simple and relatively inexpensive construction.

Other desirable objects and the novel features by which the purposes of the invention are attained are set forth and will appear in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate present preferred embodiments of the invention. Structure, however, may be modified and changed as regards the present illustration, as will appear from the scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a broken and part longitudinal sectional view of the connector;

Figs. 2 and 3 are views of the opposite ends of the connector;

Fig. 4 is a plan view showing the connector in use for making a parallel tap and indicating in broken lines how it may be employed for making a T tap; and

Fig. 5 is a broken sectional view on substantially the plane of line 5-5 of Fig. 1.

Fig. 6 is a plan view, Fig. 7 a side view and Fig. 8 a broken section on line 8-8, Fig. 6, illustrating a modification.

Figs. 9 and 10 are perspective views of the two forms of the invention shown respectively in Figs. 1 and 6.

The body of the connector, designated 7, is shown as formed with parallel seats 8, 9, for main and secondary conductors 10, 11, Fig. 4, and with an angularly related seat 12 in one end intersecting or crossing the seat 9, for the branch conductor 13, Fig. 4, of a T tap.

At the opposite end the body is closed by a 55

2

clasp member 14, knuckled and pivoted at 15 to a top member 16, which in turn is knuckled and pivoted at 17 to the bridge portion 43 of the body between the two conductor passes.

The lower end of the end clasp 14 is shown as carrying a hook 18 interlockingly engaging in a keeper recess 19, Fig. 1, in the under end portion of the body.

Conductors in the three seats described are adjustably gripped and held by an arched clamp plate 20 operable over the seat 8 and by a clamp plate 21 operable over the crossed seats 9 and 12 and correspondingly arched at 22, 23, in right angled relation to grip conductors in either of 15 said seats.

The single and the double clamp plates 20, 21, are adjustable in both directions, in the illustration, by means of screw plugs 24, 25, operable in the swinging top plate 16 and in the top of the base, respectively, and pivotally connected with said plates by pivoted rivet studs 26, 27. The heads at the upper ends of these rivet studs, in the illustration, are received in the countersunk key sockets 28, 29, in the upper 25 ends of the screw plugs.

The clamp plates are held against turning by engagement with side walls of the cavities over the conductor seats. Thus the single clamp plate 20 is shown as having substantially parallel side walls to be guided by correspondingly but wider spaced, substantially parallel side walls 30, 31, Fig. 1, on hook plate 14 and on the base above the seat 8. Similarly, the double clamp plate 21 is shown as having substantially parallel side edges 32 engaging substantially parallel walls 33, Figs. 1 and 5, above the seat 9 and substantially parallel edges 34, Figs. 3 and 5, for engagement with the substantially parallel walls 35 above the seat 12.

The formation of the parallel guide walls 33 and 35 in right angled relation provides the effect of four corner posts such as indicated at 36, Fig. 5, and the provision of the clamp plate with edges to match is attained by simply cutting rectangular notches in the corners of this clamp plate to match the sides of these corner posts.

The clamping portions which hold the conductors, that is, the seats 8, 9, 12, and the clamp plates 20, 21, may be cross ribbed as indicated at 37 to firmly grip and bite into the conductors.

Screw seats 38, 39, are shown in Fig. 1 entered up through the bottom of the base to receive screws for supporting or steadying the connector or for other purposes.

From the foregoing it will be seen that the

3

device may be quickly connected over a main conductor at any point in the length of the same by unlatching the clasp 14 and then closing it over the conductor and setting up the screw clamp 20. Before or after this connection is made a branch conductor such as indicated at 11 in Fig. 4, may be passed through the base and be secured by the clamp 21, thus completing a parallel tap. The clamps being adjustable over a suitable range enables wires, cables or tubes of the same or different sizes and in a considerable range of sizes, to be connected in this relation.

To effect a coupling between two conductor ends, the end of one conductor may be caught in one clamp and the end of the conductor to be joined therewith, caught in the other clamp, in the parallel relation described or, if desired, in right angled relation by bringing the second conductor into the end clamp in the relation indicated in broken lines at 13 in Fig. 4.

To use the device for a T tap the open jaw clamp may be secured over a main conductor such as indicated at 10 in Fig. 4, and the branch conductor then be secured in the end clamp, as indicated at 13 in Fig. 4.

In all such uses the cables or other forms of conductors are securely held and good electrical conductivity is attained and maintained.

In the form of the invention illustrated in Figs. 6, 7 and 8, the hinge knuckles as shown at 17, Figs. 4 and 9, are reversed, that is, the two outside hinge loops designated 40 in Figs. 6 and 10 are located on the top 16 instead of on the body member 7. Also, preferably both this top member and the hinged clasp portion 14, as indicated by the difference in shading, are made of stronger material than the base, for example, of harder bronze than the base. These features enable these movable parts to be kept desirably small in size and yet be amply strong enough to meet all requirements.

The rivet for securing the clamp plate to the clamp screw may be made as an integral portion of the screw, as shown at 21a, Fig. 8, the screw in this case being a headed bolt 24a.

Further, as shown in this same view, the clamp member may be rotatably held on the end of the rivet stud and be in the form of a disc 41, instead of an extended plate. This rotatable disc form of clamp is particularly desirable for the smaller sizes of cable connections.

Another special feature shown in Figs. 7 and 8 is the provision of a spring lock washer 42 on the shank of the rivet stud 21a, adapted to help in holding the clamp firmly engaged with the conductor and arranged by its resilience to take up for "cold set" of the copper conductor or any

4

slight looseness that might be occasioned by vibration or extremes of temperature.

In both forms of the invention shown the hinge clasp 14 has an outwardly inclined lower or inner edge 44 cooperative with a correspondingly but oppositely inclined edge 45 at the end of the body member to assist the clasp in sliding freely into the hooked position and, when the parts are in hooked position, to guide the clasp in an outwardly swinging direction as the top plate is lowered, thus to assist in releasing the clasp from the hooked condition. Thus the companion inclines 44 and 45 are of assistance in both the closing and the opening action of the clamp.

What is claimed is:

A connector for engagement over a continuous line conductor comprising a base having a seat for a through conductor, a top plate hinged at one end on said base over said conductor seat, a latch plate hinged to the free end of said top plate and having a hook at the free end of the same for cooperation with the base, the base being recessed to accommodate said hook and form a keeper therefor, the end of the base adjoining said keeper recess being outwardly inclined to guide the hook of the latch thereover into position for cooperation with the keeper recess and the latch plate being similarly inclined adjoining the hook for cooperation with the inclined end of the base plate for swinging the latch plate outwardly into unhooked relation in the lowering movement of the top plate over said conductor seat, a clamp screw operating down through said top plate and a clamp plate secured in relatively rotatable relation on the lower end of said clamp screw over said conductor seat and operable by said screw to be clamped against a conductor to lock the connector on the conductor or to be retracted from the conductor to permit movement of the top plate and latch plate as described sufficient to permit removal of the connector from the conductor.

MICHAEL J. CAFIERO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,196,383	Buchanan	Apr. 9, 1940
2,198,262	Bergan	Apr. 23, 1940
2,219,846	Meyer	Oct. 29, 1940
2,422,332	Becker	June 17, 1947

FOREIGN PATENTS

Number	Country	Date
188,130	Switzerland	Mar. 1, 1937