

Dec. 16, 1947.

S. M. DEL CAMP

2,432,966

ELECTRICAL CONNECTOR

Filed Nov. 11, 1943

2 Sheets-Sheet 1

Fig. 1.

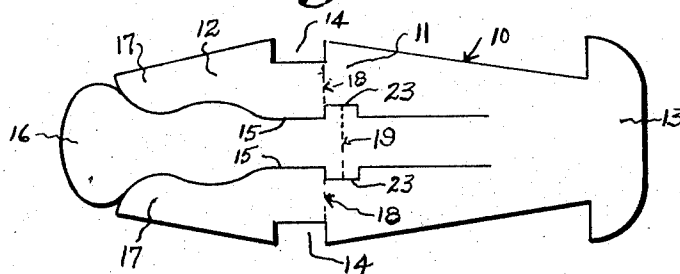


Fig. 2.

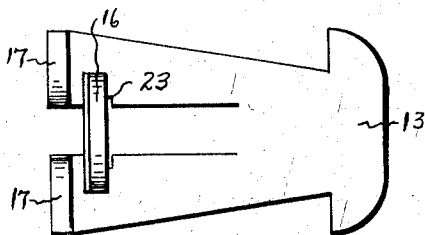


Fig. 3.

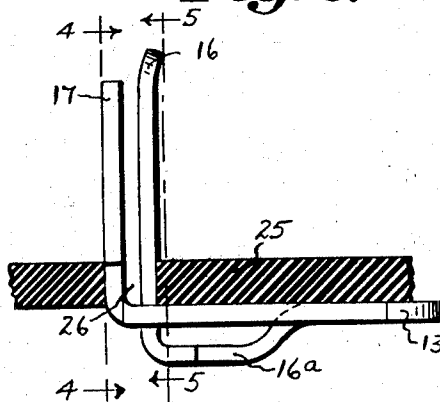
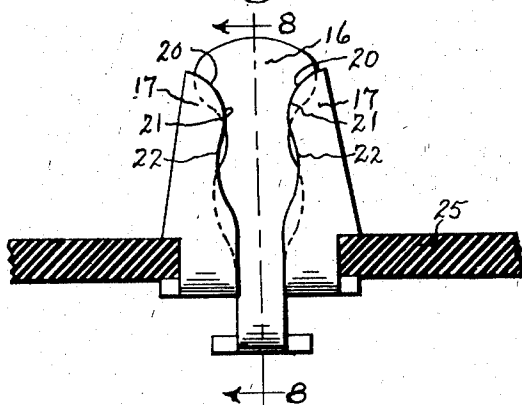


Fig. 4.



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Fig. 5.

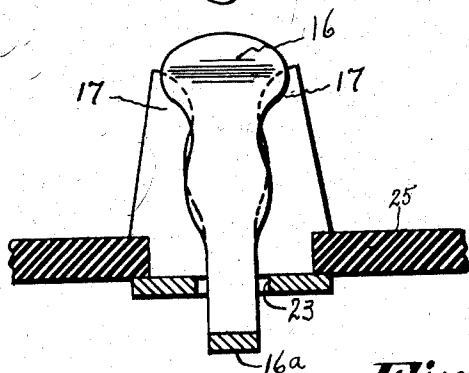


Fig. 6.

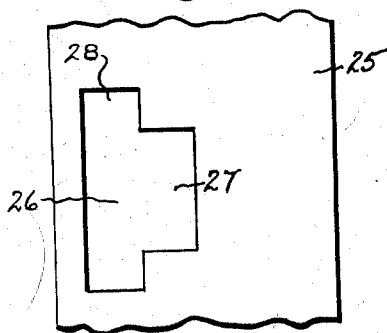


Fig. 7.

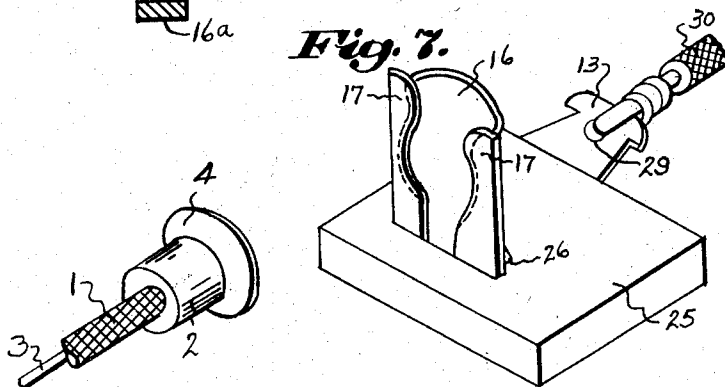
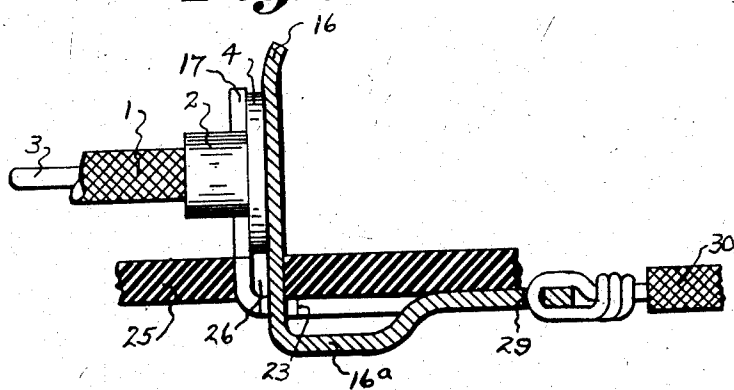


Fig. 8.



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ELECTRICAL CONNECTOR

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4 Claims. (Cl. 173—363)

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The present invention relates to electrical connectors of the type having a portion connected to an electrical circuit of another portion adapted to detachably receive a current-carrying conductor for supplying electrical current to said circuit and aims generally to improve existing connectors for that purpose.

One of the objects of the invention is the provision of an improved connector adapted to be readily mounted by a snap fastening engagement in an apertured support and provided with means for detachably receiving a terminal tip of an electrical conductor.

A further object of the invention is the provision of an improved connector which may be formed of a single piece of metal, and shaped to be detachably attached to a support to occupy a minimum of space and having provision for improved electrical connections with the conductor of an electrical circuit.

Other aims and objects of the invention will be apparent to those skilled in the art from a consideration of the accompanying drawings and annexed specification illustrating and describing one preferred embodiment of the invention.

In the drawings

Fig. 1 is an enlarged plan view of a blank from which a preferred form of improved connector is made;

Fig. 2 is a top plan view of the connector;

Fig. 3 is a side elevation of the improved connector as attached to an insulating support;

Fig. 4 is a sectional elevation thereof as taken on the line 4—4 of Fig. 3;

Fig. 5 is a similar view as taken on the line 5—5 of Fig. 3;

Fig. 6 is a fragmentary plan view of the apertured support;

Fig. 7 is a perspective view of the connector mounting illustrating the manner of connecting the conductors thereto; and

Fig. 8 is a sectional view as taken on the line 8—8 of Fig. 4 illustrating the conductor connected to the connector.

Referring to the drawings, the connector selected for illustrative purposes herein is adapted to detachably receive and provide a good effective electrical connection with an electrical conductor 1 having a terminal tip 2 secured by suitable means, such as soldering to the core 3 of the conductor, said tip preferably having an enlarged head 4 of suitable conducting material (Figs. 7 and 8). Preferably the head 4 may be an annular disc-like head integral with the tip 2,

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though it will be obvious that other forms of conductor tips may be employed.

One preferred form of connector embodying the invention is illustrated in the drawings and advantageously may be formed of a single blank of metal 10 (Fig. 1) having a body portion 11, a head portion 12 and a terminal tail portion 13. The blank 10 advantageously is of elongated form, the opposed sides of the head portion 12 of which are notched as at 14 adjacent the body 11, as is illustrated in Fig. 1. The head and body portions 12, 11 are slit along spaced lines 15 from the head end to provide an elongated tongue 16 joined to the blank 10 near the tail portion 13 and spaced jaw portions 17 at the sides of the blank forward of the notches 14.

The jaw portions 17 are adapted to be bent angularly to the body 11 along line 18, preferably substantially in line with the rear edge of the notches 14, and the tongue bent angularly along line 19 spaced rearwardly of the line 18, so as to provide a conductor tip-receiving head angularly disposed with respect to the body 11 and tail 13. Preferably the distance between the folding lines 18 and 19 is such that the space between adjacent faces of the angularly formed tongue 16 and jaws 17 of the head is slightly less than the thickness of the disc tip 4 of the conductor with which the connector is used.

In bending the jaw portions 17 angularly to the body portion 11, or after such bending, the jaws may be pinched toward each other to reduce the space between adjacent edges thereof and to form a more restricted opening for the terminal tip 2. Preferably the adjacent edges of the jaws 17 are somewhat ogee in form, as shown in Fig. 4, to provide an entering throat 20, a reduced neck portion 21 and an adjacent socket portion 22. The reduced neck may be slightly less than the diameter of the tip 2 so that the tip may be forced into the socket and retained therein by a snap fastener action. In pinching the jaws 17 together or otherwise contracting the throat 20, portions of the jaws are brought in opposed relation to the end of the tongue 16 providing opposed surfaces for engaging opposite sides of the terminal tip head 3 throughout a relatively large area, thus insuring an efficient electrical contact therewith.

The primary function of the tongue 16 is to provide a resilient contact surface for the conductor tip head 3 and as it is integrally joined to the body portion 11 it provides a conducting medium between the head 12 and tail 13. The head end of the tongue is preferably enlarged

or of disc type connected to the body portion 11 by a reduced shank 16 which preferably lies below or out of the plane of the body portion 11. Thus an open slot is formed in the body portion 11 providing sufficient resilience between the spaced parts of the body portion 11 and jaws 17 provide the resilient snap fastener to receive the terminal tip 2 and for mounting the connector in a support. To insure sufficient resilient movement of the jaws 17 and spaced portion of the body 11, the opposed adjacent edges of the body portions 11 may be notched as at 23 (Fig. 1) to embrace a portion of the angularly disposed tongue. The connector is preferably mounted on an insulated support which conveniently may be a thin sheet 25 of suitable dielectric material and preferably is affixed thereto by having portions of the connector engage in an aperture 26 of the support by a snap fastening action. The aperture 26 may be of any desired shape but conveniently is T-shaped, as shown in Fig. 6, to provide a tongue-receiving portion 27 and a relatively wide jaw-receiving portion 28.

The connector may be secured to the support 25 by a snap fastener action by merely inserting the head end of the connector through the aperture 27. As will be noted, in Figs. 1, 4 and 5, the outer edges of the jaws 17 are tapered slightly from the recess 14 toward the ends thereof so that they may be forced between the jaw-receiving portion 27 of the aperture. This effects a contraction of the jaws 17 toward each other which is permitted by the notch portions 23 of the body portions 11 embracing the tongue shank. When the head 12 has been inserted through the aperture 26 sufficiently far that the body portion 11 is in substantially flush engagement with the support, the notches 14 are thus disposed in the plane of the support 25 permitting the resilient jaws to snap outwardly and gripping the support between opposed faces of the notches, as illustrated in Figs. 4 and 5. The connector is thus securely attached to the support.

The tail portion 13 of the connector is preferably of sufficient length to extend beyond an edge of the support and is preferably formed with suitable means for securely receiving the core of a conductor 30 forming part of the electrical circuit. The tail or wiring terminal end 13 may be T-shaped as shown to permit the conductor core being wrapped around it, or it may be apertured as at 29 or otherwise formed to permit the ready attachment of the conductor 30 thereto.

It will be apparent from the above description and reference to the accompanying drawings that the invention provides an efficient and inexpensive connector which may be readily formed from a single piece of metal and quickly attached to an apertured support by a snap fastening action. In its mounted installation, the body of the connector may be below the support, out of view, with the terminal-receiving head exposed and readily accessible for the insertion of the terminal tip of a conductor. The novel construction of the head 12 permits the ready insertion of the terminal tip of the conductor, and the secure fastening of it in place. The provision of opposed terminal tip-engaging surfaces of relatively large area insures a highly efficient and effective electrical connector.

Although I have illustrated and described a preferred form of my invention, I do not wish to

be limited thereby because the scope of my invention is best defined by the following claims. I claim:

1. An electrical connector having a body portion and a conductor tip-receiving head, said head comprising separate resilient contact portions disposed in spaced planes, the portion disposed in one of said planes being divided to provide a pair of jaws spaced apart in said plane providing therebetween a conductor tip-receiving throat and opposing shoulders on the edges of said jaws providing the only means for securing said connector to a support.

2. An electrical connector having a body portion, a pair of spaced jaw portions extending from said body portion, said jaw portions being resilient for their entire length and providing between them a snap fastener socket for receiving a conductor terminal tip and a contact member resilient connected to said body portion and disposed in spaced relation to said jaw portions for electrical contact with a conductor terminal tip when positioned between said jaws, the outer marginal edges of said jaw portions being inclined in divergent relation from the free ends of said jaw portions and having notched for snap fastener engagement with an apertured support.

3. In combination with an apertured support, an electrical connector attached to said support, said connector comprising a body portion disposed in substantially flush engagement with one face of said support, conductor tip-receiving jaws disposed angularly to said body portion and extending through said aperture in said support, said jaws being disposed in substantially the same plane and resiliently movable toward and away from each other edgewise, and the outer edges of said jaws having opposing shoulders for snap fastener engagement with said support through said aperture thereof to hold said connector in assembly therewith.

4. In combination with an apertured support, an electrical connector attached to said support, said connector comprising a body portion disposed in substantially flush engagement with one face of said support, conductor tip-receiving jaws disposed angularly to said body portion and extending through said aperture in said support, said jaws being disposed in substantially the same plane and resiliently movable toward and away from each other edgewise, and the outer marginal edges of said jaws being inclined in divergent relation from the free end of said jaws and having notches for receiving in snap fastener engagement the edges of said support adjacent said aperture to hold said connector in assembly therewith.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
2,191,674	Alden	Aug. 4, 1942
1,965,270	Werner	July 3, 1934
1,251,856	Barr	Jan. 1, 1918
1,896,443	Fossati	Feb. 7, 1933
2,125,843	Hall	Aug. 2, 1938
2,294,896	Eby	Sept. 8, 1942