Aug. 6, 1935. H. A. DOUGLAS 2,010,453

METALLIC CONNECTER

Filed July 30, 1932

Fig. 1

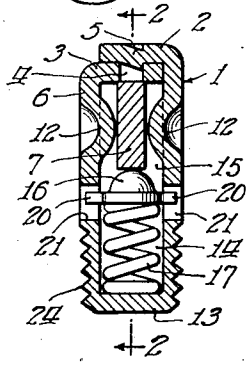


Fig. 2

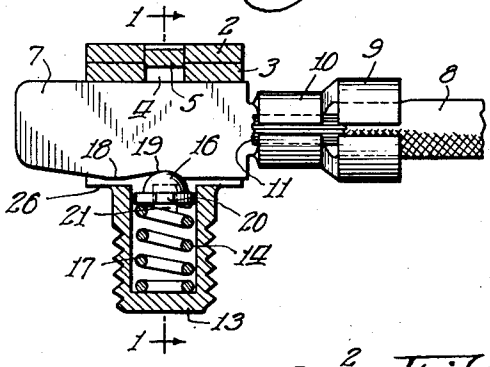


Fig. 4

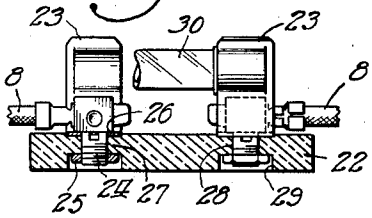


Fig. 3

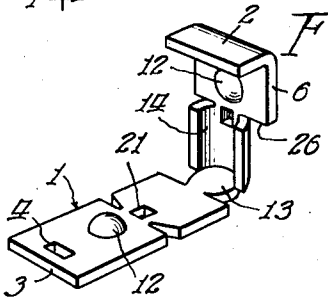


Fig. 6

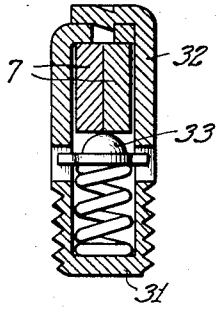


Fig. 5

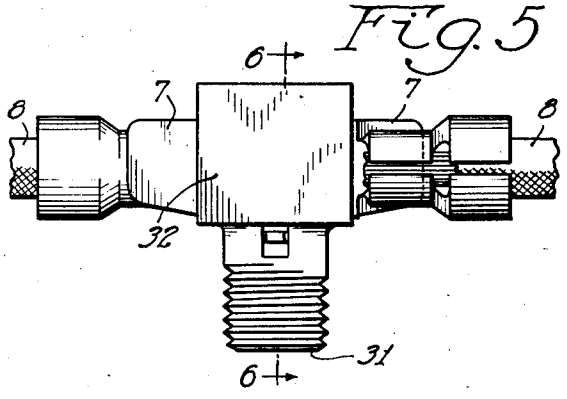
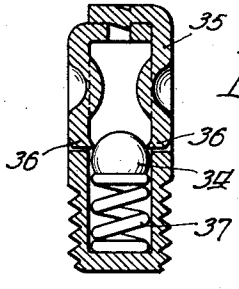


Fig. 7



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METALLIC CONNECTER

Harry A. Douglas, Bronson, Mich.

Application July 30, 1932, Serial No. 626,632

7 Claims. (Cl. 173—328)

This invention relates to metallic connecters more particularly for electrical conductors.

Among other objects, the invention aims to provide an integral metallic connecter embodying a receptacle portion and an attaching portion formed from a single blank and readily adaptable for receiving one or a plurality of conductors by a snap action.

Other objects and advantages will be readily apparent to those skilled in the art. For example, my improved connecter also provides clamping means whereby it and a fuse clip, for instance, may be secured to an insulating mounting.

The invention will be more fully explained by reference to the accompanying drawing, in which—

Figure 1 is a cross-section through one form of my improved connecter, being a section taken on the line 1—1 of Figure 2;

Figure 2 is a longitudinal section taken on the line 2—2 of Figure 1, parts being shown in elevation;

Figure 3 is a perspective view of a blank from which my improved connecter may be formed;

Figure 4 is a side elevational view showing a fuse block with the invention applied thereto, parts being shown in section;

Figure 5 is a side elevation of a modified form of connecter embodying my invention;

Figure 6 is a cross-section taken on the line 6—6 of Figure 5; and

Figure 7 is a view similar to Figures 1 and 6 but showing a further modification.

My improved connecter is desirably formed from a single piece of metal 1 such as brass or other suitable sheet material which may be stamped out and intermediately bent as shown in Figure 3.

The intermediate blank shown in Figure 3 may be further shaped as shown in Figure 1 to have its free ends 2 and 3 overlap each other. One of these overlapping ends, such as the end 3, may have a slot 4 struck out of the material thereof and the other overlapping end, such as the end 2, may have a tongue 5 struck inwardly thereof to be received in the slot 4, thus forming male and female interengaging portions which prevent separation of the ends.

These ends 2 and 3 are, in this instance, shaped to provide a rectangular receptacle portion 6 which receives the flat wire terminal 7. The terminal 7 which is broadly claimed in my copending application, Serial No. 616,842 filed June 13, 1932 is securely attached to the insulated wire 8 as by having cylindrical portions 9 and 10 which receive the end of the wire 8, the cylindrical portion 9 receiving the wire 8 with its insulation and the cylindrical portion 10 being of reduced diameter and snugly receiving the bared end 11 of the wire which may be further secured thereto as by soldering.

Where the receptacle portion 6 receives but one wire terminal 7, the sides of the connecter forming the receptacle portion 6 may be indented as at 12 to receive the terminal 7 snugly therebetween.

In accordance with my invention the bight of the connecter provides the attaching portion 13 which is desirably cylindrical and has its hollow interior 14 communicating with the interior 15 of the receptacle portion.

To cause the wire terminal 7 to be securely but yieldingly retained in the receptacle portion 6, I provide resilient means carried by the connecter for yieldingly engaging the terminal 7. As shown in Figures 1, 2, 4, 5 and 6 such means may comprise a dome-shaped detent 16 projected into the interior 15 of the receptacle portion 6 and pressed thereinto by the compression coil spring 17 housed in the interior 14 of the attaching portion 13. The terminal 7 may be provided on its edge adjacent the detent 16 with a shoulder 18 over which the detent rides to snap into the recess 19, the edge of the terminal being desirably tapered on each side of the shoulder 18 to provide a cam surface upon which the detent rides. To limit movement of the detent into the interior 15 when the terminal is removed, I provide interengaging means carried by the connecter limiting movement of the detent into the receptacle, but permitting movement of the detent against the force of the spring 17. As shown in Figures 1 to 6, inclusive, the detent 16 may be provided with lugs 20 which are received in slots 21 formed in the wall of the connecter and slightly elongated in the direction of movement of the detent toward and away from the receptacle portion 6.

One use for the connecter where it receives but one wire terminal 7 may be in conjunction with a fuse block comprising the insulating mounting 22 and the metallic fuse clips 23, two of the connecters being mounted on the mounting 22 and desirably clamping thereto the fuse clips 23. To permit my improved connecter to be used also for this purpose as a clamping means, I may form the attaching portion 13 of the connecter with the screw threads 24 upon its exterior to have threaded thereon the clamping nut 25. Since the

receptacle portion 6 of the connecter is longer than the diameter of the attaching portion 13 shoulders 26 are afforded between the receptacle portion 6 and attaching portion 13 which overhangs the attaching portion. The nut 25 and shoulders 26 receive therebetween the margins 27 of holes 28 in the mounting 22 through which the attaching portion 13 is passed. The mounting 22 is desirably thicker than the length of the attaching portion 13 and the holes 28 may be counterbored as at 29 to receive the clamping nuts 25 therein. Thus not only are the connecters themselves connected to the mounting 22, but the connecters may serve to clamp thereto the clips 23 as by having the attaching portions 13 of the connecters pass through suitable apertures in the clips, the margins of which are clamped between the shoulders 26 and the mounting 22. The circuit between the insulated wires 8, one of which is secured to each of the connecters, as shown in Figure 4, may be continued through the conventional fuse 30 carried by the clips 23.

My improved connecter may also be advantageously used as a direct connection between the two insulated wires 8 as shown in Figures 5 and 6. For the latter purpose, the attaching portion 31 of the connecter may be secured to any suitable insulating mounting and the indentations 12 may be omitted as shown in Figures 5 and 6 so that the receptacle portion 32 may receive two of the terminals 7 in side by side overlapping relation, the terminals being inserted from opposite sides of the connecter and the dome-shaped detent 33 engaging both of the terminals 7.

As shown in Figure 7, the detent 34 may be of spherical form. Movement of the spherical detent 34 inwardly of the receptacle portion 35 may be limited by tongues 36 struck inwardly of the wall of the connecter upon one side of the diameter of the sphere opposite the coil spring 37 against which the sphere bears at its other side and the distance between the tongues 36 being less than the diameter of the sphere.

Having described illustrative embodiments of my invention, I claim:

1. A connecter embodying an integral metal blank folded upon itself to form a cylindrical attaching portion and a rectangular receptacle portion, the attaching portion being formed by the bight of the blank and the receptacle portion by the free ends of the blank being spaced apart from each other and adapted to receive a terminal member and the interiors of said portions communicating, the exterior of the bight being screw-threaded and the free ends having interlocking formations to secure the ends together; a detent interposed between the said interiors, said detent having means interengaging with the connecter to permit limited movement therebetween; and a coil spring housed in the interior of the attaching portion bottomed on the bight and pressing the detent into the receptacle portion.

2. The structure of claim 1 wherein the interlocking formations on the free ends of the blank consist of struck out male and female portions interengaging to lock the ends together.

3. The structure of claim 1 wherein a shoulder is provided between the receptacle and attaching portions and said shoulder overhangs the attaching portion for engagement with a mounting member.

4. The structure of claim 1 wherein a nut is threadedly received upon the attaching portion, and the receptacle portion provides a shoulder overhanging the attaching portion, whereby the connecter may be clamped to a mounting member received between said nut and shoulder.

5. The structure of claim 1 wherein the sides of the connecter are provided with oppositely disposed elongated slots and the detent is provided with lugs received in said slots to permit limited movement of the detent.

6. The structure of claim 1 wherein the sides of the connecter are oppositely indented to reduce the distance therebetween to snugly receive a terminal member.

7. A connecter embodying an integral metal blank folded upon itself to form a cylindrical attaching portion and a rectangular receptacle portion, the attaching portion being formed by the bight of the blank and the receptacle portion by the free ends of the blank being spaced apart from each other and adapted to receive a terminal member and the interiors of said portions communicating, the exterior of the bight being screw-threaded and the free ends having interlocking formations to secure the ends together, a detent interposed between the said interiors, and a coil spring housed in the interior of the attaching portion bottomed on the bight and pressing the detent into the receptacle portion, said detent being of spherical formation and the sides of the connecter having inwardly struck tongues spaced apart a distance less than the diameter of the detent to limit movement of the detent.

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