

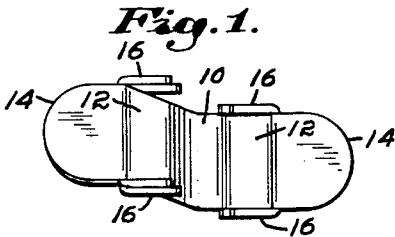
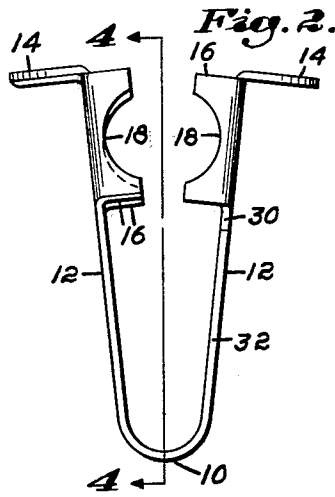
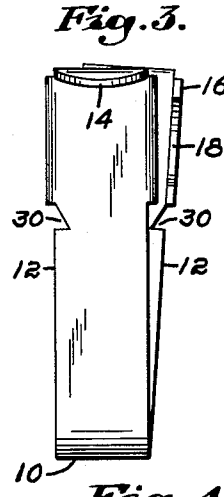
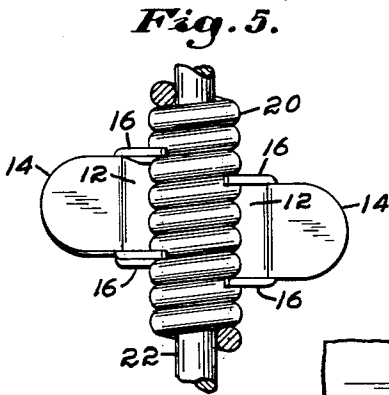
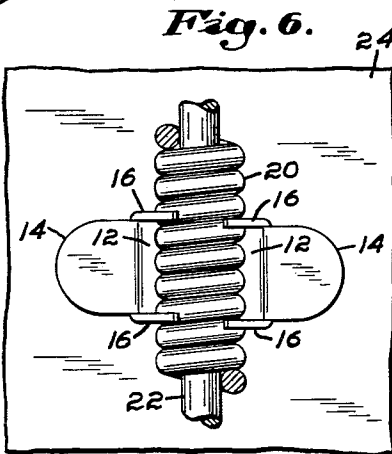
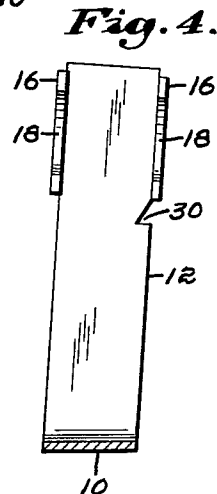
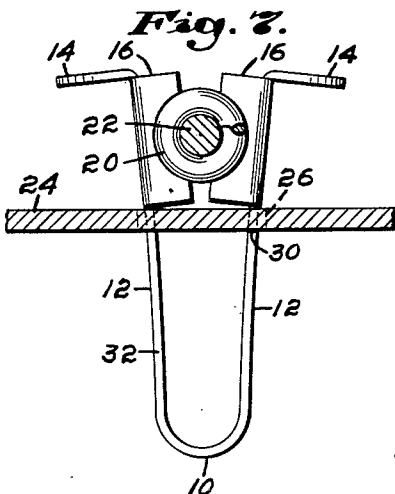
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3,154,277

BOWDEN WIRE CLIP

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3,154,277

BOWDEN WIRE CLIP

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This invention relates generally to wire clips such as a clip for use with Bowden wire or other similar devices.

An object of this invention is to provide a Bowden wire clip which will snap engage an apertured support.

Another object of the invention is to provide a Bowden wire clip which will grip and prevent rotation of the outer shield of a Bowden wire device engaged with the clip.

A further object of the invention is to provide a Bowden wire clip which will prevent axial movement of the outer shield on application of an axial force.

In the drawings:

FIG. 1 is a top plan view of the clip;

FIG. 2 is a side elevation of the clip shown in FIG. 1;

FIG. 3 is an end elevation of the clip shown in FIG. 1;

FIG. 4 is a section taken on line 4—4 of FIG. 2;

FIG. 5 is a top plan view of the clip engaged to a Bowden wire prior to the engagement with a support;

FIG. 6 is a top plan view assembled; and

FIG. 7 is a side elevation partially in section of the assembly shown in FIG. 6.

There is shown in FIGS. 1 through 4 a Bowden wire clip comprising a bight portion 10 having a pair of legs 12 extending from said bight portion 10. The legs 12 are in spaced relation to each other and lie on planes which are in substantially acute angular relation to each other. At the free terminal end of each of the legs 12 a finger tab 14 is formed, each extending away from a line drawn between the two legs 12. Each of the legs 12 has side edges 32 from which locking tabs 16 extend. A pair of locking tabs 16 are formed on each leg 12. The locking tabs 16 formed on each leg are in spaced relation to each other. Each of the locking tabs 16 are formed adjacent the finger tab 14 and extend from their integral leg toward the opposing leg. Each of the locking tabs 16 has an arcuate edge 18 directed toward the plane of the opposite leg 12 as shown in FIG. 2. The upper edge of each locking tab 16 is in close proximity to the plane of the finger tab 14. The legs 12 are offset in relation to each other so that one of the locking tabs 16 formed on each of the legs 12 is directed toward the inner surface of its opposing leg 12.

The Bowden wire comprises a helical spring or shield 20 and an inner control wire 22 which is circumscribed by the shield 20 and is axially movable in relation thereto.

The helix formed by the arcuate edges 18 of the two pairs of locking tabs 16 is, prior to engagement of the total assembly, in phase with the coils of the helical spring or shield 20.

The support 24, such as formed on a heat control housing, has an inner wall 26, circular in configuration, defining an aperture through said support 24. To engage the Bowden wire to the support 24, the Bowden wire is placed between the legs 12 with the arcuate edges 18 of the locking tabs 16 engaged in phase between the coils of the shield 20 and the legs in offset relation to each other. The distance between the "opposed" arcuate edges 18 is slightly less than the "root" diameter of the shield 20. The assembly of the clip and the Bowden wire is brought to the support 24 and the bight portion 10 is passed through the aperture formed by the inner wall 26 until the side edges 32 of the legs 12 engage against the inner wall 26. The angle formed between

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the legs 12 is greater for the major portion of their lengths than the diameter of the aperture in the support 24. Pressure is now exerted at right angles to the axis of the shield 20 and in the axial direction of the aperture formed in the support 24. As the pressure is continued, the legs 12 are forced in opposite directions in what may be referred to as an effort to press the two legs into direct opposing relationship. This latter action causes force to be exerted by the arcuate edges 18 of the locking tabs 16 axially of the shield and against the individual coils of the shield 20. At the same time that this distorting action is taking place in the relationship between the locking tabs 16 and the coils of the shield 20, the two legs 12 are being forced toward each other since the distances between the legs 12 are for a portion of their length below the locking tabs 16 greater than the diameter of the aperture formed in the support 24. In order to have a fastener which will more easily snap into the aperture, notches 30 are formed on the side edges of the legs 12 slightly below the locking tabs 16. The fastening is completed when the notches 30 snap into engagement with the inner wall 26. The engagement action also bows the legs 12 slightly in a direction away from the axis of the aperture formed in the support 24.

While there has been illustrated and described a preferred embodiment of the invention, it should be understood that the invention is best described by the following claims.

I claim:

1. The combination of a Bowden wire clip, a Bowden wire and a support, said support having an inner wall defining an aperture, said Bowden wire having a helically coiled shield, said clip comprising a pair of legs in spaced angular relationship offset from each other and each of said legs having a pair of side edges, tab means extending from each of said legs toward a line drawn between said legs, said tab means adapted to engage said shield in phase and said clip having means co-operatively engaging said inner wall of said support whereby said tab means are moved from an in phase relation with said shield coils to an out of phase relationship therewith.

2. The combination of a Bowden wire clip, a Bowden wire and a support, said support having an inner wall defining an aperture, said Bowden wire having a helically coiled shield, said clip comprising a pair of legs in angular relationship offset from each other, and attached together by a bight portion and each of said legs having means of engaging said coiled shield and said clip having means cooperatively engaging said inner wall of said support whereby said means are moved from an in-phase relation with said shield coils to an out-of-phase relationship therewith.

3. The combination of a Bowden wire clip, a Bowden wire and a support, said support having an inner wall having an aperture, said Bowden wire having a helically coiled shield, said clip comprising a pair of legs in angular relationship offset from each other, and attached together by a bight portion and each of said legs having a means of engaging said coiled shield and said clip having means co-operatively engaging said inner wall of said support whereby said means are moved from a first in-phase relation with said shield coils to a second relationship therewith.

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