WIRING HARNESS CLIP AND PAD ASSEMBLY

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This invention relates to flat wiring harness mounting and, more particularly, to a clip and pad assembly for flat wiring harness means.

In cases of electrical accessories on vehicles, additional wiring in certain locations to be fitted flush or flat rather than rounded due to the presence of other than flat harness means. A one-piece mounting means for grouped or bundled round wiring harness means as shown by a patent S.N. 2,931,851—Sims issued April 5, 1960 and of a co-pending application S.N. 249,755—Ramsey et al. filed January 7, 1963, both belonging to the assignee of the present invention, can be used in locations other than flat wiring harness means mounting. Reference can be made to co-pending applications S.N. 141,483—Bacon et al. and S.N. 141,519—Scofield et al. both filed September 30, 1961 and belonging to the assignee of the present invention for flat wiring harness means and related structures. An object of the present invention is to provide a new and improved combination wiring harness clip and separable pad assembly for flat wiring harness mounting on an apertured paneling.

Another object of this invention is to provide a pad and clip assembly having fastening portions of differing plastic materials that interlock to each other with one portion thereof to provide support directly for flat wiring harness means and another portion resiliently to hold to a predetermined location on apertured paneling.

Another object of this invention is to provide a substantially flat though elongated pad portion of one insulating material having an integral though thinned gripping end and an apertured end through which a clip portion of differing insulating material fits to have interlock therewith by predetermined lateral ramp means integral and aligned with projections of which free ends are spaced laterally apart though readily deformable for mounting and demounting on an apertured paneling.

A further object of the present invention is to provide a substantially flat though elongated rigid vinyl pad portion having an opening there-through that receives a flexible clip portion of moldable nylon, for example, with plural locking ears and projections integrally therewith such that the ears lock against opposite sides of the opening, the projections having free ends spaced apart from each other and extending toward outer edges of ribs integral with the clip portion to fit varying aperture sizes of mounting panel means to which a flat wiring harness means is to be held.

Another object of this invention is to provide flat mounting pad means to fit on one side of flat wiring harness means held in place on apertured vehicle paneling by a rectangular body portion thinned at least in part for access space.

Further objects and advantages will become apparent from the following description, reference being had to the drawings wherein preferred embodiments of the present invention are clearly shown.

In the drawings:

FIGURE 1 is a perspective view of combination pad and clip assembly in accordance with the present invention.

FIGURE 2 is a plan view of a clip portion per se for the assembly of FIGURE 1.

FIGURE 3 is an elevational or side view of the trip portion of FIGURE 2.

FIGURE 4 is an end view of the clip portion of FIGURES 2 and 3.

FIGURE 5 is a plan view of a pad portion per se for the assembly of FIGURE 1.

FIGURE 6 is a cross-sectional view taken along line 6—6 in FIGURE 5.

FIGURE 7 is an end view of the pad portion of FIGURE 5.

FIGURE 8 is a plan view of another pad portion per se having features in accordance with the present invention.

FIGURE 9 is a cross-sectional view taken along line 9—9 in FIGURE 8.

FIGURE 10 is an end view of the pad portion of FIGURE 8.

FIGURE 11 is a side view of an assembly of the pad portion of FIGURES 8, 9 and 10 with the clip portion of FIGURES 2, 3 and 4.

FIGURE 12 is an end view of the assembly of FIGURE 11.

FIGURE 13 is a plan view of another embodiment of flat wiring harness fastening means.

FIGURE 14 is a cross-sectional view taken along line 14—14 in FIGURE 13.

FIGURE 15 is an end view of the fastening means of FIGURE 13.

FIGURE 16 shows a perspective view of a pad and clip assembly generally indicated by numeral 20 for mounting of rectangular cable or flat wiring harness means H having plural conductors C therewith as indicated also in this same view. The assembly 20 includes a main body portion with substantially flat surfacing on opposite sides and indicated by numeral 21. A squared or rectangular opening or aperture 22 extends through this main body portion of the pad and has parallel edges 23 as well as undercuts or recesses 24 and 25 indicated in views of FIGURES 1, 5, 6 and 7. These same views also show an integral extension or thinned gripping end 26 projecting laterally to one side of the main body portion of the pad indicated by numeral 21 such that a continuous flat surfacing is mutually provided therebetween on one side thereof.

The perspective view of the assembly 20 in FIGURE 1 also illustrates a clip portion 30 having a central base 31 and opposite integral extensions 32 of less thickness. These extensions 32 are adapted to fit telescopically into the undercuts or recesses 24 and 25 of the pad main body portion 21. Reference can be made to views of FIGURES 2, 3 and 4 for illustration of the clip portion 30 per se as well as further specific features thereof. These further features include a pair of projections 33 having a slot 34 therebetween. The projections include integral free ends 35 spaced on opposite sides away from each other by an undercut 36 which enhances resilience and deflection ability of the free ends 35 toward each other during insertion thereof through a mounting aperture A of the panel P indicated in FIGURE 3. The slot 34 has less width where it terminates in the clip body portion or base 31 than width which increases progressively along the spacing between the projections 33. As can be seen in views of FIGURE 1 through 4 of the drawings, the clip means have relatively thin and deflectionable web portions 37 which can have edging 38 thereof engaged periphery of the aperture A through the mounting panel P as indicated in FIGURE 3. Thus the edging 38 of the web portions 37 can permit assembly and mounting of the clip portion relative to pads of differing thickness as well as to apertures of differing sizes compensated for by the web portions 37 and more particularly edging 38.
such of the projections 33 on opposite sides thereof. Such web portions 37 and edging 38 thereof as assures engagement of the panel P along one side while free ends 35 of the projections 33 engage in opposite side of the panel P.

Further in accordance with the present invention the clip portion has triangular-shaped or ramp-like means or ears 39 integral and in alignment with the projections 33 on opposite sides thereof. Such ramp means or ears 39 are adapted to interlock and engage with opposite edging 23 of the hole or aperture 22 through the main body portion 21 of the pad. The assembly view of FIGURE 1 shows these ramp means or ears 39 against edging or surface surrounding the aperture 22 on one side of the main body of the pad portion while the extensions 32 integral also with the main body of the clip portion as indicated by numerals 31-32 in views of FIGURES 2-4 can engage opposite side of the main body portion of the pad particularly where recessed at locations in alignment with the hole or aperture 22 and indicated by reference numerals 24-25.

FIGURES 8, 9 and 10 illustrate another pad portion having a main body 41 with an aperture or opening 42 centrally therethrough. The body portion 41 has opposite edging 43 as well as recessing 44 and 45 similar to that identified by reference numerals 24, 24 and 25 respectively previously. FIGURES 11 and 12 are views to illustrate assembly of this pad portion 41 with the clip portion 39 and features thereof as described for views of FIGURES 2, 3 and 4. Thus it can be seen that the clip portion such as 30 can be used with differing pads adapted for flat harness means mounting as indicated in views of FIGURES 1 and 11. It is to be noted that the clip portion can be made of a relatively resilient multiple plastic material such as nylon whereas the pad portions are to be made of a relatively rigid plastic material such as vinyl. Therefore, the locating ears 39 being part of the resilient clip portion can readily snap or lock the clip portion into engagement with the pad portion to which flat wiring harness means can be held adhesively such as by heat sealing plastic pad and plastic harness materials to hold the flat harness means in place. Tape or wrapping could possibly be used also for such holding. Thus the pad and clip assembly in accordance with the present invention is made of two different types of plastic or moldable material held together. The use of resilient material for the clip portion also enhances fitting of the projections and free ends 33 and 35 respectively through mounting panel apertures. Reference numerals in FIGURES 11 and 12 identify the pad portion of FIGURES 8-10 as well as different FIGURES 2-4.

FIGURES 13, 14 and 15 illustrate a fastening means generally indicated by numeral 50 having a thinned strap-like central body portion 51 providing a recess or offset 52 to one side thereof where a flat harness means H with conductors C can be positioned as indicated in views of FIGURES 13 and 15. This fastening means 50 can be made of a suitable plastic material formed integrally with enlarged ends 53 at opposite extremities thereof each provided with a transverse elongated slot 54 through which a suitable mounting or fastener such as screws can be inserted.

While the embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms can be adopted.

What is claimed is as follows:

1. A separable assembly for mounting of flat wiring harness means, comprising, a pad portion of insulating material having an opening therethrough as well as flat surface on opposite sides thereof, except for recessing in alignment with the opening on one side thereof, and a clip portion of insulating material having a main body portion with opposite lateral extensions that complement the opening and recessing of said pad portion, said clip portion further including projections having free ends deflectable during passage through a mounting panel aperture and extending toward said extensions, each said projections having integral ears that engage edging of the opening through said pad portion and that maintain interlock of said clip and pad portions to each other.

2. In combination, a substantially flat though elongated rigid vinyl pad portion having an opening therethrough as well as recessing extending in opposite directions therefrom on one side thereof, and a clip portion of resilient moldable material such as nylon integrally including a main body portion having opposite extensions to fit recessing with the opening of said rigid pad portion, said pad and clip portions having flat surfacing complementary to each other on one side thereof, a pair of diverging projections integral with said main body portion, web means extending in opposite directions transversely from said projections and joined also to said main body portion, free ends integral with said projections and extending substantially oppositely thereof and undercuts toward said web means and main body portion, and plural ramp-like ears integral on opposite sides of said projection integral with said projections and extending oppositely thereof at each end of said pad portion in a location opposite to that engaged by said extensions that fit recessing complementary thereto as flat surfacing for flat wiring harness support.

3. The combination of claim 2 wherein said pad portion has an integral thinned gripping portion as a continuation of flat surfacing and said vinyl pad portion is heat sealable to hold the flat wiring harness in place.

4. The combination of claim 2 wherein a total of four ears extend in pairs away from each other and said clip portion is symmetrical and alike on opposite sides of a plane through said web means yet separable to be interchangeable with differing pad portions.

5. In combination, a substantially flat though elongated rigid plastic pad portion having an opening therethrough as well as recessing extending in opposite directions therefrom on one side thereof, and a clip portion of resilient moldable plastic material integrally including a main body portion having opposite extensions to fit recessing with the opening of said rigid pad portion, said pad and clip portions having flat surfacing complementary to each other on one side thereof, a pair of diverging projections integral with said main body portion, web means extending in opposite directions transversely from said projections and joined also to said main body portion, free ends integral with said projections and extending substantially oppositely thereof and undercuts toward said web means and main body portion, and plural ramp-like ears integral on opposite sides of said projection interlocking against said projection interlocking against one side of said pad portion in a location opposite to that engaged by said extensions that fit recessing complementary thereto as flat surfacing for flat wiring harness support.

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