

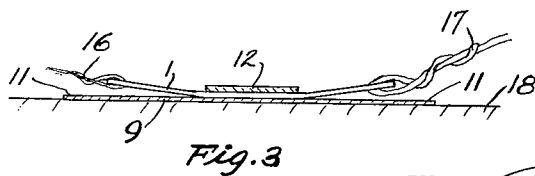
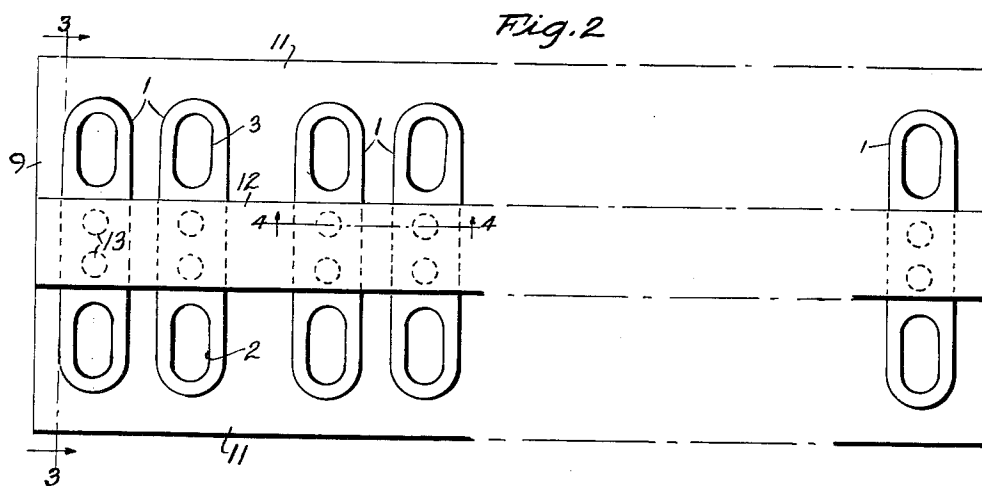
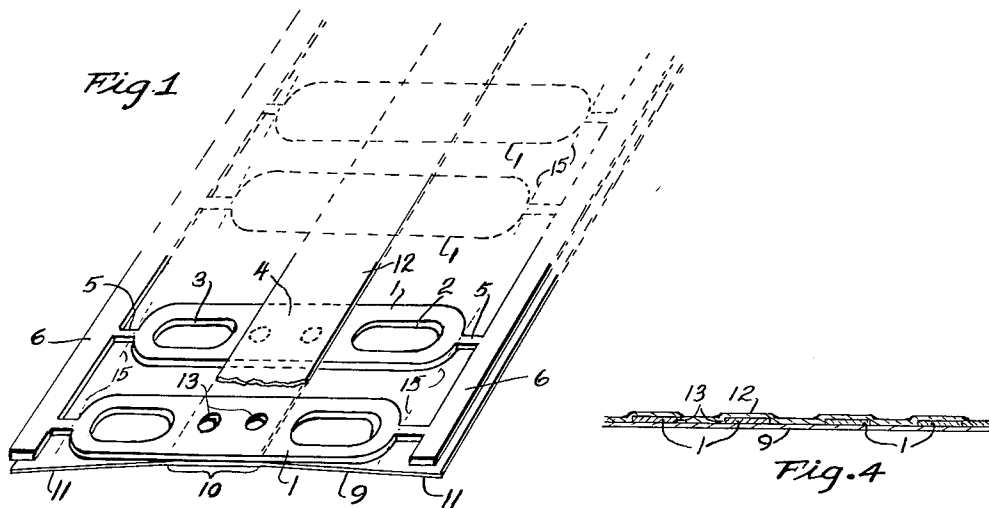
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ELECTRICAL TERMINAL STRIP

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ELECTRICAL TERMINAL STRIP

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1 Claim. (Cl. 339-198)

This invention relates to electrical wiring terminals and a method for making the same, the terminals being particularly adapted for electrical-type strain gages.

Many different types of terminals have heretofore been proposed and used but the same have been deficient in many respects insofar as their use for strain gage purposes is concerned. A strain gage, particularly of the well-known bonded electrical resistance type has an extremely fine resistance filament to which relatively small diameter leads are connected. It is necessary to connect these small leads to relatively heavy instrumentation wires which may be anywhere from a few feet long to one hundred feet or more. The result is that the small gage leads may be excessively pulled by the large and long instrumentation wires. While anchorages of various types have been used to resist such pull, yet, they are not always easily applied or sufficiently versatile for attachment to various shaped surfaces of specimens or structures whose strains are being determined.

It is an object of my invention to provide an improved wiring terminal that insures a high degree of strain relief termination for instrumentation leads, that will resist fatigue, and will facilitate lead soldering of wires and installation, together with making gage resistance and resistance-to-ground checks easier and quicker.

A further object is to provide an improved wiring terminal that may be applied by adhesive bonding to supporting surfaces that are either straight or curved and that has a relatively large pull-out strength in longitudinal directions and a reasonably high strength in directions normal to the supporting surface.

A further object is to provide an improved wiring terminal that may be made in a relatively simple and economical manner and is rugged in construction.

Other objects and advantages will be more apparent to those skilled in the art from the accompanying drawings in which:

FIG. 1 is a perspective of a partial strip of terminals during one step of their manufacture;

FIG. 2 is a plan view of a strip of terminals in their completed state;

FIG. 3 is a cross-sectional view taken substantially on the line 3-3 of FIG. 2 and showing a relatively fine gage lead and a relatively heavy instrumentation wire connected to the opposite ends of a terminal; and

FIG. 4 is a sectional view taken substantially on the line 4-4 of FIG. 2.

It will be understood that the figures in the drawings are greatly magnified because the terminals as actually made must be used in many locations of limited available space. As shown in FIG. 1 a series of preferably parallel terminals 1 of elongated narrow form have wire-receiving openings 2 and 3 at opposite ends spaced apart to provide an anchoring area generally indicated at 4. In manufacture a whole series of terminals are preferably simultaneously formed from a single thin sheet of electrical conducting material. This is preferably done by the well-known photographic and etching process. To maintain the terminals in an orderly arrangement during their subsequent manufacture, it will be noted that each terminal has small extensions 5 connected to a pair of longitudinally extending parallel supports 6. These supports and the connections 5 are all part of the

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original single sheet of material so as to provide a unitary self-supporting structure. A strip of the formed terminals with their connected supports 6 is then laid down on a thin flexible insulating sheet 9 of Teflon, glass or suitable ceramic materials all of which insure a high degree of electrical insulation and moisture resistance. This sheet is secured by well-known suitable cements to the terminals along a transverse control area indicated by the bracket 10, thereby leaving outer free edges or flaps 11 extending beneath the terminal ends and supports 6. A strip 12 of similar insulating material is placed across the top central portion of the terminals and is cemented or otherwise suitably secured both to the terminals and to the lower sheet 9, the central portion of the terminals having holes 13 to allow the strip 12 to be depressed into cemented contact with the under-strip 9 thereby providing a high degree of resistance against pull-out of each terminal. With the series of terminals now securely held by the strips 9 and 12 the supports 6 are removed by cutting connections 5 along lines 15 so as to leave the terminals entirely independent of each other as shown in FIG. 2. It will be noted that the ends of the terminals are disposed a substantial distance inwardly of the edge portions 11 which thereby provide a suitable insulation for relatively fine lead wires 16 and the heavy instrumentation wires 17 when they are secured to the terminals whose outer ends may be slightly bent up to receive the wires. The entire width of the undersheet 11 may be cemented to a test surface 18 thus providing an extraordinary degree of cementing area for the terminals. The desired number of terminals to be used may be cut from the terminal strip or the entire strip may be left intact if desired.

From the foregoing disclosure, it is seen that I have provided extremely simple yet highly effective wiring terminals that are especially adapted for strain-gage applications and will have all of the desirable qualities heretofore mentioned. It is also seen that the terminals can be manufactured in large quantities by the relatively simple method disclosed herein that is economical.

It will of course be understood that various changes in details of construction and arrangement of parts may be made by those skilled in the art without departing from the spirit of the inventions as set forth in the appended claim.

I claim:

Electrical wiring terminals comprising an elongated lower strip of flexible electrically-insulating sheet material, a plurality of flexible elongated metal terminal bodies disposed on said lower strip and each extending transversely thereof in spaced relation to one another in direction of elongation of said strip, each of said transversely-extending metal bodies having a flat central portion which abuts said lower strip and is perforated and having its opposite outer ends bent upwardly away from said lower strip, the transversely extending length of each of said metal bodies being less than the width of said lower strip, and an upper elongated flexible strip of electrically-insulating sheet material which is of width less than the length of said transversely-extending metal bodies and not greater than the length of said central portions of said metal bodies, said upper strip extending lengthwise of said lower strip and over the perforated central portions of said metal bodies, and means adhesively bonding the confronting surfaces of said upper strip and said lower strip through the perforated central portions of said metal bodies and also in the spaces between said spaced metal bodies.

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JOSEPH D. SEERS, *Primary Examiner.*

ALBERT H. KAMPE, ALFRED S. TRASK,

Examiners.