United States Patent

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[54] TAUT WIRE MOVING CONTACT MOUNTING ARRANGEMENT

4 Claims, 4 Drawing Figs.

[52] U.S. Cl. 200/166
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[50] Field of Search ..... 200/166.1, 166 (H), 166 (BH)

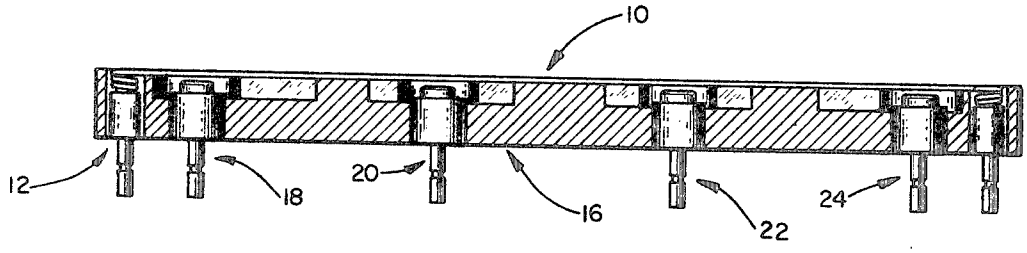
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ABSTRACT: A taut wire moving contact arrangement that allows for manual assembly without the need for tools or conventional fasteners and includes an integral resilient portion to limit stress in the wire during actuation thereof.



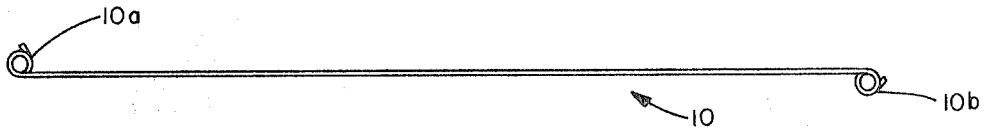


Fig-1

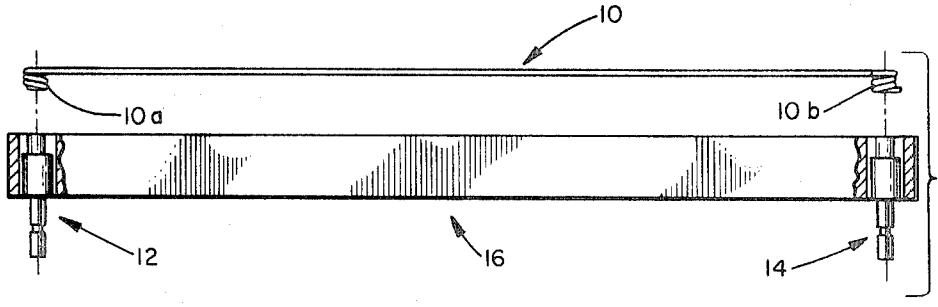


Fig-2

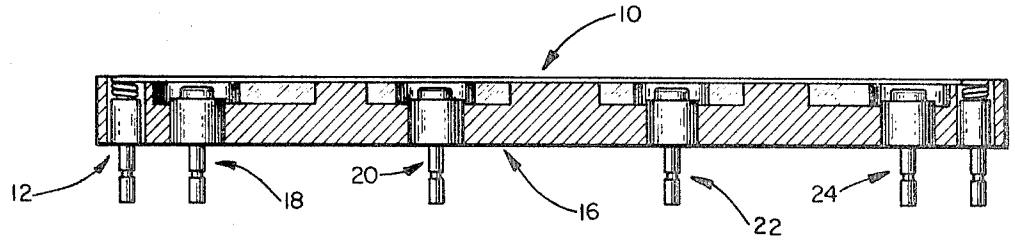


Fig-3

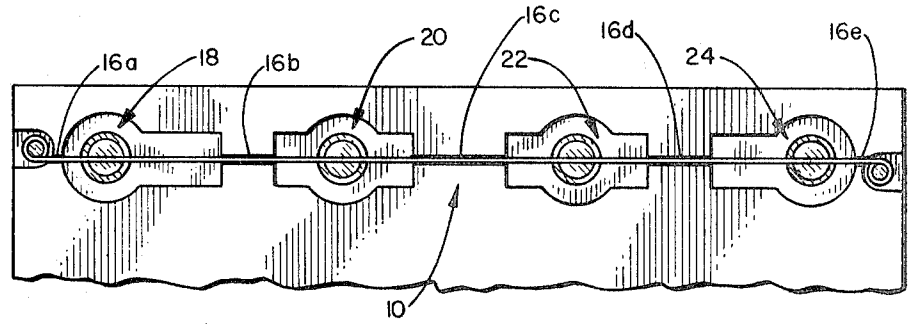


Fig-4

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TAUT WIRE MOVING CONTACT MOUNTING ARRANGEMENT

The present invention is directed to an electrical switching arrangement of the taut wire moving contact type which allows for ease of assembly and minimizes stress in the wire during movement thereof toward and away from its engaging contact.

Electrical switching arrangements utilizing taut wire moving contacts are well known in the prior art. Conventionally such wires have been rigidly secured, by clamping for example, at their extremities. This poses two problems: first, the fastening means to rigidly secure the wires necessarily adds to the complexity and cost and second, a rigidly secured wire tends to be overstressed upon actuation and ultimately becomes elongated to a certain extent thereby reducing the degree of tautness.

As disclosed in the preferred embodiment herein, a taut wire moving contact arrangement alleviates the problems above referred to. Thus the taut wire includes extremities which are in coiled form and which can be hand assembled to mounting pins located on a support member so that upon movement of the taut wire towards and away from an engaging contact excess stress is not encountered due to the relative freedom of movement of the wire provided by the coiled extremities. It will be appreciated that while a certain longitudinal "extension" of the taut wire moving contact is encountered, a relative constant tension is provided therein by the construction above set forth.

Therefore, it is an object of this invention to provide a taut wire moving contact arrangement which allows for hand assembly without the need for conventional fasteners or tools of any kind.

It is a further object of this invention to provide a taut wire moving contact arrangement in which excess stress is not encountered during actuation thereof.

These and other objects become apparent from a reading of the following specification and claims when viewed with the drawing in which:

FIG. 1 is a plan view of a taut wire moving contact incorporating the invention;

FIG. 2 is a side elevation of the taut wire of FIG. 1 disposed for assembly with a support member;

FIG. 3 is a side elevation of the taut wire and support in assembled condition; and

FIG. 4 is a plan view of FIG. 3.

Referring to FIG. 1 of the drawing, a taut wire moving contact **10** is shown. The extremities **10***a* and **10***b* of the moving wire contact **10** are wound in coil form, referring to FIG. 2, and in opposite directions, referring to FIG. 1. The centerline

to centerline distance between the coil extremities **10***a* and **10***b* is somewhat less than the centerline to centerline distance between mounting provisions in the form of metal pins **12** and **14** provided in a plastic molded support member **16**. The moving contact **10** can be associated with the support **16** by merely extending the extremities **10***a* and **10***b* somewhat and passing them over and about the accommodating reduced upper diameters of the pins **12** and **14**. This of course can be accomplished by hand assembly.

The moving contact **10** when in place with respect to the support **16** as shown in FIGS. **3** and **4** is guided in grooves **16***a*, **16***b*, **16***c*, **16***d* and **16***e* and can be selectively associated with various fixed contacts **18**, **20**, **22** and **24** and arranged for engagement therewith by movement of the appropriate portions of the moving contact toward the fixed contacts by any suitable means so as to cause selective closure of the various circuits provided by electrical connections, not shown, to the various pins and contacts as is well known in the art.

The taut wire moving contact arrangement as above described of course does not involve an overstressing of the moving contact **10** during movement thereof since a longitudinal "extension" is provided by the coil extremities **10***a* and **10***b*.

From the foregoing, it will be appreciated that a unique taut moving wire contact arrangement has been disclosed which is extremely straightforward in approach, involves only hand assembly and minimizes any excess stress in actuation.

Other embodiments of the present invention are possible and therefore the scope should be determined from the following claims in which:

I claim:

1. An electrical switching arrangement comprising a first contact, a support including spaced apart mounting provisions, a moving wire contact disposed proximate said first contact with the extremities of said moving wire contact associated with said mounting provisions so as to provide a taut wire construction, said moving wire contact including an integral resilient portion provided so as to limit stress in said moving wire contact in excursions thereof toward and away from said first contact.

2. The arrangement of claim 1 wherein the integral resilient portion is incorporated with one of the extremities of said moving wire contact and is associated with a mounting provision.

3. The arrangement of claim 2 wherein the mounting provisions comprise pins extending from said support and the extremities of said moving wire contact are disposed thereabout.

4. The arrangement of claim 3 wherein the extremities of said moving wire contact are coiled and which in assembly pass over and about the pins.