

[54] **INSULATED COMMON STRIP**
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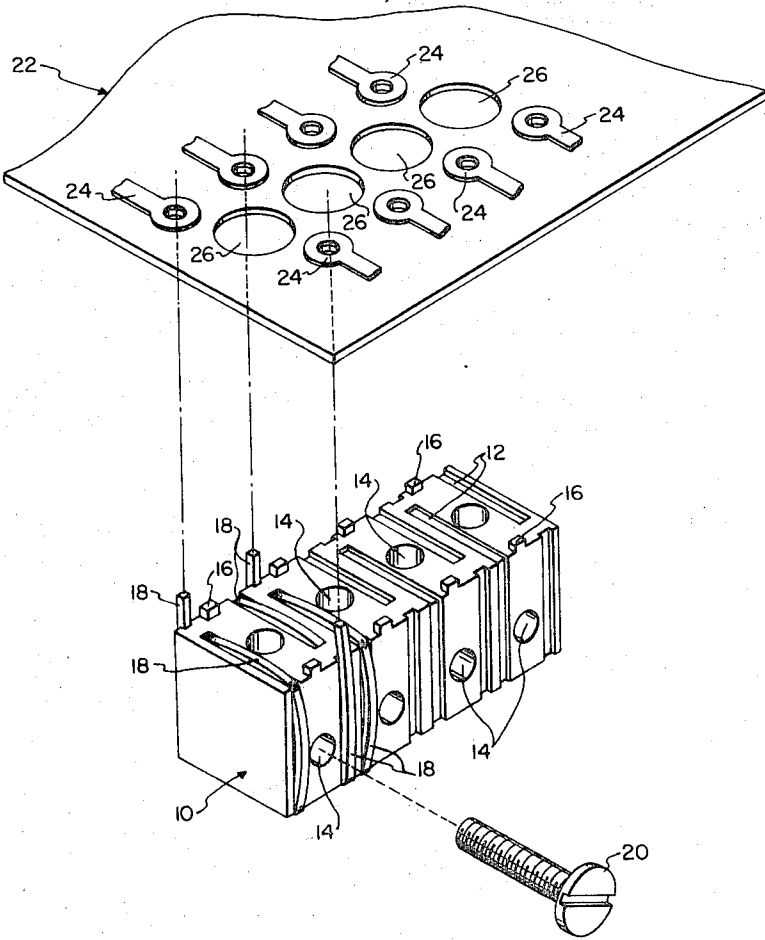
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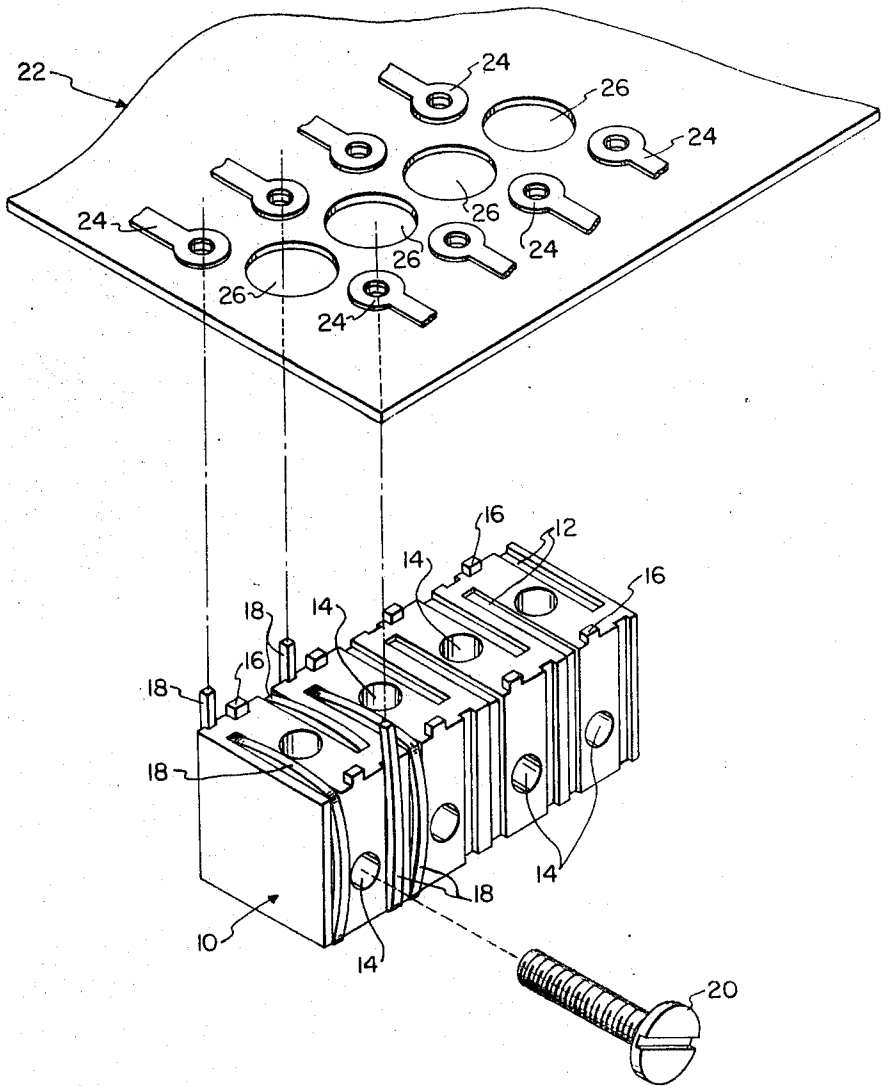
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[57] **ABSTRACT**
An insulated common strip for selectively coupling electrical components to the circuits of a printed wiring card. A self-tapping screw is used to close an electrical path between first and second pretensioned spring conductors mounted on an insulating block and coupled to the printed circuits.
8 Claims, 1 Drawing Figure



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3,760,330



INSULATED COMMON STRIP

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to the field of apparatus for interconnecting electrical circuit paths and more particularly to a new and improved insulated common strip.

2. Description of the Prior Art

Prior to the present invention the use of strapping blocks for selectively coupling circuits together were known. These strapping blocks basically involve the use of wire bars mounted on an insulating panel; one bar coupled to a first portion of a circuit and another parallel bar coupled to a second portion. The circuit portions were then coupled together through the head of a conductive screw threaded in a socket disposed between the wire bars. Although such strapping blocks have generally been considered adequate for use in electronic assemblies formed of discrete wired components they have exhibited deficiencies when used with modern printed circuitry. These prior art devices function satisfactorily to selectively couple circuit components, however, due to their panel-like structure could not be conveniently mounted directly on printed wiring cards. This, of course, presented a requirement that the strapping blocks be separately mounted and wired to the printed wiring card sockets of a wiring card file.

OBJECTS AND SUMMARY OF THE INVENTION

From the preceding description it will be understood that among the various objectives of the present invention are included the following:

- the provision of a new and improved strapping block;
- the provision of apparatus of the above-described character which is easily mounted directly to a printed wiring card; and

- the provision of apparatus of the above-described character having pre-tensioned spring contacts.

These and other objectives of the present invention are efficiently achieved by providing an insulative block with a pair of pre-tensioned conductive circumferential springs, one end of each extending beyond the surface of the block. The spring ends are adapted for insertion through apertures in printed wiring cards such that they may be soldered to circuits printed thereon. A self-tapping electrically conductive screw is inserted into the block between the springs such that electrical contact is provided when the screw head is tightened against the springs.

The foregoing as well as other objects, features and advantages of the present invention will become more readily understood from the following detailed description taken in conjunction with the appended drawing.

BRIEF DESCRIPTION OF THE DRAWING

The single appended FIGURE is a perspective view of an insulated common strip constructed in accordance with the principles of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the FIGURE there is shown an insulative block 10 of generally rectangular configuration and having a plurality of spring receiving slots 12 disposed in the major surfaces. The block may conveniently be molded of an insulating plastic material, such

as one of the many polycarbonate resins which are commercially available, and may include orthogonal through-holes 14 and spacing tabs 16.

A plurality of pre-tensioned wire springs 18, one pair for each electrical connection to be provided, are placed in the slots 12 with one end of each spring extending beyond the surface of the block 10. The springs are formed of tin plated spring temper rectangular wire and pre-tensioning is conveniently provided by the geometry of the spring itself; i.e., the curvature of the four sides of the springs 18.

To effect an electrical connection between the springs 18 of a given pair of an electrically conductive self-tapping screw 20 is driven into any one of the through holes 14 such that the screw head engage sobht of the springs 18 of the pair. Due to the pre-tensioning of the springs a reliable contact is made as the screw 20 is tightened. To open a given contact the screw 20 need only be turned out until the circuit is interrupted.

The common strip may conveniently be coupled to a conventional printed wiring card shown in part at 22. The ends of the springs 18 which extend beyond the surface of insulative block 10 are inserted in the plated through holes of circuit terminations 24 and soldered thereto. The spacing tabs 16 assure that the springs 18 on the side of block 10 adjacent the wiring card are not compressed against the card. The wiring card 22 may further, if desired, be provided with a plurality of apertures 26 in register with the through holes in the insulative block. In this fashion a self-tapping screw 20 may be inserted into the block 10 from any of its sides.

It will thus be seen that the applicants have provided a new and novel insulated common strip whereby the objectives set forth hereinabove are efficiently achieved. Since certain changes in the above-described construction will occur to those skilled in the art without departing from the scope of the invention it is intended that all matter contained in the foregoing description or shown in the appended drawing shall be interpreted as illustrative and not in a limiting sense.

Having described what is new and novel and desired to secure by Letters Patent, what is claimed is:

1. Apparatus for selectively coupling electrical circuits comprising
 - an electrically insulative mounting block,
 - at least one pair of electrically conductive spring members disposed circumferentially about said mounting block, spaced apart from one another, each having one end extending a selected distance from the surface of said mounting block, and each adapted for coupling to one of said electrical circuits to be coupled said mounting block having an aperture disposed between said conductive spring members, and
 - an electrically conductive screw threaded into said aperture such that tightening said screw closes an electrical path through the head thereof between said spring members.
2. Apparatus as recited in claim 1 further including a spring retaining slot disposed in the surfaces of said mounting block for each said conductive spring member and adapted to retain and align said spring members.
3. Apparatus as recited in claim 1 further including a plurality of spacing tabs integrally formed on the surface of said mounting block from which said conductive spring members extend.

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4. Apparatus as recited in claim 1 wherein said mounting block is provided with a plurality of apertures having openings on each surface of said mounting block between the spring members of each said pair.

5. Apparatus as recited in claim 2 wherein each said spring member is formed of spring temper wire having a substantially rectangular cross-section.

6. Apparatus as recited in claim 5 wherein each said spring member is disposed on said mounting block under tension such as to assume an external convex configuration extending beyond the surface of said mounting block whereby said conductive screw compresses said springs when tightened.

7. Apparatus as recited in claim 1 further including a printed wiring card bearing said electrical circuits

to be selectively coupled, and each said circuit being terminated about an aperture through said wiring card, each said aperture being adapted to receive and electrically engage the portion of said spring member extending beyond the surface of said mounting block.

8. Apparatus as recited in claim 7 further including an access aperture disposed through said wiring card, of a dimension greater than the spacing between said spring members and in register with the space therebetween,

whereby said conductive screw inserted through said aperture operates to selectively close the electrical path between said spring members.

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