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MEMORY MATRIX FRAMES

Filed Feb. 20, 1958

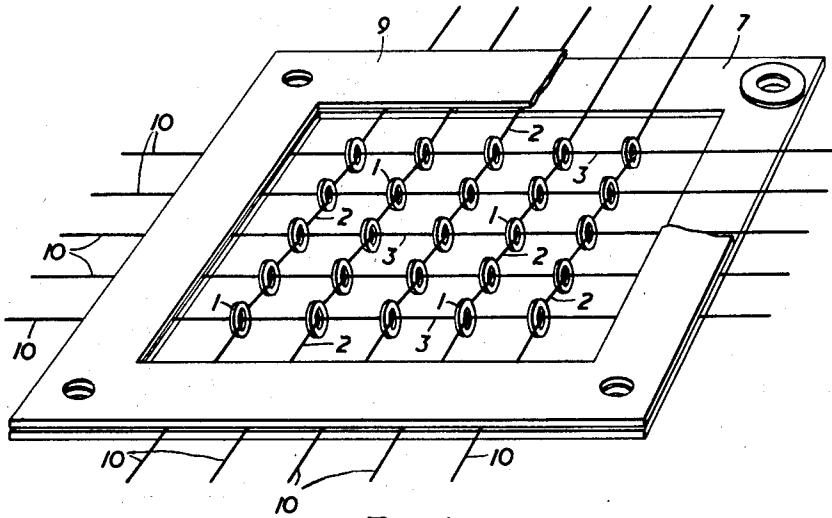


FIG. 1.

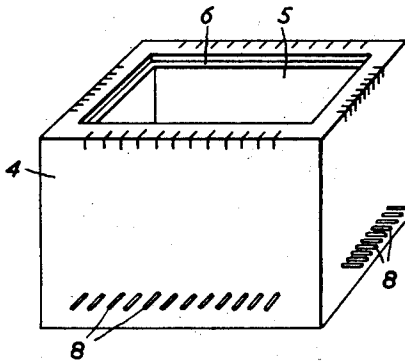


FIG. 2.

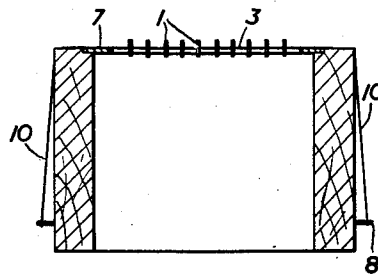


FIG. 3.

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MEMORY MATRIX FRAMES

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2 Claims. (Cl. 340-174)

This invention relates to memory matrix frames of the type in which a number of individual magnetisable annular cores are threaded on the wires of a network or mat of wires extending in different directions in such manner that while each wire of each of a number of sets having different directions passes through a number of individual cores, only one core is passed through by both of two wires each belonging to a different set. It is common practice to mount the mats formed of two, or in some cases more, sets of wires associated with and passing through a series of cores, in a frame, in which the wires are secured in a taut position. This has hitherto been effected by securing in or on the frame, along the sides thereof, an appropriate number of terminal tags, posts, or the like, to which the ends of the individual wires were respectively secured by soldering or the like, and which served as terminals for the external connections to the matrix wires, these external connections being again normally effected by soldering. The present invention has for an object to provide an improved arrangement capable of simple manufacture and permitting close spacing of terminations.

According to the invention the matrix frame is built up of two frame laminae secured to each other face to face, with the matrix wires extending through the joint between the two laminae so as to be secured to the frame by the cement or the like joining the two laminae. Each frame lamina may further be composed of one, two or four component parts such as limbs or half-frames as convenient. Preferably the mat is built up on one of the frame laminae in a jig including means for keeping the frame wires taut across the said frame laminae and in contact with the latter, and the second frame lamina is then placed on top of the first frame lamina and the wires extending across the latter, after the application of a cement or other binding means, whereafter the two frame elements are pressed against each other, heat being applied at the same time where necessary or desirable according to the kind of cement or the like employed, and after the cement or other binding means has set or hardened to the desired extent, the frame with the mat is removed from the jig after the wires have been cut or detached from the jig. The cutting is effected in such manner that wire ends suitable to form connector terminals project from the outer side of the frame. These projecting wire ends are preferably tinned by conventional methods to facilitate soldering to other wires, for example of other matrices.

The invention will now be described in more detail by way of example with reference to the accompanying drawing.

FIGURE 1 is a schematic perspective view of a mat of memory cores with two sets of wires extending at right angles to each other, part of the upper lamina being broken away for greater clearness.

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FIGURE 2 similarly illustrates a simple form of jig suitable for carrying out the invention, and

FIGURE 3 is a sectional elevation of the jig in use.

Referring now to the drawings, the annular cores, which may consist of so-called square-loop ferrites, are referred to by reference numeral 1, and the two sets of wires by 2 and 3 respectively, while the matrix frame consists of two laminae 7 and 9, preferably made from fabric-based or fibre-glass based plastic sheet. The wires 2 and 3 are secured in a taut condition in a jig comprising a plywood frame 4 having a central aperture 5 corresponding to the size of a matrix proper, this aperture being surrounded by a recessed shoulder 6 adapted to accommodate one lamina 7 of the matrix frame according to the invention in such manner as to be flush with the surface of the plywood frame 4. Pins 8 extend along the outer sides of the jig 4 for securing the wires 2 and 3 after the same have been duly tightened. After or before the wires have been tightened and secured as described, a strong cement, for example the cement known under the registered trademark ARALDITE, which is of the thermo-setting kind, is applied and the second lamina 9 is placed on top of the lamina 7, with the wires interposed between the two frame laminae 7 and 9. These laminae are then bonded together by curing under pressure at the requisite temperature, whereafter the bonded plastic frame with the wire mat can be removed from the jig, for example by cutting the wires just above the pins 8. This leaves straight connector ends 10 of each wire projecting outwardly from the outer edge of the frame. These projecting ends may, if required, be tinned adjacent their outer ends by a rapid-dip soldering technique.

It will be readily appreciated that the invention is not limited to all the details of the example described. Thus it is not necessary for each frame lamina 7 and 9 to be one integral piece, but one or each may be built up of a number, preferably 2 or 4, of abutting pieces, provided that the butt joints of the two laminae are offset relative to each other. Furthermore the jig may be varied in a number of ways which will be obvious to those skilled in the art, for example by providing individual tightening means for each wire, or in some cases by providing spring tensioning devices or clamping plates. The tightening means may, if desired, be of the kind commonly used for the strings of musical instruments such for example as pianos or violins.

What I claim is:

1. A magnetic memory matrix with closely spaced terminals comprising

a quadrilateral matrix frame,

a network of at least two sets of substantially parallel, flexible, electric-conductor wires, extending in substantially different directions with each set extending between two sides of said quadrilateral frame, and a plurality of individual toroidal cores of magnetisable material held by said sets of wires, one core at each of the intersections of the wires of said sets, said quadrilateral matrix frame comprising two frame laminae with a layer of cement therebetween securing the laminae together,

each of the two end portions of each of said wires passing through said layer of cement and extending to and being anchored in and held taut by the out-

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side of the two sides of the frame between which
the particular wire extends to form the terminals of
said matrix,
said wires being continuous and being embedded in
the cement layer whereby the inner network of wires 5
is tautly held within said frame while electrical con-
nection may be made directly to the terminal ends
of said wires from outside of said frame.
2. The magnetic memory matrix of claim 1 wherein 10
said cement consists essentially of a thermosetting plastic
material.

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