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CARPETS WIRED FOR SOUND

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Figure 1.

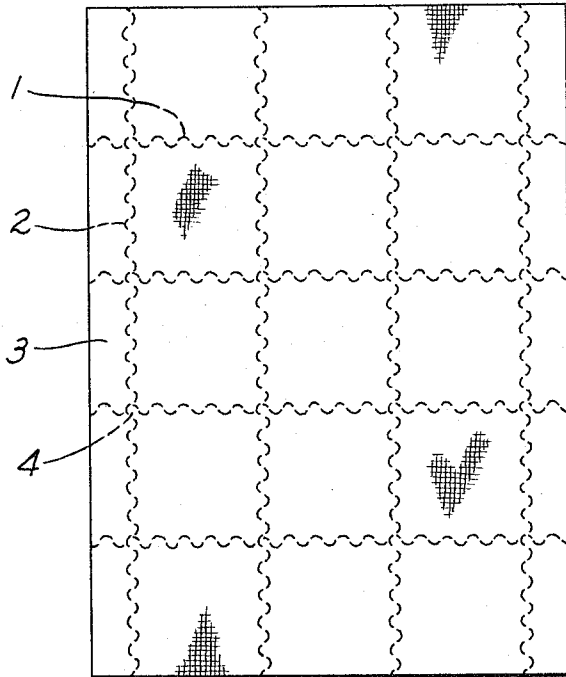
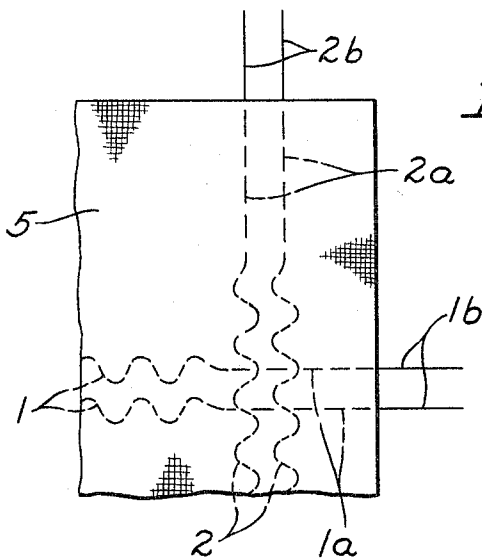


Figure 2.



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7 Claims. (Cl. 174—70)

In the making of carpets, both room size and wall-to-wall types, audio wires can be included into the structure of the material. This creates problems in laying of the carpeting and accessibility of attaching lead wires to connect, for example, a radio on one side of the room to speaker facilities on the other side of the room.

Carpeting is usually bordered by pieces of furniture around the outer edges, but in many cases it is desirable to place a table near the center of the room, supporting a phonograph or radio.

Referring to the drawing, FIGURE 1 illustrates the bottom side of a carpet or carpet element with dotted lines indicating one pattern of single undulating-form audio-signal wires therein when in initial position with the end portions of such wires substantially flush with edges of the carpet section. FIGURE 2 is an enlarged fragmentary view of the upper right-hand corner of the carpet element of FIGURE 1 but shown with paired wires and with the end portions of each wire stretched to extend beyond the corresponding edge to provide terminal portions connectable to an audio component, by which arrangement audio-frequency signals can be transmitted from end to end of a wire, e.g. as when one terminal portion of each wire is connected to a remote speaker or signal-receiving unit and the opposed terminal portion connected to a radio, phonographic equipment, high fidelity equipment, or other audio-signal-generating unit producing an audio signal.

The invention involves placing wires in carpeting material at regular intervals with three-foot intervals being preferred. In FIGURE 1, the numerals 1 and 2 represent wiring, indicated by the dotted lines, extending in each of two directions; the numeral 3 denoting the carpet as seen from the bottom side; the numeral 4 indicating cross-over zones for the wires. A 3-foot interval is desirable to afford easy arrangement of audio equipment.

In appreciation of the problems faced by carpet-laying workmen, the small copper wires 1 and 2 will be readily cut in the trimming of wall-to-wall carpeting. Splicing or sewing together of carpeting will require the matching up of the wire pattern before sewing and the soldering of the wires to achieve continuity. Carpet stretching will not adversely affect the wiring due to the use of "flexible" or "stretchable" wires to be described.

Visualizing FIGURE 1 as the underneath side of a carpet 11 x 15 feet in size, there are four points on each edge available for wire connections. These may be attached to radio, phonographic equipment or high fidelity equipment placed at one or more points in the room. It is quite desirable to position the speaker cabinets across the room in more available space. This permits the operator of the instruments to rest near the equipment, to be available for tuning adjustments or record changing, and remain a beneficial distance for effective stereophonic reception of the separated speakers sounding from across the room.

Other than domestic use, business offices would use carpets wired for sound for their intercoms or entrance alarms; hotels can use the convenience for public address systems; and recording studios, of course, for their work. Piped-in music of business establishments would find great benefits in the readily installed wiring of the carpeting.

The task of splicing onto the wire leads can be greatly helped by installation of wire that has a slight wave

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crimped into the length to make it stretchable upon application of a longitudinal force. In FIGURE 2 the numeral 5 indicates a rectangular portion of carpeting. The numerals 1 and 2 represent the pairs of wires going in perpendicular directions. Due to the physical appearance and the pliant nature of this design of wiring for this particular use it will herein be called "flexible" or "stretchable" wire. To splice into a selected place at the edge of the carpet wired for sound, the ends of the wires are pulled with a pair of pliers. The pull straightens out the waves in the wires in end portions 1a and 2a thereof and extends the length to an inch or so as to provide terminal portions 1b and 2b as shown in FIGURE 2. In FIGURE 2 the numeral 2a is applied to the pulled or "unflexed" wires.

The above disclosure of the particular wire design in the fabrication of carpets wired for sound (that is, the "flexible" or stretchable wire, which gives the easy splicing feature) is the keynote for the success of the invention. Without this feature, a carpet-layer would not be able to stretch carpeting for wall-to-wall installation without difficulties.

When placing more centrally located furniture in a room, the location of the wires on the bottom of the carpet becomes important. No problem would present itself in the placement of furniture was pre-planned prior to the laying of the carpet. However, the decision after the carpet is laid for a table to be placed several feet from the wall to support equipment that is to be hooked up to the other components calls for special "guides" to find the wiring hidden on the lower side of the carpeting. These guides or indicia are needed to show exactly where to make an incision for splicing into the wiring layout. Helpful guides of colorful yarn strands, not shown, can be needled through the carpeting at the bisecting wire points or cross-over zones 4 and sheared off at a slightly higher level than the carpet surface. It is contemplated that each bisecting point or cross-over zone shown at the intersection of the dotted lines shall be so marked. This also would give the carpets wired for sound an individual appearance, a feature of this significance of being a carpet wired for sound.

A transistorized tape recorder, for instance, could be connected to amplifiers and speakers by making a small incision at the appropriate point indicated by the strand of yarn, pulling through a short lead of wires, and splicing on directly or attaching a jack plug. A microphone could similarly be located, in each case eliminating the dangerous and unsightly use of extension cables lying on top of the carpeting.

In conclusion, carpets wired for sound offer benefits to a great number of applications in expediting the needs of today and those anticipated for the future.

What is claimed is:

1. As an article of manufacture, a multi-edged carpet element including near the bottom surface thereof extensible audio-frequency wires extending from edge to edge thereof with each such wire undulating throughout its length and initially terminating in opposed end portions substantially flush with a corresponding edge of the carpet element, each end portion being extendable beyond the corresponding edge forming a terminal portion connectable to audio components for transmission of audio-frequency signals along the wire.

2. A carpet element as defined in claim 1 in which said audio-frequency wires extend from edge to edge of said carpet element in closely spaced pairs with each of said pairs being parallel to be spaced from other pairs.

3. A carpet element as defined in claim 1 in which each end portion of each wire is of the same undulating form as the remainder of such wire, each such end portion being progressively straightenable and thus stretch-

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able when pulled outward to form said terminal portion.

4. A carpet element as defined in claim 1 in which said wires are present in said carpet element in a grid pattern with a first series of wires extending in one direction between opposed edges of said carpet element and a second series of wires extending in another direction and crossing the wires of said first series at cross-over zones.

5. A carpet element as defined in claim 4 in which the carpet element is incisable at each of said cross-over zones for pulling upward of a wire through the incision and straightening sections of the wire adjacent such cross-over zone, forming exposed terminal portions inwardly of the edges of said carpet element for tapping such wire at a selected cross-over zone and thereby providing a connection for an audio component.

6. A carpet element as defined in claim 5 in which the carpet element includes indicia at said cross-over zones observable from the top surface of the carpet element and serving as a guide to the point of incision for exposing and tapping to a wire in such cross-over zone.

7. A carpet element as defined in claim 1 in which each wire is of undulating form throughout its length to be

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locally stretchable by a pull exerted thereon acting to straighten the undulations of the wire, and in which the carpet element is locally incisable to permit a wire to be pulled upward through the incision to form a terminal portion for tapping to the wire at a position inwardly of the edges of the carpet element, the carpet element containing indicia above such a tappable wire observable from the surface of the carpet and serving as a guide to such incision.

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