

[54] FIBER OPTIC TRANSLATOR

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[51] Int. Cl. **G08b 5/00**

[58] Field of Search **340/380, 149 A, 365 P; 350/96 B, 96 R; 250/227**

[56] **References Cited**

UNITED STATES PATENTS

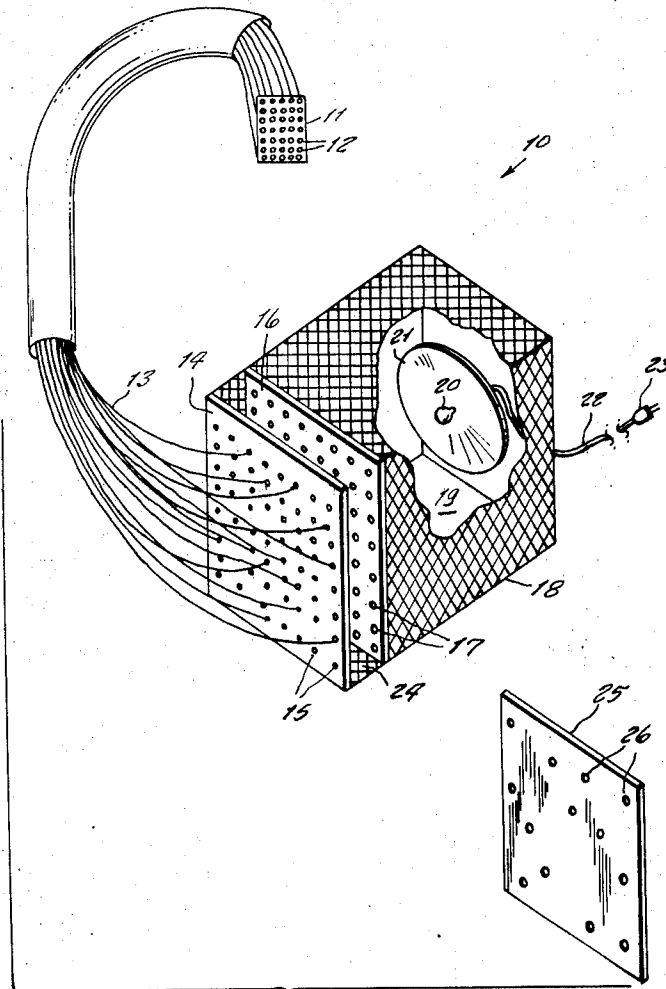
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Primary Examiner—Thomas B. Habecker
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[57] **ABSTRACT**

A device of optical type which may be used in an educational game or toy or which alternately can be used in a security check system, the device consisting of a common 5 by 7 dot matrix display composed of 35 single strands which at their opposite ends are connected to a light receiver block provided with 64 openings, the 35 single strands being so connected to the 64 openings so to form a pattern for an end coder, the light receiver block being aligned with a light concentration block having 64 openings aligned with the openings of the light receiver block, the light concentration block forming one end of a box containing an incandescent lamp and reflector, and a square decoder card is placeable between the light concentration block and the light receiver block, the decoder card having openings therethrough which are aligned with the openings of the light concentration block.

1 Claim, 5 Drawing Figures



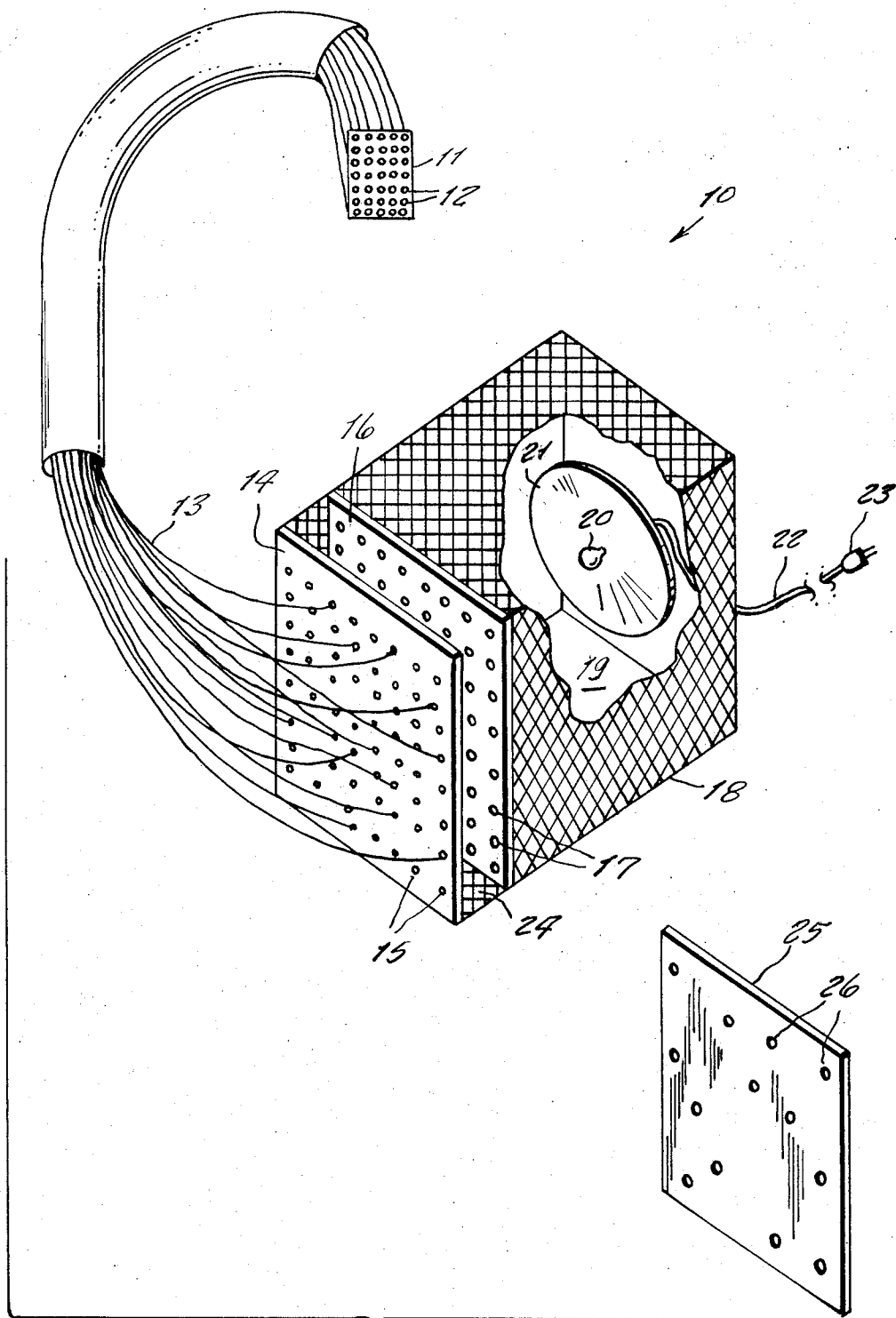


FIG. 1

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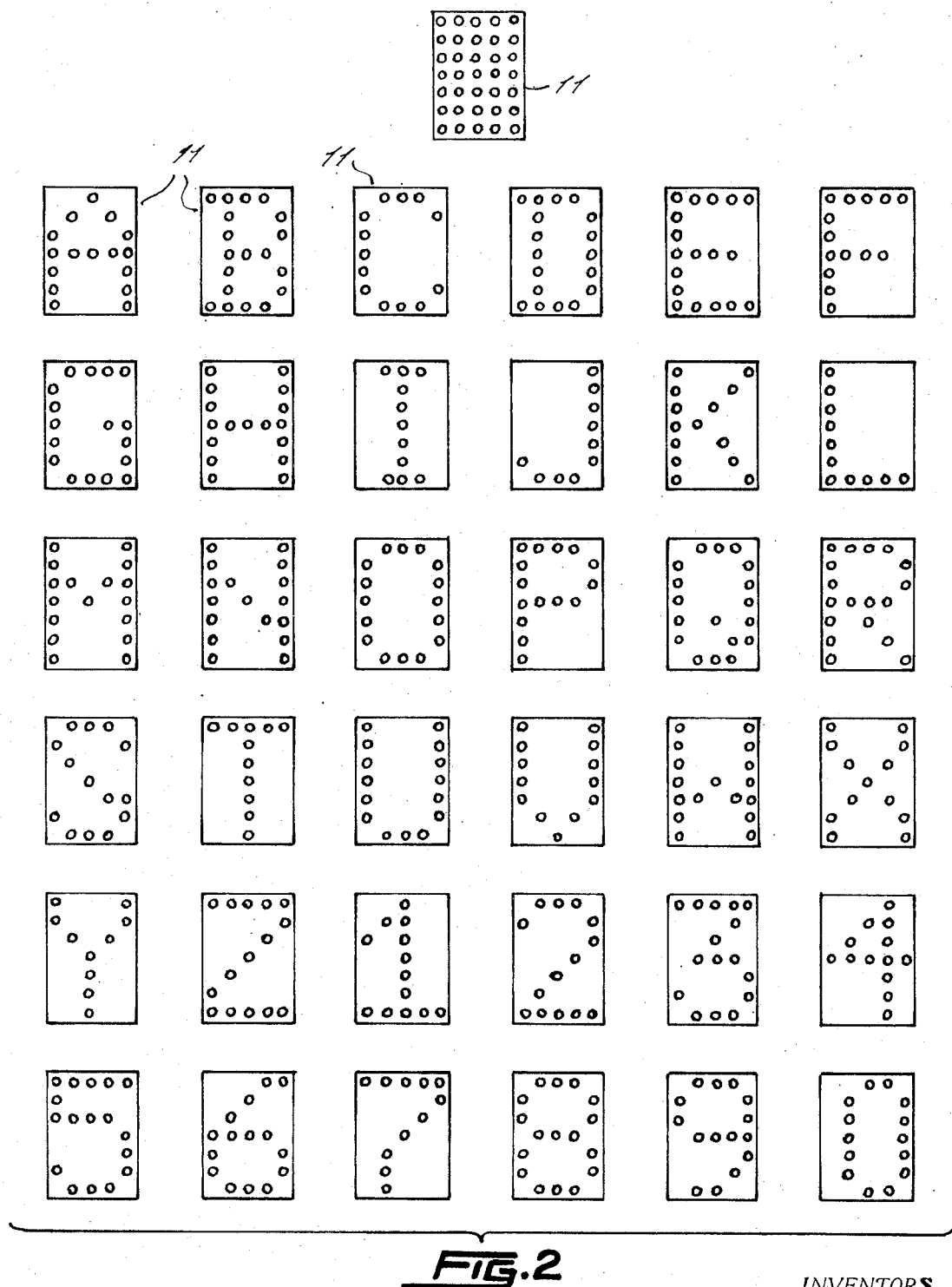


FIG. 2

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FIG. 3

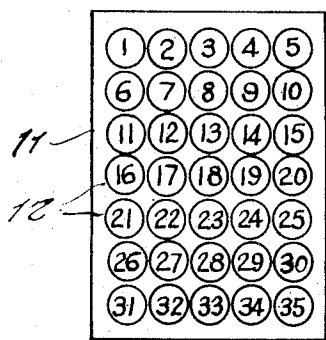


FIG. 4

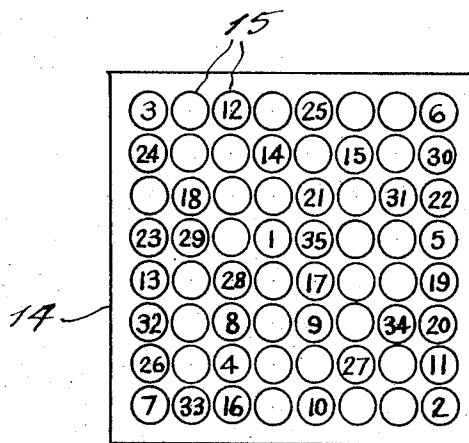
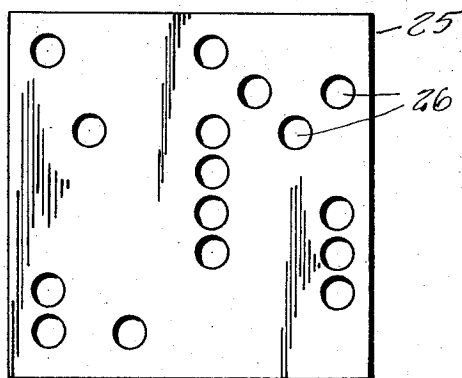


FIG. 5



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FIBER OPTIC TRANSLATOR

This invention relates generally to decoding devices.

A principal object of the present invention is to provide a fiber optic translator for decoding purposes and which can be used as a principal element in an educational toy or game for diversion and for testing a person's skill.

Another object of the present invention is to provide a fiber optic translator which can be used as a security check system.

Still another object of the present invention is to provide a fiber optic translator that is adaptable to receive variously arranged decoder cards for being decoded optically.

Still another object of the present invention is to provide a fiber optic translator wherein alternately the decoder card may be replaced with a moveable band or disc and which may be used as a location or position indicator.

Still another object of the present invention is to provide a fiber optic translator which is very reliable in view that only a lamp of the device is subject to failure, the lamp being readily replaceable.

Other objects of the present invention are to provide a fiber optic translator which is simple in design, inexpensive to manufacture, rugged in construction, easy to use and efficient in operation.

These and other objects will be readily evident upon a study of the following specification and the accompanying drawings wherein:

FIG. 1 is a perspective view of the present invention and which is shown to incorporate a light box shown partly broken away to illustrate the interior and a decoder card used in conjunction therewith,

FIG. 2 are diagrams showing various alphabetical and numerical character patterns produced by the apparatus upon a dot matrix display,

FIG. 3 is a face view of the common dot matrix display device.

FIG. 4 is a face view of a light receiver block to which single strands from the dot matrix display are connected in various patterns to form an end coder, and

FIG. 5 is a side view of a decoder card that is punched out so to form the alphabetical letter character "A."

Referring now to the drawings in detail, the reference numeral 10 represents a fiber optic translator according to the present invention wherein there is shown in FIG. 1 a common 5/7 dot matrix display 11 so that the 35 dots 12 thereof are connected to one end of 35 single strands 13 which are made of 0.020 inch Dupont CROFON plastic light guides which at their opposite ends are placed in a light receiver block 14. The light receiver block contains 64 openings 15 therethrough, the openings 15 being arranged in eight rows longitudinally and transversely so to form a grid wherein only certain of the openings 15 are connected to the ends of the 35 single strands 13 so that such a pattern of these particular 35 connections serve to form an end coder.

Such pattern is, of course, variable. Each strand may be removed and reinserted in another opening 15 so to form a different translator code.

In close proximity to the light receiver block 14 there is a light concentrator block 16 which is of a same size as the light receiver block, the light concentrator block 16 containing 64 openings 17 therethrough which are

likewise arranged in eight longitudinal and lateral rows so that the openings 17 of the light concentrator block 16 are aligned with the openings 15 of the light receiver block.

The light concentrator block 16 forms one end of a case or box 18 within the interior 19 of which there is an incandescent lamp 20 surrounded by a reflector 21. The lamp 20 is connected by an electric extension cord 22 which extends outwardly of the box 18, the opposite end of the extension cord having a male plug 23 for being insertible into a house electric outlet socket.

A space 24 formed between the light receiver block 14 and the light concentrator block 16 is adaptable for receiving a decoder card 25. The decoder card is square and of a same size as the light receiver block and the light concentrator block, the decoder card having openings 26 punched therethrough, the openings 26 being so arranged that they align with certain of the openings 17 and the openings 15.

The decoder card 25 may be made of any durable opaque material such as a dark plastic. The decoder card openings 26 are arranged upon the card in a manner so to form an alpha-numeric character which cannot be readily distinguishable when observed to the naked eye of a person because the arrangement of the openings is scrambled.

In the present invention, the readjustment of the mounting of the strands 13 on the light receiver block brings visual images of the scattered openings 26 into their proper position so that the character or numerical digit may be read.

This is clearly illustrated in the example illustrated in FIGS. 3 to 5 wherein in FIG. 3 each dot 12 of the matrix display 11 are numbered so to clarify the explanation.

In FIG. 4 the light receiver block 14 shows 35 of the 64 openings 15 being indicated by a numeral that corresponds to one of the numerals on the 35 dots of the matrix display 11. Accordingly it is appreciated that the strands 13 are each connected at their one ends to the dots 12 and that their opposite ends to the openings 15 so that for example a strand 13 at one end is connected to the dot number one and at its opposite end is connected to the opening number one.

The decoder card 25 shown in FIG. 5 shows the openings 26 thoroughly scrambled. These openings accordingly visually do not convey their true representation, however these openings are aligned with selective ones of the 64 openings 15 so that those openings 15 which in the example illustrated in FIG. 4 are identified by a numeral or aligned therewith. It is now evident that the fiber optic translator will now flash a visual image on the matrix display 11 with the true appearance of the alphabetical letter "A" such as is illustrated in the upper left diagram shown in FIG. 2.

It is to be noted that the decoder card, due to its square configuration, may be inserted in any number of different ways such as backwards, rotated 90° or 180°, and still form different characters. When used in this manner, the fiber optic translator could be used as the principal element in a simple security check-system.

The other diagrams in FIG. 2 show the visual display on the matrix display device 11 representing different alphabetical letters and numerical numerals.

Thus there is provided a fiber optic translator which decodes a card containing a pattern of openings which visually to the player identify nothing but wherein the

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pattern of openings are unscrambled by the present device.

What I now claim is:

1. In a fiber optic translator used to convert, by non-electronic means, an optically unrecognizable pattern of openings in a card into optically recognizable objects, the combination of a display matrix connected by plastic light guide strands to a light receiver block spaced from a light concentrator block that is at one end of a box containing an incandescent lamp and reflector, a decoder card receivable between said light receiver block and said light concentrator block, said display matrix having light openings arranged thereupon in horizontal and vertical rows to form a grid for visually reading an alphabetical character or a numerical digit, one end of each of said strands being connected to one of said light openings, and the opposite end of each said strand being connected to said light receiver block that comprises a panel with spaced apart openings therethrough, the end of said strands being selectively connected to certain of said openings in

light receiver block so to form an end coder, said connection being re-arrangeable in pattern, said light concentration block comprising a panel having openings therethrough in a same arrangement as said openings in said light receiver block, said openings of said light concentrator block being arranged with the openings of said light receiver block so that light from said incandescent lamp can pass through said openings of said blocks, said decoder card being made opaque and being of a size equivalent to a size of said light receiver block or light concentrator block, said decoder card being provided with several spaced apart openings therethrough which represent a particular alphabetical character or numerical digit, the openings in said decoder card being scrambled in position so that visually the said character or digit cannot be identified, said openings of said decoder card however being lined with certain of said openings and said light concentrator block and said light receiver block.

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