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G. W. KELLY
CONDUCTIVE INSTRUCTION DEVICE

2,724,910

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Fig. 1.

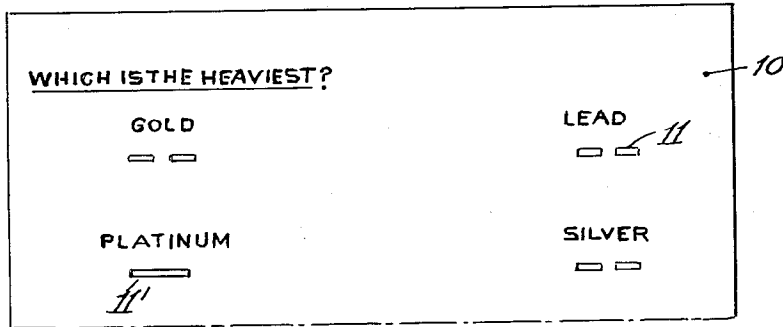


Fig. 2.

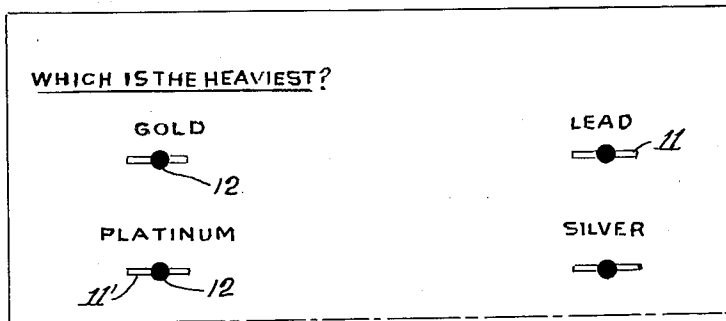


Fig. 3.

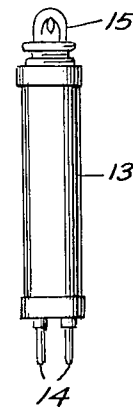


Fig. 4.

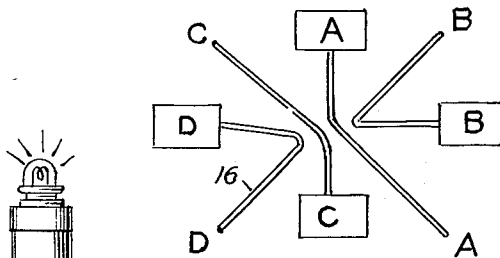
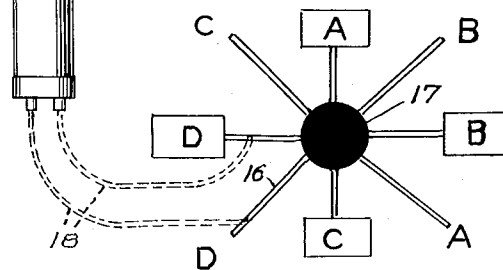


Fig. 5.



INVENTOR.
Gerard W. Kelly
BY
Munn, Liddy & Nathanson
Attorneys

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CONDUCTIVE INSTRUCTION DEVICE

Gerard W. Kelly, East Orange, N. J.

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9 Claims. (Cl. 35—9)

The present invention relates to a novel conductive instruction device.

More particularly, the invention relates to a conductive instruction device consisting of a series of quiz cards or sheets of paper arranged in book form, each page or card having, in addition to certain printed matter, a number of conducting lines painted or printed thereon and a sensing device having two feelers or contacts thereon for reading the cards. Some of the conductive lines on the cards provide completed circuits for the sensing device while others do not so that the sensing device will be energized or not depending on whether it engages a line completing its circuit. The operator is prevented from determining visually whether or not a particular conducting line provides a completed circuit by means of opaque spots painted or printed over interruptions in those lines which do not provide a completed circuit.

It should be noted that these cards are intended for use with a separate or independent sensing device, hereinafter described. This permits the cards to be arranged in the form of a book or booklet wherein each page is a card or ordinary sheet of paper. Present day quizzers of this type are generally provided with clumsy sensing devices which do not permit the arrangement of the quiz cards in book form but necessitate use of a whole series of separate cards. These cards must be individually placed on trays and are punched with holes so as to permit a feeler to pass through the card and complete the circuit of the sensing device through some means located below the card. Cards of the set are likely to be lost and are much more subject to wear and tear than in the present device. With the present device a series of cards or ordinary sheets of paper can be bound and even a series of books provided for use with each device. This arrangement provides a device which is simpler both in construction and use than those previously known.

An object of the present invention is to provide a device of the character described for instruction, administering tests, or as an amusement device.

Another object of the present invention is to provide a series of quiz cards which may be arranged and used in combination with an independent sensing device.

A further object is to provide a device of the character described which is adapted to be used on either "multiple choice" or "matching" type quizzes.

Other objects and advantages of the present invention will become more apparent as it is described below with particular reference to the accompanying drawing, wherein:

Fig. 1 is a plan view of one of the cards on which conducting lines are painted or printed.

Fig. 2 is a similar to Fig. 1 showing the disposition of the opaque spots in reference to the lines.

Fig. 3 is a perspective view of the sensing device.

Fig. 4 is a plan view of a modified arrangement of the conductive lines adapted to a "matching" type quiz.

Fig. 5 is a view similar to Fig. 4 but showing the dis-

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position of the opaque spot and also the manner in which the sensing device is used with this modification.

Reference is now had more particularly to Figures 1 and 2 wherein one of the pages or quiz cards 10 is shown.

- 5 Printed in the upper left hand corner of the card is a typical question. Printed on the card also are a number of possible answers to this question, disposed in this showing adjacent the corners of the card. Of course the answers could be arranged in a line or row or any geometrical pattern. Disposed below each of the possible answers is a conductive line 11 or 11' painted or printed thereon with a conductive medium such as silver paint or ink as sold commercially for use in printed circuits. As is obvious, only one of the answers is correct and three incorrect. The lines 11 below the incorrect answers are broken and the line 11' below the correct answer is solid or unbroken. When contacted by the sensing device the broken line will not serve to complete the circuit and so will not energize the sensing device. The solid lines on the other hand will complete the circuit of the device and cause it to be energized so as to actuate its signal device.

From an examination of the card as shown in Fig. 1 the correct answer is at once apparent to the naked eye. If the card were left as is the purpose of the device would be defeated. Therefore, as shown in Fig. 2 opaque spots 12 having diameters at least equal to the width of the break of the broken lines are placed at the center of each line, including the solid line. Therefore the unbroken line cannot be distinguished from the broken lines and thus it cannot be determined by visual examination which of the answers is correct.

The sensing device 13 is shown in perspective in Fig. 3. This device is similar electrically to the common flashlight in which the switch has been replaced by a pair of prongs or contacts 14 across which the circuit of the device can be completed so as to cause the bulb 15 to light. It is obviously within the scope of this invention to substitute a bell or buzzer of some other type signal device for the bulb shown. In this modification the prongs of the sensing device are placed successively on each of the conducting lines shown on the card. When the prongs are on the solid or unbroken line 11' the circuit is completed, the device 13 energized, and the signal means 15 indicates that the correct answer has been arrived at. It should be noted that the sections or dashes making up the broken lines of the page or card shown in Figs. 1 and 2 have a length which is less than the distance separating the prongs of the sensing device of Fig. 3. Thus, it is impossible to place both prongs on one of the dashes and get a false indication.

In Figs. 4 and 5 a modified form of the invention is shown in which conductive lines 16 are arranged so as to be adapted to a "matching" quiz. As shown a number of the letters of the alphabet are arranged in a geometrical pattern around the card. Obviously "A" should be matched with "A," "B" with "B," etc. These letters would of course, be replaced by words, pictures, symbols, questions and answers etc. to be properly matched. Starting from a conductive line running from a particular letter there will be a break between this line and the line running to every other letter except the correct one. Each of these lines running between two matched letters consists of a bent portion and two legs running outwardly thereof. The lines are arranged with their bent portions at the center of the card so that the legs run radially outwardly toward the card edges. At the ends of these legs are arranged the letters, etc., to be matched. A leg running inwardly from one letter will only provide a complete circuit through one other leg. That is, between the selected leg and every other leg on the card except one, there will be a break and a resulting incomplete cir-

cuit. Thus, we have, in effect, a plurality of broken and a single unbroken line running from each letter, symbol, questions, etc. on the card. Fig. 5 shows a large opaque spot 17 located at the center of the card and masking the bent portions so that the operator is prevented from determining visually which line completes the circuit and therefore which is the correct answer.

Fig. 5 also shows a modified sensing device used in connection with the modified form of card shown. In this type detector the prongs or contacts are replaced with two flexible leads carrying contacts at their ends. The contacts at the ends of these flexible leads can be held one against one conductive line, for example "D" as shown, and the other flexible lead touched to the remainder of the conductive lines selectively until such time as the sensing circuit is completed. When the circuit is complete through a conducting line, the device will be energized and will operate to indicate that a correct matching has been made.

While the invention has been shown and described in the preferred forms it is obvious that many changes and modification may be made without departing from the spirit of the invention as defined in the following claims.

I claim:

1. An electric instruction device comprising a sheet having a plurality of indicia, said indicia comprising pairs of spaced electrically conductive members and means disposed over the space between said conductive members, at least one of said indicia having the conductive members electrically connected to each other, and a sensing device provided with means for engaging said conductive members and adapted to be energized when the sensing circuit is completed through said conductive members.

2. The invention as defined in claim 1 in which all of said indicia have the identical outward appearance.

3. An electric instruction device comprising a sheet having a plurality of indicia, said indicia comprising pairs of spaced electrically conductive members and means disposed over the space between said conductive members, all of said indicia having the identical outward appearance, at least one of said indicia having the conductive members electrically connected to each other, the conductive members of the other indicia being electrically insulated from each other and the said sensing device having two contacts in its base, said sensing being ac-

tuated when the conductive members are engaged by the contacts of the sensing device.

4. An electric instruction device comprising a sheet having a plurality of indicia, each indicia comprising a pair of spaced electrically conductive members, and a third member disposed over the space between said conductive members, all of said indicia having the identical outward appearance and at least one of said indicia having the conductive members connected to each other and a sensing device provided with means for engaging said conductive members, and signal means on said sensing device adapted to be energized when the sensing circuit is completed through said conductive members which are electrically connected to each other.

5. The invention as defined in claim 4 in which each pair of spaced electrically conductive members is elongate and aligned with each other.

6. The invention as defined in claim 4 in which the third member disposed over the space between said conductive members is generally of the same breadth as length.

7. An electric instruction device comprising a sheet having a plurality of indicia, said indicia comprising a series of pairs of electrically conductive members, each unit of each pair being spaced from the other unit and each pair being spaced from the other pairs and a third member disposed over the said spaces, each unit of each pair of electrically conductive members being electrically connected to the other unit of each pair and each pair of electrically conductive members being electrically insulated from said other pairs and a sensing device provided with means for engaging said pairs of electrically conductive members, and signal means on said sensing device adapted to be energized when the sensing circuit is completed through a pair of electrically connected conductive members.

8. The invention as defined in claim 7 in which the space between each unit of each pair of electrically conductive members and between each pair of electrically conductive members is substantially central.

9. The invention as defined in claim 7 in which all of said indicia has the identical outward appearance.

References Cited in the file of this patent

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