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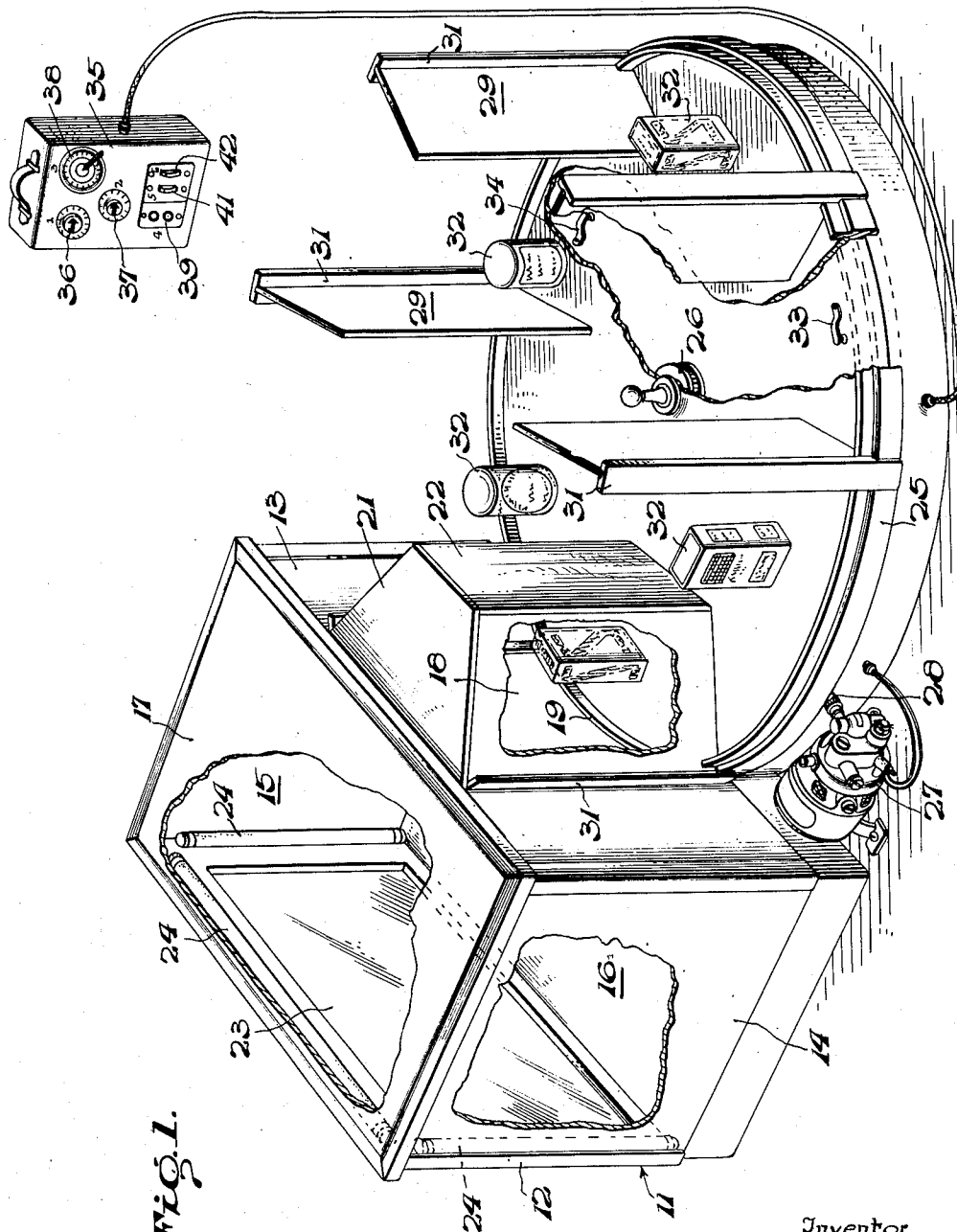
R. K. KERN

2,565,079

VISUAL EXPOSURE DEVICE

Filed Oct. 15, 1945

2 Sheets-Sheet 1



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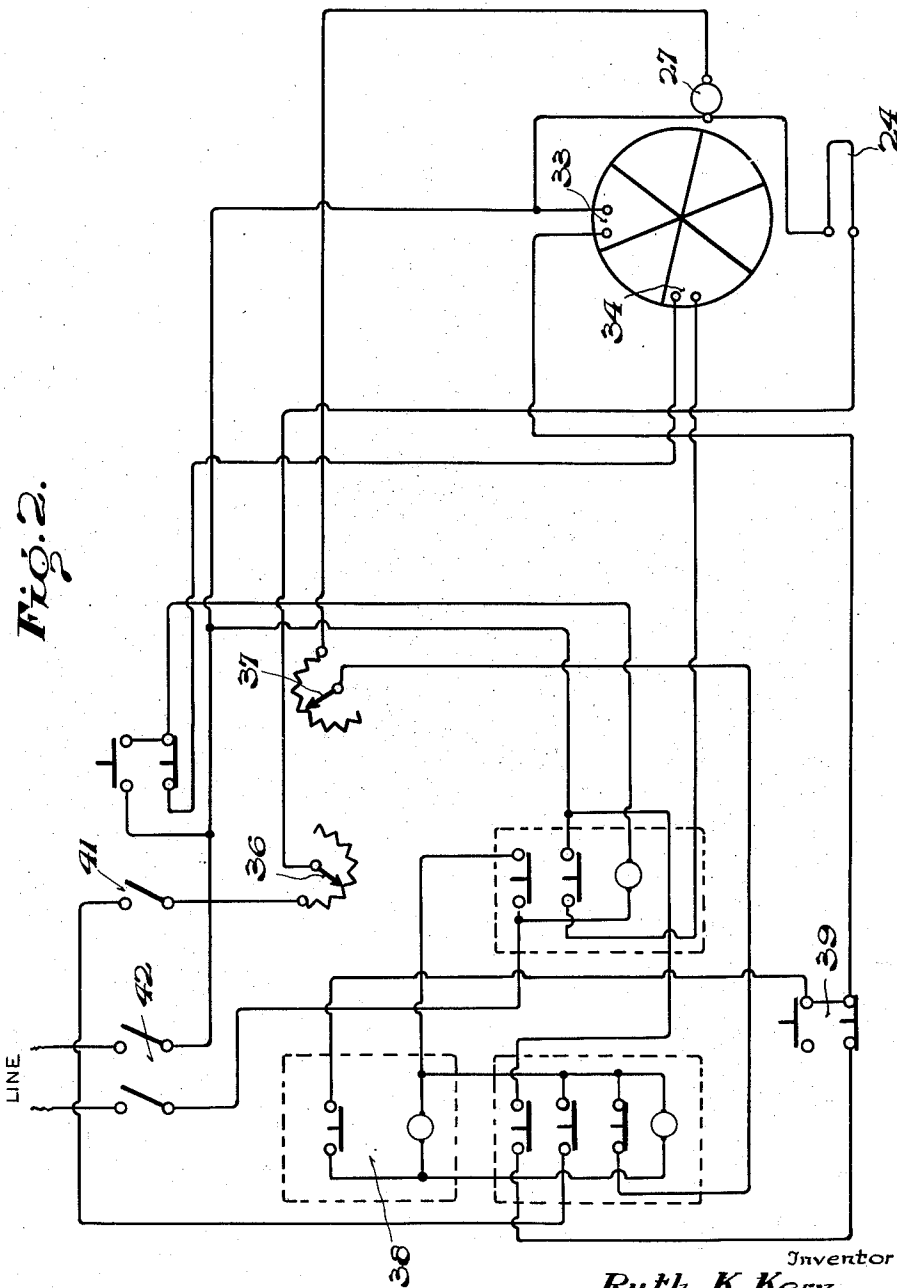
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UNITED STATES PATENT OFFICE

2,565,079

VISUAL EXPOSURE DEVICE

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4 Claims. (Cl. 35—49)

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This invention relates to apparatus and methods for determining relative visual characteristics of articles, and more particularly to apparatus and methods for the determination of attention, recognition and readability values of sales packages, labels, advertisements and the like.

Satisfactory facilities and methods for the objective investigation of relative visual characteristics of sales articles such as the attention and recognition values of packaged products and the legibility of labels have been a recognized want in the merchandising field for some time. Up to the development of the present invention, the only means by which the visual characteristics of packaged goods of different shapes and colors could be determined was by guess followed by extensive and expensive canvasses in the field to determine the correctness of the guess. Single factors such as label legibility, color, or package design cannot be individually considered in arriving at any final relative value since it has been found that all these factors enter into the final attention value of the package.

It is an object of the present invention to provide a novel apparatus and methods wherein the various factors such as recognition value and readability value entering into the final rating of a sales package can be individually and/or collectively determined to arrive at a final value of attention and sales appeal, the apparatus also providing means to readily present other consumer articles such as furniture, clothing, kitchen ware, cabinets, etc. for the eventual determination of consumer reaction thereto.

A further object of this invention is the provision of novel apparatus wherein means is provided in the selectively variable control of both degree of illumination and time of exposure to analyze and individually determine certain visual characteristics of articles such as sales packages, the readability of typographical matter, the effectiveness of background material, etc. The term "articles" as used herein is intended to embrace not only sales packages but also advertisements, printing type, background material, and other items having visually-effective characteristics.

Other objects and advantages of this invention will appear from the following description wherein,

Fig. 1 is a perspective of a preferred embodiment of the invention, sections thereof being broken away for the sake of clarity.

Fig. 2 is a wiring diagram of the apparatus of Fig. 1.

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Referring to Fig. 1, a cabinet 11 is provided with a front end 12, a rear end 13, side walls 14 and 15, bottom 16 and top 17. The cabinet is substantially light-proof except at the front and rear ends. The rear end is closed except for an opening 18 which is defined at its bottom by an upstanding edge 19 of predetermined arcuate shape and at its top by a rearwardly extending horizontal panel 21 of trapezoidal shape. The panel 21 supports a vertical panel 22 depending from its rear edge. Panels 21 and 22, in conjunction with the adjacent portions of the cabinet, define a tunnel-like structure with its axis substantially parallel to the plane of the rear end.

The front end of the cabinet is preferably closed by a one-way transparent mirror 23, the arrangement being such that the interior of the cabinet cannot be seen by an observer unless lights 24 of the lumeline type are turned on. The mirror is preferably fitted in vertical guides at the sides of the front end of the cabinet and is removable by lifting top 17 which may be hinged at the rear or arranged to rest gravitationally upon the top of the cabinet.

A rotary table 25 is supported at the rear of the cabinet by a ball bearing mount 26 on which it is rotated by an electric motor 27 through a suitable drive 28.

Vertically extending partitions 29 are secured to the top of the table, the partitions extending radially inward and provided on their outer edges with a light-sealing strip 31. Adjacent partitions define a display section wherein articles 32 may be placed for display within the cabinet, the width, height and spacing of the partitions being such that when the table is rotated to a display position, adjacent partitions will form light-proof sides for the tunnel-like structure formed by panels 21 and 22 and provide a display chamber within the cabinet that is substantially light-proof.

The movement of the rotary table and the operation of the lights are preferably controlled by a remote control assembly 35 which includes a light rheostat 36 for controlling light intensity, a motor rheostat 37, a control 38 for the exposure time or time of illumination, a start and stop control 39, an independent light switch 41, and a main line switch 42. The nature of the exact wiring is shown in Fig. 2 which shows the apparatus in stopped position with switches 33, 34 open.

With the hook-up shown, the motor can be started whereupon the table will rotate to position an article to be displayed in the cabinet, the table halting at this point by reason of the

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operation of micro-switch 33 by a series of lugs mounted in spaced relation beneath the table. Micro-switch 34 is arranged to be operated by a single lug independent of the lugs operating switch 33 to halt the table at the completion of a single cycle. Thus, the table will rotate to a predetermined position and pause for a predetermined adjustable time while the lights are energized. The lights will then turn off and the table will then move to the next position where it pauses and the lights go on, and so on, till completion of one cycle.

In operation the sales packages or similar articles to be observed are placed on the table, one in each compartment. The necessary switches including the main line switch, and the start switch are thrown, the time relay being set to control the time of exposure. In the embodiment shown, this time may be varied from 0.15 second to 300 seconds. During the rotation of the table, micro-switch 33 is open and the lights are off. Hence an observer in front of the cabinet can see nothing within the cabinet. When the table rotates to a position where the article is in display position, micro-switch 33 closes to shut off the motor and close the circuit of the lumeline lamps 24. This type of lamp is preferred because of its minimum inertia properties, thereby making the time of exposure more easily controllable.

In determining a characteristic such as the relative recognition values of a series of packages, the packages are first shown to the observer or observers outside of the cabinet in order that they may become generally familiar with the appearance thereof. The packages are then placed in the different display sections and the power turned on so that the table will rotate. The light intensity is set at a predetermined value by adjustment of rheostat 36, and time control 38 is set for a predetermined time. As the table rotates, each display section is halted in the cabinet and the lamps lighted for the predetermined period of time at the predetermined intensity. A minimum of exposure time and light intensity is used at the outset during a complete cycle, the degree of intensity and time of exposure being such that the package cannot be distinguished. The intensity and/or time of exposure, preferably the latter, are then gradually increased by manually adjusting time controller 38 on each complete cycle of the table until one of the packages can be distinguished. This variable value of time exposure and/or light intensity is taken as the threshold of recognition. The procedure is completed until all the packages are distinguished by the observer, the ratios of the variables of exposure time and/or light intensity at each threshold determining the relative visual factors or the relative recognition values of the several packages, these values not being dependent on any single factor in the package appearance but a combination of all.

To determine the readability value, it is desirable that the observer not be familiar with the packages to be studied. A series of packages is placed on the table and successively displayed at minimum values until a time exposure and/or light intensity is reached at which the lettering or other details on the packages can be determined by the observer. This procedure sets up a series of threshold values which may be compared to determine the readability values. In the study of a totally unfamiliar package, this value is the

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point at which the product can be objectively identified.

This invention has proven of considerable value, not only in the comparisons of articles already on the market but also in the development of new packages and labels. Where, heretofore, the designing of a package or label has always been a gamble as regards its final effect in the field, the present invention provides an accurate gauge as to the field effect. While it has been found more desirable to use experienced observers, representative studies with consumer groups as observers have given results consonant with those of experienced observers, thus further indicating the value of the invention. The invention is applicable as well to the presentation of consumer articles such as furniture, advertisements, automobile designs, etc., for the eventual determination of consumer reaction thereto. Any series of features such as the latter may be reduced to a size to be handled in the apparatus by using pictures or miniatures.

Excellent results have been obtained in the determination of other visually-effective factors such as the best methods and colors for mounting fire extinguishers to render them easily recognizable and the position thereof readily determined. Excellent results have been secured in the safety field by the study of the application of contrasting colors to the moving elements of machinery and danger areas.

Having described my invention, I claim:

1. An apparatus for determining recognition characteristics of an article comprising: a cabinet having an inspection opening with a one-way transparent mirror therein; illuminating means for the interior of said cabinet; a traveling carrier extending through openings in said cabinet walls and adapted to receive an article; drive means for advancing said article carrier through the cabinet; means automatically stopping said article carrier in predetermined positions before said inspection opening; means automatically energizing said illuminating means in said predetermined positions of the article carrier; and adjustable timing means for predetermining the period of stopping of said carrier and of energizing of said illuminating means.

2. An apparatus for determining recognition characteristics of an article comprising: a cabinet having a front opening; illuminating means for the interior of said cabinet; a rotating carrier extending through openings in said cabinet walls and adapted to receive an article; said carrier having partitions located on either side of the article to close said openings in predetermined positions of said article carrier; drive means for rotating said article carrier through the cabinet; means automatically stopping said article carrier in predetermined positions before the front opening; means automatically energizing said illuminating means in said predetermined positions of the article carrier; adjustable timing means for predetermining the period of stopping of said carrier and of energization of said illuminating means; and means for stopping said carrier at the end of a cycle of revolution.

3. An apparatus for determining recognition characteristics of an article comprising: a cabinet having a front opening; electrical illuminating means for the interior of said cabinet; a traveling carrier extending through openings in said cabinet walls and adapted to receive an article; said carrier having partitions located on either side of the article to close said openings in predeter-

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mined positions of said article carrier; electro-motor drive means for advancing said article carrier through the cabinet; means automatically deenergizing said electromotor with the article carrier in a predetermined position before the front opening; means automatically energizing said illuminating means in said predetermined positions of the article carrier; and adjustable timing means for predetermining the period of energization of said illuminating means and period of deenergization of said motor

4. An apparatus for determining recognition characteristics of an article comprising: a cabinet having an inspection opening; illuminating means for the interior of said cabinet; a traveling carrier extending through openings in said cabinet walls and adapted to receive an article; drive means for advancing said article carrier through the cabinet; means automatically stopping said article carrier in predetermined positions before said inspection opening; means for stopping said carrier when it has been advanced through the cabinet; means automatically energizing said illuminating means in said predetermined positions of the article carrier; and adjustable timing means for predetermining the period of stopping of said carrier and of energizing of said illuminating means.

RUTH K. KERN.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,227,393	Cressman	May 22, 1917
1,471,615	Leffingwell	Oct. 23, 1923
1,509,371	Nalle	Sept. 23, 1924
1,653,394	De Vreis	Dec. 20, 1927
2,145,599	Haumann	Jan. 31, 1939
2,188,185	Hutchison	Jan. 23, 1940
2,224,564	De Silva	Dec. 10, 1940
2,228,610	Reid	Jan. 14, 1941

FOREIGN PATENTS

Number	Country	Date
213,529	Great Britain	1924
517,779	France	1921

OTHER REFERENCES

Manual of Mental and Physical Test: Simpler Processes. Whipple, 1924: pages 194-199.