

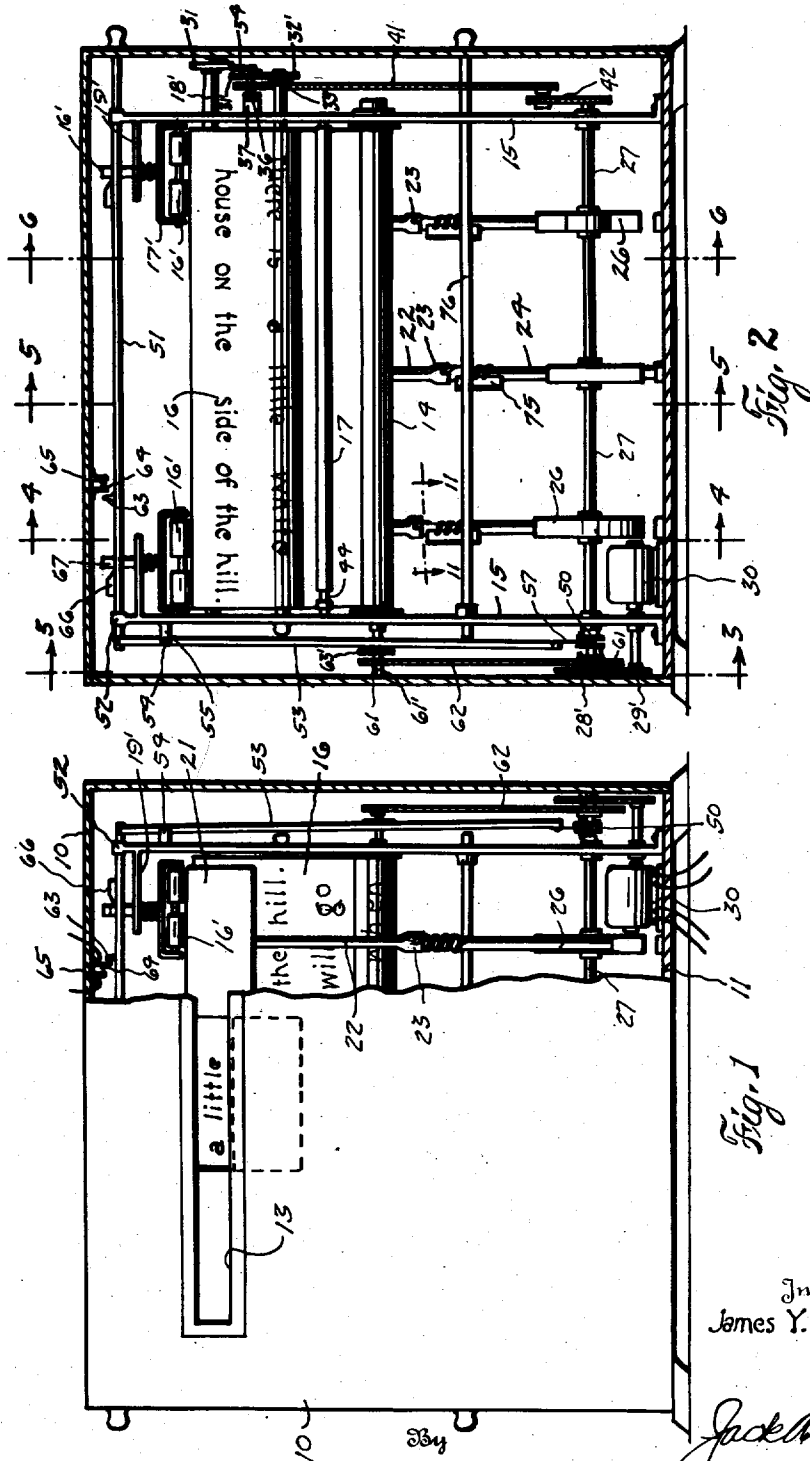
Dec. 29, 1936.

J. Y. TAYLOR

Re. 20,223

EDUCATIONAL DEVICE AND METHOD FOR THE TREATMENT OF EYES

Original Filed April 18, 1932 3 Sheets-Sheet 1



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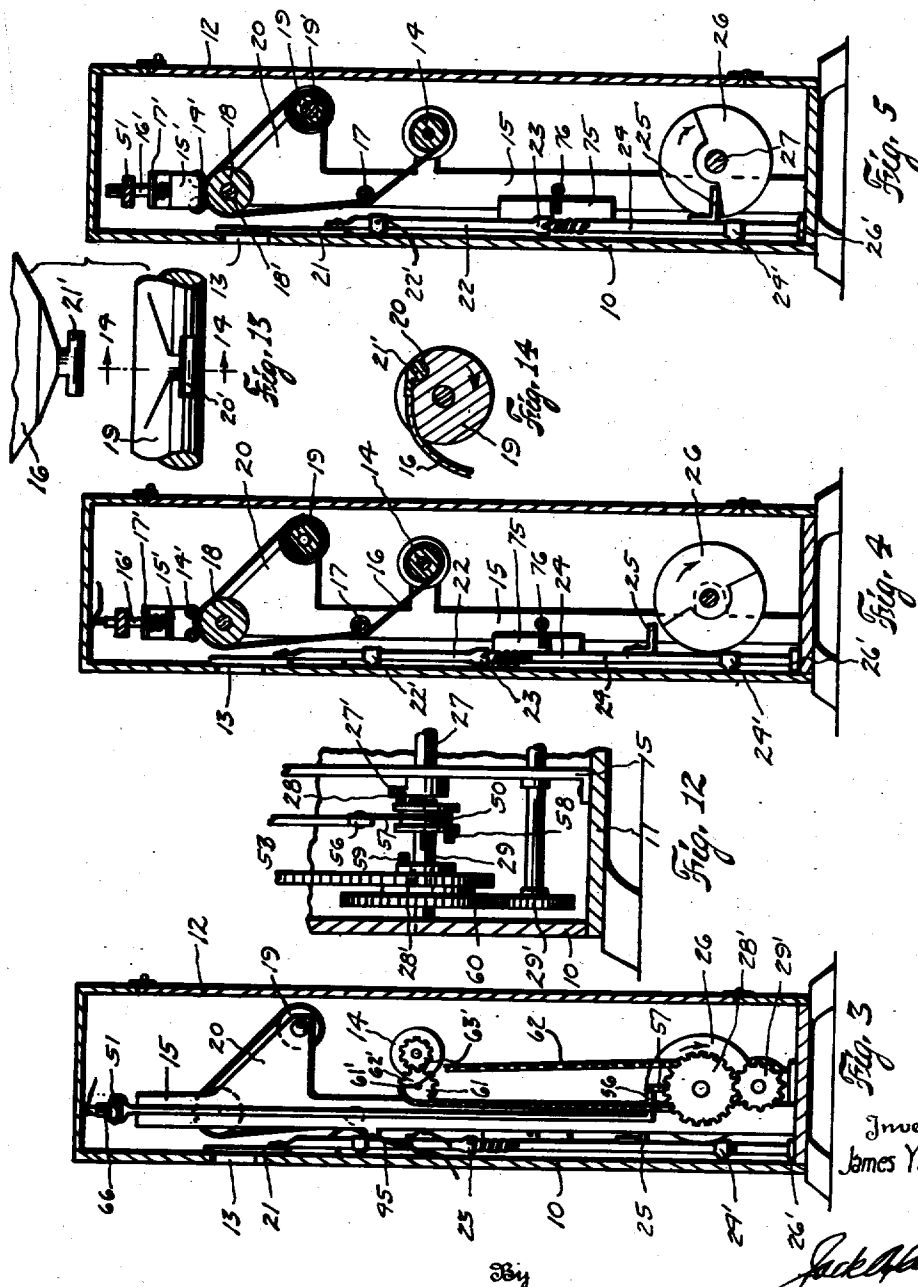
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EDUCATIONAL DEVICE AND METHOD FOR THE TREATMENT OF EYES

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EDUCATIONAL DEVICE AND METHOD FOR THE TREATMENT OF EYES

Original Filed April 18, 1932 3 Sheets-Sheet 3

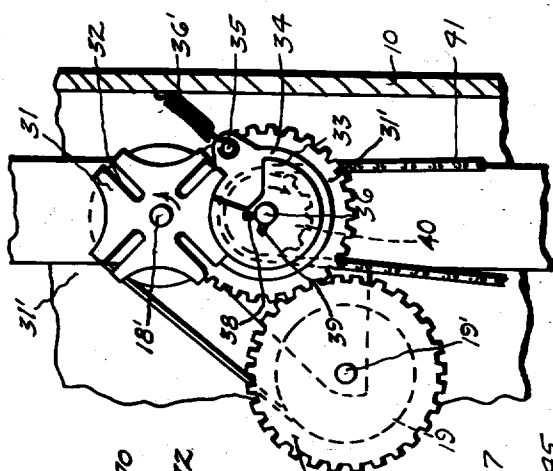


Fig. 10

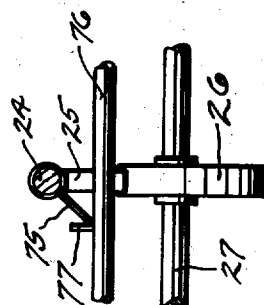


Fig. 11

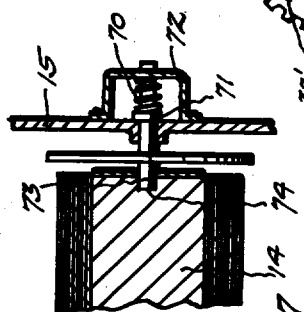


Fig. 7

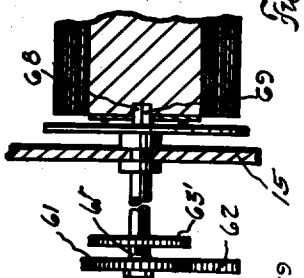


Fig. 8

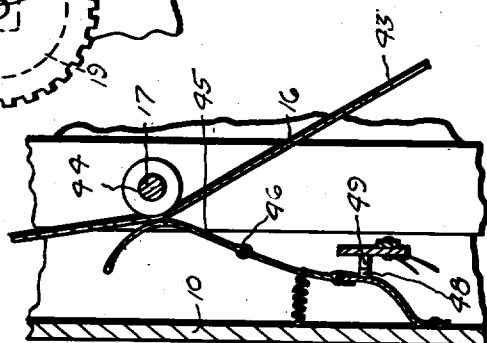


Fig. 9

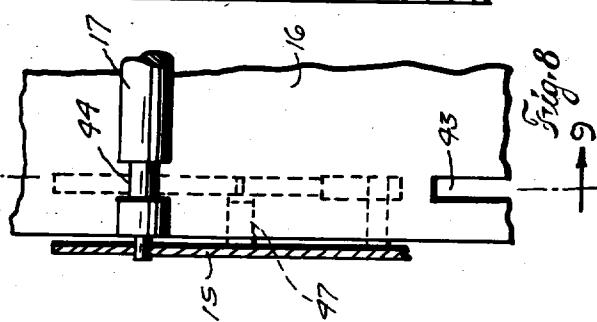
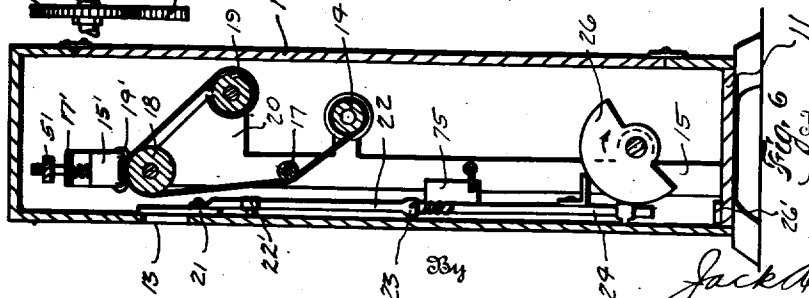


Fig. 10



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UNITED STATES PATENT OFFICE

20,223

EDUCATIONAL DEVICE AND METHOD FOR
THE TREATMENT OF EYES

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by direct and mesne assignments, to Educa-
tional Laboratories, Inc., Brownwood, Tex., a
corporation of Texas

Original No. 1,918,298, dated July 18, 1933, Serial
No. 605,878, April 18, 1932. Application for
reissue June 14, 1935, Serial No. 26,645

19 Claims. (Cl. 128—25)

This invention relates to new and useful im-
provements in educational devices.

One object of the invention is to provide an
improved device and method for educational
purposes, and especially for the teaching of
reading.

Another object of the present invention is to
provide a novel method for strengthening, de-
veloping and innervating the muscles, nerves
and structures of the eyes and their attach-
ments, by causing successive fixation movements
of a person's eyes through the intermittent, suc-
cessive exposure of symbols or groups of sym-
bols positioned within the field of vision of the
eyes accompanied by a blocking off of the pre-
ceding exposure so that the eyes cannot retreat.

Another object of the invention is to provide
means for successively exhibiting and conceal-
ing indicia whereby the observer's eye travels
from left to right across the face of the ma-
chine.

Another object of the invention is to provide
an exhibiting machine having an elongated win-
dow in its front wall and having a strip or roll,
with indicia or symbols printed thereon, so
mounted within the machine that the entire
strip may be displayed, line by line, through the
window, and to provide means for operating
panels which successively close portions of the
window to cover portions of the indicia or sym-
bols on the strip, and thereby force the pupil's
eye to travel from left to right across the face
of the machine.

Another object of the invention is to provide
means for actuating the strip or exhibitor to
bring the next line of the same into view after
the panels have been operated.

Still another object of the invention is to pro-
vide means whereby the panels may be operated
rapidly enough to allow the word or words to
be visible only for a moment, thus teaching the
pupil to instantly recognize the word.

Figure 1 is a front view of the machine, part-
ly in elevation and partly in section,

Figure 2 is a longitudinal vertical sectional
view looking from the rear of the machine,

Figure 3 is a transverse vertical sectional view
taken on the line 3—3 of Figure 2,

Figure 4 is a transverse vertical sectional view
taken on the line 4—4 of Figure 2,

Figure 5 is a transverse vertical sectional view
taken on the line 5—5 of Figure 2,

Figure 6 is a transverse vertical sectional view
taken on the line 6—6 of Figure 2,

Figure 7 is an enlarged detail of the remov-
able carrying roller mounting,

Figures 8 and 9 are enlarged details of the
automatic cut-off switch,

Figure 10 is an enlarged detail of the spacer
roller actuating means,

Figure 11 is a sectional view taken on the line
11—11 of Figure 2 and showing the plunger shift-
ing means,

Figure 12 is a detail of the reversible clutch,

Figure 13 is a detail of the winding roller and
one end of the strip, showing means for secur-
ing said end to the roller.

Figure 14 is a transverse sectional view of the
same and taken on line 14—14 of Figure 13.

In the drawings the numeral 10 designates an
upright casing having a bottom 11 and provided
with a door 12 in its rear wall to permit the easy
insertion or removal of the rolls hereinafter men-
tioned.

A horizontally elongated sight opening or win-
dow 13 is provided in the front wall of the cas-
ing near its top. Within the casing, a remov-
able supply roller 14 is mounted in standards 15
which are secured to the floor of the casing and
extend upwardly within the same. The roller
14 carries a strip of cloth, paper or other suit-
able material 16 on which is printed a series of
sentences or other educational indicia.

The strip 16 is passed upwardly and over an
idler roller 17 mounted in standards 18 and then
over a spacer roller 18 which is mounted in the
standards above the elongated window 13. Fric-
tion rollers 14' (Fig. 2) are mounted in hanger
yokes 15' and each hanger has a spring-pressed
plunger 16' extending upwardly therefrom. Each
plunger has a sliding fit in arms 17' which ex-
tend inwardly from the standards 15 whereby
the rollers are capable of a vertical movement
but are held against horizontal displacement.
The friction rollers ride on the spacer roller 18
to hold the strip 16 tightly against the same.

The end of the strip 16 is then secured to a
winding roller 19 which is supported by arms 20,
extending rearwardly from the standards 15
(Figs. 3, 4, and 5). The winding roller is pro-
vided with a T slot 20', and one end of the strip
16 carries a key 21' which engages in said slot
of the roller (Figs. 13 and 14). Thus when the
key engages the slot the strip 16 may be wound
around the roller, but the key will automatically
disengage itself from the roller when the strip
is being rewound, as will hereinafter be ex-
plained.

It will be seen that a portion of the strip 16 is held in close proximity to the sight opening of the spacer roller 18 and the idler roller 17, and that portion is clearly visible therethrough. (Fig. 1.)

The words or sentences, printed on the strip or chart 16 are so spaced lengthwise of the strip that they may be successively and individually displayed thru the opening responsive to a step-by-step actuation of the spacer roller. For positioning the first line of indicia so that it will be exactly in alignment with the window, a knob 19 is provided on one end of the winding roller 18. Before the machine is started this knob is turned to adjust the strip in its proper position.

For exhibiting the words in each line in sequence and thereby forcing the pupils' eyes to travel from left to right, I provide three doors or panels 21 (Figs. 3, 4, and 5). Each panel is secured to and carried by a vertical rod 22, which is supported by a bearing 22'. Each rod is connected by a spring coupling 23 to a plunger 24. Each plunger is slidably mounted in a bearing 24' and is provided with a foot 25 which is normally positioned in the path of a cam 26, mounted on a horizontal cam shaft 27, which is supported at its ends in the standards 15. A step cushion 28 is secured on the bottom 11 below each plunger 24 to absorb the shock when said plunger drops to its lowest position.

The cam shaft is provided with a lug 27' (Fig. 12) on one end and this lug is engaged by a pin 28 on one side of a clutch 50 which is slidably keyed on a stub shaft 29 (Figs. 1 and 12). The stub shaft 29 is supported in the side wall of the casing and carries a gear 28', which is driven by a gear 29' on the shaft of an electric motor 30. The cams are disposed in stepped order so that the panels are opened and closed successively. For instance, when the panel on the left is lowered (Fig. 1) to allow the first words of the line to be seen the middle and right hand panels are in their raised or closed position. As the left hand panel rises, the middle panel is lowered and the panel on the right remains closed, or in its raised position, as is shown in Fig. 1. Then, as the middle panel rises to again shut the words off from view the right hand panel lowers and the panel on the left remains in its topmost position. Thus, only one third of each line is visible at a time. This is an important feature of the invention as it forces the pupil to instantly recognize the words, as well as to accustom his eyes to travel across the board from left to right. (Fig. 1.)

After each panel 21 has been operated once and the entire line has been read, the spacer roller 18 is given a quarter turn to bring the next line into view thru the opening 13. For actuating the spacer roller, one quarter of a turn after the successive operation of the three panels 21, a star wheel 31 (Fig. 10) is mounted on one end of the shaft 18' of said roller. The star wheel is provided with elongated radial slots 32, and has its outer edge riding on a shoulder 33 of a cam disk 34. A pin 35 mounted on the outer edge of the cam disk engages in the slots 32 to give the wheel a quarter turn each time the cam makes one complete revolution.

The cam disk 34 is loosely mounted on a stub shaft 36 (Figs. 2 and 10) supported in a bracket 37 extending outwardly and rearwardly from one of the standards 15. The cam is provided with a lug 38, on its outer face near its center, in the path of a pin 39 secured on the shaft 36, whereby

the cam is revolved by the shaft when the pin engages the lug.

The stub shaft carries a gear 40 at its inner end and this gear is driven by a chain 41 extending upwardly from a reverse gearing 42, which, in turn, is driven by the cam shaft 27, thus the stub shaft revolves in the opposite direction from the cam shaft and at the same speed. Each time the cam shaft makes one complete revolution and each of the cams 26 has been operated to raise or lower its respective panel 21 the pin 35 on the cam 34 engages one of the slots 32 in the star wheel to turn the spacer roller 18, thereby bringing the next line of the chart 16 into alignment with the slot. The pin 35 on the cam is pivotally connected to a spring 36' which has its other end secured to the side wall of the casing. Due to loose mounting of the cam on the stub shaft the spring serves to jerk the cam around quickly when the pin passes the center line of the cam. This movement allows for an immediate change of lines of the chart before the opening. The star wheel is prevented from being given more than a quarter turn each time by the friction caused by the engagement of the outer edge of the star wheel with the shoulder 33 on the cam. A gear 31' is secured on the rear of the cam disk 34 and revolves therewith. This gear engages a gear 32' mounted on the outer end of the shaft 18' of the winding roller. The gear 32' drives a friction clutch 33' on the shaft 18' and it is obvious that each time the cam disk is revolved the winding roller is rotated, thereby taking up any slack in the chart 16.

For automatically cutting off the motor after the entire strip or chart 16 has been displayed before the opening 13, the strip is provided with an elongated slot 43. (Figs. 8 and 9.) The idler roller 17 has a groove 44 at one end which is aligned with the slot 43. A flat spring 45 pivoted at 46 to a bracket 47 extending inwardly from one of the standards 15, has its upper end constantly riding against the face of the chart 16. The lower end of the spring carries a contact point 48 which is held against a contact 49 to complete the circuit to the motor. It is obvious that as long as the upper end of the spring is held outward by the chart 16 the circuit to the motor is complete. However, as the chart nears its end the slot 43 in the same passes over the groove 44 to allow the upper end of the spring 45 to drop into said groove. Due to the pivotal mounting of the spring the contact points 48 and 49 are separated, thereby breaking the circuit and stopping the motor.

For rewinding the carrying roller 14 I provide a horizontal rod (Figs. 1 and 2) 51, at the top of the casing. The rod extends almost the entire length of the casing and has one end extending through the outer wall of the same. The rod is slidably supported by the wall of the casing and by bearings 52 extending upwardly from the top of the standards 15. The inner end of the rod is pivotally connected to a vertical bar 53 which is pivoted at 54 to a bracket 55 on the standard 15 (Fig. 2). The lower end of the bar is provided with a foot 56 (Fig. 3) which carries a flat spring 57. The spring straddles the clutch 50 and it is obvious that when the rod 51 is pulled outwardly the clutch will be disengaged from the cam shaft 27. On its side opposite the cam shaft, the clutch carries a pin 58 which, when the clutch is shifted, engages a lug 59 on a gear 60 mounted on the stub shaft 29. The gear 60 drives a gear 61 on a stub shaft 61', by means of a chain 62. The other end

of the stub shaft carries a gear 62' which drives a gear 63' on the shaft of the carrying roller, to rewind the strip after it has been displayed.

The rod 51 carries a lug 63 which is in alignment with a contact point 64, leading to the motor and depending from the top of the casing. It is seen that when the rod 51 is pulled outwardly the lug 63 will strike the contact 64 and force it against a contact 65 which will complete the circuit to again start the motor which has been stopped by the breaking of the contacts 48 and 49 due to the spring 45, dropping thru the slot 43 in the chart into the groove 44 of the idler roller. The shifting of the rod 51, as hereinbefore explained, shifts the clutch 50, whereby the strip is rewound on the roller.

The rod 51 also carries cams 66 which engage in slots 67 in the friction roller plungers 16' to raise the same when the rod is pulled outwardly. Thus the friction rollers 16' are lifted from the spacer roller 18 when the chart is being rewound on the carrying roller.

The carrying roller 14 is made removable so that a chart containing different material may replace the same. It is to be clearly understood that the invention is not to be limited to charts carrying educational indicia, such as words, phrases, arithmetic, or the like, but a chart carrying advertising material can be inserted in the machine whereby the device can be used for any form of progressive advertising. The mounting of the roller 14 is shown in detail in Figure 7. At one end the roller is provided with a square socket 68 which receives the squared shaft 69. The other end of the shaft carries the gear 63' which is driven thru the gears 61 and 62' by the chain 62.

The other end of the roller has a circular bore 74 which receives a pin 73. The pin is supported in one of the standards 15 and a spring 70 is confined on the pin between a collar 71 on said pin and a casing 72 secured on the outer side of the standard. It is obvious that the carrying rollers may be easily inserted or removed by depressing the pin 73.

It is not always necessary to operate the panels 21 when using the machine and it has been found that at times the machine may be used to better advantage by eliminating the use of these panels. For swinging the feet 25 of the plungers 24 out of the path of the cams 26 I provide wings 75 on the rear of the plungers 24. A horizontal rod 76 slidably supported in the standard 15 has one end extending thru the outer wall of the casing 10. As shown in Fig. 11, the rod is provided with fingers 77 which, when the rod is pulled outwardly, engage the wings to swing the feet out of the path of the cams 26 due to the spring coupling 23. Should any of the cams 26 be in such a position as to prevent its respective foot 25 from swinging back to its normal position when the rod is again pushed inwardly, the spring coupling 23 would serve to hold said foot against the side of the cam until the cam revolves around to a position which will allow said foot to spring into place in the path of said cam.

The method of operation of the apparatus described is as follows:

A roller 14 having the strip 16 in which suitable or desired indicia or symbols are carried is placed in the machine and the first line of indicia is positioned opposite the window 13 as has been described above. The electric motor is then started which operates the panels in front of the window. As has been brought out above,

the operating mechanism is designed to operate the panels in chronological sequence in the direction of reading. In other words, the panel on the left is moved to display the symbol or symbols on the strip 16 so that the patient's eyes are fixated on the left hand symbol first. This panel closes, thereby shutting off the view of the symbols and the middle panel is actuated to display the symbols on the strip 16 behind the middle panel. This causes the patient's eyes to be directed to the middle of the window thereby causing a fixation laterally removed from the first fixation as the patient would do in ordinary reading. The middle panel is then actuated to close the middle portion of the window and the panel on the right is next actuated to display the symbol or symbols behind this right hand panel thereby causing the eyes to make another lateral fixation.

It will be noted that the symbol or symbols behind each panel are displayed only momentarily, training the patient to concentrate and fix his attention on only those symbols displayed and to thereby stimulate and innervate the muscles, nerves and structures of the eyes and their attachments.

From the foregoing description it is clear that when the panel on the left is lowered to allow the first words or symbols of the line to be seen, the middle and right hand panels are in their raised or closed positions. As the left hand panel rises the middle panel is lowered and the panel on the right remains closed, or in its raised position.

Then, as the middle panel rises to again shut the words off from view, the right hand panel lowers and the panel on the left remains in its topmost position. Thus, only one third of each line is visible at a time. This is an important feature of the invention, as it stimulates, innervates and develops the eye structures of the patient by the progressive use of these structures in a manner to increase the patient's reading efficiency.

The speed of operation of the panels may be increased as the visual efficiency of the patient increases, so that the tendency of the patient to develop regressive eye movements are eliminated. In other words the patient is trained to always fixate his eyes on symbols until he has a visual perception thereof and then move his eyes forward to see the next symbol or group of symbols and not to look back over words already read.

It will be apparent that the size of the panels or the amount of symbols or indicia covered by each of the panels may be made or varied to any suitable size so that the reading span of the person may be accommodated as his reading efficiency is developed. In other words, the apparatus may be varied to show as many symbols at one time as the visual perceptive function of the patient is able to completely grasp. Then also by varying the speed of the operation of the panels the reading efficiency of a person may readily be developed.

The operation of the device is described as successively exposing symbols from left to right as that is the direction in which most languages are read. It will be obvious that the mechanism may be altered to progressively and successively expose the symbols before the patient so that his eye movements will be substantially identical with those of the patient when reading his accustomed language.

The broad concept of the invention contemplates the intermittent timed exposure of the

symbols or groups of symbols or indicia embracing predetermined angles of vision in a spaced progression in the direction of normal reading of the person being trained; that is, the order in which the symbols of the language are normally placed in order to present a sequential and connected order.

It is apparent from the foregoing description of the apparatus that when the panels operate successively to expose the symbols or groups of symbols behind the corresponding sections of the window, that the sections of reading matter or symbols are exposed substantially, instantaneously and in their entirety, said sections serving as progressive fixation steps, whereby the eyes move from one point of fixation to another within the limits of said exposed sections. The intermittent successive exposures exercise and innervate the eye muscular and nerve structures by causing the eyes to reconverge on the successive points of fixation since the eyes tend to return to their position of relaxation during the time interval between the exposed sections, which time intervals correspond to the commonly known motion blindness of eyes which exists during their period of movement from one object to another. Since the preceding sections are screened off before the next succeeding section is exposed, the eyes are prevented from returning to the preceding section and thus regressive movements of the eyes are greatly discouraged.

The description which has been given, recites more or less detail of a particular embodiment of the invention, which is set forth as new and useful. However, I desire it understood that the invention is not limited to such exact details of construction, because it is manifest that changes and modifications may be made, within the scope of the appended claims, without departing from the spirit of the invention.

Having illustrated and described a preferred form of the invention, what I claim, is:

1. In an educational device, a casing having a window, an exhibitor mounted within the casing and bearing indicia or symbols for display through the window, panels carried by the casing and closing said window, means for operating said panels in sequence from left to right, whereby portions of each line of indicia are displayed in sequence.

2. In an educational device, a casing having a window, a strip mounted within the casing and bearing indicia or symbols for display thru the window, means for opening and closing sections of the window, means for operating said opening and closing means in sequence from left to right whereby portions of each line of indicia are displayed in sequence, and means for actuating the strip whereby the next line of indicia becomes visible thru the window after the preceding line is displayed.

3. In an educational device, a casing having a window, a strip mounted within the casing and bearing indicia or symbols for display through said window, panels within the casing and closing said window, movable members connected to said panels, means for actuating said members in sequence whereby the panels are successively raised and lowered in sequence from left to right to exhibit portions of each line of indicia in sequence.

4. In an educational device, a casing having a window, an exhibitor mounted within the casing and bearing indicia or symbols for display through said window, panels within the casing and closing said window, rods carrying said panels, plungers below said rods and swiveled thereto, cams mount-

ed at the bottom of the casing and arranged to operate said panels in sequence from left to right through the medium of the said plungers and rods, whereby portions of each line of indicia are displayed in sequence.

5. In an educational device, a casing having a window, an exhibitor mounted within the casing and bearing indicia or symbols for display thru said window, panels within the casing and closing the window, rods carrying said panels, plungers below said rods and swiveled thereto, cams mounted at the bottom of the casing, said plungers riding on the periphery of said cams, the cams being arranged to raise and lower the plungers in sequence whereby portions of each line of indicia are displayed in sequence from left to right, and means for disengaging the plungers from the cams to allow the entire line to be visible thru the window.

6. In an educational device, a casing having a window, a carrying roller within the casing, an idler roller within the casing and above the carrying roller, a spacer roller within the casing above the idler roller, a winding roller within the casing below and behind the spacer roller, a strip having indicia thereon mounted on the carrying roller and passing over said idler and spacer rollers, and having its other end secured to said winding roller, means for opening and closing sections of the window, means for operating said opening and closing means, whereby separate sections of the window are opened in sequence from left to right to display portions of each line in sequence and closed after each display, and means for actuating said spacer roller intermittently, whereby each line of indicia is successively brought into view before said window.

7. In an educational device, a casing having a window, a carrying roller within the casing, an idler roller within the casing above the carrying roller, a spacer roller within the casing and above the idler roller, a winding roller within the casing below and behind the spacer roller, a strip having indicia or symbols thereon mounted on the carrying roller and passing over said idler and spacer rollers, and having its other end detachably secured to said winding roller, panels within the casing closing the window, means for opening and closing said panels in sequence from left to right, whereby portions of each line of indicia are displayed in sequence, a star wheel mounted on the spacer roller shaft and having radial slots therein, a cam disk mounted by a stub shaft and having a pin on its outer edge, said pin engaging in slots in said star wheel to rotate the same whereby the spacer roller is revolved to individually and successively display each line of indicia thru the window.

8. A display device comprising, an upright casing having a window, an exhibitor mounted within the casing for display through said window, means for moving said exhibitor to display different portions thereof through said window, means for opening and closing separate sections of the window, and means for operating said closing means, whereby said separate sections may be successively opened and closed from left to right.

9. In an educational device, a casing having a window, an exhibitor mounted within the casing and bearing indicia or symbols for display through the window, means for opening and closing separate sections of the window in sequence from left to right, and means for operating said opening and closing means in sequence, whereby

separate sections of the window are opened in sequence to display portions of each line of indicia and are closed after the display of each portion.

5 10 In an educational device, a casing having a window, a strip mounted within the casing and bearing indicia or symbols for display through the window, means for passing the strip before the window, means for opening and closing separate sections of the window, and means for operating said opening and closing means, whereby separate sections of the window are opened in sequence from left to right to display portions of each line of indicia and closed after each display.

11. In a device of the character described, means for intermittently and substantially instantaneously exhibiting within the direct field of vision and in the direction of reading of a person a plurality of fixation indicia in spaced progression and sequence, means for successively blanking out the previously exhibited indicia with each successive exhibition of new indicia whereby the eyes following said exhibitions will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading, said blanking out means being so formed as to leave no formed character in the blanked out portion for the eyes to regress to, whereby the eyes may follow through said predetermined angle with the movement thereof simulating their movement during reading and means for halting for a definite period said successive exhibitions whereby the eyes may move from one exposure to another in step by step progression in rhythmic motion.

12. In a device of the character described, means for intermittently and substantially instantaneously exhibiting in a single plane within the direct field of vision and in the direction of reading of a person a plurality of fixation indicia related in progressive reading context and in spaced progression and sequence, means for successively blanking out the previous exhibited indicia with each successive exhibition of new indicia whereby the eyes following said exhibitions will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading, said blanking out means being so formed as to leave no formed character in the blanked out portion for the eyes to regress to, whereby the eyes may follow through said predetermined angle with the movement thereof simulating their movement during reading and means for halting for a definite period, said successive exhibitions of indicia whereby the eyes may move from one exposure to another in step by step progression in rhythmic motion.

13. In a device of the character described, means for intermittently and substantially instantaneously exhibiting within the direct field of vision and in the direction of reading of a person a plurality of fixation indicia in spaced progression and sequence, means for successively blanking out the previously exhibited indicia with each successive exhibition of new indicia whereby the eyes following said exhibitions will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading, said blanking out means being so formed as to leave no formed character in the blanked out portion for the eyes to regress to,

whereby the eyes may follow through said predetermined angle with the movement thereof simulating their movement during reading, means for halting for a definite period said successive exhibitions whereby the eyes may move from one exposure to another in step by step progression in rhythmic motion, means for successively changing the indicia at the completion of said intermittent and successive exhibitions and means for repeating said intermittent and successive exhibitions whereby a successive repetition of changing the indicia and intermittently and successively exhibiting and blanking out said indicia occurs.

14. In a device of the character described, means for intermittently and substantially instantaneously exhibiting within the direct field of vision and in the direction of reading of a person a plurality of fixation indicia in spaced progression and sequence, means for successively blanking out the previously exhibited indicia with each successive exhibition of new indicia whereby the eyes following said exhibitions will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading, said blanking out means being so formed as to leave no formed character in the blanked out portion for the eyes to regress to, whereby the eyes may follow through said predetermined angle with the movement thereof simulating their movement during reading, means for halting for a definite period said successive exhibitions whereby the eyes may move from one exposure to another in step by step progression in rhythmic motion, and means for varying the speed of said intermittent and successive exhibitions.

15. A method comprising intermittently and momentarily exhibiting a plurality of fixation indicia in spaced progression and sequence in the direction of reading of a person and in the direct field of vision of said person and substantially along a straight line substantially transverse to the line of straight ahead vision of said person's eyes, continuing each exhibition of indicia for a limited period, and successively blanking out the previously exhibited indicia with each successive exhibition of new indicia without leaving any formed character in view in the blanked out portion for the eyes to regress to, whereby the eyes following said exhibition will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading for instantaneous perception of each exhibited indicia in sequence and in step by step progression in rhythmic motion.

16. A method comprising intermittently and momentarily exhibiting a plurality of fixation indicia in spaced progression and sequence in the direction of reading of a person and in the direct field of vision of said person and substantially along a straight line substantially transverse to the line of straight ahead vision of said person's eyes, continuing each exhibition of indicia for a limited period, and successively blanking out the previously exhibited indicia with each successive exhibition of new indicia without leaving any formed character in view in the blanked out portion for the eyes to regress to, and so that the area blanked out is contiguous to the new area exhibited, whereby the eyes following said exhibition will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in

the direction of reading for instantaneous perception of each exhibited indicia in sequence and in step by step progression in rhythmic motion.

17. A method comprising intermittently and momentarily exhibiting a plurality of fixation indicia in spaced progression and sequence in the direction of reading of a person and in the direct field of vision of said person and substantially along a straight line substantially transverse to the line of straight ahead vision of said person's eyes, continuing each exhibition of indicia for a limited period, and successively blanking out the previously exhibited indicia with each successive exhibition of new indicia without leaving any formed character in view in the blanked out portion for the eyes to regress to, whereby the eyes following said exhibition will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading for instantaneous perception of each exhibited indicia in sequence and in step by step progression in rhythmic motion, and changing the indicia of said line of exhibition and repeating the intermittent and successive exhibitions of said line as before.

18. A method comprising intermittently and momentarily exhibiting a plurality of fixation indicia in spaced progression and sequence in the direction of reading of a person in the direct field of vision of said person and substantially along a straight line substantially transverse to the line of straight ahead vision of said person's eyes, continuing each exhibition of indicia for a limited period, and successively blanking out the pre-

viously exhibited indicia with each successive exhibition of new indicia without leaving any formed character in view in the blanked out portion for the eyes to regress to, whereby the eyes following said exhibition will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading for instantaneous perception of each exhibited indicia in sequence and in step by step progression in rhythmic motion, and changing the speed of said intermittent exhibitions.

19. A method comprising intermittently and momentarily exhibiting a plurality of fixation indicia in spaced progression and sequence in the direction of reading of a person and in the direct field of vision of said person and substantially along a straight line substantially transverse to the line of straight ahead vision of said person's eyes, continuing each exhibition of indicia for a limited period, and successively blanking out the previously exhibited indicia with each successive exhibition of new indicia without leaving any formed character in view in the blanked out portion for the eyes to regress to, whereby the eyes following said exhibition will break fusion at one point and move through a predetermined angle and establish fusion at an advanced point spaced therefrom in the direction of reading for instantaneous perception of each exhibited indicia in sequence and in step by step progression in rhythmic motion with at least a portion of one section of indicia always exposed to view, the characters of said indicia being related in reading context.

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