Jan. 20, 1959 R. T. CASEY 2,869,252

TACHISTOSCOPE

Filed July 30, 1956 2 Sheets-Sheet 1

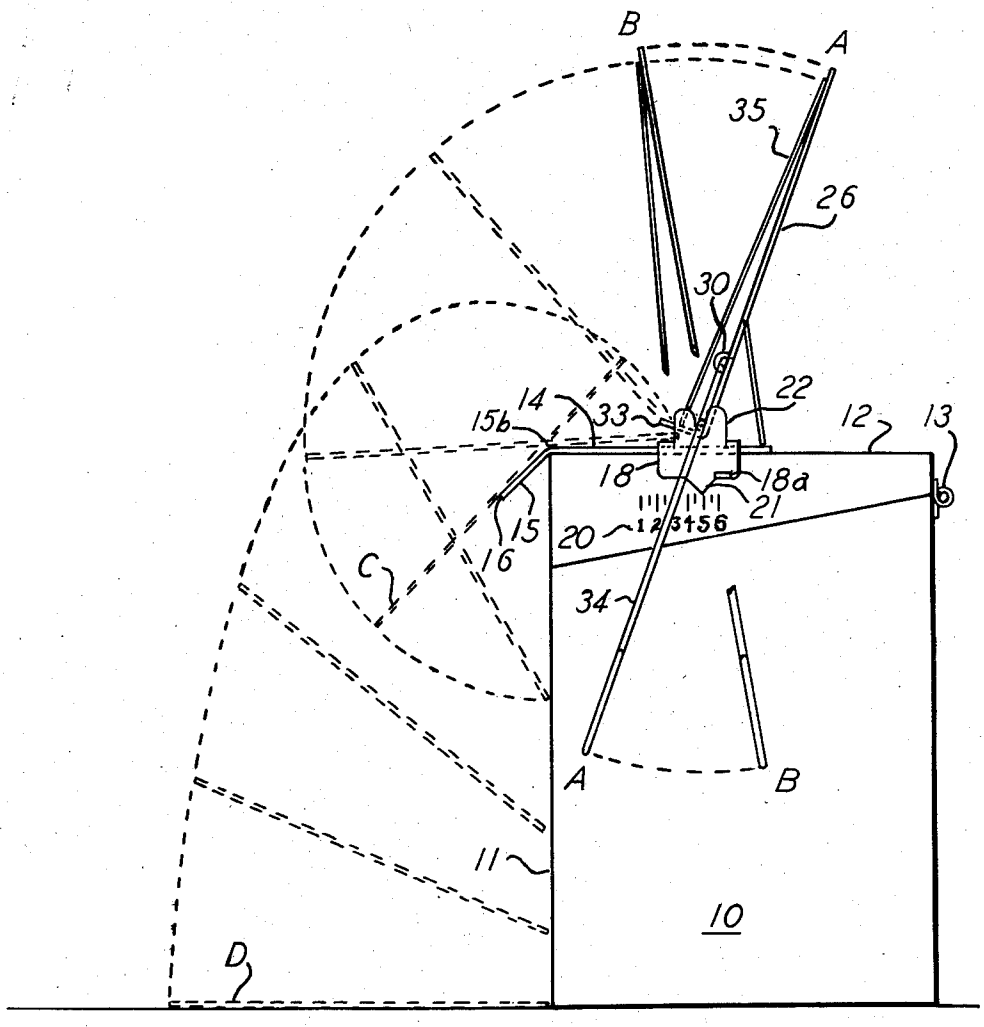


Fig. 1

Robert T. Casey

INVENTOR.

Jan. 20, 1959 R. T. CASEY 2,869,252

TACHISTOSCOPE

Filed July 30, 1956 2 Sheets-Sheet 2

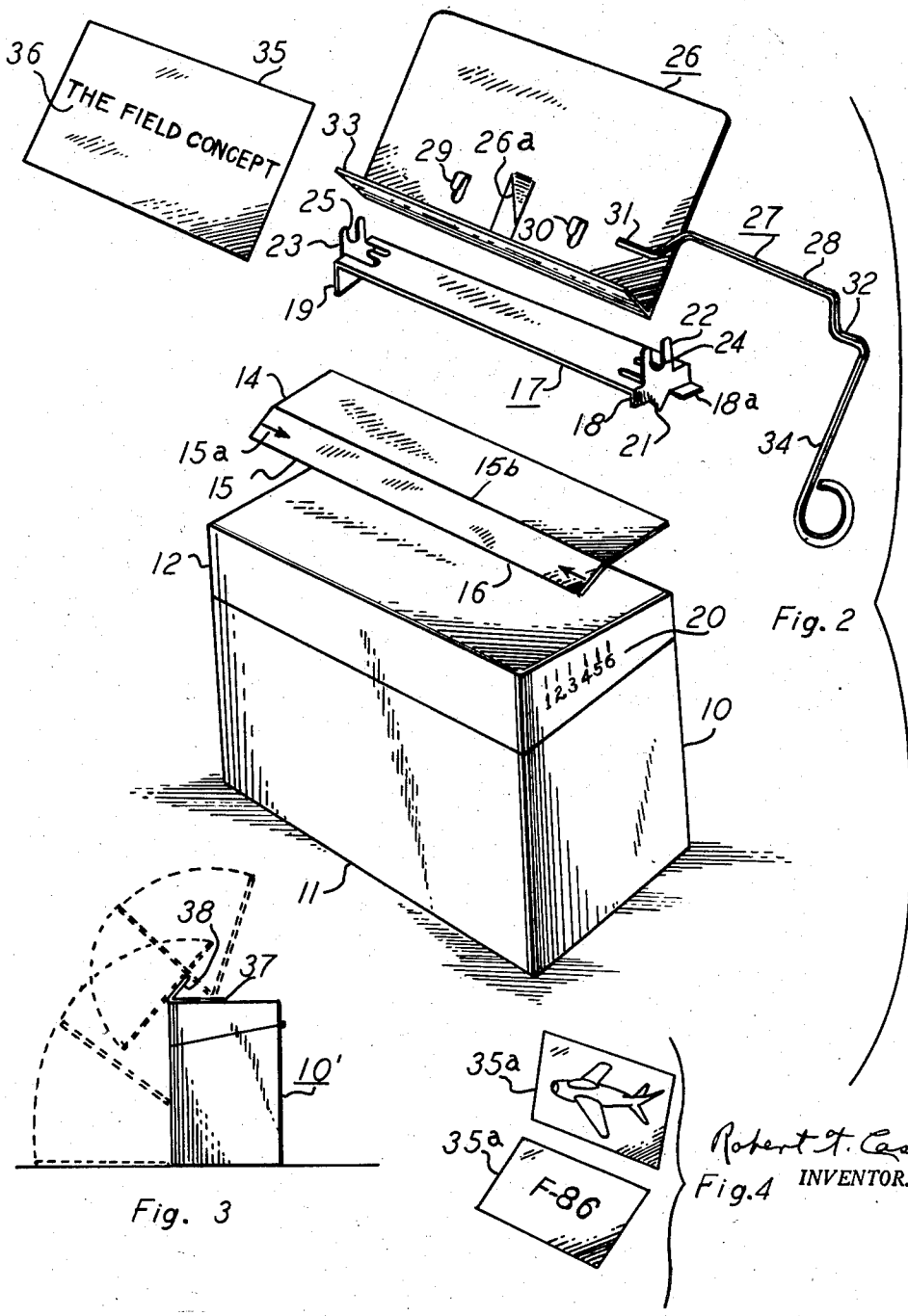


Fig. 2

Fig. 3

Fig. 4

Robert T. Casey
INVENTOR.

United States Patent Office 2,869,252 Patented Jan. 20, 1959

2,869,252

TACHISTOSCOPE

Robert T. Casey, Southington, Conn.

Application July 30, 1956, Serial No. 600,984

9 Claims. (Cl. 35—35)

My invention relates to devices for use in the training of individuals for acuity and speed in visual perception, and particularly, to devices adapted to expose an information-bearing surface for a very short length of time, usually less than one-fifth of a second, and referred to generically as tachistoscopes.

The technical requirements of tachistoscopes are very exacting, and such devices, in the past, have been relatively complicated in construction and expensive in cost. The operation of such devices has, likewise, been relatively complicated and difficult for the average individual to master. The rapid growth of school population and simultaneous growth in the volume of printed material, together with the ever-growing multiplicity of diversions claiming the individual's time has, meanwhile, accented the need for increasing the accuracy of visual perception and the reading speed of the average individual.

It is an object of the present invention to provide a tachistoscope, for use in training individuals in visual perception, which is extremely inexpensive, such that any individual who may have an interest in the use of such a device can readily afford one, even as a temporary experiment or diversion.

It is another object of my invention to provide a tachistoscope which is extremely simple in construction, so that the likelihood of operational difficulties arising is practically eliminated.

It is another object of my invention to provide a tachistoscope which, although meeting all the essential requirements for tachistoscopic exposure of visual information, is extremely simple in operation, so that only a simple diagram or printed instruction is necessary to enable anyone, even a child, to operate and use the device.

A further object of my invention is to provide a tachistoscope which is readily adjustable in a simple manner to change the effective length of time of exposure within predetermined limits.

It is another object of my invention to provide a tachistoscope which utilizes only ambient light in its use.

In carrying out my invention in one form, I provide a base having a flat top with a straight edge portion, a generally rectangular card-holder mounted on the said top and adapted to support an information-bearing card substantially upright with its bottom edge parallel to said straight edge and spaced a short distance therefrom, the printed side of the card being hidden with respect to the view of a user observing from the direction of the front edge, and manually operable means for tipping the card about its bottom edge to a point where it becomes overbalanced and falls forwardly, strikes and rotates about the said straight edge portion of the base so as to expose the information-bearing side briefly to the view of the user, and thereafter continues to fall and rotate, ending up face-down on the table or other support on which the base rests. In a preferred embodiment, means is also included for adjusting the distance of the card-holder from the straight edge of the base, whereby to vary the speed of rotation of the card during a critical part of its travel, whereby to vary the effective time of exposure of the card to the user.

In accordance with another aspect of my invention, the card-holder is removably mounted on the base, and the base comprises a box having a hinged top cover, and is adapted to serve as a storage place for said holder and/or said information-bearing cards.

My invention will be more fully understood from the following detailed description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a side elevation view of a tachistoscopic training device constructed in accordance with my invention, an information-bearing card being shown in place on the device, and a portion of the card and the device being shown in an actuated position as well as in normal at-rest position;

Figure 2 is an exploded perspective view of the tachistoscope of Figure 1;

Figure 3 is a side elevation view of a modified form of the invention of Figure 1, a portion thereof being omitted for clarity;

Figure 4 is a perspective view of a form of information-bearing card for use with the device of Figure 1.

Referring now to the drawings, I have shown my invention as embodied in a tachistoscope in which **10** is a generally rectangular support or base comprising a box **11** and a cover **12**, hinged thereto by hinges **13**. The base **10** is preferably constructed of metal, although it may also be constructed of other suitable material, such as cardboard. Attached to the cover **12** of the box **11** by suitable means such as by welding, is a plate **14** having a projecting portion **15** disposed at an angle to the surface of the base **10**, and having an edge **16** for a purpose to be described.

Positioned upon the top surface of the base **10** is an adjustable support **17** having opposed downwardly directed end portions **18** and **19** adapted to straddle the top portion of the base **10** in closely fitting engagement, permitting the support **17** to be frictionally retained in a given position, but being adjustable toward and away from the front edge of the base **10**, for a purpose to be described. The portion **18** is provided with a stop lug **18***a*, also for a purpose to be described.

For the purpose of indicating the relative location of the support **17** with respect to the front portion of the base **10**, and particularly the edge **16**, suitable numbered calibrations **20** are provided on the side of the base **10**. The end portion **18** of the support **17** is provided with a pointed indicator **21** for indicating the exact position of the support **17** with respect to the calibrations **20**. The support **17** is also provided with lanced-out portions **22** and **23**, each having slots therein forming pivotal supports or bearings **24** and **25**.

A generally rectangular planar support or easel **26** is pivotally supported in the bearings **24** and **25** by means of a formed wire member **27**. The easel **26** is provided with a bent-over portion or lip **33** extending generally at right angles to the main portion thereof. The wire member **27** is removably retained in connected engagement with the easel **26** by reason of the offset portion **28** being retained under lugs **29** and **30**, and the end portions **31** and **32** being positioned in the corner formed between the lip **33** and the main body of the easel **26**. The wire member **27** is pivoted in the bearings **24** and **25** and is provided with a manually engageable portion or handle **34**, terminating in a generally circular return-bent portion to facilitate manual operation thereof.

In order to limit the travel of the easel **26** in the clockwise direction, a stop is provided comprising a brace **26***a* lanced out of the central portion of the easel **26**. If desired however, the brace **26***a* may be omitted and the stop function described may be provided by an outwardly-bent lug (not shown) carried by the support **17** and simi-

lar to the lug 18*a* but on the opposite side of the indicator 21 therefrom.

The construction and mounting of the easel 26 and the handle 34 as described not only makes for easy manual assembly of the parts, but also permits the parts to be readily disassembled for shipment or storage, the said disassembled parts being receivable within the box 10 for these purposes.

For use with the tachistoscope constructed in accordance with my invention, I provide a number of generally rectangular cards such as card 35, preferably opaque or translucent, and bearing visually perceptible information on one side, such as the legend 36. It will be understood that such material may comprise a single letter or number or any desired series of numbers or letters or combinations thereof, or a pictorial representation or combination of pictures, letters and numbers. The visually perceptible information, when comprising a line of printing such as 36, is preferably positioned generally centrally of the card and on a line parallel to the long edges of the card. The reverse side of the card 35 illustrated is blank, although a pictorial representation, such for instance as may be associated with the information 36, may be carried by the opposite side, as described below in connection with Figure 4.

When using the tachistoscope constructed in accordance with my invention, the user places the device on a table, desk or other suitable flat surface in good ambient light, the direction of the light preferably being approximately normal to the plane of the viewing surface 15. A stack of cards (not shown) similar to card 35, face-down on the table, is used, from which the user takes a card and places it, still face down, on the easel 26 and resting on the lip 33, the information on such card being upside-down with respect to the observer at this time. Suitable identification (not shown) may be provided on the side visible to the user at this time to identify the top edge thereof and to indicate the position in which it should be placed on the easel 26.

It will be observed that the easel 26, being opaque, prevents ambient light from shining through the card 35 if translucent, so as to make the information on the hidden side perceptible to the user at this time.

The user next focuses his eyes on the plane of viewing surface 15. In order to aid him in concentrating on this area, arrows 15*a* are marked on the surface 15 at opposite sides thereof. The user then grasps the handle 34 and slowly rotates the easel 26 from position A to position B (Figure 1), the travel of the handle 34 being arrested, upon reaching position B, by projection 18*a*, bent outwardly from support 17. In position B, the card 35 is brought slightly overcenter with respect to the lower edge thereof, at which time the card 35 falls forward, rotating about its lower edge on the lip 33, to a position slightly beyond horizontal, then rotates about the line 15*b* of plate 14 to a position parallel to surface 15, and then about the edge 16, continuing to rotate thereafter approximately as indicated in dotted lines in Figure 1 until it falls face-down upon the table or other support on which the tachistoscope rests.

Throughout the greater portion of the travel of card 35, the legend 36 is not visible to the user, since it is directed away from the direction of the view of the user, whose eyes are focused on the plane of the surface 15. In the intermediate position C however, the legend 36 is briefly presented to the full view of the user, in an upright position and essentially in line between the arrows 15*a*, and well-illuminated by the ambient light.

After briefly exposing the card in this manner, the user attempts to repeat the sense of the legend or otherwise identify the information which he has briefly seen. He can then readily check himself by lifting up the fallen card to examine the material on the hidden surface.

It will be observed that the speed of rotation of the card 35 in such usage is not under the control of the user but rather depends on such things as the weight of the card, air resistance, and distance of the card from the edge 16 when beginning to fall. It is believed that the effective time of exposure of the visible information to the user is in the neighborhood of one-tenth to one-twenty-fifth of a second. The speed of rotation of the card 35, and therefore the effective time of exposure, may, however, be varied within certain limits by moving the support 17 toward or away from the front edge of the support 10. When the support 17 is closest to the front of the support 10, a greater portion of the card 35 extends beyond the edges 15*b* and 16 when the card falls, thereby causing the rotation of the card at the intermediate part of its travel to take place more rapidly than when the support 17 is farther back, and thereby shortening the effective time of exposure. The calibrations 20 therefore serve as an indication of exposure speed. In any proper position, however, such as that illustrated, the support 17 is positioned so that the distance from the lip 33 to the edge 15*b* is less than one-half the height of the card 35.

In Figure 3 I have shown a modified form of support or base for use in accordance with my invention. In this form, the plate 14 is replaced by a generally V-shaped plate 37, also attached to the support 10 by suitable means, such as by welding. The plate 37 has a projecting edge 38, which the falling card 35 strikes and about which it rotates to expose the visually perceptible information in a manner similar to that previously described.

While the base 10 may take any suitable form, in a preferred embodiment the base 10 comprises a box 11 and a cover 12. The box 11 is preferably proportioned to receive and hold a number of the cards 35. The box 11 is also preferably proportioned to be able to receive, in diagonal relation to the sides thereof, the support 17 and the easel 26 and wire member 27, when these are disassembled as described above. Thus, in the form shown, the recited parts may be contained within the base 10 if desired, thereby simplifying the packaging and shipment of the device. When received and assembled by the user, the base 10 may be used as a storage place for the cards 35 when they are not in use.

In addition to cards such as 35, I also provide cards such as 35*a* (Figure 4) for use with my tachistoscope and having visually perceptible pictorial information on one side thereof, and printed material on the other side thereof. Preferably, there is an association or relation between such wording and such pictorial representation which it is desired to establish in the mind of the user. The pictorial representation and wording moreover, are upside-down with respect to each other, so that when such card is placed on the easel 26, one side such as the pictorial representation is normally visible to the view of the user and in an upright position, and the opposite side such as that bearing the printed information, is briefly "flashed." Conversely, of course, the printed information may be normally exposed upright, and the picture briefly flashed.

My tachistoscopic trainer is especially suited for use with such cards having information on both sides, since one side of each card is presented to the convenient view of the user as he starts each operation, and again after the opposite side has been flashed, thus emphasizing the association.

It will be appreciated that even though it should not be desired to use the cards for the purpose of establishing association between two visually perceptible items of information, both sides of the card 35 may be utilized in the manner first described above, thereby in effect doubling the usefulness of such cards.

It will be seen that I have provided a tachistoscope which is very inexpensive to manufacture, which is simple and effective in use and operation and which is small and compact in construction.

Since many modifications may be made without de-

parting from the spirit and scope of my invention, I wish to have it clearly understood that I do not intend to limit the following claims to the specific embodiments illustrated, but intend thereby to cover all such modifications and embodiments as fall within the true spirit and scope of the invention.

I claim:

1. A tachistoscope comprising a base having a flat top with a straight edge peripheral portion, a supporting member mounted on said top of said base and adjustable toward and away from said straight edge portion, a generally rectangular card-holder pivotally mounted on said support and adapted to support an information-bearing card substantially upright thereon with its bottom edge parallel to said straight edge and spaced a short distance therefrom, one side of said card being hidden with respect to the view of a user observing from the direction of said straight edge, and manually operable means for tipping said card about its bottom edge toward said straight edge to a point where it becomes over-balanced and falls in a direction toward said straight edge and strikes and rotates further in said direction about said straight edge so as to briefly expose said hidden side of said card to said user.

2. A tachistoscope comprising a base having a flat top with a straight edge portion, a generally rectangular opaque easel pivotally supported on said top of said base and adapted to support an information-bearing card substantially upright thereon with its bottom edge parallel to said straight edge and spaced a short distance therefrom, one side of said card being hidden with respect to the view of a user observing from the direction of said straight edge, a manually operable handle comprising a formed wire member removably attached to said easel and having portions thereof providing said pivotal supports for said easel on said top of said base, said wire handle having a depending manually engageable portion operable to tip said easel and said card about said pivotal support toward said straight edge to a point where said card becomes over-balanced and falls toward said straight edge and strikes and rotates about said straight edge so as to briefly expose said hidden side of said card to the user.

3. A tachistoscope comprising a base having means for supporting a generally rectangular information-bearing card in an initial position with one edge thereof in a substantially horizontal plane, manually operable means for rotating said card about an axis parallel to said one edge to cause said card to fall away from said manually operable means in a predetermined direction, a straight edge member spaced a predetermined distance from said axis so as to intercept the free fall of said card by engagement therewith at an intermediate portion closer to said one edge than to the opposite edge thereof whereby to cause said card to rotate thereafter further in said predetermined direction about said intermediate portion about an edge of said straight edge member, said card rotating through at least 180 degrees in said predetermined direction from said initial position.

4. A tachistoscope as set forth in claim 3 wherein said straight edge member comprises an elongated projection having a generally planar strip-like portion extending at an angle to said horizontal plane and generally perpendicular to the direction of viewing by a user of said tachistoscope.

5. A tachistoscope as set forth in claim 3 wherein said base comprises a generally rectangular box having a closed bottom and adapted to receive and store therein a plurality of said information-bearing cards for use with said tachistoscope.

6. A tachistoscope comprising a base having a flat top with a straight edge portion, a generally rectangular card-holder comprising a substantially opaque easel pivotally mounted on said base and adapted to support an information-bearing card substantially upright thereon with its bottom edge parallel to said straight edge and spaced a short distance therefrom, one side of said card being hidden with respect to the view of a user observing from the direction of said straight edge, and manually operable means for tipping said card about its bottom edge toward said straight edge to a point where it becomes overbalanced and falls toward said straight edge and strikes and rotates about said straight edge so as to briefly expose said hidden side of said card to the user.

7. A tachistoscope comprising a base having a flat top with a straight edge portion, a generally rectangular card-holder mounted on said base and adapted to support an information-bearing card substantially upright thereon with its bottom edge parallel to said straight edge and spaced a short distance therefrom, one side of said card being hidden with respect to the view of a user observing from the direction of said straight edge, and manually operable means for tipping said card about its bottom edge toward said straight edge to a point where it becomes overbalanced and falls toward said straight edge and strikes and rotates about said straight edge so as to briefly expose said hidden side of said card to the user, said card-holder being adjustably supported on said base with respect to said straight edge portion of said top whereby the effective time of exposure of said information-bearing card may be varied.

8. A tachistoscope comprising a base having means for supporting a generally rectangular information-bearing card in an initial position with one edge thereof in a substantially horizontal plane, said base including a straight edge portion spaced away from said card supporting means, the general plane of said card in said initial position being disposed at an acute angle to said horizontal plane inclined away from said straight edge portion, manually operable means for rotating said card about an axis parallel to said one edge thereof from said initial position in a direction toward said straight edge portion to and sufficiently beyond a vertical position to cause said card to fall away from said manually operable means in said direction, said straight edge member being spaced a predetermined distance from said manually operable means to intercept the free fall of said card by engagement therewith at an intermediate portion closer to said one edge than to the opposite edge thereof whereby to cause said card to rotate thereafter further in said predetermined direction about said intermediate portion about an edge of said straight edge member, said card rotating through at least 180 degrees in said predetermined direction from said initial position.

9. A tachistoscopic visual perception training device comprising a base having means for supporting a generally rectangular information-bearing card in an initial position with one edge thereof in a substantially horizontal plane, a generally rectangular information-bearing card of predetermined height for support on said supporting means with the bottom edge thereof in said substantially horizontal plane, manually operable means for rotating said card about an axis parallel to said one edge thereof to cause said card to fall away from said manually operable means in a predetermined direction, a straight edge member spaced away from said manually operable means a distance less than one-half said height of said card to intercept the free fall of said card by engagement therewith at an intermediate portion closer to said one edge than to the opposite edge thereof whereby to cause said card to rotate thereafter further in said predetermined direction about said intermediate portion about an edge of said straight edge member, said card rotating through at least 180 degrees in said predetermined direction from said initial position.

References Cited in the file of this patent

UNITED STATES PATENTS

636,642	Dickson	Nov. 7, 1899
1,466,252	Shaw	Aug. 28, 1923
2,637,130	O'Flaherty	May 5, 1953