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Ball

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[54] **APPARATUS FOR DISPLAYING A GRAPHIC MESSAGE**

[75] Inventor: **Richard Blatchford Ball,** Palo Alto, Calif.

[73] Assignee: **Enrich,** Palo Alto, Calif.

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[52] **U.S. Cl.** **40/78.03,** 40/106.1

[51] **Int. Cl.** **G09f 1/00**

[58] **Field of Search** ..... 40/78, 78.03, 82–84, 40/86 R, 86 A, 96, 64 A

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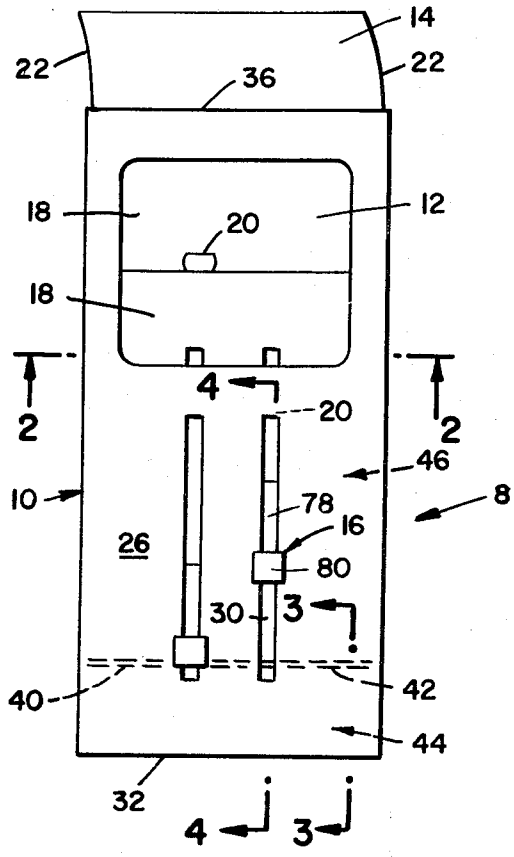
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Primary Examiner—Robert W. Michell
Assistant Examiner—J. H. Wolff
Attorney, Agent, or Firm—Townsend & Townsend

[57] **ABSTRACT**

A hand held device for sequentially displaying a plurality of graphic messages imprinted on an elongate web. A cardboard box constructed of a single folded carboard sheet includes a viewing cutout in its top and a backup plate beneath the cutout to thereby define a space through which the web is longitudinally moved. A partition divides the box interior into a web storage compartment and another compartment. The web storage compartment in direct communication with the space. Snap-in web advancing members are reciprocally disposed in elongate slots in the box top and alternatingly engage and disengage advancing apertures in the web.

12 Claims, 6 Drawing Figures



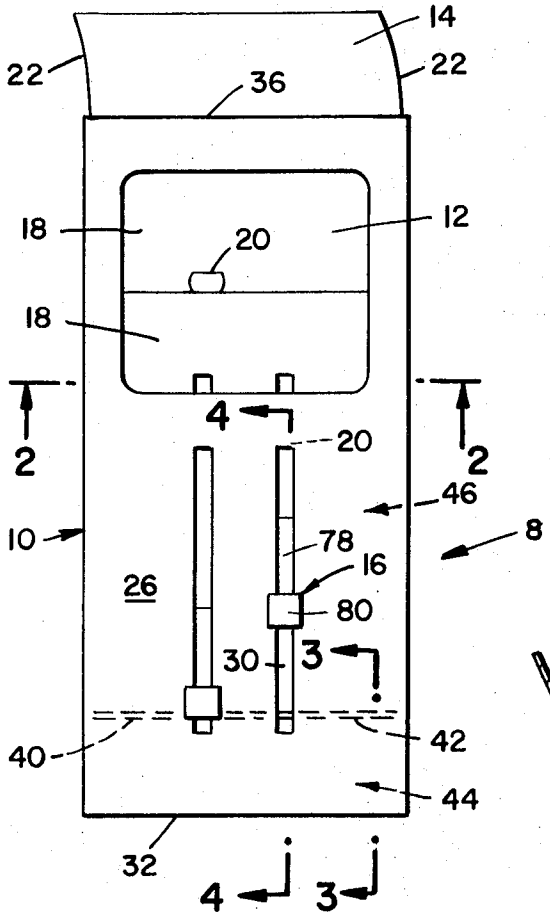


FIG_1

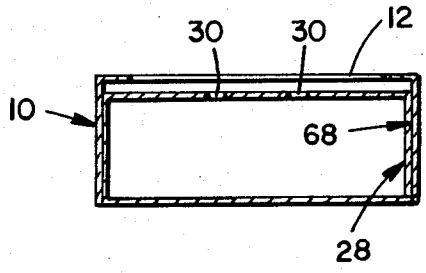


FIG_2

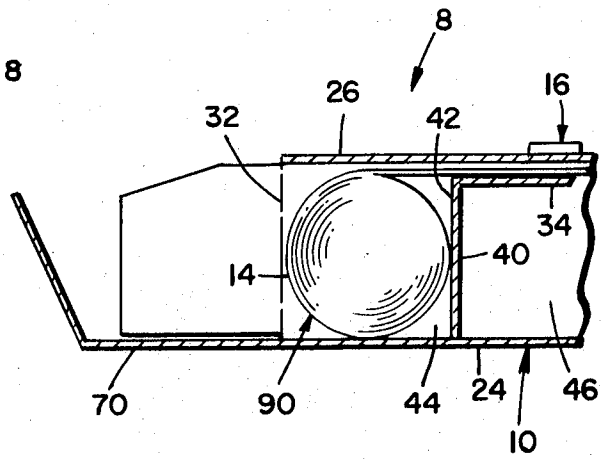


FIG_3

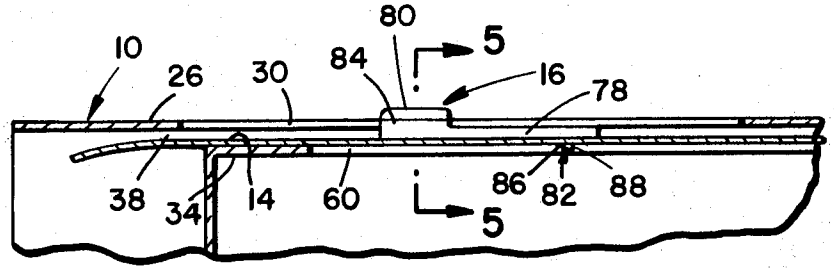


FIG_4

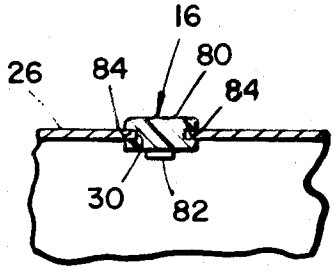


FIG_5

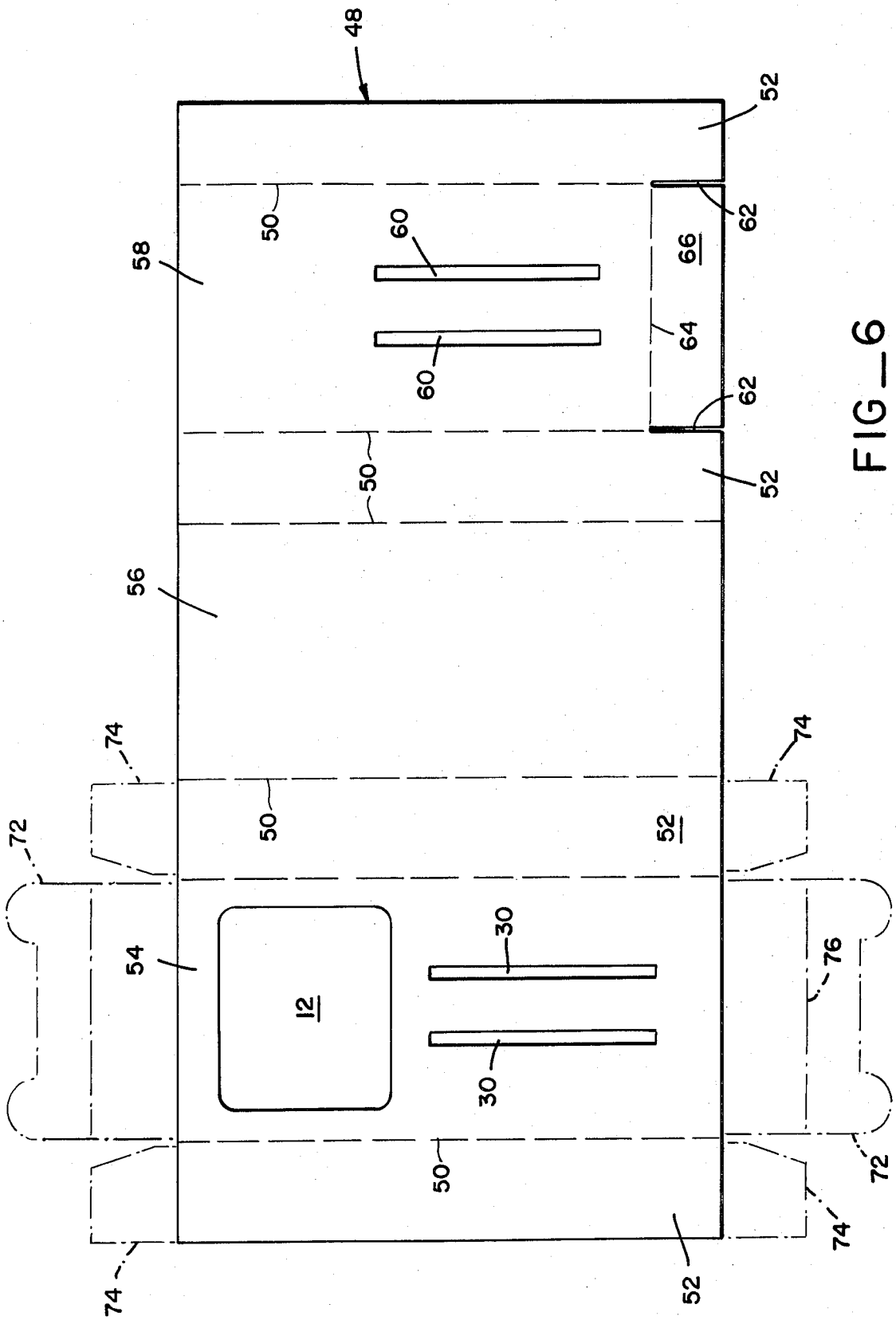

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FIG_6

APPARATUS FOR DISPLAYING A GRAPHIC MESSAGE

BACKGROUND OF THE INVENTION

Recently, devices have become available for sequentially displaying information in a viewing window. A highly successful design provides a box with a plurality of actuators for advancing a web stored on a cartridge within the box to display the information at a viewing window of the box. Commonly, the device is used as a teaching device employing the multiple answer system of teaching and testing. The device operates with advancing apertures on an elongate strip or web which is positioned so that only one of the plurality of actuating members can engage it and thereby advance the web. In this manner, the correctness or falsity of an answer can be determined.

The commonly owned, copending patent application Ser. No. 100,312 filed Dec. 21, 1970 and Ser. No. 100,313, filed Dec. 21, 1970, now U. S. Pat. No. 3,714,723 for HAND HELD TEACHING MACHINE disclose and claim the above-described device.

The device described and claimed in these patent applications has enjoyed great commercial success and effectiveness in teaching. It is adapted for changing it to various teaching programs and for that purpose provides an interchangeable cartridge. This versatility of the device, however, renders it too costly as a low-cost item that could be used, for example, as a promotional gift by retailers and the like or as a low-cost, disposable item for essentially one-time use.

SUMMARY OF THE INVENTION

The present invention provides a low-cost device for displaying a graphic message on an elongate web which has at least one web advancing aperture. Generally speaking the device comprises a rectangular box which has a width and a thickness permitting its manual holding. The box includes a box top and an interior partition located proximate an end of the box which divides the box into a relatively small first web storage compartment and a relatively large second compartment. A plate member is disposed interiorly of the box closely adjacent and parallel to the top and extends from the partition towards the other, remote box end. A space between the box top and the interior plate member communicates with the first compartment and permits advance of the web stored in that compartment to the remote box end through the space between the top and the plate member. Means is also provided for engaging the advancing aperture in the web and moving it from the first compartment towards and past the remote end for the display of the graphic message.

To render the device low cost the box, together with the plate member, the partition, covers for the compartments and the like are constructed of a single folded cardboard sheet and bonded together in their operative position. The elongate web is simply rolled up and placed in the storage compartment and the means for advancing the web comprises snap-on slides disposed in and guided by elongate slots in the box top which are positioned to engage the web advancing apertures.

The device of the present invention is simple and inexpensive to construct and it is made of readily disposable material such as burnable paper or cardboard. It

therefore lends itself ideally for low-cost applications. In addition, the device includes a second storage compartment which can be used for storing any desired item such as promotional literature, product samples or additional rolls of web material. The box has an appealing appearance and can be readily imprinted with advertising matter or the like. The device of the present invention thus ideally supplements prior art graphic display devices of the type disclosed in the above referenced copending patent applications and fills a long felt need.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a plan view, with parts broken away, of a graphic message display device constructed in accordance with the invention;

FIG. **2** is a cross-section through the device and is taken on line **2—2** of FIG. **1**;

FIG. **3** is a fragmentary cross-sectional side elevation and is taken on line **3—3** of FIG. **1**;

FIG. **4** is an enlarged, fragmentary cross-sectional side elevation and is taken on line **4—4** of FIG. **1**;

FIG. **5** is a cross-sectional front elevational view and is taken on line **5—5** of FIG. **4**;

FIG. **6** is a plan view of a cardboard blank that can be folded into a box for use with the device of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. **1** and **4**, a device **8** for the display of graphic messages broadly comprises a box **10** including a viewing cutout **12**, an elongate web or strip **14** of a flexible material such as paper and one or more web advancing members **16** mounted to the box for engaging the web and moving it in a longitudinal direction past the viewing cutout. The web is of a design similar to that disclosed in the above referenced patent applications, that is, it includes a plurality of picture frames **18** arranged end-to-end over the length of the web. The term "picture frame" means and includes frames having any type of graphic material such as written material, sketches, paintings, numbers, symbols, and the like.

For each frame the web includes a web advancing aperture **20** located adjacent a frame end or between frames at a fixed, predetermined lateral position on the web. There may be one or more predetermined lateral web positions for the advancing apertures as is more fully set forth below. For the display device illustrated in FIG. **1** the advancing apertures can be placed at one of two possible lateral aperture positions. This allows the use of the device for teaching by requiring the user to answer multiple choice questions in the same manner as is done with the devices disclosed and claimed in the above referenced copending patent applications. For the mere display of graphic messages, however, only one predetermined aperture location is necessary.

To improve the operating characteristics of the device, that is to improve the ease and accuracy with which the web can be advanced past the viewing cutout, it is preferred that the web advancing apertures **20** be recessed from web edges **22** and located towards a center of the web so that the advancing forces applied to the web are relatively centered with respect to the web width. Undesirable wedging of the web in the box is thereby eliminated.

Referring to FIGS. 1–4, box 10 broadly comprises a bottom 24, a top 26 and interconnecting sidewalls 28. The top includes the viewing cutout 12 and one or more elongate slots 30 which extend from a first box end 32 towards the viewing cutout. Disposed immediately beneath box top 26 is a backup sheet 34 that is parallel to the top and which extends from a second box end 36 towards but short of the first box end. Ends of the backup sheet are free while its sides are connected to sidewalls 28 to form a generally rectangular, thin space 38 that extends from the box interior proximate first box end 32 to about the second box end 36.

A partition 40 is disposed interiorly of the box and is preferably aligned with interior end 42 of backup sheet 34 to divide the box interior into a relatively small web storage compartment 44 and a relatively large compartment 46.

Referring to FIGS. 1, 2, 4 and 6, box 10 is constructed of low-cost heavyweight paper or light cardboard folded from a single cardboard blank 48. This renders the overall costs for the device sufficiently low to make its use as a disposable and/or promotional device commercially feasible. The cardboard has a width equal to the length of box 10 and includes six parallel spaced apart transverse fold lines 50. Going from left to right along blank 48 shown in FIG. 6, where the blank is folded 90° along its fold lines narrow cardboard sections 52 define box sidewalls 28. A first, wide section 54 includes viewing cutout 12 and slots 30 and ultimately defines box top 26; a second wide section 56 ultimately defines bottom 24 of the box, and a third wide section 58 ultimately defines backup sheet 34 of box 10. To space the backup sheet slightly apart from box top 26, the width of narrow sheet sections 52 on each side of wide section 58 is slightly less than the width of the narrow sheet section on each side of wide section 54.

Sheet section 58 also includes two elongate slots 60 (also shown in FIGS. 1 and 2), two short cuts 62 extending inwardly from the edge of sheet 48 distal from viewing cutout 12 and a short fold line 64 connecting the inner ends of the cuts. The length of cuts 62 equals the width of narrow sections 52 adjacent wide section 58 and when the sheet is folded into a box the sheet section 66 defined by cut 62 and fold line 64 is bent down to define partition 40.

Assembly of blank 48 into box 10 is conventional, that is it is manually or automatically folded along the fold lines and overlapping sheet sections 52 are secured to each other with staples (not shown), a bonding agent 68 or the like to retain the box configuration.

Covers 70 are provided for closing storage compartments 44 and 46. In the presently preferred embodiment of the invention the covers are also formed from blank 48 by providing corresponding tongues 72 and 74 as illustrated in phantom lines in FIG. 6. Fold lines are provided between the end of the tongues and the solid outline (in FIG. 6) of the illustrated blank 48. An additional fold line 76 enables the end portion of the tongue to be tucked into the box in a conventional manner.

As an alternative to constructing the covers integral with sheet 48 separate paper, cardboard or plastic snap-on covers (not shown) or the like can be provided. Furthermore, for applications in which the viewing device of the present invention is merely used for viewing and compartment 46 of box 10 is not utilized for storing additional objects, the cover for storage compartment 46 can be deleted. This further reduces the overall costs of the device.

Referring now to FIGS. 1, 2, 4 and 5, web advancing members 16 comprise an elongate, thin flat slide 78 disposed in space 38 between box top 26 and backup sheet 34, a pusher 80 integrally constructed with the slide and protruding through slot 30 and a protrusion 82 on the side of the slide opposite from the pusher. The slide has a width greater than the width of slot 30 and pusher 80 includes a pair of grooves 84, the bottom of which is spaced a distance equal to the width of slot 30. The grooves have a thickness to accommodate box top 26 to thereby secure the web advancing member to the box top and guide it along slot 30 without appreciable lateral motions. The downwardly depending protrusion 82 includes a sloped surface 86 and a face 88 that is perpendicular to the underside of slide 78.

The slide is elongate and protrusion 82 is positioned proximate an end of the slide remote from pusher 80. The web advancing member is preferably constructed of a relatively flexible material such as an injection molded plastic so that the end of the slide fitted with the protrusion can flex up and down with respect to the pusher 80.

Slots 60 of backup sheet 34 (also shown in FIG. 6) are parallel to and aligned with box top slots 30. Slots 60, however, are moved to the right, as viewed in FIG. 5, with respect to the slots in the box top and they have a sufficient width to accommodate the free movement of the downwardly depending protrusion 82 when the web advancing member 16 reciprocates in slot 30. Web 14 is positioned beneath slide 78 in space 38 and the web advancing apertures 20 and protrusion 82 are laterally aligned. Preferably, the protrusion is centered with respect to slide 78 and pusher 80 so that the web advancing aperture is aligned with slots 30, 60 in box top 26 and backup sheet 34.

The advancing member is readily installed by lifting a portion of box top 26 on one side of the slot and engaging it with one groove 84 on pusher 80. The portion of the box top defining the opposite side of the slot is also raised and slide 78 is wedged into the slot. Thereafter, the box top is released which automatically snaps the web advancing member into engagement with the box top to thereby automatically engage the actuating member with the box top.

In use forward movement of the web advancing member 16, that is movement of the member from first box end 32 towards cutout 12, or movement to the right as viewed in FIG. 4, causes protrusion 82 to snap downwardly when it is aligned with a web advancing aperture. Further movement of the advancing member moves the web forward. The slots are dimensioned so that when pusher 80 arrives at the end of slot 30 proximate to cutout 12 a frame 18 is aligned with, that is fully exposed in viewing cutout 12. The opposite end of the slot is positioned so that return movement of the web advancing member towards first box end 32 moves protrusion 82 at least into alignment with and preferably slightly past the next web advancing aperture on the web. It will be noted that the return movement of the advancing member automatically disengages protrusion 82 from the web since the sloped protrusion glides upwardly on the edge of the web advancing aperture. This deflects slide 78 upwardly until the protrusion clears the aperture. The next frame can be displayed at

cutout **12** by again moving advancing member **16** forwardly towards the cutout as described above.

Although the device illustrated in the drawings is shown provided with two web advancing members **16** for certain applications a single advancing member suffices. For example, where the device is used to merely display a series of pictures or photographs, a single actuating member which is preferably centered on box top **26** suffices. For such an application web advancing apertures **20** are centered on the web, that is, the apertures predetermined location is on the web centerline for proper engagement by protrusion **82** of slide **78.** For applications in which the user is to make a choice, as for applications in which he is to answer a miltiple choice question by operating one or another web advancing member and in which the correctness of the answer is determined by whether or not the operation of the actuating member actually advances the web, two actuating members, shown in FIG. **1,** or more (not separately shown) can be provided. They are constructed as described above and positioned side by side. In such instances the advancing aperture for any given frame is aligned with one of the actuating members substantially as described in the above referenced copending patent applications.

Referring now to FIGS. **1–6,** the device of the present invention is used by rolling web **14** into a roll **90** and placing the roll in web storage compartment **44.** The end of the web is threaded into space **38** between box top **26** and backup sheet **34** and pushed forwardly until the first frame **18** is lined up with viewing cutout **12.** The actuating members are then retraced towards first box end **32** and cover **70** is closed to securely retain the rolled up web in the web storage compartment. Objects such as additional rolls of web **14,** advertising material, product samples or the like can be stored in the other compartment **46** which is also closed with a cover **70.** As mentioned above, the cover can be deleted if nothing is to be stored in compartment **46.** When desired the user advances one or the other web advancing member **60** to align a new frame **18** with the viewing cutout. Web issuing from second end **36** of the box can be cut off or diverted into compartment **46.**

I claim:

1. A hand held apparatus for the display of graphic messages on an elongate web comprising an elongate box having a generally rectangular configuration defined by a top element, a bottom element and interconnecting opposing sides, a transverse partition within the box and normal to the two opposed sides so as to define a storage compartment for the web and another compartment, a backup plate disposed within the box and spaced from the top element so as to define therebetween a narrow gap parallel to said top element, the plate extending over a major portion of the box length and being secured to the box sides and terminating adjacent a first end of the box at the storage compartment so that the web can pass from the storage compartment into said gap, the top element including a cutout adjacent a second end of the box for displaying the messages impressed along said web, the top element further including an elongate, relatively narrow slot located between the cutout and the first end of the box, means defined by the box providing access to said another compartment from the exterior of the box, and means disposed along and movable in the slot, said means being adapted to engage the web and advancing it in the direction of the slot, the web engaging means including further means embracing the top element so as to retain the engaging means in the slot during its movements in the slot, whereby actuation of the engaging means with a web disposed in the gap advances the web for displaying graphic messages consecutively through the cutout.

2. Apparatus according to claim **1** wherein the top element of the box is defined by a one-piece, resiliently deformable sheet, and wherein the engaging means comprises a one-piece actuator defined by an elongate, cantilevered, relatively thin slide disposed in the space and having a width greater than the width of the slot, a push head disposed on the exterior of the top also having a width greater than the slot, and means connecting the slide and the push head and spacing the two a distance at least about equal to a thickness of the top element for retaining the engaging means to and guiding it in the slot.

3. Apparatus according to claim **2** wherein the connecting means has a width substantially equal to the slot width to prevent lateral movements of the engaging means.

4. Apparatus according to claim **2** wherein the web has at least one web advancing hole at a predetermined lateral position on the web, wherein the gap has a width substantially equal to the web width to control the lateral position of the web in the gap, and wherein the slide includes a protrusion projecting towards the backup plate, and wherein the relative lateral position of the slot is selected to laterally align the protrusion with the advancing aperture.

5. Apparatus according to claim **4** including an elongate slit in the backup plate extending parallel to the slot, positioned and dimensioned to accommodate the reciprocal protrusion.

6. Apparatus according to claim **2** wherein the web includes a plurality of web advancing apertures positioned at a plurality of predetermined lateral locations on the web, and including a plurality of web engaging means and a like plurality of slots in the top element located to position the protrusions in lateral alignment with the plurality of predetermined aperture locations on the web.

7. Apparatus according to claim **1** wherein the engaging means comprises an elongate slide disposed in the gap, an actuator adjacent an end of the slide, and elongate, parallel grooves on opposing sides of the actuator spaced apart a distance about equal to the slot width for guiding the actuator in the slot.

8. A device for displaying graphic messages and storing objects comprising: a folded elongate box constructed of a folded flexible sheet and having a bottom, upright sides and a double top defined by an inner and an outer juxtaposed section and defining a space therebetween, a transverse partition proximate to but spaced from a first end of the box dividing the box interior into first and second storage compartments, said space communicating with the first compartment, and cover means for closing at least the first storage compartment, the outer section including a viewing cutout adjacent a second end of the box, and an elongate slot extending longitudinally within said double top from adjacent the first end towards the cutout, a rolled up length of web exceeding the length of the box disposed in the first compartment, the web having a plurality of serially arranged graphic messages on one major side thereof

and extending from the first compartment into said space for longitudinal web movement along the space past the cutout, for displaying the message at the cutout, viewable from the exterior of the box, the web including a web advancing aperture for each separate graphic message, the web advancing apertures spaced from the web edges and located at a predetermined lateral web position in substantial alignment with the slot when the web is disposed within said space, and means defining a reciprocally movable web advancing member including a flat flexible slide within said space having a protrusion facing the inner section for engagement and release of the web advancing apertures during each reciprocal movement of the advancing member, a width exceeding the width of the slot, a pusher outside the outer section and means projecting through the slot connecting the slide with the pusher whereby reciprocating motion of the pusher engages successive advancing apertures and incrementally advances graphic messages for display at the cutout.

9. Apparatus according to claim **8** wherein the box is made of a single folded cardboard sheet.

10. Apparatus according to claim **9** wherein the interior section extends over the second compartment and terminates at the partition for communicating the space with the first compartment.

11. Apparatus according to claim **10** including slots in the inner section for accommodating the reciprocating protrusion.

12. Apparatus according to claim **8** wherein the slide has a thickness slightly greater then the thickness of the space to generate friction and prevent unintentional movements of the web and the advancing member.

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