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AUDIO VISUAL EXHIBITOR

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2 Sheets-Sheet 2

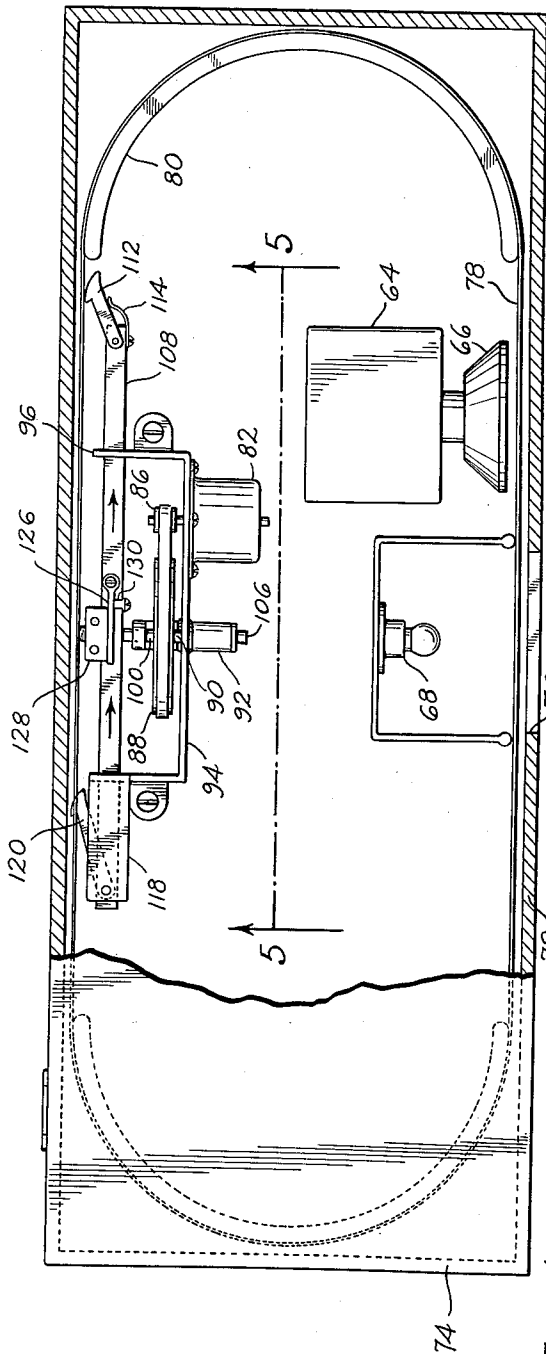


Fig. 4.

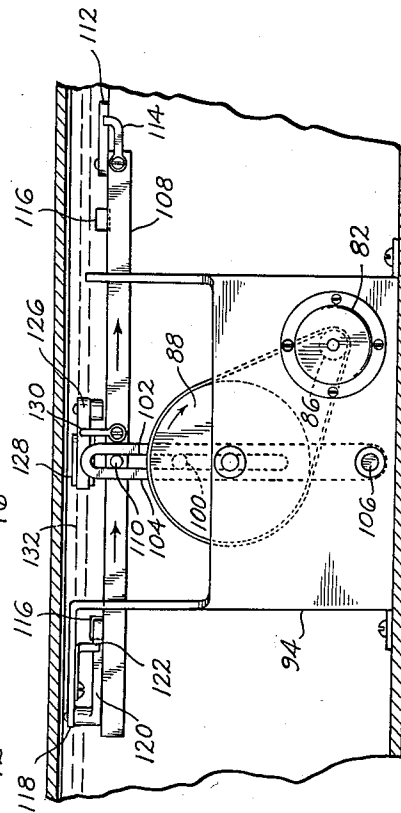


Fig. 5.

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AUDIO VISUAL EXHIBITOR

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10 Claims. (Cl. 35—8)

This invention relates to an exhibiting device, and more particularly pertains to a device having both audio and visual means and intended for educational or entertainment purposes.

A particular object of the present invention is to provide an exhibiting device having a novel structural arrangement accomplishing an improved presentation of images for education or entertainment purposes.

Another object is to provide an exhibiting device having novel image carrier and drive means for successively moving images into an exhibiting area for momentary viewing and while retained in the exhibiting area to emit an identifying audible message.

A still further object is to provide an exhibiting device of the type described which is simple in structure, effective in operation, and inexpensive to manufacture.

Briefly stated, the exhibiting device of the present invention has a movable carrier on which is provided images intended for viewing. This carrier is supported in a housing having a defined exhibiting area in which the images are inspected. The carrier is driven by novel drive means adapted to advance the carrier sequentially for momentary and successive showing of the images on the carrier. Associated with the carrier and the drive means are audio means adapted to emit a message in a selected phase of operation of the drive means.

The invention will be better understood and additional objects thereof will become more apparent from the accompanying specification and claims considered together with the accompanying drawings, wherein like numerals of reference indicate like parts, and wherein:

FIG. 1 is a front elevational view of a first form of the present invention, parts being broken away for illustrating internal structure;

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1, showing a drive connection between the drive means and the movable carrier;

FIG. 4 is a top plan view of a second form of the invention with parts broken away for illustrating internal construction; and

FIG. 5 is a fragmentary sectional view taken on the line 5—5 of FIG. 4.

Referring now more particularly to the drawings, the embodiment of FIGS. 1-3 comprises a housing 10 having a front cover 12 hinged to the housing by hinge means 14. Front cover 12 is provided with an upper window or aperture 16 which as will be seen comprises an exhibiting area.

Pivotally supported on the back side of cover 12 by means of a central spindle 18 is a disc-shaped carrier 20 having images 22 on one or both faces thereof, the images 22 being suitable for the intended purpose and may comprise letters, numbers, colors, days of the week, months, pictorial illustrations, or the like. The images are circumferentially arranged on the carrier and the window 16 in the front cover is positioned whereby such images are visible therethrough. Carrier 20 is spaced from the cover 12 by bent tabs 24 and a base 26 for spindle 18.

Carrier 20 is adapted to be rotated on its spindle in sequential operations whereby the images 22 are moved successively into the window 16 and are caused to re-

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main therein momentarily while an audio message is emitted.

The drive means for advancing the carrier sequentially comprises a motor 28 having a crank arm 30 fixedly secured to the output shaft of the motor for rotation therewith. Crank arm 30 has an integral drive pin or projection 32 at its outer end. Rotatably supported on a spindle 36 integral with the back wall of the housing is a carrier drive arm 38 having a longitudinal slot 40 spaced from the pivot point 36 of the arm and receiving in slidable engagement the drive pin 32. It will be apparent that upon operation of the drive motor 28, crank arm and its pin 32 will oscillate the carrier drive arm 38 on its pivot 36, the direction of rotation of the arm 30 being shown by the arrows 42 in FIG. 1.

A drive connection is established between arm 38 and the carrier 20 for rotating the latter in one direction only by means of a pivoted ratchet dog 46 mounted on the arm 38, FIG. 3, and adapted for engagement with apertures 48 in the carrier 20, the ratchet dog being biased toward the carrier by a spring 50. Upon oscillation of the arm 38 in a forward direction, e.g. from left to right, FIG. 1, the dog 46 engages an aperture 48 and rotates the carrier through one sequence, the images 22 being positioned selectively so as to be located centrally in the window upon the completion of a sequence of operation of the drive arm. Upon oscillation of the arm 38 in the opposite or return direction, the dog 46 automatically disengages from such aperture. The apertures are arranged such that the dog will be adapted to pick up a following aperture at the end of its return movement for accomplishing the next movement of the carrier.

A second ratchet dog 52 is supported on a post 54 attached to the back wall housing 10. This dog has the same construction as dog 46 and also is positioned in circumferential alignment with the apertures 48. Dog 52 is reversed in direction from the dog 46 however and serves to anchor the carrier in a stationary position when the drive arm is returning.

Disposed on the back surface of the carrier 20 and preferably adjacent the circumferential outer edge is a sound track 56 such as conventional phonograph grooves or a recording tape, and supported on the free end of the arm 38 for engagement with such sound track is an audio pickup head 58. The head 58 is secured to an arm 60 hinged to arm 38. A spring 62 is interposed between the arms 38 and 60 to bias the head 58 into engagement with the sound track, such resilient mounting of the head providing constant engagement of the latter with the sound track even though the carrier may be warped.

Head 58 is a circuit connected with a suitable amplifier unit 64 including a speaker 66 and one or more control knob shafts 68 which project exteriorly of housing 10.

Sound track 56 has recorded portions thereon positioned selectively such that an identifying or descriptive audio message is emitted during the return, or right to left oscillating movement, of the arm 38. Therefore, in operation of the present device, wherein the drive motor 28 operates continually, the carrier will be rotated in its various sequences by the forward oscillating movement of the drive arm and in each return movement of the arm, wherein the carrier is stationary and an image 22 is retained in the window 16, a message relating to the image in the window is emitted.

A lamp 68 may be provided interiorly of the housing 10 behind the opening 16 to illuminate the image 22. It is to be understood that various types of images may be

provided, such as cut-out portions, paintings, transparencies, or the like.

In mounting a carrier 20 on the device, the front cover 12 is pivoted downwardly on its hinge 14 and the carrier placed on the spindle. The cover is then closed, the carrier automatically engaging the ratchet dogs and the audio pickup head. Images 22 and sound tracks 56 may be provided on both sides of the carrier.

The embodiment of FIGS. 4 and 5 employs a housing 72 having a hinged lid 74, the front wall of the housing having a window or aperture 76 therein. This embodiment employs a band or belt type carrier 78 upon which suitable images such as those designated as 22 in the FIG. 1 embodiment may be provided. Carrier 78 is adapted to be rotated around arcuate end guides 80 and preferably is edge supported on the bottom wall of the housing in its rotational movement.

Drive means for sequentially advancing the carrier 78 comprises a drive motor 82 the output shaft of which carries a pulley 86 for belt driving an enlarged pulley 88 on a shaft 90 journaled in a suitable bearing 92, such bearing being supported on an interior frame member 94 secured to the bottom wall of the housing and having rearwardly extending flange portions 96.

Pulley 88 has a rearwardly extending, integral pin or projection 100 offset from the center thereof. This pin engages a longitudinal slot 102 in a carrier drive arm 104 pivotally mounted at its lower end by means of a pin 106 on frame member 94. Slidably mounted in flange portions 96 is a slide bar 108 having an integral pin 110 engageable in slot 102 of drive arm 104. Operation of the drive motor 82 will, through the medium of pulley 88 and pins 100, 110, oscillate the drive arm 104 and therefore the slide bar 108.

Pivotally mounted on one end of the slide bar 108 is a ratchet dog 112 biased toward the adjacent portion of the carrier 78 by means of a spring 114. Carrier 78 is provided with a plurality of dog engaging apertures 116 suitably spaced whereby upon oscillation of the slide bar 108 ratchet dog 112 picks up an aperture to advance the carrier 78 a selected amount.

One of the flanges 96 is provided with a horizontally extending auxiliary flange 118 from which pivotally depends a dog 120 biased toward the adjacent portion of the carrier 78 by means of a spring 122, the dog 120 being arranged to prevent reverse movement of the carrier upon retracting movement of the drive dog 112.

Pivotally mounted on the slide bar 108 is an arm 126 which supports an audio pickup head 128, a spring 130 engaging arm 126 to urge the head 128 into constant engagement with the carrier 78. Carrier 78 has a sound track 132 thereon disposed in a position for engagement by the head 128, and similar to the embodiment of FIG. 1 and identifying or descriptive audio message is emitted during the return movement of the slide bar 108. This embodiment also employs a suitable amplifier 64 and speaker 66 in circuit with the head 128, and further employs suitable illuminating means such as a lamp 68.

Thus, in accordance with the present invention, there is provided apparatus which may have many uses, one of which is to teach children to associate images with audio identification thereof such as the alphabet. By means of the present apparatus, it will be apparent that upon oscillation of the carrier drive arms, the image is first moved into an opening for visual inspection, and it remains stationary in such opening while the drive arms make their return audio actuating oscillation.

It is to be understood that the forms of my invention herein shown and described are to be taken as preferred

examples of the same and that various other changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

For example, various types of sound tracks and pick-up means may be employed. Also, multiple identical adjacent grooves may be provided in the sound track to ensure engagement by the pickup head. The carriers may be in the form of a phonograph record with the sound track comprising grooves cut directly therein.

Having thus described my invention, I claim:

1. An exhibiting apparatus comprising means defining an exhibiting area, a movable carrier adjacent the exhibiting area and having images positioned for movement into the exhibiting area, a sound track on the carrier, index means on the carrier, drive means engageable with the index means for moving the carrier sequentially and positioning the images intermittently in the exhibiting area for viewing, and audio pick-up means movable with the drive means and engageable with the sound track, the audio pick-up means being adapted to emit an audible message during the retention of an image in the exhibiting area.

2. The exhibiting apparatus of claim 1 wherein the index means comprises a plurality of spaced apertures.

3. The exhibiting apparatus of claim 1 wherein the index means comprises a plurality of spaced apertures, and the drive means includes ratchet means engageable with the apertures.

4. An exhibiting apparatus comprising means defining an exhibiting area, a movable carrier adjacent the exhibiting area, the carrier having a sound track thereon and carrying images positioned for movement into the exhibiting area, index means on the carrier, oscillating drive means adjacent the index means having forward and return movements, the drive means being adapted in its forward movement to engage the index means for ratcheting the carrier sequentially and positioning the images momentarily in the exhibiting area for viewing, and audio pickup means on the drive means engageable with the sound track, the sound track including spaced recorded portions positioned for engagement by the audio pickup means in the return movement of the drive means.

5. The exhibiting apparatus of claim 4 wherein the index means comprises a plurality of spaced apertures.

6. The exhibiting apparatus of claim 4 wherein the index means comprises a plurality of spaced apertures, and the drive means includes ratchet means engageable with the apertures.

7. The exhibiting apparatus of claim 4 wherein the drive means includes a pivoted arm, and power means for pivoting the arm in oscillating forward and return movements.

8. The exhibiting apparatus of claim 4 wherein the drive means includes a pivoted arm, a rotatable lever having a projection pivotally and slidably connected to the arm at a point spaced from its pivot point, and power drive means for rotating the lever to pivot the arm in oscillating forward and return movements.

9. The exhibiting apparatus of claim 4, wherein the carrier comprises a rotatable disc.

10. The exhibiting apparatus of claim 4 wherein the carrier comprises an endless belt.

References Cited in the file of this patent

UNITED STATES PATENTS

2,319,046	Druce	May 11, 1943
2,618,197	Boushey	Nov. 18, 1952