

[54] **EDUCATIONAL TOY WITH PHONOGRAPH**

[72] Inventors: **Gordon A. Barlow**, Evanston; **Marvin I. Glass**, Chicago, both of Ill.

[73] Assignee: **Marvin Glass & Associates**

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[51] Int. Cl. .... **G09b 5/06**

[58] Field of Search ..... **35/8 A, 35 C; 40/28.1, 340; 274/1 A, 9, 9 B, 42 P, 42**

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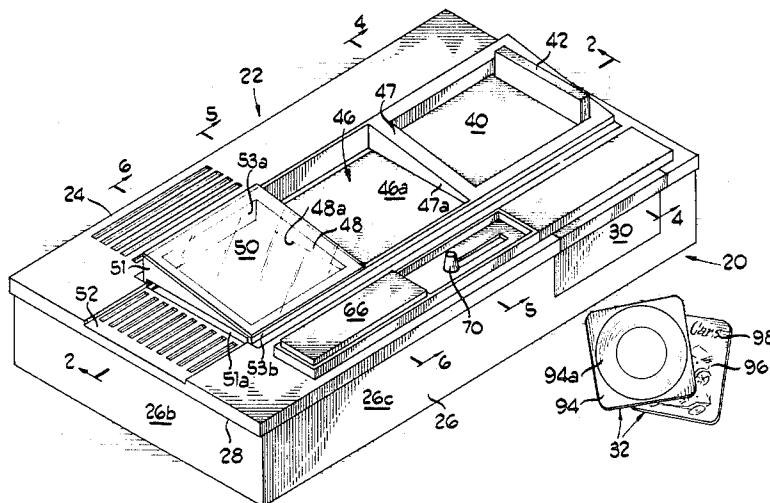
*Primary Examiner*—Wm. H. Grieb

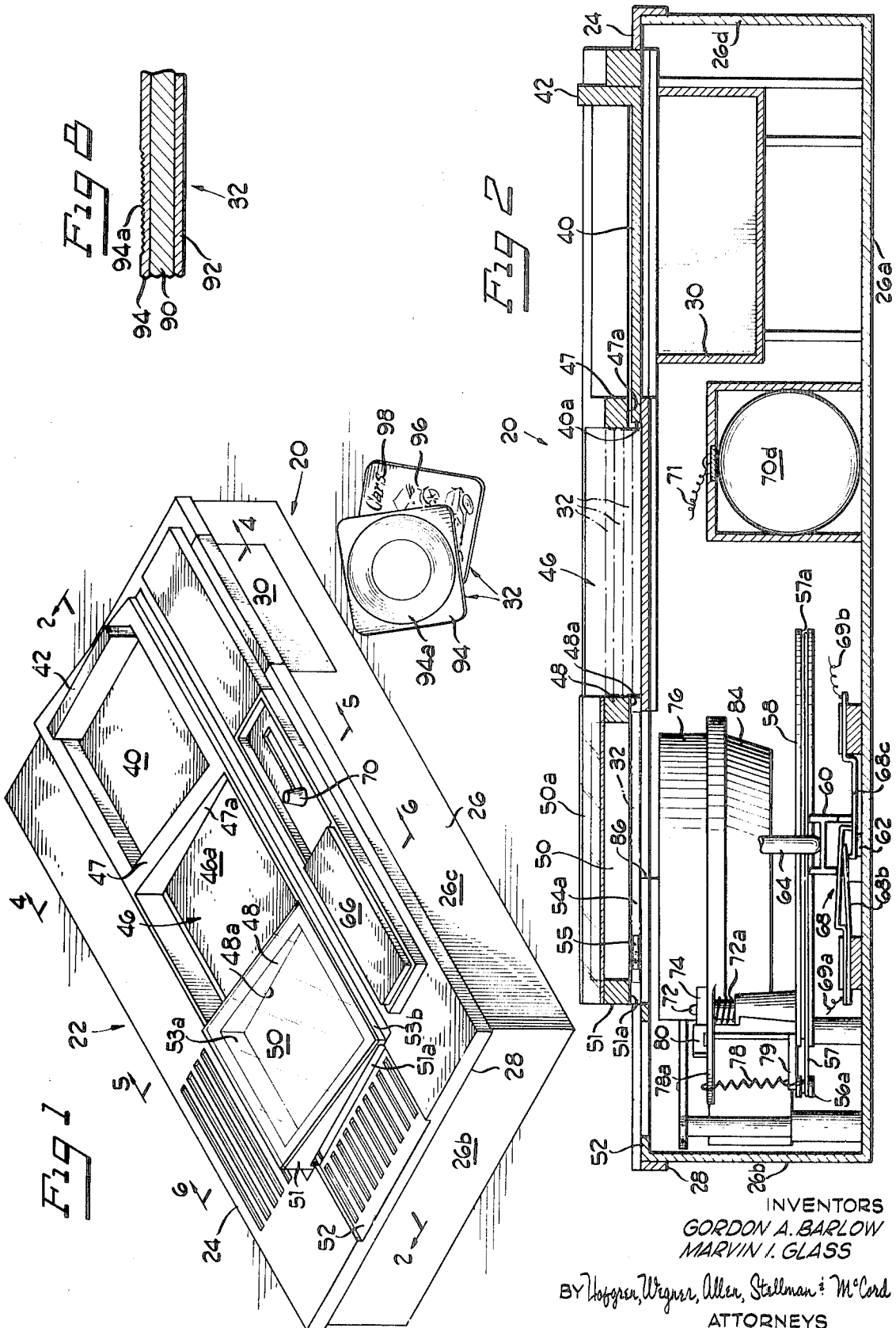
*Attorney*—Hofgren, Wegner, Allen, Stelman & McCord

[57] **ABSTRACT**

A child entertainment and instruction toy including a sound reproducing phonograph mechanism characterized by the provision of a cardlike information conveying element having the usual helical record grooves on one side thereof and a readily perceived matter on the other side such as text matter, pictures or surface characteristics perceived by touch; and a phonograph mechanism for use therewith of the type having a rotating stylus which moves vertically upwardly to track in the grooves of the card, with the card presented for sound reproduction with the grooves facing downwardly and the side having the readily perceived matter presented face up to view and/or touch.

**4 Claims, 8 Drawing Figures**

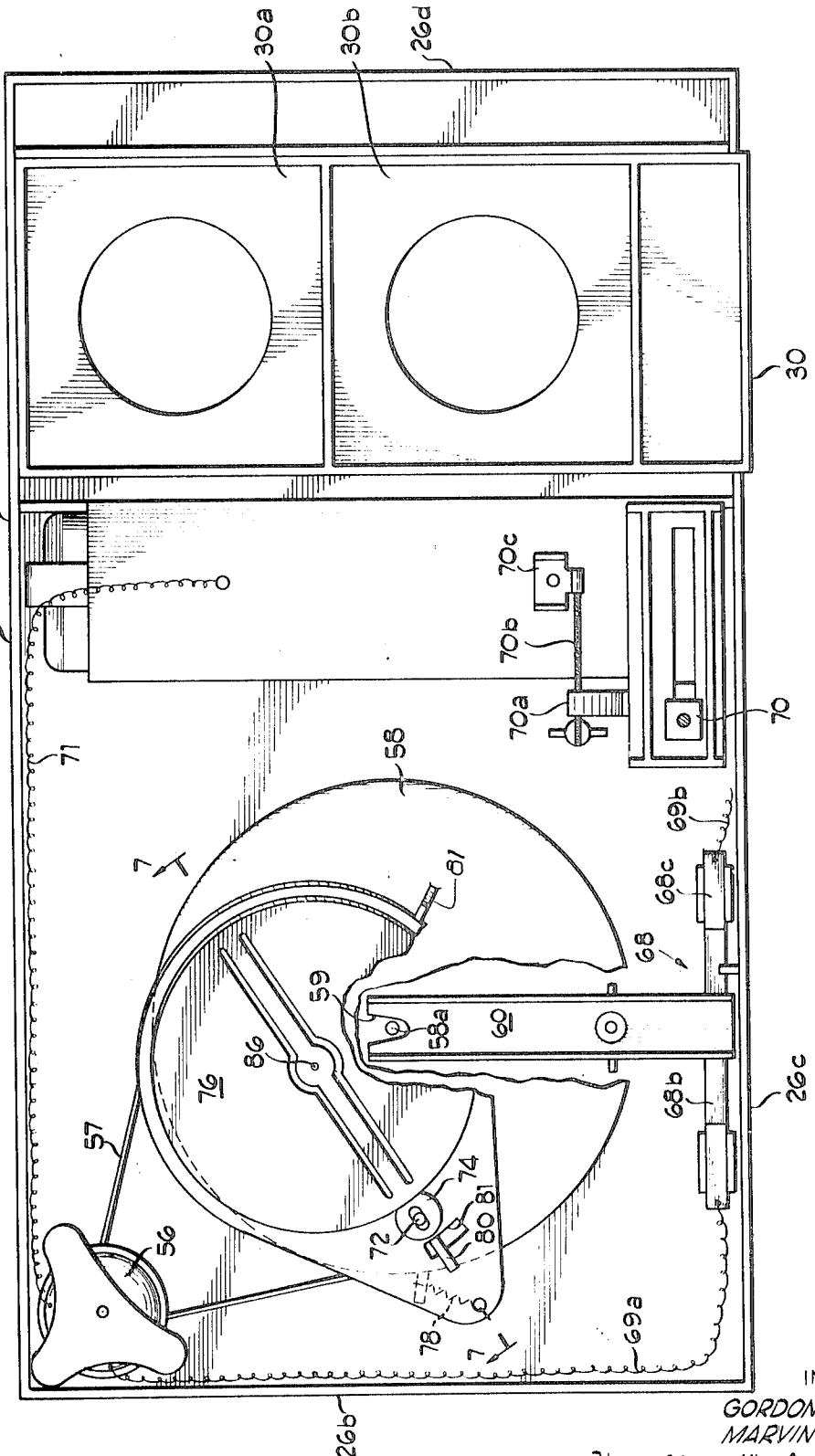




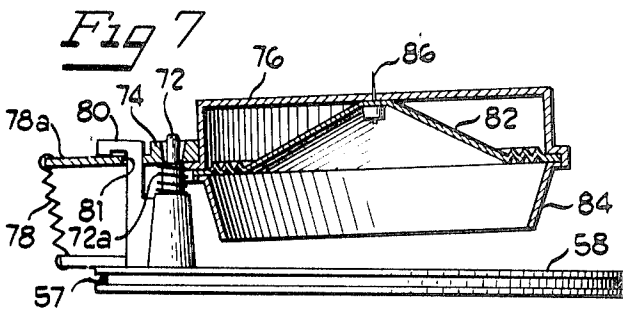
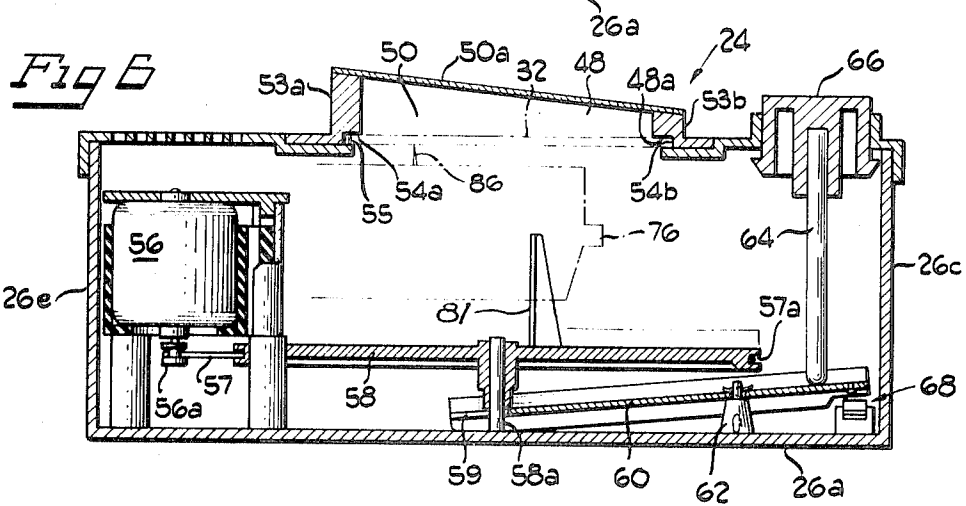
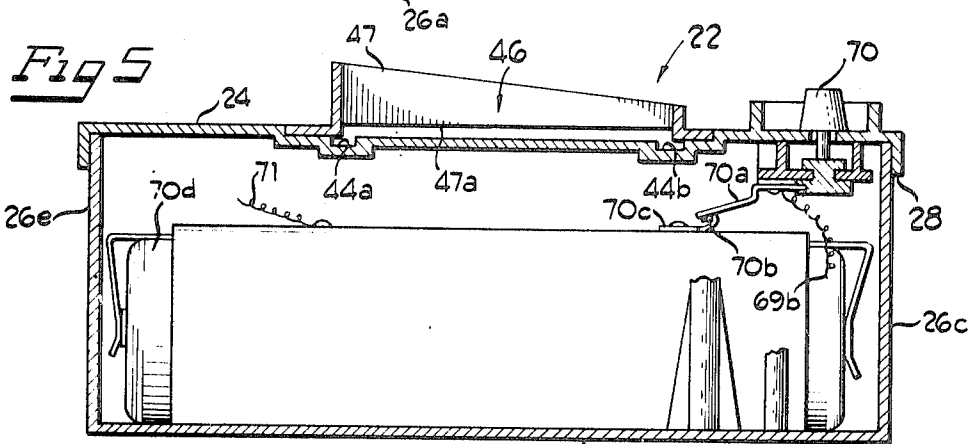
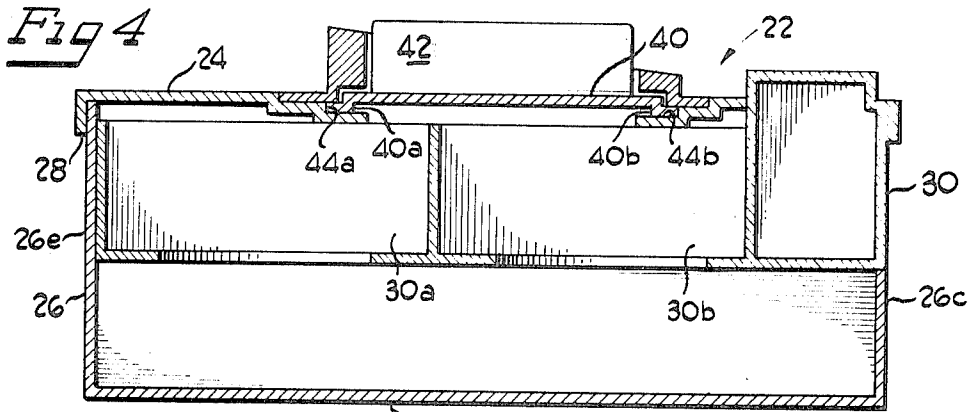
INVENTORS  
GORDON A. BARLOW  
MARVIN I. GLASS

BY *Hoffman, Wegner, Allen, Stallman & McCord*  
ATTORNEYS

Fig 3



INVENTORS  
GORDON A. BARLOW  
MARVIN I. GLASS  
BY *Hoffman, Wegner, Allen, Stallman & McCord*  
ATTORNEYS



INVENTORS  
GORDON A. BARLOW  
MARVIN I. GLASS

BY *Hoffgren, Wegner, Allen, Stillman & McCord*  
ATTORNEYS

## EDUCATIONAL TOY WITH PHONOGRAPH

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

This invention relates to child entertainment and instruction devices, and more particularly, to a phonograph type entertainment and instruction device utilizing both audio and visual and/or touch presentation during the use thereof.

## 2. Brief Description of the Prior Art

Over the years there have been developed smaller, simplified phonograph players for use by children. Such players are typically of lower sound reproducing quality but, more importantly, less delicate and more capable of withstanding the usual jolts and slight abuse given thereto during use by children. Moreover, the sound reproducing quality of such players is more than adequate for its intended use with children who are not as interested in sound reproduction which precisely duplicates the original "live" presentation.

In recent years, developments have been made in combined audio-visual presentations utilizing the simplified child use phonographs. A popular form of this presentation comprises a separate pamphlet or book with pages thereof keyed to tracks of a record and page index mechanism on a phonograph player housing for maintaining association between the book pages and the record tracks. Another form includes a transparency in the center of a record which remains stationary during the play. Light projected from the underside of the record through the transparency displays the image during the play of the record. Still another form of an audio-visual child phonograph unit utilizes small tile-like cards in association with relatively lateral tracking between the card and the stylus for brief audio messages relating to minimal visual representation on the tile-like card.

## SUMMARY OF THE INVENTION

This invention is directed, in brief, to the provision of an improved child entertainment and instruction phonograph of the type wherein audio and visual presentation is obtained from a common element.

The best mode currently contemplated for carrying out the invention includes the provision of a phonograph mechanism wherein there is a loading station, a laterally adjacent record playing station and an opposite laterally adjacent pusher member. The record elements are enlarged cardlike elements with phonograph grooves on one side and graphic matter in the form of pictures or text on the other side. The playing station includes a rotatable stylus which faces upward.

In use, it is intended that the record will be placed in the loading station with the grooves facing downwardly and the visual matter facing upwardly. The record will then be pushed laterally by the pusher to the playing station. Following this, the stylus moves upwardly to track in the grooves on the underside of the record and reproduce the message thereof while the entire top face affords a visual presentation exposed to view.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an embodiment of the invention;

FIG. 2 is an enlarged section along line 2—2 of FIG. 1;

FIG. 3 is an enlarged top plan view of the device of FIG. 1 with the top housing or casing portion removed and internal parts broken away to show other structure;

FIG. 4 is an enlarged section along line 4—4 of FIG. 1;

FIG. 5 is an enlarged section along line 5—5 of FIG. 1;

FIG. 6 is an enlarged section along line 6—6 of FIG. 1 with the stylus and speaker cone removed;

FIG. 7 is a section through a portion of the sound reproduction system showing the stylus and speaker cone and mounting system; and

FIG. 8 is an enlarged section through a record which can be played by the device of FIG. 1.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a specific embodiment thereof, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated.

## BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

The child entertainment and instruction device 20 of this invention includes a housing generally designated 22 preferably being of a suitable rigid, durable material, such as a hard plastic or the like. Housing 22 comprises a cover 24 which overlies a generally rectangular boxlike base 26. Base 26 has a substantially flat bottom 26a for resting upon a supporting surface and upright side walls 26b, 26c, 26d and 26e. Cover 24 has a depending peripheral flange 28 which overlies the top portion of each of the side walls 26b, 26c, 26d, and 26e of base 26 when the base and cover are assembled together as seen in FIGS. 1, 2 and 4 through 6.

The housing 22 includes a drawer 30 which includes storage compartments 30a and 30b in the interior of base 26 wherein elements 32 intended for use with the device of this invention may be stored. Elements 32 are information presenting elements which will be described in detail later herein and, for the purposes of simplicity, are hereinafter generally referred to as "records."

The housing 22 includes a record delivery member or pusher 40 which is a generally flat, planar member of substantially rigid material, such as a plastic material compatible with the remainder of housing 22. The free end 40a of pusher 40 is intended for engagement with records 32 to push the same laterally as will be described. Opposite sides of the pusher 40 have depending offset flanges 40a and 40b and the opposite end has an upstanding handle 42 for grasping by a user to move the pusher element 40 to and fro. Cover 24 has laterally extending depending guides 44a and 44b of a size and shape to receive the depending offset flanges 40a and 40b, respectively, of pusher element 40. The depending guides 44a and 44b extend through the area of record receiving station 46 to provide a track means for the lateral traversal thereof between a retracted position, shown in FIG. 1, and an extended position wherein the pusher occupies a substantial portion of record receiving station. A partition or web 47 normally separates the record receiving station 46 from the record delivery element when the pusher 40 is in the retracted position with the partition 47 having a slot 47a in the underside thereof for permitting the lateral traversal of a pusher 40 into the area of the record receiving station 46.

Generally speaking, the record receiving station comprises a flat, planar surface 46a which is vertically offset from the pusher 40 a distance substantially equal to the thickness of a record 32 intended to be used with this invention. An upstanding web 48 having a slot 48a in the underside thereof separates the record receiving station 46 from the record playing station 50 which is laterally adjacent the record receiving station on the side opposite from the pusher 40 when the pusher is in the normal retracted position.

Record playing station 50 includes a viewing window 50a through which the record is positioned thereat may be viewed. Upstanding web 51 opposite the web 48 has a slot 51a in the underside thereof to permit the exit of records from the record playing station onto the area of the laterally adjacent recessed shelf 52 in the cover 24. In addition, the record playing station has opposed side walls 53a and 53b which complete the enclosure defined thereby. Slots 54a and 54b in the underside of opposed side walls 53a and 53b are spaced apart a distance substantially sufficient to grasp opposed sides of a record 32 to be positioned at the record playing station 50. To insure secure registration and holding of records 32 between the slots 54a and 54b at the record playing station 50, small holding or urg-

ing elements, here shown in the preferred form as leaf springs 55, may be provided in one or both of the slots 54a and 54b to bear in opposition against opposed sides of records 32 and hold the same against unintended movement relative to the record playing station 50.

As seen in FIGS. 3 and 6, an electric motor 56 is mounted in the base 26 and has a rotatable drive shaft 56a. Drive shaft 56a drives belt 57 which is in engagement with a peripheral groove 57a in disc 58. Disc 58 is mounted for rotation on a pin 58a which extends through the slotted end 59 of lever 60. Lever 60 is tiltably mounted on fulcrum member 62 which extends upwardly from bottom 26a of base 26. A plunger 64 extends downwardly into engagement with the end of lever 60 opposite from the slotted end 59 and is connected to a press bar 66 which is vertically slidably mounted in the cover 24 adjacent to playing station 60. Downward movement applied to the press bar 66 causes the lever 60 to tilt or pivot about fulcrum 62 and raise the end having slot 59 through which the pin 58a of disc 58 extends, thereby raising the disc 58 and components connected thereto as will be explained.

A limit switch 68 underlies the lever 60 at the end adjacent the engagement of plunger 64. During depression of the plunger 64, the lever 60 engages switch 68 to close contacts of switch 68 and initiate the flow of current through the electrical circuitry supplying power to the motor 56 to initiate the rotatable drive of disc 58. Switch contacts 68b and 68c are connected to lead wires 69a and 69b, respectively, with lead wire 69a connected to motor 56 and lead wire 69b connected to slide switch 70 which projects to the exterior of the cover 24. Slide switch 70 includes a wiper arm 70a to which wire 69b is connected. Arm 70a is in engagement with a coil 70b associated with a post 70c on power source or battery 70d within the interior of base 26. Wire 71 leads from battery 70d to motor 56 to complete the circuitry. Arm 70a and coil 70b provide a rheostat in the circuitry to change the amount of power supplied to the motor. Thus, when the slide switch 70 is in the extreme left position as viewed in FIG. 1, the least amount of power will be supplied through the circuitry and when the arm 70a is in the rightmost position or adjacent post 70c, the greatest amount of power will be supplied to the motor. By this arrangement the rate of speed at which the turntable is to spin can be changed. Thus, to initiate the driving action of the motor 56, plunger 66 must be depressed so that contacts 68b and 68c may be closed to complete the circuitry therethrough to the motor 56 and the rate of speed at which the motor will drive the turntable will be determined by the position of wiper arm 70a on coil 70b.

As best seen in FIGS. 2, 3 and 7, an upstanding pivot pin 72 is mounted on disc 58 provided with a reduced upper end for receiving a torsion and compression spring 72a. The upper end of pivot pin 72 impales a flange 74 attached to speaker housing 76 to thereby mount speaker housing 76 in flange 74 pivotally with respect to pin 72. Spring 72a normally biases speaker housing 76 upwardly or to a "playing" position. A tension spring 78 extends from a mounting 78a at the extreme end of flange 74 to an anchor 79 on disc 56 to normally urge speaker housing 76 radially inwardly towards the center of turntable 58. Stop member 80 extends through slot 81 in flange 74 to retain flange 74 in pin 72 against the force of compression spring 72a. In addition, an upstanding stop member 83 extends uprightly from turntable 58 to limit the retraction of speaker housing 76. When the stylus 86 is in engagement with the grooves of a record by being raised upwardly to the operating position as seen in FIG. 6, it tracks radially outwardly as the turntable rotates in opposition to the gradually stretching spring 78. When downward pressure on push bar 66 is released, the stylus 86 will descend out of engagement with the record grooves and the spring 78 will pull the speaker relatively inwardly. Stop member 83 is positioned so as to terminate the radially inward movement of the speaker 76 at a point where it will be positioned to engage the initial starting portion of a record when the push bar is depressed to bring the stylus 86 into engagement with the grooves of a record.

Mounted in housing 76 is the sound amplifying speaker cone 82 having a baffle extension 84. A needle or stylus 86 extends upwardly from the apex of cone 82 and outwardly from speaker housing 76 for tracking in grooves of a record 32.

Referring to FIG. 8, each record 32 is generally of regular geometric configuration, here shown as being substantially square. Records 32 have a stiff substrate for medial layer 90, a readily perceived information layer 92 and an opposing backing record layer 94 having trackable groove 94a therein for producing a recorded sound.

In the illustrated embodiment, the layer 92 is shown as having information in the form of a pictorial representation 96 and a word or words 98 thereon. As an example, the information to be reproduced from the tracking grooves 94a could be a short discussion concerning different types of cars or the like, and the pictorial representation 96 could be of the cars being discussed and the words 98 could be a brief title as to the subject matter recorded in grooves 94a and shown in 96.

It is to be understood that many variations of the information layer 92 could be provided within the scope of this invention. For example, the information layer 92 could consist entirely of text matter or words or solely of a pictorial representation or several representations. In addition, the information layer 92 could have minor surface variations therein (within the limitations of the size of the slots 47a, 48a and 51a) so as to illustrate contours, elevations, and the like or other physical characteristics which could be perceived by touch as well as by sight. In this connection, the device could be a teaching aid with raised braille characters thereon in which instance the user could feel the braille characters prior to insertion into the playing station. Where surface 92 contained information to be perceived by touch, the playing station could have the window 50a removed so that the characters or other surface characteristics could be perceived simultaneously with the sound reproduction. The information layer 92 could be further utilized to illustrate texture in that it could be provided with different materials such as cloth, grit, thin strips of metal, or the like, so that one utilizing sight and touch could see and feel the different characteristics of these different materials while commentary about these characteristics is being reproduced from the grooves 94a.

In operation, it is intended that a user would place a record or several records 32 with the sound reproducing layer 94 face down and the readily perceived information layer 92 face up at the receiving station 46. Next, the pusher element 40 would be moved laterally to the left as seen in the drawings to push the lowermost record 32 over to the playing station 50. Knob 70 would be moved to potentially activate the circuitry for the sound reproducing mechanism. Following this, bar 66 would be depressed to close switch 68 and complete the circuitry so that motor 56 would begin to drive disc 58. At the same time, the depression of bar 66 would raise speaker housing 76 and bring stylus 86 into contact with the grooves 94a on the underside of record 32. Stylus 86 then would begin to track in a helical path preferably from the inside or towards the center of record 32 towards the outside thereof for reproducing the message on the record layer 94 while at the same time the informational layer 92 is presented to view for the user. The entire sound reproducing system rotates with the disc 58. If, at any time the bar 66 is released, the circuitry is interrupted and the speaker housing 76 moves downwardly away from the playing position and is returned to the initial starting position in a clockwise direction about pin 70.

Thus, it can be seen that the child entertainment and instruction device of this invention satisfies the need in the art for a combination sound reproducing and perception device which may be simply operated and wherein both the recorded information and readily perceived information, such as that to be visually perceived, are on a common element here shown as the record 32. Thus, the possibility of losing one of the two of the sound or visual perception elements is eliminated. Moreover, the record grooves in the underside of the record element being in the usual helical pattern may provide a substantial amount of recorded information. The other side of the

record element is capable of having information over the entire face thereof so that a greater amount of information may be provided thereon.

The foregoing detailed description has been given for clear-  
ness of understanding only, and no unnecessary limitations  
should be understood therefrom, as some modifications may  
be obvious to those skilled in the art.

We claim:

1. In combination, a child entertainment and instruction  
device comprising: means defining a housing; a record playing  
station in said housing including means for holding playable  
record against movement therein; player means at said record  
playing station for playing a record held therein comprising a  
stylus for tracking on the record, said stylus being mounted on  
means for driving the stylus for tracking from the inside to the  
outside of the record by circular movement of the stylus rela-  
tive to the record, with means for normally biasing the stylus  
upwards to engage a record from the underside thereof; a  
record for use therewith, said record having opposed faces  
with sound producible grooves in one face thereof and  
presentable information over a substantial portion of the op-  
posite face thereof; a receiving station in said housing adjacent  
said playing station, said receiving station being constructed  
and arranged to hold a plurality of records, said receiving sta-  
tion and playing station being in communication with each

other by means of a record-feeding passage extending  
therebetween; and a delivery member adjacent the receiving  
station, said delivery member being movable into engagement  
with records at the receiving station through said record-feed-  
ing passage to said playing station.

2. The device of claim 1 wherein said receiving station is  
defined by a recess in said housing bounded by generally  
upright walls, and wherein said passage comprises a slot in a  
wall separating the receiving station from the playing station.

3. The device of claim 2 wherein the delivery member is  
laterally movable relative to the receiving station from a rest  
position, relatively retracted from said receiving station,  
through a record delivery position, wherein the delivery  
member extends into the receiving station; and wherein said  
receiving station and delivery member are in communication  
through an opening in another wall defining said receiving sta-  
tion recess.

4. The device of claim 3 wherein said playing station in-  
cludes a record outfeed slot generally opposite the record-  
feeding passage between the receiving station and the playing  
station, whereby one record may be displaced outwardly from  
the playing station, while another record may be inserted  
therein responsive to lateral movement of the delivery  
member.

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