United States Patent [19]

Gutierrez

[11] **3,889,812**

[45] **June 17, 1975**

[54] **PHONOGRAPH RECORD TILTING DISPLAY APPARATUS**

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[52] **U.S. Cl.** **211/1.5;** 40/30; 40/36; 211/40

[51] **Int. Cl.** **A47f 3/08;** A47f 7/00; A47g 29/00

[58] **Field of Search** 211/1.5, 40; 312/13, 14, 312/18, 19; 40/30, 35, 36, 78.07, 343

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Assistant Examiner—Thomas J. Holko
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[57] **ABSTRACT**

A display demonstrating apparatus which continuously tilts jacketed phonograph records for a showing of each title. Said apparatus consists of a rack arranged for an automatic forward self-tilting of records held thereon, said tilting commencing upon the first of said records being tilted, a spring actuated arm tilting the first of said records and a motor driven linkage engaging said arm upon the completion of each cycle of the forward tilting of said records to return all of said records to a rearward starting position for the commencement of another cycle of forward tilting, said spring actuated arm being automatically moved to tilt the first of said records upon the return of said records to said starting position.

11 Claims, 9 Drawing Figures

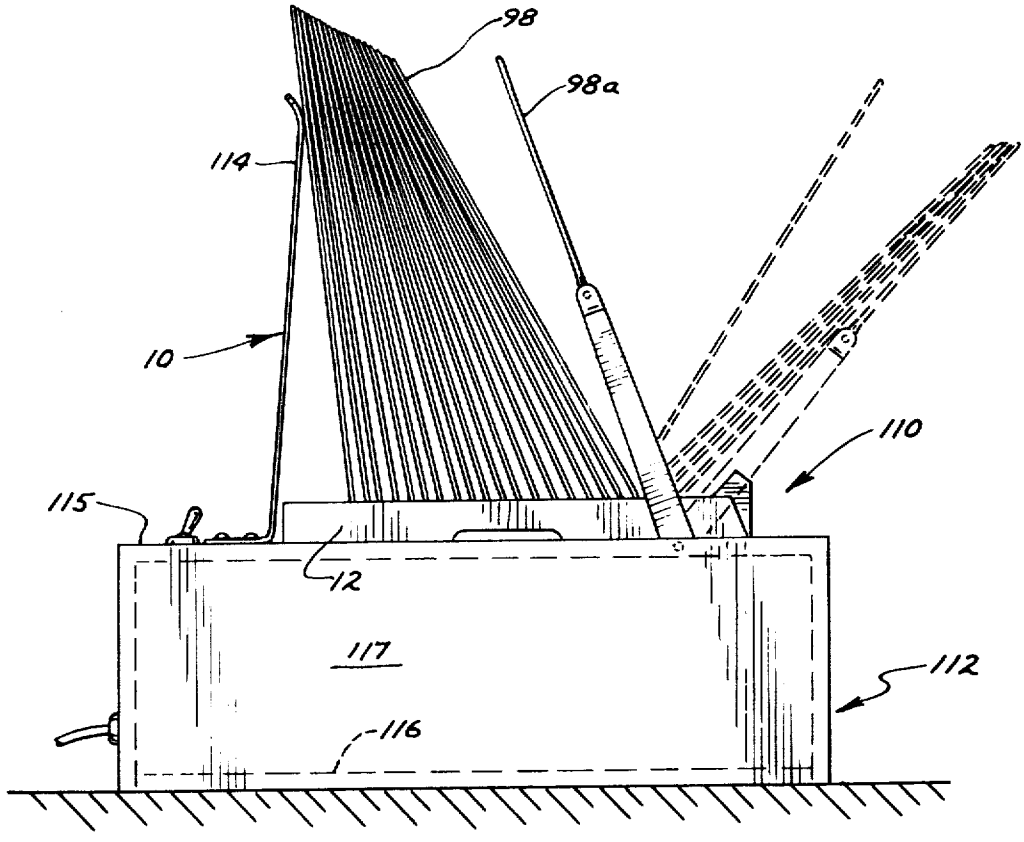
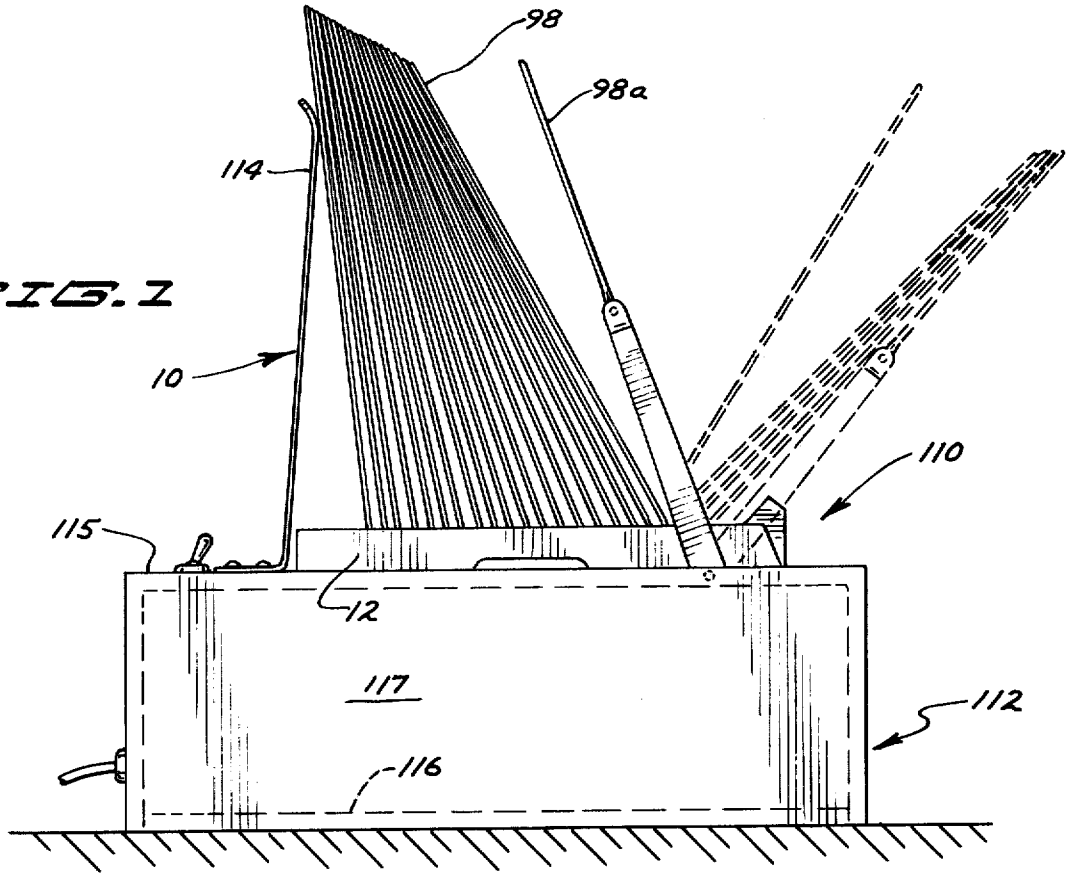


FIG. 1



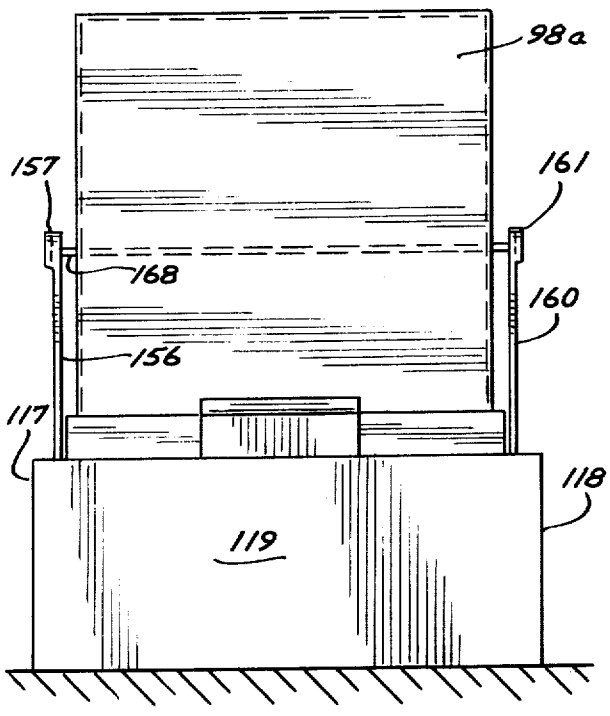


FIG. 2

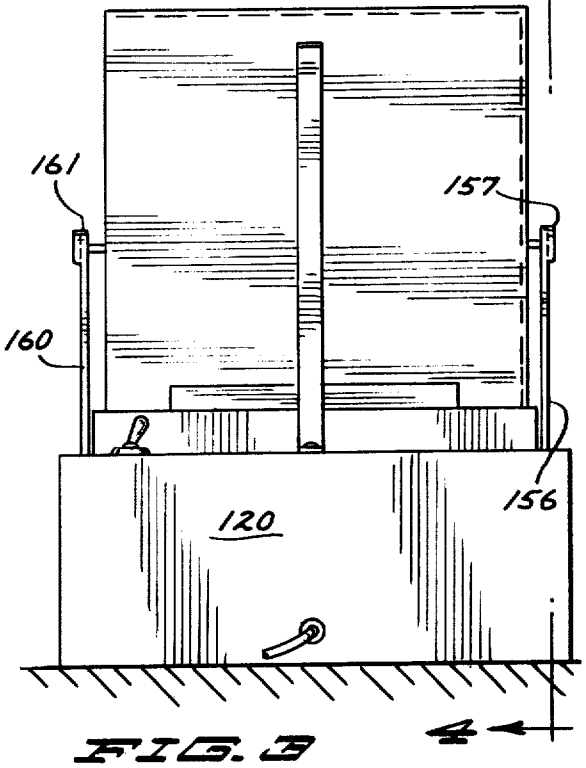


FIG. 3

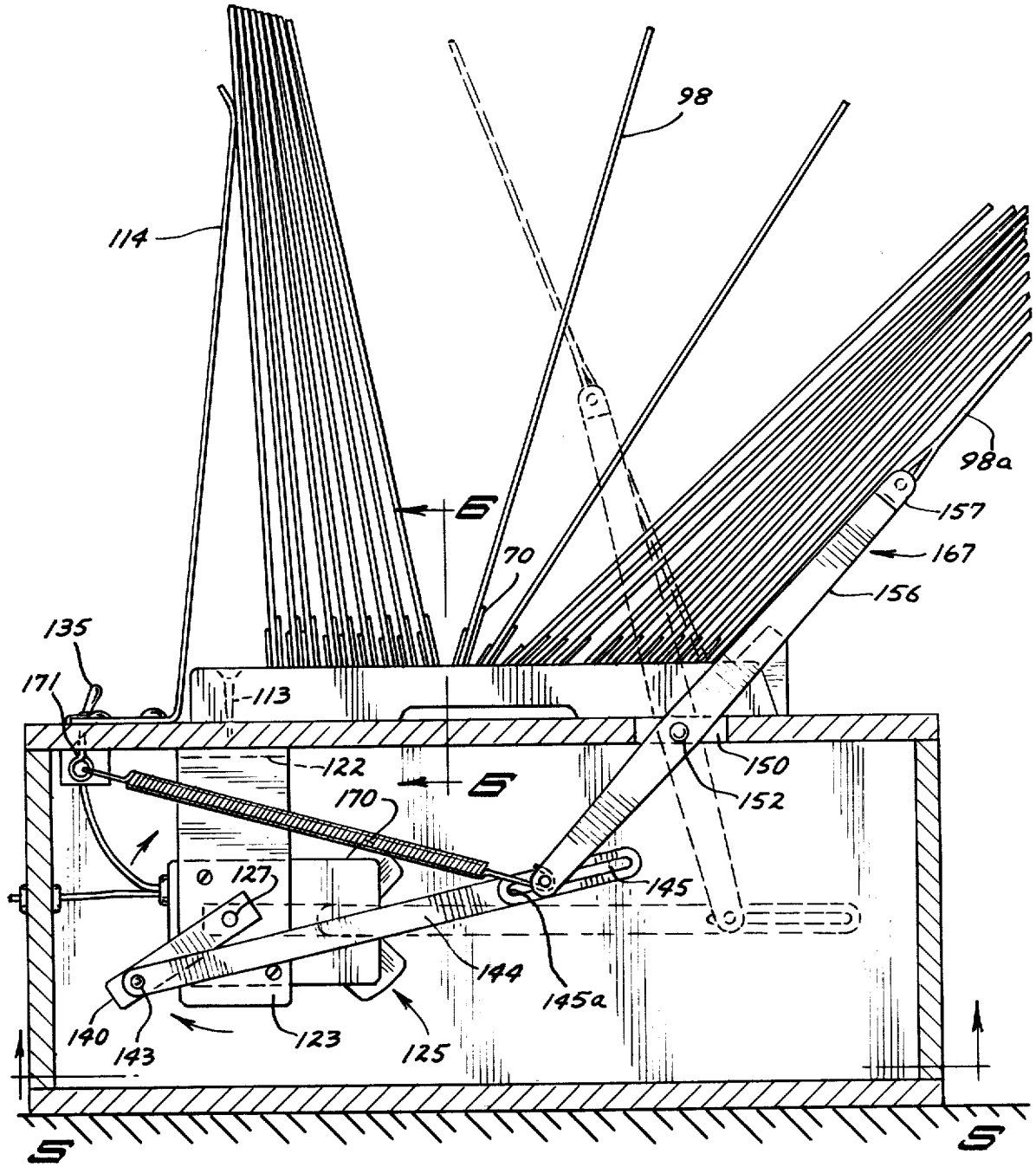

98
114
6
70
98a
157
167
156
135
171
113
122
6
150
152
170
145
127
144
145a
140
143
123
125
S
S

FIG. 4

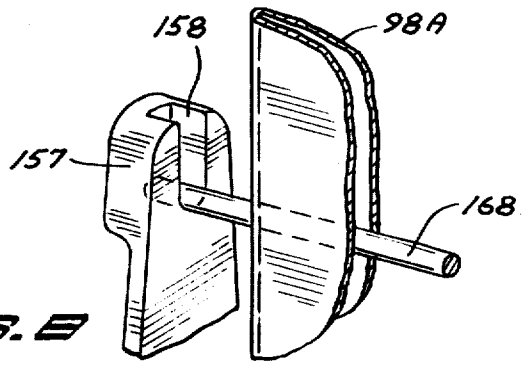

158
98A
157
168

FIG. 5

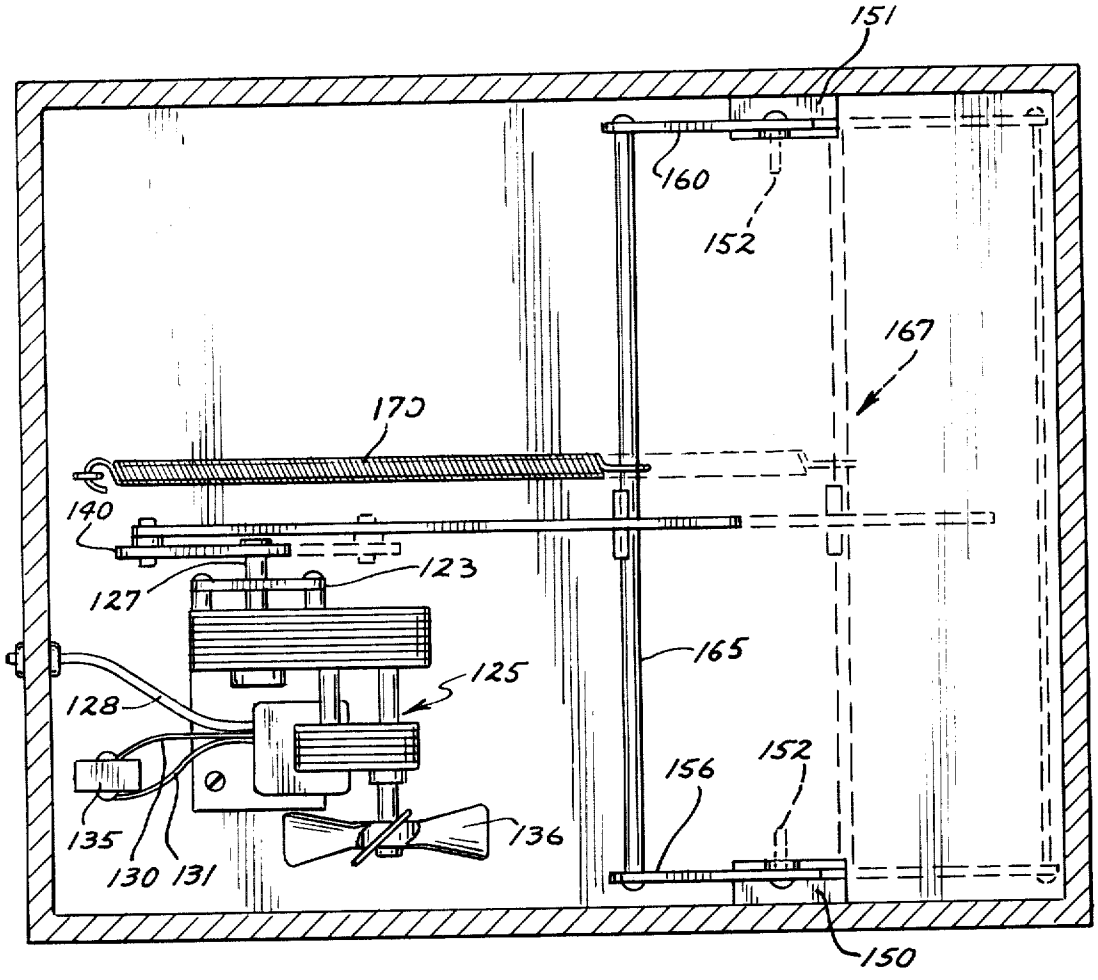


FIG. 5

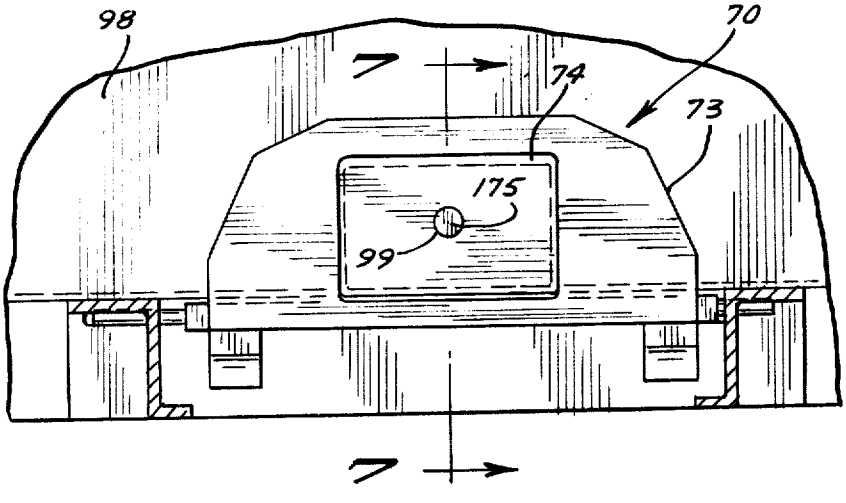


FIG. 6

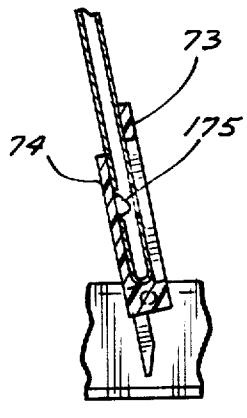


FIG. 7

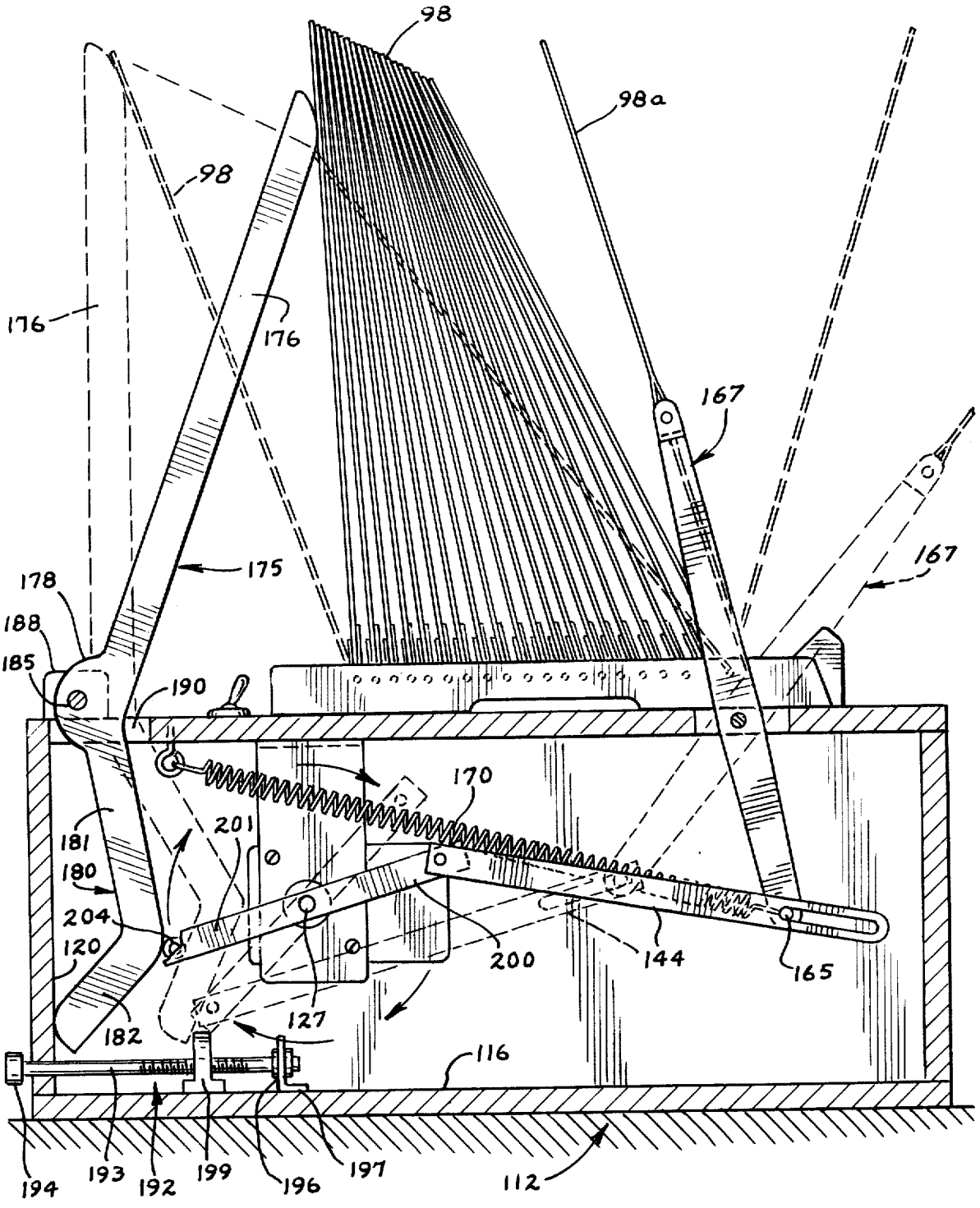

98
98a
98
176
176
167
167
175
178
188
185
190
170
181
201
180
204
120
200
144
165
182
127
116
194
193
192
199
196
197
112

FIG. 9

PHONOGRAPH RECORD TILTING DISPLAY APPARATUS

BACKGROUND AND SUMMARY OF THE INVENTION

The invention herein relates to a self-operating display demonstrating apparatus to be used in connection with jacketed phonograph records mounted in a display rack, said rack being arranged to have said records tilt one another forwardly sequentially, said apparatus having a self-operating arm engaging the forwardmost or first of said records to tilt the same forwardly and means automatically engaging said arm to reversely tilt said records returning the same to their initial or starting position.

Said display rack is the subject of the U.S. Pat. No. 3,716,145 issued Feb. 13, 1973, to the inventor herein. Said U.S. Patent describes the structure of said display rack wherein phonograph records mounted thereon are disposed in holding members arranged to sequentially tilt one another upon the leading record first being tilted. The description of said display rack as set forth in said patent is embodied herein by reference.

The apparatus herein is particularly adapted to be used to provide a continuously operating attention attracting display at the point of sale of said phonograph records such as being a table-supported or a counter-supported display.

It is an object of this invention in connection with said phonograph record display rack to cyclically tilt forwardly the first or leading of the phonograph records upon said display rack and to return said records to starting position at the completion of each forward tilting cycle.

It is another object of this invention to provide a powered display apparatus comprising a spring actuated arm tilting forwardly the leading of said phonograph records mounted on said display rack and comprising means cyclically engaging said arm to reversely tilt said phonograph records to their initial or starting position.

it is a further object of this invention to provide a motor-powered phonograph record display apparatus in cooperative association with said display rack above mentioned whereby a load is placed upon the motor of said apparatus only during the interval that the phonograph records upon being tilted forwardly are reversely tilted to their initial or starting position.

It is also an object of this invention to provide a powered phonograph record display apparatus which is of simple construction and which is economical to make and to operate.

These and other objects and advantages of the invention will be set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

FIG. 1 is a view in side elevation showing some portions thereof in alternate position in dotted line,

FIG. 2 is a view in front elevation,

FIG. 3 is a view in rear elevation,

FIG. 4 is a view in vertical longitudinal section on an enlarged scale taken on line 4—4 of FIG. 3 as indicated with some portions thereof being shown in alternate position in dotted line.

FIG. 5 is a view in horizontal section taken on line 5—5 of FIG. 4 as indicated with some portions thereof being shown in dotted line,

FIG. 6 is a broken view in vertical section on an enlarged scale taken on line 6—6 of FIG. 4 as indicated,

FIG. 7 is a broken view in vertical section taken on line 7—7 of FIG. 6 as indicated showing a detail of structure, and

FIG. 8 is a broken view in perspective showing a detail of structure.

FIG. 9 is a side elevation of a modification of the display apparatus.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIGS. 1–3, the structure herein is indicated generally by the reference numeral **110** comprising a housing **112** to be further described. Mounted onto said housing is a phonograph record display and storage rack **10** which except for some change in minor detail which is not significant is described in the inventor's U.S. Let. Pat. No. 3,716,145, issued Feb. 13, 1973 and said description is incorporated herein by reference using like reference numerals subject to some specific modification of detail thereof for purposes herein as will be indicated.

Said rack for convenience herein is generally described as having a base portion or frame **12** as shown in FIG. **4** and having yoke-like phonograph record holding members **70** as shown in FIGS. **6** and **7** which members are constructed and arranged to tilt one another sequentially as described.

Disposed in said record holding members are jacketed phonograph records **98** with the leading of said records being **98***a*. The presence of actual phonograph records within the jackets is optional for display purposes. Said jacketed records or jackets, as the case may be, are referred to as records.

Screws **113** through appropriate openings in the frame **112** as indicated in FIG. **4** removably secure said frame to said housing.

An angled spring-like arm **114** is secured at its base by appropriate screws to the top wall **115** of said housing at the rear of said frame **12** and is upstanding therefrom to provide rear support and to form a backstop for said records **98** in their rearward or initial rest position as shown in FIGS. **1** and **4.**

With reference to FIGS. **1–3,** said housing **112** is further described as having in addition to its top wall **115,** a bottom wall **116,** side walls **117, 118** and end walls **119** and **120.**

Depending from the underside of said top wall **115** being secured thereto as by bolts or screws is an angled bracket **122** having secured as by bolts to the depending portion **123** thereof an electric motor **125.** Said motor is a common type of small electric motor which for purposes herein has a drive shaft **127** which rotates at a speed of 4 rpm. Said motor has a line **128** which runs to a current source and has lines **130** and **131** running to a toggle switch **135** located on the upper surface of said top wall **115.**

Said motor drives an attached fan **136** in a conventional manner for cooling purposes.

Said depending bracket portion **123** is shown positioned substantially centrally transversely of said housing. Extending through said depending bracket portion **123** is said drive shaft **127** of said motor. Secured to said drive shaft is link arm **140** of relatively short length

and pivoted thereto by a rivet **143** is a relatively long link arm **144** having an elongated longitudinal slot **145** formed within its free end portion.

Formed in the upper wall **115** of said housing at either side thereof adjacent the front wall **119** are elongated slots **150** and **151.**

Respectively disposed through said slots are elongated flat rods or arms **156** and **160.** Said arms intermediate their lengths are respectively pivoted by pins **152** to said top wall within said slots.

Extending between the lower ends of said arms **156** and **160** is a cross member **165** being secured to said arms such as being riveted thereto in a conventional manner as indicated in FIG. **5,** or as by being integral therewith.

Said arms **156** and **160** and said cross member **165** form a bail **167.** Said cross member **165** is disposed through said slot **145** of said link arm **144.**

As indicated in FIG. **8,** the upper end or top portion **157** of said arm **156** is formed having an increased thickness or shoulder portion to permit a slot **158** to be formed therein, said slot being open at the top and inner side thereof. Said arm **160** has a like top or upper end portion **161** having like slot **162** therein, said slots being in aligned facing relationship. Extending between said arms and having its ends disposed in said slots **158** and **162** is a rod **168.** Thus said rod may be readily lifted out of said slots.

Said record jacket **98***a* has said rod **168** disposed therethrough as indicated in FIGS. **2** and **3.**

With reference to said cross member **165,** a coil spring **170** has one end thereof secured thereto adjacent said link arm **144** and the other end of said spring is secured by a screw hook **171** secured to the rear underside portion of said top wall **115.** Said coil spring is here shown for purpose of example and not for purpose of limitation.

With reference to the record holding member **70** as best seen in FIGS. **6** and **7,** a modification is shown therein with respect to the description thereof in said U.S. Pat. No. 3,716,145. A tapered pin or projection **175** is shown extending forwardly centrally of the rear wall **74** thereof to extend into and substantially through the space between said walls **73** and **74.**

The record jackets **98** each have an aperture **99** therethrough to receive said pin **175** therethrough. Thus said jackets are prevented from being lifted out of said display rack **10.** Said record holding members **70** have their respective walls sufficiently flexible to be spread apart to receive a record jacket therebetween for the insertion of said pin **175** through the aperture **99** of the jacket as the same is positioned by a downward thrust into a record holding member.

OPERATION

As described in said U.S. Pat. No. 3,716,145, the record holding members of the display rack **12** and the records disposed therein automatically self-tilt forwardly sequentially when the first or leading of said records is tilted.

For display purposes, as at a point of sale of phonograph records to attract buyer attention, it is desirable to have the records on said display rack in continuous tilting motion.

At the end of each cycle of forward tilting motion, it is necessary to return all of said records to their rearwardly tilted starting position.

The subject matter of the invention herein as above described serves to cyclically tilt the leading record forwardly and at the completion of the cycle of forward tilting to reversely tilt all of said records as in one continuous motion to their rearward starting position and upon such return of said records, the first or leading record is again tilted forwardly.

Referring particularly to FIGS. **1, 4** and **5,** the drawings do not show each increment of movement of the records in tilting forwardly and rearwardly. Hence, some obvious assumptions of said records and of said apparatus will be made and it is believed will be readily understood.

In FIG. **4,** it will be assumed that all of the records have just tilted forwardly and the link arm **144** is in the position as shown. Said link arm **144** will be pivoted forwardly to its dotted line position by the upward and forward rotation of the link **140.** In so doing, the cross member **165** is engaged by the inner end **145***a* of the slot **145** and is moved forwardly tilting or swinging rearwardly the upper portion of the bail **167** which swings rearwardly the record **98***a* and all of the records forwardly tilted therebehind.

The link arm **144** is under continuous orbital movement and during the movement upwardly and rearwardly it withdraws its forward pressure from the cross member **165** to its full line position as indicated. As said link arm **144** withdraws its forward pressure from the cross member **165,** said spring **170** which pulls constantly on said cross member **165,** draws said cross member rearwardly keeping it in engagement with the rear wall of said slot **145** until said bail **167** is in its extreme forward position as indicated by its full line position in FIG. **4.**

The record **98***a* in being tilted forwardly by the bail **167,** as it tilts within its holding member **70** beyond a dead center position, the adjacent record and its record holding member are engaged and caused to tilt forwardly and in like manner and in turn each successive record is tilted forwardly. The timing of the sequential motion of the various elements described results from a predetermined motor speed which will be a matter of design and the timing is such that the link arm **144** engages the cross member **165** with the rear wall of the slot **145** just as the last record to tilt forwardly has tilted forwardly. The cycle then commences again.

It will be seen that the only work done by the motor **125** under load is in moving the cross member **165** forwardly at the completion of each cycle of forward tilting of the records for the purpose of returning the records to their rearward starting position. The bail **167** is tilted forwardly by the spring **170.**

There results a smooth, quiet continuous movement of the records in tilting through a complete cycle forwardly and being immediately returned at the completion of each such cycle to a rearward starting position with the forward tilting again being commenced just as the rearward tilting motion of the records is being completed. There appears to be no break in motion between the forward and rearward tilting of the records but rather it appears as continuous motion. There is very little load placed upon the motor whereby it has long life and is practically maintenance free. The only other moving member is the spring member which is under very little load is tilting the bail **167** forwardly to tilt the first of said records and from that point the re-

cords are self-tilting through their forward cycle of motion.

MODIFICATION

Referring to FIG. **9**, a modification is shown of the structure above described and in which like portions thereof are indicated by like reference numerals and only the modified portions thereof are hereafter described.

The purpose here is to provide structure which will cushion the return of the records **98** to their rearward starting position as indicated in FIG. **1** and by dotted line in FIG. **9**. All of said records **98** are returned at one time by action of the bail **167**. The records in moving together tilt rearwardly with some degree of force and there results a somewhat noisy and jarring effect as the records engage the stop member **115** with reference to FIG. **1**.

Hence, the member **115** is here removed and in substitution thereof there is provided a stop member **175** which comprises an elongated upper portion **176**, an intermediate pivot portion **178** and a lower angled portion **180** comprising an upper portion **181** thereof angled inwardly of said housing and a lower portion **182** thereof reversely angled. Said lower portion may be variously formed as by being reversely bent or curved or formed as a cammed surface.

A pivot member **185** on the order of a pin is disposed through said pivot portion **178** of said stop member and is journaled in a pair of spaced upstanding ears **188** adjacent either side of a slot **190** formed centrally transversely of said housing in the upper wall **115** thereof adjacent the rear wall **120**.

Said stop member extends upwardly sufficiently to engage the upper portion of the records **98** as shown in FIG. **9** and the lower angled portion is disposed within the rear end portion of the housing **112** for pivotal movement therein as will be described.

A stop member **192** is positioned centrally transversely of the inner surface of the bottom wall **116** of said housing **112** and comprises an elongated threaded screw member **193** having one end portion having a knob **194** thereof extending outwardly of said end wall **120** and having its inner end portion journaled in an upstanding plate member **196** having an angled foot portion **197** appropriately secured to said bottom wall **116**. Carried on said screw and movable axially thereof by rotation of said screw is an upstanding stop member **199** extending upwardly sufficiently to engage the lower end portion **182** of said stop member **175** as illustrated in dotted line.

The link member **140** above described is here shown as link member **200** in which the modification comprises having said link member extending beyond its point of attachment to the motor shaft **127** to extend therebeyond as indicated by reference numeral **201**. Mounted on the free end of said link portion **201** and extending at right angles thereto to engage the lower portion **201** of said stop member **175** is a roller **204**.

OPERATION

The operation of the modified structure is the same as above described with the accompanying action of the stop member **175** as will now be described.

Referring to the dotted line positions of the bail **167** and the stop member **175**, the lower cross member **165** of the bail member **167** is in the position in which it will now be engaged by the link **144** within its slot **145** in its forward motion to move or return the records **98** from their forwardly tilted positions to their initial rearward positions. As said lower cross member **165** is moved in a direction forwardly of the housing, the link member **200** is seen with the roller **204** engaging the lower adjacent portion **182** of the stop member **175**. As said roller is moved through a circular pathway upwardly, as indicated by arrows, in being carried by said link portion **201**, said lower portion **182** is caused to swing rearwardly whereby the upper portion **176** of said stop member swings forwardly, and is timed in its swing by action of the motor **127** and the linkage in connection therewith to have engagement with the adjacent rear record **98** at a point at which said adjacent record has returned to a substantially vertical position in a plane substantially at right angles to the horizontal. The records continue to tilt rearwardly against the cushioning effect of the upper stop member portion **175**. At this point, the roller **204** has traveled upwardly the length of the lower portion **182** of said stop member **175** and has commenced to engage the portion **181** of said stop member **175**.

Said portion **181** is angled reversely of said lower portion **182** and at this point the roller has reached a position in its circular path where it is commencing to move upwardly and in a direction forwardly of the housing permitting the stop member **175** to have its lower portion **181** swing forwardly maintaining engagement with the roller **204** as it moves upwardly thereof controlling the rearward movement of the upper portion **176** of said stop member **175** against the pressure of the rearward movement of the records.

This action causes all of the records to have a uniform noiseless movement rearwardly to a stop position and during this time as the link **144** is reaching the rearward position shown in dotted line in FIG. **9**, the spring **170** is pivoting or swinging the bail **167** to tilt the record **98'** forwardly. Said portion **181** bears against said roller until all of the records are in a rearward rest position which prevents the records from thrusting noisily against said stop member but instead there is a noiseless stoppage of the rearward movement of said records with the records being supported by said stop member.

As the link member **200** continues through its path of rotation, the lower end portion **182** of said stop member will bear against the stop member **199**.

Said roller on moving downwardly and rearwardly engages said lower portion **182** of said stop member to move the upper portion of said stop member forwardly timed so that the records **98** will have all tilted forwardly and have been started in their rearward movement to rest position to be engaged by said stop member **175** as the rearwardmost record reaches a vertical position in a plane substantially at right angles to the horizontal and from this point rearwardly to the final rest point said records are controlled or cushioned by said stop member in moving rearwardly.

It will of course be understood that various changes may be made in form, details, arrangement and proportions of the parts without departing from the scope of the invention herein which, generally stated, consists in an apparatus capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A phonograph record tilting display apparatus, having in combination
a rack having forwardly self-tilting records thereon, save for the first record thereof,
a housing supporting said rack,
a member carried by said housing forwardly tilting said first record,
spring means actuating said member,
a motor carried by said housing,
means driven by said motor operatively engaging said member,
said means moving said member reversely tilting said records to a rearward tilted position when said records have reached a forwardly tilted position,
said means withdrawing from operating engagement with said member upon completion of said rearward tilting of said records, and
said spring means actuating said member to forwardly tilt said first record upon said means withdrawing from operative engagement with said member.

2. The structure set forth in claim 1, wherein
said member comprises a bail member.

3. The structure set forth in claim 1, wherein
said member comprises a U-shaped member having side arm portions overlying side wall portions of said housing,
means pivoting said side arm portions of said member to said side wall portions of said housing,
means connecting an upper portion of said side arm portions of said member with said first of said records, and
said spring means engaging a lower portion of said member.

4. The structure set forth in claim 1, wherein
said means comprises a pair of pivotally connected link members,
one of said link members being connected to the drive shaft of said motor,
said other of said link members engaging said member, and
said motor driving said link members through an orbital path in the direction of the tilting of said records.

5. The structure set forth in claim 4, wherein
said member has a cross member within said housing,
said other link member has an elongated slot in the portion thereof engaging said cross member, and
said cross member extending through said slot.

6. The structure set forth in claim 1, wherein
said spring means comprises a coil spring, and
means securing one end of said coil spring within said housing remote from said member and the other end of said coil spring engaging said member.

7. The structure set forth in claim 1, including
an upwardly extending support member rearwardly of said housing engaging said records in their rearward tilted position,
means pivotally securing said support member to said housing,
a lower portion of said support member extending inwardly of said housing having a cammed surface portion extending in the direction of the tilting of said records,
said first mentioned means operatively engaging said cammed surface portion of said support member, and
said first mentioned means being arranged and constructed to move the upper portion of said support member forwardly to engage said records prior to completion of their rearward tilt and moving rearwardly with said records supporting the same to their rearward position of rest.

8. The structure set forth in claim 7, wherein
said first mentioned means comprises a roller.

9. The structure set forth in claim 1, including
an upwardly extending support member rearwardly of said housing supporting said records in their rearward tilted position,
means pivotally securing said support member to said housing,
a reversely curved lower portion of said support member extending inwardly of said housing, and
said first mentioned means engaging said reversely curved portion of said support member moving the upper portion of said support member forwardly to engage said records tilting rearwardly and moving said upper portion of said support member rearwardly supporting the rearward tilting of said records.

10. The structure set forth in claim 1, including
a phonograph record holding member carried by said rack for each of said records, and
means removably securing said records within said record holding members.

11. The structure set forth in claim 1, including
a phonograph record holding member carried by said rack for each of said records,
said holding members each having spaced front and rear walls,
a pin projecting from one of said walls in the direction of the other of said walls of each of said holding member, and
each of said records having an aperture therethrough receiving said pin therethrough.

* * * * *