March 8, 1966 E. C. FREEMAN ETAL 3,239,229

DOLL WITH PHONOGRAPH

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FIG. 1

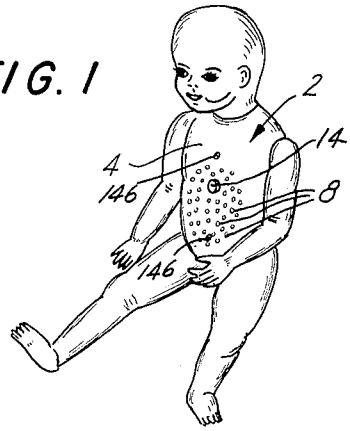


FIG. 2

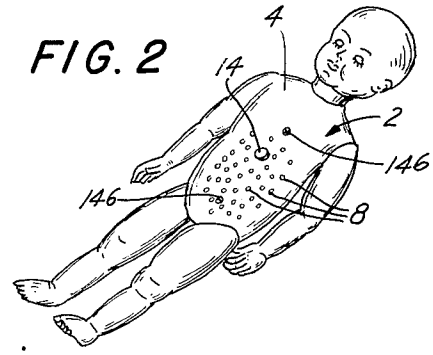
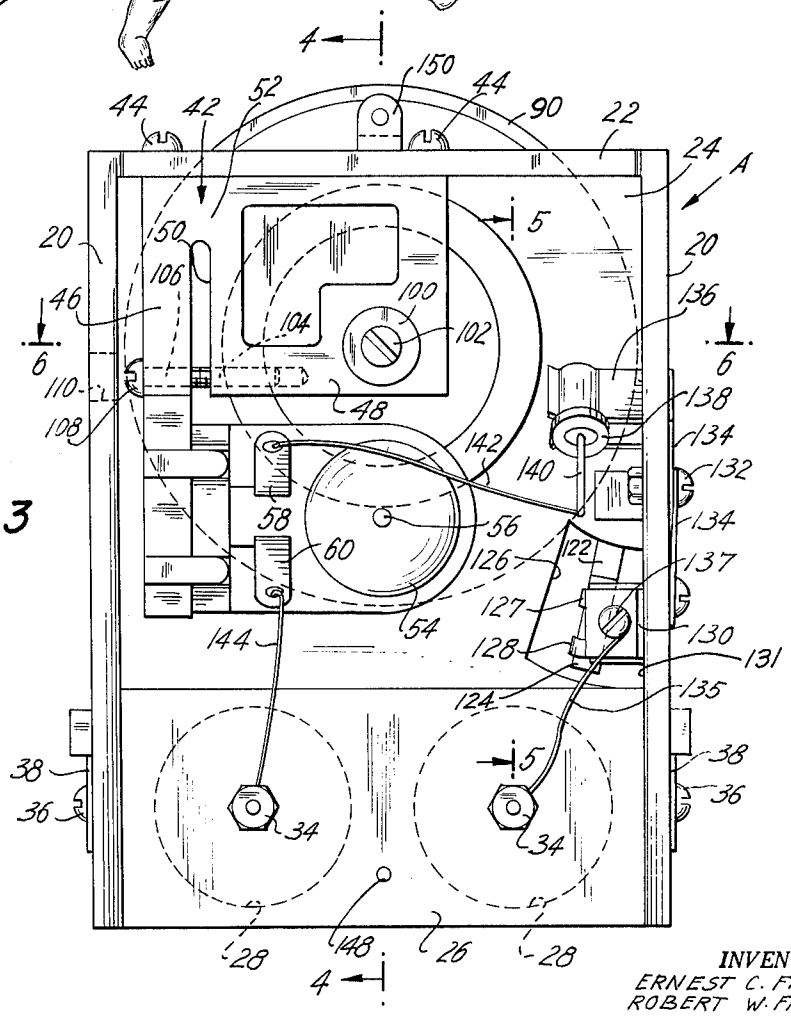


FIG. 3



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FIG. 4

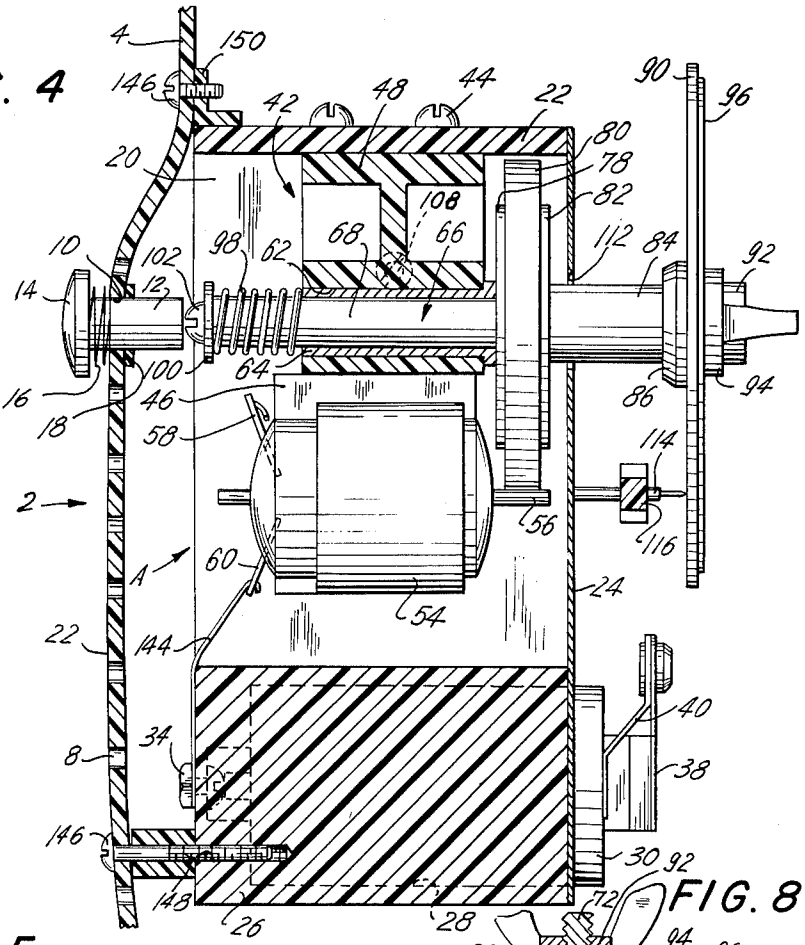


FIG. 8

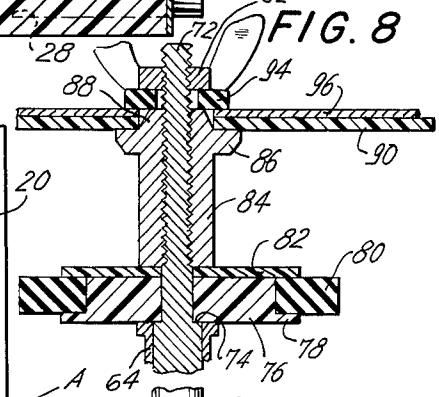
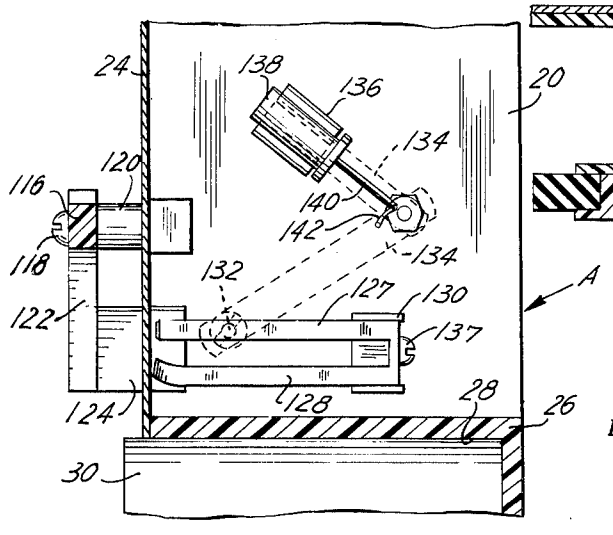


FIG. 5



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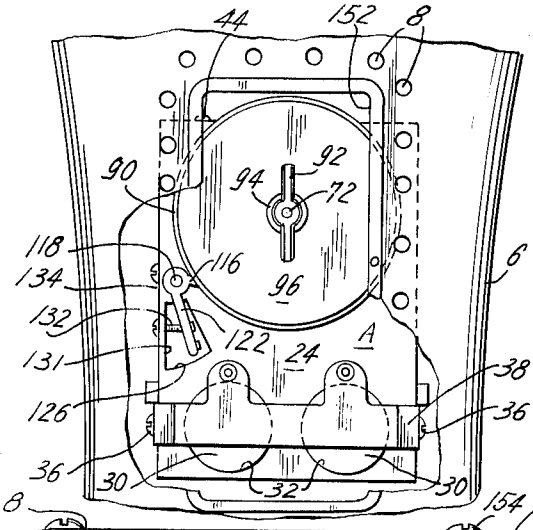
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FIG. 7



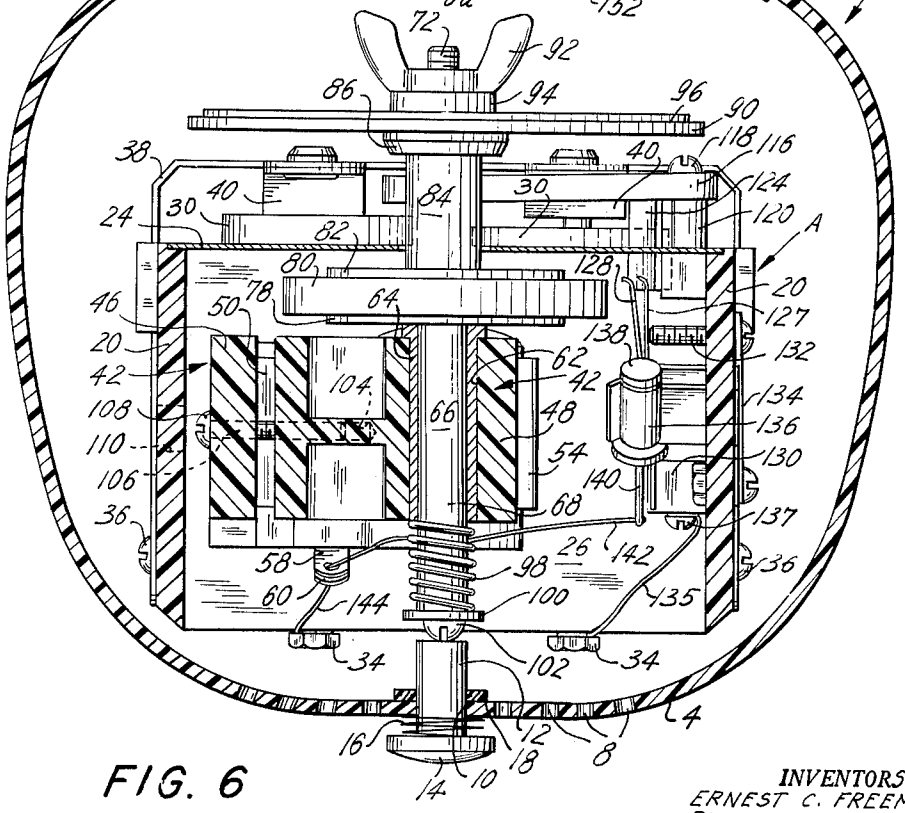


FIG. 6

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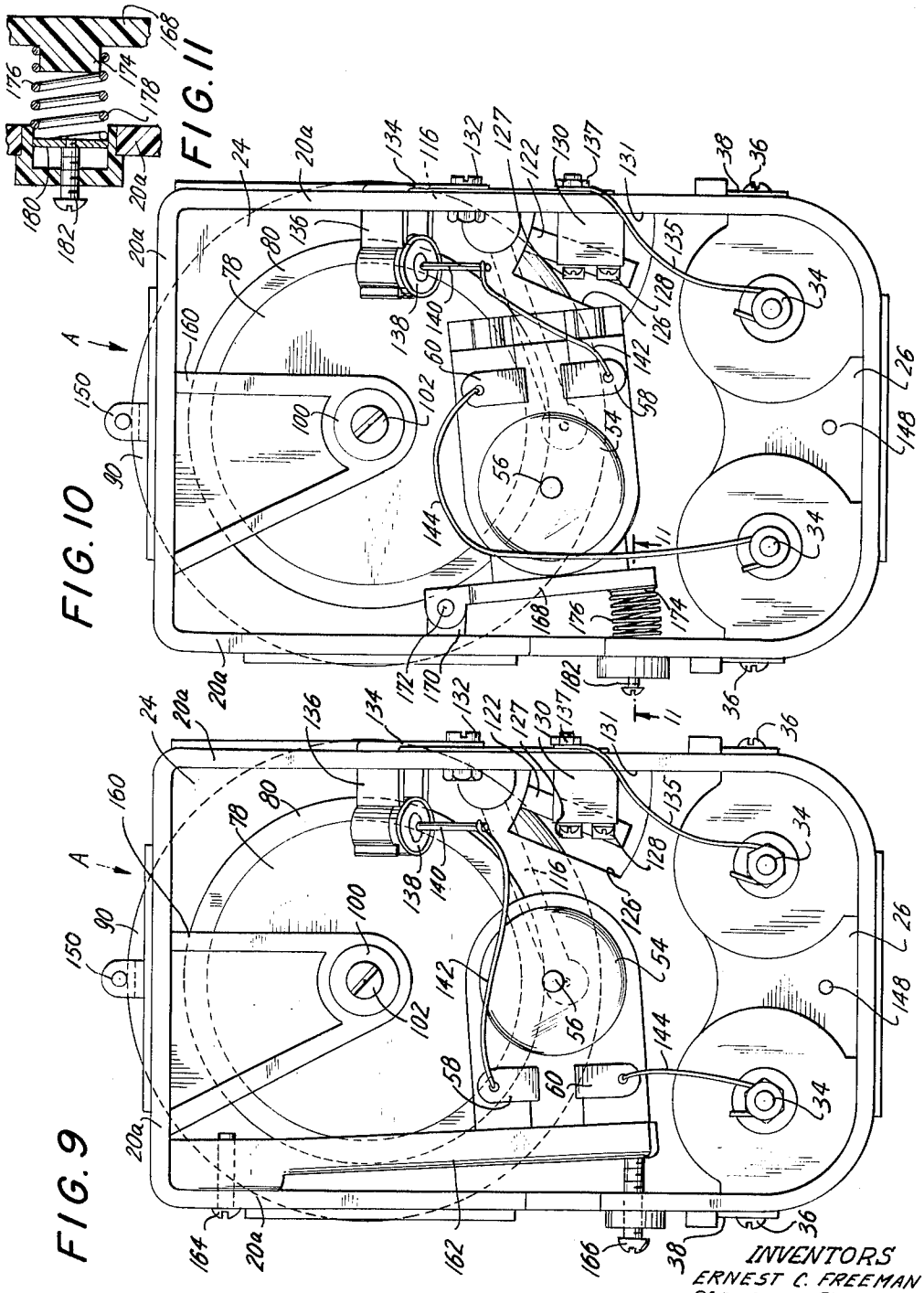


FIG. 11

FIG. 10

FIG. 9

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FIG. 12

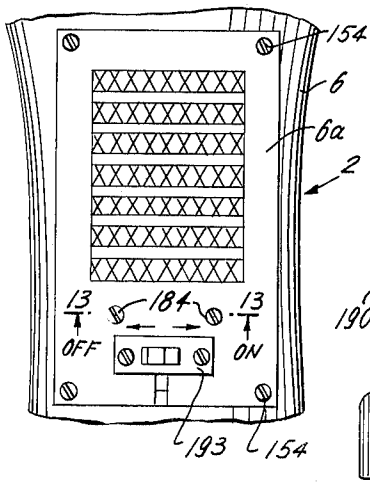


FIG. 13

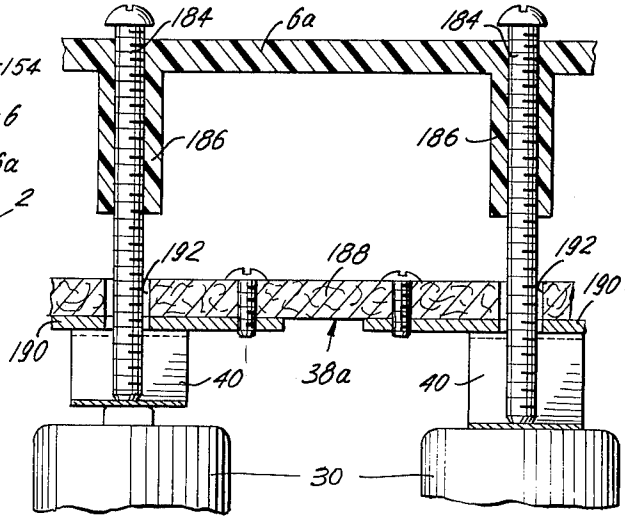


FIG. 14

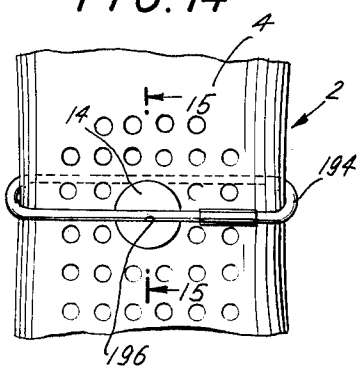
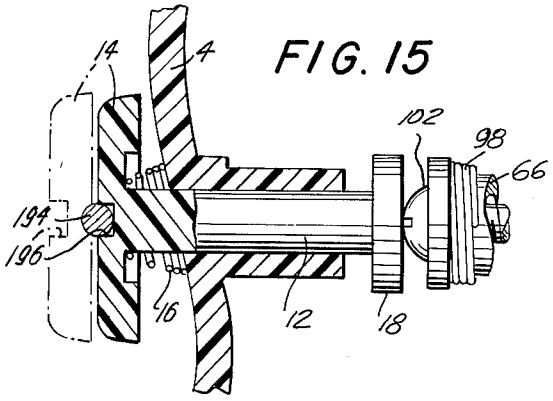


FIG. 15



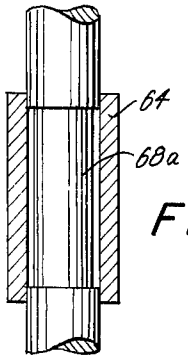


FIG. 16

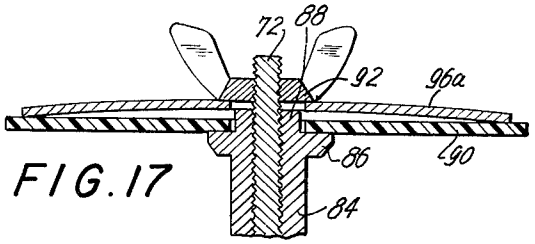


FIG. 17

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United States Patent Office 3,239,229 Patented Mar. 8, 1966

3,239,229

DOLL WITH PHONOGRAPH

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Filed Oct. 2, 1961, Ser. No. 152,373
14 Claims. (Cl. 274—1)

This application is a continuation-in part of our previous application, Serial No. 95,864, filed March 15, 1961, entitled, "Doll With Phonograph," now abandoned.

The present invention relates to a doll provided with a phonograph so that the doll can "speak," and to a phonograph construction and control system specially adapted thereto.

So-called "talking" dolls have in the main been provided with simple sound-producing devices capable of producing relatively elementary sounds which, while simulating such words as "Mamma," fall far short of the actual speech and vocabulary of children. To cure this defect it has been proposed that the doll be provided with a phonograph adapted to reproduce a record carrying more sophisticated words and phrases. Such phonographs as have been designed for use in dolls, however, have left much to be desired, not only in the way of fidelity of sound reproduction but also in the manner of use and control thereof, and in the life and flexibility of operation thereof. In many instances the manner of manipulation of the phonograph has required such actions as the pulling out and releasing of a cord which leads into the doll body. This type of manipulation is obviously unnatural, detracts from the attractiveness and realistic nature of the doll itself, and is by its very nature subject to damage.

It is the prime object of the present invention to provide a true "talking" doll which is not subject to the above disadvantages and which, more specifically, may be provided with a virtually unlimited vocabulary which it can "speak" with high fidelity and appropriate volume, and wherein the control of the speech is accomplished in a simple and effective manner which in no way detracts from the appearance and realistic nature of the doll. It is a further prime object of the present invention to provide a phonograph for a doll which is not only comparatively inexpensive and easy to manufacture, but which is also capable of reliable use over a long period of time.

It is yet another object of the present invention to provide a control system for a phonograph of the type under discussion by means of which speech may be initiated at will and terminated or interrupted either at will or automatically when the prepared speech recorded on the record has come to an end. In accordance with the preferred embodiment here disclosed, speech is initiated by actuating a manual control element such as a button, which is inconspicuously mounted and may be hidden beneath the clothes of the doll, and speech is interrupted by changing the spatial attitude of the doll, as by moving its body from an upright position to a reclining position. This provides a very effective simulation of true life, the doll talking until it is put to sleep and then starting to talk again as soon as it wakes, and either beginning its speech all over again or picking up where it left off, depending upon the desires of the youthful user in control.

The construction of the phonograph itself is simplified in order to reduce its cost, weight and size, so that it may be incorporated into a doll body of normal size and without adding excessively to the expense thereof, but this relative miniaturization and simplification is accomplished without any major sacrifice in sound reproducing ability, either with regard to fidelity or volume, to the end that the doll nevertheless "speaks" in a loud and clear manner. The design is such as to facilitate initial assembly and adjustment to compensate for wear.

A feature of the construction of the present invention involves the use of a battery-powered electric motor to drive the phonograph, the batteries being readily replaceable as they become depleted. Means are provided for retaining the batteries in position and, in a preferred embodiment, means are provided for ensuring that proper electrical connection is made to the batteries under all circumstances. The motor drive is so mounted as to produce optimum operation of the phonograph with the application of but a minimal amount of torque from the motor, thereby making for fidelity of reproduction and long battery life. In addition, the record used may readily be replaced by another, so that the doll may be provided with a virtually unlimited vocabulary and with a plurality of different types of talks, all selectively useable.

According to one feature of the present invention the stylus which is adapted to cooperate with the record is constrained between and in simultaneous engagement with the record and a vibratile wall part which constitutes the sound-producing diaphragm. When thus constrained the stylus moves along the reproducing groove in the record from one end thereof to the other as the record is rotated. When the stylus reaches the end of the groove it automatically turns off the motor driving the record. To start the doll talking again the record is moved away from the stylus, thus releasing the constraint previously exerted upon the stylus and permitting the stylus to move outwardly to a point corresponding to the beginning of the record, the stylus being biased to thus move when the aforementioned constraint is no longer effective. When the stylus moves to this outer position the record is again driven in rotation, and when the record is released it again restrains the stylus between itself and the diaphragm, the stylus then tracking the record and reproducing the sound recorded therein as it again moves inwardly. The vibrations of the stylus, produced by the record groove which it tracks, are transmitted to the diaphragm against which the stylus is pressed, that diaphragm transducing those vibrations into audible sound of appreciable intensity.

Means are provided for releasably retaining the record in its position remote from the stylus, thus preventing damage to the stylus while the doll is being shipped or while it is subjected to violent play.

As here specifically disclosed the circuit to the motor which drives the record in rotation includes a normally closed switch which is adapted to be opened by the stylus when the latter moves inwardly to the end of the record. The biased outward movement of the stylus, permitted when the record itself is moved so as to no longer constrain the stylus between the record and the diaphragm, causes that switch to resume its normally closed position, thus again causing the record to rotate. In order to make the phonograph attitude-sensitive, thereby to permit production of sound to be interrupted if the doll is, for example, moved from erect to reclining position, an attitude-sensitive switch is included in the motor circuit in series with the switch controlled by the stylus. Movement of the phonograph to a predetermined attitude, such as one corresponding to a reclining position of the doll, will cause this switch to open. If the phonograph is not operating this will have no effect. However, if the phonograph is operating it will de-energize the driving motor and the phonograph will stop. When the normal attitude of the phonograph is resumed the attitude-sensitive switch will again close, and the production of sound will be resumed at the very point where it had been interrupted. Restoration of the stylus to its position corresponding to the beginning of the record can

be accomplished at any time, whether the record has been completely reproduced or not.

To the accomplishment of the above, and to such other objects as may hereinafter appear, the present invention relates to a doll containing a phonograph, and to the construction of a phonograph and a control system therefor specially adapted for use in a doll, all as defined in the appended claims and as described in this specification, taken together with the accompanying drawings, in which:

FIG. 1 is a three-quarter front perspective view of a doll provided with the phonograph of the present invention, the doll being shown in a seated position, with its body erect;

FIG. 2 is a view similar to FIG. 1 but showing the doll with its body in a reclining position;

FIG. 3 is a bottom plan view of the doll phonograph;

FIGS. 4, 5 and 6 are cross sectional views taken along the lines 4—4, 5—5 and 6—6 of FIG. 3 respectively, FIG. 6 including a showing of the doll body within which the phonograph is mounted;

FIG. 7 is a fragmentary rear elevational view of a portion of the doll body with the cover plate removed, illustrating the manner in which access may be had to the phonograph for the replacement of a record or the energizing batteries;

FIG. 8 is a cross sectional view of the phonograph record driving shaft and associated parts;

FIG. 9 is a view similar to FIG. 3 but showing a specifically different arrangement for the mounting of the driving motor;

FIG. 10 is a view similar to FIG. 9 but showing a third arrangement for the mounting of the driving motor;

FIG. 11 is a cross sectional view taken along the line 11—11 of FIG. 10;

FIG. 12 is a view similar to FIG. 7, but with a removable body wall portion of modified construction in place;

FIG. 13 is a cross sectional view taken along the line 13—13 of FIG. 12;

FIG. 14 is a fragmentary front elevational view, on an enlarged scale, of the doll body and illustrating the use of a resilient safety member;

FIG. 15 is a cross sectional view taken along the line 15—15 of FIG. 14;

FIG. 16 is a detail cross sectional view, on an enlarged scale, of a modified arrangement for the journaling of the record driving shaft; and

FIG. 17 is a fragmentary view similar to the upper part of FIG. 8 and showing an optional arrangement for the mounting of a record on the driving means therefor.

Having reference first to the embodiment of FIGS. 1–8, the phonograph of the present invention is specially adapted to be retained within the body of the doll, such as the one shown in FIGS. 1 and 2, the doll body generally designated 2 having a front wall 4 and a rear wall 6, the phonograph itself, generally designated A, being mounted in a hollow space between the front and rear body walls 4 and 6. Those walls are provided with a plurality of openings 8 so that the sound produced by the phonograph can escape from the interior of the doll body 2. The front wall 4 is also provided with an opening 10 through which the stud 12 of a button 14 extends. A spring 16 is compressed between the button head 14 and the wall 4 so as to tend to urge the button outwardly, that outward movement being limited by a washer 18 pressed onto the button stud 12 in the interior of the body 2.

The phonograph A comprises a three-sided housing having side walls 20 and an end wall 22, preferably formed of insulating material. The top of the housing is substantially closed by means of a vibratile wall 24 which constitutes the sound-producing diaphragm of the phonograph. Mounted between the side walls 20 at the end thereof opposite from the end wall 22 is a block 26 of insulating material provided with a pair of cylindrical recesses 28 adapted to receive dry cell batteries 30 of the flashlight type. The vibratile wall 24 is provided with openings 32 registering with the recesses 28, through which portions of the batteries 30 are adapted to extend. Appropriate terminals 34 pass through the bottom of the block 26 and into the recesses 28, where they are adapted to make electrical contact with appropriate terminals of the batteries 30 in conventional fashion. Pivotally secured to the side walls 20, as by the screws 36 (which may also serve to retain the block 26 in position), is a conductive strap 38 adapted to extend over and engage the upper ends of the batteries 30 when they are received within the recesses 28, thereby to releasably retain the batteries 30 in position and to electrically connect the battery terminals exposed at the upper ends thereof. The batteries are designed to be connected in series between the terminals 34 by means of the strap 38. As may best be seen in FIG. 4, the strap 38 may be provided with spring leaves 40 which directly engage the batteries 30 when the strap 38 is in its operative position as shown. When the batteries are to be replaced the strap 38 is swung downwardly as viewed in FIG. 4, thereby to expose the upper ends of the batteries 30 and permit their removal from the recesses 28.

A supporting block generally designated 42 is mounted within the housing on the end wall 22, as by the screws 44. This block may be formed in one piece of a suitable plastic material, and comprises a first part 46 and a second part 48 which extend alongside one another, separated by the space 50 and connected by the integral resilient neck portion 52. Secured to the part 46, which extends down below the part 48 as viewed in FIG. 3, is a D.C. electric motor 54 having a shaft 56 which extends upwardly therefrom. The motor is provided with a pair of terminals 58 and 60.

As may perhaps best be seen from FIG. 4, the supporting block part 48 is provided with a through aperture 62 lined with a bronze bushing 64. A record driving shaft 66 is rotatably journaled in the bushing 64 and extends beyond both ends thereof. As may best be seen from FIG. 8, the shaft 66 comprises a main portion 68 the lower end of which is provided with an axially extending internally threaded aperture 70. The upper end 72 of the shaft 66 is of reduced diameter and is externally threaded at least along its upper portion. A shoulder 74 is provided between the shaft portion 68 and 72. A disk 76, which may be formed of suitable plastic material, is adapted to rest on the shoulder 74. The disk 76 is provided withan outer flange portion 78 on which a resilient ring 80 is mounted, the ring being held in place by a plate 82, which may also be formed of plastic material, received on the upper surface of the disk 76 and secured thereto in any appropriate manner, as by cementing. The disk assembly, comprising the elements 76, 78, 80 and 82, is clamped fast on the shaft 66 by means of bushing 84 threadedly received on the upper shaft portion 72, the upper portion of the bushing 84 having a flange 86 and a raised central portion 88. The phonograph record, generally designated 90, is adapted to rest on the flange 86, with the raised portion 88 entering the central aperture of the record, and is adapted to be made fast with the bushing 84 and shaft 66 by means of clamping nut 92 threadedly received on the upper shaft end 72. A resilient washer 94 may be interposed between the clamping nut 92 and the record 90. In order to rigidify the record 90, for reasons which will hereinafter be made apparent, the upper surface of the record 90 preferably has applied thereto a rigidifying disk 96 of metal or the like, the lower surface of the record 90 being provided with a sound-producing groove.

The lower end of the shaft portion 68 extends below the bushing 62, and a compression spring 98 is received therearound, that spring being held in compression against the bushing 64 or the support part 58 by means of a

washer 100 held in place by a screw 102 threadedly received within the shaft aperture 70. The shaft 66 is permitted a limited degree of axial movement within the bushing 64, as well as being rotatable thereon. The threads in the aperture 70 and on the externally threaded shaft portion 72 are lefthanded in nature, so that the parts threadedly received thereon will not tend to unscrew during operation of the device.

The shaft 66 and the shaft 56 are so located as to bring the resilient ring 80 carried by the shaft 66 into frictional engagement with the motor shaft 56, so that rotation of the latter will be imparted to the former, thereby rotating the record 90. In order to permit this frictional engagement to be adjusted, both at the time of initial assembly and to compensate for wear after the phonograph has been in use, the support part 48 is provided with an internally threaded aperture 104 registering with an aperture 106 in the part 46, a screw 108 passing through the aperture 106 and being threadedly received within the aperture 104. Turning of the screw 108 will cause the part 48 to move toward or away from the part 46, bending the resilient neck 52, in order to control and adjust the frictional engagement between the shaft 56 and the ring 80. The side wall 20 is provided with an aperture 110 providing access to the screw 108 for adjustment purposes.

The record-carrying bushing 84 extends up beyond the vibratile wall part 24 through an aperture 112 in the wall part 24, the record 90 therefore extending above and spaced from the wall part 24. The record reproducing stylus 114 is located between the record 90 and the wall part 24, being carried by arm 116. The pointed tip of the stylus 114 extends upwardly from the arm 116 so as to engage the sound groove in the lower surface of the record 90, while the other end of the stylus 114 extends toward and engages the wall 24, the area of engagement between the stylus 114 and the wall 24 being along portions of the wall 24 which are unsupported and hence free to vibrate. The stylus-carrying arm 116 is pivotally mounted, as by screw 118, on projection 120, and is provided with an angularly extending part 122 having an extension 124 which extends down through aperture 126 formed in the vibratile wall 24 to a position below that wall. There the extension 124 engages a pair of leaf spring 127 and 128 mounted on block 130 on the inside of the side wall 20. The spring 128 is active upon extension 124 so as to tend to pivot the stylus arm 116 outwardly, the outward movement thereof being limited by appropriate stop means, such as the edge 131 of the aperture 126, to a position corresponding to the outer end of the groove in the record 90.

The spring 127 exerts a similar biasing action upon the stylus arm 116, but its primary purpose is to function as a motor-controlling switch sensitive to the position of the stylus arm 116. To that end it is resiliently biased into engagement with screw 132 and is designed to remain in engagement therewith, as the stylus arm 116 moves inwardly relative to the record 90, until that stylus 116 reaches a position corresponding to the end of the sound groove on the record 90, at which time the spring 127 is lifted from the screw 132.

The electric circuit for the motor 54 extends from one of the terminals 34 via lead 135 to terminal 137 electrically connected to the spring 127, then via screw 132 and conductive strip 134 mounted on the outside of the side wall 20 to mounting clip 136 which extends through the wall 20 and carries a mercury switch 138 on the interior of the housing. The terminal 140 of the mercury switch is connected by lead 142 to the motor terminal 58, and the other motor terminal 60 is connected by lead 144 to the other battery terminal 34. The mercury switch 138 is mounted in an inclined position such that a circuit will be completed therethrough when the phonograph is supported in one attitude, such as that corresponding to a substantially erect position of the doll body 2, and so that the circuit therethrough will be opened when the phonograph is in a different attitude, such as one corresponding to a reclining position of the doll body 2.

The phonograph A may be mounted in the doll body in any appropriate manner, as by means of screws 146 passing through the front wall 4 of the doll body and engaging with an internally threaded aperture 148 in the block 26 and a bracket 150 secured to the end wall 22. When the phonograph is mounted in the body 2, the screw 102 at the end of the shaft 66 will be in line with and engage with the stud 12 of the button 14.

In order to provide access to the phonograph for replacement of the batteries 30 or changing of the record 90, a portion 6a of the rear body wall 6 may be removed, that portion 6a resting on the supporting ledge 152, there to be secured by means of screws 154.

The operation of the phonograph is as follows. The action of the spring 98 tends to draw the shaft 66 to the left as viewed in FIG. 4, the record 90 then engaging the stylus 114 and pressing it against the wall part 24 with a force sufficient to cause vibrations of the stylus 114 to be transmitted to the wall part 24, but without preventing sliding movement of the stylus 114 over the wall part 24. The rigidifying disk 96 ensures that this will take place throughout the travel of the stylus 114. The normal position of the stylus 114, when the phonograph is not in operation, will be at the inner end of the record groove, the circuit to the motor 54 being open by reason of the fact that the spring 127 has been moved away from the screw 132. The stylus is resiliently urged outwardly by means of springs 127 and 128, but it cannot move in that direction because the action of the spring 98 keeps the tip of the stylus 114 in the record groove, and thus constrains it from moving outwardly.

When reproduction of the record is desired it is necessary only to push in on the button 14 momentarily. This moves the shaft 66 and the record 90 to the right as viewed in FIG. 4, releasing the stylus 114 from the constraint which held it against the wall part 24 and in the record groove. The stylus 114 will swing outwardly to its stopped position corresponding to the beginning of the record groove, the spring 127 engages the screw 132, the circuit to the motor 54 is closed, and the record 90 is rotated. When the button 14 is released the spring 98 moves the shaft 66 to the left as viewed in FIG. 4, and the record 90 again engages the stylus 114 and presses it against the wall 24. Since the record is rotating the tip of the stylus is engaged by the record groove and tracks that groove, the vibrations imparted thereto being transmitted to the wall 24, which functions as a diaphragm converting those vibrations into audible sound of appreciable volume. Reproduction of the record continues until the stylus 114 has moved inwardly far enough for the spring 127 to be lifted from the screw 132, at which time the motor 54 is de-energized and reproduction ceases.

The above explanation is applicable only when the doll body 2 is in an attitude such that a circuit is completed through the attitude-sensitive mercury switch 138. If, while the record is being reproduced, the doll is moved to an attitude such as to open the circuit through the mercury switch 138, as if it is moved to a reclining position as shown in FIG. 2, the motor will be de-energized and reproduction will cease. The stylus will, however, remain in whatever position relative to the record groove it finds itself, and when the doll body is again moved to an erect attitude the circuit through the mercury switch 138 will be re-established and sound reproduction of of the record 90 will resume where it left off.

If it is desired that sound reproduction recommence from the beginning after the doll has been moved from a reclining attitude to an erect attitude, it is necessary only that the button 14 be depressed while the doll is reclining, thus releasing the stylus 114 for lateral movement back to the beginning of the record. If desired, this recom-

mencement of reproduction of the record from the begining can be made automatic by so relating the weight of the shaft **66** and the parts connected thereto to the strength of the spring **98** as to cause the shaft **66** to move to the right as viewed in FIG. 4 by its own weight whenever the doll reclines.

Since the body of the doll will be covered by clothing there will be nothing visible from the exterior thereof to mar its natural and realistic appearance, nor need any unnatural acts, such as the pulling out and releasing of a string, be performed to cause the doll to "talk." All that need to be done is apply light and momentary pressure to the chest area of the dolls so as to depress the button **14**.

FIGS. 9 and 10 disclose alternate arrangements for the adjustable mounting of the motor **54** and its shaft **56**. Instead of using the unitary supporting block **42** of the previous embodiment for the mounting both of the motor **54** and the record driving shaft **66**, in the embodiments of FIGS. 9 and 10 those two elements are independently mounted on the housing. In both embodiments the housing has a continuous side wall **20***a*. The record driving shaft **66** is journaled in bracket **160** which is fixed to the housing side wall **20***a* in any appropriate manner. In the embodiment of FIG. 9 the motor **54** is secured in any appropriate manner to an arm **162** the end of which is rigidly secured to the housing side wall **22** in any appropriate manner, as by the screws **164**. In order to provide for adjustable positioning of the motor **54**, an adjustment screw **166** is threadedly mounted in the housing wall **22**, the screw **166** passing therethrough and pressing against the free end of the arm **162**, the inherent resiliency of the arm **162** causing it to tend to move toward the screw **166**.

In the preferred embodiment disclosed in FIG. 10, the motor **54** is secured in any appropriate manner to arm **168** which is freely pivotally mounted on bracket **170** at **172**. The arm **168** is provided with an outwardly extending projection **174** (see FIG. 11) about which one end of compression spring **176** is received, the other end of the spring **176** entering recess **178** in the housing wall **20***a* and bearing against washer **180** received therewithin. The washer **180** is adapted to be moved axially within the recess **178** by adjusting screw **182** threadedly mounted in housing wall **20***a*. Turning of the screw **182** will cause the axial position of the washer **180** to vary, and this will change the pressure exerted by the spring **176** on the arm **168**. In this way the motor shaft **56** is resiliently urged against the periphery of the ring **80** with a substantially constant and adjustable force but can accommodate itself to irregularities in or non-concentricity of the outer surface of the ring **80** as the latter is rotated. With this arrangement proper frictional connection between the motor shaft **56** and the ring **80** is achieved while reducing the torque requirements on the motor and thus minimizing current consumption.

Motor torque requirements can be further reduced by minimizing the friction between the shaft **66** and the bushing **64** in which it is journaled. As shown in FIG. 16, the shaft portion **68***a* received within the bushing **64** may, for the major portion of its length, be of slightly reduced diameter, only the portions thereof at the ends of the bushing **64** actually engaging the inner surface of that bushing.

It has been found that the spring leaves **40** which engage the batteries **30** and make electrical connection therewith tend after a time to become bent and lose their resiliency, as a result of which the batteries **30** are no longer firmly retained in position and electrical connection thereto is sometimes broken. The magnitude of the problem involved can be understood in light of the fact that dolls, in the course of being played with, are often tossed about rather violently, and the weight of the batteries **30** acting against the spring leaves **40** places a great deal of strain on the latter.

In order to ensure that the batteries **30** are retained in proper position, without rattling, and that electrical connection is reliably made thereto, the modification disclosed in FIGS. 12 and 13 may be used. There the removable portion **6***a* of the rear body wall **6** is provided with a pair of inwardly projecting screws **184** which are threadedly received therein, as in inwardly extending bosses **186**. The strap **38***a* which carries the spring leaves **40** is defined by an insulating plate **188** mounted on separated metallic pieces **190** to which the spring leaves **40** are respectively connected. The insulating plate **188** and the metallic pieces **190** are provided with registering openings **192** over the battery-engaging parts of the spring leaves **40**, these apertures **192** being so located that when the strap **38***a* is in operative position and when the rear body wall portion **6***a* is secured in place, the screws **184** will extend through the openings **192** and will engage the upper surfaces of those portions of the spring leaves **40** which make electrical connection with the batteries **30**. Hence if the batteries **30** tend to rattle or if the electrical connection thereto is not reliable, all that need be done is to tighten down on the screws **184**. The passage of those screws through the apertures **192** positively prevents the strap **38***a* from moving out of its operative position. However, when the rear body wall portion **6***a* is removed, the screws **184** are pulled out from the openings **192**, and the strap **38***a* can be moved to inoperative position to permit removal and replacement of the batteries **30**. If desired, an on-off switch **193**, connected in the electrical circuit for the motor **54**, may be carried by the removable wall portion **6***a*.

It has been found that when dolls equipped with phonographs of the type under discussion are shipped they are often subjected to rough handling, which tends to damage the stylus **114** clamped between the record **90** and the vibratile wall **24**. The same sort of damage can occur while the doll is in use if it is subjected to extremely rough handling. It has been found that this type of damage can be eliminated if the stylus **114** is not clamped between the record **90** and the wall **24**, as it usually is under the influence of the spring **98**. To this end, and as disclosed in FIGS. 14 and 15, means are provided for releasably retaining the button **14** in its axially inwardly located position, thus moving the record driving shaft **66** to the right as viewed n FIG. 4 and moving the record **90** away from the stylus **114** and the vibratile wall **24**. This may readily be accomplished by using a resilient band **194** which surrounds the doll body **2** while tensioned, and which is adapted to be received within a groove **196** formed in the outer surface of the button **14**. When the band **194** is thus engaged it will, because of its strength, move the button **14** inwardly against the action of the spring **16** and it will also overpower the spring **98**, thus moving the record driving shaft **66** to the right, the record **90** being carried along therewith and hence unclamping the stylus **114**. When the phonograph is to be used the band **194** is disengaged from the button **14**, and it may or may not be removed from the doll body **2**, as desired. The band **194** can, of course, be used in the same manner to disable the phonograph when the doll is to be played with and the phonograph feature is not desired, thus permitting violent play with the doll without damaging the phonograph.

In FIG. 17 an improved arrangement for mounting the record **90** on the driving shaft **66** is disclosed. It is essentially similar to that shown in FIG. 8, except that the disk **96***a* is resiliently dished, its periphery engaging the record **90**, its inner portion being pressed downwardly by the clamping nut **92**, and a substantial part of the body thereof being spaced from the record **90**. The resilient action of the disk **96** locks the clamping nut **92** in place, and that portion of the body of the disk **96** which is not in engagement with the end **90** acts as a sounding board for stylus-induced vibrations of the record

90, thus improving the reproduction qualities of the phonograph.

From the above it will be seen that the phonograph in question may readily be manufactured at relatively low cost, is reliable and effective in operation, and is well adapted for its combination with a doll in order to produce a true "talking" doll with a vocabulary commensurate with its appearance.

While but a limited number of embodiments of the present invention have been here disclosed, it will be apparent that many variations may be made therein, all without departing from the spirit of the invention, as defined in the following claims.

We claim:

1. A record player comprising a housing having a vibratile wall part fixedly mounted thereon, a record-driving member rotatably mounted in said housing and axially movable toward said wall part, biasing means urging said member in a given direction toward said wall part, means for moving said member away from said wall part, stylus means in said housing adjacent said wall part and said member and adapted to simultaneously engage said wall part and a record carried by said member, said stylus means being mounted in said housing for movement in a lateral direction substantially at right angles to said given direction, thereby simultaneously to traverse a record carried by said member, and for limited movement in said given direction, thereby to be clamped between said wall part and a record carried by said member.

2. In the combination of claim 1, stop means operatively connected to said stylus means for preventing outward lateral movement thereof beyond a given position corresponding to the outer periphery of a record adapted to be carried by said member, and means biasing said stylus means toward engagement with said stop means.

3. In combination with the record player of claim 2, an electric motor operatively connected to said member to rotate the latter, an energizing circuit for said motor, and control means for said motor including manually actuatable first means for initiating the rotation of said member, second means sensitive to the position of said stylus means and effective to open said motor circuit when said stylus means is moved laterally inwardly to a predetermined position, and third means sensitive to the attitude of said housing and effective to open said motor circuit when said housing assumes a predetermined attitude and to leave said motor circuit in its otherwise existing status when said housing assumes a different attitude.

4. In combination with the record player of claim 2, driving means operatively connected to said member to rotate the latter, and control means for said driving means including manually actuatable first means for initiating the rotation of said member, and second means for terminating the rotation thereof, said second means being sensitive to the position of said stylus means and effective to terminate said rotation of said member when said stylus means is moved laterally inwardly to a predetermined position, said first means being operatively connected to said member and constituting, when actuated, said means for moving said member away from said wall part, thereby releasing said stylus means for biased movement laterally outwardly.

5. In combination with the record player of claim 2, driving means operatively connected to said member to rotate the latter, and control means for said driving means including manually actuatable first means for initiating the rotation of said member, second means sensitive to the position of said stylus means and effective to terminate said rotation of said member when said stylus means is moved laterally inwardly to a predetermined position, and third means sensitive to the attitude of said housing and effective to terminate said rotation of said member when said housing assumes a predetermined attitude and to permit said member rotation when said housing assumes a different attitude, said first means being operatively connected to said member and constituting when actuated, said means for moving said member away from said wall part, thereby releasing said stylus means for biased movement laterally outwardly.

6. In combination with the record player of claim 2, an electric motor operatively connected to said member to rotate the latter, an energizing circuit for said motor, and control means for said motor including manually actuatable first means for initiating the rotation of said member, second means sensitive to the position of said stylus means and effective to open said motor circuit when said stylus means is moved laterally inwardly to a predetermined position, and third means sensitive to the attitude of said housing and effective to open said motor circuit when said housing assumes a predetermined attitude and to leave said motor circuit in its otherwise existing status when said housing assumes a different attitude, said first means being operatively connected to said member and constituting, when actuated, said means for moving said member away from said wall part, thereby releasing said stylus means for biased movement laterally outwardly.

7. The record player of claim 1, in which said stylus means comprises a stylus and a holder therefor, said stylus being carried in said holder with one end projecting therefrom toward and engageable with said vibratile wall part and another end projecting therefrom in the opposite direction and adapted to engage a record adapted to be carried by said member.

8. In combination with the record player of claim 1, driving means operatively connected to said member to rotate the latter, and control means for said driving means including manually actuatable first means for initiating the rotation of said member, and second means for terminating the rotation of said member, said second means being sensitive to the attitude of said housing and effective to terminate said member rotation when said housing assumes a predetermined attitude and to permit said member rotation when said housing assumes a different attitude.

9. In combination with the record player of claim 1, an electric motor operatively connected to said member to rotate the latter, an energizing circuit for said motor, and control means for said motor including manually actuatable first means for initiating the rotation of said member and second means for terminating the rotation thereof, said second means being sensitive to the attitude of said housing and effective to open said motor circuit when said housing assumes a predetermined attitude and to leave said motor circuit in its otherwise existing status when said housing assumes a different attitude.

10 A record player comprising a support, a member rotatably mounted on said support and adapted to drive a record to be reproduced, a stylus cooperable with and adapted to move across the record adapted to be carried by said member, driving means operatively connected to said member to rotate the latter, and control means for said driving means, said control means comprising manually actuatable first means for initiating the rotation of said member, second means sensitive to the position of said stylus and effective to terminate said rotation of said member when said stylus is moved laterally inwardly to a predetermined position, and third means sensitive to the attitude of said support and effective to terminate said rotation of said member when said support assumes a first predetermined attitude and to permit rotation of said member when said housing assumes a second predetermined attitude.

11. A record player comprising a support, a member rotatably mounted on said support and adapted to drive a record to be reproduced, a stylus cooperable with and adapted to move across the record adapted to be carried by said shaft, an electric motor operatively connected to said member to rotate the latter, an energizing circuit for said motor, and control means for said motor, said control means comprising first means for initiating the

rotation of said member, second means sensitive to the position of said stylus and effective to open said motor circuit when said stylus is moved laterally inwardly to a predetermined positon, and third means sensitive to the attitude of said support and effective to open said motor circuit when said support assumes a first predetermined attitude and to close said motor circuit when said housing assumes a second predetermined attitude.

12. A record player comprising a base, first and second parts on said base, a first shaft rotatably mounted in one of said parts, a record driving member operatively drivingly connected to said first shaft, transducing means adapted to engage a record carried by said driving member, a motor mouted in the other of said parts and having a second shaft extending therefrom, engageable friction drive elements operatively carried by said shafts respectively, at least one of said parts being movable toward and away from the other of said parts, and means operatively connected between said base and said one of said parts and effective to move said one part, thereby to control the frictional engagement between said drive elements, said one of said parts comprising a bendable arm rigidly connected at one end of said base and carrying said motor adjacent the other end thereof.

13. A record player comprising a housing having a vibratile wall part fixedly mounted thereon, a record-carrying shaft rotatably mounted in said housing and axially movable toward said wall part, biasing means urging said shaft axially toward said wall part, means for moving said shaft axially away from said wall part, stylus means in said housing adjacent said wall part and said shaft and adapted to simultaneously engage said wall part and a record carried by said shaft, said stylus means being mounted in said housing independently of said wall part for movement in a lateral direction substantially at right angles to the axis of said shaft, thereby simultaneously to traverse said wall part and a record carried by said shaft, and for limited movement in the direction of said shaft axis, thereby to be clamped between said wall part and a record carried by said shaft.

14. In the combination of claim **13**, stop means operatively connected to said stylus means for preventing outward lateral movement thereof beyond a given point corresponding to the outer periphery of a record adapted to be carried by said shaft, and means biasing said stylus means toward engagement with said stop means.

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