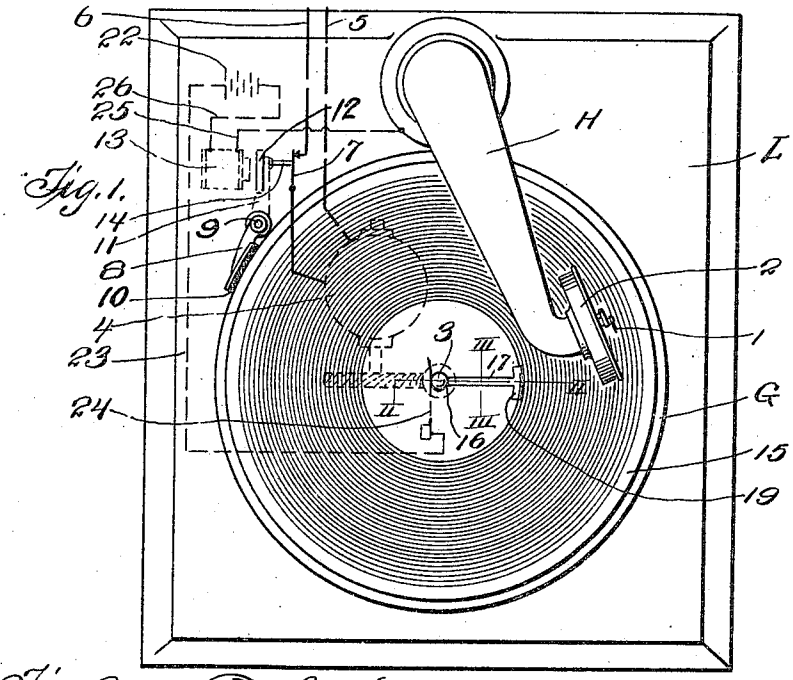
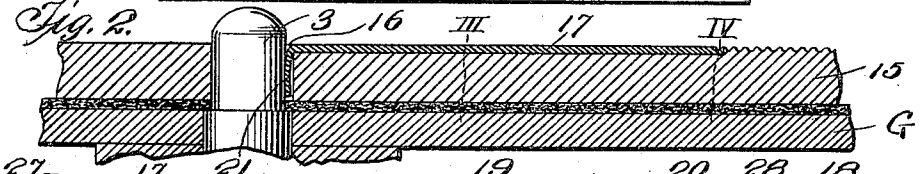
M. B. PEAL.

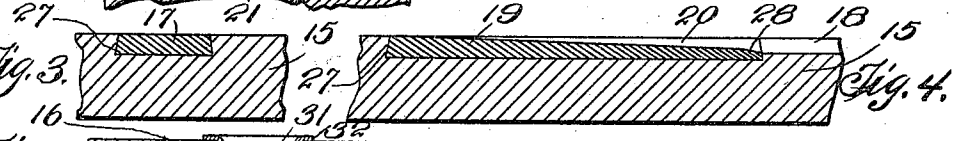
PHONOGRAPH.

APPLICATION FILED APR. 20, 1916.

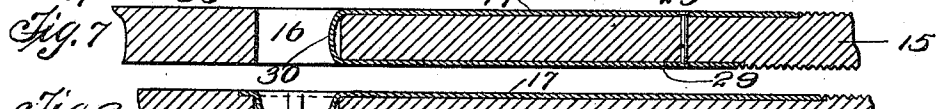
1,265,502. Patented May 7, 1918.



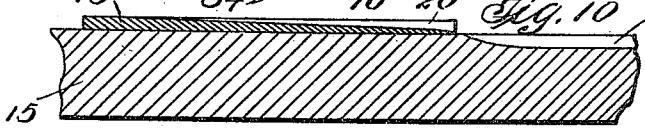


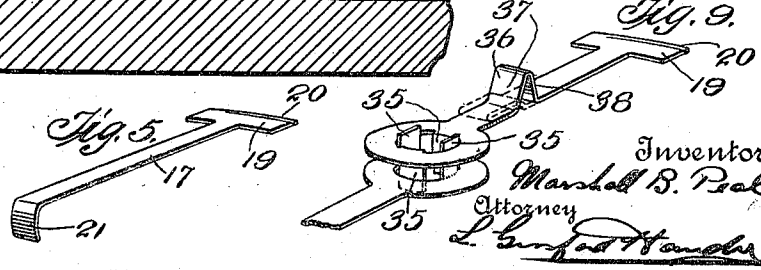












UNITED STATES PATENT OFFICE.

MARSHALL B. PEAL, OF BROOKLYN, NEW YORK.

PHONOGRAPH.

1,265,502. Specification of Letters Patent. Patented May 7, 1918.

Application filed April 20, 1916. Serial No. 92,563.

To all whom it may concern:

Be it known that I, MARSHALL B. PEAL, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Phonographs, of which the following is a specification.

This invention relates to a phonograph, and particularly to means for automatically causing the phonograph to cease all mechanical motion after the stylus or needle has completed its course of travel relatively to the sound producing surface of the record.

A further object is to provide a record having means adapted to coöperate with features embodied in the phonograph structure for causing the rotation of the record to cease after the sound producing surface of the record has been traversed by the stylus or needle.

A further object is to provide a device which may be either incorporated into the record at the time of manufacture of the record, or which may be attached to the record at a subsequent time adapted to cooperate with features of the phonograph machine for causing the operation of the machine to cease at a pre-determined time.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which I have shown a merely preferred form of embodiment of the invention:

Figure 1 is a top plan view of a phonograph machine having a record in position thereon, provided with this invention, certain mechanism of the machine being illustrated diagrammatically.

Fig. 2 is an enlarged vertical detail sectional view taken upon the plane of line II—II of Fig. 1.

Fig. 3 is a fragmentary sectional view taken upon the plane of line III—III of Figs. 1 and 2.

Fig. 4 is a similar view taken upon the plane of line IV—IV of Fig. 2.

Fig. 5 is a perspective view of one of the parts included in this invention.

Figs. 6, 7 and 8 illustrate modifications.

Fig. 9 is a perspective view illustrating a further modification; and

Fig. 10 is an enlarged sectional view illustrating still a further modification.

Referring to the drawings for a detailed description of the structure illustrated therein, the reference character L indicates the box or casing of the phonograph machine, and G the rotatable table carried thereby. The sound horn is indicated by the reference character H, and is pivotally mounted upon the casing to permit the stylus or needle 1 of the reproducer 2 to travel freely along the sound producing surface of the record toward and away from the center post 3 of the table G in the usual manner.

Any suitable means may be employed for rotating the table G. In the drawings an electric motor 4 is illustrated for this purpose, the same being driven from a suitable source applied through the wires 5 and 6, and being controlled by a switch 7 arranged in the wire 6 for making or breaking the circuit along said wire.

If desired, a brake may be employed. In the drawings the reference character 8 indicates a form of brake for illustrative purposes. This comprises an arm which is mounted upon a rotatable spindle 9 and which is provided with a friction surface 10 disposed to be pressed into braking contact with the peripheral portion of the table G when the spindle 9 is rotated. An arm 11 is also provided upon the spindle and this is furnished with an armature 12 arranged to be controlled by an electro-magnet 13. A link 14 connects the arm 11 with the switch 7 so that when said arm is drawn toward the magnet 13, the switch will be swung to break the circuit along the wire 6.

Thus, when the driving power in the motor is discontinued, a brake is simultaneously applied to the table for overcoming the momentum therein.

The record is indicated by the reference numeral 15. It is of the usual form and is provided with the central aperture 16 for receiving the post 3. A contact member 17 is arranged to extend from the aperture 16 to a point coincident with the innermost convolution 18 of the sound producing groove in the record. The outer end, as 19,

may be enlarged and may, if desired, be provided with a groove 20 registering with the innermost convolution 18 of the sound producing groove. The inner end is adapted to make electrical contact with the post 3. Any suitable means may be employed for improving the quality of the electrical contact with the post, but for simplicity that illustrated in Figs. 2 and 5 will serve as an illustration. This means includes a downwardly bent portion 21 at the inner end of the contact member, said portion 21 extending into the opening 16 and comprising a resilient finger adapted to produce a constant pressure against the post. Both the contact member and the post being of metal, it follows that an electric current may be transmitted from one to the other through the finger 21.

When the stylus or needle 1 has moved inwardly into the innermost convolution of the sound producing groove, and the outer end of the contact member 17 rotates into engagement therewith, electrical contact will be made between the stylus and the contact member.

A circuit for the magnet 13 will be established as follows: from the source 22 along wire 23 to a brush, or its equivalent, 24, into electrical connection with the post 3 of the table, from the post 3 along the contact member 17, through the stylus 1 through the horn arm H, along wire 25, through the magnet 13, and along wire 26, back to the source.

The outer end of the contact member 17 may be disposed precisely at the end of the innermost convolution of the sound producing groove, if desired, but usually it is sufficient to dispose the outer end of the contact member at a point somewhat beyond the end of the sound producing groove so as to be engaged by the stylus after the stylus has completed the travel of the groove.

Since the contact member 17 need be only of extremely thin sheet metal, it may rest directly upon the face of the record disk. However, as a simple means for connecting the contact member with the disk, this invention contemplates that the contact member be pressed or sunken into the surface of the disk, preferably at a time when the disk is not fully hardened. The marginal edges of the contact member may be beveled so as to obtain a better grip upon the material of the disk, if desired, as illustrated at 27, in Figs. 3 and 4. By sinking the contact member into the surface of the disk, the groove 20 in the outer end of the contact member may be brought to stand more closely in register with the innermost convolution 18 of the record as clearly shown in Fig. 4. A slight shoulder-like portion 28 is provided so as to render the electrical engagement of the stylus with the contact member more positive and effective.

If found necessary, the contact member may be fixed to the disk by small rivets 29, as shown in Figs. 6 and 7.

Also the contact member may be duplicated if desired, at opposite surfaces of the disk. In fact, in some cases it may be desirable to form the contact members for the opposite surfaces of the disk as a single piece of metal bent through the opening 16, as shown in Fig. 7. In this case the intermediate bent part 30 will serve as a resilient portion for engaging the post 3.

When the contact members upon the two surfaces of the disk are formed as separate members, they may, if desired, be connected by a thimble-like member 31, as shown in Fig. 6. The member 31 provides flanges 32 for engaging and retaining the contact members, and it provides a somewhat resilient central portion 33 for engaging the post.

In Fig. 8 a modification is illustrated in which a thimble portion is provided directly upon the contact member, said thimble portion being formed with resilient sections 34 for engaging the post.

In Fig. 9 a modification is illustrated in which the contact member is provided with a pair of resilient bendable fingers 35. Where it is desired to attach two of these contact members to the two surfaces of the disk, the pair of fingers 35 of one may be extended through the opening in the disk and bent to engage portions of the other contact member, while the pair of fingers 35 of the other contact member may be extended through the opening in the disk and bent to engage portions of the first contact member. The pairs of fingers are preferably arranged in planes at angles to each other in the two contact members in the manner illustrated in Fig. 9.

Fig. 9 also illustrates a simple expedient for providing adjustability in the length of the contact member. Any suitable means may be employed for providing adjustability. The means illustrated includes providing a loop 36, the two legs 37 and 38 of which may be bent toward or away from each other to alter the length of the contact member. After the proper adjustment has been attained, then the loop may be bent down flat against the adjacent portions of the contact member, as illustrated by the dotted lines.

Although it is preferable to embed or sink the contact member into the material of the disk, it is, however, not necessary to do so. In Fig. 10 the contact member is shown not embedded but resting flat upon the surface of the disk.

Also it will be understood that it is not necessary in all cases to provide the groove 20 in the end of the contact member as

where the contact member is made of sufficiently thin material, the edge thereof will not constitute any appreciable resistance to the passage of the stylus thereover.

In some cases it may be desirable to employ thicker material, or otherwise provide a decided shoulder to be engaged by the stylus. Engagement of the stylus with this shoulder will produce the necessary electrical contact without riding over the shoulder. In this case the movement of the contact member would be arrested by engagement with the stylus and the record disk would rotate for a short distance beneath. The portion of the contact member which extends into the opening 16 would provide a continuing electrical engagement with the post and would also provide a pivotal connection between the record disk and the contact member.

It will, of course, be understood that this invention is not to be limited to the use of an electric motor for driving the table G. The movement of the arm 11, or its equivalent, is intended to control any other type of motor, as well as that illustrated.

It will be understood also that the principles of this invention are not necessarily limited to the reproduction of sound from the record but may be equally well adapted to the recording operation.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A contact device for a phonograph disk, comprising a contact forming member carried by the disk extending radially from the central standard receiving opening of the disk, the inner end of the contact forming member being adapted to engage the central standard of the phonograph, the outer end portion of the contact forming member being adapted to be engaged by the stylus of the phonograph, and said contact forming member having a bendable portion bendable to alter the length of said contact forming member.

2. A contact device for a phonograph disk, comprising a contact forming member carried by the disk extending radially from the central standard receiving opening of the disk, the inner end of the contact forming member being adapted to engage the central standard of the phonograph, the outer end portion of the contact forming member being adapted to be engaged by the stylus of the phonograph, said outer end portion of the contact forming member having a groove provided in the upper surface of the material thereof disposed in continuance of the usual music groove of the record disk, for receiving the stylus, said groove in the contact forming member being of substantially the same depth as the music groove at the end where it registers with the music groove, and having a shoulder-like portion formed therein for the purpose described.

3. A contact device for a phonograph disk, comprising a contact forming member carried by the disk extending radially from the central standard receiving opening of the disk, the inner end of the contact forming member being adapted to engage the central standard of the phonograph, the outer end portion of the contact forming member being adapted to be engaged by the stylus of the phonograph, edge portions of said contact forming member being beveled downwardly and outwardly, and said contact forming member being embedded in the material of the record disk so that the upper surface of the contact forming member lies substantially flush with the upper surface of the record disk and so that said beveled edges engage beneath relatively overhanging portions of the material of the record disk.

4. A contact device for a phonograph disk, comprising a contact forming member carried by the record disk, said contact forming member being made up of two parts, one part being disposed at one surface of the record disk and the other part being disposed at the opposite surface of the record disk, and means extending through the central standard receiving opening of the disk serving to hold said two parts together and adapted to form engagement with the central standard of the phonograph.

5. A contact device for a phonograph disk, comprising a contact forming member carried by the record disk, said contact forming member being made up of two independently formed parts, one part being disposed at one surface of the record disk and the other part being disposed at the opposite surface of the record disk, each of said parts having portions extending through the central standard receiving opening of the disk and engaging the other part to mutually retain said two parts against displacement, and said portions also being adapted to form engagement with the central standard of the phonograph.

6. A contact device for a phonograph disk, comprising a contact forming member carried by the record disk, said contact forming member being made up of two independently formed parts, one part being disposed at one surface of the record disk and the other part being disposed at the opposite surface of the record disk, each of said parts extending radially of the record disk from the central standard receiving opening of the disk, means extending through said opening serving to hold the inner ends of said two parts together and adapted to form engagement with the central standard of the phonograph, and means extending through the disk spaced from said open-

ing for holding the outer ends of said two parts in position upon the record disk.

7. A contact device for a phonograph disk, comprising a contact forming member carried by the disk at one surface thereof, said contact forming member having a portion extending through the central standard receiving opening of the disk adapted to form engagement with the central standard of the phonograph, said portion being extended beyond the opposite surface of the record disk and the extended portions being bent over to retain the contact forming member against displacement.

8. A contact device for a phonograph disk, comprising a contact forming member carried by the record disk, said contact forming member being made up of two independently formed parts, one part being disposed at one surface of the record disk and the other part being disposed at the opposite surface of the record disk, each of said opposite parts having integral fingers formed thereon extending through the central standard receiving opening of the disk into gripping engagement with the other part, and said fingers being resilient and adapted thereby to form frictional engagement with the central standard of the phonograph.

9. A contact device for a phonograph disk, comprising a contact forming member carried by the record disk, said contact forming member being made up of two independently formed parts, one part being disposed at one surface of the record disk and the other part being disposed at the opposite surface of the record disk, one of said parts having a pair of fingers formed thereon spaced apart and extending through the central standard receiving opening of the disk and into gripping engagement with the second part to retain said second part against displacement, the second part also having a pair of fingers formed thereon extending through the central standard receiving opening of the disk in the space between the fingers of the first part and into gripping engagement with the first part to retain the first part against displacement, and said fingers being adapted to engage the central standard of the phonograph.

10. A contact device for a phonograph disk, comprising a contact forming member carried by the disk extending radially from the central standard receiving opening of the disk, the inner end of the contact forming member being adapted to engage the central standard of the phonograph, the outer end portion of the contact forming member being adapted to be engaged by the stylus of the phonograph, and said contact forming member having its intermediate portion shaped to provide a pair of legs bendable toward and away from each other for altering the length of the contact forming member.

In testimony whereof I affix my signature in the presence of two witnesses.

MARSHALL B. PEAL.

Witnesses:

L. GESSFORD HANDY,

LOUIS BRANDMIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C.