F. H. OSBORN.

BRAKE MECHANISM.

APPLICATION FILED FEB. 4, 1908.

904,890. Patented Nov. 24, 1908.

Fig. 1,

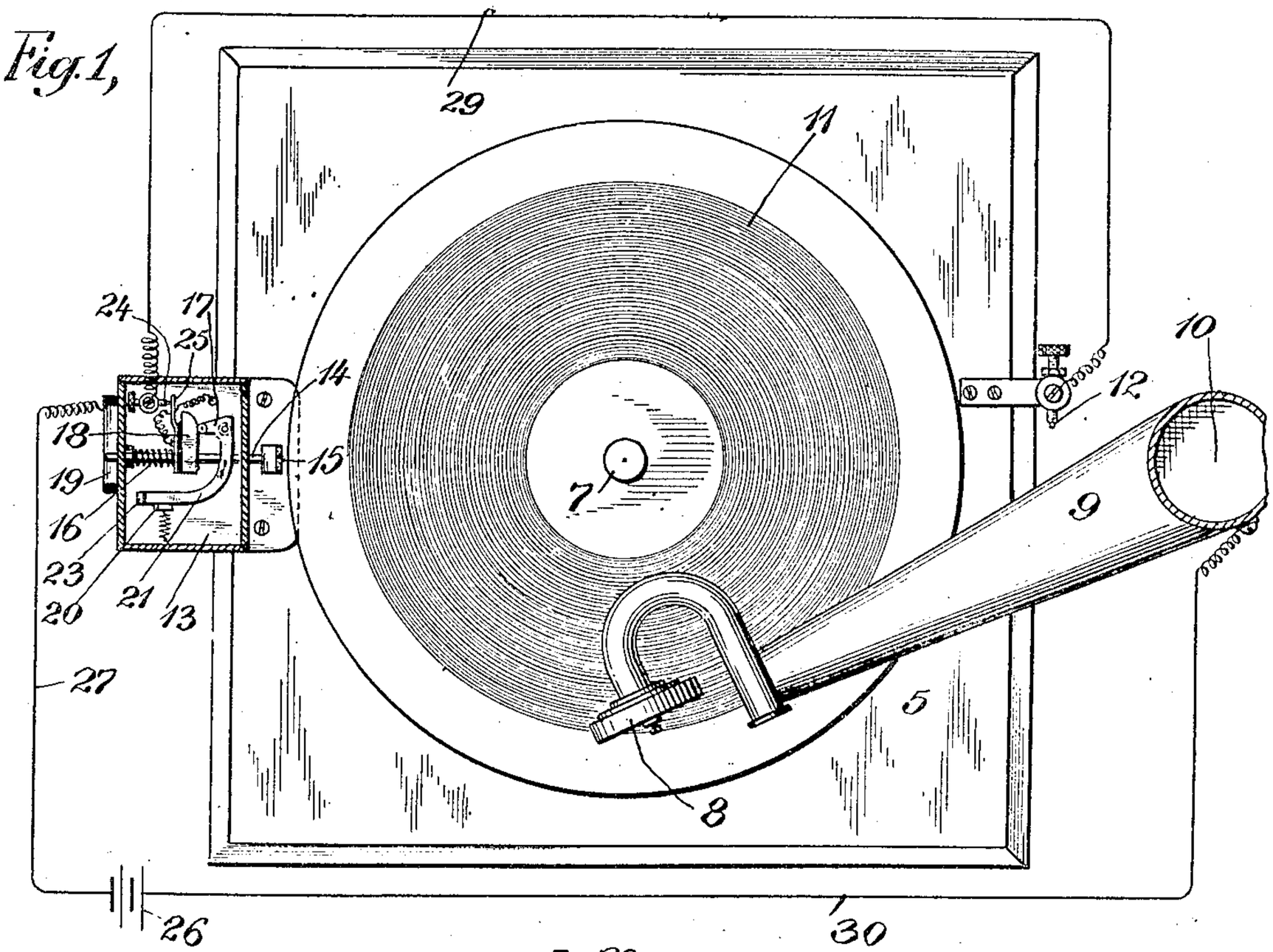


Fig. 3,

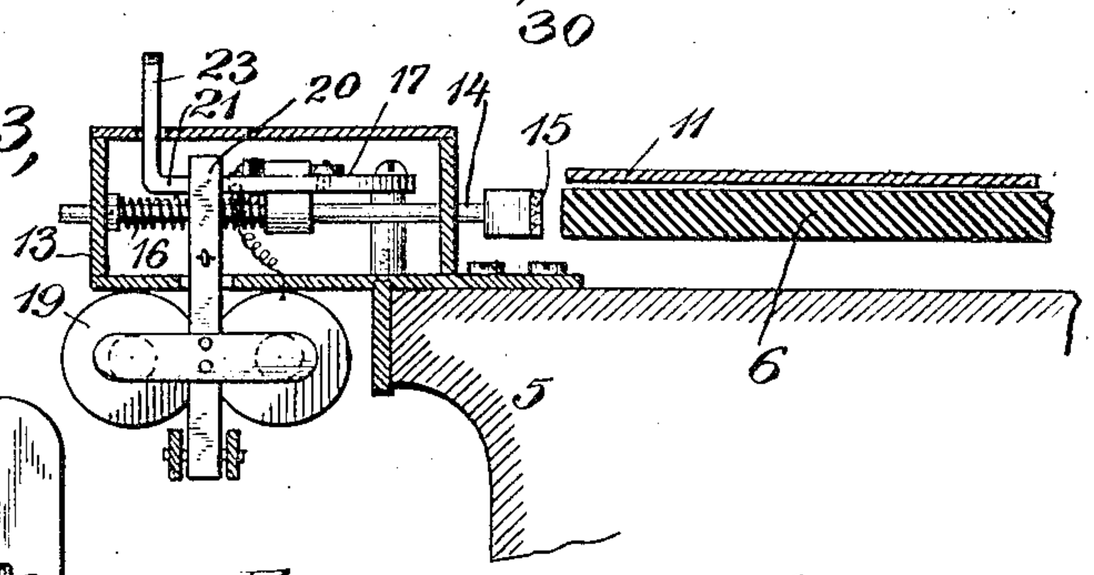


Fig. 2,

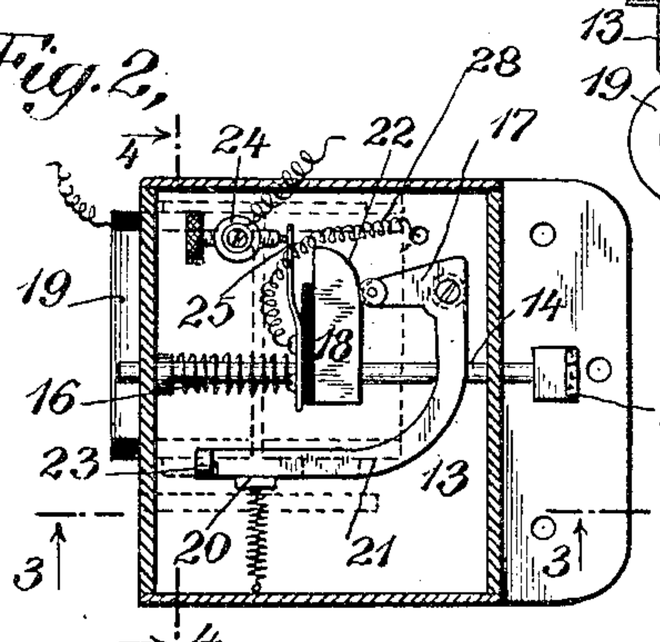
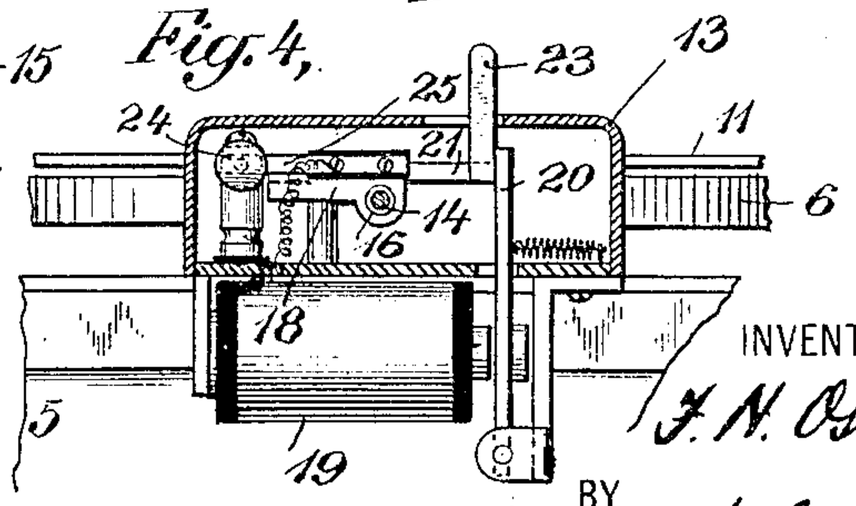


Fig. 4,



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BRAKE MECHANISM.

No. 904,890. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed February 4, 1908. Serial No. 414,173.

To all whom it may concern:

Be it known that I, FREDERICK H. OSBORN, a citizen of the United States of America, and a resident of Garrison, county of Putnam; and State of New York, have invented certain new and useful Improvements in Brake Mechanisms, of which the following is a specification, reference being had to the accompanying drawings forming a part thereof.

My invention relates to improvements in brake mechanisms such as are particularly adapted for use on phonographs, gramophones and similar sound reproducing instruments although the said brake mechanisms may be employed in connection with other machines.

In the ordinary type of commercial sound reproducing machines, it is necessary for an attendant to be present to stop or reset the machine when a record has been completed, and if this is not promptly attended to, damage to the machine is likely to result.

In my present invention, I provide an electrically controlled brake for this purpose, the circuit for which is closed by the movements of the arm which carries the sound reproducing means. The circuit is normally an open one and is closed by the arm as it reaches the end of its movement. The closing of the circuit causes the operation of the brake, and the brake mechanism includes a circuit interrupting device by which the circuit is again broken directly the brake is applied. By reason of this construction and arrangement of parts, I employ a minimum of current in the operation of the device whereby I not only operate economically, but am enabled to use a small battery without having to constantly renew or recharge the same. I have also so arranged, designed and constructed the device as to readily adapt the same for use with the present style of machines. In other words, the device in its preferred form comprises an attachment rather than an integral portion of an entire machine.

In order that my invention may be fully understood, I will describe an embodiment thereof having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a top view of a sound reproducing machine having a brake mechanism embodying my invention attached thereto. Fig. 2 is an enlarged top view of the brake mechanism removed from the machine, the casing therefor being shown in horizontal section. Fig. 3 is a sectional view of the device and a portion of the machine with which it is employed, the plane of section being taken substantially upon the line 3—3 of Fig. 2. Fig. 4 is a sectional view upon the plane of the line 4—4 of Fig. 2.

The particular style of machine which I have selected for illustration is a sound reproducing machine employing a flat or disk form of record. This style of machine is sometimes termed a "gramophone", and indeed various trade names are often employed to variously designate different specific forms of machines. In the present specification, I employ the word, "phonograph" in its generic sense as including the different forms of sound reproducing machines thus variously designated.

The sound reproducing machine comprises a box or casing 5 in which is contained the motor for driving the record carrying support. This record carrying support comprises a flat top disk 6 mounted upon a central shaft 7 which is in constant rotative connection with the said motor.

The motor is commonly of the spring driven type in commercial machines, and the power of the motor is constantly applied to turning the disk so long as the spring is under tension, or as is commonly expressed, so long as the spring is wound up.

The sound reproducing device 8 is carried by an arm 9 which is arranged to swing around an axis 10. A record 11 is mounted upon the disk 6 and the stylus of the sound reproducing device is arranged to be in contact therewith and to follow the spiral groove therein as the disk rotates.

Secured to the casing 5 of the machine is an adjustable terminal contact point 12 located in the path of movement of the said arm 9 and so positioned that the said arm will engage it at about the time the stylus of the sound reproducing means reaches the inner end of the spiral groove in the record. The arm itself is arranged to constitute a second terminal for an electric circuit whereby the contact of the arm with the aforementioned terminal 12 will serve to complete such electric circuit. Secured to another portion of the casing of the machine is an independent box or casing 13 in which is mounted a spring plunger 14, the

inner end of which is provided with a brake shoe 15. The plunger 14 is normally pressed in a direction toward the edge of the disk 6 by means of a spring 16, but is normally held in a position wherein the brake shoe 15 is just out of contact with the said disk, by means of a detent 17 which engages an abutment 18 carried by the said plunger 14. This said detent is arranged to be tripped by means of an electro-magnetic device comprising an electro magnet 19 and an armature, the lever 20 of the latter being arranged to engage an arm 21 with which the said detent 17 is provided. The electro magnet 19 is arranged in circuit with a battery or generator 26 and the terminals represented by the contact point 12 and the arm 19. When the circuit is completed and the armature 20 thereby attracted, the detent 17 will be moved out of the way of the abutment 18 and the spring 16 will be permitted to force the plunger forward to cause the brake shoe 15 to engage the disk and thereby to stop the machine. This, as above mentioned, will take place when the stylus of the sound reproducing device has reached the end of the record groove, and the arm 9 has consequently reached a position to engage the terminal 12. The brake will have sufficient power to stop the machine against the tendency of the motor to rotate it, owing to the advantage of leverage in favor of the brake, and against the motor, due to the relatively large diameter of the disk and the relationship of the gearing.

To set the tripping device, it is only necessary to swing the arm 21 back into its first position. The detent, during this movement, will engage the curved face 22 of the abutment, and will act as a cam to force the plunger back to its initial position.

When the parts are in their initial position, such being the position in which they are shown in the drawings, and circuit through the electro-magnetic device is broken, there will be no tendency for the detent to be tripped, until the electro-magnetic device is again operated, because of the fact that the pivot for the said detent is in a line with the point of contact between the detent and the abutment 18, such as is substantially parallel with the path of movement of the plunger 14 and hence to the said abutment 18.

For convenience in resetting parts, I have provided the arm 21 with an uprising portion 23 which protrudes through the box or casing 13, whereby it may be readily manipulated from the exterior thereof, (see particularly Figs. 3 and 4).

In order to open the circuit directly the brake is applied and before the arm 9 has been moved out of engagement with the terminal point 12, I have provided a circuit interrupting device comprising a stationary terminal point 21 disposed within the box or casing 13 and a spring contact member 25 carried by the abutment 18. When the abutment moves forward with the plunger, at the moment the brake is applied, the spring contact member 25 will be moved away from the terminal point 24, and the circuit will be broken at this point. The circuit may be traced as follows:

Starting from one side of the battery 26, it may be traced through the wire 27 to the coils 19 of the electro-magnetic device, thence through a wire 28 to the contact strip 25, thence from the terminal point 24 through a wire 29 to the terminal point 12, and thence from the arm 9 through a wire 30 back to the battery 26.

What I claim is:

1. A brake mechanism comprising a box or casing, a spring pressed brake carrying plunger arranged to slide in right lines and provided with an abutment, a detent pivoted at a point in advance of the abutment and adapted to engage said abutment at a point substantially in a line passing through the axis of the pivot of the detent and parallel to the path of movement of the plunger, for holding the plunger against the action of the spring, an electro-magnetic device provided with an armature lever for engaging the said detent, a circuit controller for the said electro-magnetic device, such circuit controller including an adjustable terminal, and a traveling member for engagement therewith, and a circuit interrupter independent of the said circuit controller.

2. A brake mechanism comprising a box or casing, a spring pressed brake carrying plunger supported to slide in right lines and provided with an abutment, a detent pivoted at a point in advance of the abutment and adapted to engage the said abutment at a point substantially in a line passing through the axis of the pivot of the detent, and parallel to the path of movement of the plunger, for holding the plunger against the action of the spring, an arm connected to the detent and projecting through the casing whereby the detent may be manipulated by hand, an electro-magnetic device including an armature lever which is arranged to engage the said arm, a circuit controller for closing circuit through the said electro-magnetic device, and a circuit interrupter operated upon the tripping of the said brake.

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Witnesses:
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