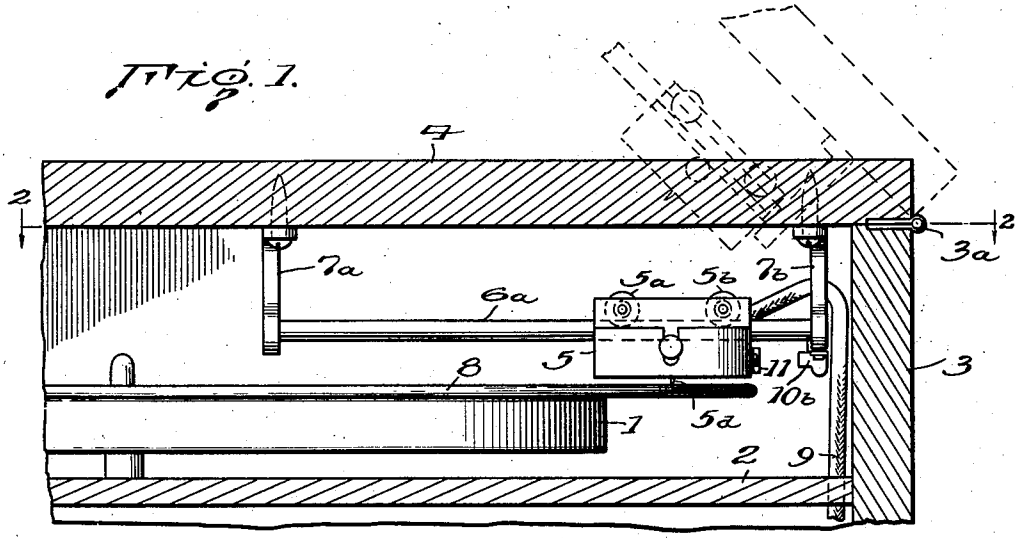
Oct. 22, 1940. E. J. KRAUSE 2,219,230

PHONOGRAPH PICKUP

Filed July 14, 1938

FIG. 1.



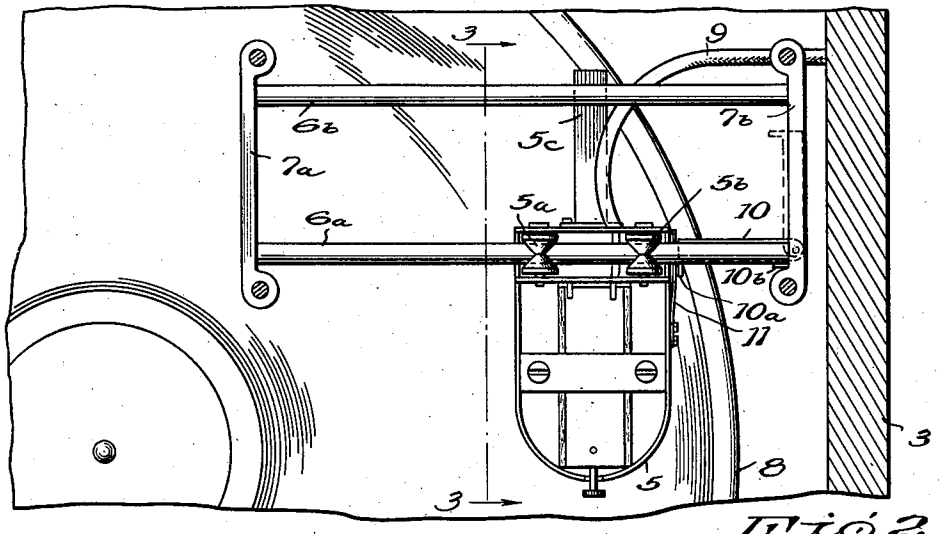


FIG. 2.

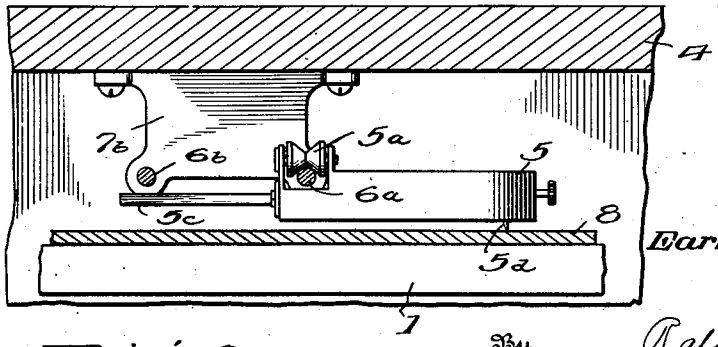


FIG. 3.

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PHONOGRAPH PICKUP

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Application July 14, 1938, Serial No. 219,253

4 Claims. (Cl. 274—2)

The present invention relates to pickup devices for sound reproducing machines, and is especially concerned with arrangements for mounting an electrical pickup on sound reproducing machines employing disc records.

An object of the invention is to devise a mounting for an electrical pickup in a sound reproducing machine whereby the pickup is caused to traverse the disc record along a line radially of the record, thus maintaining the needle of the pickup in a constant and proper angular relation with respect to the groove on the record.

A further object of the invention is to devise a mounting for an electrical pickup in a sound reproducing machine whereby the pickup is automatically returned to its initial starting position when the lid of the enclosing cabinet is raised from closed position.

Another object is to devise adjustable means for stopping the pickup in proper position when the lid of the cabinet is raised so that the pickup may be adapted for the playing of records of different diameters.

Still another object is to devise means responsive to the closing of the lid of the cabinet for gently pushing the pickup unit towards the center of the record to cause the needle to engage the first turn of the sound groove.

My invention is illustrated in the accompanying drawing, in which:

Figure 1 is a fragmentary view showing the upper part of a sound reproducing cabinet in section and showing the pickup mounting in side elevation;

Figure 2 is a view taken along line 2—2 of Figure 1, and

Figure 3 is a view taken along line 3—3 of Figure 2.

Referring to Figure 1, the turn-table of the sound reproducing apparatus is shown at 1 mounted above the top wall 2 of an enclosing cabinet and is driven from any suitable form of constant speed motor (not shown) mounted within the cabinet. The back wall of the cabinet is shown at 3 and the lid 4 of the cabinet is hinged to the back wall at the point 3a. The electrical pickup unit for the reproducing apparatus is shown at 5, and the mounting for the pickup consists of two parallel rails 6a, 6b mounted between two spaced brackets 7a and 7b which in turn are secured to the underside of the lid 4 of the cabinet. The rails 6a and 6b are arranged in parallel relation and lie in a plane parallel with the plane of the sound record 8 when the lid of the cabinet is in closed position. Pickup 5 is provided at its rear end with a pair of grooved pulleys 5a and 5b by which the pickup is mounted upon the rail 6a. A finger or arm 5c on the pickup 5 extends transversely of the rails 6a and 6b and is arranged to engage the rail 6b when the lid of the cabinet is raised so that pickup 5 is prevented from rotating about the rail 6a, but, when the lid of the cabinet is lowered, and the needle of the pickup is in contact with the record 8, the finger 5c does not engage the rail 6b and the entire weight of the pickup is carried by the needle of the pickup and by pulleys 5a and 5b. Upon elevating the lid 4 a predetermined amount, arm 5c engages track 6b, thereby supporting the entire weight of the pickup from track elements 6a—6b.

Any suitable form of pickup device may be employed for the pickup unit 5, such as a piezo crystal type, a magnetic type or a microphonic type. Connections from the pickup unit 5 to the amplifier and sound reproducer (not shown) are completed through a flexible cable 9. This cable may contain two conductors connected to the two terminals of the pickup unit 5, or it may contain only one conductor connected to one terminal of the pickup unit and the circuit to the other terminal of the pickup unit may be completed through the pulleys 5a and 5b, through rail 6a and by a suitable conductor to the amplifying unit (not shown).

From the construction described above, it will be understood that with the lid of the cabinet closed, the weight of the rear end of the pickup unit is carried by pulleys 5a and 5b engaging rail 6a, and the weight of the front end of the unit is carried by the needle 5d in contact with the record. The pickup unit is free to travel along rail 6a by reason of the mounting of the unit upon this rail by pulleys 5a and 5b, and as the record is rotated with the needle 5d in engagement therewith, the pickup unit is caused to travel towards the center of the record in such manner that the needle of the pickup travels along a radial line passing through the center of the record. As soon as the playing of a record has been completed and the lid of the cabinet is raised, the finger 5c on the pickup unit engages the rail 6b and raises the pickup unit from contact with the record. When the lid has been raised so that the action of gravity on the pickup unit 5 is sufficient to overcome frictional engagement of the arm 5c against the underside of the rail 6b, the pickup unit will

slide along rails 6a—6b to a position near the outer periphery of the record. An adjustable stop element 10 is pivotally mounted on bracket 7b and is arranged to occupy two different positions for limiting the movement of the pickup unit when the lid of the cabinet is raised. In the position shown in solid lines in the drawing, the stop 10 is positioned so that pickup 5 engages the end 10a of the stop and the movement of the pickup unit limited for the playing of 10 inch records, while in the dotted line position of the stop 10, the pickup unit 5 engages the side 10b of the stop and limits movement of the unit to a position for the playing of 12 inch records. The stop 10 is preferably designed to stop the pickup in a position such that when the lid is lowered, the needle of the pickup will engage the uncut peripheral portion of the record. A buffer spring 11 secured to pickup unit 5 is arranged to engage the stop element 10 and to prevent undue mechanical shock to the unit 5 when the lid is raised and the unit slides along the rails 6a—6b to the starting position. The spring 11 is preferably formed as a weak spring bendable under the weight of the pickup 5 against the stop 10, but having sufficient strength so that when the lid is lowered to horizontal position, the spring 11 will gently force the pickup 5 along the rail 6a towards the center of the record until the needle 5d engages the first turn of the sound groove on the record. It will be noted that spring 11 serves the same function in both positions of the stop 10.

From the foregoing description, it will be seen that in using a phonograph equipped with my pickup mounting, it is unnecessary to manually control or manipulate the pickup unit, except for the purpose of changing the needle. The mere raising of the lid of the cabinet causes the automatic return of the pickup unit to the starting position, and lowering the lid causes the automatic and proper engagement of the pickup unit with the record. The only other manual control which is necessary is the adjustment of the stop 10 in the event that it is desired to play records of different diameters.

What I claim is:

1. In combination, a turn-table, a pickup device, a pair of parallel track elements arranged parallel to a radial line on said turn-table, means including a pair of grooved pulleys for mounting one end of said pickup device on one of said track elements, means including a stylus for supporting the other end of said pickup device on a record carried by said turn-table, said pickup device extending transversely to the track element supporting one end thereof, means for elevating said track elements above their normal position with respect to said turn-table, and means including a part on said pickup device for engaging the second track element upon elevation of said tracks to predetermined amount for supporting the entire weight of said pickup device from said track elements and thereby elevating said pickup device above said record.

2. In combination, a cabinet, a turn-table mounted within said cabinet, a lid hinged to said cabinet, a pickup device adapted to cooperate with a sound record on said turn-table, a track element secured to the lid of said cabinet for guiding said pickup device over said record along a radial path, and means including said track element for automatically returning said pickup device to its starting position when the lid of said cabinet is raised from closed position.

3. In combination, a cabinet, a turn-table mounted within said cabinet, a lid hinged to said cabinet, a pickup device, a pair of track elements mounted on the underside of said lid and arranged parallel to a radial line on said turn-table, means including a pair of grooved pulleys for mounting one end of said pickup device on one side of said track elements, means including a stylus for supporting the other end of said pickup device on a record carried by said turn-table, said pickup device extending transversely of the track element supporting one end thereof, means including a part on said pickup device for engaging the second track element upon elevation of said lid a predetermined amount, whereby the entire weight of said pickup device is supported from said track elements and whereby upon further elevation of said lid said pickup device moves under the action of gravity to a position near the periphery of said record.

4. In combination, a cabinet, a turn-table mounted within said cabinet, a lid hinged to said cabinet, a pickup device, a track element mounted on the underside of said lid and arranged parallel to a radial line on said turn-table, means including a pair of grooved pulleys for mounting one end of said pickup device on said track element, means including a stylus for supporting the other end of said pickup device on a record carried by said turn-table, said pickup device extending transversely of the track element supporting one end thereof, means including a part on said pickup device for engaging said track element upon elevation of said lid a predetermined amount, whereby the entire weight of said pickup device is supported from said track element and whereby upon further elevation of said lid said pickup device moves under the action of gravity to a position near the periphery of said record.

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