Sept. 15, 1942. W. J. BROWN 2,295,712

RECORDER-REPRODUCER HEAD

Filed Oct. 7, 1941

FIG. 1

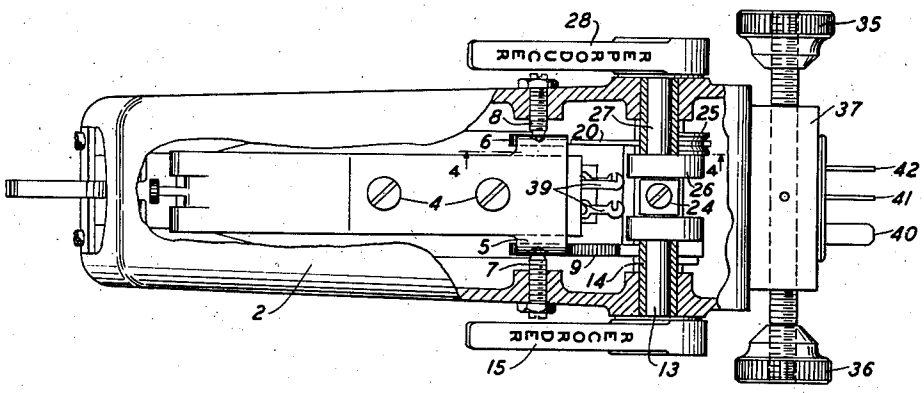


FIG. 2

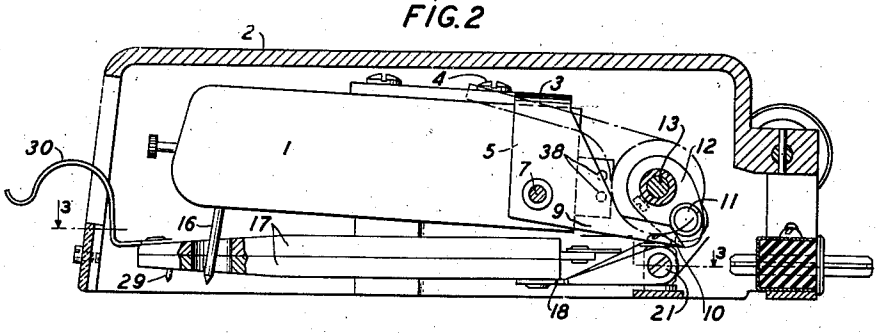


FIG. 3

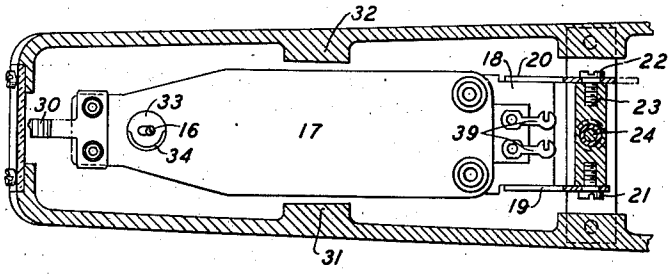
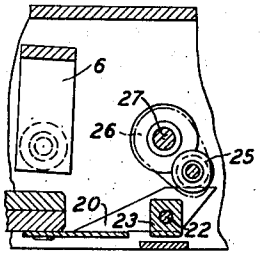


FIG. 4



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RECORDER-REPRODUCER HEAD

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5 Claims. (Cl. 274—30)

This invention relates to phonograph recording and particularly to combination machines for both recording and reproducing purposes.

The object of the invention is a compact unitary recorder-reproducer head which is capable of reproducing the recorded material practically simultaneously with the recording operation.

In prior machines of this type, the recorder and reproducer are mounted separately to engage the record either on opposite sides of the spindle or at least some distance apart along the same groove. Due to space limitations inherent in these designs, there is necessarily considerable time lag in the reproduction of matter being recorded and the use of separate mountings makes the necessary supporting superstructure complicated and expensive.

In the combination recorder-reproducer head of this invention, the recorder is mounted directly above the reproducer with its stylus projecting through an aperture in the reproducer structure between the reproducer stylus and its associated translating unit. The reproducer stylus tracks the groove only a fraction of an inch behind the recorder stylus and therefore reproduces the recorded matter only a small fraction of a second after it is recorded.

In the preferred structure the two devices are mounted on separate horizontal pivots within a common housing so that either one alone or both may be in engagement with the record surface. The recorder is fixed in a lateral sense so that it may be positively driven by the usual lead screw but the reproducer is capable of limited motion about a vertical pivot so that it may track as much as several grooves behind the recorder stylus position if desired.

In the drawing:

Figs. 1 and 2 are top and side views respectively of the reproducer head according to the invention;

Fig. 3 is a sectional view showing the reproducer and its mounting; and

Fig. 4 is a partial section showing the reproducer lifting mechanism.

The recorder 1 is mounted within the casing 2 by means of a mounting bracket 3 secured to the recorder structure by screws 4, 4 and having downwardly depending lugs 5, 6 which are engaged by the set screws 7, 8 in the casing to form a pivot axis about which the recorder may be rotated into and out of engagement with a recording surface. The lug 5 has a backwardly extending arm 9 terminating in a sloping surface 10 engaging a roller 11 on the cam 12 which is fixed to the shaft 13. The shaft projects through a bearing 14 in the casing and mounts a recorder lever 15 which, when depressed from the position in which it is shown, rotates the cam 12 and permits the recorder to pivot about its axis through the screws 7, 8 until its stylus 16 is in contact with the record.

The reproducer 17 has a mounting bracket 18 with backwardly extending lugs 19, 20 secured by screws 21, 22 to the cross member 23 which is center pivoted on the casing 2 by the screw 24. The lug 20 extends beyond the member 23 and engages the grooved roller 25 on the cam 26 which is secured on the shaft 27 and operated by the reproducer lever 28. When this lever is depressed the reproducer moves downwardly about the axis formed by the screws 21, 22 to bring the reproducer stylus 29 into contact with the record groove.

By means of the member 30 secured to the reproducer and projecting through the front of the casing 2, the reproducer may be rotated about its pivot 24 within the limits determined by the stops 31, 32 on the casing to set the reproducer stylus either in the groove being cut or in an adjacent groove. When a record previously made is being played back, the reproducer may be set to engage a groove on either side of its normal position without shifting the casing with respect to the lead screw. This is particularly convenient when it is desired to repeat a small portion of a reproduction.

The aperture 33 in the reproducer through which the recorder stylus projects must be large enough to permit the desired excursion of the reproducer from its normal position. In cases where immediate reproduction is important, it should also be as close to the reproducing stylus as possible. In the structure shown, the spacing between the stylus is of the order of only one quarter inch so that for any practical recording speed the reproduction is substantially instantaneous.

The reproducing stylus 29 is operativly connected to the translating unit by means of a stiff wire 34 offset at the aperture 33 to by-pass the recorder stylus as shown in Fig. 3. The recorder and reproducer shown are both of the well-known piezoelectric type for lateral cut records. While translating devices of any other known types may be used, the crystal reproducer is particularly suitable since its vertical dimension may be very small thereby reducing the necessary length and stiffness requirements of the recorder stylus to a minimum.

The casing 2 has clamping screws 35, 36 in an end block 37 which is shaped for a sliding fit in a supporting arm on the carriage of the machine with which the assembly is to be used. Electrical connections (not shown) are provided from the recorder terminals 38, 38 and the reproducer terminals 39, 39 to the plug terminals 40, 41, 42 in the end block 37 so that both translating devices are connected to the amplifying system automatically when the assembly is secured to the machine.

While the invention has been described with reference to a particular structure for purposes of illustration, various modifications may be made within the scope of the following claims.

What is claimed is:

1. A recorder- reproducer assembly for phonographs comprising a recorder having a stylus for forming a groove in a record member, a reproducer having a stylus and a body portion with an aperture near the stylus and means for supporting the recorder and the reproducer with the stylus of the recorder extending through the aperture in the reproducer.

2. A recorder-reproducer assembly for phonographs comprising a recorder having a stylus for forming a groove in a record member, a reproducer having a stylus and a body portion with an aperture near the stylus, a casing, means for mounting the reproducer within the casing for movement about vertical and horizontal pivot axes, and bearings for supporting the recorder in the casing above the reproducer with the recorder stylus extending downwardly through the aperture in the reproducer.

3. A recorder-reproducer assembly for phonographs comprising a recorder having a stylus for forming a groove in a record member, a reproducer having a stylus and a body portion with an aperture near the stylus, a casing, means for supporting the recorder and reproducer within the casing with the recorder stylus extending downwardly through the aperture in the reproducer, and means externally of the casing for independently adjusting the recorder and reproducer with respect to the record.

4. A recorder-reproducer assembly for phonographs comprising a recorder having a stylus for forming a groove in a record member, a reproducer having a stylus and a body portion with an aperture near the stylus, a casing, means for mounting the reproducer within the casing for movement about vertical and horizontal pivot axes, a horizontal pivot axis supporting the recorder in the casing above the reproducer with the recorder stylus extending downwardly through the aperture in the reproducer and means externally of the casing for moving the reproducer about its vertical pivot axis.

5. In a recorder-reproducer assembly for phonographs, two translating devices each comprising a translating element and a stylus connected thereto, a common casing housing the devices, pivotal supports mounting the devices one above the other in the casing, and means for each device for moving the device about its support, comprising a shaft journaled in the casing, a cam thereon associated with the device and a lever secured to the shaft externally of the casing.

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