

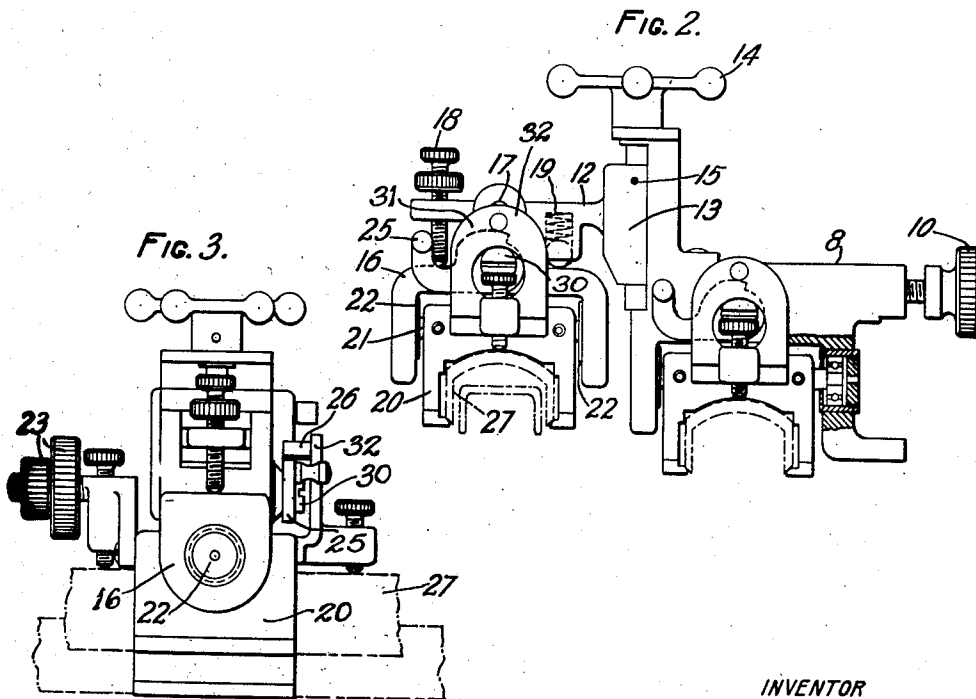
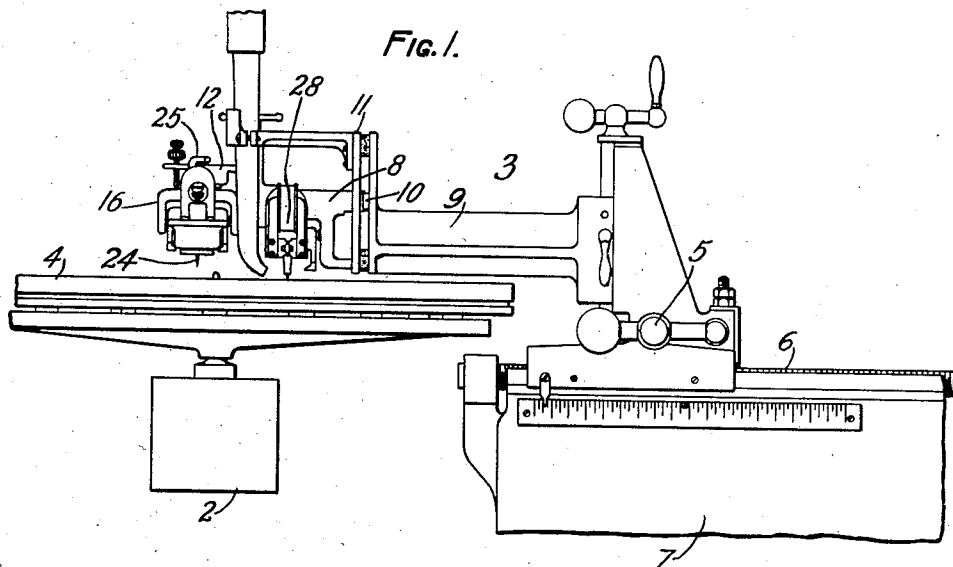
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J. H. SAILLIARD

1,868,369

SOUND RECORDING MACHINE

Filed Jan. 19, 1929



INVENTOR
J. H. SAILLIARD
BY *J. M. Campbell*
ATTORNEY

UNITED STATES PATENT OFFICE

JOHN H. SAILLIARD, OF GREAT KILLS, NEW YORK, ASSIGNOR TO BELL TELEPHONE LABORATORIES, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

SOUND RECORDING MACHINE

Application filed January 19, 1929. Serial No. 333,731.

This invention relates to sound recording machines and its object is to facilitate the production of records with such machines.

The advantage of being able to reproduce a record immediately after recording is well understood in the art. Such a procedure represents the only sure way of determining without great loss of time whether the record being made is satisfactory. Accordingly, various devices for reproducing the original soft wax records have been proposed. One of these is disclosed in Patent 1,778,386 to H. C. Harrison, October 14, 1930 and consists of a high quality electric reproducer having a moving system of very low mass and balance stiffness so that the stylus is actuated without appreciable damage to the record grooves.

Prior to the present invention when it was desired to play back a record, or more often a small portion of a record, which had just been made, it was necessary to remove the recorder from its supporting saddle and substitute for it a play-back reproducer. This procedure was found to be objectionable for several reasons. The frequent interchanging of the translating devices was not only inconvenient but it also involved the loss of the recorder adjustment which had been obtained by careful experiment. It was found also that very careful adjustment of the reproducer in its holder was necessary to insure that it was not biased toward one side or the other since any appreciable bias introduced distortion in the reproduction and might damage the record grooves.

In order to avoid distortion in the record the recorder adjustment referred to above must be such that when the recorder is in cutting position on the record the cutting face of the stylus is exactly vertical. This means that the supporting arm of the recorder must be accurately located in vertical adjustment in accordance with the thickness of the record material and the dimensions of the particular recorder used. When once adjusted the recorder can of course be raised from the surface of the record and lowered again without losing the adjustment by rotating the recorder about its own horizontal axis. But when the recorder is removed from its saddle

and the reproducer is inserted for play-back purposes, the vertical adjustment must be changed due to the difference in the dimensions of the two devices and hence the recorder must be readjusted when replaced before the recording can continue.

In accordance with the general features of this invention these objections are overcome by attaching to the arm carrying the recorder holder an additional clamping device for the play-back. This device is made both rotatably and vertically adjustable with respect to the supporting arm so that the play-back may be used for reproducing all or any portion of a record without disturbing the recorder adjustment. Sufficient freedom in the movement of the reproducer is obtained by providing ball bearing pivots between the reproducer saddle and its supporting member and leveling the reproducer in its saddle by means of the rotary adjustment.

This invention will be more readily understood from the following detailed description considered in connection with the accompanying drawing, in which Fig. 1 is a general view of one embodiment showing also certain parts of a disc recording machine;

Fig. 2 is a more detailed view of the play-back reproducer clamping device and shows the adjustment between this device and the recorder supporting members; and

Fig. 3 is an end view of the clamping device of Fig. 2.

Since the present invention concerns the adjustment of the recording and reproducing devices, only those parts of the recording machine necessary to an understanding of the invention have been shown. Such a machine consists essentially of a turntable for carrying the record discs, driving means for the turntable such as a motor 2 and a carriage 3 for the recording and reproducing devices. The position of these devices with respect to the record 4 may be varied by moving the carriage manually by means of a crank 5 or automatically by contact with a lead screw 6 in the base 7. These and other features relating to the operation of the recording machine are described in detail in

Patent 1,711,650 to H. Pfannenstiehl, May 7, 1929.

Referring now to those parts of the carriage which relate particularly to this invention and are shown in Fig. 2, the recorder supporting arm 8 is attached to the main supporting arm 9 by means of a set screw 10 passing through a hole in the face-plate 11. The reproducer arm 12 is in turn secured to the arm 8 by means of a sliding clamp arrangement 13 which may be moved up or down by means of a screw 14 and can be held in any desired position by a set screw 15. The reproducer saddle-holder 16 is pivotally connected to the arm 12 by means of a rod 17 and may be suitably positioned by means of the set screw 18 which moves the saddle holder 16 about the rod 17 against the tension of the spring 19. The saddle 20 is pivotally mounted in its holder by means of an axle rod 21 resting in ball bearings 22—22 and an adjustable counterweight 23 is provided to balance part of the weight of the reproducer and permit variation of the pressure which the needle 24 exerts on the record 4. The saddle-lifting lever 25 is pivotally mounted on a saddle holder 16 by a machine screw 30 and has an eccentric cam surface 31 which engages a pin 26 in the member 32 projecting upwardly from the saddle 20. In the position shown in Figs. 2 and 3 the lever 25 is in the operating position, that is to say, the reproducer arm 27 is horizontal and the stylus 24 is in contact with the record groove. As the lever is turned in a clockwise direction about its pivot 30 the cam surface 31 moves the pin 26 upwardly, thereby raising the saddle 20 in a counter-clockwise direction about its bearings 22. In this way the lever 25 permits the stylus to be raised and lowered as required after the vertical adjustment has been locked by the set screw 15.

When it is desired to play back from the record the reproducer which may be of any suitable type such as that disclosed in Patent 1,778,386 to H. C. Harrison, October 14, 1930, is fitted to a suitable reproducer arm 27, which in turn is placed in the saddle 20. The reproducer and its supporting mechanism at this time has been raised sufficiently to clear the record surface by means of the screw 14. The set screw 18 is adjusted so that the reproducer arm rides freely in its saddle without a tendency to bind on either side and the screw 14 is reset with the needle 24 resting on the record 4 and perpendicular to it. The set screw 15 is then tightened to maintain this adjustment and the needle is then lifted from the record only by the lifting lever 25.

It is evident then that the stylus 24 may be brought into contact with any desired portion of the record by means of the crank 5 and that this procedure does not interfere with the ad-

justment of the recorder 28 inasmuch as the level of the arm 9 has not been changed. While this invention has been described with reference to a particular embodiment it is intended to limit it only by the scope of the following claims.

What is claimed is:

1. In a machine for cutting and reproducing sound records, the combination with a turntable and a carriage carrying a recording device, of means for reproducing without disturbing the recorder adjustment, a record cut by the recorder comprising a reproducer and a mounting therefor, the reproducer being pivotally connected to the mounting and the mounting being both rotatably and vertically adjustable with respect to the carriage independently of the recorder.

2. In a machine for cutting and reproducing sound records, the combination with a turntable and a carriage carrying a recording device, of a reproducer for reproducing a record cut by the recorder and a mounting permitting the reproducer to function without disturbing the recorder adjustment, comprising an arm vertically adjustable independently of the recorder, a reproducer saddle having an axis of rotation parallel to the arm, a saddle holder supported by the arm on a horizontal axis at right angles to the saddle axis, means for moving the saddle holder about its axis and means for raising the arm independently of the recorder.

In witness whereof, I hereunto subscribe my name this 18th day of January, 1929.

JOHN H. SAILLIARD.