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W. C. JONES
SOUND REPRODUCING SYSTEM

1,829,801

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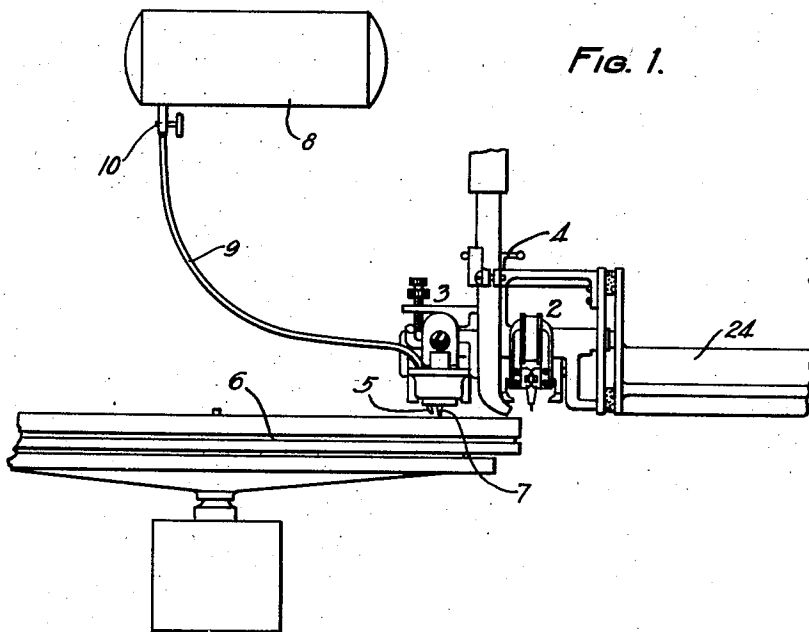


Fig. 1.

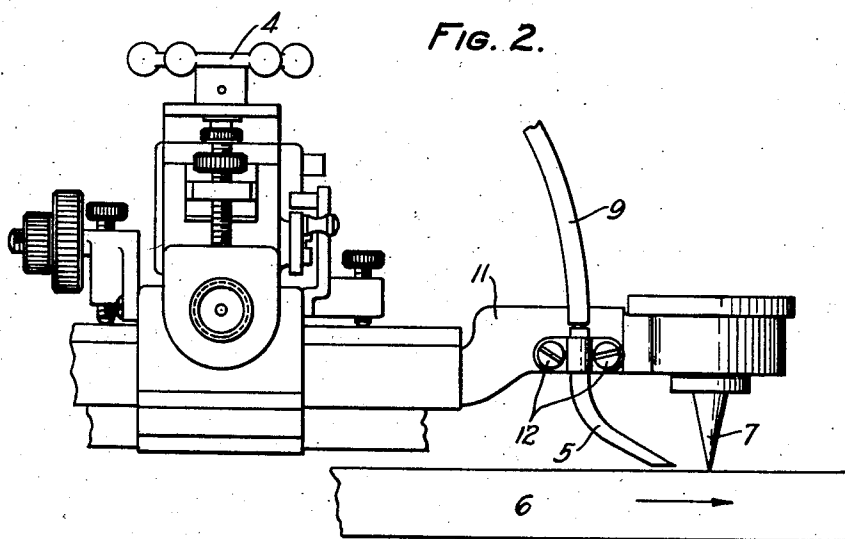


Fig. 2.

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SOUND REPRODUCING SYSTEM

Application filed February 21, 1929. Serial No. 341,612.

This invention relates to sound reproducing systems wherein the recorded sounds are reproduced directly from the original recording medium and has for its object the improvement of the quality of reproduction from such records.

When making sound records it is usually necessary or at least desirable to experiment to some extent before attempting to make a final record. It has been common practice heretofore to record on two soft wax record blanks and to play back one of these to determine if the sounds have been recorded satisfactorily. This procedure, however, not only damages one of the records but also fails to give a true rendition of the sounds actually recorded since, due to the resiliency of the record material, the stylus does not follow the groove faithfully, particularly at high frequencies.

In accordance with this invention a more faithful reproduction of all the recorded sounds is obtained without damaging the soft wax record to any appreciable extent by applying to the record a stream of liquid air or other cooling substance somewhat in advance of the reproducing stylus. In this manner the normally yielding surfaces of the grooves are temporarily hardened and made capable of offering sufficient reaction to the reproducing stylus for the proper operation of the play-back reproducer.

A clearer understanding of the invention may be obtained from the following detailed specification and the accompanying drawings in which Fig. 1 shows a recording and reproducing system incorporating this invention, and Fig. 2 is a detailed view of the arrangement of the cooling system with respect to the reproducing stylus.

Referring to the drawings 24 is the main supporting arm for the recording and reproducing mechanisms 2 and 3 respectively and forms a part of a recording machine such as that disclosed in Patent No. 1,711,650 granted to H. Pfannenstiehl, May 17, 1929. This arm as shown in the Pfannenstiehl patent is mounted adjustably on a carriage so that it may be moved up or down by a hand operated lead screw in the usual manner.

The carriage is driven horizontally by a lead screw driven by the turntable motor so that when the machine is in operation the recording and reproducing mechanisms are moved radially with respect to the record at the proper speed. Independent vertical adjustment for the reproducing mechanism 3 is provided by hand wheel 4 so that this mechanism may be utilized to reproduce a portion of the record without disturbing the recorder adjustment. This latter feature is more fully described and claimed in a co-pending application of J. H. Saillaird, Serial No. 333,731, filed January 19, 1929 and assigned to the same assignee as the present application.

Associated with the reproducing mechanism is the cooling system comprising this invention which consists of a nozzle 5 secured to the reproducer arm 11 by screws 12—12 and terminating near the surface of the record slightly in advance of the reproducing needle 7. This nozzle is connected to the tank or reproducer 8 containing the liquid air or other cooling substance by means of a flexible hose connection 9.

When it is desired to play back a portion of the wax record 6 which has just been recorded by the mechanism 2, the main arm 24 and the screw mechanism 4 are adjusted to bring the reproducing mechanism 3 into playing position. The valve 10 is adjusted to give the proper flow of cooling liquid so that the record surface immediately in front of the reproducing mechanism is chilled sufficiently to give satisfactory operation as already described. Obviously, the choice of the cooling medium to be used in any particular case and the best spacing between the nozzle and the reproducing stylus are matters for experimental determination. The invention has been described with reference to a particular system but this might be modified in various ways without departing from the scope of the invention which is intended to be limited only by the following claims.

What is claimed is:

1. In a sound reproducing system, a record, a reproducer engaging the record, and means effective in advance of the reproducer for

hardening a portion of the surface of the record.

2. In a sound reproducing system, a record, a reproducer engaging the record, and means effective in advance of the reproducer for temporarily hardening the surface of the record before reproduction.

3. In a sound reproducing system, a soft wax record, a reproducer engaging the record, and means for applying a cooling stream to the surface of the record in advance of the reproducer.

4. In a sound reproducing system, a soft wax record, a reproducer engaging the record, and means for applying a stream of liquid air to the surface of the record in advance of the reproducer.

In witness whereof, I hereunto subscribe my name this 19th day of February, 1929.

WARREN C. JONES.

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