

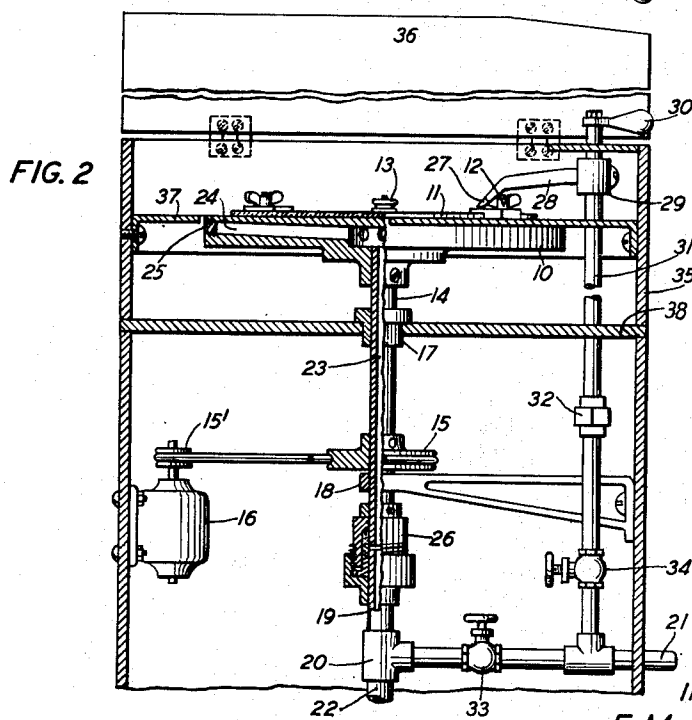
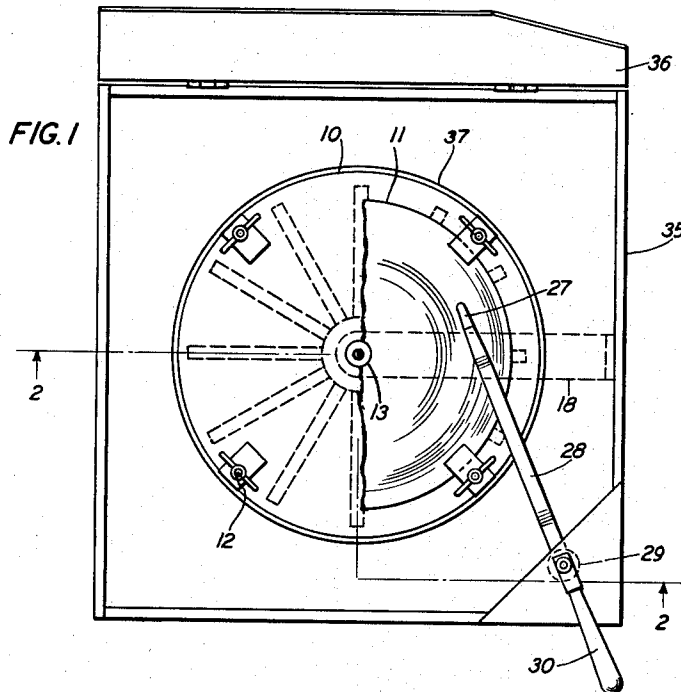
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APPARATUS FOR CLEANING PHONOGRAPH RECORDS

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APPARATUS FOR CLEANING PHONOGRAPH RECORDS

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2 Claims. (Cl. 141-1)

This invention relates to cleaning apparatus for phonograph records and particularly to the apparatus for cleaning a metal master record after it has been electrodeposited upon a wax master record.

It is well known in the art that in order to secure good pressings of phonograph records the stampers and the metal masters from which the stampers are made must be absolutely clean before they are used. Due to the variety and type of adherent matter usually found in metal master records immediately after plating it is difficult to clean them thoroughly without employing a multiplicity of steps in the process, some of which are harmful to the surface of the record. The wax remaining in the grooves is generally the most troublesome of the types. Heretofore it has been necessary to melt and wipe off the greater part of the wax and then use a solvent to remove the remainder, following this with a drying process for the excess solvent. The wiping cloths required in this process have been found to leave scratches in the surface of the record which, though minute, were sufficiently pronounced to affect the surface noise of the record.

The object of this invention is an improved apparatus for cleaning phonograph metal master records.

A preferred form of this invention comprises a heated rotatable support for the record cooperating with a steam jet adapted to be directed upon the surface of the record, all encased in a suitable housing. The record to be cleaned is placed upon the hot support until all the wax is melted whereupon the support and record are rotated under the steam jet which is oscillated radially over the record until all foreign material has been expelled. The record will be found to be perfectly clean and dry and also free from scratches at the end of this operation.

The accompanying drawing will illustrate a preferred embodiment of the invention. Fig. 1 is a plan view of the cleaning apparatus and Fig. 2 is an elevation in section of the cleaning apparatus and steam connections taken along the line 2-2 of Fig. 1.

In the drawing, 10 is a support for a metal master record 11 to which the record is secured by means of outer clamps 12 and center clamp 13. The support is secured to a shaft 14 which may be driven through pulleys 15 and 15' by a motor 16. Suitable bearings 17 and 18, preferably ball bearings, are provided to support the rotating shaft 14. The shaft terminates in a pipe 19 connected through a T 20 to a live steam

lead 21 and a return lead 22. A channel 23 is provided in the shaft 14 whereby steam can be admitted into the heating channels 24 in the rotatable support 10. These heating channels may be any desirable shape and for the sake of illustration are shown as a number of inclined radial passageways each terminating in a plug 25. Since the steam does not circulate through the support it condenses as it cools and the condensate rolls down into the channel 23 in the shaft 14 to the return lead 22 where it is disposed of by means of traps and drains (not shown). A stuffing box 26 seals the joint between the rotating shaft 14 and stationary pipe 19.

The steam nozzle for cleaning the surface of the record is shown in Fig. 1 at 27. It is connected to an inclined pipe 28 which is secured to a special pivoted elbow 29. A lever 30, protruding above the top of the apparatus and rigidly attached to the elbow 28, forms the control for the position of the nozzle 27. Elbow 29 is connected to a pipe 31 which terminates in a loose union 32 whereby it is permitted to rotate without allowing steam to escape. The lower end of the union 32 is connected to the live steam lead 21.

The steam is controlled through valve 33 in the record support line 19 and valve 34 in the nozzle line 31. These valves may be located in any place convenient to the operator.

The rotating support and nozzle are encased in a housing 35, the top 36 of which is hinged to facilitate the handling of the record. An intermediate partition 37 just even with the surface of support 10 and slightly convex downward serves to retain the greater part of the expelled matter, the remainder falling to the partition 38 in the housing 35 whence it may be removed from time to time.

To use the apparatus the support 10 must be heated to the melting temperature of the recording wax. This is done by opening valve 33 and allowing steam to enter the passageways 24. Saturated steam at 40 pounds per square inch pressure has been found to be satisfactory. If the support is at room temperature it may require about twenty minutes to reach the desired temperature due to the non-circulatory type of heating system used, but when it is once hot very little steam is required to keep it so. For this reason, the valve may be left open continuously until all the records of a particular group are cleaned.

When the support 10 is hot enough to melt wax, the metal master matrix is placed on the support and clamped to it by clamps 12 and 13.

This requires that the matrix be trimmed and center drilled before cleaning. The matrix is heated for about four minutes after which the nozzle 27 is turned away from the matrix and steam admitted into the nozzle through valve 34 for about a minute until all the condensate in the nozzle line has been removed. Next, the support 10 is rotated, the cover 36 lowered and the nozzle 27 moved back and forth slowly over the surface of the matrix. This allows a jet of live steam to impinge against the base of the matrix as it revolves. The jet may be permitted to play over the surface for about one minute after which the cover 36 of the machine should be raised and the jet allowed to continue traversing the surface a few times with the cover in the raised position. This is necessary to prevent condensate from the cover from dripping onto the clean matrix. The nozzle should then be swung to one side of the matrix, the steam shut off and the rotating support stopped.

The matrix may be removed by disengaging the clamps 12 and 13 and lifting it from the hot support by means of a clean piece of cheesecloth. It should be placed face downwards on a second clean piece and stray dirt wiped off the reverse side before it is used.

The matrix should be found to be perfectly clean and dry when it is taken from the support. No additional cleaning or drying is required for the operative surface and hence no possibility of

altering or marring the grooves contained therein occurs. The operation of the apparatus is simple and the time consumed is negligible.

What is claimed is:

1. Apparatus for removing adhering wax and other material from the surface of a metal phonograph record matrix comprising a turntable, a source of steam, channels radially disposed within the turntable and connected at the center to the steam source whereby the turntable may be heated, means for rotating the turntable, a downwardly inclined steam nozzle pivotally mounted and adapted to discharge a jet of steam onto the surface of the record, valve means for admitting steam into the nozzle, and a chamber enclosing the matrix, turntable and steam jet to prevent an undue emission of steam into the surrounding atmosphere.

2. In apparatus for cleaning surfaces of metal objects, a rotatable turntable to support the objects, said turntable having a centrally located chamber and upwardly inclined radial channels extending therefrom, a hollow vertical driving shaft connected to the turntable, a horizontal steam pipe and a vertical water drain connected to the drive shaft whereby steam is admitted through the hollow shaft to the chamber and radial channels and after it condenses therein is drained by flowing down the inclined channels and past the steam inlet into the water drain.

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