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PROCESS OF MAKING TALKING-MACHINE RECORDS.

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This invention relates to improvements in the process of making disc records for talking machines and refers especially to disc records having a spiral track or groove of sinuous or wavy character, for guiding and imparting movement to a stylus associated with a diaphragm of a sound box.

The object of this invention is to provide a simple and economical method of making a disc record which will have a considerable amount of flexibility and a surface of uniform hardness whereby strength and durability will be achieved.

I accomplish the abovementioned object by forming a record by immersing a flat sheet of celluloid or like pyroxylin plastic in or coating it with a solvent and spraying or otherwise applying to the surfaces thereof (while in a soft or tacky condition) a layer of finely powdered thermoplastic material which is then subjected to a drying temperature and afterwards pressed between heated matrices to ensure effective amalgamation of the coating with the core and to form the record groove or impression in the surface thereof.

In carrying this invention into practical effect a disc is cut from a thin sheet of celluloid or like material with lugs left on opposite sides thereof for convenience of handling.

The disc of celluloid is immersed in or coated with a suitable solvent such as wood alcohol, acetone, amylacetate, ether acetate, ether alcohol, solutions of camphor in grain alcohol or a solution of two or more of such solvents for the purpose of rendering the surface soft or tacky.

After the disc has been withdrawn from or covered with the solvent it is allowed to stand for about 15 to 30 seconds when the opposite sides of the disc are coated with a finely powdered thermoplastic material to form coatings or layers into which the record impressions are afterwards formed.

The powdered coating material may be sprinkled or sprayed upon opposite sides of the disc or applied in any other suitable manner so that a layer of a desired thickness will be obtained.

The coated disc is then subjected to a drying temperature preferably in a suitable chamber in which it remains for a period ranging from 30 minutes to an hour at a temperature of approximately 120° F. in order to facilitate the removal of any gases or excess moisture in the coatings on the disc.

The coated disc of celluloid is then pressed between heated matrices in the usual way to compress the coating of thermoplastic material and cause it to amalgamate with the core and to form the record impressions or spiral tracks therein which govern the reproduction of sounds.

After the record impressions have been formed in the coating or outer layers of the disc, the edges of the latter are trimmed and the lugs removed by suitable cutters and the record is completed.

If preferred the disc after being coated with finely powdered thermoplastic material may be hung from two to four days in a drying room which is maintained at a temperature of approximately 70° F. in order that gases and moisture may be effectually removed and the formation of bubbles and blisters in the pressing operation thereby obviated.

The thermoplastic material may be formed of a mixture of the following ingredients: Pipe clay, shellac, rotten stone, barytes, carbon black and resin.

These ingredients are subjected to a suitable temperature and thoroughly admixed and after cooling the material is ground into a fine powder.

The solvent may comprise one or more of the solvents hereinbefore mentioned. For example, the celluloid or like pyroxylin-plastic core may be treated with:

1. Amylacetate, acetone and sulphuric ether with or without camphor.
2. Alcohol and camphor, or
3. Amylacetate, or
4. Amylacetate and acetone.

Whilst I have described in the foregoing specification one practical method of constructing a disc record in accordance with the invention, I wish it to be understood that the surface coating of thermoplastic material may be made from any suitable record forming material of known composition and that solvents other than those hereinbefore described may be used to soften or render the surface of the celluloid disc sufficiently tacky to ensure an amalgamation or permanent adhesion of the coating therewith. Moreover, the time necessary for rendering the surface of the celluloid disc tacky or before the application of the powdered material may vary in accordance with

the particular solvent employed for effecting the purpose.

A record constructed as above described may be made very thin and exceedingly flexible and will have great durability in wear.

I claim:

1. A process of forming a disc record for talking machines consisting in applying a coating of thermoplastic material to the surfaces of a sheet of celluloid or like pyroxylin plastic, subjecting the coated sheet to pressure to cause the coating to amalgamate with or adhere to the sheet of celluloid or pyroxylin plastic, and forming sound grooves or impressions in the coating of thermoplastic material.

2. A process of forming a disc record for talking machines consisting in treating a sheet of celluloid or like pyroxylin plastic with a solvent so as to make the surface thereof soft or tacky, applying finely powdered thermoplastic material to the soft or tacky surface of the sheet, applying pressure to the surface of the coated sheet to cause the thermoplastic material to amalgamate or cohere with the celluloid or pyroxylin plastic, and forming sound grooves or impressions in the coating of thermoplastic material.

3. A process of forming disc records for talking machines consisting in treating a disc of celluloid or like pyroxylin plastic with a solvent to render the surface thereof soft or tacky, applying a coating of finely powdered thermoplastic material to the surface of the disc, subjecting the coated disc to a drying temperature to remove gases and/or excess moisture therefrom, and subjecting the coated disc to pressure between heated matrices.

4. A process of forming a disc record for talking machines as claimed in claim 2, wherein the coated disc is placed in a drying chamber or room and maintained approximately at a temperature of 70° F. for a period of from 2 to 4 days to remove gases and/or excess moisture therefrom prior to subjecting the coated discs to pressure between heated matrices for forming the sound grooves or impressions therein.

In witness whereof I hereunto affix my signature.

FREDRICK GEORGE MITCHELL.