

UNITED STATES PATENT OFFICE.

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MOLDING PHONOGRAPH-RECORDS.

No. 854,887.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, VARIAN M. HARRIS, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Molding Phonograph-Records, of which the following is a specification.

This invention relates to that class of molding apparatus for cylindrical phonograph records, in which a blank cylinder of celluloid or the like is expanded by elastic fluid pressure and in the presence of heat into the interior of a properly formed cylindrical matrix; and the present improvement has for its object to provide a simple and efficient structural formation and combination of parts whereby a very effective sealing is attained at the respective ends of the cylindrical blank during the molding operation, all as will hereinafter more fully appear.

In the accompanying drawings:—Figure 1 is a side elevation illustrating the general arrangement of parts of the present molding apparatus. Fig. 2 is an enlarged central detail section of the mold portion, having the present invention applied. Fig. 3 is a detail transverse section of the same, on line *x—x*, Fig. 2.

Similar numerals of reference indicate like parts in the different views.

Referring to the drawings, 1 represents the stationary supporting frame or housing of the apparatus, and which in the construction shown in the drawing comprises upper and lower horizontal members 2 and 3, integrally connected together by a vertical member 4, adapted for attachment to a wall or post.

5 is the matrix of the apparatus, having a hollow cylindrical form, open at both ends, and provided on its inner surface with sound record indentations as usual in the present type of matrices or molds.

6 is a shell of metal encircling the matrix 5, and adapted to afford strength and stiffness to the matrix in actual use; in the present improvement such shell has a greater length than the matrix, for the purpose hereinafter stated.

7 is the stationary closure head for the lower end of the mold or matrix aforesaid, and is supported in a stationary condition upon the upper side of the lower member 2 of the main frame by any usual means, preferably however by a pipe connection hereinafter described.

8 is the removable end closure head for the upper end of the mold or matrix aforesaid, of a counterpart form to the stationary closure head 7, and is provided with a central guide stem 9 adapted to fit a vertical guide bore in the upper horizontal member 3 of the main frame, and have vertical adjustment therein in a direction to and from the upper end of the matrix.

10 is a clamping screw or other equivalent fastening means for securing the removable end head 8 and guide stem 9 at the required adjustment.

In the present construction the end closure heads 7 and 8 are formed with tapering peripheries as shown, so as to have a wedging fit in the interior of the respective ends of the cylindrical phonograph record blank 11, to form pressure tight joints at such points.

12 are floating rings arranged at the respective ends of the matrix 5 in receiving cavities formed by the extensions of shell 6 beyond the matrix; the fit between said ring and the described parts being a loose one to permit of the passage of any confined air in the practical operation of the apparatus.

13 are annular channels formed in the interior of the floating rings 12, and into which the end portions of the cylindrical phonograph record blank 11 are adapted, under the internal pressure existing in actual use, to be found in the form of annular beads, to constitute a very efficient pressure tight joint at such points.

14 are one or more radial passages extending outward from the annular channels 13 to permit of the ready passage therefrom of the air contained therein, as the joints above referred to are forming.

15 is a vertical inlet pipe, the upper end of which is fixedly secured in a central bore in the stationary closure head 7, aforesaid.

16 is a small vent pipe arranged centrally in the inlet pipe 15, and provided with a controlling valve 17 as shown.

18 is a valved branch pipe connecting with the inlet pipe 15 and adapted to introduce from a suitable source a pressure of steam into the interior of the apparatus. 19 is a secondary valved branch pipe also connecting with the inlet pipe 15, and adapted to introduce from a suitable source a pressure of air for use in the drying, cooling and shrinking of the molding process, as hereinafter more fully set forth.

The operation of the present apparatus is

as follows:—The cylindrical phonograph record blank 11 is first inserted in the interior of the matrix 5, after which the ends thereof are closed by the insertion of the tapering closure heads 7 and 8 to form a pressure tight chamber, of which the phonograph record blank and the opposed closure heads form the encompassing walls. Steam pressure is now admitted to said pressure chamber, to first expel the air contained therein through the vent pipe 16, after which the valve 17 in said pipe is closed and the steam pressure maintained for a sufficient period of time to cause a softening of the walls of the phonograph record blank and the molding thereof into the indentations of the matrix 5. The steam pressure is then shut off, and a supply of air introduced to dry out the interior of the phonograph record blank, and with such drying operation effect a cooling and shrinkage of the same, so that the finished phonograph record can be readily removed for subsequent mounting upon a suitable submandrel.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In an apparatus for molding cylindrical

phonograph records, the combination of a matrix having an indented cylindrical bore, a pair of tapering heads closing the respective ends of the matrix chamber, and floating rings arranged at the respective ends of the matrix and provided with internal annular channels adapted to form pressure tight joints with the ends of the cylindrical phonograph blank operated on.

2. In an apparatus for molding cylindrical phonograph records, the combination of a matrix having an indented cylindrical bore, a pair of tapering heads closing the respective ends of the matrix chamber, and floating rings arranged at the respective ends of the matrix and provided with internal annular chambers adapted to form pressure tight joints with the ends of the cylindrical phonograph blank operated on, the said grooves having radial exit passages for the escape of air therefrom.

Signed at Chicago, Illinois this 10th day of October 1906.

VARIAN M. HARRIS.

Witnesses:

ROBERT BURNS,
HENRY ULOE.