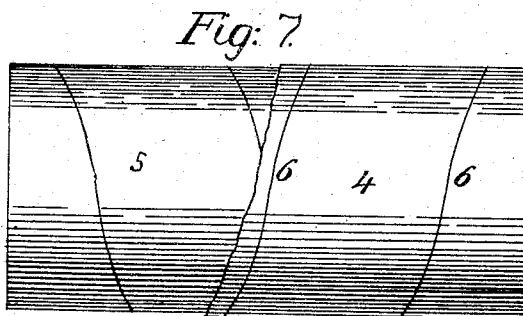
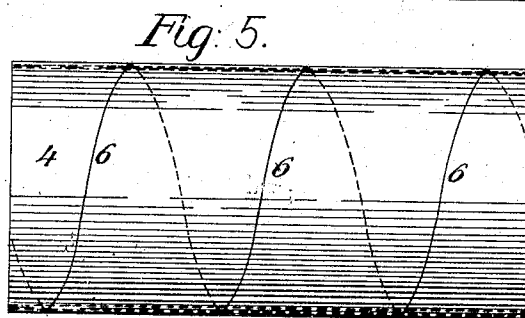
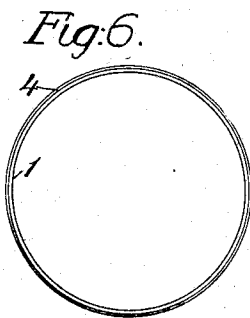
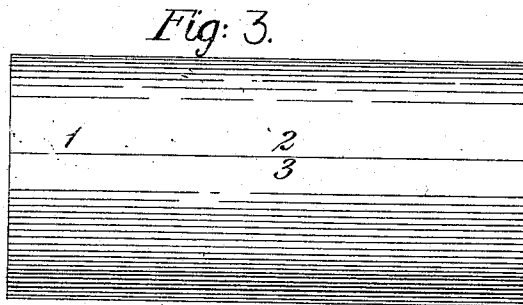
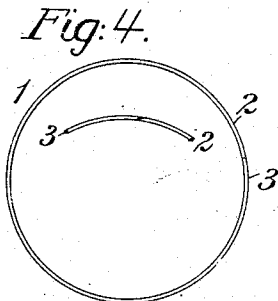
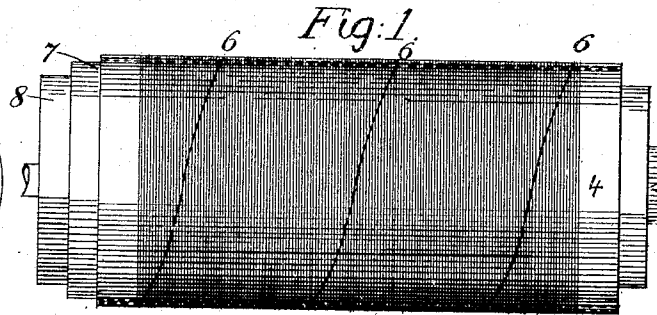
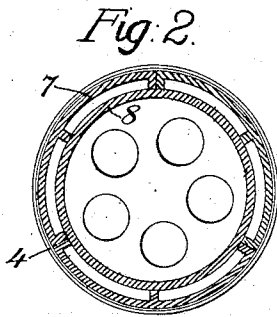


F. C. APPLGATE.
 PROCESS OF MAKING PHONOGRAMS.
 APPLICATION FILED MAR. 29, 1909.

939,119.

Patented Nov. 2, 1909.



Witnesses:
Harry Aumack
Edward L. Lich

Frank C. Applegate
 Inventor
 By his Attorney
Robt. B. Killian

UNITED STATES PATENT OFFICE.

FRANK COLSEN APPLGATE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO ROYAL PHONE & PHONOGRAM CO., OF BOSTON, MASSA-
CHUSETTS, A CORPORATION OF MAINE.

PROCESS OF MAKING PHONOGRAMS.

939,119.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed March 29, 1909. Serial No. 486,431.

To all whom it may concern:

Be it known that I, FRANK COLSEN APPLGATE, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Processes of Making Phonograms, of which the following is a specification.

My invention relates to the manufacture of cylindrical phonograms of celluloid, xylonite or like material, and my object is to cheaply produce such phonograms from sheet material and in which the united edges of the sheet run approximately circumferentially to eliminate the unpleasant knocking sound caused by a stylus striking a longitudinal joint during reproduction. Hitherto such phonograms have been made of seamless tubular material and the cost has been excessive. Neither can tubes be manufactured thin enough to give the desired flexibility. Unsuccessful attempts have been made to use sheet material with a lap joint but such joint struck the stylus squarely at right angles to the line of motion and caused a clicking or knocking sound on each revolution of the record. In addition to this the lapping of the material made a double thickness at the joint which caused the record to run eccentrically with respect to the stylus.

I attain my objects and obviate the difficulties in the manner illustrated in the accompanying drawing in which:—

Figure 1 is a view of my improved phonogram on a mandrel; Fig. 2 is a cross sectional view of the structure of Fig. 1; Fig. 3 is a view of a backing for my improved phonogram; Fig. 4 is an end view of the structure of Fig. 3; Fig. 5 is a view of the structure of Fig. 3 with the facing ribbon secured thereto; Fig. 6 is an end view of the structure of Fig. 5; Fig. 7 is a view, partly in section, of a modified form of my improved phonogram.

In making my improved phonogram a backing sheet 1 is wrapped about a substantially cylindrical form with its edges 2 and 3 either butting, or beveled and slightly lapping as shown in Fig. 4. The edges may be united by the use of cement, or a solvent may be used to soften them and bind or weld them together. A facing ribbon 4 is then

wound helically around the backing as shown in Figs. 5 and 6. Before this ribbon is wound onto the backing the surfaces to be joined may be treated with a solvent or a cement so that the backing and facing will be firmly united. My preferred material for the backing and facing is celluloid and I find that acetone softens this material so that it welds or binds together. As the acetone does not dry out quickly ample time is afforded for the various operations. It is apparent that the edges of the facing strip 4 will touch in the form of a helical line 6 running from end to end of the phonogram. The blank thus formed is then placed in a polished die and expanded therein under internal heat and pressure whereby the solvent is driven off or the cement dried, the softened celluloid is driven into intimate contact with the polished die and when dry and hard has the high polish of the die. As the material is packed and welded together along the helical joint a substantially smooth and even outer surface is produced. The sound record may now be printed or impressed on the phonogram thus produced by any of the well known methods. If preferred the polishing die may be omitted and the record impressed directly on the newly formed blank.

As shown in Fig. 7 the backing is in the form of a ribbon 5 wound in a direction opposite to that of the facing.

A backing of cheap, coarse celluloid may be employed and the facing strip may be, and preferably is a thin ribbon of fine celluloid. To secure the best results the facing ribbon should be of such width that only a single joint is crossed by the stylus on each revolution. As the line of union of the edges of the facing ribbon is helical, it runs approximately circumferentially when it passes under the stylus and does not cause the knocking sound that a joint striking the stylus transversely to the line of motion does.

By the use of thin sheet material the phonograms may be materially thinner than those made of tubing and consequently more flexible.

Records made according to my invention are of uniform thickness throughout and run true.

In use the phonogram is placed on a man-

105

drel sleeve 7 which is placed on the talking machine mandrel 8. It is then played like any other cylinder record.

I claim:—

- 5 1. The process of making cylindrical phonograms consisting of forming a backing sheet into a cylinder, helically winding a ribbon of celluloid or like material thereon with its edges abutting, uniting the facing
10 and backing and the edges of the facing, placing the blank thus formed within a die and expanding the same therein under heat and pressure whereby the blank is given a smooth outer surface.
- 15 2. The process of making cylindrical phonograms which consists in helically winding a ribbon of celluloid or like material, uniting its edges, placing the blank thus formed within a die and expanding the same therein
20 under heat and pressure.

3. The process of making cylindrical phonograms which consists in softening a ribbon

of celluloid or like material with acetone or similar substance, winding the same into a helix, uniting the edges, placing the blank
25 thus formed within a die and expanding the same therein under heat and pressure.

4. The process of making cylindrical phonograms which consists in forming a backing sheet of coarse celluloid into a cylinder, 30 helically winding a ribbon of celluloid or like material of a finer grade than the backing thereon, uniting the facing, backing and edges of the facing of the blank thus formed, placing the blank within a die and expand- 35 ing the same therein under heat and pressure.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

FRANK COLSEN APPLGATE.

Witnesses:

HELEN S. LUPTON,
MARY E. ACKLEY.