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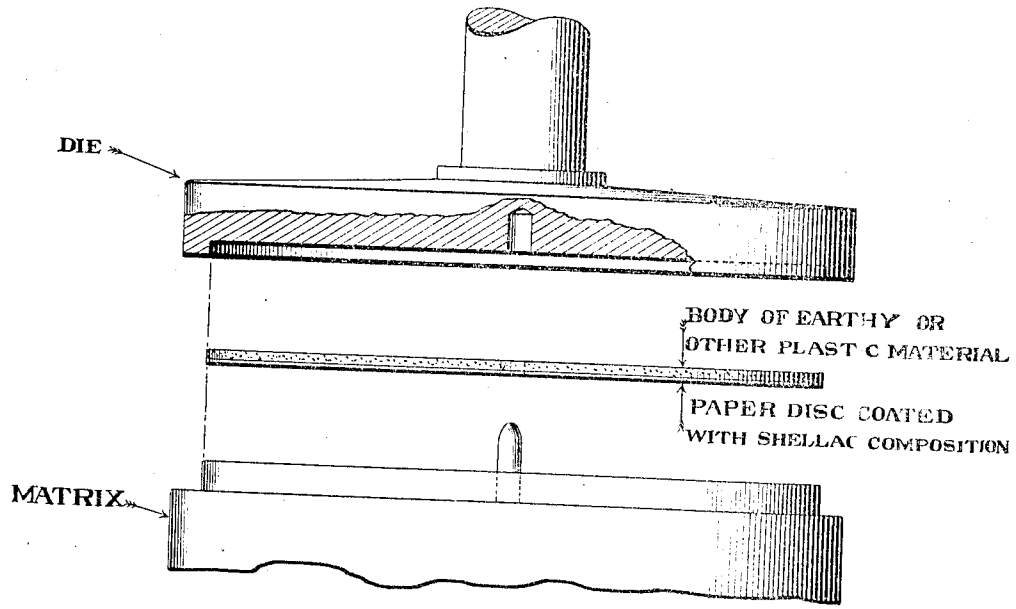
T. H. MACDONALD.

PRODUCTION OF DISK SOUND RECORDS.

APPLICATION FILED SEPT. 8, 1906.



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PRODUCTION OF DISK SOUND-RECORDS.

No. 878,547. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed September 8, 1906. Serial No. 333,812.

To all whom it may concern:

Be it known that I, THOMAS H. MACDONALD, a citizen of the United States, and a resident of Bridgeport, Connecticut, have invented a new and useful Production of Disk Sound-Records, which improvement is fully set forth in the following specification.

The present invention relates more particularly to the manufacture of disk sound-records, and has for its object to cheapen the production of such records, and at the same time to improve their quality, especially in respect to strength, durability, and uniformity of product.

Sound-records of the disk type are, and for many years have been, made of compositions of heavy earthy material compacted by means of shellac. Various earthy materials have been used, in varying proportions, each manufacturer having his own formula, but shellac is an essential ingredient of all, and is that which contributes chiefly to the cost of the composition. Generally, the shellac is distributed uniformly throughout the mass, its primary purpose being as a binding material. It has, however, been discovered that the essential advantage of the presence of shellac in these compositions when used for sound-records, is the glazed surface imparted by that material, and for which no substitute has as yet been found. The effect of the peculiar surface due to the presence of shellac is to cause the reproducing stylus to slide easily and smoothly along the record groove, thus producing good tone quality and also prolonging the life time of the record. Without shellac in proper proportion in the surface, the reproduction would be extremely harsh, and the record would be destroyed after a very few reproductions. As the result of this discovery of the special function of the shellac it has been found that sound-records of the best quality can be produced by confining shellac substantially to the surface of the record tablet, and employing another material as a binder in the body of the tablet. The improvement just referred to is described in the Hoyt and Gaven Patents Nos. 808,842, 808,843, and 809,263, all dated January 2, 1906. The result is a tablet of practically homogeneous composition, quite indistinguishable in appearance from, and exhibiting the same fracture as, sound-records wherein shellac is used uniformly throughout the tablet. By this Hoyt and Gaven process a very large economy is effected in the manufacture of the sound-records.

In carrying out the Hoyt and Gaven process care must be taken to form a continuous layer of the surfacing material over the inferior body material. Should the latter come to the surface, even for a very small area, a soft spot would result, and the sound-record would be defective. As a precaution against such possibility, and against lack of care on the part of the workman, the surface layer is made of greater thickness than is necessary relative to the depth of the record-groove.

In carrying out the present invention, paper (preferably hard paper) is cut into disks of proper size, and I may then proceed either to coat the paper with shellac solution and dust it with shellac powder, or I may take the dry paper and dust it with the dry shellac powder and then apply heat. The "shellac powder" employed may be more or less pure shellac, or may consist of shellac and other ingredients and any desired coloring matter, and the term "shellac powder" as hereinafter employed is intended to include both the pure shellac and shellac with other ingredients. In either case the result is an article that somewhat resembles ordinary sand-paper in appearance, the particles or granules of the shellac powder adhering firmly and closely to the surface of the paper. These coated paper disks may be prepared in quantities and delivered to the workmen when needed for making records. To complete the record, the shellac-dusted paper disk is placed face downward upon the heated matrix, a sufficient amount of plastic backing-material is placed on the back of the paper, and the whole is pressed in the usual manner. The finished record shows no sign of the paper, which is concealed by the surfacing of the shellac powder. This shellac powder may be made of more or less pure shellac, or may contain other ingredients such as celluloid, etc., and any desired coloring matter. Furthermore, I may apply a disk of paper at the back of the backing-material, so that the finished article will have one or two (if the second sheet of paper be employed) sheets as a binder, which serves to reinforce and stiffen the record.

Instead of applying the backing to the shellac-dusted paper while the latter is upon the matrix and compressing the whole so as

to unite the backing and present the record-surface simultaneously, the shellac-dusted paper may be applied to a suitable backing, and such prepared articles kept in stock and subsequently pressed against a matrix.

Other variations may be made in the process without departing from the essence thereof; and it is apparent that the process is not necessarily limited to a composition or powder containing shellac.

The advantage of this process is, first, its great economy: The amount of powder necessary to coat the paper is only from one-half to three-quarters of an ounce, whereas the smallest amount that can be employed under the present process is about two ounces; moreover, in making such records in a factory employing hundreds of pressmen, there is inevitably considerable waste, owing to carelessness, but in carrying out my present invention the preparation of the shellac-dusted paper would be in a special room and by men trained to do just that work and nothing else. This shows a saving of at least seventy-five per cent. of shellac-powder which is an element of great expense in the making of sound-records. The second advantage is that records can be made more rapidly in this manner than in the old way. A third advantage is, as already indicated, that the sheet of paper seems to stiffen the record and renders it more durable.

In the accompanying drawing is shown part of a press for pressing disk sound-records, and also a disk of paper coated with the record-surface material, and a backing of earthy (or other suitable plastic) material, therein, illustrating the method by which disk sound-records are produced according to the present invention.

The product of the above-described process is not claimed herein, being made the subject-matter of a separate application.

Having thus described my invention, I claim:

1. The process which consists in coating sheets of paper with plastic material, and uniting two or more coated sheets to form a record-tablet.

2. The process of manufacturing disk sound-records, which consists of applying shellac-powder to a disk of paper, applying the same upon a record-matrix, applying suitable backing-material upon the back of the paper, and compressing the same.

3. The process of manufacturing disk sound-records, which consists of applying shellac-powder to a disk of paper, applying the same upon a record-matrix, applying suitable backing-material upon the back of the paper, and compressing the same under heat.

4. The process of manufacturing disk sound-records, which consists of applying a shellac solution to a disk of paper, dusting the same with shellac powder, drying it, and compressing the same with a suitable backing against a record-matrix.

5. The process of manufacturing disk sound-records, which consists of applying a shellac solution to a disk of paper, dusting the same with shellac powder, drying it, and compressing the same with a suitable backing against a record-matrix in the presence of heat.

6. The process of manufacturing a disk sound-record, which consists of applying shellac powder to a paper disk, heating the same causing it to adhere, and subsequently compressing the same with a suitable backing against a record-matrix.

7. The process of manufacturing disk sound-records, which consists of preparing a shellac dusted paper, applying the same to a suitable backing, and compressing the whole against a record-matrix.

8. The process of manufacturing disk sound-records, which consists of preparing a shellac-dusted paper, applying the same to a suitable backing, and compressing the whole against a record-matrix under heat.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS H. MACDONALD.

Witnesses:
A. B. KEOUGH,
R. T. PITT