

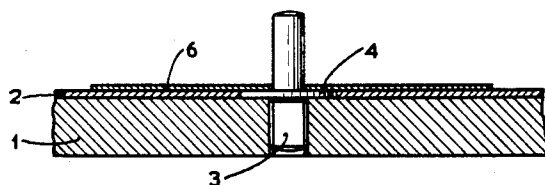
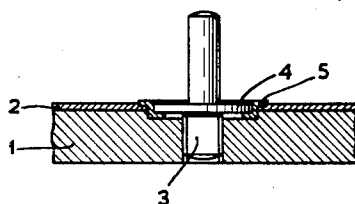
Feb. 6, 1962

J. C. VAN HOUTEN

3,019,482

APPARATUS FOR PRESSING DISC-SHAPED PHONOGRAPH RECORDS

Filed April 1, 1958



INVENTOR
JAN CHRISTOFFEL VAN HOUTEN

BY *Frank P. Infanti*
AGENT

1

3,019,482

APPARATUS FOR PRESSING DISC-SHAPED
PHONOGRAPH RECORDS

Jan Christoffel van Houten, Baarn, Netherlands, assignor
to North American Philips Company, Inc., New York,
N.Y., a corporation of Delaware

Filed Apr. 1, 1958, Ser. No. 725,703

Claims priority, application Netherlands Apr. 3, 1957
2 Claims. (Cl. 18—5.3)

My invention relates to apparatus for pressing disc-shaped phonograph records; particularly to pressing molds having upper and lower stampers to each of which is secured throughout its entire surface a thin, preferably electro-formed, matrix.

Moulds of the above type generally have a detachable pin secured to one of the stampers and provided with a centering collar for the matrix. During the pressing the pin fits into an aperture of the other stamper to thereby determine both the relative positions of the two matrices and of the two stampers. The construction of such a pin and the manner which it is secured to the stamper involves many difficulties in making the phonograph records.

In order that my invention may clearly be understood and readily carried into effect and to point out the advantages thereof over the prior art, I shall describe the same in more detail with reference to the accompanying drawing in which

FIGURE 1 is a sectional view of a portion of a mold according to the prior art with a matrix in place, and

FIGURE 2 is a sectional view of a portion of a mold according to the invention with a matrix and a covering disc in place.

With reference to FIGURE 1 the reference numeral 1 designates a stamper of a pressing mold carrying a thin, electro-formed matrix 2 whose thickness is shown enlarged with respect to the thickness of the stamper. A pin 3 having a collar 4 is screwed into the stamper 1. As a rule, the thicknesses of matrices 2 may vary approximately 0.3 mm. In order for matrices of different thicknesses to be retained on the stamper 1 by means of the collar 4, use is made of an intermediate ring 5. After the pin 3 is secured to stamper 1, the edge of the intermediate ring 5 is hammered into the matrix to produce a substantially smooth surface on top of the matrix. Any thickness discrepancies of the matrix must be compensated by means of washers under the ring 5. In the aforesaid construction, however, it proves necessary, when pressing the records, to use a covering label which is placed on the matrix prior to slipping the record label proper over the pin, in order to avoid an undesired groove in the record and damaging of the label. Said covering label, which is made from strong paper, is removed after pressing the record and is wasted, which involves considerable cost. In the aforesaid construction, moreover, the centering of the pin and consequently of the aperture in the record is never precise relative to the perimeter of the record, so that differences as great as 0.1 mm. and even more may occur. In a further known construction, the collar 4 and this intermediate ring 5 are made in one piece and a groove is turned in the thin matrix, the differences in thickness of the matrix being again compensated by means of washers. While this improves the centering, the turning of the groove in the thin matrix is difficult and expensive, while the additional covering label is also required with the resulting disadvantages.

According to the invention, all of the aforesaid disadvantages are avoided by providing a pressing mold of the type referred to with a pin with a collar whose diameter corresponds very closely to the diameter of the aperture of the matrix and to which is secured a thin

2

covering disc for the central part of the matrix which disc is of such size as to hold the matrix in cooperation with the pin. The invention permits the pin to be centered accurately with respect to the matrix, while the covering label is superfluous, because none of the pressing material may creep in and form undesirable grooves. In addition variations in the thickness of the matrix no longer cause difficulty.

In one form of the invention, the covering member is preferably less than 0.1 mm. thick so that it leaves no visible impression on the pressed record.

The covering member or disc and the pin may be made in one piece, but this is very uneconomical. In a preferred form of the invention the covering member is made from metal, preferably nickel, and connected by means of a glue joint. The pin is screwed into the stamper, thus already centering the matrix, and subsequently the covering member is applied and glued to the pin under pressure. When using a type of glue which softens under certain conditions, the covering member can be removed from the matrix, the latter replaced by another one and the covering member again applied without the necessity of removing the pin.

The covering member may be made from thin sheet. In a further form of the invention, however, the covering member is preferably electro-formed, its flat lower side then being perfectly smooth and engaging the matrix intimately.

In a further form of the invention, the covering member is roughened on the record side, which has the advantage that a label is held more firmly.

If, prior to the pressing operation, the pressing mold is provided with a central label at least on one side, as is usual in pressing gramophone records, the diameter of the covering member, in a further form of the invention, is preferably made substantially equal to the diameter of the label. Since this label lies already in a recessed part of the record, the pressed record no longer shows the presence of the covering member and grooves in the label are avoided with certainty.

Referring to FIGURE 2, the reference numeral 1 designates a lower stamper which carries a matrix 2. For the sake of clearness, the thickness of the matrix is shown on a scale larger than that of the thickness of the stamper 1. Actually, the thickness of this matrix varies approximately 0.3 mm. and is about 0.5 to 0.8 mm. The pin 3 with a centering edge 4 now comprises a covering member or disc 6 of nickel, which is formed by electro-forming and the thickness of which is shown on an enlarged scale. Actually, this covering member is approximately 0.06 mm. thick. The diameter of this covering member corresponds to the diameter of the label of the gramophone record to be pressed. The covering member is secured to the pin 3 with the aid of a thermoplastic glue. It will be appreciated that the matrix 2 will now be accurately centered with respect to the collar 4 of the pin 3. Further, the variable thickness of the matrix 2 is no longer important. After providing the pin 3 and the matrix 2, the covering member 6 is glued to the pin 3, and the thickness of the collar 4 may be chosen to be at any rate smaller than the minimum thickness of the matrix. Should, however, the collar be slightly thicker than the matrix, this is no longer of any importance, since the covering member 6 is so thin that it can be readily bent when it is applied so that the edges will still rest upon the upper surfaces of the matrix 2. The upper side of the covering member 6 is roughened so that the label is held more firmly. It will be appreciated that no undue grooves will now be formed in the finished record, thus obviating the use of a covering label with the resulting extra cost.

Electro-forming the covering member has the advan-

3

tage that this member is perfectly flat and smooth on the side of the matrix and engages the latter intimately.

What is claimed is:

1. In an apparatus for pressing disc-shaped phonograph records, a pressing mould, a pin having one end secured to a central portion of the mould and provided at an intermediate point with a centering collar, a thin matrix on the surface of the mould and provided with a central aperture, said collar fitting into said aperture and having a thickness approximately the same as the thickness of the matrix, a metal covering disc having a thickness less than about 0.1 mm. on the upper surface of said collar and extending over the adjacent portion of the matrix, and an adhesive layer securing said disc to said pin.

2. In an apparatus for pressing disc-shaped phonograph records having a label at the center thereof, a pressing mould, a pin having one end secured to a central portion of the mould and provided at an intermediate

4

point with a centering collar, a thin matrix on the surface of the mould and provided with a central aperture, said collar fitting into said aperture and having a thickness approximately the same as the thickness of the matrix and an outside diameter smaller than that of the label, a metal covering disc of a thickness less than about 0.1 mm. and approximately the size of the label on the upper surface of said collar and extending over the adjacent portion of the matrix, and an adhesive layer securing said disk to said pin.

References Cited in the file of this patent

UNITED STATES PATENTS

941,291	Wickes	Nov. 23, 1909
1,190,072	Aiken	July 4, 1916
1,326,330	Edison	Dec. 30, 1919
1,571,929	Bronander	Feb. 9, 1926
1,576,642	Bishop	Mar. 16, 1926