June 27, 1933. E. B. FERNBERG 1,915,357

MEANS AND METHOD FOR PRESSING TALKING MACHINE RECORDS

Filed April 2, 1930

Fig. 1.

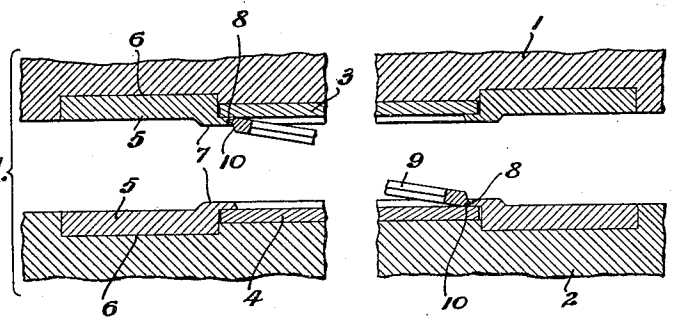


Fig. 2.

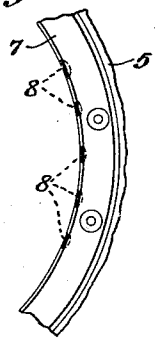


Fig. 3.

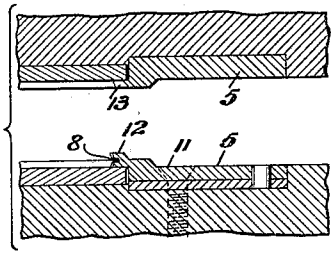


Fig. 4.

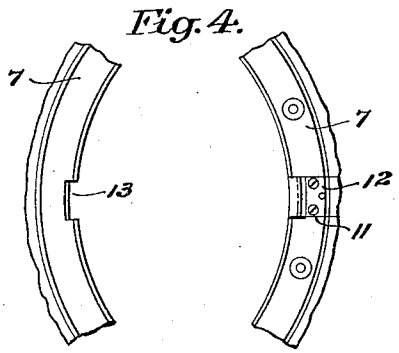
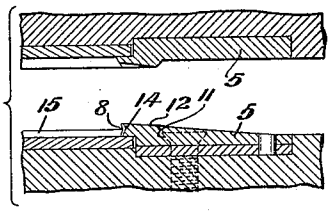


Fig. 5.



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Patented June 27, 1933

1,915,357

UNITED STATES PATENT OFFICE

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MEANS AND METHOD FOR PRESSING TALKING MACHINE RECORDS

Application filed April 2, 1930, Serial No. 441,130, and in Great Britain April 19, 1929.

This invention relates to improvements in and relating to means for pressing talking machine records and in particular to means for detaching a pressed record from the mould in which it is pressed.

The usual practice in pressing disc records is to clamp the upper and lower matrices in the upper and lower heating and cooling moulds by means of retaining rings which are bolted to the moulds and have an inwardly extending flange which overlaps the edge of the matrix and holds it firmly clamped to its mould. The inner edges of the flanges of the retaining rings are bevelled slightly outwards.

After the record is pressed the lower matrix for example is withdrawn and it often happens that the pressed record is found to adhere closely to either mould and is not very readily detached.

The object of the present invention is to provide means which ensure that when the moulds are withdrawn from one another the pressed record shall be quite free for immediate removal.

According to the present invention there are formed, preferably at two points on opposite sides of a record, slots or recesses into which a portion of the edge of the record material is pressed. The recess or recesses on one side are formed in a body which moves rigidly with the lower mould, and the recess or recesses on the opposite side are formed in a body which is rigid with the upper mould, with the consequence that the pressed record is held at one side in contact, for example with the lower mould, while on the opposite side it is lifted away from the lower mould.

The invention is illustrated in the accompanying drawing in which

Fig. 1 is a sectional view of those parts of the upper and lower moulds of a record press to which the matrices are fixed.

Fig. 2 is a view illustrating a part of one of the matrix retaining rings constructed according to the invention.

Figs. 3 and 4 illustrate an alternative construction and

Fig. 5 illustrates a third construction according to the invention.

Referring to Figs. 1 and 2 of the drawing, 1 and 2 are the upper and lower mould plates respectively of a record press and 3 and 4 are the matrices secured to the moulds 1 and 2 in the usual manner by retaining rings 5 which are bolted in recesses 6 in the moulds, and have inwardly projecting flanges 7 which overlap the edge of the matrix. The inner edges of the flanges 7 are bevelled slightly outwards. In the edges 7 are formed slots or recesses 8, the slots or recesses 8 in the lower retaining ring 5 being arranged, in the case illustrated, at the right hand side and those in the upper retaining ring arranged at the left hand side. When a record 9 is being pressed, portions 10 of material at the edge of the record enter the recesses 8. When the moulds 1 and 2 are moved apart after pressing, the record remains for a time with the left hand edge in engagement with the upper mould 1 and the right hand edge in engagement with the lower mould 2 and in consequence the record is detached from both matrices.

In an alternative construction Figs. 3 and 4, instead of the recess or recesses 8 being formed in the retaining ring 5 directly, the retaining ring may be slotted as at 11, and in the slot 11 an insertable plate piece 12 matching the peripheral contour of the ring 5, may be fixed, the inner periphery of the said piece 12 being provided with a groove or recess 8, the recess in this case lying approximately in the central plane of the pressed record, whereas in the case illustrated in Figs. 1 and 2 the recess lies either above or below the middle plane of the record. Where this inserted plate piece 12 is used the retaining ring of the opposite mould is slotted suitably as at 13 to provide clearance for the reception of the inner end of the inserted piece 12.

In yet another form illustrated in Fig. 5, the retaining ring 5 is slotted as at 11 and there is fixed in the slot an inserted plate piece 12 which, at its inner end 14, is recessed at 8 and extends above the level of the middle plane indicated by line 15 of the record 9, the retaining ring 5 of the upper mould being correspondingly slotted for clearance

to receive the extension thereof. The profile of the recessed inner end of the inserted piece 12 in this case is such that, when the moulds 1 and 2 are closed, the edge of the space within which the record 9 is pressed is just as it is in the case of presses ordinarily used to-day. With all of the alternative arrangements described the effect produced, when the moulds are drawn apart, is that the record 9, at say the right hand side as illustrated, is held down against the lower mould 2, while at its opposite side it is lifted away from the lower mould 2. The hold on the record 9 only lasts for a short portion of the movement of the moulds 1 and 2 apart and as the recesses 8 in the holding rings 5 are only made for a short portion of the circumference of the record 9, there is no distorting action upon the pressed record which might tend to break it, the record being held by the recesses 8 only for a sufficient length of time to ensure that it is detached from both matrices 3, 4.

The slots or recesses may be continuous or there may be several of them spaced at intervals as shown in Fig. 2.

I claim:

1. A press for talking machine records wherein slots or recesses are provided at at least two points spaced around the record being pressed, into which recesses a portion of the edge of the record material can enter during the pressing operation, one or more of said recesses being formed in a body fixed to one press mould and one or more of said recesses being formed in a body fixed to the other press mould, so that as the moulds are moved apart after pressing, one side of the pressed record remains in contact with one mould and the other side of the record is lifted away from that mould.

2. A press according to claim 1, wherein the slots or recesses are formed in the inner edge of the matrix retaining rings, the slots or recesses in one ring being on the opposite side of the record to the slots or recesses in the other ring.

3. A press according to claim 1, wherein the slots or recesses are formed in pieces inserted in slots provided in the retaining rings.

4. A press according to claim 1, wherein the slots or recesses are formed in pieces inserted in slots provided in the retaining rings, said inserted pieces projecting beyond the central plane of the record, the opposite retaining rings being recessed or slotted at suitable points to receive the projecting parts of the inserted pieces.

5. In a record press including oppositely disposed matrices, retaining rings therefor, each of said rings having a recess formed therein at diametrically opposite points, said recesses being adapted to receive a portion of record material therein while said material is under compression between said matrices.

6. In a record press including oppositely disposed matrices and retaining rings therefor, means carried by said rings for causing a record disc to assume an angular position with respect to the matrices upon the opening of the press.

7. The step in a method of releasing a record disc from the working surfaces of a plurality of record pressing matrices of a record press which consists in causing the record disc material to assume an angular position with respect to said matrices by the opening of said press.

8. The step in the method of separating a record disc from the working faces of a plurality of matrices including matrix retaining rings for said matrices which consists in causing the record disc material to anchor at a point on its peripheral edge to one of said matrix retaining rings and at a diametrically opposite point on its peripheral edge to the other of said matrix retaining rings.

9. The step in the method of separating a record disc from the working faces of a plurality of matrices including matrix retaining rings for said matrices which consists in causing the record material to anchor to one of said rings at one point on its periphery, and causing said material to anchor to the other of said rings at another point on its periphery spaced from said first point.

10. In a record press including a pair of oppositely disposed matrices and a pair of retaining rings for said matrices, means on each of said rings at diametrically opposite points for receiving a portion of record disc material to anchor said material thereto whereby a record disc is automatically substantially separated from said matrices upon the opening of said press.

11. In a record press including a pair of oppositely disposed matrices and a pair of retaining rings for said matrices, means on one of said rings for anchoring record material at one point thereon, and means on the other of said rings for anchoring said record material at a diametrically opposite point thereon, whereby said material is automatically substantially separated from said matrices upon the opening of said press.

12. In a record press including a pair of oppositely disposed matrices and a pair of retaining rings for said matrices, spaced means on the inner periphery of said rings for receiving a portion of record material to anchor said material thereto whereby said material is substantially separated from said matrices upon the opening of said press.

13. In a record press including oppositely disposed matrices and retaining rings therefor, means carried by each of said rings adapted to permit entry of record material

while said material is under compression between said matrices, and means formed on each of said rings to register with and effect clearance for said first named means upon the closing of said press.

14. In a record press including oppositely disposed matrices and retaining rings therefor, means carried by said rings for causing record material to positively attach itself at diametrically opposite points on its periphery to said rings during compression and to subsequently be raised into an inclined position with respect to the working surfaces of said matrices upon the opening of said press.

15. In a record press including a pair of oppositely disposed matrices and a pair of retaining rings for said matrices, means on one of said rings for anchoring record material at one point thereon and means on the other of said rings for anchoring said record material at a point peripherally spaced from said first point thereon, whereby said material is automatically separated from said matrices upon the opening of said press.

16. The method of molding a phonograph record or the like from plastic material through the utilization of a plurality of mold-elements which comprises depositing a portion of the material, in a plastic condition, between the said elements, bringing the elements toward one another to exert pressure upon the material, causing a marginal portion of the pressed material extraneous of the main contour thereof to be temporarily anchored to one mold-element, and causing a substantially diametrically similar marginal portion to be temporarily anchored to the other mold-element whereby, when the molds are moved apart, the said marginal anchorages cause the pressed material to be stripped from the mold-elements.

In testimony whereof I have signed my name to this specification.

ERIC BIRGER FERNBERG.