No. 879,363. PATENTED FEB. 18, 1908.

G. K. CHENEY.

DIE PLATE FOR STAMPING UP SOUND RECORDS.

APPLICATION FILED JUNE 6, 1903.

FIG. 1.

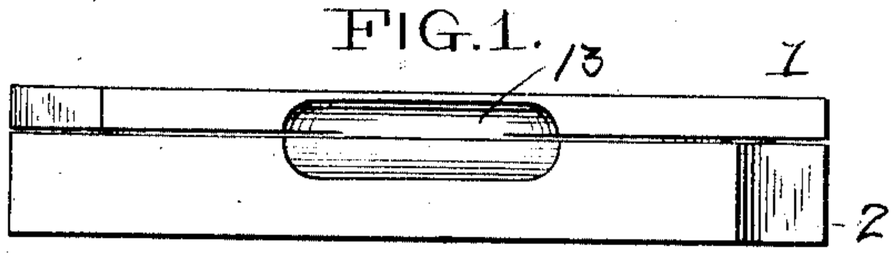


FIG. 2.

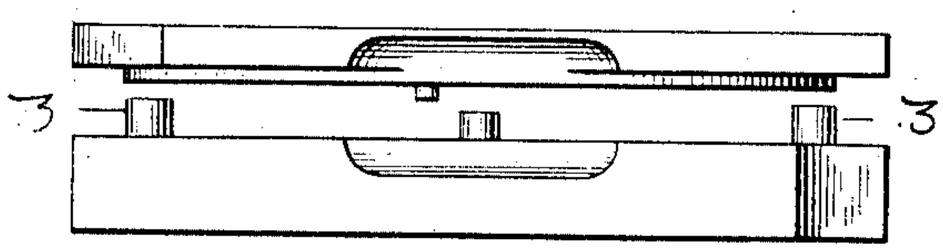


FIG. 3.

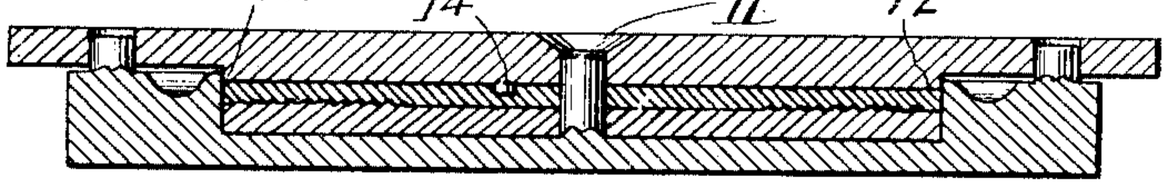


FIG. 4.

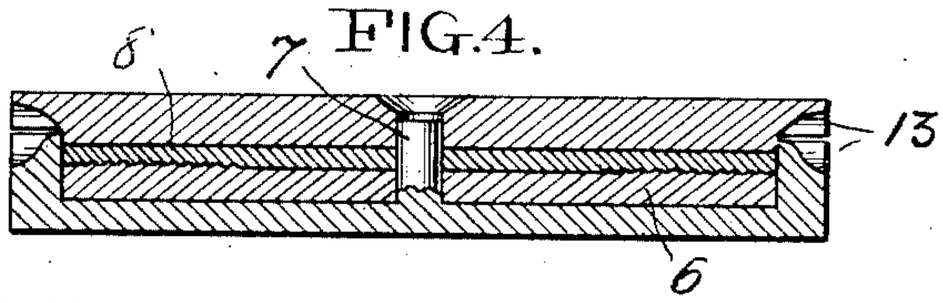


FIG. 5.

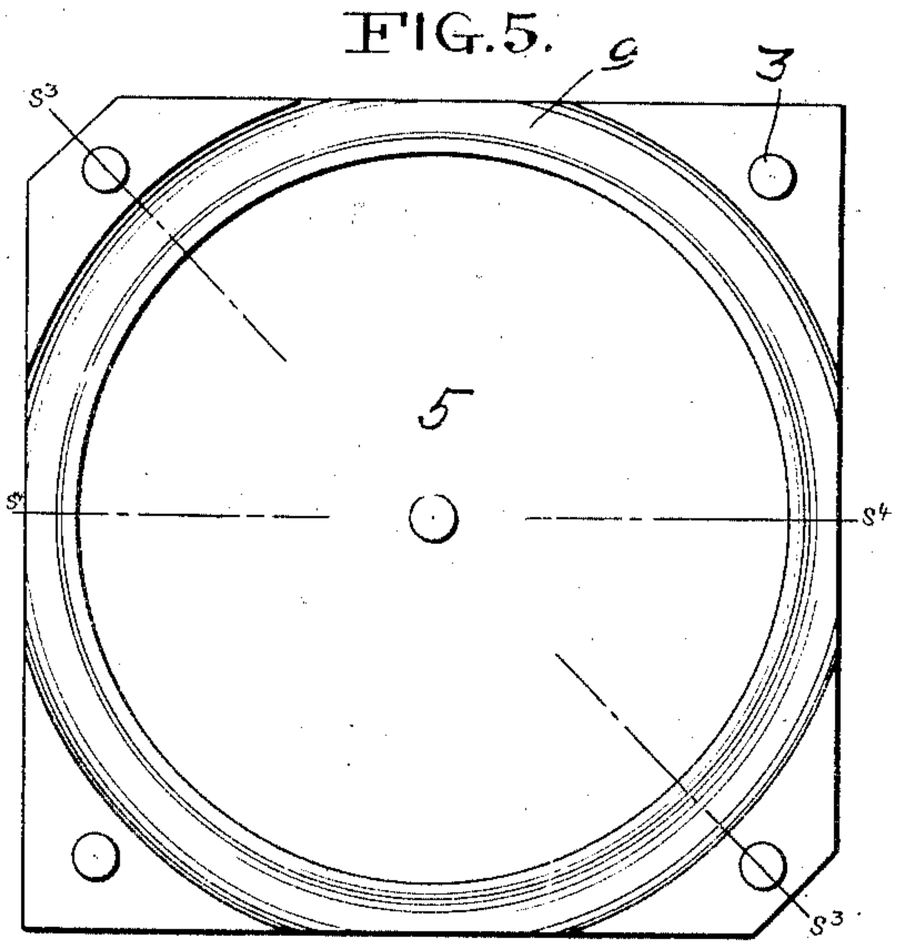
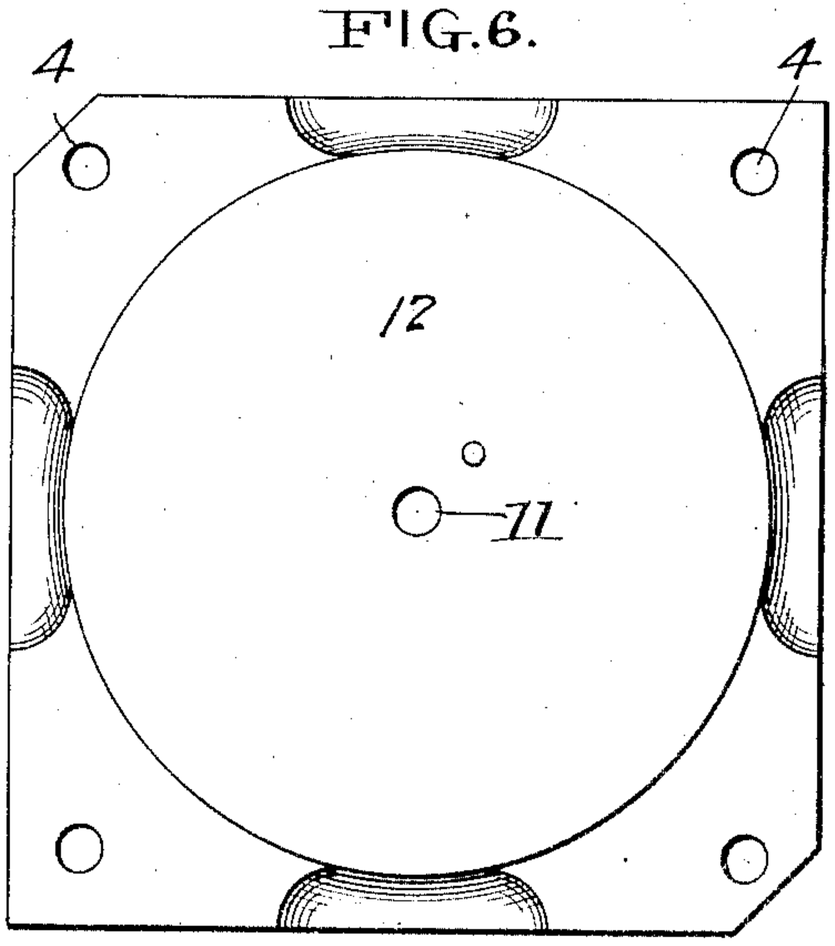


FIG. 6.



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DIE-PLATE FOR STAMPING UP SOUND-RECORDS.

No. 879,363. Specification of Letters Patent. Patented Feb. 18, 1908.

Application filed June 6, 1903. Serial No. 160,436.

To all whom it may concern:

Be it known that I, GEORGE K. CHENEY, a citizen of the United States of America, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Die-Plates for Stamping Up Sound-Records, of which the following is a specification.

My invention relates generally to the production of commercial sound records and more particularly to the construction, etc., of die plates employed in connection with the press by which such records are ordinarily stamped up.

The object of the invention is to produce a pair of coöperating die-plates, by which a record may be stamped up and finished ready for the market, in a single operation of the press, thereby avoiding the necessity of subsequently trimming and polishing the same, as is now ordinarily required.

A further object of the invention is to prevent premature contact between the die plates, as the record is being stamped up, in order to obtain the full and continued effect of the pressure applied upon the material and thereby produce a sharp, clean-cut impression, smooth and free of surface inequalities and having the requisite density throughout the body of the record disk.

One form of apparatus suitable for carrying my invention into effect, is illustrated in the accompanying sheet of drawings, throughout the several views of which like numerals indicate corresponding parts.

In these drawings: Figure 1 is a view of the die-plates assembled. Fig. 2 is a similar view showing the plates separated. Fig. 3 is a sectional view taken on the line s^3—s^3, of Fig. 5. Fig. 4 is a similar view taken on the line s^4—s^4, of Fig. 5. Fig. 5 is a plan view of the lower plate, and Fig. 6 is a reverse plan of the upper plate.

Referring now to the drawings, 1 and 2, represent the die-plates, which are caused to register one with the other by means of dowels 3, 3, 3, of the lower plate engaging sockets or openings 4, 4, 4, in the upper plate. Opposite corners of the plates are cut off as shown, to facilitate their separation for the removal of the completed record when taken from the press.

The lower plate is provided with a circular recess 5, suitable for containing a matrix 6, which is centered therein on a pin 7. The recess is of suitable depth to receive above the matrix a layer of composition or other material 8, from which the record is to be formed.

A groove 9, concentric with and adjoining the recess, serves to receive the surplus material which overflows when pressure is applied and from this groove an outlet 10, is provided at each side of the plate.

The upper plate has formed centrally thereof a guide opening 11, which is engaged by the projecting end of the centering pin 7. In assembling the plates, etc., a small amount of composition is usually forced into this opening by the pin in entering the same and unless removed, such material will be trapped and compressed between the end of the pin and the head of the press and as no outlet is provided, an increase in the pressure frequently results in bending or breaking the plates. In order, therefore, to prevent injury to the pin or plate when in the press under pressure, the opening 11, is tapered or flared at its outer end to provide ample space to accommodate any composition which may be forced upward by the pin in entering the same. The lower surface of the upper plate is cut away or reduced to form a disk-like plunger 12, which telescopes within the recess 5, of the lower plate, such telescoping action being limited and checked as the corners of the plates come into contact, so that the records may be made of substantially uniform thickness.

At each side, the upper plate is undercut to provide additional clearance in the outlets from the overflow groove, as indicated at 13, and it is also provided with a short stud 14, projecting from its under side, which serves to form a socket in the record disk, with which a pin on the rotating table of the reproducing machine engages, to key the disk to same.

The method of operation is as follows: The die plates and matrix are first heated, to avoid chilling the composition, and in assembling the same, the matrix is placed in the circular recess of the lower plate and covered by a layer of composition, which has been previously softened or rendered plastic by the application of heat or other-

wise. The upper plate is then added and so adjusted that the dowels and center pin of the lower plate enter or register with the openings thereof. Thus assembled, the plates are placed in the press and as pressure is applied, the surplus material is at once cut away by the plunger of the upper plate entering the recess of the lower plate and such surplus falls into the overflow groove, from which more or less of it may escape through the outlets in the sides, as the pressure is increased. As the plunger portion enters the recess in the lower plate to a greater and greater extent, the outlet for the surplus material is made to be a longer and longer passage, thereby increasing the friction between said material and the edges of the portions of the dies referred to. This action results in a gradual increase in pressure of the material above the matrix until the maximum is reached. Such pressure being that which will effectually finish the plate and give the same the requisite density. Owing to the telescoping action of the die plates, they are prevented from coming into contact and checking the pressure prematurely and the entire pressure is thus concentrated upon the interposed blank or layer of material, which results in forcing the same into such intimate contact with the record surface of the matrix, as to insure a sharp, clean-cut impression. As the plates seldom come in contact under the pressure ordinarily required to give the record disk the desired density and finish, all risk of breaking or fracture is avoided. Upon reducing the pressure, the plates are taken from the press and forced apart to remove the record disk, which is completely finished, ready for the market.

The advantages of the invention will be apparent from the foregoing description.

I do not wish to be understood as limiting myself to the details of construction, etc. herein shown and described, as various changes might be made without departing from the spirit and scope of my invention. For example, by increasing the depth of the recess in the lower plate sufficiently and providing the same at suitable points around the walls thereof with requisite outlets, an ordinary plunger in part with or attached to the press might be substituted for the upper plate. The composition instead of being placed between the telescoping members by hand might be fed in automatically either as disk blanks or in sheet or other form. The dowels and openings with which they engage might be dispensed with, by detachably securing the telescoping members in proper relation in the press. All such changes, however, I consider obvious and immaterial variations of form and not of substance, and still within the meaning of the present invention

Having, therefore, described my invention, I claim:

1. In an apparatus for molding sound records, the combination with a recessed die plate having its surface adjacent to the recess depressed to provide a clearance for the over-flow, a second die plate, a plunger with vertical walls adapted to telescope with the recess in the first mentioned die plate, and to allow the escape of surplus material, said plunger being further provided with an opening, enlarged at its upper end, through the central portion thereof, and a pin or projection located in the recess of the first mentioned die plate and adapted to coöperate with said opening.

2. In an apparatus for molding disk sound records, a recessed die plate, a matrix located in the recess of said plate, the thickness of said matrix being less than the depth of said recess, a second die plate having a disk-like projection with vertical walls adapted to telescope with said recess, one of said die plates being provided with a centering opening, and a pin or projection located on the other of said die plates and adapted to cooperate with the said centering opening in the first mentioned die plate, to form a centering hole in the record blank.

3. In apparatus for stamping up sound records, the combination of a matrix, a die-plate recessed to contain the matrix and a record blank, said die-plate being provided with a pin projecting through a central aperture of the matrix, and a coöperating die-plate having a central aperture to receive the projecting end of said pin, such aperture being enlarged at its upper end.

4. An apparatus for molding sound records, comprising a die plate, having a cylindrical recess therein, surrounded by an annular channel, the said channel having outlets at one or more of the sides of the die plate, in combination with a second die plate, having a plunger, telescoping the said recess.

5. An apparatus for molding sound records comprising a die plate having a cylindrical recess therein surrounded by an annular channel, the said channel having outlets at one or more sides of the die plate, in combination with a second die plate, covering said channel and outlets, and having a plunger telescoping said recess, the last mentioned die plate having its inner face cut away to form with the said outlet an enlarged outlet.

6. An apparatus for molding sound records, comprising a die plate having a cylindrical recess therein and an annular depression around said recess, in combination with a second die plate having a plunger telescoping said recess, leaving an annular passage of uniform cross-sectional area around said plunger for the escape of surplus material.

7. An apparatus for molding sound rec-

ords, comprising a die plate having a cylindrical recess therein and an annular depression around said recess in combination with a second die plate covering said depression and having its face cut away to form an outlet therefrom and a plunger projecting from said last mentioned plate telescoping said recess leaving an annular passage of uniform cross-sectional area around said plunger for the escape of surplus material.

Signed at New York, N. Y. this 4th day of June 1903.

GEORGE K. CHENEY.

Witnesses:
J. E. PEARSON,
W. H. PUMPHREY.