

T. A. EDISON.  
SOUND RECORD TABLET.  
APPLICATION FILED JAN. 30, 1913.

1,207,383.

Patented Dec. 5, 1916.

PHENOLIC FINAL CONDENSATION PRODUCT PLASTIC AT ELEVATED TEMPERATURES



ONE PART THERMOPLASTIC BINDER TO AT LEAST 3½ PARTS OF FIBROUS FILLER

*Witnesses:*

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# UNITED STATES PATENT OFFICE.

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## SOUND-RECORD TABLET.

1,207,383.

Specification of Letters Patent.

Patented Dec. 5, 1916.

Application filed January 30, 1913. Serial No. 745,232.

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, and a resident of Llewellyn Park, West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Sound-Record Tablets, of which the following is a description.

My invention relates to sound record tablets and more particularly, but not exclusively, to composite disk shaped sound record tablets having a body containing a fibrous inert filler and a surface veneer of a material adapted to receive a sound record impression. Both the body and the surface veneer in the preferred tablets contemplated by this invention are thermo plastic, that is, they are adapted to be rendered plastic by the application of heat, the body being preferably fusible or thermo plastic to a larger degree than the surface veneer. The preferred composition for the body of the tablet is composed of a filler, such as wood flour, together with a binder of fusible resin, such as the phenol or cresol resin formed by reaction between definite amounts of phenol or cresol and formaldehyde or equivalents. The resin I preferably employ melts at approximately 220° Fahr. and when subjected to pressure in the mold with the application of sufficient heat flows between the mold plates so as to permit an even printing of the record tablet. The surface veneer is preferably formed of a hard final phenolic condensation product, such as described in U. S. Patents to Jonas W. Aylsworth, Nos. 1,020,593, 1,046,137 and 1,046,420, this composition containing a plasticity ingredient, such as penta-chloro-phenol, whereby upon application of sufficient heat the surface veneer may be rendered sufficiently plastic to receive a sound record impression. I prefer to use for the veneer a composition of this last named class which becomes plastic at about 320° Fahr. When a tablet having a veneer and body of the preferred compositions mentioned above is subjected in the mold to the necessary temperature and pressure to impress the sound waves in the surface of the veneer, the body, because of the fluid condition of the binder, will have a tendency to flatten out, this tendency being resisted by the fibrous filler.

The principal object of my invention is to provide a sound record tablet of the class described which can be repressed to efface an old record impression and to form a new record impression in the surface of the tablet a number of times without objectionable increase in diameter, decrease in thickness, or other objectionable change in shape.

Another object of my invention is to provide a sound record tablet provided with a surface veneer having such hardness, thickness, or other characteristics that the rough filler of the backing cannot be impressed into the outer surface of said veneer during the repeated repressing of the tablet.

Other objects of my invention will appear more fully in the following specification and appended claims.

In order to prevent objectionable change in shape in the tablet during the repressing thereof, I find that the proportion of the fibrous filler with respect to the binder in the body of the tablet must not be less than a given amount. When the proportion of the filler to the binder is less than this amount, as has heretofore been the case, the lateral flow of the composition forming the body of the tablet each time the tablet is reheated and repressed produces an objectionable enlargement of the diameter of the tablet and a corresponding reduction in the thickness thereof; so that there is such a variation between the shapes of the new records which have been pressed and molded only once and the records which have been repressed a number of times that the uniformity of shape and size desired for a commercial record is not obtained. The relative amounts of filler and binder which are necessary depend, of course, to some extent, upon the materials employed for the filler and binder. When the binder is formed of the fusible resinous condensation products referred to above or other similar products, and the filler is formed of wood flour, I find that the weight of the wood flour should not be less than three and a half times the weight of the resin. The preferred proportion by weight of the fibrous filler to the resinous binder referred to is four to one, but this proportion may be increased up to four and one half or even five to one. A tablet having a body formed of these proportions of fusi-

ble binder and fibrous filler may be readily repressed or reprinted at least ten times without undergoing any objectionable increase in diameter and decrease in thickness.

5 The thickness of the surface veneer to prevent the fibers in the body of the record from being pressed through the veneer to the outer surface thereof during the pressing or re-pressing of the record depends upon  
10 the composition of which the veneer is formed. When the veneer is formed of the thermo plastic hard final phenolic condensation products referred to, the thickness thereof should be not less than .0015 of an  
15 inch and should preferably be about .0025 of an inch.

In the preferred form of my invention, the title of the record and the sound record impression are impressed into the surface of  
20 the tablet at the same time, as shown, for example, in an application of Jonas W. Aylsworth and Edward L. Aiken, Serial No. 704,517, filed June 17, 1912, and entitled improvements in the production of sound  
25 records. Obviously, when the title is impressed into the record tablet in this way, a single operation is sufficient to efface the old record impression and title and to imprint in place thereof the new record impression and title.  
30

Various compositions other than those mentioned above may be used for forming the veneer and the body of the record. Thus the veneer may be formed of celluloid and  
35 the binder may be formed of copal gum, shellac or numerous other resinous compositions.

The invention in some of its aspects is not limited to a record tablet having a separate  
40 veneer secured to a suitable body.

In the drawing forming a part of this specification is shown a cross section of one embodiment of my invention, the material employed in the said embodiment being described in the drawing.  
45

What I claim as new and desire to protect by Letters Patent of the United States is as follows:

1. As a new article of manufacture, a sound  
50 record tablet having a body composed of a thermo-plastic binder and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for  
55 said body composed of a final phenolic condensation product which is sufficiently plastic at elevated temperatures to be molded, substantially as described.

2. As a new article of manufacture, a sound  
60 record tablet having a body composed of a binder of thermo-plastic condensation product and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a  
65 surface veneer for said body composed of a

final phenolic condensation product which is sufficiently plastic at elevated temperatures to be molded, substantially as described.

3. As a new article of manufacture, a sound  
70 record tablet having a body composed of a thermo-plastic phenolic binder and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for said body composed of a final phenolic condensation product which is sufficiently plastic at elevated temperatures to be molded, substantially as described.  
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4. As a new article of manufacture, a sound  
80 record tablet having a body composed of a thermo-plastic binder of condensation product and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, substantially as described.  
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5. As a new article of manufacture, a sound  
record tablet having a body composed of a thermo-plastic phenolic binder and a fibrous filler in the proportion of one part by  
90 weight of binder to at least three and a half parts by weight of filler, substantially as described.

6. As a new article of manufacture, a sound  
record tablet having a body composed of a  
95 thermo-plastic binder and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for said body composed of a final phenolic condensation product which is sufficiently plastic at elevated temperatures to be molded, said veneer being at least .0015 of an inch in thickness, substantially as described.  
100

7. As a new article of manufacture, a sound  
105 record tablet having a body composed of a thermo-plastic binder and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for  
110 said body composed of a final phenolic condensation product which is sufficiently plastic at elevated temperatures to be molded, said veneer being approximately .0025 of an inch in thickness, substantially as described.  
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8. As a new article of manufacture, a disk shaped sound record tablet having a body composed of a fusible binder and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts  
120 by weight of filler, and a surface veneer for said body composed of a final phenolic condensation product containing a plasticity ingredients, substantially as described.

9. As a new article of manufacture, a  
125 sound record disk having a body composed of a fusible binder and a finely divided fibrous filler in the proportion of one part by weight of binder to four parts by weight of filler, and a surface veneer for said body  
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composed of a final phenolic condensation product containing a plasticity ingredient, substantially as described.

5 10. As a new article of manufacture, a disk shaped sound record tablet having a body composed of a binder of fusible resin and a fibrous filler in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for said body composed of a final phenolic condensation product containing a plasticity ingredient, substantially as described.

15 11. As a new article of manufacture, a disk shaped sound record tablet having a body composed of a fusible binder and filler of wood flour in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for said body composed of a final phenolic condensation product containing a plasticity ingredient, substantially as described.

20 12. As a new article of manufacture, a disk shaped sound record tablet having a body composed of a binder of fusible resin and filler of wood flour in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a surface veneer for said body composed of a final phenolic condensation product containing a plasticity ingredient, substantially as described.

25 13. As a new article of manufacture, a sound record tablet having a body composed of a fibrous filler and a fusible binder in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a thermo plastic veneer on said body, the temperature at which said binder melts being lower than that at which said veneer becomes plastic, substantially as described.

30 14. As a new article of manufacture, a sound record tablet having a body composed of a fibrous filler and a binder which melts at a temperature less than 300 degrees Fahr. in the proportion of one part by weight of binder to at least three and one-half parts by weight of filler, and a veneer for said

body which becomes plastic at a temperature above 300 degrees Fahr., substantially as described.

35 15. As a new article of manufacture, a sound record tablet having a body composed of a fibrous filler and a binder which melts at a temperature of approximately 220 degrees Fahr. in the proportion of one part by weight of binder to at least three and one-half parts by weight of filler, and a veneer for said body which becomes plastic at a temperature of approximately 320 degrees Fahr., substantially as described.

40 16. As a new article of manufacture, a sound record tablet having a body composed of a finely divided fibrous filler and a fusible binder in the proportion of one part by weight of binder to at least three and a half parts by weight of filler, and a thermo plastic veneer on said body, the temperature at which said binder melts being lower than that at which said veneer becomes plastic, substantially as described.

45 17. As a new article of manufacture, a sound record tablet having a body composed of a finely divided fibrous filler and a binder which melts at a temperature less than 300 degrees Fahr. in the proportion of one part by weight of binder to at least three and one-half parts by weight of filler, and a veneer for said body which becomes plastic at a temperature above 300 degrees Fahr., substantially as described.

50 18. As a new article of manufacture, a sound record tablet having a body composed of a finely divided fibrous filler and a binder which melts at a temperature of approximately 220 degrees Fahr. in the proportion of one part by weight of binder to at least three and one-half parts by weight of filler, and a veneer for said body which becomes plastic at a temperature of approximately 320 degrees Fahr., substantially as described.

This specification signed and witnessed this 29th day of January, 1913.

THOS. A. EDISON.

Witnesses:

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MARY J. LADLAW.

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