

J. C. ENGLISH.  
COMPOSITION FOR SOUND RECORDS AND OTHER OBJECTS.  
APPLICATION FILED MAR. 24, 1906.

948,314.

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Record Tablet  
of  
Filler, Shellac and a Hydro-Carbon  
Solvent for Shellac.

WITNESSES  
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# UNITED STATES PATENT OFFICE.

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COMPOSITION FOR SOUND-RECORDS AND OTHER OBJECTS.

948,314.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed March 24, 1905. Serial No. 251,874.

*To all whom it may concern:*

Be it known that I, JOHN C. ENGLISH, a citizen of the United States, and a resident of Camden, State of New Jersey, have invented certain new and useful Improvements in Compositions for Sound-Records and other Objects.

In the manufacture of sound records, the requirements of the compounds which form the body of the records and the reproducing surface thereof, involve many conditions affecting the action of the reproducing needle upon the record in the reproduction of sounds. Among these requirements are toughness, or freedom from cracking and warping, durability, or a resistance to the action of the needle, which has a tendency to wear the surface or grooves of the record as the same passes through said grooves, fineness of texture of the material, which, if coarse or gritty, has a tendency to grind or abrade the needle to an undue extent, and constancy in a degree of hardness under all conditions of temperature and moisture to which a commercial record would ordinarily be subjected. Ordinarily, in the manufacture of sound records made of compositions of shellac, a body pigment or filler, the use of gum shellac gives a toughness which has, up to the time of this invention, not been capable of being supplied by any other material or gum. The toughness of varnishes, when mixed with body materials or fillers, is due to the oils which the varnish contains, and owing to the presence of these oils the record is much less durable, requires much greater time in manufacture, and is liable to become distorted and warped, owing to the greater viscosity of the varnish.

Heretofore it has been found that mixtures for record material containing body material, such as clay, metallic oxides, and similar powders and pigments, require a comparatively large quantity or percentage of shellac, which, in order to produce the best results, is usually about forty per cent. by weight, of the total amount of the mixture. The reduction of this amount of shellac in these mixtures renders the record more brittle and liable to crack, while at the same time the abrasive effect upon the needle is greatly increased.

The object, therefore, of my invention is to produce such a composition or mixture

for use in sound records, and other objects, which will not only have all the advantages of the mixtures of shellac and the different body materials, which have heretofore been used, but will also have distinct advantages over the same.

Gum shellac, when in its purest form and highest grade, resembles well seasoned glue in consistency and color, and it is the aim of manufacturers of record to obtain shellac as near to this standard as possible. Of course shellac, when received by the users in the regular course of trade, varies considerably in the texture and quality, and it has been my aim to provide an ingredient or substance which will not only improve the texture and quality, but will reduce the shellac to a uniform grade. I have found that by adding certain hydrocarbons to gum shellac, that this result is produced in an extremely economical and satisfactory manner. Furthermore, different earthy materials, such as fossil flour, clays, powdered silica, metallic oxides, and other cheap earthy material and pigments, require greatly varying amounts of shellac to produce the requisite adhesive purpose and toughness to the composition. In the use of my improved composition, the embodiment of these materials provides a much more uniform quantity of the binder heretofore attained by gum shellac.

The object, therefore, of my invention is to generally improve the material from which sound records and other objects requiring material having the same characteristics are made.

In the drawing forming a part of this specification is illustrated a sound record tablet of the disk type with the names of the ingredients inscribed thereon, although it is obvious that my invention is not limited to any particular shape or type of tablet.

Briefly, my invention comprises the use of certain hydrocarbons, such as nitro-naphthol, beta-naphthol, nitro-benzol, which I have found readily unite with shellac and form a solvent therefor by the aid of the application of heat.

One form of the composition which I have found to be especially satisfactory is a mixture of about ten per cent. of nitro-naphthol to ninety per cent. of shellac. This mixture, when combined with the body material or filler, is used in the ratio of about twenty

per cent. of said mixture to eighty per cent. of said body material or filler. It will thus be seen that it is necessary to use only about eighteen parts in a hundred of shellac in the resultant composition, instead of forty parts in a hundred, which has heretofore been necessary. It will thus be seen that the amount of shellac, which is the most expensive part of the record material, is greatly reduced, and owing to this reduction in the amount of shellac the slight variation in the amount required for different body materials, or fillers, will not be so noticeable.

Of course it is obvious that I am not limited to the use of nitro-naphthol in combination with shellac or similar gums, but I may use other hydrocarbon derivatives of the same series, or even of other series where the results produced are the same as with those substances already named.

I am aware that shellac is claimed to be soluble in benzoin, and after first having been treated with borax, but the composition which I have invented is entirely distinct from this, as I combine the hydrocarbon which I use directly with the shellac without any intermediate substance which will produce the soluble qualities.

One of the particular advantages of my improved composition resides in the fact that the addition of nitro-naphthol and similar hydrocarbons, renders the shellac considerably more fluid under the influence of heat, and, therefore, not only allows the body or filler material to be more intimately mixed therewith, but also allows a much sharper and accurate record to be produced by the pressure of the matrix upon the surface of the blank from which the record is molded or stamped. Owing also to this greater fluidity, a considerable saving of time is effected in stamping the records, as it requires a shorter time for the material of the record blank to completely enter all the recesses and minute parts of the groove.

As above referred to, further advantages of my improved composition reside in the fact that the record material is made much tougher and more lasting, the characteristic of brittleness being considerably reduced by the addition of nitro-naphthol, and similar hydrocarbons. I have found that the addition of nitro-naphthol renders shellac of a more flexible and what might be called a leathery consistency, without in any way affecting the solidity or elasticity of the substance, for it is well known in the manufacture of talking machine records, that the

greater body of the material used and the elasticity of the substance employed, the more efficient will be the effect upon the stylus or needles of the reproducing mechanism. This, therefore, is an additional advantage of my improved compound, inasmuch as the solidity and elasticity is in no way reduced, and is in fact made slightly greater, although the record is made less brittle than heretofore.

Having thus described my invention, I do not wish to be understood as being limited to the precise ingredients of my improved compound herein set forth, but the same may be varied according to choice and special requirements, without departing from the spirit and scope of my invention, but

What I claim and desire to protect by Letters Patent, is,—

1. In a composition for molded objects, the combination with a suitable body material or filler, of shellac and a hydrocarbon in which said shellac is soluble.

2. In a composition for molded objects, the combination with a suitable body material or filler, of shellac and a hydrocarbon of the naphthalene series in which said shellac is soluble.

3. In a composition for molded objects, the combination with a suitable body material or filler, of shellac and a crystalline hydrocarbon of the naphthalene series.

4. In a composition for molded objects, the combination with a suitable body material or filler, of shellac and nitro-naphthol.

5. In a composition of molded objects the combination with a suitable filler, of shellac and a nitro-hydro carbon.

6. In a composition of molded objects the combination with a suitable filler, of shellac and a crystalline nitro-hydro carbon of the naphthalene series.

7. In a composition for records for talking machines, the combination with a suitable filler, of shellac and a hydrocarbon of the naphthalene series.

8. In a composition for records for talking machines, the combination of a suitable non-wax-like filler or body material, and a hydrocarbon of the naphthalene series.

9. In a composition for records for talking machines, the combination of a suitable filler or body material, and naphthalene.

In witness whereof, I have hereunto set my hand this 23rd day of March, 1905.

JOHN C. ENGLISH.

Witnesses:

ALEXANDER PARK,  
EDW. W. VAILL, Jr.