

Aug. 20, 1935.

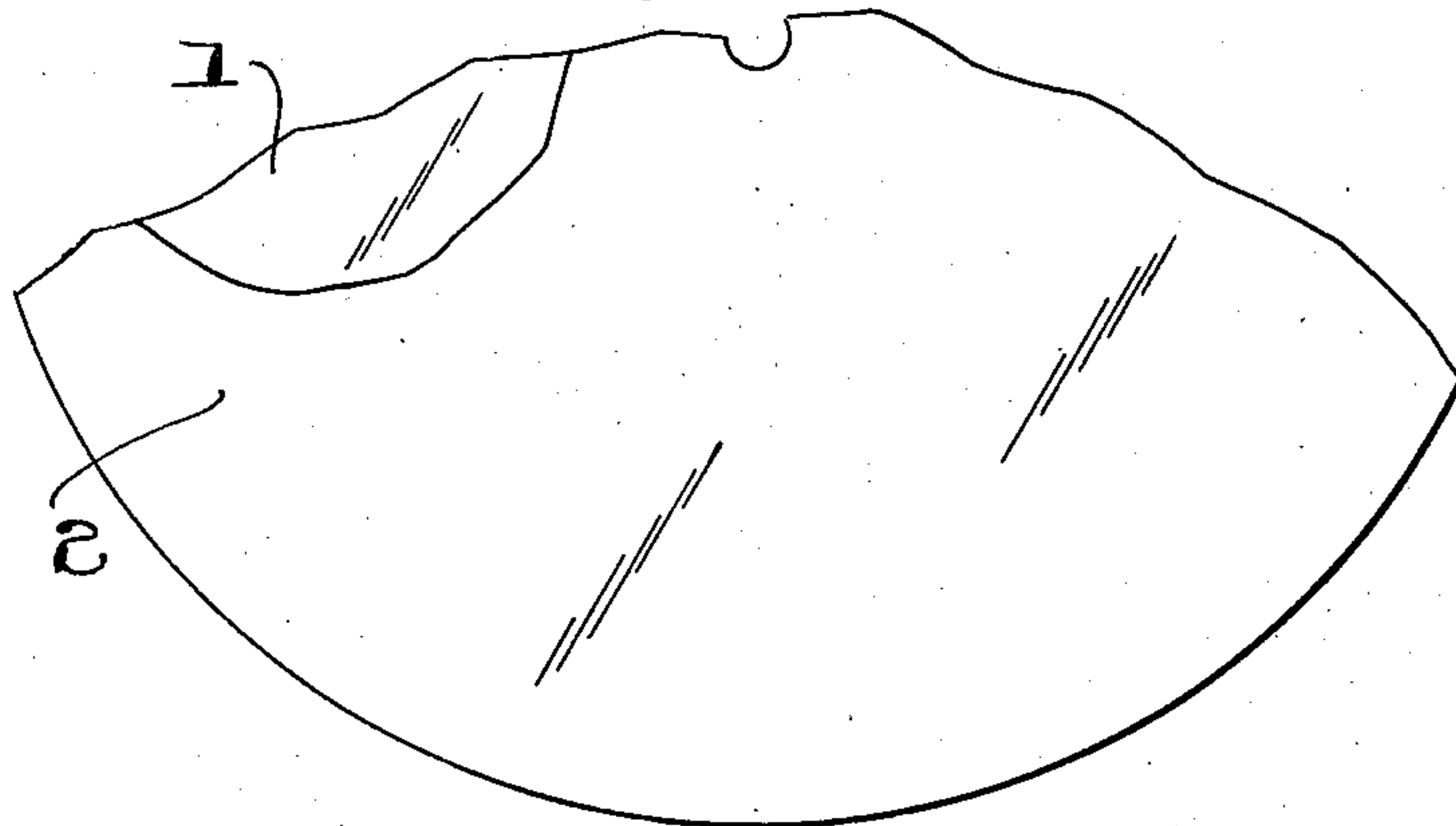
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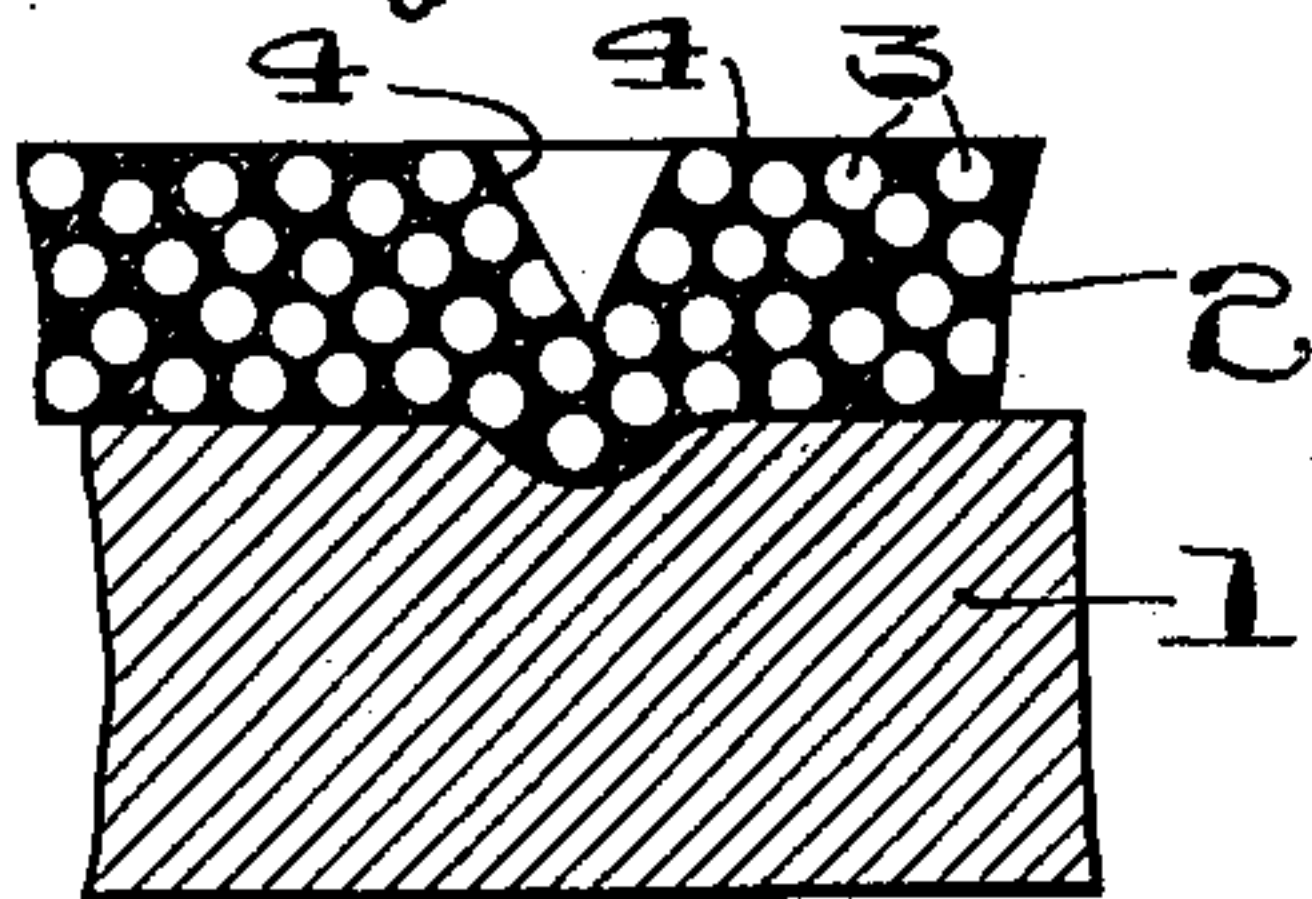
DISK FOR PHONOGRAPHIC RECORDING

Filed Aug. 22, 1933

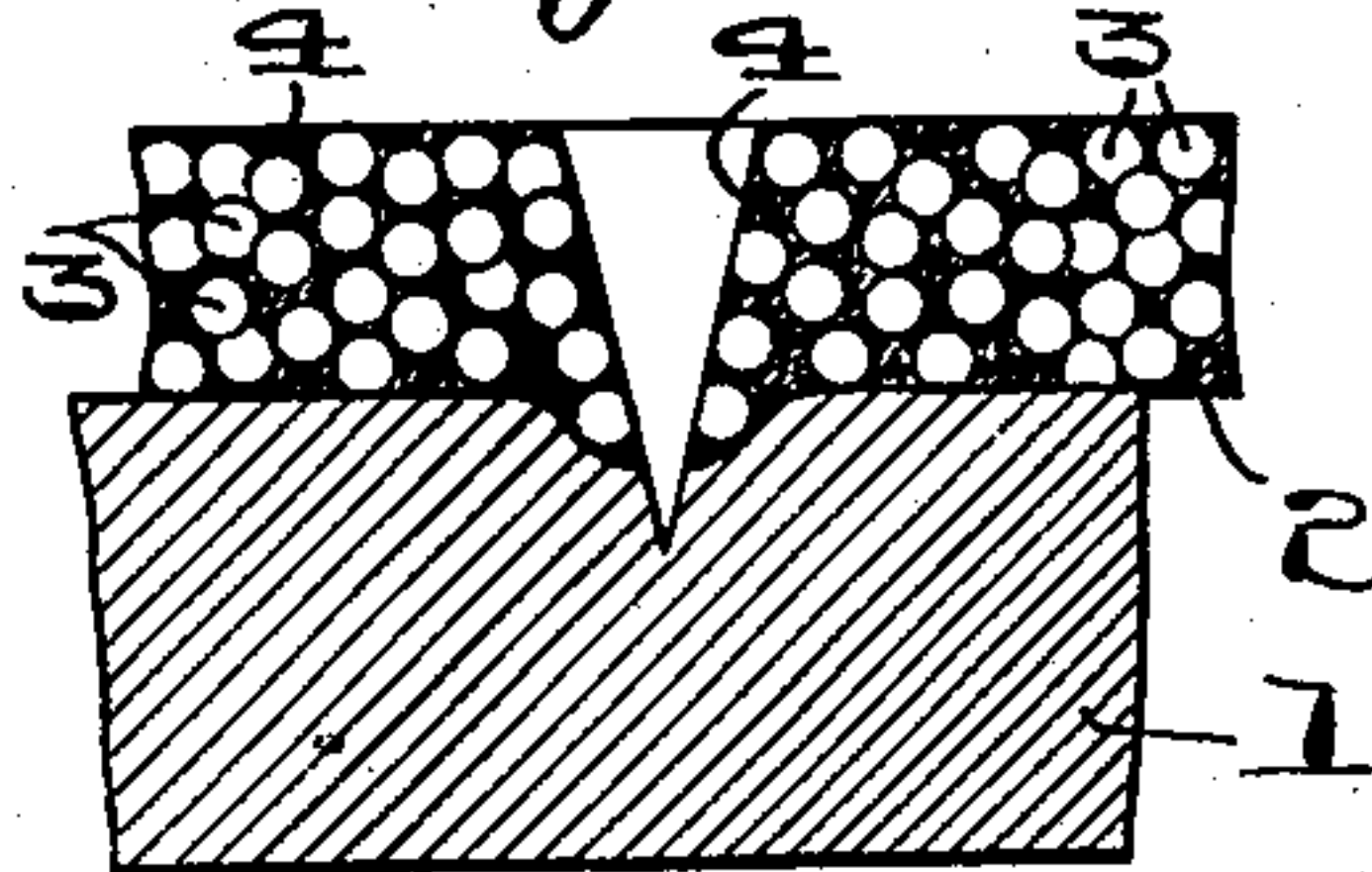
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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## UNITED STATES PATENT OFFICE

2,012,134

## DISK FOR PHONOGRAPHIC RECORDING

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Application August 22, 1933, Serial No. 686,202

4 Claims. (Cl. 274—42)

This invention relates to a disk for phonographic recording, and to a method or process for forming such a disk.

One important object of the invention is to provide an improved construction for such disks adapted to reduce the noise provided by needle scratching.

A second important object of the invention is to provide an improved disk of this character having means whereby it may be visually determined that the disk has reached, through use, the limit of its utility.

A third important object of the invention is to provide a novel process for forming such a disk.

In the annexed drawing,

Fig. 1 is the plan of a part of a recording disk according to this invention in which a part of the oxidized film forming a lake layer is removed;

Fig. 2 shows a microscopic enlargement of the section of the same with sound grooves cut thereon and

Fig. 3 shows a microscopic enlargement of the section of a recording disk with the sound grooves worn away too much for use.

This invention is an improvement in the known aluminum recording disk. In the drawing, 1 is an aluminum plate covered with the oxidized film 2 by anode treatment, which film is permeated by a suitable coloring matter to fill the space among the fine crystal particles 3 which form the oxidized film and thus not only to make the oxidized film compact, but also to change it chemically to form a lake coating on the aluminum plate 1. The known aluminum recording disk is too soft to use a steel needle in the reproduction of sound. That is to say, it has the inconvenience of requiring a fibre needle. Moreover, as it has the sound groove easy to be worn, it can be used only few times. Further, its liability to be corroded makes it unfit for long preservation, and also as it is easy to bend, it becomes unsuitable for use during transportation or preservation. Besides, if the sound groove is worn out, it is hard to discover it. According to the present invention, an oxidized film coating 2 is formed on the surface of an aluminum plate 1 by anode treatment, and by causing a coloring matter to permeate it the space among the crystal particles 3 which form the oxidized film coating is not only filled, but said oxidized film coating is changed chemically to form a compact lake coat-

ing 4, so that when sound is recorded, the lake coating of aluminum oxide of high hardness on the surface is pressed down by a hard recording needle into the unchanged aluminum plate and forms the bottom of the sound groove, thus preventing said groove from being easily worn even with a steel or tungsten needle. Moreover, it lengthens the life of the disk. Furthermore, the lake coating of colored aluminum oxide on the surface being very compact, it softens the needle sound and gives it a clear and distinct tone. Also, the strong anti-corrosive power of the lake coating of colored aluminum oxide on the surface enables the disk to stand long preservation.

The sound recording disk of this invention has a surface of considerably high hardness as compared with the aluminum disk, and therefore it is so difficult to bend that there is no apprehension of its becoming unfit for use during transportation or preservation. Moreover, if the lake coating of aluminum oxide which forms the bottom of the sound groove is worn, aluminum which constitutes the core is exposed, so its lustre enables one to discover that the disk has become unsuitable for use. Thus, my disk is most effective as a sound recording disk.

I claim:

1. A phonograph disk of aluminum anodically treated to oxidize a surface and having the oxidized surface impregnated with coloring matter.

2. That process of producing a blank for phonograph disks which consists in forming a metallic disk, oxidizing a face of the disk to produce a coating of an oxide of the metal of which the disk is formed, and impregnating the coating with coloring matter chemically reacting on the metallic oxide to form a lake.

3. That process of producing a blank for phonograph disks which consists in forming a disk of aluminum, subjecting the disk to anodic treatment to oxidize a surface thereof, and impregnating the oxidized surface with coloring matter.

4. That process of producing a blank for phonograph disks which consists in forming a disk of aluminum, subjecting the disk to anodic treatment to oxidize a surface thereof, and impregnating the oxidized surface with coloring matter chemically reacting on the metallic oxide to form a lake.

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