PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in Sound-boxes for Sound Reproducing Machines.

We, BING-WERKE, vorm. GEBRUDER BING AKT-GES., of Blumenstrasse 16, Nurnberg, Germany, a German Joint Stock company, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

Sound boxes are known, particularly in cheap sound reproducing machines, in which the body of the sound box consists of pressed or stamped out sheet metal. To this body a resilient needle-arm is fixed which as is known, serves for transmitting the vibrations to the diaphragm. These sound-boxes however are very sensitive and on account of the attendant noises that are produced do not act satisfactorily as the vibrations of the spring and of the needle are also transmitted to the body of the sound box which in turn acts unfavourably on the diaphragm. As the sound box body consisting of thin sheet metal vibrates in company with the needle, only a small portion of the vibrations is transmitted to the diaphragm, whilst the other part is lost owing to the inherent oscillations and produces accompanying noises. For these reasons it has been preferred to make the sound box body of stout material, such as cast zinc and the like, which however is expensive.

This invention relates to sound boxes made of thin sheet metal, which have not these disadvantages. It consists herein, *viz.*, that the resilient needle-arm, hereinafter referred to as the tone spring, is fixed on a ring shape plate of considerable weight, whereby a quick and pure transmission of the sound from the needle to the diaphragm is assured. A further essential feature of the invention consists herein *viz.*, that this comparatively heavy plate for the most part covers the box towards the needle side, whereby the diaphragm is protected so far as possible against damage from outside.

In the accompanying drawing one example of the manner in which the invention is carried out is shown and in which Figure 1 is a front view of the sound box with the table and Figure 2 a horizontal section through the centre of the sound box.

The sound box casing 1 made of relatively thin sheet metal is pressed or stamped out. The diaphragm 2 is isolated from the casing 1 by means of paper or india-rubber rings 8. A stout ring shape plate 3 of relatively large mass forms the closing face of the casing 1 and protects the diaphragm against injurious shaking and pressure from outside. On this stout plate 3 the tone spring 4 is rigidly fixed which transmits to the diaphragm the vibrations imparted to it. If the needle 5 is fixed in the needle-holder by the clamping screw 7 and set in vibration by the record disc 9, the vibrations of the needle will in consequence of the considerable inertia of the plate 3 be almost completely transmitted to the tone spring 4 and to the diaphragm 2 mounted as lightly as possible. On account of the fixed seating of the spring 4 (to which is attached the needle holder 6) on the weight plate 3 and the non-sensitiveness of this plate the casing 1 does not receive any disturbing vibrations. There by a guarantee is given that the tone spring 4 can transmit the vibrations of the needle 5 to the diaphragm 2 almost completely without objectionable subsidiary or accompanying effects and that the subsidiary noises otherwise occurring through the vibrations of the casing itself are got rid of as far as possible.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In a sound box made of thin sheet metal for sound reproducing machines,

rigidly securing the resilient needle-arm to a ring shaped plate positioned in the sound box casing, the weight of the ring shaped plate being so great that it prevents the transmission of the vibrations to the plate as far as possible, so that nearly the whole of the vibrations are transmitted to the diaphragm.

2. In a sound box according to Claim 1, positioning the ring shaped plate in the box casing so that it covers the box for the most part and thereby protects the diaphragm positioned in the interior of the casing against injury.

3. The sound box for sound reproducing machines, constructed substantially as described with reference to the annexed drawings.

Dated this 17th day of April, 1924.

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Agents for the said Applicants.

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[This Drawing is a reproduction of the Original on a reduced scale]

Fig. 1

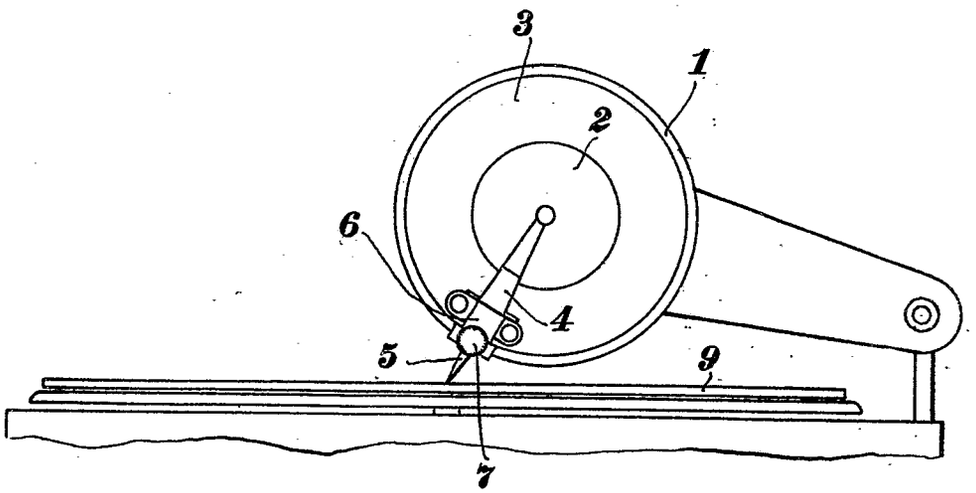
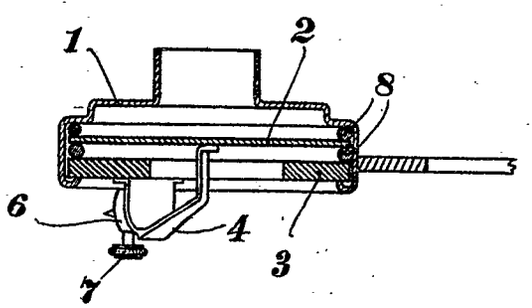


Fig. 2



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