

PATENT SPECIFICATION



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149,663

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COMPLETE SPECIFICATION.

Electrically Driven Talking Machine.

I, ALBERT EBNER, of 8, Sonnenbergstrasse, Stuttgart, Germany, German subject, 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:—

The electric driving of talking machines has the disadvantage that the noise of the motor is usually audible to an extent to considerably interfere with the reproduction. This is to be attributed to the fact that the motor and its bearing is frequently sound-conductively connected with the frame of the talking machine through the parts of the bearing. Driving by means of the electric motor has moreover, the disadvantage that it is not uniform.

It has already been proposed to eliminate undesirable sound vibrations in an electrically driven talking machine by suspending the motor from a frame by means of flexible non-metallic belts or cables which, owing to the nature of their structure, are bad conductors of sound, the frame being in turn suspended by means including rods or bolts and elastic washers. Such an arrangement has been described in Patent Specifications Nos. 15,334/13 and 15,357/13, but in both these cases the electric motor is disposed with its shaft rotating about a horizontal axis.

According to the present invention I provide an electrically driven talking machine wherein the electric motor is freely suspended on tension devices and the distinguishing feature of one form of the invention is that the shaft of the electric motor is disposed in parallel relation to that of the record carrier. Means are also provided according to this invention whereby a uniform driving action is

ensured, and an alternative form of the invention has the distinguishing feature that the electric motor is suspended upon an endless rope driving the talking machine and forms a self raising weight in a gravity motor.

In the first-mentioned form of the invention the tension devices are suitably arranged so that they run obliquely outwards, whereby oscillation of the motor is prevented. The ends of the tension devices can, moreover, be connected with one another by means of springs, whereby the tension devices are automatically held under tension.

A speed regulating device is mounted on the freely suspended motor in order that its vibrations may not be communicated to the sound box of the talking machine.

The present invention is illustrated in the drawings in forms shown by way of example.

Figs. 1 and 2 are respectively a side elevation and a plan of the one form of construction, in each case with the casing shown in section.

Figs. 3 and 4 are similar views of a slightly modified form of construction.

Fig. 5 is a general view of an example of the second mentioned form of construction and

Fig. 6 the front elevation of the motor arrangement of Fig. 5 shown in section through the vertical axis.

The sound is produced in the known manner by means of a rotary plate or disc 1, in the sound-grooves of which a needle runs. As driving medium for the talking machine or for the sound disc 1 an electric current is employed, which sets an electric motor 2 in rotation, the shaft 3 of which, for example by means of a flexible device 4 made of india-

[Price 1/-]



rubber drives at a reduced speed a shaft 5, on which the sound disc 1 is arranged.

Now in order to prevent any disturbing noise of the motor, the latter, according to the invention is suspended on cords 6, bands (belts) or the like. In the form of construction shown in Figs. 1 and 2 these cords or bands are attached to a box 7. The cords 6 run suitably obliquely upwards and outwards, in connection wherewith the ends that are carried over rollers 8 are connected with one another in pairs by means of tension springs 9.

For the purpose of ensuring uniform action of the disc 1 and of the motor 2, a regulator 10 is provided.

According to the form of construction shown in Figs. 3 and 4, for regulating the motor 2 a brake device is provided which consists of a brake disc 12 seated on the shaft 3. Against this brake disc or pulley the arms of a brake lever 13 lie with a pressure that is self regulated. This brake lever is mounted in a bearing 14 so as to pivot around a pin 15 and is pressed more or less powerfully against the brake disc 12 by means of a regulating screw 16. The regulating screw is pivotally arranged in a bearing 17, but not mounted so as to be axially movable and is screwed through the end 18 of the brake-lever that is formed as a nut.

In accordance with the invention the whole regulating device is mounted on the motor 2. In the example of construction shown an arm 19 is firmly attached to the motor casing.

This arm carries the bearings 14 and 17 and is itself constructed as a suitable bearing.

Thereby any sound-conducting connection of the motor 2 and its parts with the frame or casing 20 is avoided.

Instead of the regulating device being arranged on an arm 19 it might be directly or indirectly connected with the motor 2 in some other way.

Figs. 5 and 6 show a form of construction in which the motor 2 serves also as a self-raising weight. In this case driving gear 21 of any kind is arranged in the machine-frame 20 of the talking machine and sets the sound plate 1 in rotation. For driving the mechanism 21 the endless device 6, for example a cord, is employed which is wound a number of times over a roller 22 belonging to the driving shaft 23 of the mechanism 21 and the two strands of which are carried downwards by means of upper guide rollers 24, and, running over other guide-rollers 24 meet again. The lower guide-

rollers 24 are arranged on one and the same support 25, which is made to move upwards and downwards for ensuring the automatic constant tension of the cord 6 and is connected at the ends with bell-crank levers 26. These levers rotate around pins 27 and their upstanding arms are connected with one another by a tension spring 9. Thereby these arms are drawn together, whereby the piece 25 is constantly pressed resiliently downwards and the cord 6 held under tension.

If the motor 2 has reached its lowest position it rises again automatically according to the invention on a strand of the cord 6. For this purpose the strand 6 is wound several times over the pulley 28 of the motor 2, the shaft 3 of which is coupled with the motor-casing by means of a known non-return or ratchet device 29 or the like, that prevents rotation in the one direction but in the other direction allows of a free rotation.

The current circuit of the motor runs to an insulated contact spring 31, then through a slide 32 in the form of a rod, thence through an oppositely situated second contact spring 33 to the motor 2 and from this through the wire 34 back to the source of current.

The slide 32 is mounted so as to be longitudinally movable in the motor-casing and is protected by insulating material 35, except at the point 36, where it is of conducting material, so that the current can here run from the spring or brush collector 31 to the spring or collector 33 if the conductive place 36 is between the two. The springs or collectors 31 and 33 likewise serve for holding the slide 32 in any position.

In order that the place 36 and the insulation 35 may be placed alternately between the brush collectors 31 and 33 stops 37 and 38 are placed on the frame 20 above and below respectively. On to these the contact rod 32 which is suitably provided for this purpose at both ends with a plate 39, comes and thereby switches the current on and off.

The arrangement acts in the following manner:

If the motor 2 is above, it is without current and acts merely as a weight, as its shaft 3 is coupled with the motor-casing through the brake 29, that is to say is prevented from rotating. Further, the contact rod 32 lies with its insulated part 35 between the brush collectors 31 and 33.

If now the motor descends, its contact rod comes on to the stop 38, and moves upwards until the conducting place 36

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lies between the brush collectors 31 and 3. Thereby the circuit is closed and the motor 2 rotates. It thereby runs upwards with non-effective brake on the cord 6, until its contact rod 32 comes on to the upper stop 37 and is thereby pushed downwards. The non-conductive place 35 of the contact rod 32 then lies between the springs 31 and 33 and the current is interrupted, whereupon the operations begin again.

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

1. Electrically driven talking machine, wherein the electric motor is freely suspended on tension devices, the distinguishing feature being that the shaft of the motor is parallel to that of the record carrier.

2. Talking machine according to Claim 1, the distinguishing feature being that the tension devices run obliquely outwards.

3. Talking machine according to Claims 1 and 2, the distinguishing feature being that the ends of the tension or suspension devices are connected with one another by means of tension springs.

4. Talking machine according to Claims 1 to 3, the distinguishing feature being that the whole regulating device is arranged on the freely suspended motor.

5. Talking machine according to

Claims 1 to 4, the distinguishing feature being that the regulating device is arranged on an arm that is attached to the motor.

6. Talking machine according to Claims 1 to 5, the distinguishing feature being that the revolutions of the motor are kept uniform by means of a regulator mounted directly on its shaft.

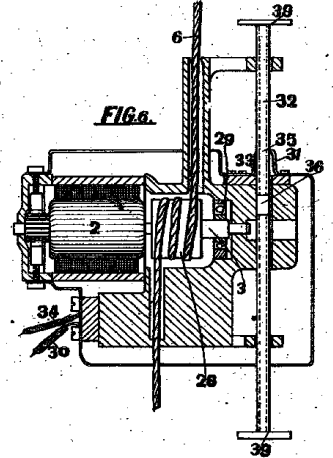
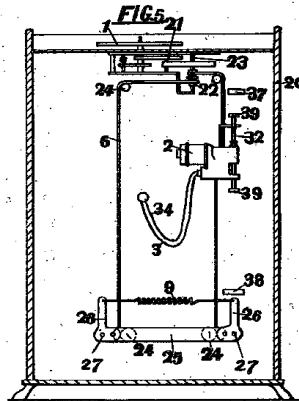
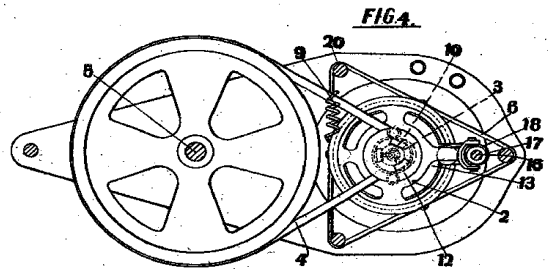
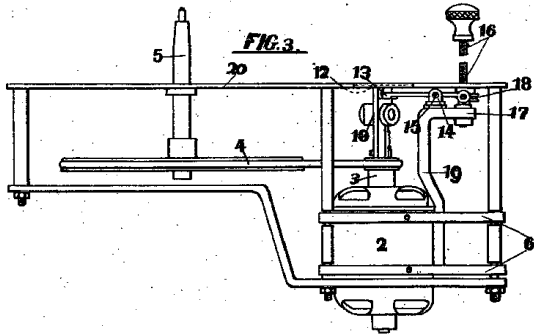
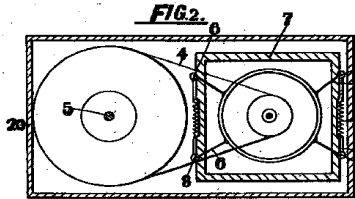
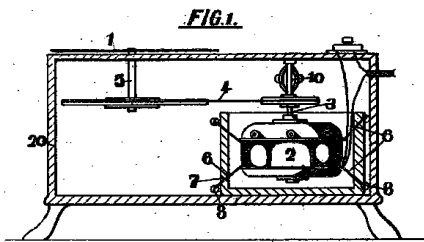
7. Talking machine, wherein the electric motor is suspended upon an endless rope driving the talking machine, and forms a self-raising weight in a gravity motor, said electric motor being put in and out of circuit when reaching the lower and upper limits of its movement, in a known manner by means of a contact device.

8. Talking machine according to Claim 7, the distinguishing feature of which is that the contact device consisting of a sliding contact is arranged directly on the motor casing.

9. Talking machine according to Claims 7 and 8, the distinguishing feature being that the contact device consists of a rod projecting above and below from the motor casing, the contact parts of which, when actuated by stops arranged in the known manner above and below respectively are alternately pushed out of and into the position of contact.

Dated this 12th day of July, 1920.

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Agents.



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

FIG.1.

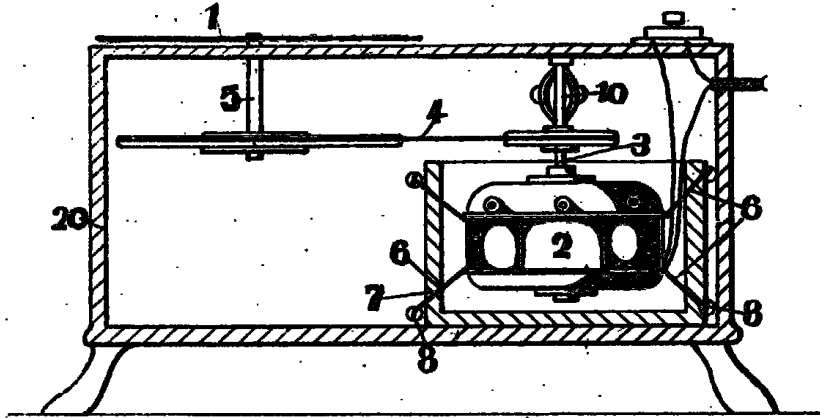


FIG.2.

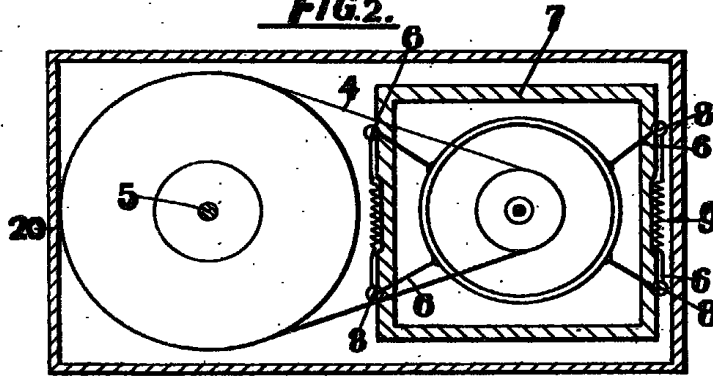
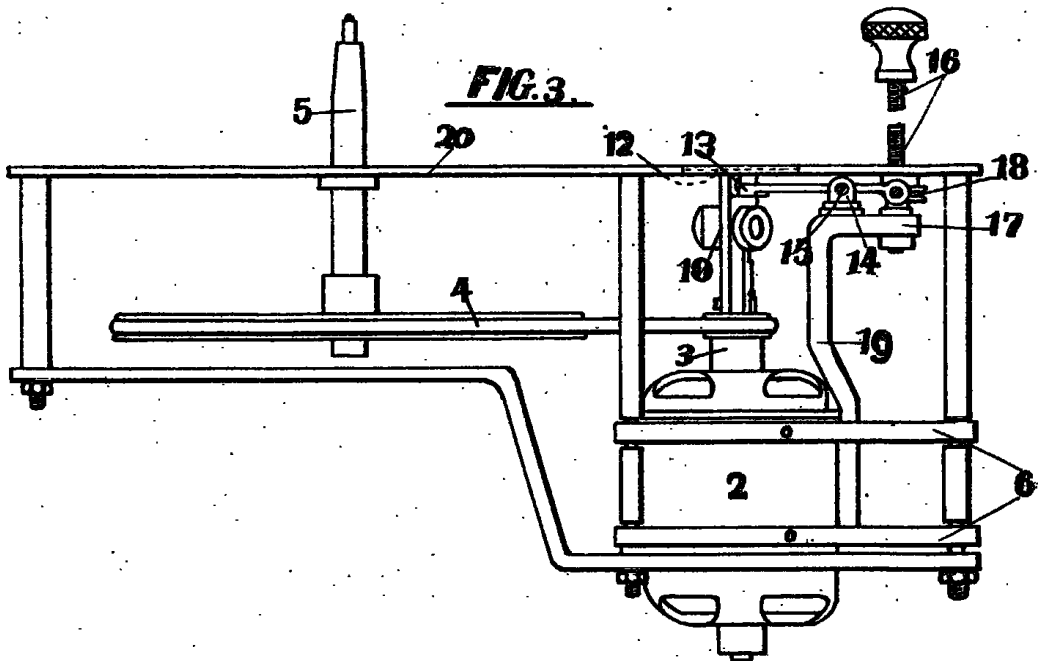


FIG.3.



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FIG. 4.

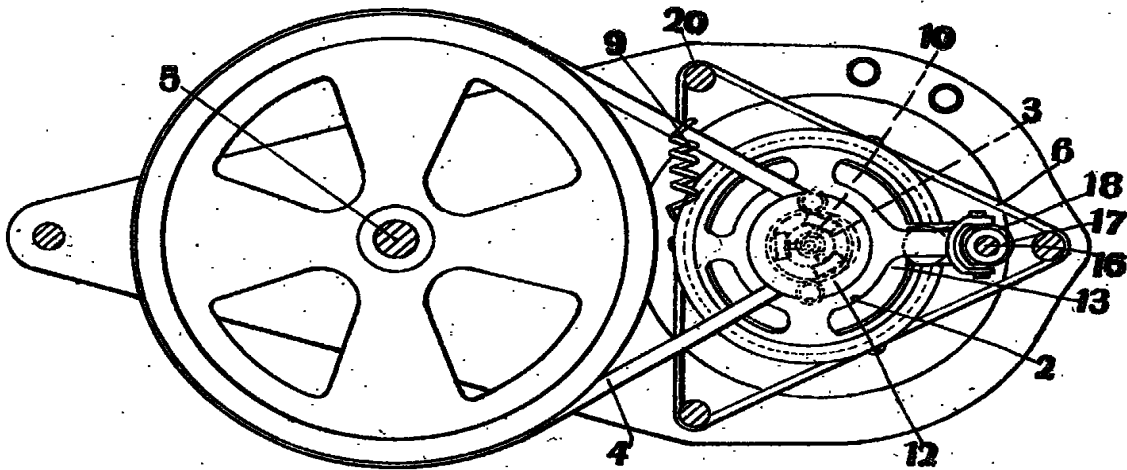


FIG. 5.

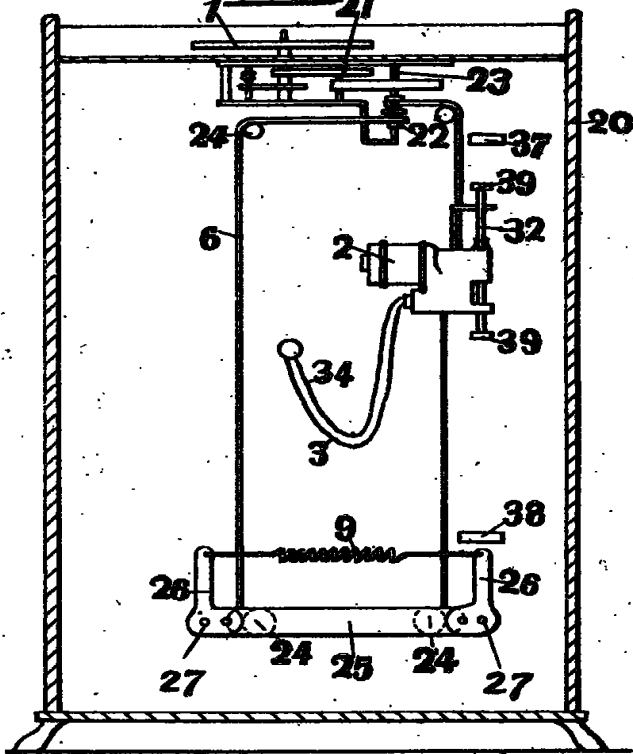


FIG. 6.

