

No. 653,654.

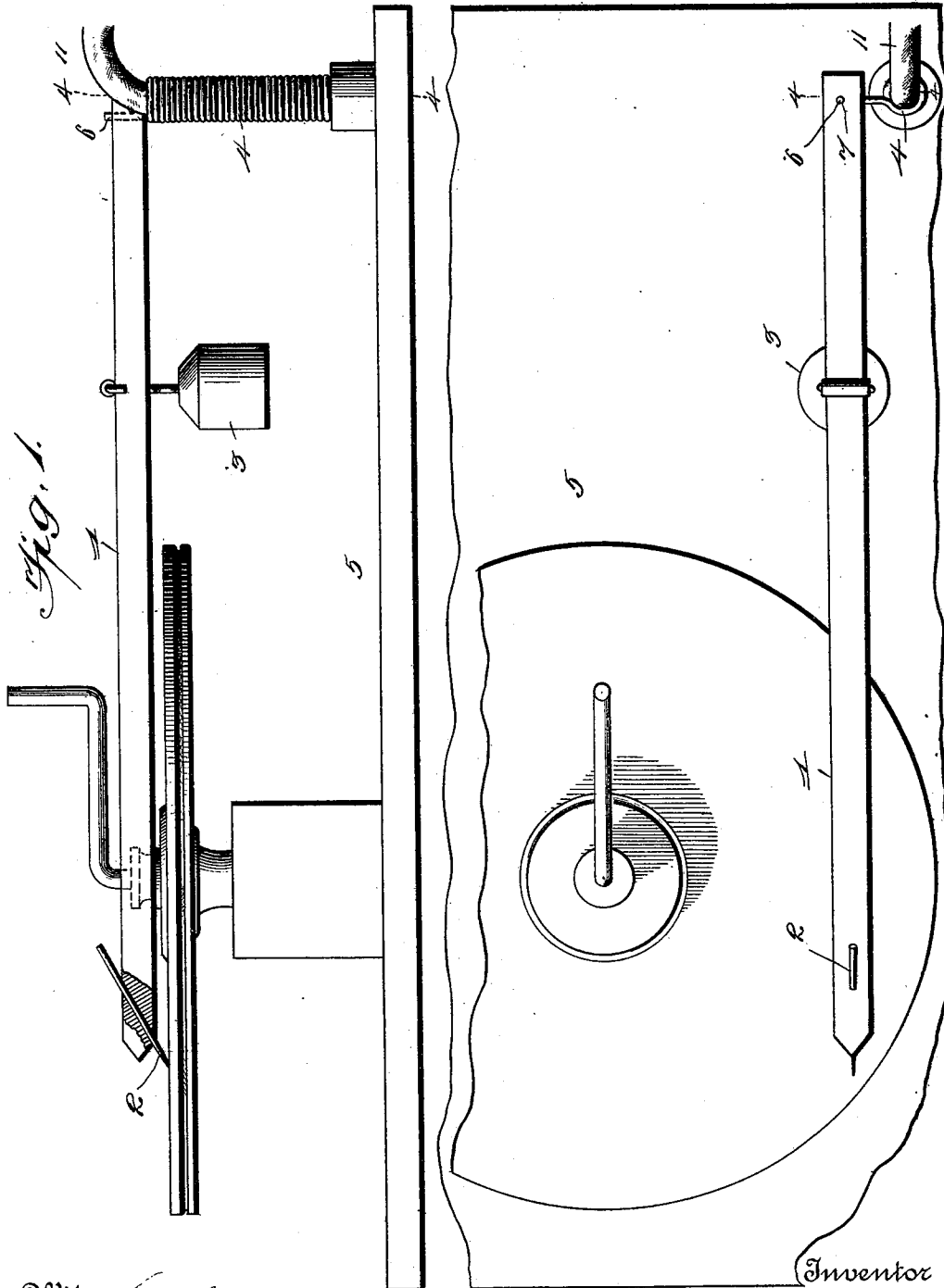
Patented July 17, 1900.

J. N. BROWN.
DEVICE FOR REPRODUCING SOUNDS.

(Application filed Apr. 22, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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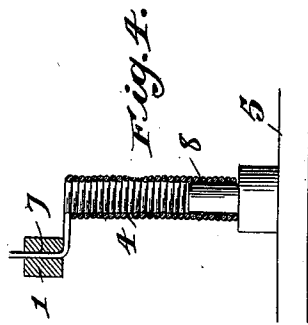
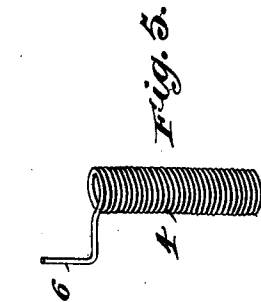
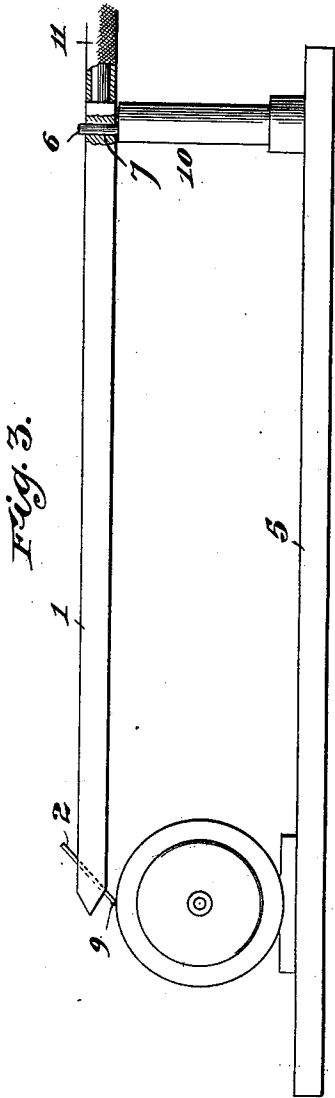
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DEVICE FOR REPRODUCING SOUNDS.

(Application filed Apr. 22, 1897.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JOSEPH N. BROWN, OF MUSKEGON, MICHIGAN.

DEVICE FOR REPRODUCING SOUNDS.

SPECIFICATION forming part of Letters Patent No. 653,654, dated July 17, 1900.

Application filed April 22, 1897. Serial No. 633,340. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH N. BROWN, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Devices for Reproducing Sounds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to a novel construction in a device for reproducing the sounds of a phonogram-record.

The invention consists in the features of construction hereinafter described and specifically claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a sound-reproducing device constructed in accordance with this invention and shown as arranged for reproducing sounds recorded upon a gramophone-disk. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation of this invention as arranged for reproducing sounds recorded upon a phonograph-cylinder. Fig. 4 is a vertical section taken on the line 4 4 of Figs. 1 and 2. Fig. 5 is a perspective view of the resilient post or support in detail.

I have discovered that the sound-writings of a phonogram can be reproduced as sonorous vibrations by means of a single bar or rod, preferably of wood, that is yieldingly supported and which is provided with a point or projection adapted to travel in the spiral groove or score containing the sound-writings. In constructing a device of this kind I have successfully reproduced sounds, either musical or articulate speech, from the record of a phonogram by the employment of a bar or rod of wood that is yieldingly supported near one end thereof and which is provided at its other end with a pin or projection to travel in the groove containing the sound-writings. I am not prepared to explain the phenomena, nor the manner in which the sounds are reproduced, and therefore will not attempt to specify herein the scientific principles for the reproduction of the sound, but will simply describe the essential features

and the principle of the invention as I have found them in practical use.

It is understood, of course, that the invention is applicable for the reproduction of the sounds recorded upon phonograph-cylinders, gramophone-disks, and other analogous phonogram-records, and in the accompanying drawings the invention is shown in connection with a phonograph-cylinder and a gramophone-disk.

In said drawings I have shown a vibratory member 1, partaking of the shape of a rod or bar. As shown in the drawings, this vibratory member 1 is yieldingly supported near one end thereof, whereby it can move both laterally and vertically, while its other end is provided with a projection or pin 2, that projects below the vibratory member and is conveniently located at an angle thereto, as shown, to effectually prevent the scratching of the sound-writings. Upon the vibratory member 1 is arranged a weight 3, that serves to hold the projection or pin 2 upon the phonogram-record under sufficient tension to produce the most satisfactory results. This weight is adjustable upon the vibratory member between the point at which it is yieldingly supported and the pin or projection 2, whereby the tension with which it is held against the phonogram-record can be regulated.

The device as above constructed, it is found, reproduces the sound without the aid of a horn or ear-tubes, and, as above stated, although I am not prepared to explain the manner in which the sounds are reproduced, yet I have found it to be a fact.

The particular construction in the yielding support for the vibratory member consists of a resilient post 4, comprising a coil-spring that is firmly fastened at its lower end upon the base 5, while its upper end is provided with a finger 6, that extends upward on one side of the post and which passes through an opening 7 in the vibratory member, in which it fits snugly. This resilient post or support, by means of which the vibratory member is yieldingly supported, is provided with a socket to receive a horn or ear-tube, and in the particular construction illustrated this socket of course is formed by the cylindrical body made

by the coil-spring, and since the finger at the upper end thereof extends upwardly on one side of the coil-spring the end of the tube or horn can be easily inserted within the upper
 5 end of the coil-spring. The said coil-spring can be secured firmly in its upright position by forcing its lower end over a boss or projection 8 upon the base 5. The pin or projection
 10 member is removable, so that it can be replaced when worn or whenever it is desired, and as an inexpensive and simple embodiment the end of the vibratory member is simply provided with an opening in which
 15 the pin or projection is wedged.

In Figs. 1 and 2 the device is shown in connection with a phonogram-disk, while in Fig. 3 it is shown in connection with a phonogram-cylinder. In Fig. 3 I have also shown the pin
 20 or projection 2 as provided at its lower end with a minute roller 9 to come in contact with the phonogram-record and which will of course subject the said record to less wear than if used in connection with the rigid point
 25 or projection, as heretofore described, and shown in Figs. 1 and 2. Further, in Fig. 3 I have shown the post or support for yieldingly supporting the end of the vibratory member as solid, as shown at 10, while it is provided
 30 with a yielding finger 6, upon which the member 1 is mounted. In this construction the end of the vibratory member can be reduced or rounded, so that it can be inserted in the end of the ear-tube 11 or in the horn, as is obvious.
 35

It is understood, of course, that the form of post shown in Figs. 1 and 2 serves to intensify the vibration and to make the sound clearer and of greater volume as compared with the
 40 form of post shown in Fig. 3, although in accordance with the principle involved by this invention I contemplate employing either a solid, a coil-spring, or a resilient post for supporting the vibratory member for the purpose
 45 of reproducing the sounds of a phonogram-record either with or without the aid of an ear-tube or horn, as found most convenient and desirable.

Having thus described my device, what I
 50 claim as new, and desire to secure by Letters Patent, is--

1. A sound-reproducing device, consisting of a vibratory member secured near one end thereof to a resilient post or support comprising
 55 a coil-spring, and provided near its other end with a point or projection adapted to travel over the sound-writings of a phonogram.

2. A sound-reproducing device, consisting
 60 of a vibratory member secured near one end thereof to an upwardly-extending finger at the upper end of a resilient post or support, said post or support consisting of a coil-spring,

and a point or projection adapted to travel
 over the sound-writings of a phonogram. 65

3. A sound-reproducing device, consisting of a vibratory member secured near one end thereof to a resilient post or support, said post or support consisting of a coil-spring having
 70 an upwardly-extending finger situated to one side thereof and upon which said vibratory member is mounted, and a point or projection near the other end of said vibratory member adapted to travel over the sound-writings of a phonogram. 75

4. In a sound-reproducing device, the combination of a single vibratory bar of resonant material as contradistinguished from a sound-transmitting device, a point or projection at
 80 one extremity thereof adapted to travel over the sound-writings of a phonogram, a support consisting of a coiled upright spring mounted at one end on a base and having its other end deflected and rigidly attached to said bar, and
 85 an ear-tube inserted in and leading from the upper end of the coil.

5. In a sound-reproducing device, the combination of a single vibratory bar of resonant material constituting in itself a sound-reproducing device, a point or projection at one
 90 extremity thereof adapted to travel over the sound-writings of a phonogram, a support consisting of a spring mounted at one end on a base and having its other end rigidly attached to said bar, and an ear-tube. 95

6. In a sound-reproducing device, the combination of a single solid rod or bar of wood provided near its outer end with a point or
 100 projection adapted to travel over the sound-writings of a phonogram, said rod or bar constituting in itself alone a sound-reproducing device as contradistinguished from a sound-transmitting device, and a metal spring rigidly connected with the other end of this rod
 105 or bar so as to support it but permit lateral and vertical movements of the end carrying said point, substantially as described.

7. In a sound-reproducing device, the combination of a single solid resonant rod or bar
 110 of wood provided at one end with a point or projection adapted to travel over the sound-writings of a phonogram, said rod or bar constituting in itself alone a sound-reproducing device as contradistinguished from a sound-transmitting device, and a support resilient
 115 within its body and rigidly attached at its extremities to a fixed base and to the rod or bar at the end of the latter remote from said point or projection, substantially as described.

In testimony whereof I have signed this
 120 specification in the presence of two subscribing witnesses.

JOSEPH N. BROWN.

Witnesses:

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 WM. CARPENTER.