No. 630,521. Patented Aug. 8, 1899.

J. SCHOENNER.

TOY PHONOGRAPH.

(Application filed Jan. 24, 1899.)

(No Model.)

Fig. 1.

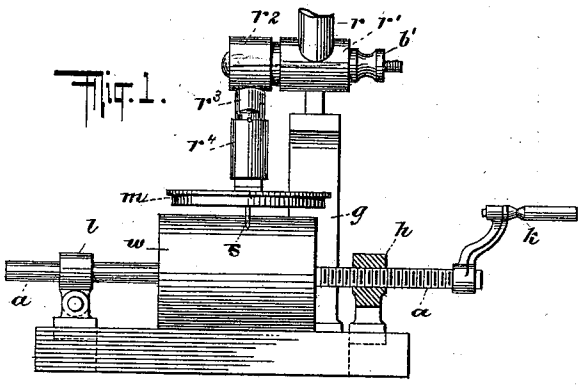


Fig. 2.

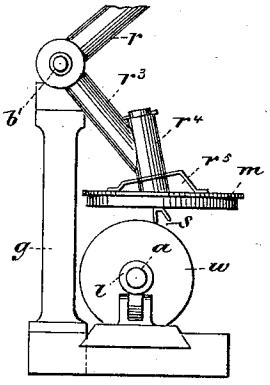
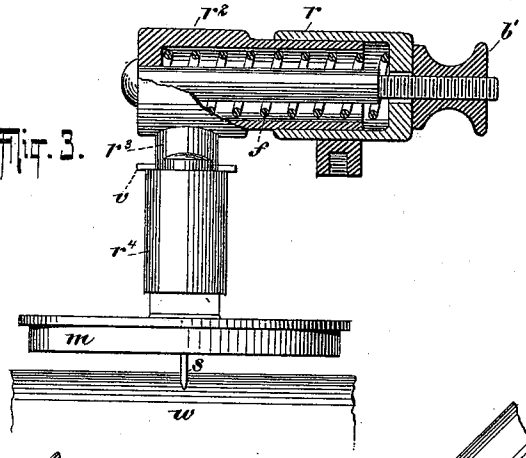


Fig. 3.



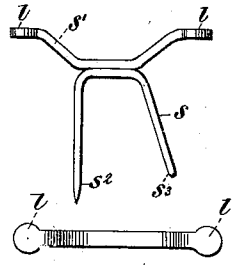


Fig. 6.

Fig. 4.

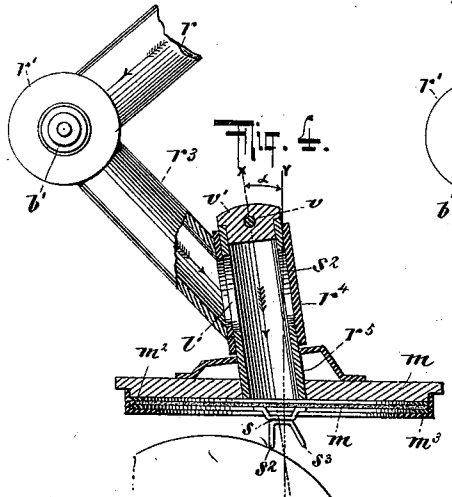
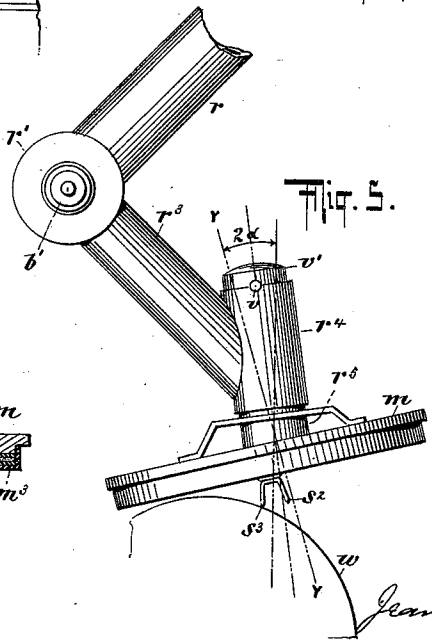


Fig. 5.



WITNESSES:

Gustave Dieterich

E. C. Connor.

INVENTOR

Jean Schoenner

BY

Briesen & Knauth

ATTORNEYS

UNITED STATES PATENT OFFICE.

JEAN SCHOENNER, OF NUREMBERG, GERMANY.

TOY PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 630,521, dated August 8, 1899.

Application filed January 24, 1899. Serial No. 703,247. (No model.)

To all whom it may concern:

Be it known that I, JEAN SCHOENNER, manufacturer, a resident of Nuremberg, Bavaria, German Empire, have invented certain new and useful Improvements in Toy Phonographs, of which the following is a specification.

This invention has for its object to simplify the construction of phonographs, so as to produce a cheap structure suitable for use as a toy. For this object the two speaking devices employed for receiving and giving off the conversation are combined into a bifurcated diaphragm-pin, which is immovably fixed on the under side of the diaphragm. In order that the said diaphragm-pin may be utilized according to requirements, sometimes for receiving or recording and sometimes for delivering or reproducing the conversation, a section of the resonance or sound tube, on the under side of which the diaphragm, together with the diaphragm-pin, is fixed, is movably arranged and may be turned about one hundred and eighty degrees. By this means the diaphragm-pin is brought into two different positions in such a way that it may serve as a receiving or recording pin in one position and as a delivering or reproducing pin in the opposite position when turned about one hundred and eighty degrees. By giving the diaphragm and pin a suitable form and angular arrangement relative to the revoluble section of the sound-tube the result is attained that the diaphragm-pin, as will be hereinafter explained, assumes each time the necessary position relative to the phonograph-cylinder as is requisite on the one hand for the correct recording and on the other hand for the clear reproduction of the speech.

The arrangement is shown in the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 an end view, of the toy as a whole. Fig. 3 is an enlarged partly-sectional view of the sound-regulating chamber. Fig. 4 is an enlarged detail view showing the diaphragm and pin in position for reproducing. Fig. 5 is a similar view showing the diaphragm shifted into proper position for recording. Fig. 6 is an enlarged detail view of the bifurcated or double-pointed diaphragm-pin.

The spindle a of the phonograph-cylinder w is mounted at both ends in bearings l h and has one end screw-threaded to engage an internal thread in one of the bearings, by means of which the phonograph-cylinder is slowly displaced in an axial direction upon the spindle being turned by a handle k. The sound or resonance tube serves for receiving and giving off the speech, and the speaking appliances are fixed on a frame g, and during the reception of speech the sound travels through the sound-tubes r r' r^2 r^3 r^4 to the diaphragm-box m and sets in vibration the diaphragm, which is arranged on the under side of said box. On this diaphragm there is fixed a diaphragm-pin s, the point of which encounters the upper surface of the phonograph-cylinder, and thereby, according to the vibrations of the diaphragm, certain impressions on the cylinder are made in the ordinary way.

The special arrangement which renders it possible to utilize the same diaphragm-pin s both for receiving and also for reproducing the speech is shown in Figs. 4, 5, and 6. The said pin, which is shown separately on an enlarged scale in Fig. 6, is formed as a bifurcated pin, the upper part serving for attaching the pin to the diaphragm. The pin s is so shaped that one end, s^2, forms a rounded point and is therefore suitable for reproducing speech, while the other end, s^3, is formed as a graver of a suitable form for impressing the conversation on the phonograph-cylinder. According to requirements this diaphragm-pin may be brought into the position for receiving or giving off a conversation by means of the following arrangement: It is fixed by its upper part by means of a U-shaped bridge-piece s', held by means of two fastening-pieces l onto the glass diaphragm, which is clamped onto the bottom of the diaphragm-box m between two india-rubber rings m^2 m^3. In the position for reproducing speech shown in Fig. 4 the diaphragm-pin has its rounded point s^2 resting on the phonograph-cylinder w. By means of the arrangement shown in Figs. 3 to 5 the pin may be brought, as desired, into the reproducing or the recording position. In order that the other end, s^3, of the pin may be brought into contact with the phonograph-roller for the purpose of recording a speech, the diaphragm-box m is not directly attached to the hinged part r^4 of the

sound-tube, but to a tube or spindle r^5, which is loosely movable within the socket or tube r^4 on the same and projects from the latter at the top. The common axis $x\,x$ of these two tubes is inclined at a given angle α from the vertical axis $y\,y$ of the diaphragm-box and the diaphragm-pin. The movable tube r^5 is prevented from falling out of the socket-tube r^4 by means of a pin v, which projects at both sides at the upper end v' and engages in a tiny groove formed on the upper edge of the socket-tube r^4. By this means the proper position of the movable tube r^5, diaphragm-box m, and diaphragm-pin s is determined. When the pin is to be brought into the receiving or recording position, it is only necessary to turn the movable tube r^5 within the socket-tube r^4 to one hundred and eighty degrees, so that the index-pin v again rests in the slot or groove. By this means the axis $y\,y$ of the diaphragm-box comes into the position shown in Fig. 5, in which it, together with the diaphragm-pin s, incloses an angle, such as 2α. Simultaneously the end s^3 of the diaphragm-pin which serves for recording speech comes in contact with the phonograph-cylinder and in consequence of its inclined position assumes a suitable position for recording the speech or sound. The movable tube r^5, which is revoluble in the socket-tube r^4, may, if necessary, be provided with two side slots lying diametrically opposite one another in order to allow the sound-waves from the sound-tube r^3 to pass through to the diaphragm at each of the two positions.

By turning the diaphragm-tube one hundred and eighty degrees, as above pointed out, the point s^2 of the diaphragm-pin is brought in contact with the phonograph-cylinder and into a position where its axis and the axis of the sound-tubes r^4 r^5 correspond. It is then in a proper position for reproducing.

In order to regulate the sound when reproducing speech, the horizontal part r^2 of the sound-tube, as shown in Fig. 3, is arranged telescopically extensible in the tube r', so that the course which the sound-waves describe within the sound-tube may be increased or diminished. In order to exactly regulate this, a spring f is arranged within the tube-sections r' and r^2, which spring tends to force apart the two sections, and a screwed nut b' is placed on a threaded bolt b, which runs right through the tube-sections r' r^2, whereby the latter may be telescopically adjusted against one another by simply turning the said nut. The tube r^2 is provided with a slot corresponding with the end of the tube r, so that the adjustment of the tube r^2 will not interfere with the passage of the sound-waves.

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

1. In a phonograph, the combination with a cylinder of a diaphragm mounted upon a spindle inclined with respect to the diaphragm and the axis thereof, a bifurcated pin mounted upon the diaphragm and having one of its shanks substantially parallel to the axis of the diaphragm and the other of its said shanks disposed with respect to the said diaphragm at an angle substantially equal to double the angle of inclination between the axis of the diaphragm and the axis upon which the said diaphragm is carried.

2. In a phonograph, the combination of a diaphragm, or spindle carrying the said diaphragm and inclined with respect to the diaphragm and to the true axis thereof and a double-pointed stylus adapted for recording and reproducing carried by the diaphragm and in such relation thereto that upon rotating the diaphragm upon its spindle, one point may be shifted away from contact with the phonograph-cylinder and the other point brought into contact with the phonograph-cylinder, substantially as described and for the purposes set forth.

3. In an acoustic apparatus, the combination of a plurality of cylindrical sound-tubes r^2 r' which telescope one within the other and are arranged axially with respect to each other, a spring f and regulating-nut b' for the purpose of effecting a shifting of the sound-tubes, a tube r leading into one of the said sound-tubes and a tube r^3 leading from the other of the said sound-tubes, whereby there is provided intermediate of the tubes r r^3 a joint or axially-adjustable inclosed space for modifying the character of the sound-waves in the tubes r r^3.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JEAN SCHOENNER.

Witnesses:

ANDREAS SLID,

OSCAR BOCK.