No. 681,058. Patented Aug. 20, 1901.

E. KARLOW.

PHONOGRAPH REPRODUCER.

(Application filed July 19, 1900.)

(No Model.)

Fig. 1

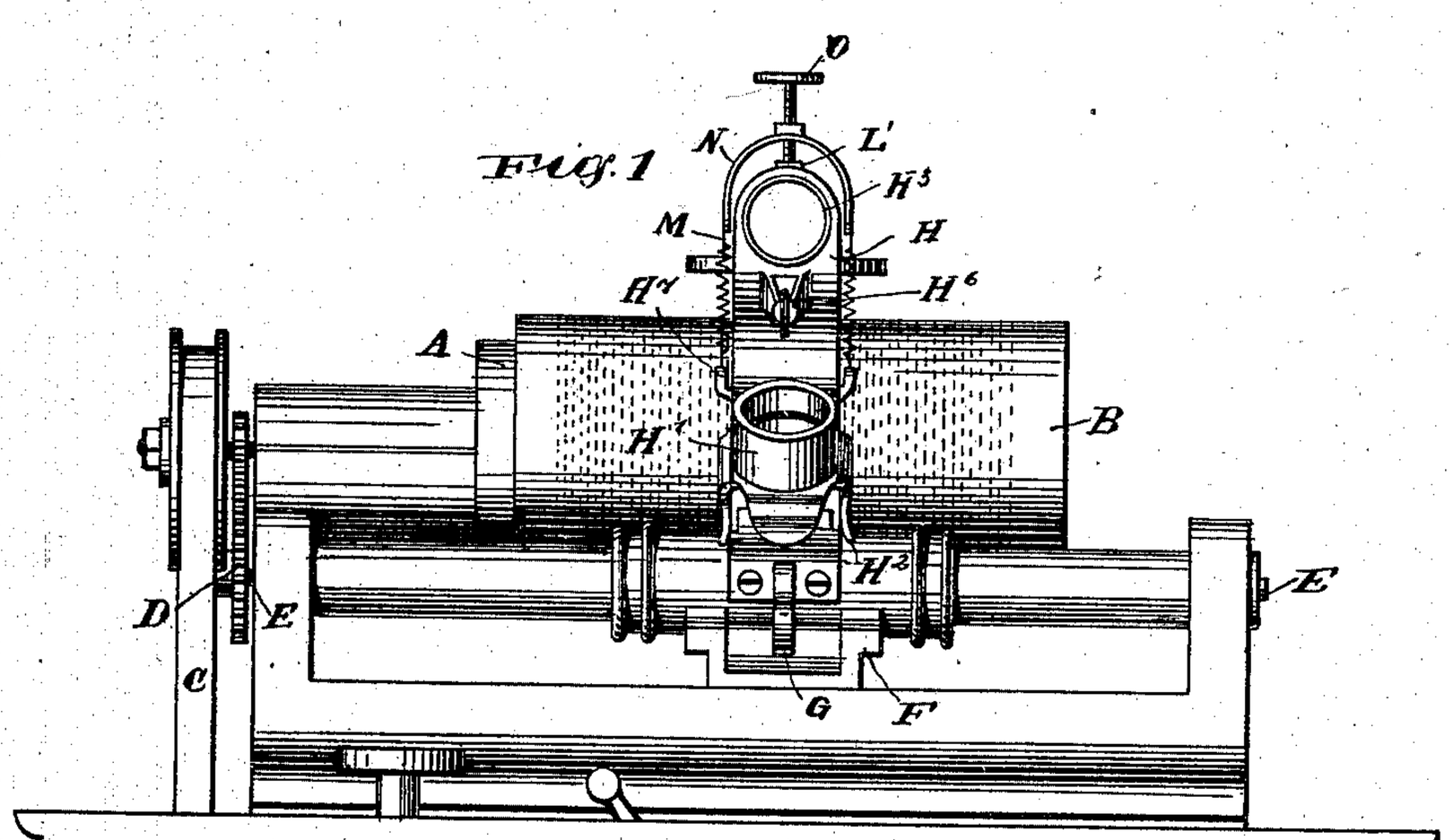


Fig. 2

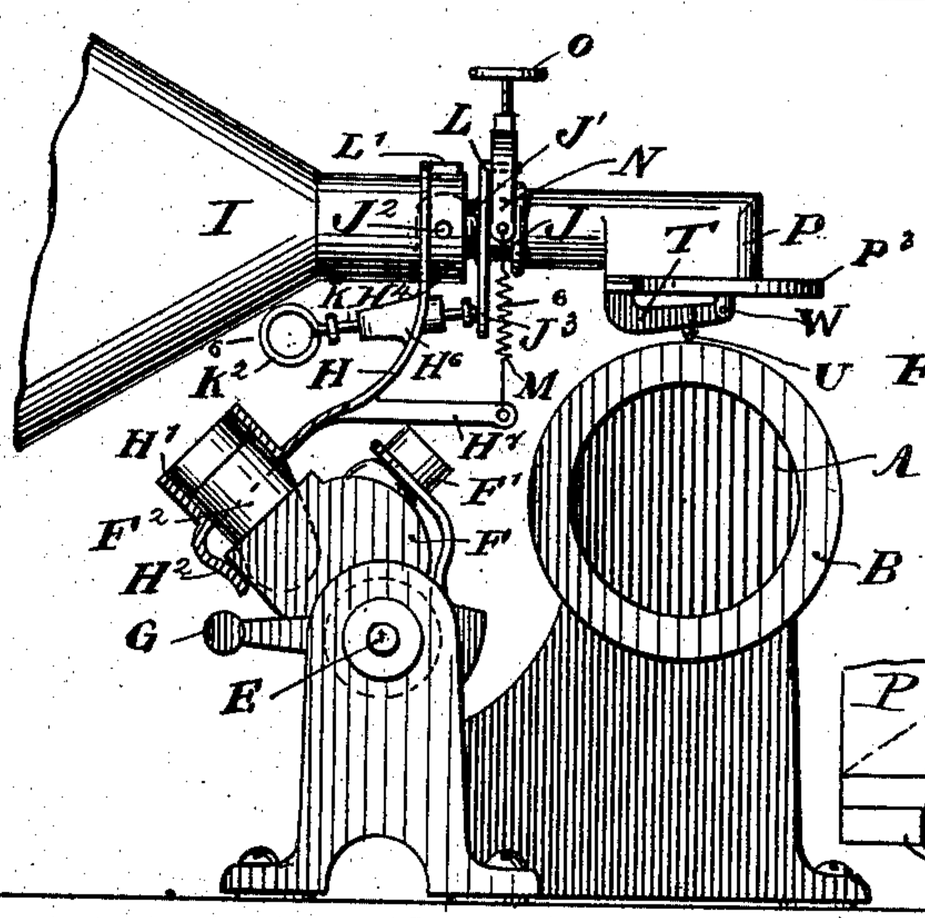


Fig. 7

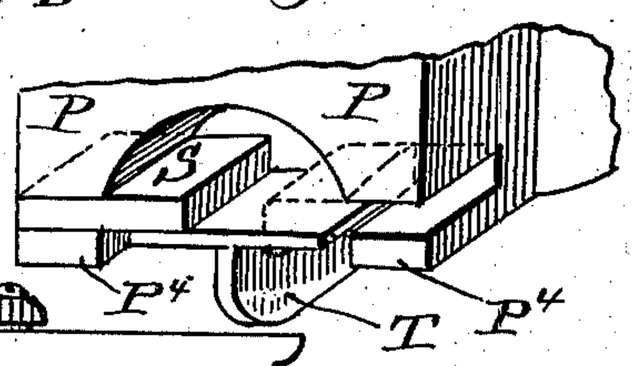


Fig. 3

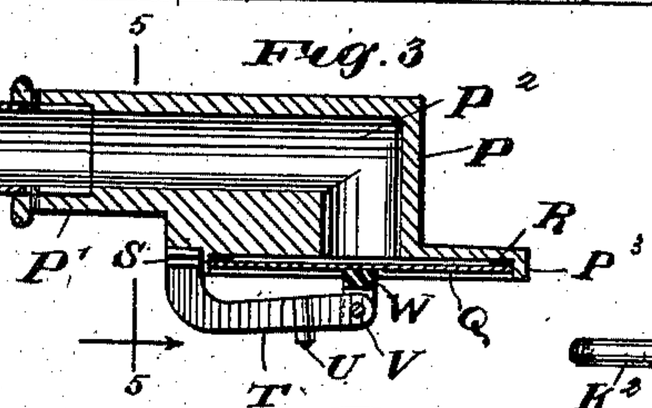


Fig. 5

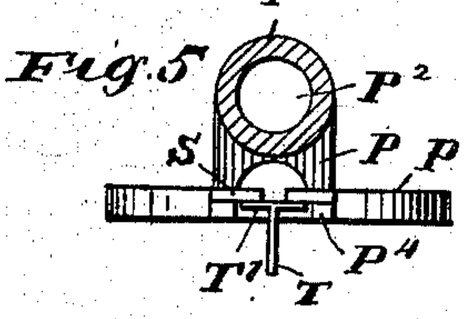


Fig. 6

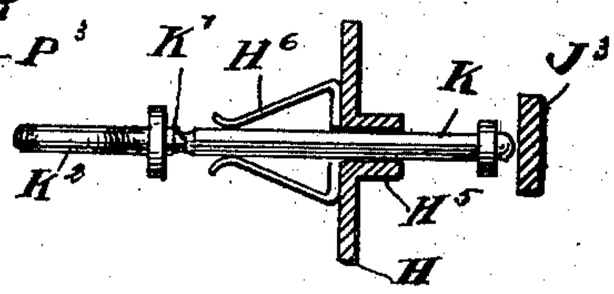
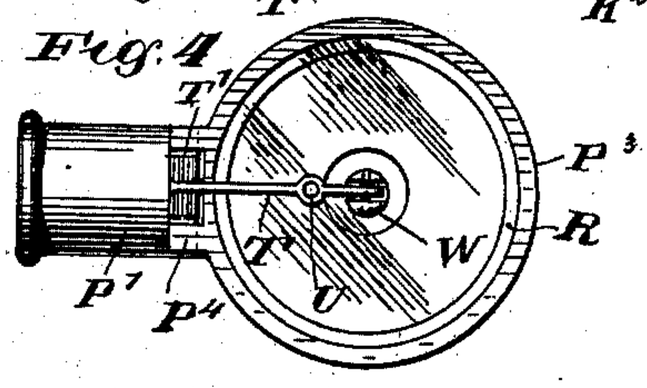


Fig. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD KARLOW, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO CHARLES F. SCHIPPELL, OF SAME PLACE.

PHONOGRAPH-REPRODUCER.

SPECIFICATION forming part of Letters Patent No. 681,058, dated August 20, 1901.

Application filed July 19, 1900. Serial No. 24,186. (No model.)

To all whom it may concern:

Be it known that I, EDWARD KARLOW, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, county and State of New York, have invented a new and Improved Phonograph-Reproducer, of which the following is a full, clear, and exact description.

My invention relates to phonograph-reproducers, and has for its object to provide a device of this class in which the jarring and metallic sounds so troublesome in many reproducers will be eliminated and a clear loud tone obtained.

To this end my invention consists in a particular construction and arrangement of parts, as will be fully described hereinafter and particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of a phonograph or graphophone provided with my improved reproducer. Fig. 2 is an end view thereof. Fig. 3 is a central sectional side elevation of the reproducer drawn upon an enlarged scale. Fig. 4 is an inverted plan of the reproducer. Fig. 5 is a sectional elevation thereof on line 5 5 of Fig. 3. Fig. 6 is a sectional plan on line 6 6 of Fig. 2, and Fig. 7 is a detail perspective view of the support for the arm carrying the reproducing-point.

The phonograph or graphophone itself may be of any suitable construction. In the drawings I have shown the cylinder A holding the record B and driven by means of the belt C, while gearing D drives the usual feed-screw E, engaging the carrier F of the reproducer. I prefer to so construct my reproducer that it will fit the ordinary reproducer-carriers after removal of the reproducer, which presents no difficulty, since the reproducer is commonly removable from its carrier.

F′ is the socket or tube which normally receives the ordinary reproducer, (but is without function in my invention,) and F^2 is the tube which is ordinarily connected with the horn or hearing-tubes.

G is the arm used in ordinary graphophones for throwing the reproducer upon and off the record and connecting the carrier operatively with the feed-screw or disconnecting it therefrom, all these parts being of the usual construction or at least they form no part of my present invention. The arm G, however, in my invention only serves to establish or interrupt the driving action of the feed-screw on the carrier.

My improvement comprises a support or frame H in the nature of a curved plate or bracket and having at its lower end a socket H′ and lugs H^2, adapted to fit, respectively, upon the tube F^2 and upon the body of the carrier F, as shown in Figs. 1 and 2. In this manner the frame H is rigidly yet removably supported on the carrier F. At the upper end of the frame or support H is rigidly secured a tube H^3, projecting rearwardly therefrom and adapted to receive the end of a horn, such as I. In alinement with the tube H^3 another tube H^4 projects from the support H, but forwardly, and to said tube H^4 is pivoted about a horizontal axis J^2 a spherical portion J′, located at the rear of a swinging tube J, which is adapted to carry the reproducer, as will be described presently. The swinging tube has an arm J^3 extending downwardly therefrom and adapted to be engaged by a pin K, mounted to slide in a socket H^5 of the support H and engaged by elastic friction-jaws H^6, attached to the rear of said support. The pin has a groove K′ at its rear end to hold it in the forward position when the jaws H^6 engage said groove and an eye or handle K^2 for manipulating the pin. At the top of the swinging tube J is located a bearing-plate L, made of leather or light material, and a similar plate L′ is provided at the top of the support H—for instance, upon the tube H^4. From the support H projects forwardly a U-shaped arm H^7, having attached thereto the lower ends of springs M, the upper ends of which are secured to an arched bar or hoop N, having at its center a screw-threaded bearing for a screw O, the end of which is adapted to engage either of the bearing-plates L or L′.

The reproducer proper comprises a casing P, with a tube P′, adapted to fit over the tube J of the support, and a sound-passage P^2.

The casing has a circular flange P^3, forming a holder for the diaphragm Q, which is spaced from the casing at its edge by a rubber ring R. Adjacent to the tube P′ the casing has two spaced lugs P^4, recessed to receive the ends of two elastic plates S, preferably of soft rubber, the inner ends of which are slightly spaced from each other. To these plates is secured or cemented a plate or foot T′, disposed at the end of the arm T, which carries the usual reproducing-point U. As the arm is cemented to the rubber plates S, it has only a very slight lateral mobility. The inner end of the arm T engages a pin V, connecting two spaced fork members W, projecting from the center of the diaphragm Q, as usual. The distance between these members is somewhat greater than ordinarily, so that the inner end of the arm T, which is free to slide transversely on the pin V, may not be jarred into engagement with the fork members. It will also be observed, Fig. 2, that the parts are so arranged that the reproducing-point U will be exactly on top of the record B.

The operation is substantially the usual one, the pin K being employed to hold the reproducer away from the record or lower it upon the same, while the arm G throws the carrier F into or out of operative connection with the feed-screw E. The sound is very strong as it passes from the diaphragm Q directly to the horn I, with only one bend or deflection in the passage P^2. As the arm T does not engage any metal at and is cemented to the rubber plates S, it cannot rattle at that point, while it is yieldingly mounted, so as to be capable of following the vibrations of the point U. The arm T cannot engage the members of the fork W either, as the plates S allow only a very slight lateral movement of the said arm.

Should any imperfect records produce screeching sounds, (owing to too strong vibrations of the reproducing-point U,) this can be remedied by placing the screw O upon the bearing-plate L, so as to press the reproducer more forcibly down upon the record by the tension of the springs M, which can be adjusted by turning the screw O. When not in use, the screw is placed on the bearing-plate L′.

While I have shown two separate plates S and while this arrangement is preferable on account of its greater elasticity, I might employ a single plate extending entirely across the space between the ears or lugs P^4. Also instead of making the support H with the lugs H^2 and socket H′ to fit ordinary carriers F, I may of course when constructing new machines make the support H in one with the carrier F, omitting the tubes F′ and F^2. These and other changes may be made without departing from the nature of my invention.

I desire it to be understood that the term "phonograph" where it occurs in the claims is to be interpreted as meaning, broadly, a "talking-machine."

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A phonograph-reproducer, provided with a diaphragm, an arm having one end loosely connected with the diaphragm and provided at its other end with a foot and between its ends with a reproducing-point, and a hinge connecting the foot of the arm with the body of the reproducer, said hinge consisting of rubber secured to oppositely-arranged supports and to which the foot of the arm is secured between the said supports, as set forth.

2. A phonograph-reproducer, provided with a diaphragm, an arm having one end loosely connected with the diaphragm and provided at its other end with a foot and between its ends with a reproducing-point, and two elastic plates secured to oppositely-arranged supports carried by the body of the reproducer, said plates extending inwardly toward each other from their supports and to which the foot of the arm is secured between said supports, as and for the purpose set forth.

3. The combination of a phonograph-reproducer, a support to which said reproducer is pivoted, a spring one end of which is attached to the support, a bar to which the other end of the spring is secured, and a screw passing through said bar and arranged to engage the pivoted reproducer.

4. The combination of a phonograph-reproducer, a support to which said reproducer is pivoted, springs each having one end attached to the support, an arched bar or hoop to the ends of which are secured the other ends of the springs, and a screw passing through the central portion of said hoop and arranged to engage the reproducer.

5. A phonograph attachment, provided with a support having an attaching-socket, a reproducer pivotally connected with said support, and a holding device movably secured to the support, and arranged to keep the reproducer in a raised position.

6. A phonograph attachment, provided with a support having an attaching-socket and lugs arranged adjacent to said socket, and a reproducer carried by the said support on the side opposite to that on which the lugs are arranged.

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

EDWARD KARLOW.

Witnesses:
F. W. HANAFORD,
EVERARD BOLTON MARSHALL.