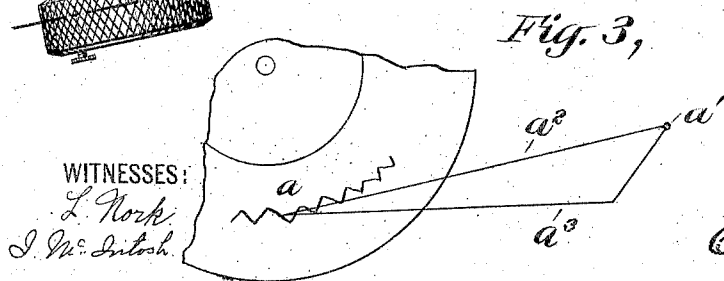
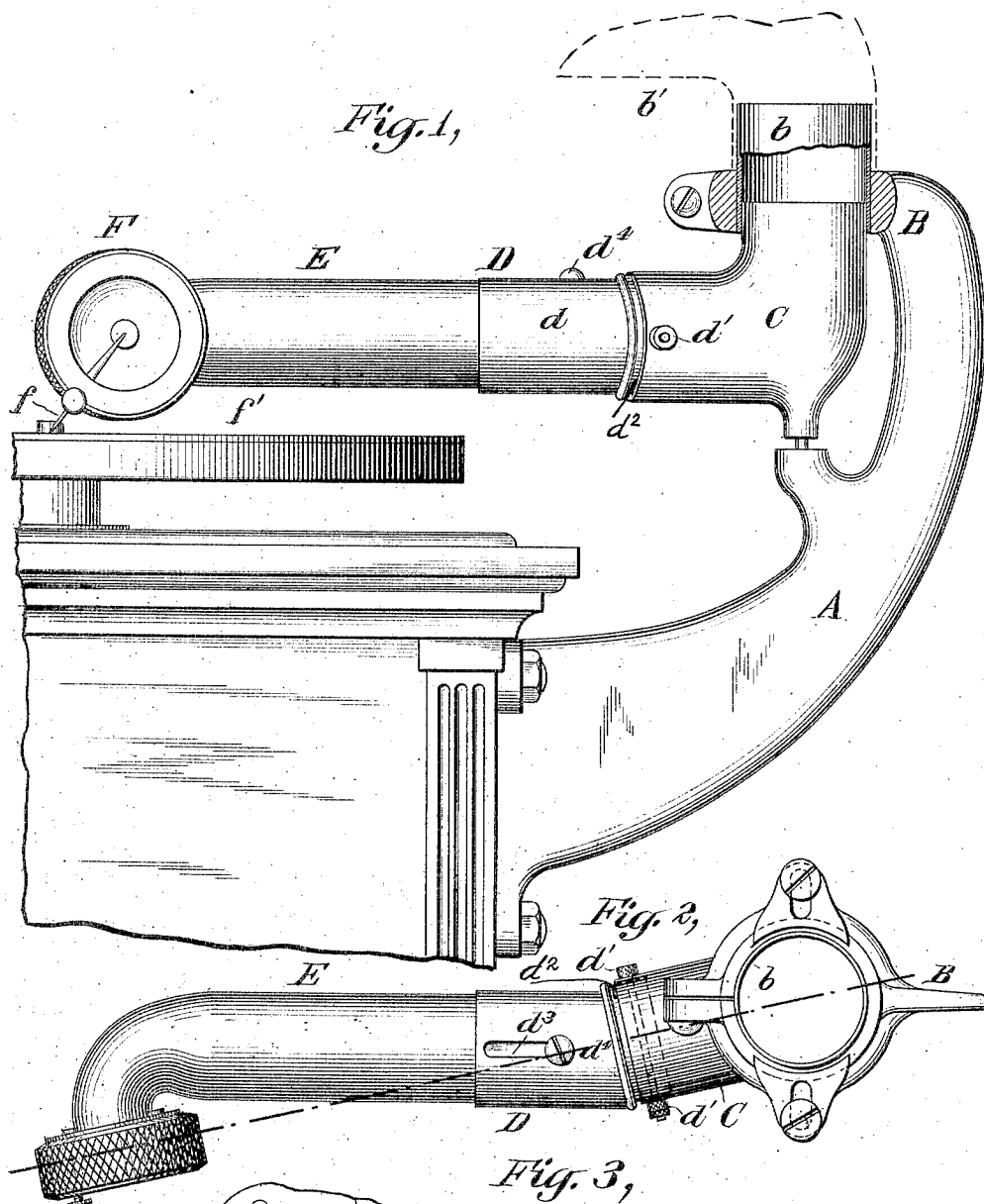


No. 816,995.

PATENTED APR. 3, 1906.

E. A. PANCOAST.
TALKING MACHINE.

APPLICATION FILED APR. 12, 1905.



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TALKING-MACHINE.

No. 816,995.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed April 12, 1905. Serial No. 255,123.

To all whom it may concern:

Be it known that I, EDWIN A. PANCOAST, a citizen of the United States, and a resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Talking-Machines, of which the following is a specification.

The object of the invention is to improve the construction and increase the efficiency of talking-machines of the disk type with respect chiefly to the reproducing feature thereof.

The invention is based upon the theory that in the practice of the art on the lines heretofore followed faulty reproduction results from the failure of the style to freely track in the record. In addition to faulty reproduction this results also in unnecessary friction and wear both upon one side of the style and upon the corresponding side of the groove in which it operates. In overcoming these defects in preëxisting structures I so construct and arrange the support for the reproducing-style (such as the sound-box, the tone-arm, or the bracket in which the latter is mounted) as that the same shall operate freely in the record-groove and freely and faithfully follow its sinuosities without the objectionable friction above referred to and with a marked improvement in the quality of the reproduced sounds.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view, partly in section, of a portion of a talking-machine, illustrating my invention. Fig. 2 is a plan view of the sound-box, tone-arm, and its support as shown in Fig. 1; and Fig. 3 is a diagrammatic view hereinafter referred to.

Referring to the drawings, in which similar letters denote corresponding parts, A designates the supporting-bracket for the tone-arm and sound-box. This is provided at its upper end with an adjustable annulus B, carrying the collar *b*, which coacts with the end of the reproducing-horn *b'*.

C designates a tubular elbow having a pin-and-socket support in the bracket A and communicating with the interior of the collar *b*.

D designates a two-part sleeve, one part *d*² whereof is of such size as to telescope within

the end of the tubular elbow C, where it is pivotally supported by pins or screws *d'*. The other part *d* is arranged at an angle to the part *d*² and is preferably slotted at *d*³ to receive a set-screw *d*⁴, whereby the end of the tone-arm E, telescoped within such part *d*, may be detachably secured in position.

The sound-box F may be of any desired construction, and its plane may be parallel with the axis of the tone-arm E, or, as shown in Fig. 2, at an angle thereto. The latter is preferred, as it is thereby possible to arrange the style in direct alignment with the center upon which the pull of such style falls. It is provided with the usual reproducing-style *f*, coacting with the groove in the record-disk *f'*.

In Fig. 3 I have illustrated diagrammatically the structure above described in its relation to the record-groove. Such groove, comprising lateral undulations, opposes the free movement of the style therein to a degree governed largely by the angles of the lateral undulations, and the point of support of the tubular elbow or other device whereby (indirectly) the reproducing-style is carried. Such opposition, besides throwing unnecessary friction and wear on both the style and the record-groove, precludes the faithful tracking of the style; and the result is imperfect reproduction. In the construction herein disclosed this is overcome, or at least minimized, by the mounting of the tone-arm at an angle to the tubular elbow by which it is supported. Thus in said figure, in which an exaggerated record-groove is illustrated, *a* indicates the point of coaction of the style and the groove, and *a'* indicates the pivotal point of the elbow. The line *a*² indicates the direction of the pull on the point *a'* in the mechanisms heretofore employed. Theoretically the further movement of the record is blocked. Practically, however, the angles of the undulations not being so pronounced as in the exaggerated diagram, the record continues to move, but great strain is thrown both on the groove therein and on the style, resulting in destructive wear and imperfect reproduction. The direction of pull on the point *a'*, where the angular method of mounting herein disclosed is observed, is represented by the line *a*³. Here, as will readily be understood,

no such excessive strain is thrown upon either the groove or the style. The style, sound-box, tone-arm, and tubular elbow are freely moved under the influence of the lateral undulations in the record-groove, unnecessary friction and consequent wear are eliminated, and as a direct consequence of this and of the faithful tracking of the stylus the reproduction greatly improved in purity and freedom from foreign sounds.

What I claim, and desire to protect by Letters Patent, is—

1. In a talking-machine, the combination with a movably-mounted tubular support, of a tone-arm, an angular sleeve connecting the tone-arm and said support and arranged to permit movement of the tone-arm relatively to the support, and a sound-box connected to said tone-arm, substantially as described.

2. In a talking-machine, the combination with a movably-mounted tubular support, of an angular sleeve pivotally connected to said support, a tone-arm detachably secured to said sleeve, and a sound-box connected to said tone-arm, substantially as described.

3. In a talking-machine, the combination with a movably-mounted tubular support, of

a two-part sleeve attached to said support, one of its parts being at an angle to the other part, and an attached sound-box and tone-arm, said tone-arm being secured to said sleeve, substantially as described.

4. In a talking-machine, the combination with a movably-mounted tubular support, of a two-part sleeve pivotally attached to said support, one of its parts being at an angle to the other part and an attached sound-box and tone-arm, said tone-arm being detachably connected with said sleeve, substantially as described.

5. In a talking-machine, the combination with a movably-mounted tubular support, of a two-part sleeve pivotally connected to said support, one of its parts being at an angle to the other part, a sound-box, and a tone-arm connecting the sound-box and said sleeve, substantially as described.

This specification signed and witnessed this 6th day of April, 1905.

EDWIN A. PANCOAST.

Witnesses:

S. O. EDMONDS,
L. NORK.