No. 837,274. PATENTED DEC. 4, 1906.

D. APSTEIN.

TALKING MACHINE.

APPLICATION FILED OCT. 14, 1904.

2 SHEETS—SHEET 1.

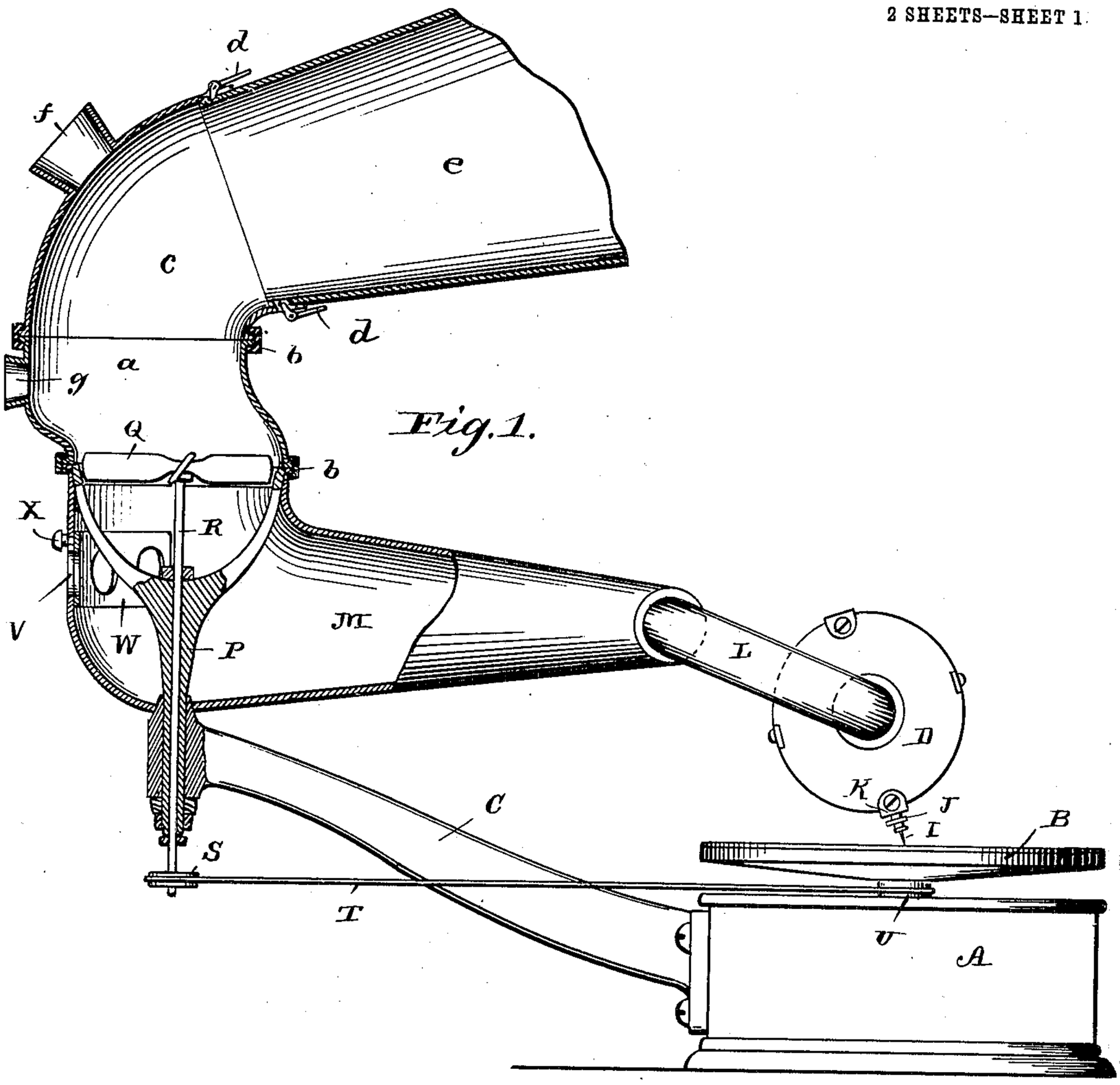

Fig. 1.

Fig. 2.

Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

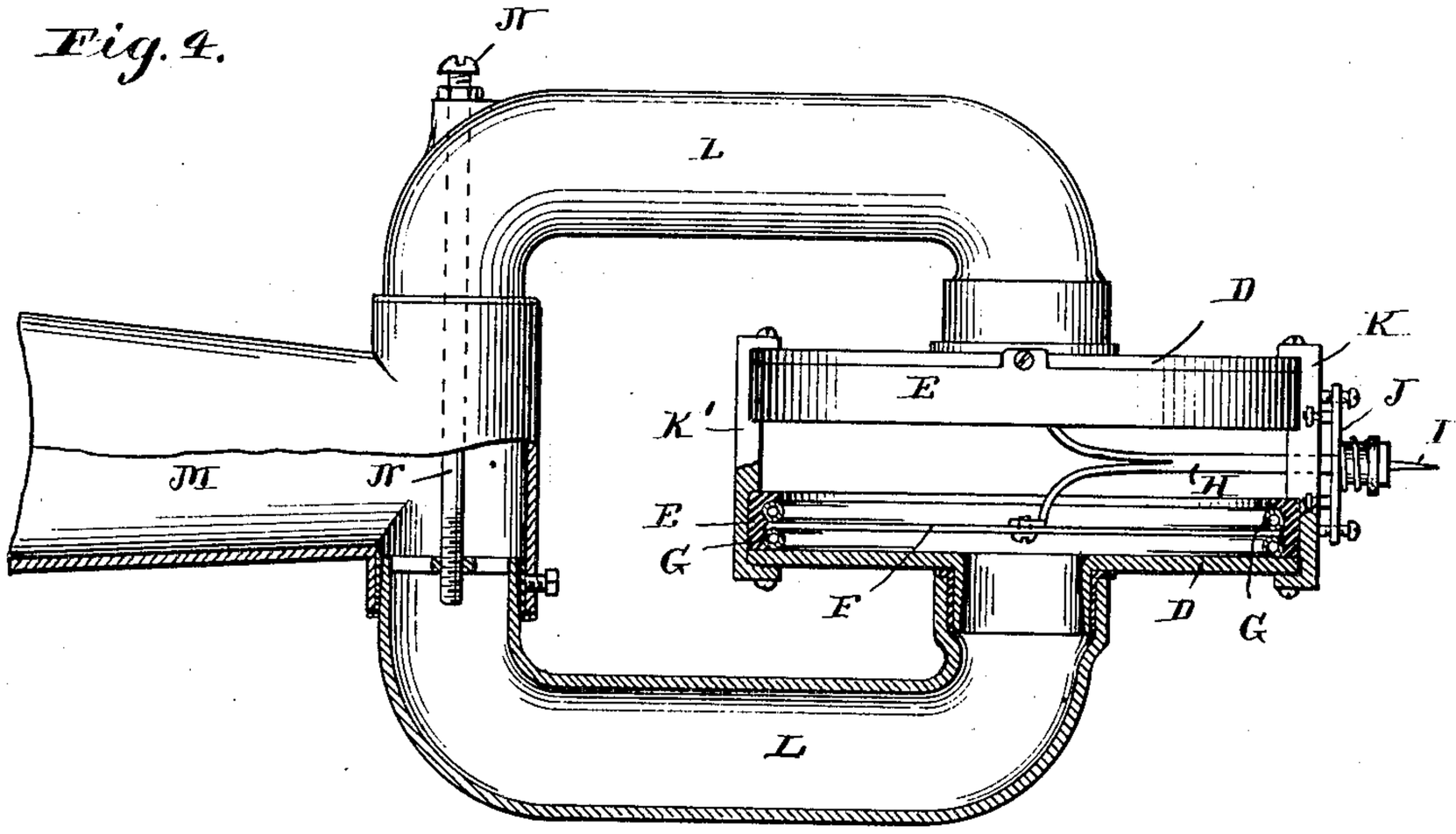


Fig. 5.

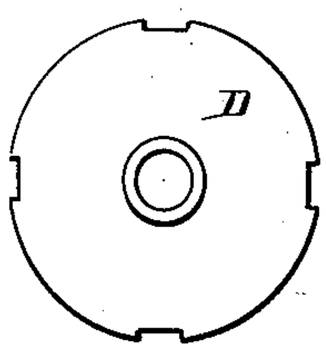


Fig. 6.

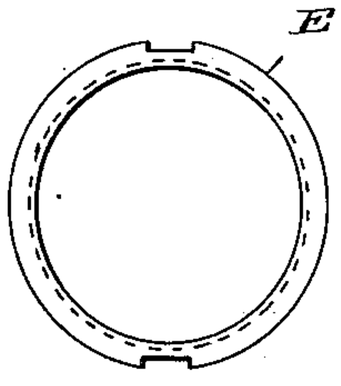


Fig. 7.

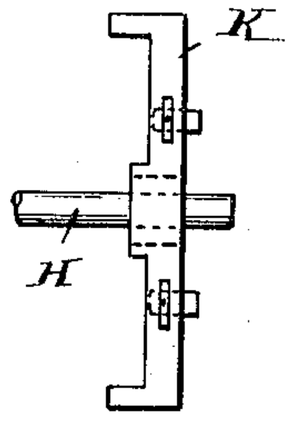


Fig. 8.

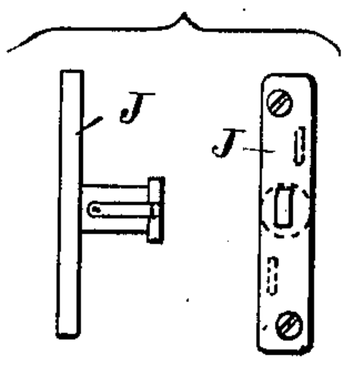


Fig. 9.

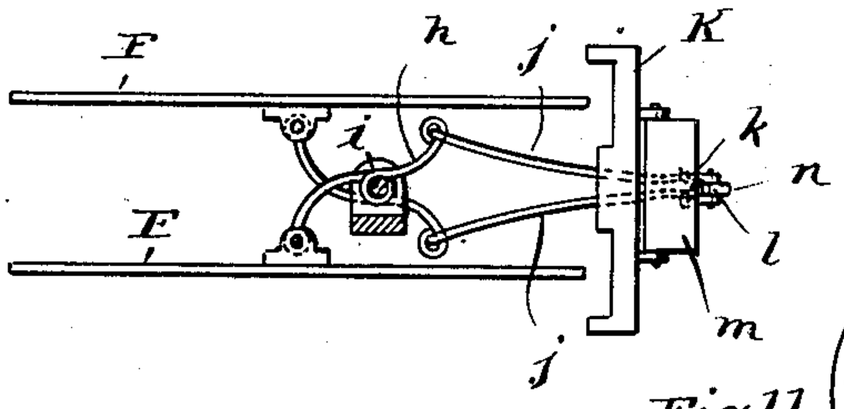


Fig. 10.

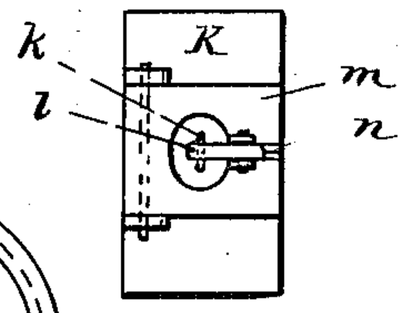
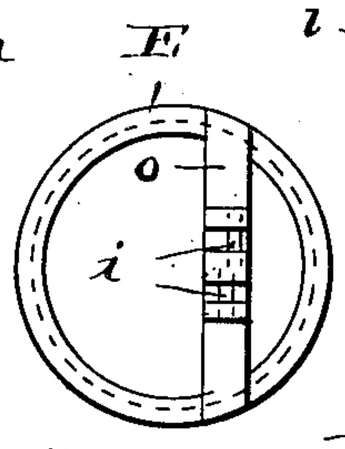


Fig. 11.



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UNITED STATES PATENT OFFICE.

DAVID APSTEIN, OF BRIDGEPORT, CONNECTICUT.

TALKING-MACHINE.

No. 837,274. Specification of Letters Patent. Patented Dec. 4, 1906.

Application filed October 14, 1904. Serial No. 228,436.

To all whom it may concern:

Be it known that I, DAVID APSTEIN, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Talking-Machines, of which the following is a specification.

This invention relates to new and useful improvements in talking-machines such as are used for reproducing and recording sound-waves.

It is the object of my invention to produce a talking-machine of improved construction which will include two or more sound-boxes connected with one or more horns, with a view of obtaining better results in recording and reproducing and whereby clearer and more distinct sounds may be produced; further, to provide means whereby these sounds may be better conveyed into or from the machine and likewise to provide adjustments whereby the sounds may be received from or deflected in any direction.

With the above objects in view I have devised the device which is shown in detail upon the accompanying two sheets of drawings forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a sectional side elevation of my improved talking-machine complete, a portion of the horn being broken away. Fig. 2 is a detail sectional view of the intermediate adjustable extension shown in the preceding figure. Fig. 3 is a detail plan view of a ring shown in the preceding figures and employed for uniting the several sections of the horn together. Fig. 4 is a sectional plan view of the transmitting mechanism, including double sound-boxes and connections therefor. Fig. 5 is a detail outside elevation of the end plate for the sound-boxes. Fig. 6 is a similar detail elevation of the peripheral casing of the sound-box. Fig. 7 is a detail side view of the bridge-plate which ties the two sound-boxes together and forms a support for the transcribing pin-holder. Fig. 8 shows an edge and side elevation, respectively, of the holder-plate for supporting the pin. Figs. 9 and 10 show a plan and end view, respectively, of a modified construction of sound-transmitting mechanism which I may use in lieu of that shown in Fig. 4. Fig. 11 shows a detached plan view of one of the casings for the construction shown in Fig. 9 and illustrating a bridge across the side of said casing.

As will be seen from the drawings, my improved device is shown connected with a movement-box A, bearing a disk-support B and a bracket C. This support is obviously rotated in the usual way by a suitable driving mechanism contained within the box of any preferred construction. The disk likewise may be of the ordinary design, adapted to rotate horizontally with the pin to follow over the same in a vertically-inclined position.

In the carrying out of my invention I prefer to employ two sound-boxes, as is clearly shown in Fig. 4, each of substantially the same construction and bearing an inclosure or casing formed of an end piece D and a periphery E, in which is secured the usual transmitter F intermediate of annular rubber tubes G. An arm H, having a divided end to connect the diaphragms of the two boxes, communicates the sound to or from the pin I. This pin is held in a spring friction-socket of the holder J, which holder in turn is pivotally connected to the bridge K in a way to permit of the slight adjustment of the said holder and its pin with respect to the bridge. The bridge is rigidly connected to the two boxes, holding them at a proper distance apart, and is provided with lugs K″, against which the holder rests. By reason of the screws J′ being located diagonally with respect to each other and with respect to the lugs a slight tilting movement may be imparted to the holder by simply tightening or loosening the screws, as occasion may require. On the opposite edge of the box is a second bridge K′, which serves to hold the opposite edges of the boxes in a similar way.

Each sound-box is provided with a tube L flexibly attached thereto and both adjustably united with the T-shaped section of the horn M, said parts being provided with a screw N, by means of which the flexible joint may be tightened or loosened, as occasion may require, to secure the desired positioning of the horn with respect to the sound-box. The outer end of the T-shaped section M of the horn is preferably deflected upward and is supported on its under side by a bracket C. Interior of the horn is a supporting-spider P, which serves to stiffen its structure and like-

wise to provide a bearing for the blower Q. The shaft R of this blower is journaled in this spider, and a belt-pulley S is attached to its lower end and connected by a belt T with a similar pulley U upon the shaft of the record-holder. It will be seen that with this construction the blower is rotated by the movement of the holder, shaft, and disk in a way to create a "suction," so to speak, and to better convey the sounds in both recording and transcribing.

In the forward end of the horn I provide a series of holes V and a slide W, bearing a button X for its adjustment with respect to the holes in a manner to open and close the same. The purpose of this construction is to provide a more uniform distribution of the sounds as taken from the record and to allow the same or a portion of them to be deflected direct, as will be obviously apparent.

Upon the mouth of the horn-section M, I provide an intermediate section *a*, which is adjustably connected thereto by means of a two-part ring *b*, covering the edges of said horn and section in a way to permit said sections to be turned and adjusted thereon, so as to be extended to either side. Upon this intermediate section is also provided an elbow *c*, which is adjustably connected to an intermediate section by means of the ring *b* in a way to admit of its being turned to any position desired. To this elbow may be secured, by means of clamps *d*, a mouthpiece *e*, which obviously may be of any desired shape or length, and in addition to its application to the elbow I have also provided connections for similar mouthpieces to the other sections of the horn—as, for instance, at the nipple *f* in the elbow and likewise the nipple *g* of the intermediate section. This construction of sectional horn is adapted to be adjusted, as described, to deflect the sounds from the record uniformly and advantageously to the several corners of a room with improved results.

In Figs. 9 and 10 I have shown a modified form of transmitter to engage the record, which I have termed a "flexible connection" and which may be used in lieu of that shown in Fig. 4. This connection is formed largely of wire and in detail comprises the flexible arms *h*, pivotally supported upon pins *i* of a bridge *o*, secured to the ring E. These arms are connected by links *j* with a loop *k*, attached to the lever *l*. This lever is pivotally connected to a block *m*, which in turn is pivoted to the bridge-plate *k*. The free end of lever *n* serves to engage the record-communicating movement from the inner end through the loop *k* and flexible connections above described to the diaphragms F, which obviously are secured in and form a part of the sound-boxes, as is clearly shown in Fig. 4.

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

1. In a talking-machine, the combination with a sound-box, of a horn connected therewith, and means in the horn to cause a current of air to blow through said horn.

2. In a talking-machine, the combination with a sound-box, of a horn connected therewith, openings in the sides of said horn, a slide adapted to open and close said openings, and means to cause a current of air to blow through the horn to conduct the sounds.

3. In a talking-machine, the combination of a transmitting device comprising a double sound-box, an arm having divided ends to engage the diaphragm of the two boxes, a tube connection with each box, a single horn connection with the tubes and means to cause a current of air to blow through the horn.

4. In a talking-machine, the combination of a transmitting device comprising a double sound-box, an arm having divided ends to engage the diaphragm of the two boxes and connected with the pin-holder, a tube connection with each box, a single horn connection with the tubes, a blower within said horn and means for operating the same to deflect the sounds therefrom.

5. In a talking-machine, the combination with a double sound-box, of a horn with separate branches connected with each box, an extension adjustably secured to said horn adapted to deflect the sounds in different directions, and means to draw the sound-waves therethrough.

6. In a talking-machine, the combination with a double sound-box and connections therefor to engage a record, of a horn, an extension secured to said horn and deflected to one side, a second extension for said horn adapted to be deflected in a different direction each being adjustably connected to the other and each provided with an opening for the reception of one or more mouthpieces.

7. In a talking-machine, the combination with a sound-box bearing connections to engage a record, of a horn with branches intermediate the open end thereof and the box, openings in the horn, and a slide adapted to open and close said openings substantially as described.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 4th day of October, A. D. 1904.

DAVID APSTEIN.

Witnesses:
C. M. NEWMAN,
RUTH RAYMOND.