

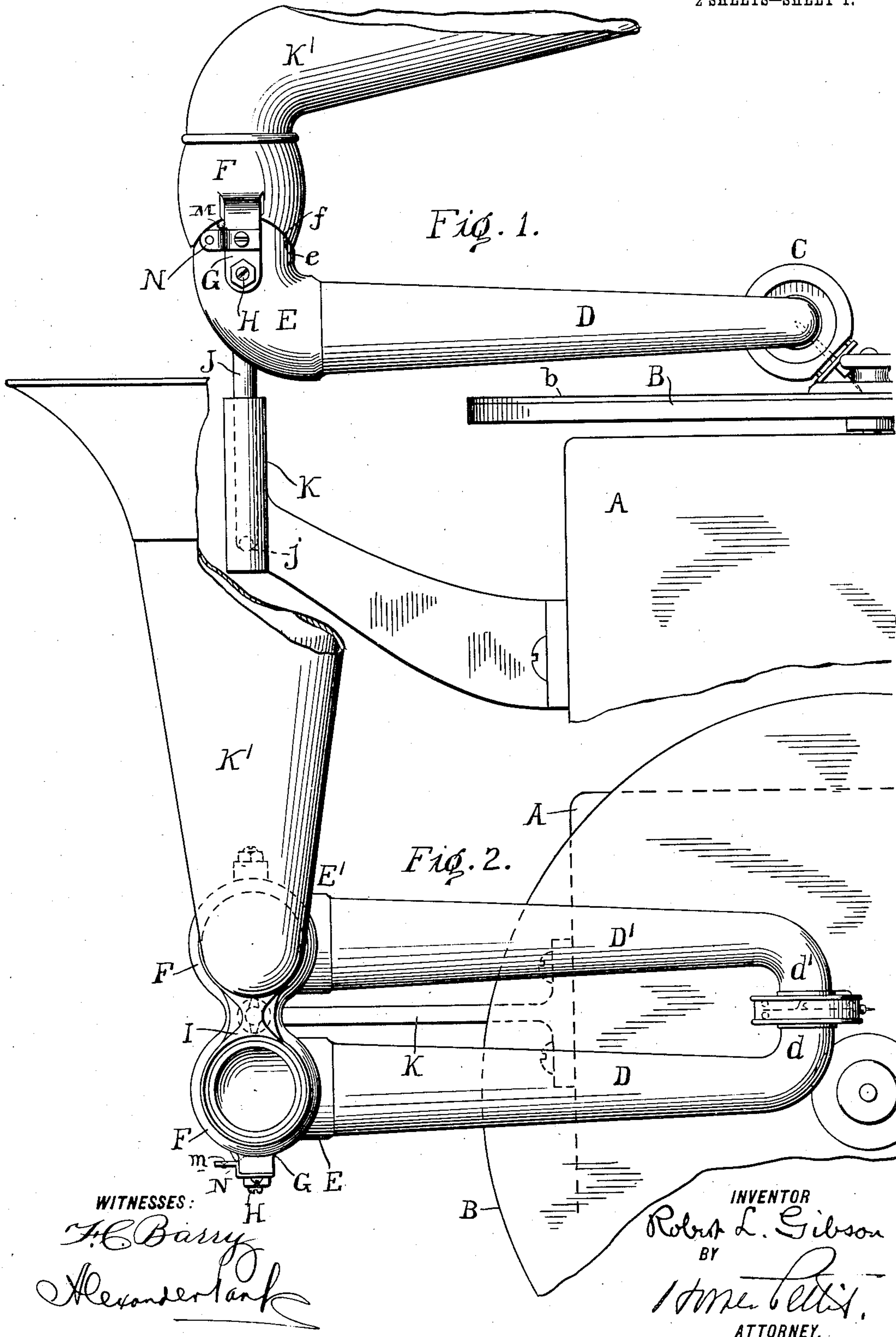
R. L. GIBSON.
TALKING MACHINE.

APPLICATION FILED DEC. 11, 1905. RENEWED FEB. 24, 1909.

936,531.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.



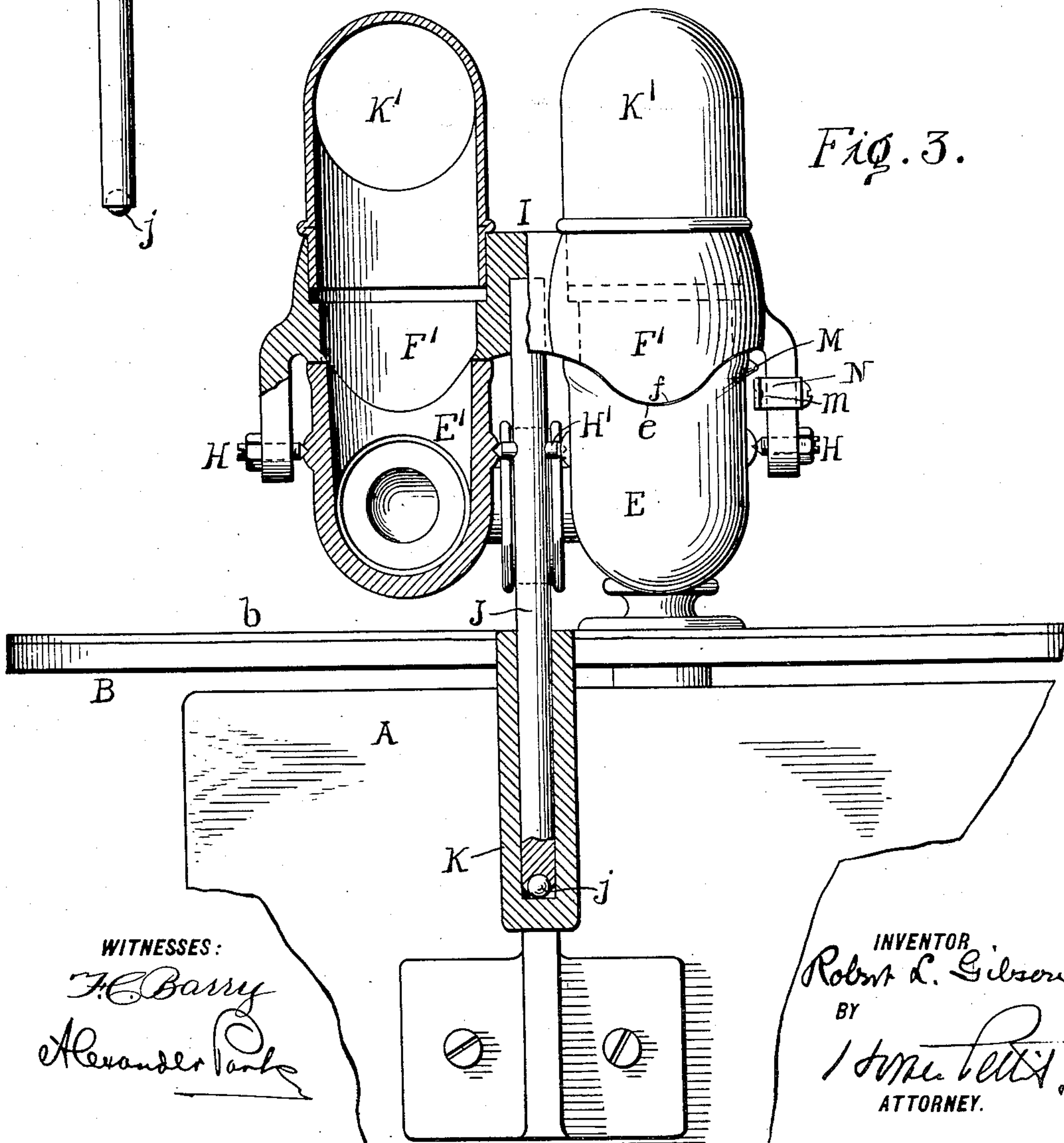
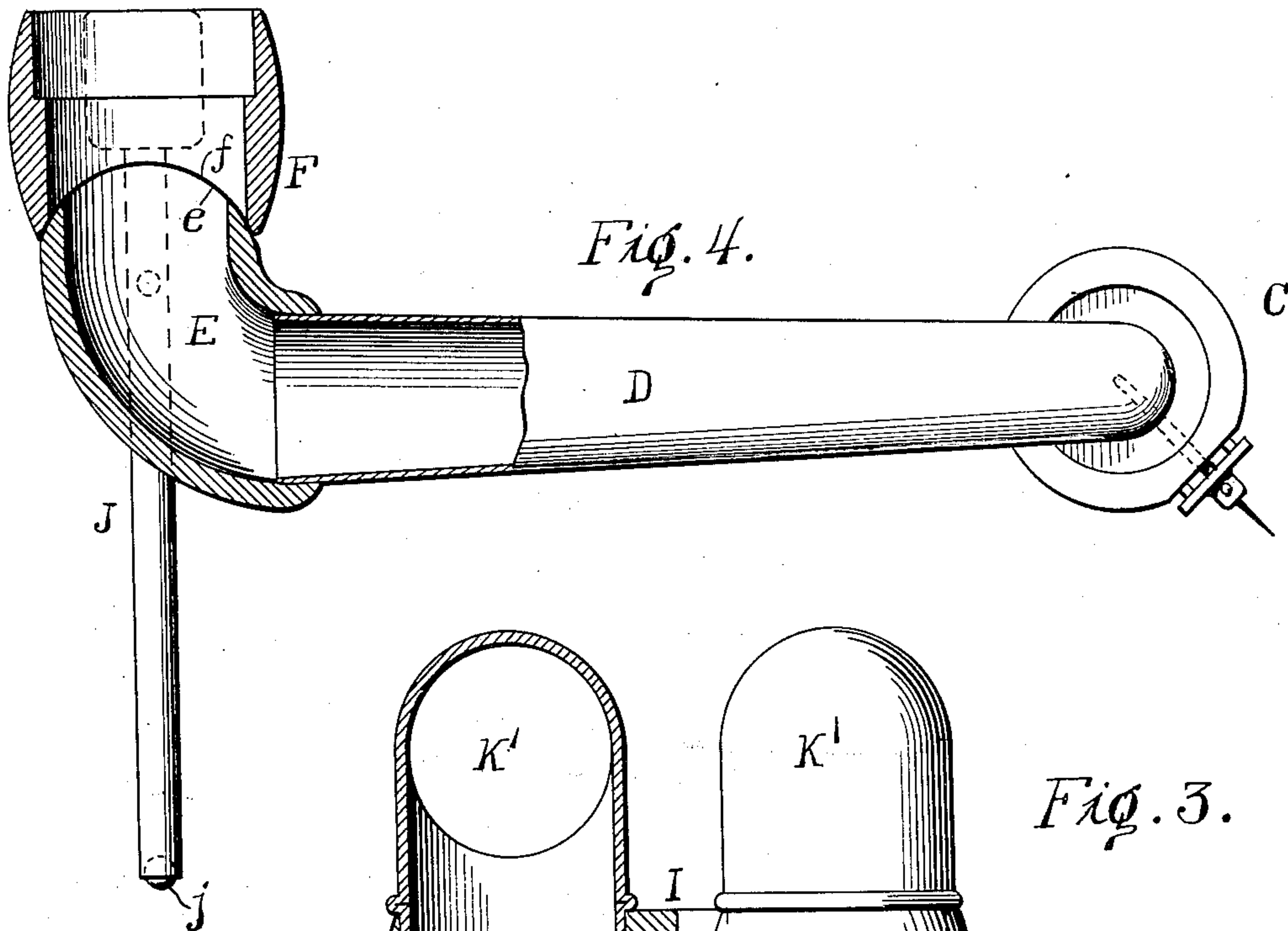
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WITNESSES:

J. H. Barry
Alexander Park

INVENTOR

Robert L. Gibson

BY

John L. Lutz
ATTORNEY.

UNITED STATES PATENT OFFICE.

ROBERT L. GIBSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

TALKING-MACHINE.

936,531.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed December 11, 1905, Serial No. 291,193. Renewed February 24, 1909. Serial No. 479,844.

To all whom it may concern:

Be it known that I, ROBERT L. GIBSON, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Talking-Machines, of which the following is a full, clear, and complete disclosure.

My invention has reference to talking machines and consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a construction of sound reproducing devices so arranged that the air upon each side of the diaphragm of the sound box shall be confined and delivered to independent horns through the media of jointed tubular arms adapted to swing vertically about pivots in the same transverse alinement and to swing horizontally upon a common vertical axis whereby the weight of the horns is removed from the record disk.

The specific objects of such invention eliminate the "scraping" or "grinding" noises of the stylus in the record groove which are apparent in instruments in which the diaphragm is exposed on one side, and secondly to increase the volume of sound given off from a given record disk, and to project said sound in any direction desired, irrespective of the position of the tubular jointed arms and sound box.

In carrying out my invention, I provide a head having two tubular parts and pivoted upon a bracket with provision for moving about an upright axis, and combine therewith two horns fitted respectively to the upper ends of the tubular parts and preferably with provision for independent adjustment, and two tubular arms pivoted to the head and respectively making a jointed or hinged connection with the lower edges of the tubular parts of the head and having their free ends secured toward each other and respectively opening into air chambers upon opposite sides of the diaphragm of the sound box.

My invention also comprehends various details of construction which, together with the above specified features, will be better

understood by reference to the accompanying drawings, in which:

Figure 1 is a side elevation of a talking machine embodying my invention (with portions broken away); Fig. 2 is a plan view of same; Fig. 3 is a rear elevation with part in section; and Fig. 4 is a sectional elevation of the head and hinged tubular arms carrying the sound box.

A is the motor and case and B is the revolving disk carrying table upon which the record disk *b* is placed.

C is the sound box and may be of any ordinary construction but with both sides of the diaphragm inclosed to form air chambers and respectively connected, by oppositely directed tubular necks *d d'*, with two pivoted tubular arms *D D'*. These tubular arms are preferably somewhat tapering and the largest ends are secured to elbows *E E'* which open upward and form jointed connections with tubular parts *F F'* constituting a head *I*. This head is provided with a downwardly extending shaft *J* rotatably supported in a bracket *K* secured to and extending from the box or case *A*. To reduce the friction of the shaft *J* in the bracket, I prefer to provide the lower end of the shaft with an anti-friction ball *f* which is fitted into a recess in the end as shown.

The elbows *E E'* of the tubular arms are pivoted on transverse axes by means of pivots *H H'*, the axes of oscillation of these two arms being in alinement so that the two tubular arms are free to oscillate vertically at their free ends about the said axes *H H'* while the arms, together with the head *I*, are free to rotate about the vertical axis formed by the shaft *J*. The connection between the parts *E E'* and *F F'* is clearly shown in Figs. 3 and 4, and consists of the convex surface *e* of the elbows *E E'* fitting into the concave surface *f* of the tubular parts *F F'*, the juncture of these two surfaces *e f* being very close so that, while not creating any material friction, they prevent the escape of the air vibrations. The curvature of these faces is cylindrical and made from the axes of the pivots *H H'* as a center.

K K' are two horns which are adjustably supported by the upper ends of the tubular

parts F F' of the head I. The horns are preferably independently adjustable so that they may be turned in any direction desired, even to pointing in opposite directions, in which case their weight will be balanced upon opposite sides of the pivot J.

N is a spring catch secured to the head I and having a recessed portion *m* into which a lug M on the side of the arm E is adapted to be received, when the sound box is raised. In this manner the arms D D' may be supported in an elevated position during the changing of the records.

From the foregoing construction it will be seen that the sound box and its tubular arms are free to rise and fall and may receive vibrations without being affected by the weight of the horns and consequently, the excess of downward pressure upon the stylus point is entirely obviated. By the structure here shown, the pressure upon the stylus is at all times uniform and consequently, accurate reproductions are secured with a minimum wear upon the stylus point and record disk.

While I prefer the construction shown as an excellent example of the embodiment of my invention, I do not limit myself to the minor details thereof, as these may be modified in various ways without departing from the spirit of my invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a talking machine, a head having two tubular parts and free to revolve upon a vertical axis, combined with two tubular arms respectively having their free ends directed toward each other and their opposite ends hinged to the head adjacent to the tubular portions thereof upon transverse axes so that the free ends of said tubular arms are free to rise or fall, and a sound box secured between the oppositely directed free ends of the tubular arms.

2. In a talking machine, a head having two tubular parts and free to revolve upon a vertical axis, combined with two tubular arms respectively having their free ends directed toward each other and their opposite ends hinged to the head adjacent to the tubular portions thereof upon transverse axes so that the free ends of said tubular arms are free to rise and fall, a sound box secured between the oppositely directed free ends of the tubular arms, and independent horns secured to the head and respectively opening into the tubular portions thereof.

3. In a talking machine, a head having two tubular parts and free to revolve upon a vertical axis, combined with two tubular arms respectively having their free ends directed toward each other and their opposite ends hinged to the head adjacent to the tubular portions thereof upon transverse axes so

that the free ends of said tubular arms are free to rise or fall, a sound box secured between the oppositely directed free ends of the tubular arms, and independent horns secured to the head and respectively opening into the tubular portions thereof, with provision for independent adjustment upon said head whereby each of the horns may be pointed in a variety of different positions.

4. In a talking machine, a head having two tubular parts and free to revolve upon a vertical axis, combined with two tubular arms respectively having their free ends directed toward each other and their opposite ends hinged to the head adjacent to the tubular portions thereof upon transverse axes so that the free ends of said tubular arms are free to rise or fall, a sound box secured between the oppositely directed free ends of the tubular arms, and means for locking the pivoted arms to the head when the free ends of said arms and sound box are elevated.

5. In a talking machine, a head I having two vertical tubular portions F F' and supported upon and rotatable about a vertical axis and in which the lower faces of the tubular parts F F' are made with concave cylindrical surfaces, in combination with horns secured to the upper portions of the tubular parts of the head, and two tubular arms D D' having their free ends directed toward each other and secured to the sound box and their opposite ends formed with vertically directed elbows E E' having concave cylindrical surfaces adapted to the concave cylindrical surfaces of the tubular portions F F' of the head, and pivots for said elbow portions of the tubular arms for permitting the said arms to oscillate vertically at their ends connected with the sound box.

6. In a talking machine, the combination of a head rotatable about a vertical axis and having a tubular portion provided with a concave cylindrical surface, a horn supported upon the head and opening into the tubular part, and a pivoted tubular arm having its free end connected with the sound box and its opposite end provided with a convex cylindrical portion corresponding in curvature to the concave cylindrical surface of the head, pivots for the tubular arm for suspending said arm from said head and for permitting it to rotate upon a transverse axis while holding it in close adjustment with the head so as to constitute an arm joint between the said head and tubular arm, whereby a minimum amount of friction is created between the arm and head.

7. In a talking machine, the combination of a head rotatable about a vertical axis and having a tubular portion provided with a concave cylindrical surface, a horn supported upon the head and opening into the tubular part, and a pivoted arm having its free end connected with the sound box and

its opposite end provided with a convex cylindrical portion corresponding in curvature to the concave cylindrical surface of the head, pivots for the tubular arm for suspending said arm from said head and for permitting it to rotate upon a transverse axis while holding it in close adjustment with the head so as to constitute an arm joint between the said head and tubular arm, whereby a minimum amount of friction is created between the arm and head, and means for locking the arm in an elevated position upon the head when its free end is abnormally raised.

8. In a talking machine, the combination of a head pivotally mounted upon a shaft at one side thereof, said head having a curved cylindrical under surface, a pivot upon said shaft, a pivot carried by said head opposite said first mentioned pivot, and a sound conveying arm carried by said pivots and having an upper convex surface corresponding in curvature to and engaging against the concave surface of said head so as to constitute an arm joint between the said head and tubular arm, whereby a minimum amount of friction is created between the arm and the head.

9. A duplex horn mounting comprising a head having a solid central portion and two vertical tubular portions, a vertical shaft connected to said solid portion and rotatably carrying said head, an arm depending from said head upon each side of said shaft, pivots carried by said arms, pivots carried by said shaft in alinement with said first mentioned pivots, sound arms supported by said pivots and flexible joints between said head and said tubular arms.

10. A duplex horn mounting comprising a head having a solid central portion and two vertical tubular portions having concave cylindrical under surfaces, a vertical shaft connected to said solid portion and rotatably carrying said head, two arms depending from said head, pivots carried by said arms, pivots carried by said shaft in alinement with said first mentioned pivots, and sound arms supported by said pivots and having convex cylindrical ends corresponding in curvature to the concave cylindrical surfaces of the head, whereby a minimum amount of friction is created between the arms and the head.

11. In a talking machine, a head having two tubular parts and free to revolve upon an axis combined with a pair of tubular arms respectively, having their free ends directed toward each other, and their opposite ends hinged to said head adjacent the tubular portions thereof upon transverse axes,

and a sound box secured between the free ends of said tubular arms.

12. In a talking machine, a head having two tubular parts and free to revolve upon an axis combined with two tubular arms respectively, having their free ends directed toward each other, their opposite ends hinged to said head adjacent the tubular portions thereof on transverse axes, a sound box secured between the free ends of said tubular arm and independent horns secured to the head and respectively opening into the tubular portions thereof.

13. In a talking machine, a head having two tubular parts and free to revolve upon an axis, and a sound box secured between the free ends of said tubular arms, the opposite ends of said arms being hinged to said head adjacent the tubular portion thereof upon transverse axes.

14. In a talking machine, the combination of a head, a shaft upon which said head is pivotally mounted, said head having a cylindrical under surface, a pivot upon said shaft, a pivot carried by said head opposite said first mentioned pivot, and a sound conveying arm carried by said pivots and having an upper surface engaging against said cylindrical surface of said head to constitute a joint between said head and tubular arm.

15. In a talking machine, the combination of a head, a shaft upon which said head is pivotally mounted at one side thereof, a pivot upon said shaft, a pivot carried by said head opposite said first mentioned pivot, and a sound conveying arm carried by said pivots.

16. A duplex horn mounting comprising a head having two tubular portions, a shaft connected to said head and rotatably carrying said head, an arm depending from said head upon each side of said shaft, pivots carried by said arms, pivots carried by said shaft in alinement with said first mentioned pivots, and sound arms supported on said pivots.

17. A duplex horn mounting comprising a head having two tubular portions, a shaft connected to said head and rotatably carrying same, a pair of sound arms pivoted to said head and communicating respectively with said tubular portions, and a sound box mounted between the free ends of said arm and communicating therewith.

In witness whereof, I have hereunto set my hand this twenty-eighth day of November, A. D. 1905.

ROBERT L. GIBSON.

Witnesses:

ERNEST HOWARD HUNTER,
R. M. KELLY.