

No. 708,810.

Patented Sept. 9, 1902.

E. A. HEYL.

HORN FOR TALKING MACHINES.

(Application filed July 11, 1900. Renewed Aug. 4, 1902.)

(No Model.)

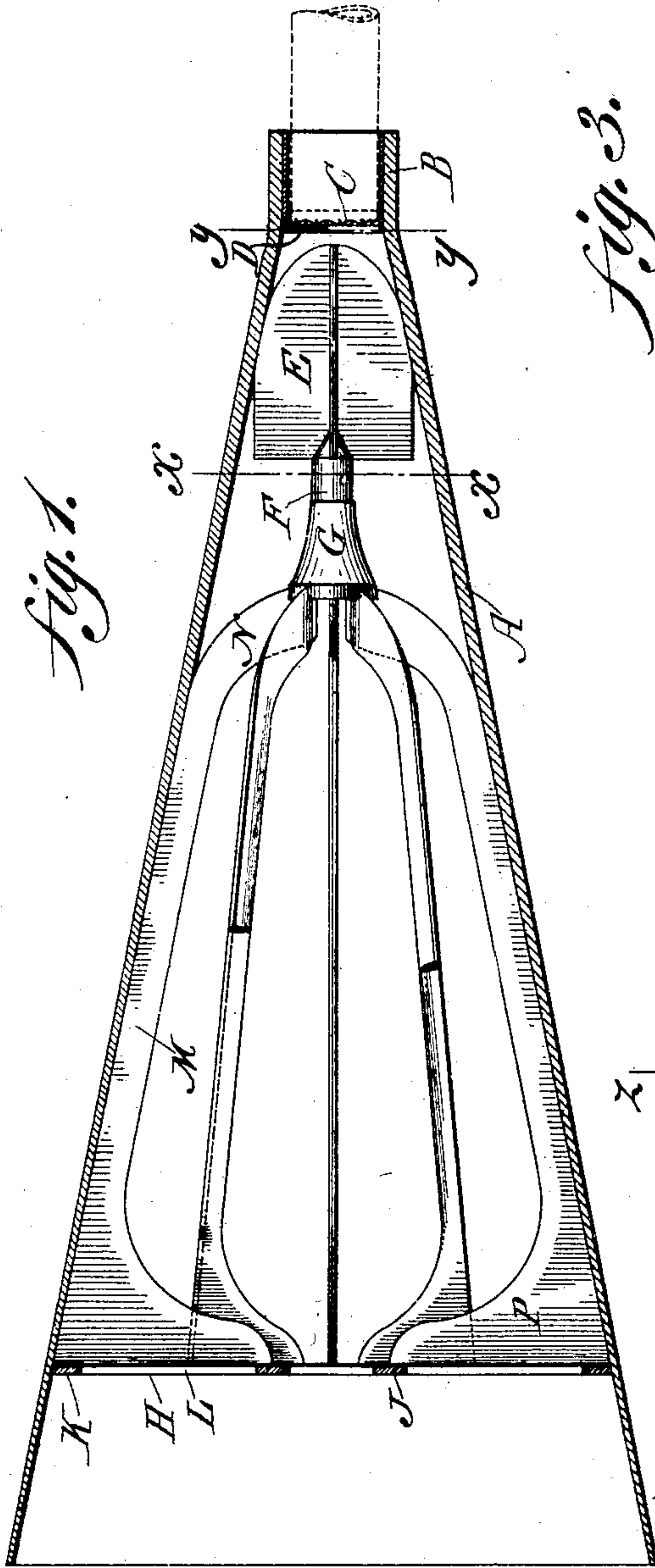


Fig. 3.

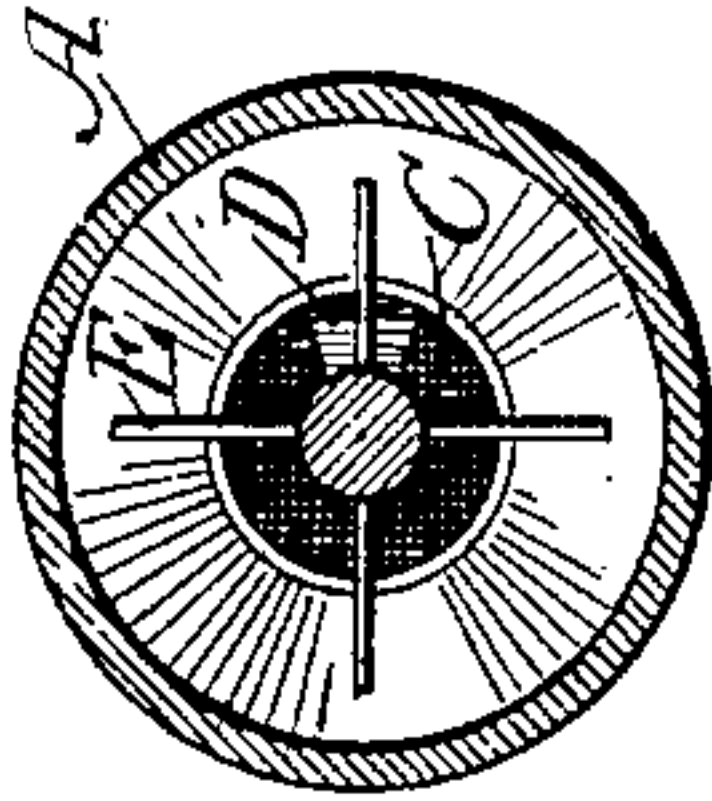


Fig. 4.

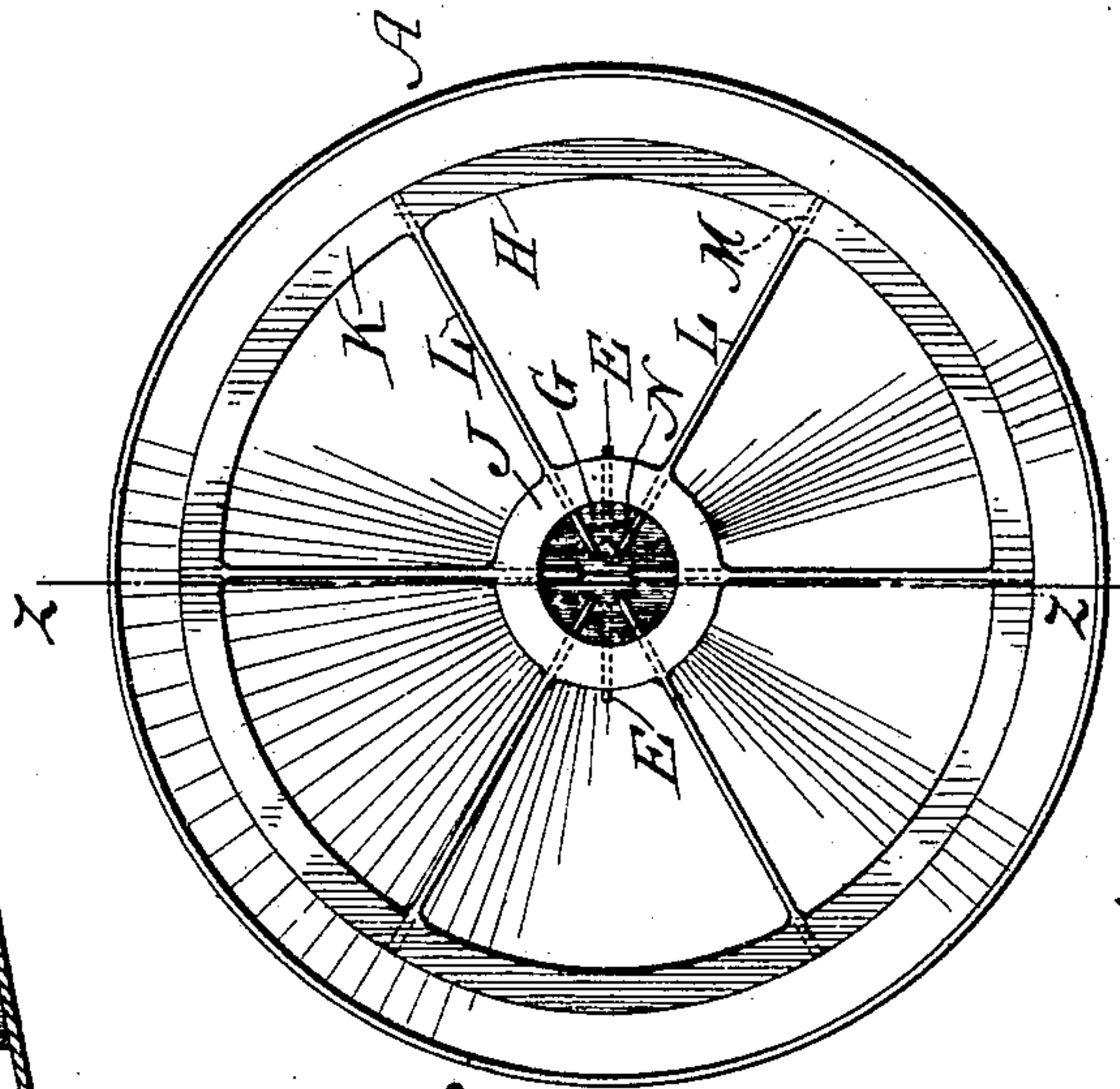
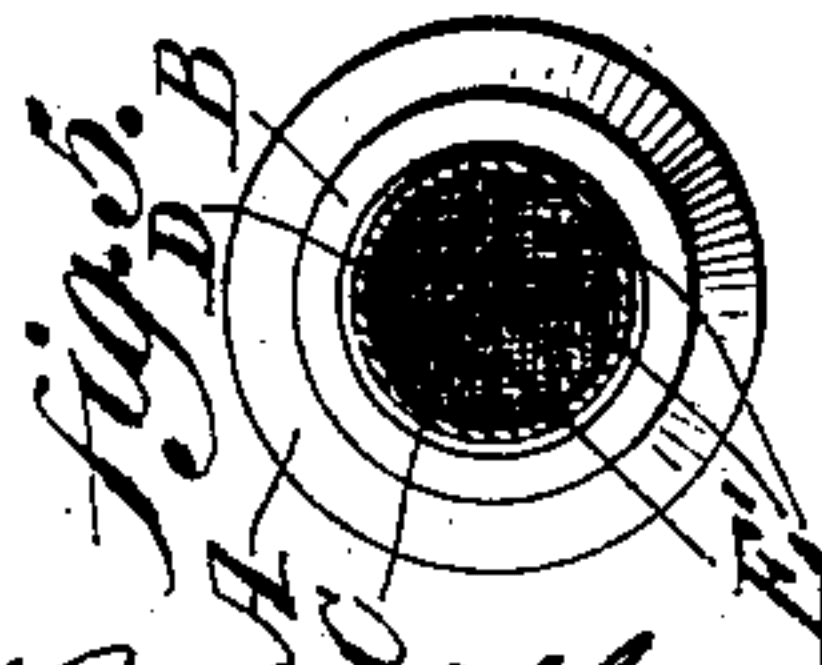
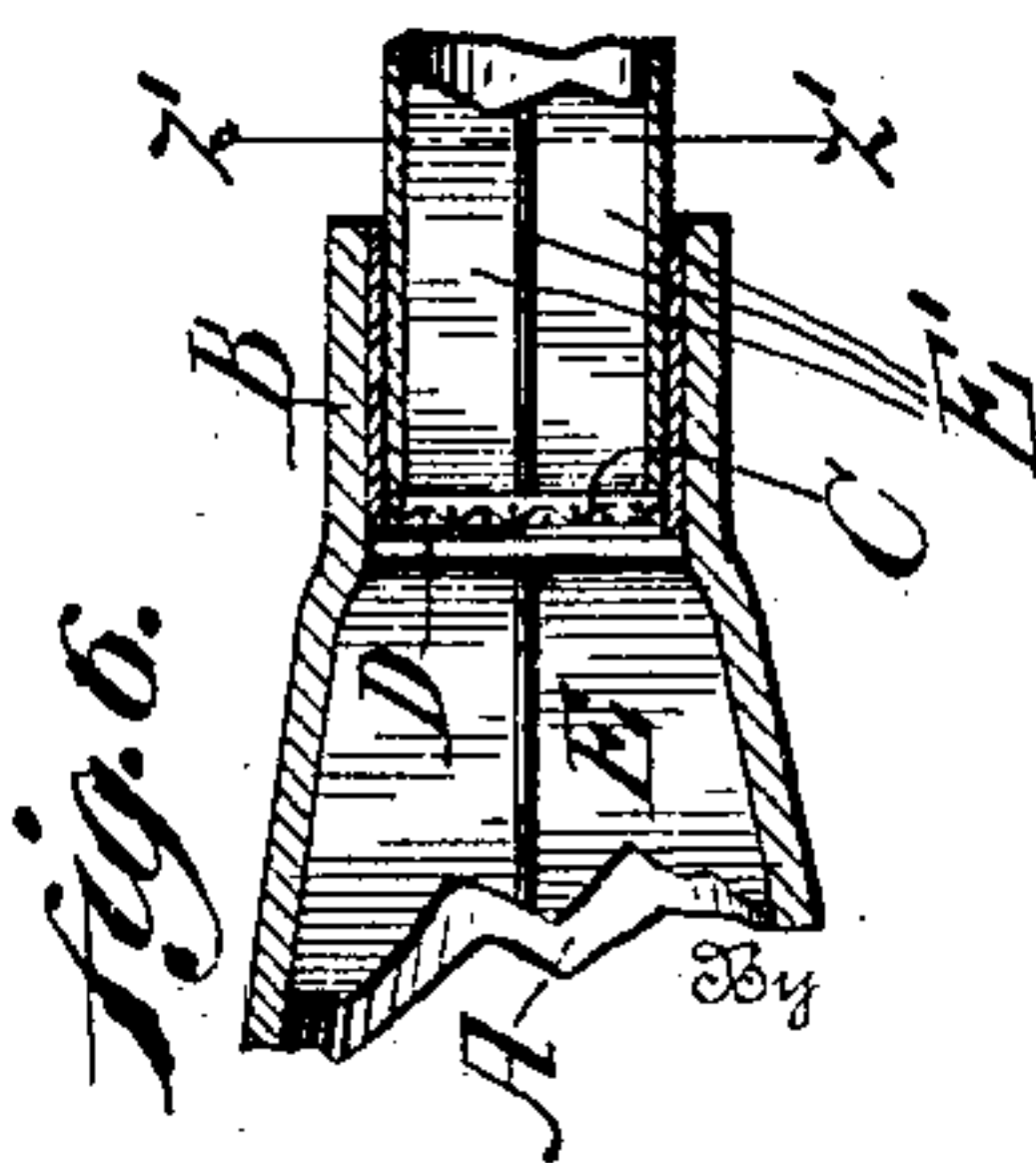


Fig. 2.



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HORN FOR TALKING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 708,810, dated September 9, 1902.

Application filed July 11, 1900. Renewed August 4, 1902. Serial No. 118,333. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. HEYL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Horns for Talking-Machines, which improvement is fully set forth in the following specification and accompanying drawings.

10 My invention consists of a horn for a talking-machine having novel features, as will be claimed.

Figure 1 represents a central longitudinal section of a horn constructed in accordance with my invention and taken on line $z z$ of Fig. 2. Fig. 2 represents an end elevation thereof. Fig. 3 represents a transverse section on line $x x$, Fig. 1. Fig. 4 represents a transverse section taken on line $y y$, Fig. 1. 20 Fig. 5 represents a transverse section of another embodiment of my invention, taken on line $z z$ of Fig. 6. Fig. 6 represents a longitudinal section thereof.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a horn which is of ordinary construction and provided with a nozzle B, by means of which it is attached to the tube of the talking instrument. (Shown in dotted lines in Fig. 1.) 30 By a series of instrumentalities contained within the horn and situated between said nozzle B and the large or flaring end thereof I am enabled to not only modify the vibration of the horn itself, but to so control the sound-waves produced by the talking-machine that the human voice making the record is naturally reproduced devoid of the usual harsh and metallic qualities, so that it 40 is even possible for one to recognize the reproduction of his own voice, which, as far as I am informed, has not been successfully attained heretofore. In the embodiment of my invention illustrated and which I have successfully operated the said horn is provided at its small end with a screen or reticulated plate C, upon the side of which is secured the palate D, the latter being flexible and fastened at its outer end as a flap and resting 50 freely against the face of said screen or reticulated plate C, said palate being of a sound-non-producing nature. Near said nozzle are

a plurality of wings E, conveniently radiating from the axial line of the horn and secured at their outer ends to a block F, that 55 is mounted upon a cone G. Near the outer or larger end of the horn is a sounding-plate H, fastened therein and comprising an outer ring K and an inner ring J, joined by radial spokes L. Extending from the cone G 60 and the sounding-plate H and firmly connected therewith are a plurality of blades M, the shape of which is shown in Fig. 1 and which extend longitudinally of the horn, but in radial planes coincident with said spokes 65 L, and engage at their backs with the inner surface of the horn. For a greater portion of their length these blades M extend along the inner face of the horn, but are deflected inwardly, as shown at N, at one end and fastened to the cone G, while at their opposite 70 ends they are provided with inwardly-extending enlargements P, extending from the outer to the inner ring of the sounding-plate, as shown in Fig. 1, said enlargements P being 75 fastened to the said rings and to the spokes L, against which they abut as braces for the horn. As before stated, the vibrations of the horn itself are modified, and this is secured by arranging the said blades M and sounding-plate K, which serve to brace the walls 80 of the horn and to modify the character of the vibrations thereof, so as to eliminate this former objectionable feature in talking-machine horns, and also causing clearer 85 enunciation of the sound directed from the horn.

I have found that by employing the instrumentalities above described the human voice is more naturally produced, which, as 90 far as I am informed, is because the sound-waves entering the horn are so controlled that the harsh and metallic reproduction is avoided. This seems to be due to the fact that I arrange within the horn instrumentalities that divide the volume of the sound-waves, which seems to prevent augmentation of the volume of the sound produced and to retain to a greater degree its natural character, it being noticed that the sound-waves 100 passing through the screen or reticulated plate are softened and rounded to a certain extent by the palate D and then deflected by the wings E and spread by cone G. They

are also deflected through the openings between the two rings and the central ring.

In Figs. 5 and 6 wings are situated on both sides of the screen C, the wings E being arranged the same as heretofore described beyond the outside of the screen C, while the wings E' are arranged beyond the inner side of the said screen C and within the nozzle B.

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

1. A horn of the character stated having a sound-non-producing palate of flexible material in the interior thereof.
2. A horn of the character stated having on the interior thereof a plate of reticulated material and a flexible palate of sound-non-producing material adjacent thereto.
3. A horn of the character stated having therein a plate of reticulated material, a sound-non-producing palate of flexible material, and separated wings, said palate being forward of said plate and said wings forward of said palate.
4. A horn of the character stated having therein separated blades which engage at their backs with the interior surface of the horn and extend in the longitudinal direction thereof.
5. In a horn of the character specified, a plurality of longitudinal blades, a support for one end of said blades, and a plurality of wings carried by said support.
6. A horn of the character stated having

therein separated blades which engage at their backs with the interior surface of the horn in the longitudinal direction thereof, and an annulus connected with said blades and horn.

7. A horn of the character specified, provided with a reticulated plate at its small end, a flexible palate secured against said plate, wings secured within the small end portion of the horn, a cone in the rear of said wings, blades extending from said cone longitudinally along the interior face of the horn and provided with enlarged outer ends, and a sounding-plate secured within the large end of the horn and against the outer enlarged ends of said blades.

8. In a horn of the character specified, a plurality of longitudinal blades secured therein and provided with enlarged inwardly-extending ends.

9. In a horn of the character specified, a plurality of longitudinal blades, one of the ends of which is enlarged, and the other ends being deflected.

10. In a horn of the character specified, longitudinal blades extending along the inner face of the horn, one of the ends of which is enlarged, and the other ends being deflected inwardly and suitably supported.

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