

No. 889,480.

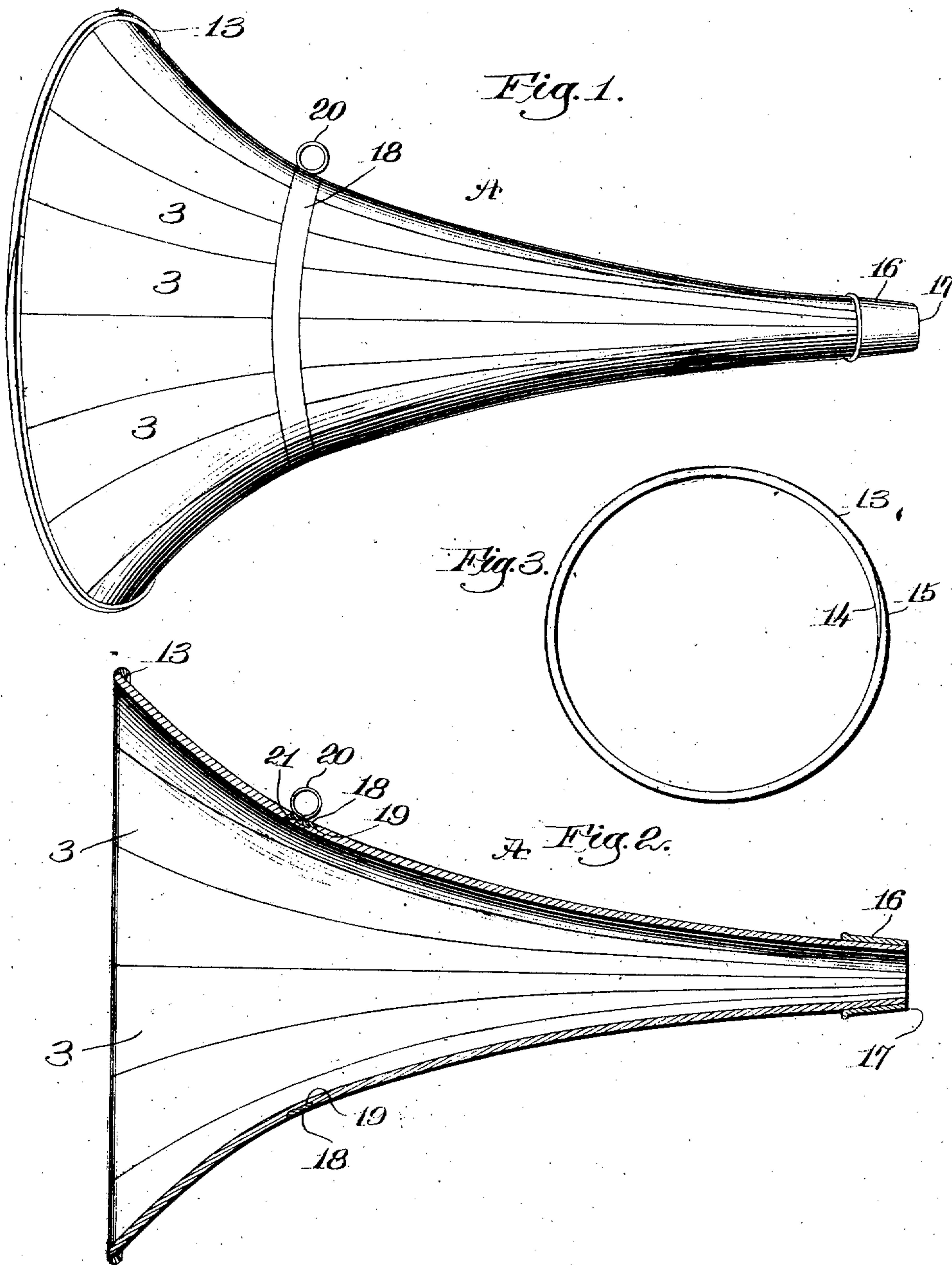
S. MOSS.

PATENTED JUNE 2, 1908.

HORN FOR TALKING MACHINES.

APPLICATION FILED APR. 6, 1908.

2 SHEETS—SHEET 1.



WITNESSES:

*J. L. Ketchum*  
*Amelia M. Ross*

INVENTOR

*Stanislaus Moss,*

BY

*Robt P Haine*

Attorney

No. 889,480.

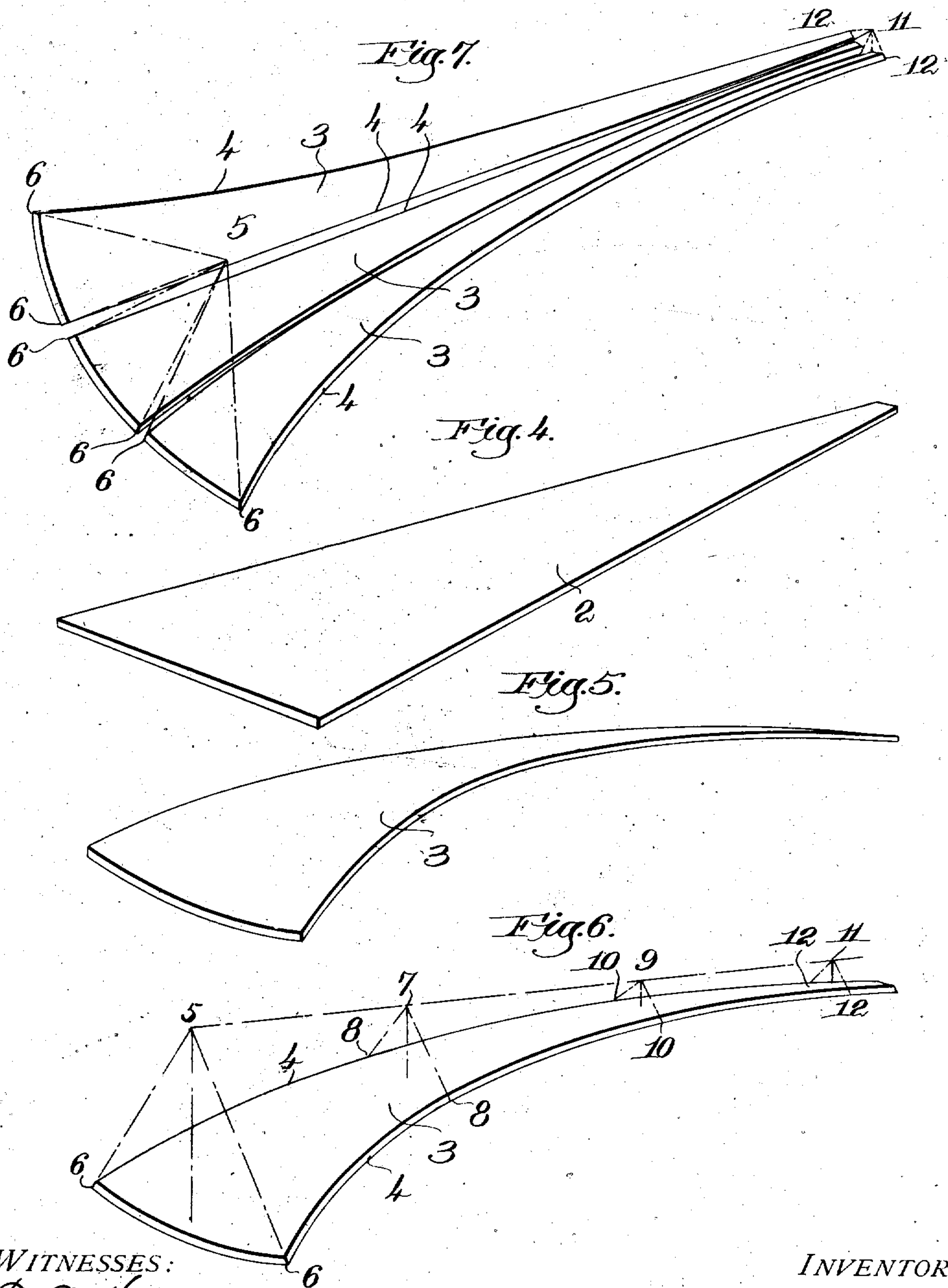
S. MOSS.

PATENTED JUNE 2, 1908.

HORN FOR TALKING MACHINES.

APPLICATION FILED APR. 6, 1908.

2 SHEETS—SHEET 2.



WITNESSES:

*G. L. Mochman*  
*Amelia M. Ross*

INVENTOR

*Stanislaus Moss,*  
BY *Robt P Haines*  
Attorney



# UNITED STATES PATENT OFFICE.

STANISLAUS MOSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO SHEIP & VANDERGRIFT, INC., OF PHILADELPHIA, PENNSYLVANIA.

## HORN FOR TALKING-MACHINES.

No. 889,480.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed April 6, 1908. Serial No. 425,366.

*To all whom it may concern:*

Be it known that I, STANISLAUS MOSS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an Improvement in Horns for Talking-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention to be hereinafter described relates to horns for talking machines and more particularly to that general type of such devices employed in connection with sound recording and producing instruments, commonly known as phonographic horns.

In order that sound waves may be produced or transmitted with substantial perfection, it is essential that the transmitting instrument shall offer no obstruction to the free vibratory or other sound wave movements, and that its transmitting surface present no abrupt or angular change of direction, either in the line of transmission or transverse thereto. It is of importance also that the transmitting instrument itself shall not give forth vibrations calculated to interfere with the sound waves, all as well understood by those skilled in the art. These considerations are particularly true in the production and transmission of musical tones, so much so that even slight interference with the true sound wave movements, either by abrupt angular changes in direction of transmission by the horn itself, or discordant vibrations in the horn material, becomes a matter of serious objection.

It has been proposed heretofore to construct horns for sound reproducing machines of metal either of a single piece or number of pieces joined together by a seam extending longitudinally of the horn. The metallic vibration interjected by such horns is well recognized, and the joints or seams offer objectionable interruptions to the sound waves. It has also been proposed to form horns of wooden strips laid together in two or more layers or plies to break joints, the strips of the several plies mutually contributing to hold the strips of the other from separation at their edge joints. In such veneer construction, however, strips forming the inner ply, along the surface of which the sound waves travel, are not transversely curved into a

true circle as prescribed by the dimensions of the horn at any point in its axial length, and, moreover, there is an interruption in the continuity of the inner horn surface near the flare of the horn where the outer strips cover the spaces between the edges of the inner strips, with the result that there is an objectionable interference with the transmitted sound. It has been further proposed to form phonographic horns of a single ply or layer of strips by assembling a number of the strips and then subjecting them to endwise and lateral compression to secure the desired horn contour, but in such construction the edges of the strips do not present surfaces which can be brought into close union and joined, the result being that the strips separate along their adjacent edges. Moreover, in this construction the individual strips do not present true circular curves throughout the axial length of the horn.

With these briefly stated considerations in view the present invention has for its object to provide a phonographic or like horn which shall be free from the objections noted, and present a structure formed of a single layer of thin wooden strips, which, previous to being assembled, are permanently bent longitudinally and transversely to give to the horn its proper longitudinal shape and transverse circular form, and wherein also the edges of the strips are beveled to present each to the adjoining strip, a contacting surface susceptible of being permanently connected throughout with no interiorly projecting interruptions to the sound waves either transversely or longitudinally, all as will hereinafter more fully appear.

In the drawings:—Figure 1 is a side perspective view of a horn embodying the features of the present invention; Fig. 2 is a central longitudinal section thereof; Fig. 3 is a detail view of the strengthening hoop which is secured to the flaring end of the horn; Fig. 4 is a perspective view of one of the wooden blanks prior to being bent longitudinally and transversely; Fig. 5 is a similar view of the blank of Fig. 4 after being permanently bent longitudinally and transversely, but prior to the bevel formation of its longitudinal edges; Fig. 6 is a view similar to Fig. 5, showing the previously bent strip provided with the radially beveled edges; and Fig. 7 is a perspective view of



three of these permanently bent strips showing how they are assembled with the radially beveled edges face to face.

As shown in the drawings, the horn of the present invention is composed of a plurality of strips 3, preferably formed of thin tapering pieces of wood joined edge to edge, it being an important feature of the invention that such strips be previously bent both longitudinally and transversely in response to the curvature of the horn, and that such edges be so formed as to present contacting surfaces throughout their length when brought together. In order that this result may be properly secured, the strips are first produced as flat, tapering pieces of thin wood 2, Fig. 4, and these individual strips are then bent in a suitable mold, both longitudinally and transversely. The longitudinal bend is determined by the longitudinal form or flaring character of horn, and the transverse bend at any point in the length of the strip is determined by the arc of a circle, the radius of which is the semi-diameter of the horn at such point, so that throughout the length of the horn a substantially true and unobstructed circular interior surface will be formed. The strips, thus bent, are indicated at 3, Fig. 5, said bends, lengthwise and transversely of the strips, being made permanent by the application of heat while in the mold. After the strip has thus been permanently bent, as in Fig. 5, the longitudinal edges 4, 4, are cut to a bevel on the lines 5, 6, Fig. 6, the bevel at any point in the length of the horn corresponding to the direction of a radius of the horn at that point. Thus the angle of the bevel of the edge 4 near the flared extremity of the horn will be represented, Fig. 5, by the line 5, 6, the numeral 5 representing the center of the circle of horn curvature at that point. Likewise the bevel of the edge 4 at intermediate points in the length of the strip 3 will correspond to the lines 7-8; 9-10; 11-12; the numerals 7, 9 and 11 representing the center of horn curvature at that particular point.

Viewing Fig. 7, it will now be clear that, since the edges 4, 4, of each of the strips 3 are cut on the same bevel, or line 5-6, for instance, at any point, the faces of the edges 4, 4, of adjoining strips will present flush or abutting surfaces which may be brought into full contact throughout the length of the strips notwithstanding the fact that the strips are curved both longitudinally and transversely. The beveled surfaces of the edges 4, 4, are then glued together, and the strips themselves being permanently bent, the glue connection between such edges acts as a sufficient binder to hold the assembled strips in position.

At the flaring end of the horn A, Fig. 1, a wooden hoop 13 is glued, said hoop being preferably formed of a single strip of wood

having overlapping ends 14, 15, suitably connected, as by glue or the like. The smaller end of the horn A, Figs. 1 and 2, is supplied with a ferrule 16, preferably of metal, and, as indicated, this ferrule has its extreme end 17 flush with the transverse plane of the horn at that end, so that no projection extends into the interior of the horn tending to disturb the true sound waves transmitted.

At some point intermediate its ends the horn A, Figs. 1 and 2, is preferably encircled by a textile band or tape 18. This band or tape 18 is countersunk into the exterior surface of the horn, the strips 3 being provided with an exterior transverse groove 19, Fig. 2, so that the band or tape, while serving to increase the security with which the strips are held together, is prevented from displacement on the incline surface of the horn. Obviously the number of bands or tapes 18 employed on any particular horn is not material, as such number may be varied according to the particular circumstances or as the judgment of the constructor may dictate. In applying the band or tape 18, it is preferably moistened or saturated with glue, and in such condition is stretched and laid in the groove 19 with its ends overlapping. On drying, the band or tape will shrink, thus binding the strips 3, edge to edge permanently, in a manner that will be well understood.

It is sometimes desirable to support the horn from a point beyond its smaller end by suspending it from a rod, stand, or the like. Means are herein provided for this purpose, such as an eye 20, Figs. 1 and 2, the ends 21, 21, being preferably passed through the band or tape 18 before it is applied, and bent as indicated in Fig. 2, said bent ends 21, 21, when the tape is in place resting between the under surface of the tape and the outer wall of the groove 19. Thus the suspending means or eye 20 does not extend through or into the wall of the horn, and offers no objectionable element in the transmission of sound by the horn. Obviously the band or tape and suspending eye may be applied in a variety of ways, but it is preferable, as found in practice, that the band or tape be secured in a groove in the horn, and that it be formed of textile material that will contract or shrink in drying, as thereby the band or tape not only will not become displaced in use but will hold the strips 3 more securely with their radially beveled faces in uniform contact.

From the construction described it will be noted that a horn is produced of a single layer of thin wooden strips previously bent both in a longitudinal and transverse direction; that the adjacent edges of the strips are beveled after the strips are bent, so that edge faces extending in the direction of the



radius of the horn are produced throughout the length of the strips even though the strips themselves vary in curvature at different points; and that the radially beveled edges present contacting faces throughout. Obviously, also, the cross-sectional contour of the horn at any point will present a substantially true circle, there being no shoulders, angles, or interruptions to the interior horn surface either transversely or longitudinally.

What is claimed is:—

1. A horn for talking machines comprising a conically tapering body composed of a single layer of individual wooden strips previously bent into permanent shape both longitudinally and transversely, the longitudinal edges of said strips being beveled radially of the horn throughout their length to present adjacent faces coincident throughout, and means to hold said strips in assembled relation edge to edge.

2. A horn for talking machines comprising a conically tapered body composed of a single layer of individual wooden strips previously bent into permanent shape both longitudinally and transversely and glued together edge to edge, the longitudinal edges of said strips being beveled radially of the horn throughout their length to present plane faces coincident throughout.

3. A horn for talking machines comprising a conically tapered body portion composed of a single layer of individual wooden strips previously bent into shape both longitudinally and transversely, the longitudinal edges of said strips being beveled radially of the horn throughout their length to present contacting plane faces coincident throughout, the said radial plane faces of adjoining strips being glued together, the exterior surface of the horn being provided with an encircling band or tape.

4. A horn for talking machines comprising a single series of tapering wooden strips bent in both a longitudinal and transverse

direction, and having edge faces coincident throughout and provided with an exterior encircling groove, and a textile band or tape passing around the horn and seated in said encircling groove.

5. A horn for talking machines comprising a single series of tapering wooden strips bent in both a longitudinal and transverse direction and glued together edge to edge said edges having faces coincident throughout, a band or tape passing around said horn, and means secured to said band or tape for supporting the horn.

6. A horn for talking machines comprising a single series of tapering wooden strips bent in both a longitudinal and transverse direction, and glued together edge to edge, the said horn having an encircling exterior groove, a textile band or tape passing around said horn and seated in said groove, and a supporting eye secured to said tape.

7. A horn for talking machines comprising a single series of tapering wooden strips previously bent into shape both longitudinally and transversely and having edge faces coincident throughout, and glued together, and a textile band encircling the horn intermediate its ends.

8. A horn for talking machines comprising a single series of wooden strips previously bent longitudinally and transversely and having beveled edges, the beveled edges of one strip being glued to the beveled edges of the next adjoining strips, a ferrule embracing the strips at the smaller end of the horn and terminating flush with the end of the horn, and a textile band or strip encircling the horn intermediate its ends.

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

STANISLAUS MOSS.

Witnesses:

RICHARD ZOERNER,  
F. W. HUDTWALCKER.