I. W. NORCROSS.

SOUND TUBE.

APPLICATION FILED AUG. 9, 1907.

900,877.

Patented Oct. 13, 1908.

2 SHEETS—SHEET 1.

Fig. 1,

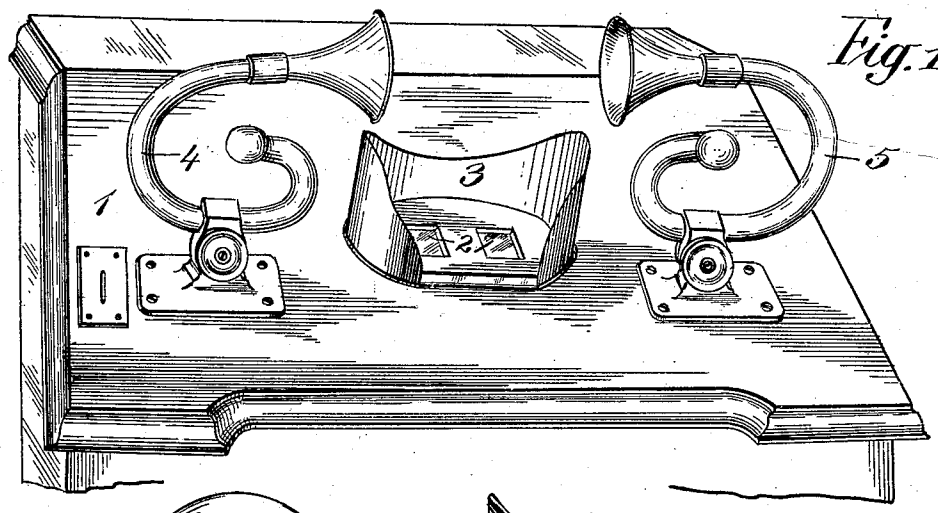


Fig. 3,

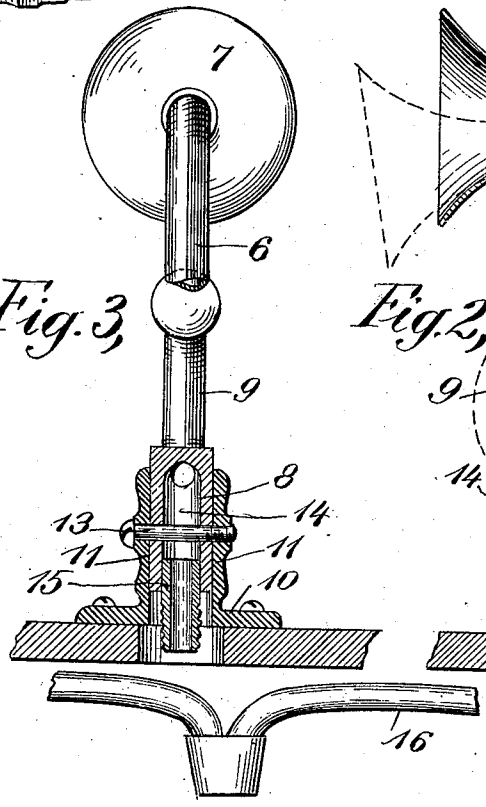
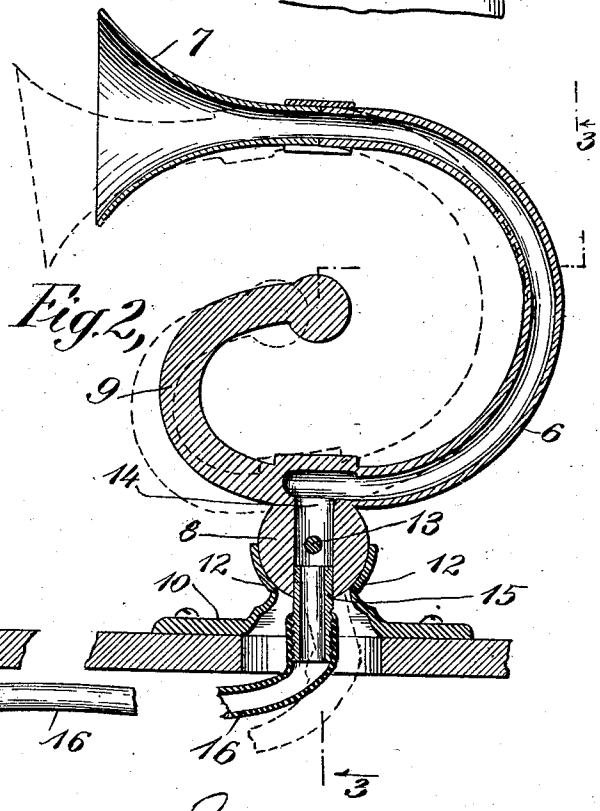


Fig. 2,



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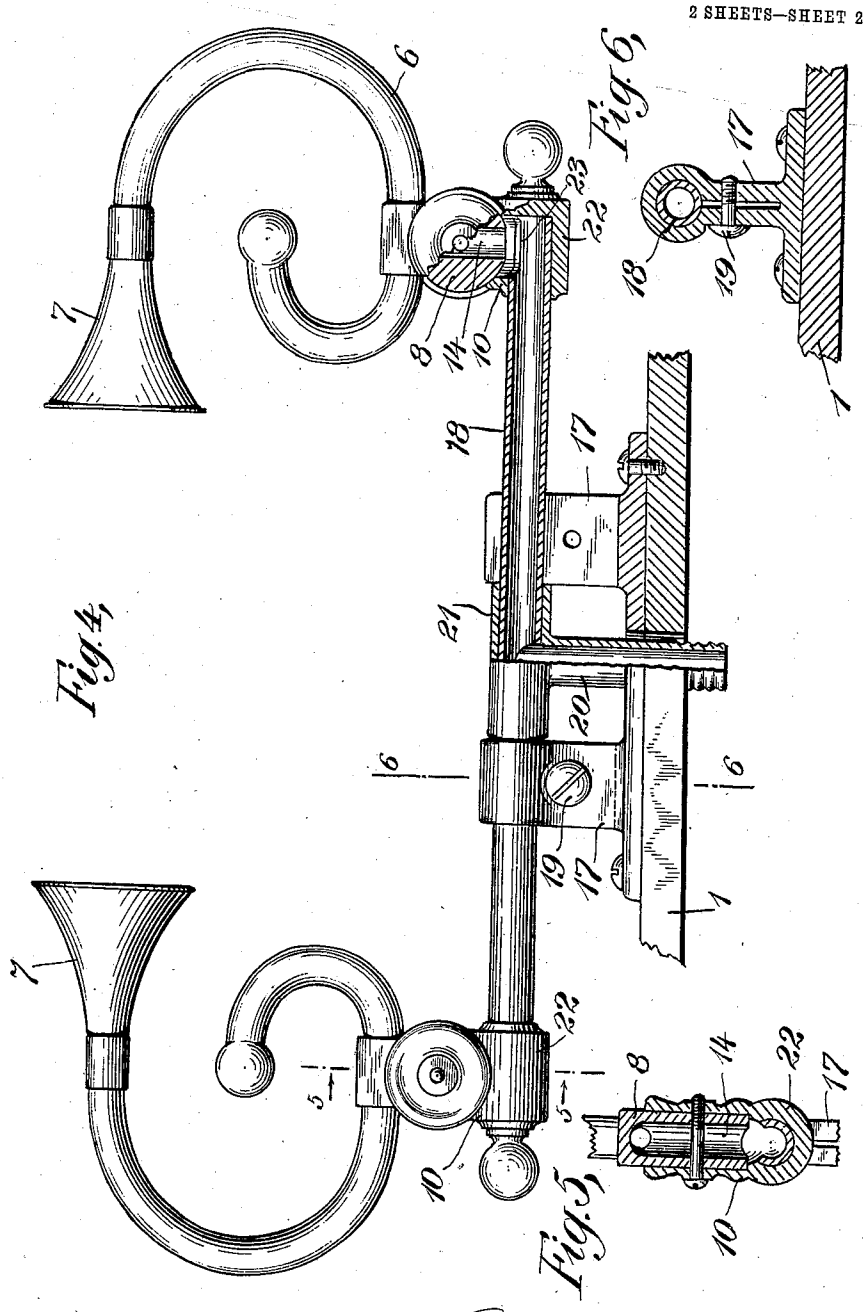
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SOUND-TUBE.

No. 900,877. Specification of Letters Patent. Patented Oct. 13, 1908.

Application filed August 9, 1907. Serial No. 387,783.

To all whom it may concern:

Be it known that I, ISAAC W. NORCROSS, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Sound-Tubes, of which the following is a specification.

This invention relates to tubes for conveying sounds to the ears and has reference more particularly to the construction and mounting of such tubes, whereby adjustment thereof to suit the convenience of the user is permitted.

My improved sound tubes are of special utility in conveying sounds to the ears from a talking machine mounted in a suitable cabinet and having combined therewith a coin-controlled device for exhibiting pictures.

The object of my invention is to provide an improved construction of sound tubes for such uses which shall be entirely sanitary, not being arranged for insertion of the ends thereof in the ears of the user, which shall not effect a change in the sound carried thereby so that an inferior reproduction of the recorded sound is obtained, which shall permit of ready adjustment in various ways to suit the size and convenience of the user, and which shall possess ample strength and be capable of manufacture at comparatively low cost.

In accordance with the invention, a pair of sound tubes are provided having flaring ends adapted to be drawn up to the ears, rather than reduced ends for insertion in the ears, so that the danger of disease being carried by the tubes is practically eliminated. These flaring end-pieces are carried on the ends of tubes which are connected to the reproducer of the talking machine. In each of these tubes is a suitable joint which permits the flaring end-pieces to be moved toward or away from each other to accommodate the tubes for use by all, regardless of variation in the width of the head and to enable the user to move the flaring ends up to his ears after his head is in position with respect to the opening for viewing the pictures. In some cases, I prefer to provide a universal joint in each tube, as for instance to enable a person below the average height to draw the tubes downward somewhat as well as to move them toward each other against his ears.

The preferred embiodment of my invention is illustrated in the accompanying drawings in which

Figure 1 is a perspective view of the top portion of a cabinet having the sound tubes mounted thereon, Figs. 2 and 3 are sectional views of one of the tubes, one section being in a plane at right angles to that of the other, Fig. 4 is a sectional elevation of a modified form of the invention and Figs. 5 and 6 are detail views in section on lines 5—5 and 6—6 of Fig. 4.

Referring to these drawings, 1 indicates a cabinet such as may be employed to house a talking machine and a picture-exhibiting machine, the two operating in synchronism. At the center of the inclined top of the cabinet are glass-covered openings, 2 for viewing the pictures and a shield 3 for shading the same. A pair of sound tubes 4 and 5 are arranged on opposite sides of these openings. Each sound tube consists of a curved tubular portion 6 having secured to its end a flaring earpiece 7. At the other end of the portion 6 is a cylindrical member 8 integral with or secured to the portion 6, and the latter may have a curved extension 9 as shown, if desired, serving as a handle and giving the device a more attractive appearance. The cylindrical member 8 has a vertically disposed opening therethrough communicating with the opening through the portion 6. This member 8 fits snugly between the walls 11 of a holder 10 secured to the top of the cabinet 1. A pivot pin 13, such as a screw, extends through openings in the walls 11 and the member 8 concentric with the cylindrical surface of the latter. The holder 10 is cut away at the bottom of member 8 so that though the latter is turned on pivot 13 a considerable distance, the lower end of the vertically disposed opening 14 through member 8 will not come over one of the end walls 12 of the holder. A short length of tubing 15 has one end inserted and secured in the lower end of opening 14 and the other is threaded or corrugated to receive and hold the end of a flexible tube 16, the other end of which is connected to the reproducer of the talking machine. As thus constructed, a person desiring to use the machine may readily move the ends of the sound tubes toward and away from each other, each tube turning about its pivot 13 and the holder 10 permitting such movement while sustaining the tube and pro-

tecting it against injury, without in any way interfering with the connection of the ear-pieces to the talking machine. The sound tubes are thus adaptable for use by any one and a user may separate the tubes while getting his head in the proper position for viewing the pictures and then draw them together again. The flaring ear-pieces adapted to be drawn up to the ears are more convenient and much more sanitary than the pieces heretofore used adapted to be inserted in the ears.

With the apparatus shown in Fig. 1 having the sound-tubes mounted on the top of a cabinet and movable toward and away from each other only, it might sometimes happen that a child or an undersized person could not conveniently use the tubes. To avoid any such difficulty, I may provide in each tube a universal joint such that the tubes may be moved downwardly somewhat as well as toward and away from each other. Such a construction is shown in Figs. 4, 5 and 6, in which 1 indicates the top of the cabinet as before, having standards 17 mounted thereon. These standards have openings therethrough to receive a horizontal tube 18 and, below the openings, are preferably split and provided with screws 19 for tightening the standards to hold tube 18 with the required degree of tightness. Between the standards 17, tube 18 passes through one member 21 of a T-shaped fitting, the other member 20 of which extends downwardly through an opening in base 1 for connection to the reproducer of the talking machine. Tube 18 has an opening therethrough to connect with the opening in member 20 and so shaped that this connection is maintained though the tube 18 be turned on its axis a considerable amount in the openings in standards 17. On the ends of tube 18 are secured pieces 22 having holders formed thereon similar to the holders 10 shown in Figs. 1, 2 and 3. Near its ends, the tube 18 has openings 23 formed therein so that a continuous passageway is provided from the tube through the openings 14 in the cylindrical members 8 and the tubes 6 to the flaring ear-pieces 7. By this construction, it will be seen that the ear-pieces 7 can be moved about a horizontal axis relatively to the sight-opening 2, as well as toward and away from each other on the axes of the pivots 13.

In both of the constructions herein illustrated and described, it will be seen that the means for supporting the adjustable sound tubes permits of gripping the portions of the tubes held thereby frictionally with the required degree of tightness so that, when once positioned, the tubes need no longer be held in the hands. Thus, in both forms, the pivot pins 13 may be tightened or loosened to regulate the clamping action of the walls 11 on member 8, and in the form shown in Figs. 4, 5 and 6, the screws 19 may be adjusted to hold the tube 18 in any position to which it is moved and at the same time permit it to be moved to a new position whenever such movement is desired.

Having described my invention, what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pair of sound-tubes on opposite sides of said opening mounted so that their ends are movable toward and away from each other, said tubes being frictionally held in any position to which they are adjusted, and connections to said tubes for carrying sound thereto, substantially as described.

2. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pair of sound-tubes having flaring ends pivotally mounted on opposite sides of said sight-opening so that their ends are movable toward and away from each other, the openings through said tubes passing through said pivotal mounting and said tubes being frictionally held in any position to which they are adjusted, and connections to said tubes for carrying sound thereto, substantially as described.

3. A combined talking machine and picture-exhibiting machine having a sight-opening for viewing the pictures, and a pair of sound-tubes disposed substantially vertically and mounted on opposite sides of said sight-opening, said sound-tubes each having a flaring upper end and each being adjustable about two substantially horizontal axes one at substantially a right angle to the other, and said tubes being frictionally held in any position to which they are adjusted, substantially as described.

4. A combined talking-machine and picture-exhibiting machine having a sight opening for viewing the pictures, a support, holders secured thereon, members having openings therethrough, pivot-pins extending through said members and holders and pivotally supporting the members upon the holders so that they may turn about substantially parallel axes, and sound-tubes carried by said members and communicating with said openings, said sound-tubes being located one on either side of said sight opening, substantially as described.

5. A combined talking-machine and picture-exhibiting machine having a sight opening for viewing the pictures, a support, holders secured thereon, members having openings therethrough, pivot-pins extending through said members and holders and pivotally supporting the members upon the holders so that they may turn about sub-

stantially parallel axes, connections to the openings in said members, sound-tubes carried by said members and communicating with the openings therein, and flaring earpieces on the ends of said sound-tubes, said sound-tubes being located one on either side of said sight opening, substantially as described.

6. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pivotally mounted support, and a pair of sound-tubes carried thereby and disposed one on either side of said opening, substantially as described.

7. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pivotally mounted tube, and a pair of sound-tubes carried thereby and disposed one on either side of said sight-opening, the openings through said sound-tubes being connected to the opening through said tube, substantially as described.

8. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pivotally mounted support, and a pair of sound-tubes pivotally mounted on said support and disposed on opposite sides of said opening, substantially as described.

9. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pivotally mounted tube, and a pair of sound-tubes pivotally mounted on said tube and disposed one on either side of said sight-opening, said sound-tubes having flaring ends and the openings through said sound-tubes being connected to the opening through said tube, substantially as described.

10. A combined talking machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a supporting tube, means for supporting the same permitting movement thereof on its axis, holders secured to the ends of said tube on opposite sides of said sight-opening, sound-tubes having flaring ends carried by said holders and movable relatively thereto on axes substantially transverse to the axis of the supporting tube, and connections to the supporting tube, said holders being formed to provide a passage for sound-waves from said supporting tube to said sound-tubes, substantially as described.

11. A combined talking-machine and picture-exhibiting machine having a sight-opening for viewing the pictures, a pair of sound-tubes having flaring ends pivotally mounted on opposite sides of said opening so that said flaring ends are adjustable toward and away from said opening, said tubes being held frictionally in any position to which they are adjusted, substantially as described.

12. A combined talking-machine and picture-exhibiting machine having a sight opening for viewing the pictures, a support, two holders mounted thereon, each having a concave surface thereon, two sound-tubes each having a convexly curved surface corresponding to and engaging the concave surface on one of said holders, means for securing the sound-tubes upon the holders permitting movement of each of the sound-tubes about the axis of the curved surface thereon, and means for conveying sound to the sound-tubes, said sound-tubes being located one on either side of said sight opening, substantially as described.

13. A combined talking-machine and picture-exhibiting machine having a sight opening for viewing the pictures, a support, a holder mounted thereon, a sound-tube secured upon said holder and located at one side of said sight opening, said holder and sound-tube having one a convex and the other a corresponding concave surface, said surfaces being in engagement and the sound-tube being adjustable about the axis of the curved surface thereon, and means for carrying sound to the sound-tube, substantially as described.

This specification signed and witnessed this 7th day of August, 1907.

ISAAC W. NORCROSS.

Witnesses:
D. S. EDMONDS,
SAMUEL L. MARCUS.