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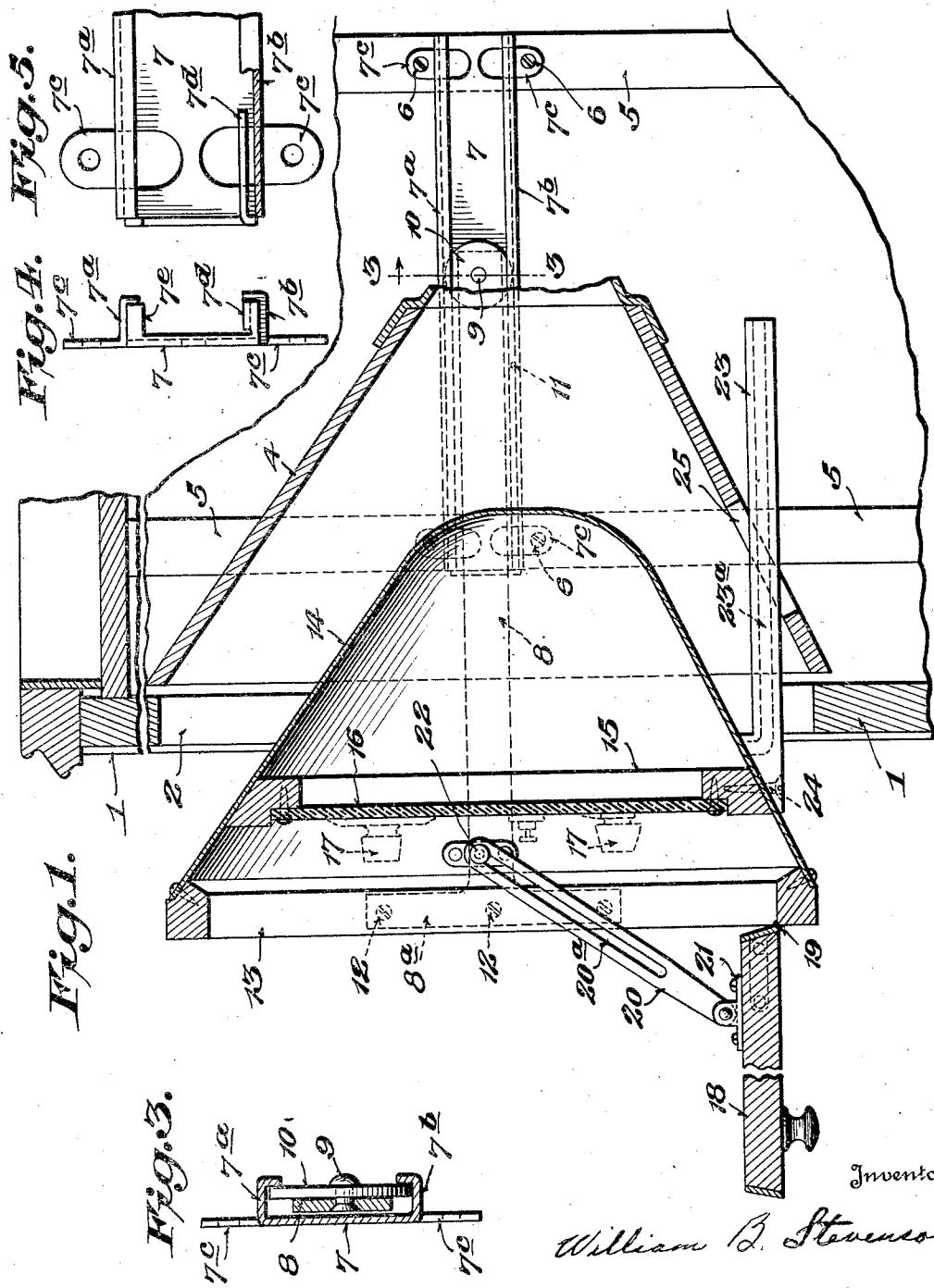
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COMPOSITE RADIO PANEL AND SOUND MODIFIER

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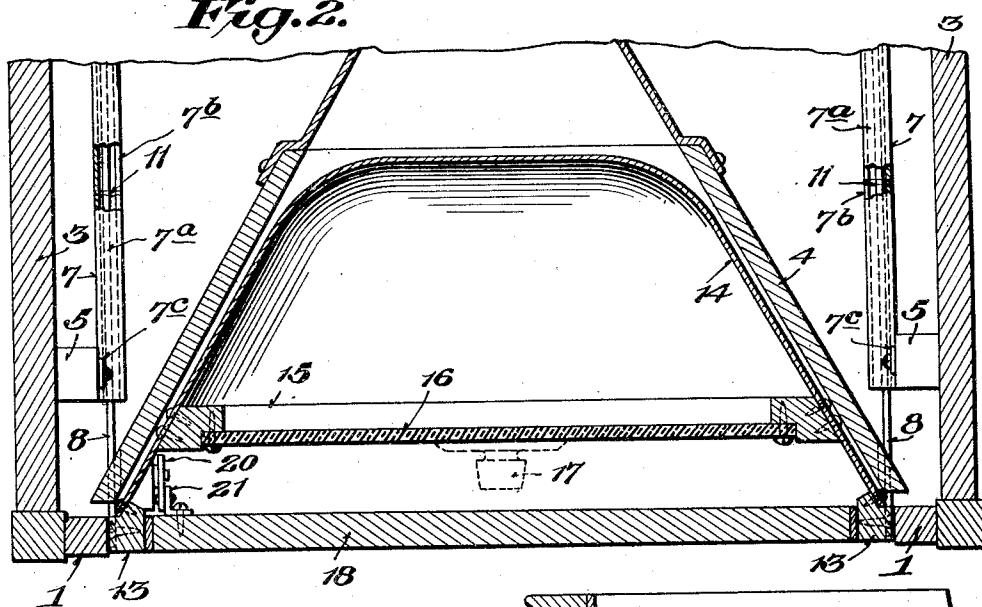
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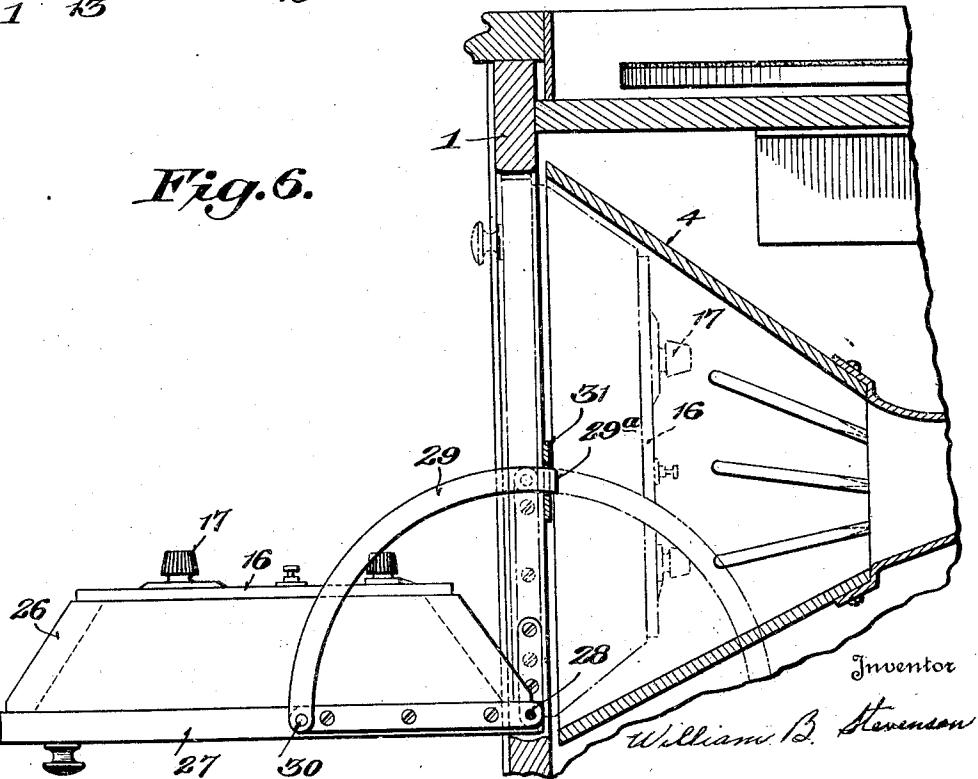
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*Fig. 2.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## COMPOSITE RADIOPANEL AND SOUND MODIFIER.

Application filed August 20, 1925. Serial No. 51,502.

This invention relates to a composite radio panel and sound modifier.

It has heretofore been proposed to provide the amplifying horn of a loud speaking telephone with a cover slidably mounted in the horn cabinet whereby the cover may be moved outwardly and inwardly parallel to itself to modify the sounds emitted from the horn, but instruments of this character as heretofore provided constitute an entirely separate article from the radio receiving instrument, and therefore involve considerable extra cost and space consumption. It has also been proposed to mount a radio receiving instrument and an amplifying horn therefor in a single cabinet, but instruments of this character as heretofore provided have required a cabinet of considerably increased size, with the attendant increased cost and space consumption, owing to the fact that separate compartments have been provided for the horn and the receiving instrument.

An object of the present invention is to provide novel means for associating a radio receiving instrument, and an amplifying horn therefor, whereby the said instrument, and in particular the radio panel, constitutes a modifier for sounds emitted from the horn.

Another object of the invention is to provide novel apparatus of this character which is so constructed that the operation of the receiving instrument is not interfered with by movement of the radio panel to vary the action of the latter as a sound modifier.

A further object is to provide means whereby relative movement between the amplifier, or horn, and the radio panel will not disrupt the electrical connections between the amplifier and panel.

Further objects include the provision of a compact structure that is pleasing in appearance, one in which the parts are properly protected from moisture, dust, etc., and one wherein the control elements mounted in the panel are readily accessible for adjustment. These and other objects will appear more fully hereinafter.

Two forms which the inventive idea may assume are shown in the accompanying drawings, which drawings, however, are for the purpose of illustration only and are not to be taken as defining the limits of the invention, reference being had to the appended claims for this purpose.

In the drawings, wherein like reference

characters refer to like parts throughout the several views,

Fig. 1 is a sectional side elevation of one embodiment of the present invention, the composite radio panel and sound modifier being in full open position;

Fig. 2 is a top plan view, in section, of the elements shown in Fig. 1, the composite panel and sound modifier being in closed position;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Figs. 4 and 5 are detail end and side views, respectively, illustrating one manner in which the guides for the panel supporting arms may be formed.

Fig. 6 is a sectional side view of another embodiment of the present invention.

Referring particularly to Figs 1 to 5 inclusive, the apparatus constituting the subject matter of the present invention is mounted in a cabinet of any suitable type, as for example, an upright talking machine cabinet which may comprise a front wall or panel 1, provided with a suitable opening 2, and end panels or side walls 3. An amplifier or horn 4 is mounted in any well known manner in the cabinet with the open end thereof adjacent the opening 2 in the front wall 1. The specific features of the amplifier, or horn, and the receiver of the telephone type (not shown) associated therewith, constitute no part of the present invention, but if desired the horn may be of the type employed in talking machines or may be the horn of a talking machine.

Preferably, a number of vertically disposed strengthening strips or wooden cleats 5 are suitably secured to the inner surface of walls 3, and attached to said strips as by means of screws 6 is a guide 7 composed of upper and lower supporting brackets or flanges 7<sup>a</sup> and 7<sup>b</sup> which are disposed in substantially horizontal planes. The guide 7 is formed of a metal strip which is bent, parallel to its opposite side edges through an angle of ninety degrees, and the bent portions are further bent longitudinally adjacent their edges to form L-shaped flanges, the short legs of the L's being in a plane parallel to the main portion of the strip. Rounded ears 7<sup>c</sup> are cut from the main portion adjacent the opposite ends of the strip, and these ears are bent through an angle of 180° so that the ears extend on opposite

sides of the guides or run ways, in the plane of the main portion of the strip, and receive the screws 6 whereby the guide is secured to the cleats 5. The front or outer end of the main portion of the guide extends for a short distance beyond the L-shaped flanges 7<sup>a</sup> and 7<sup>b</sup>, and this extending portion is transversely bent through an angle of 90° and is cut along an L-shaped line the long leg of the line being substantially at the transverse bend. The tab 7<sup>a</sup> formed by this cut is bent inwardly through an angle of 90° so that it fills up the channel formed by the lower L-shaped flange. The lug 7<sup>b</sup> left by the L-shaped cut similarly closes the end of the channel formed by the upper L-shaped flange. Slidably mounted in each guide 7, the opposite flanges 7<sup>a</sup> and 7<sup>b</sup> of which constitute runways or tracks, is a panel supporting arm 8, and pivotally secured, as by means of a rivet 9, to the inner end of each arm, is a roller 10, having a diameter materially greater than the width of the arm, which has rolling contact with the inner surfaces of the L-shaped flanges of the guide 7. The front end of each arm has sliding engagement with the longitudinally bent tab 7<sup>a</sup> and lug 7<sup>b</sup> so that excessive play of the arm is prevented. In order to limit the outward movement of arms 8, a transversely extending pin 11 (Fig. 2) may be provided in the lower flange 7<sup>b</sup> of each guide in the path of the roller 10.

The composite radio panel and sound modifier is suitably secured to the outer ends of the supporting arms 8 whereby the same may be moved parallel to itself to modify the sounds emitted from the horn 4. As shown, the outer ends of the arms 8 are provided with vertically disposed portions 8<sup>a</sup> constituting a T-shaped head therefor, and secured to the latter, as by means of screws 12, is a rectangular frame 13 that may be formed of wood. This frame is shown as generally pentagonal in cross section, with the outer, rear sides thereof cut at an angle to the axis of the horn substantially equal to that of the inner faces of the mouth portion of horn 4, and secured to the sides so shaped is a metal housing 14 which is generally frustro-conical and shaped so as to parallel the inner faces of the mouth portion of the horn, the rear end of the housing being suitably rounded and closed.

The housing 14 constitutes an enclosure for a radio receiving instrument provided with a radio panel for mounting the control elements. This housing protects the elements of the instrument mounted on the rear of the panel from dust and moisture. It is to be expressly understood, however, that the use of this housing is not essential. As shown, a frame 15 is secured at its perimeter, and in a substantially vertical position, to the inner surface of the housing 14

at a suitable point intermediate the open and closed ends of the latter. Attached in any suitable way to the frame 15 is a panel 16 on which are mounted control elements 17 for the radio receiving instrument, the remainder of the mechanism (not shown) mounted on the rear face of the panel, being completely enclosed by the housing 14.

Preferably a swinging door 18 is provided as a cover for the radio panel, which door may be pivoted about a horizontal axis to the lower side of frame 13, as at 19. A support 20, pivoted at one end to a bracket 21 that is rigidly attached to the door 18, is provided with an elongated slot 20<sup>a</sup> which slidably engages a pin 22 which is secured in a suitable manner to the housing 14, and constitutes means for holding said door in open or horizontal position. Means are provided whereby the various electrical connections, that may be employed between the elements of the receiving instrument enclosed in the housing 14 or carried by the panel, and other elements of the device, such as the telephone unit for the horn, the batteries, "ground", antenna, etc., are not disturbed by movement of the radio panel toward and away from the horn. As shown, a rigid member 23 is fixedly attached, as by means of screws 24, to the lower surface of housing 14 and extends inwardly through an opening 25 provided in the wall of the horn 4. The flexible wires or members constituting the electrical leads extend through a longitudinal opening 23<sup>a</sup> in the member 23, and are therefore protected by the latter during the movement of the housing 14 to its various positions of adjustment.

Movement of the radio panel 16 and the elements associated therewith toward and away from the horn 4 varies the volume of sounds emitted from the amplifier or horn and modulates such sounds, by varying the width of the passage between the housing 14 or panel 16 and the horn mouth 4. The door 18 gives access to the control members 17 which latter are in a convenient position for adjustment regardless of the position of the panel 16.

In Fig. 6 there is illustrated another embodiment of the invention wherein a radio receiving instrument, including a panel 16, control members 17 and a suitable housing 26, is mounted for pivotal instead of rectilinear movement. As shown a swinging door 27 is suitably hinged as at 28, to the front wall 1 of the cabinet, and carries the panel 16, control members 17 and housing 26. Normally the panel 16 occupies a vertical position within the horn 4, as shown in dotted lines, where together with the housing 26 and door 27 it constitutes a closure for said horn.

Suitable means are provided for holding the panel 16 in one or more positions suit-

able for adjusting the control members 17. In the form shown the door may swing to a horizontal position and means are provided for preventing the panel 14 moving past this position. To this end, a rigid arcuate member 29, provided with an inwardly turned portion 29<sup>a</sup> at the inner end thereof, is secured at its outer end, as at 30, to the side of the door 27, and extends through a suitable slot or opening in a stop member 31 secured to the front wall 1.

The panel 16 may be swung to open position, where it constitutes a sound modifier in a manner well understood in the art, and when in horizontal position the inwardly turned portion 29<sup>a</sup> engages the stop 31 and maintains the panel in a convenient operating position.

It will thus be perceived that there is provided a novel sound modifier, constituted by a radio panel or its housing, for varying the characteristics of sounds emitted from an amplifier. The device is very compact and pleasing in appearance and the control members are readily accessible for adjustment. The apparatus is particularly adapted for combination with a talking machine of the type wherein a common horn is employed for the amplification of both mechanically and electrically generated sounds. Movement of the sound modifier does not tend to wear away or destroy the insulation of the electrical lead wires, nor to disrupt the same, and the elements of the receiving instrument are protected from dust and moisture.

While two embodiments of the inventive idea have been described with considerable particularity, it is to be understood that the invention is not limited thereto, since various changes may be made in the same within the limits of the appended claims.

What is claimed is:—

1. A composite radio panel and sound modifier comprising, in combination with a cabinet, a horn mounted in said cabinet, a vertically disposed panel, control elements mounted on the face of said panel, and means for movably securing said panel to the cabinet whereby said panel may be moved to vary the sounds emitted from said horn, said panel being adapted when not in use to occupy a position within said horn with said control elements in protected relation and affording ready access to said control elements when the latter are to be placed in service.

2. A device of the class described comprising, in combination with a cabinet having an opening therein, a horn having its discharge end positioned adjacent said openings, a panel in the horn, means for movably securing the panel to the cabinet whereby the panel may be moved to vary the volume of sounds emitted from said horn,

and control means secured to the panel, said control means normally being in protected relation but adapted for ready access when the same are to be placed in service.

3. A device of the class described comprising, in combination with a cabinet having an opening therein, a horn having its discharge end positioned adjacent said opening, a housing normally spaced from the discharge end of said horn, means for movably securing said housing to the cabinet, whereby it may be moved to close the discharge end of said horn, said housing including a radio panel constituting a sound modifier, and radio control elements mounted on said panel with said elements in protected relation and affording ready access thereto when the same are to be placed in service.

4. A device of the class described comprising in combination with a cabinet, a horn in said cabinet, brackets constituting runways secured to the cabinet, arms slidably engaging said brackets, a vertically disposed panel secured to said arms and normally positioned within the horn, and control elements carried by said panel.

5. A device of the class described comprising in combination with a cabinet having an opening therein, a horn in the cabinet positioned with its discharge end adjacent said opening, means constituting guideways secured to the cabinet, arms slidably engaging said guideways, a frame secured to said arms, a panel normally positioned in the horn, means for securing said panel to said frame, and control members carried by the panel.

6. A device of the class described comprising in combination with a cabinet having an opening therein, a horn in the cabinet positioned with its discharge end adjacent said opening, means constituting guideways secured to the cabinet, arms slidably engaging said guideways, a frame secured to said arms, a panel normally positioned in the horn, a housing for securing the panel to said frame, and control members carried by the panel.

7. A device of the class described comprising, in combination with a cabinet having an opening therein, a horn in the cabinet positioned with its open end adjacent said opening, horizontally disposed members secured to the cabinet, arms having sliding engagement with said members, a frame secured to said arms, a housing including a panel constituting a sound modifier and secured to said frame, and a movable door secured to the frame.

8. A device of the class described comprising, in combination with a cabinet having an opening therein, a horn having its open end positioned adjacent said opening, a movably mounted panel constituting a sound

modifier positioned in said horn, means for securing the panel to the cabinet whereby said panel may be moved parallel to itself, and rigid protective means secured to the panel and extending through an opening in the horn.

9. A device of the class described comprising in combination with a cabinet having an opening therein, amplifying means, positioned adjacent said opening, a panel positioned in said means, means for securing the panel to the cabinet whereby the panel may be moved parallel to itself to modify sounds emitted from the amplifying means, a rigid protective member secured to said panel and extending through an opening in said amplifying means, and means enclosing said panel and movable therewith.

10. A composite radio panel and sound modifier comprising, in combination with a cabinet, a horn mounted in said cabinet, a vertically disposed panel adapted when not in use to occupy a position within said horn, control elements mounted on the face of said panel, and means for movably securing said panel to the cabinet whereby said panel may be moved to vary the sounds emitted from

said horn, said panel being adapted when in use to be moved outwardly with respect to the horn, said control elements normally being in protected relation and adapted for ready access when the same are to be placed in service.

11. A device of the class described comprising, in combination with a cabinet having an opening therein, a horn in the cabinet positioned with its open end adjacent said opening, horizontally disposed members secured to the cabinet, arms having sliding engagement with said members, friction reducing elements operatively interposed between said arms and said horizontally disposed members, a frame secured to said arms, a housing including a panel constituting a sound modifier secured to said frame, and radio control elements mounted on said panel, said control elements normally being in protected position and adapted for ready access when the same are to be placed in service.

In testimony whereof I have signed this specification.

WILLIAM B. STEVENSON.