

- [54] **AMPLIFIER UNIT CASING HAVING
RECESSED CONNECTOR TERMINAL
SURFACE**

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- [75] Inventors: **Kazushi Takami**, Higashiosaka;
Yoshiro Koga, Ashiya; **Yoichi Ide**,
Kadoma; **Masatoshi Kubota**, Osaka;
Yoshiro Hirasawa, Kyoto; **Noriki**
Matsumoto, Takatsuki; **Takao**
Miyake, Yao, all of Japan

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Primary Examiner—Robert K. Schaefer

Assistant Examiner—Gerald P. Tolin

Attorney—Edwin E. Greigg

- [73] Assignee: **Onkyo Kabushiki Kaisha, Osaka-shi, Japan**

- [22] Filed: **Mar. 8, 1972**

- [21] Appl. No.: 232,795

Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 50,071, June 26, 1970, abandoned.

- [52] U.S. Cl. 317/118, 317/101 CB, 317/120,
174/60

- [51] Int. Cl. H02b 1/10

- [58] **Field of Search**..... 174/50, 52 R, 59,
174/60; 317/99, 101 R, 101 CB, 118, 120, 122

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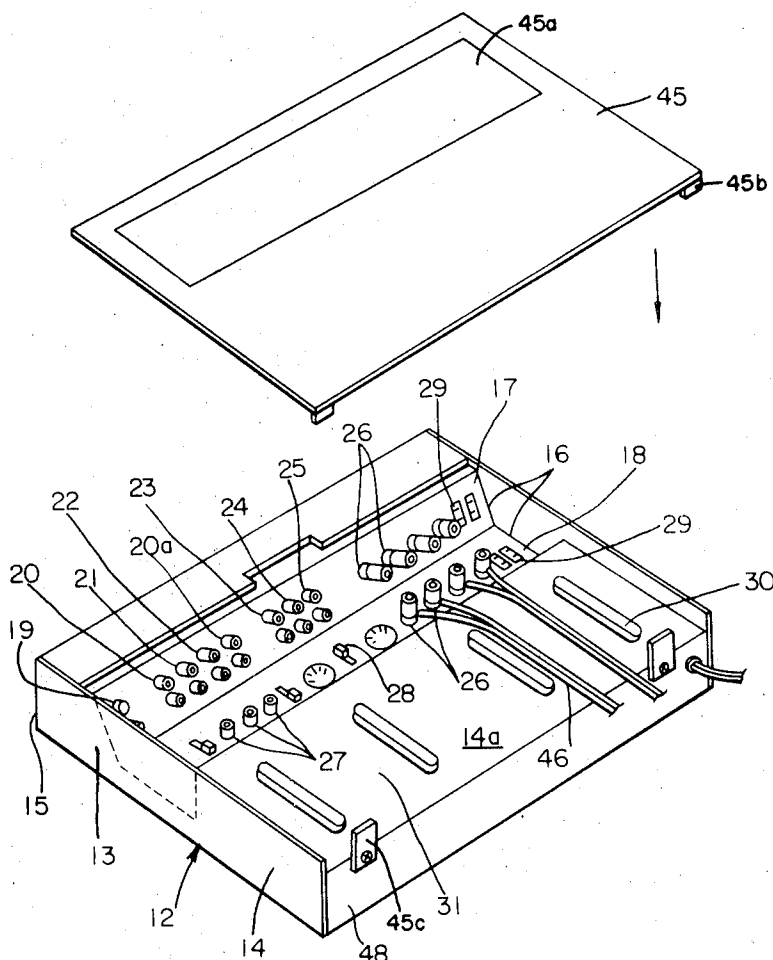
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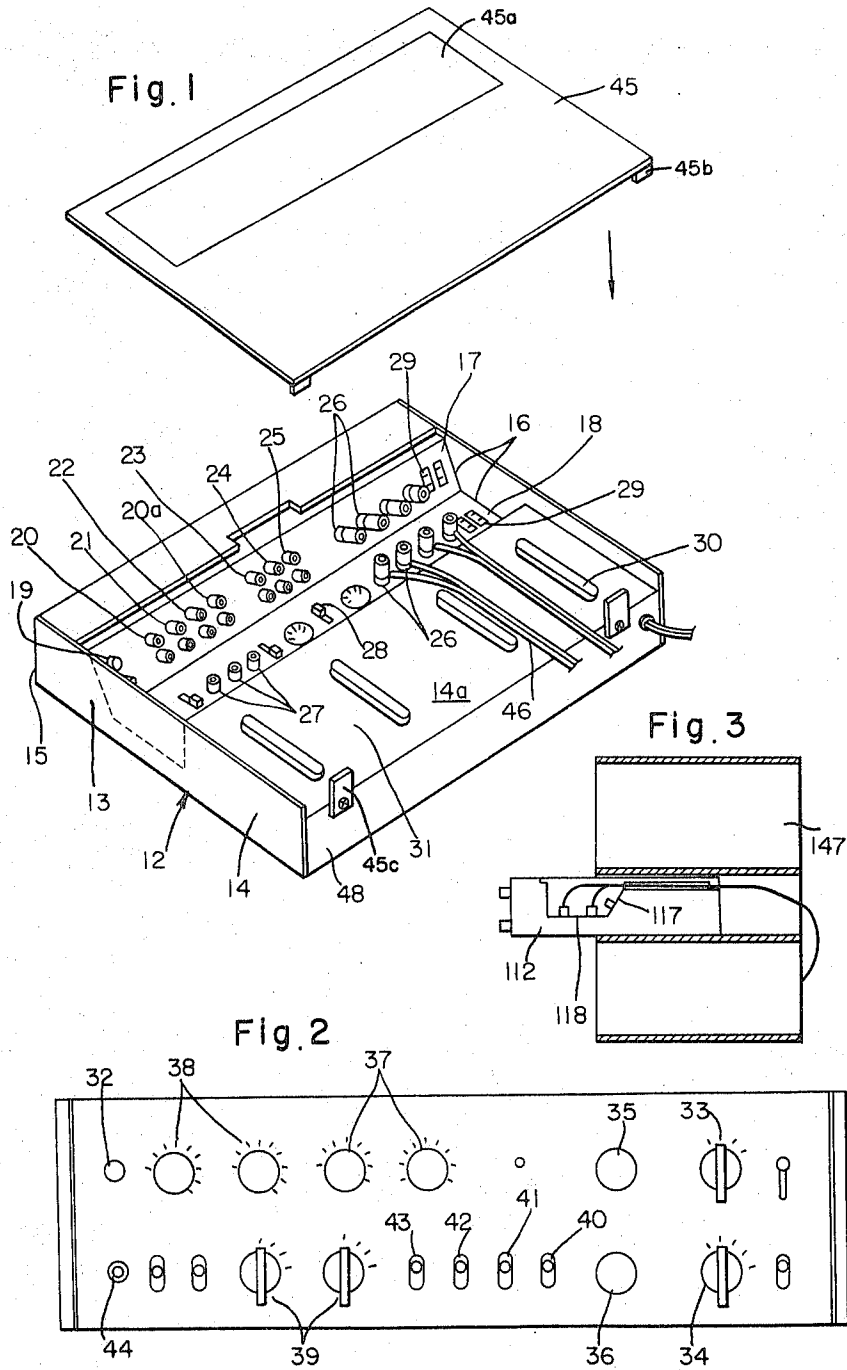
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[57] **ABSTRACT**

An amplifier unit casing comprising a recess located in the rear of and relatively close to a front panel of the amplifier unit and below the level of an upper portion of the front panel, the recess having a surface which is adapted for installation thereon of adjusting attachments including semi-fixed variable resistors and terminals to be electrically connected to a speaker, tape recorder, record player or the like, wherein each conductor connected to such terminal is led to a speaker, tape recorder, record player or the like through a conductor guide space extending continuously from the recess to the rear end of the casing and provided on the upper wall of the casing and below the level of the upper portion of the front panel.

9 Claims, 3 Drawing Figures





AMPLIFIER UNIT CASING HAVING RECESSED CONNECTOR TERMINAL SURFACE

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of our co-
pending application Ser. No. 50,071, filed June 26,
1970, now abandoned.

BACKGROUND OF THE INVENTION

In the conventional amplifier, a terminal plate having
input and output terminals and the like connected
thereto and an adjusting plate having semi-fixed vari-
able resistors and the like connected thereto are con-
nected to the rear end surface of a unit casing. When
it is desired to connect a conductor from a speaker,
tape recorder, record player or the like to a terminal on
the terminal plate or to inspect the electric connec-
tions, or when it is desired to adjust the semi-fixed vari-
able resistors, with the unit casing placed adjacent a
room wall it is necessary for an operator to pull the am-
plifier forwardly toward him from the place of installa-
tion and then perform whatever service is necessary by
reaching across the amplifier. Such an assembly also
requires the workman to, on the one hand, try to see to
the rear surface which is remote from the front panel
surface, or on the other hand, have to turn the amplifier
over with its rear end surface up in order to achieve ac-
cess to the amplifier. tend to gather together and thus
become entangled, causing many inconveniences.

Particularly where the amplifier is built in a rack
along with a tape deck, record player or the like, the
desire for connection or inspection of said electric wir-
ing or for adjustment of the adjusting attachments
makes it necessary to pull the entire amplifier com-
pletely from the rack. Therefore, the adjustment or the
inspection of terminal parts is inconvenient.

The present invention was conceived primarily to
eliminate these disadvantages, and as will become ap-
parent later herein has been found to possess other cer-
tain distinct advantages.

SUMMARY OF THE INVENTION

The present invention relates to an amplifier unit cas-
ing, characterized in that its constructed in a special
shape such that adjusting attachments including semi-
fixed variable resistors and terminals for connecting
thereto wiring extending to a speaker, tape recorder,
record player or the like can be located at particular
positions.

In an amplifier unit casing according to the present
invention, a terminal region having terminals thereon
and an adjusting region having semi-fixed variable re-
sistors and the like thereon are located in the rear of
and relatively close to the front panel surface of the
unit casing and below the level of the upper portion of
said panel surface, with the result that connection of
the wiring to the terminals, inspection of the electric
connections and adjustment by the adjusting attach-
ments can be easily and conveniently carried out from
above the unit casing.

Further, the conductors extending from the speaker,
tape recorder, record player or the like to said termi-
nals are led through a conductor guide space located
on the rear upper side of the unit casing, with the result
that it is no longer necessary to pass wiring through the
inner space of a complicated unit casing, thus saving

much time and labor in manufacture and decreasing
interference of the amplifier parts with the input.

An object of the invention is to provide an amplifier
unit casing whereby connection of wiring to the
speaker, tape recorder, record player or the like, in-
spection of the electric connections, and adjustment of
semi-fixed variable resistors and the like can be conve-
niently effected.

Another object of the invention is to provide an am-
plifier unit casing in which the inner wiring from termi-
nals to an amplifier or the inner wiring extending to
various parts for operating an amplifier which are gen-
erally provided for on the front panel can be made
shorter to decrease interference with the faint input
current.

A further object of the invention is to provide an am-
plifier unit casing wherein conductors from the
speaker, tape recorder, record player or the like are ar-
ranged to extend to terminals in an orderly manner by
means of conductor guide spaces which are suitably di-
vided by upstanding partition walls thereby avoiding
entanglement of the conductors and assuring easier
control thereof.

Still a further object of the invention is to provide an
amplifier unit casing wherein the terminals and adjust-
ing attachments are located close to the rear of a front
panel surface and can be easily inspected even from di-
rectly above the front panel surface thus facilitating the
installation of a relatively large number of terminals
and adjusting attachments at a position close to the
front panel surface.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of an amplifier unit cas-
ing according to the present invention with a lid re-
moved therefrom;

FIG. 2 is a front view of the amplifier unit according
to the present invention;

FIG. 3 is a schematic longitudinal section of another
amplifier unit casing according to the invention built in
a rack with the portion of the casing shown in drawn
position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The mode of embodying the present invention will
now be described with reference to FIGS. 1 and 2.

At a position rearwardly of and relatively close to a
front panel 15 of a stereo amplifier unit casing gener-
ally indicated at 12 which contains a preamplifier part
and a main amplifier part, there is formed a recess 16
which is located below the level of the upper portion of
the panel 15, it being noted that a side portion 13 of the
casing that is located forwardly of the recess 16 serves
mainly as a preamplifier space and that a trailing side
portion 14 of the casing serves mainly as a main ampli-
fier space. The recess 16 has an inclined surface 17 di-
rected obliquely rearwardly and downwardly and
merges with a bottom surface 18, and on these respec-
tive surfaces there are installed electric parts such as
many terminals 19-26, adjusting attachments 27,
change over switches 28 and plug receptacle 29.

The numeral 19 denotes an earth terminal; 20 and
20a, terminals for a record player; 21, a terminal for a
tape deck; 22, a terminal for a tuner; 23, a terminal for
a sound recorder; 24, a preamplifier output terminal;
25, a main amplifier input terminal; 26, a terminal for

a speaker; 27, a semi-fixed variable resistor for input level control of the record player terminal 20, tape deck terminal 21 and tuner terminal 22; 28, a change over switch for direct connection and separation of the preamplifier output terminal 24 and a main amplifier input terminal 25 to be effected in the interior of the casing; and the numeral 29 denotes a plug receptacle for an adapter.

An upper wall 14a of the casing 12 has a conductor guide space located in a plane beneath the level of the upper portion of front panel 15 as clearly shown in FIG. 1, and includes partition means 30 for dividing this area into conductor guide spaces 31.

The conductors which extend from the respective terminals are led through the conductor guide 31 to a speaker, tape recorder, record player or the like. The numeral 45 denotes a lid for covering the conductor guide spaces 31 and 16, and includes an access aperture 45a.

The surfaces extending between the front 15 and a rear panel 48 of the casing 12 and including surfaces 17, 18 and 14a may be considered a shelf portion. In FIG. 3 the shelf portion would include surfaces 117 and 118. The access aperture 45a is complementary in its expanse to the greatest expanse of the recess 16.

The front panel 15 is provided with the following knobs (FIG. 2).

The numeral 32 denotes a main switch; 33, a selector switch for selecting a record player, tape deck or tuner; 34, a mode switch for changing the conditions of use of the right and left speakers (right and left change over, etc.); 35, a volume control; 36, a balance control for right and left volume; 37, a treble control; 38, a bass control; 39, a frequency shift change over switch for shifting the turnover frequencies of tone controls 37, 38; 40, a muting switch for sharply decreasing volume; 41, a loudness switch for compensating the sense of hearing in the case of low volume; 42, a high cut filter; 43, a low cut filter; and the numeral 44 denotes a jack for a head set.

FIG. 3 shows that an amplifier unit casing 112 built in a rack 147 has been a little withdrawn for the purpose of the connection of the wiring to the terminals, inspection of the electric connection, and adjustment by the adjusting attachment. Therefore, it is realized by this figure that those operations can be easily performed.

Further, another mode of embodying the present invention is shown in this figure.

In this case, the surface on which electric parts such as terminals and adjusting attachments are fixed is constituted by an approximately horizontal surface 118. Furthermore, the surface in the rear of said horizontal surface may be constituted by a surface 117 directed obliquely rearwardly and upwardly, and electric parts such as terminals and adjusting attachments may be secured to said inclined surface 117.

In the present invention, since a conductor guide space 31 is provided at a position below the level of the upper portion of the front panel 15, conductors to be connected to the terminals can be led therethrough from the rear end of the unit casing to a position relatively close to the rear side of the front panel 15, and since they can be connected to the terminals at that place, there is an advantage that, by simply removing the lid 45, these conductors can be simply and firmly connected to the terminals from the upstream side of

the casing. Thereafter, the access aperture 45a in lid 45 can allow simple connection checks without removing the lid entirely. The rear extremity of the lid includes dependent stops 45b which straddle the upstanding tongues 45c—45c associated with the rear wall 48.

Therefore, in an amplifier, the troublesome procedure for moving the casing needed where the rear panel thereof is close to a room wall is no longer necessary. Further, even in a case where it is not close to a room wall, it is no longer necessary to peep at the rear panel of the casing from across the upper surface thereof or to turn over the casing with its rear surface up. Further, inspection of the wiring and adjustment of the adjusting attachments provided in the recess 16 are quite easy.

Further, since the terminals and adjusting attachments, which are positioned at the side close to the front panel surface 15, are provided in the recess 16 which is located below the level of the upper surface of the front panel 15, and since the conductors to be connected to the terminals are led from the conductor guide spaces below the level of the upper portion of the front panel 15, the shape of the whole casing is neat and such casing can be constructed in a compact form.

Particularly in a case where the unit casing 112 is built in a rack, as shown in FIG. 3, the terminals, adjusting attachments and wiring certainly do not form any interference because of their low position, and, moreover, when it is desired to perform connection, inspection or adjustment of the parts, it is not necessary to draw the unit casing completely or substantially completely from the rack 147, but it suffices for this purpose if the casing is withdrawn until the recess 16 is accessible whereupon operations such as inspection and connection of wiring can be fully performed.

Furthermore, since the terminals are provided at a position relatively close to the front panel 15, the interior wiring which leads to the preamplifier parts on surface 17 can be made relatively short, thereby decreasing interference with faint input current. Further, since the conductors are led across the depressed area of the main amplifier and are concentrated on the rear portion 14a of the casing it is not necessary for the wiring to pass through the casing interior so that manufacture is facilitated and there is little interference from the main amplifier.

Further, when the recess 16 in which the electric parts are secured is inclined as shown in FIG. 1 or in FIG. 3, the degree of bending of the conductors which lead to the terminals is decreased and damage caused particularly when shield wires are used is alleviated.

Whether the amplifier is positioned in a rack or not, a person can easily look at the inclined surface 17 or 117 by slightly turning his face forwardly, so that operator control and handling is facilitated.

The present invention is also effective for use with a unit casing having only a preamplifier or a main amplifier.

What is claimed is:

1. An amplifier structure adapted for connection to remote units, comprising a casing having a front panel provided with control means, a rear panel, a pair of side panels extending therebetween, a top portion, a cover for the top portion, an elongated depressed area having upstanding walls extending to the top portion, one of said walls being closer to said front panel and including connector means which extend parallel to said front panel, said top portion further including a front area

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lying in one plane and a rear area of greater longitudinal extent lying in another plane beneath said front area and means for supporting the cover at least above the rear area to permit conductors to extend thereacross and to communicate with said connector means in said depressed area.

2. An amplifier structure as claimed in claim 1, wherein said cover includes means defining an opening therein complementary to said depressed area.

3. An amplifier structure as claimed in claim 1, wherein said cover is partially supported by said front area of the top portion.

4. An amplifier structure as claimed in claim 1, wherein the rear panel of said amplifier includes upstanding means preventing longitudinal movement of said cover.

5. An amplifier structure as claimed in claim 1, wherein the cover includes a trailing edge portion, said

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edge portion being provided with dependent means arranged to cooperate with said rear panel.

6. An amplifier structure as claimed in claim 1, wherein the cover is positioned between and confined by the side panels.

7. An amplifier structure as claimed in claim 1, wherein the rear area of the top portion includes parallel spacedly arranged partition means providing guide channels for said conductors extending across the rear area of the top portion.

8. An amplifier structure as claimed in claim 1, wherein a first of the upstanding walls of said depressed area is angularly disposed relative to the other of said walls.

9. An amplifier structure as claimed in claim 1, wherein at least one of said upstanding walls is provided with connector means.

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