April 1, 1969 E. PLESS ETAL 3,436,482

MICROPHONE ASSEMBLY WITH SELF-CONTAINED POWER SUPPLY

Filed April 16, 1965 Sheet 1 of 3

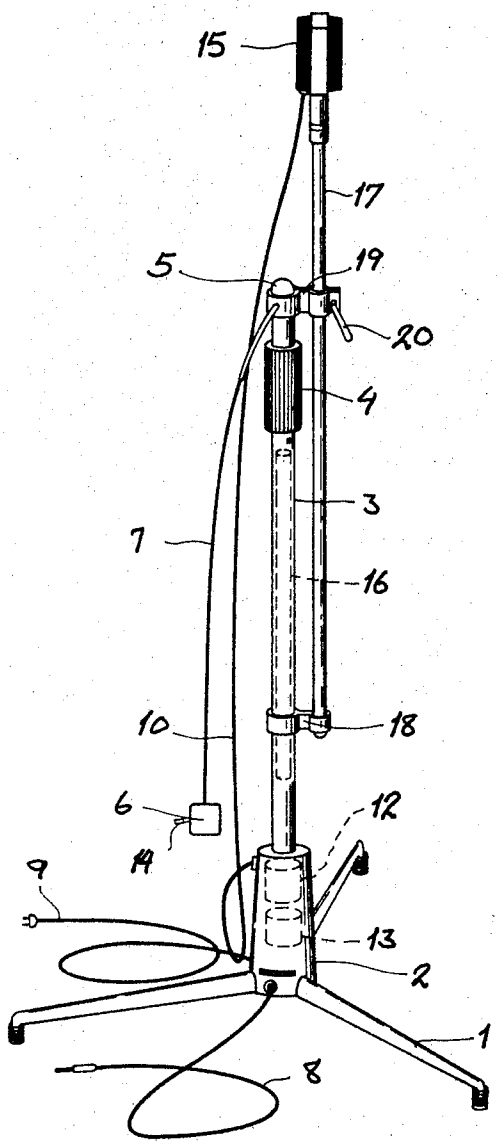


Fig. 1

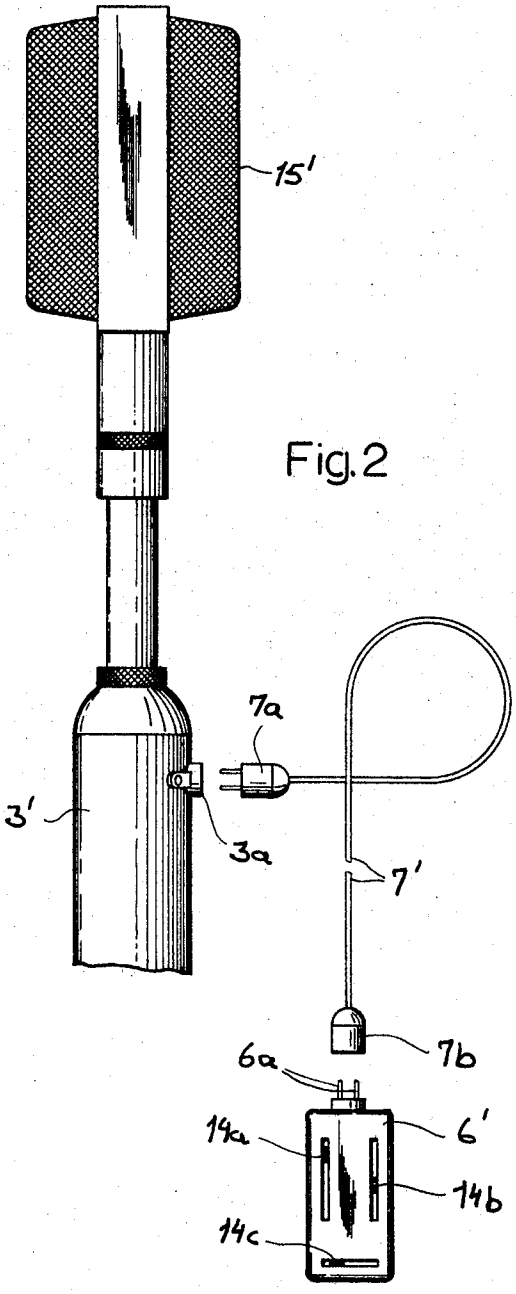


Fig. 2

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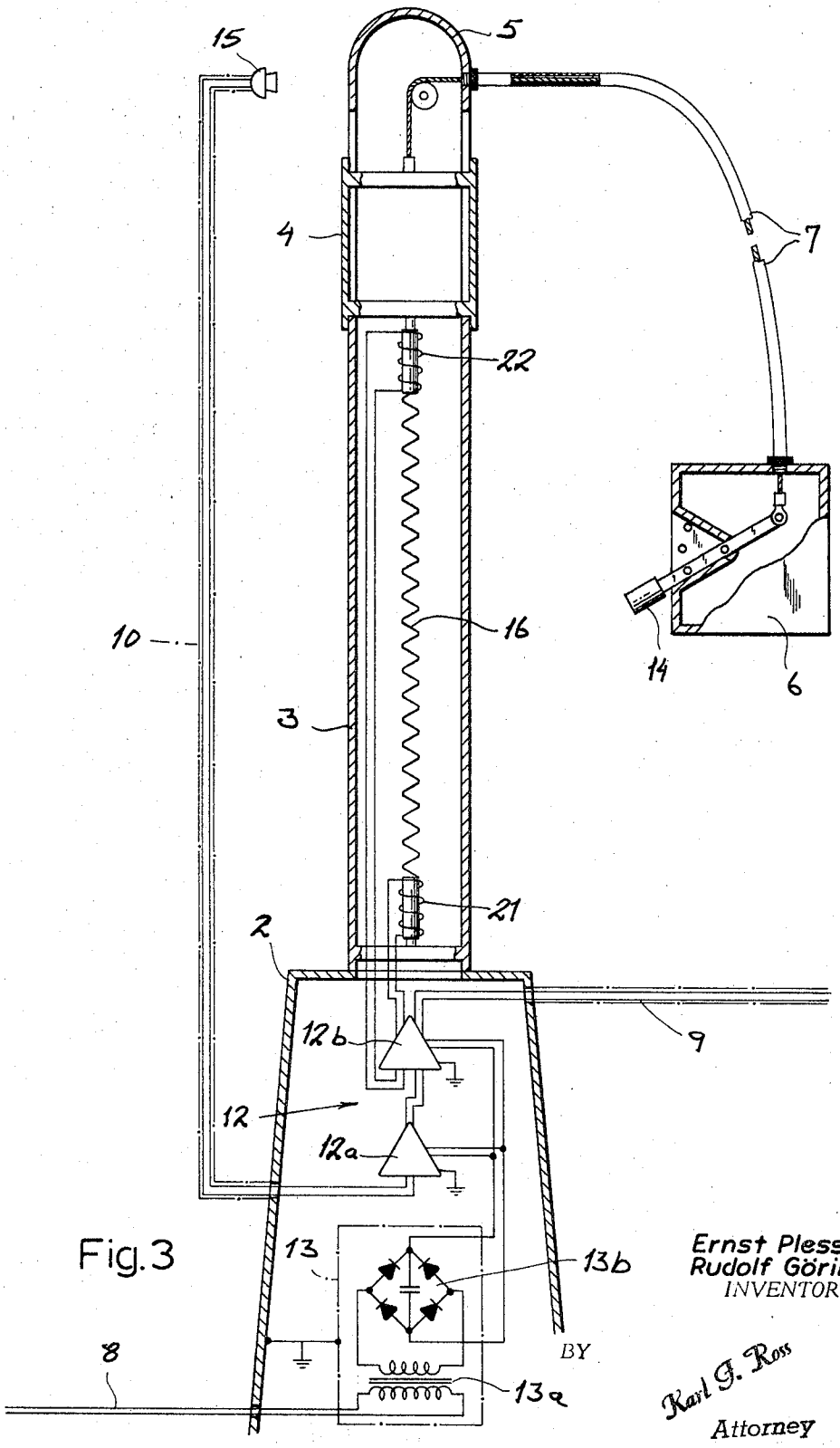


Fig.3

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Filed April 16, 1965 Sheet 3 of 3

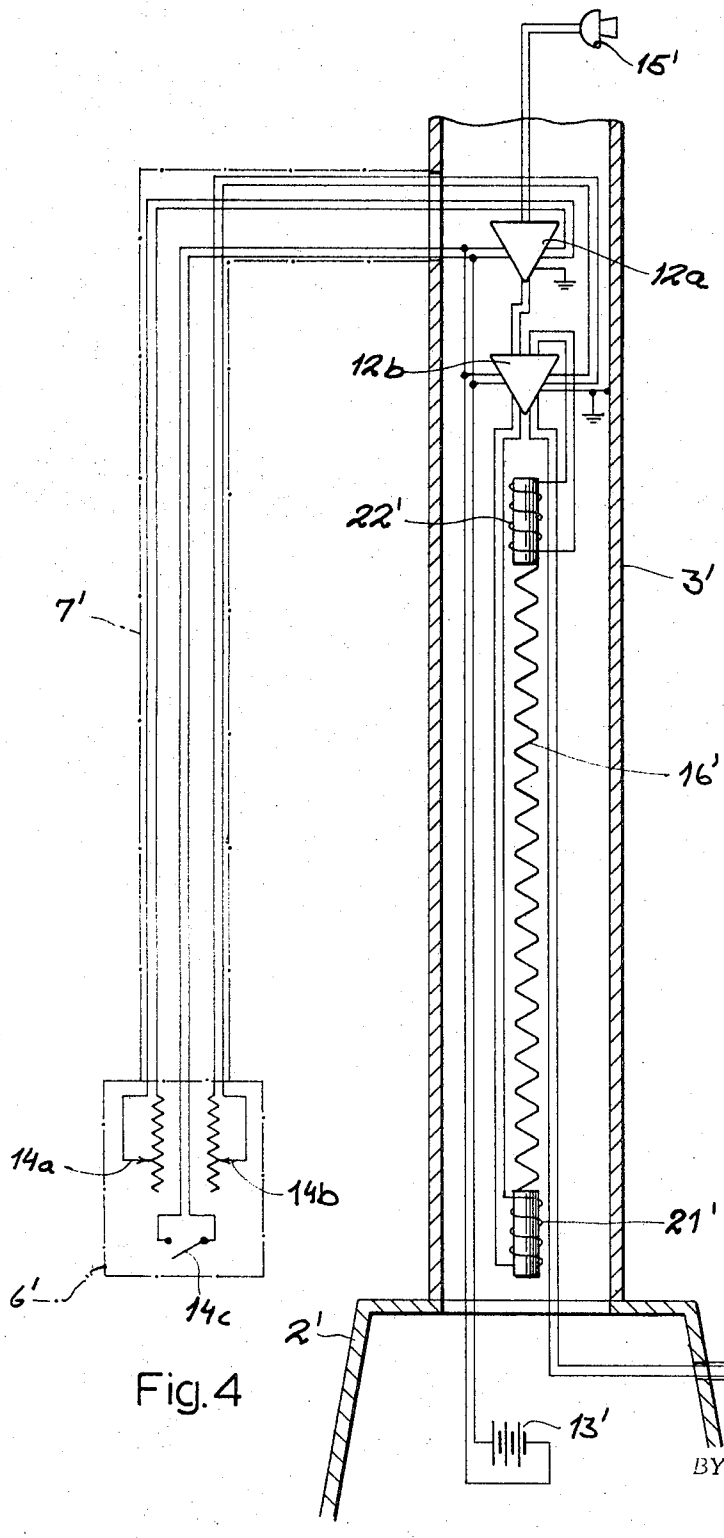


Fig. 4

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3,436,482

MICROPHONE ASSEMBLY WITH SELF-CONTAINED POWER SUPPLY

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Claims priority, application Austria, Apr. 16, 1964, A 3,333/64
Int. Cl. H04m 1/00
U.S. Cl. 179—1 3 Claims

ABSTRACT OF THE DISCLOSURE

A microphone is supported on a stand which includes a tubular column rising from a base, the latter accommodating a power supply (line transformer or battery) connected to an amplifier which is located either in the base or in the column. This column also surrounds a reverberation unit in the form of an elongated coil spring inductively coupled at its end to the input and the output of the amplifier, the resulting feedback being adjustable by varying the separation of the two coupling inductances with the aid of a sleeve slidable along a portion of the column.

Our present invention relates to an electroacoustic transducer comprising at least one microphone together with a stand therefor.

In commonly assigned application Ser. No. 319,833, filed Oct. 29, 1963 by Rudolf Görike, now Patent No. 3,336,441, there has been disclosed a transducer of this type wherein a microphone is supported on a stand which accommodates associated circuit elements in a tubular column thereof and/or in a housing supported on top of that column. In a specific embodiment disclosed in the prior application, a reverberation unit including an elongated coil spring and two electromagnetic inductance coils separated thereby is received within the column itself, the inductance coils being inserted in a feedback circuit of an amplifier within the microphone housing by a plug-and-jack connection releasably joining the housing to the top of the column. The prior application also suggests the positioning of batteries, serving as a power supply for the microphone, in the housing thereof.

The general object of our present invention is to provide an electroacoustic transducer of this type in which the circuit elements associated with the microphone, to the extent that they are supported by the microphone stand, are so located as to afford a more flexible weight distribution whereby the center of gravity of the stand is lowered to improve its stability.

Another object of this invention is to provide means in such transducer for enabling the aforementioned circuit elements, or some of them, to be controlled by an operator (e.g. a speaker facing the microphone) at a location remote from the microphone stand.

According to a feature of our invention, the microphone stand comprises a base and an upright support rising therefrom, the microphone being fixedly or removably positioned at the top of this support while at least part of the associated circuit elements, e.g. the power supply and/or an amplifier, are disposed in the base and are connected to the microphone by a suitable transmission line. Advantagtously, the upright is a tubular column of the type disclosed in the prior application, serving again to accommodate a reverberation unit or echo device of the character described above.

According to another feature of our invention, a manual control device is connected with the stand by way of

a flexible elongated operating element, such as an electric cable or a mechanical linkage, which advantageously is detachably joined to the control device and/or the microphone housing; if the flexible connector is provided with mating terminations at opposite ends, it may be removed when not required so that complementary coupling means on the control device and on the microphone housing may be interfitted for a direct mounting of the device on the housing.

The above and other objects, features and advantages of our invention will become more readily apparent from the following detailed description, reference being made to the accompanying drawing in which:

FIG. 1 is a perspective view of an electroacoustic transducer representing a first embodiment;

FIG. 2 shows a modified transducer representing a second embodiment; and

FIGS. 3 and 4 are diagrammatic representations of the embodiments shown in FIGS. 1 and 2, respectively.

The assembly illustrated in FIG. 1 comprises a microphone **15** supported on a stand which includes a base **2** with legs **1** and a tubular column **3** rising from that base. A rod **17** is vertically positioned alongside column **3** and is slidable relatively thereto with the aid of brackets **18**, **19** to vary the elevation of the microphone **15** carried at the top of this rod; a locking lever **20** serves to hold the rod **17** with its microphone **15** in a selected position.

Column 3 contains an echo device including an elongated reverberation spring; as illustrated in FIG. 3, this device also includes an input coil **21** and an output coil **22** at the bottom and at the top, respectively, of spring **16**. A sleeve **4**, manually slidable along the upper end of column **3**, controls the operation of the units **16**, **21**, **22** which is connected, in a manner well known per se, in a feedback circuit of a second stage **12***b* (FIG. 3) of a two-stage amplifier **12** disposed within base **2**. Also accommodated within that base is a power supply **13** which in this particular instance is shown to comprise a line transformer **13***a* and a rectifier **13***b* (see again FIG. 3). A cable **8**, adapted to be plugged into a wall socket or other outlet carrying alternating current, is connected across the primary winding of transformer **13***a* and extends from the bottom of the base **2**. Another cable **9**, having its conductors connected across the output of amplifier **12**, extends outwardly of base **2** for plug-in connection to a loudspeaker, transmitting station or other suitable load.

Still another flexible cable **10** leads from the microphone **15** to the base **2** where it is connected across the input of the first or preamplifier stage **12***a* (FIG. 3) of amplifier **12**. The lenth of cable **10** is, of course, so chosen as to allow for a maximum elevation of microphone **15**.

At **6** we have shown a manual control device with a handle **14** adapted to be manipulated by an operator standing at some distance from the microphone **15**. Although the device **6** is representative of any remote-control means for adjusting the operating circuit of microphone **15**, e.g. by controlling the amplifier **12** thereof in the manner described hereinafter with reference to FIGS. 3 and 4, we have illustrated in FIGS. 1 and 2 only a connection between this device and the slider **4** which controls the reverberation unit **16**, **21**, **22**. More particularly, the connection shown in FIGS. 1 and 3 is constituted by a mechanical linkage **7** which, in this specific embodiment, is illustrated as a Bowden wire connected between handle **14** and sleeve **4**; this wire enters the column **3** through a cap **5** thereof. Thus, either the speaker himself or some other person holding the device **6** may vary the echo effect without having to stand so close to the column **3** as is necessary for a direct shifting of slider **4**.

FIG. 2 shows a manual control device **6'** connected by way of multiconductor cable **7'** (see also FIG. 4) to the

column 3' of a stand, otherwise similar to that of FIG. 1, which has a microphone 15' directly supported on top of this column. The connection between microphone 15' and column 3' may be releasable and may include a coupling of the plug-an-jack type as disclosed in the above-identified Görike application. Similarly, the cable 7' also forms a detachable linkage between column 3' and control device 6', being provided for this purpose with a male termination 7*a* and a complementary female termination 7*b* respectively mating with jacks 3*a* on column 3' and and terminal pins 6*a* on control device 6'. It will be apparent that the pins 6*a* may be plugged directly into the jacks 3*a* if the cable 7' is omitted. The number of pins and jacks, of course, corresponds to the number of conductors of cable 7' which have been illustrated in FIG. 4.

The individual controls of the device 6' have been shown to include an on-off switch 14*c* and sliders 14*a*, 14*b* of two potentiometers which, as illustrated in FIG. 4, are connected to respective control electrodes of amplifier stages 12*a* and 12*b*. As shown in FIG. 4, these amplifier stages are disposed in the instant embodiment within the column 3' itself, above the echo device 16', 21', 22' which is substantially identical with that of the preceding embodiment. The power supply for the operating circuit of microphone 15', again located in base 2', is here shown as a battery 13', thus eliminating the need for the input cable 8 of FIGS. 1 and 3. The output cable has been illustrated at 9'.

It will thus be apparent that we have disclosed a system in which remote control of the output of an electroacoustic transducer is afforded by means of a mechanical linkage, such as a flexible shaft or a Bowden wire, or an electrical connector, such as a multiconductor cable, extending between a microphone stand and a control device adapted to be held in the hand of a user. Naturally, the same principle can be adapted for the remote control of a plurality of transducers from a single command post or control panel. Also, several microphones could be mounted on one stand, e.g. one at a fixed elevation on the column itself (as shown in FIGS. 2 and 4) and one at an adjustable level on an extension arm thereof (as shown in FIG. 1). These and other modifications, readily apparent to persons skilled in the art, are intended to be embraced within the spirit and scope of our invention as defined in the appended claims.

We claim:

1. An electroacoustic transducer comprising at least one microphone; a stand for said microphone and circuit means received in said stand, said circuit means including a power supply, a reverberation unit and an amplifier for said microphone, said stand including a base and a tubular column rising from said base, said microphone being mounted at the top of said column, at least said power supply being disposed in said base, said reverberation unit including a coil spring extending longitudinally within said column, said emplifier having an input and an output inductively coupled to respective extremities of said spring; and control means movable along said column and mechanically connected with one of said extremities for varying the echo effect of said reverberation unit.

2. A transducer as defined in claim 1, further comprising manual operating means for said control means disposed externally of said stand and a flexible elongated connection between said stand and said operating means.

3. A transducer as defined in claim 1 wherein said amplifier is disposed in said base along with said power supply.

References Cited

UNITED STATES PATENTS

1,887,637	11/1932	Hansen	179—150 XR
2,969,436	1/1961	Kilyk	179—148
3,007,014	10/1961	Bentman	179—148

FOREIGN PATENTS

1,373,546	8/1964	France.
1,167,551	4/1964	Germany.

OTHER REFERENCES

Michels: A Simulated Echo Chamber, Radio & TV News, November 1951.

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U.S. Cl. X.R.

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