Sept. 2, 1930. C. MIEVILLE 1,774,720

APPARATUS FOR RADIO TELEGRAPHY OR TELEPHONY

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FIG. 3

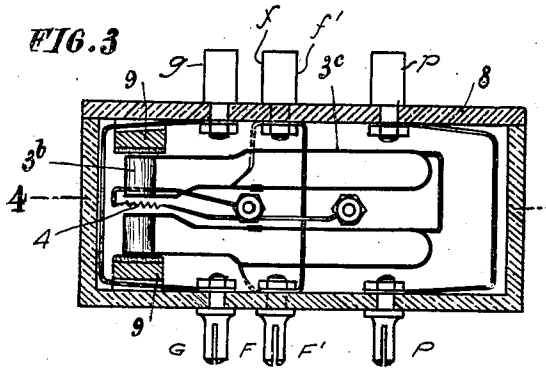


FIG. 1

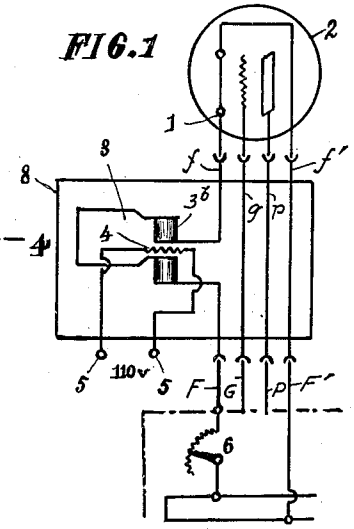


FIG. 4

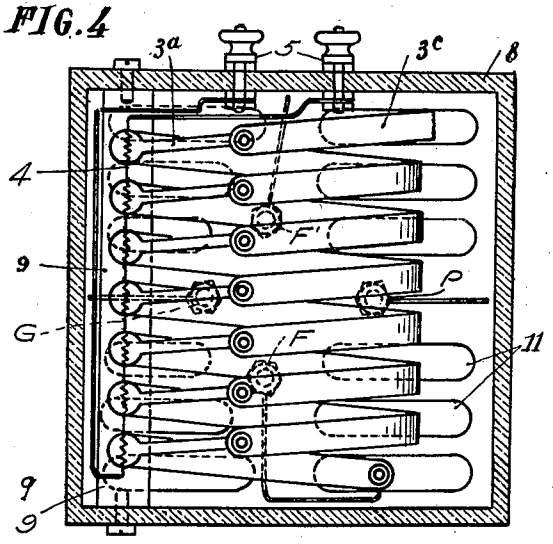
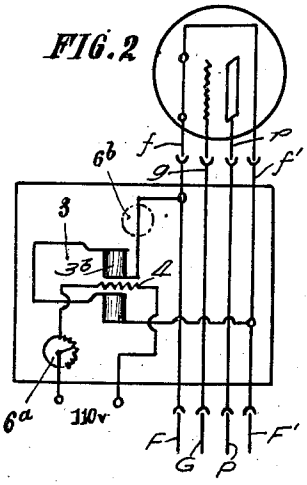


FIG. 2



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FIG. 10

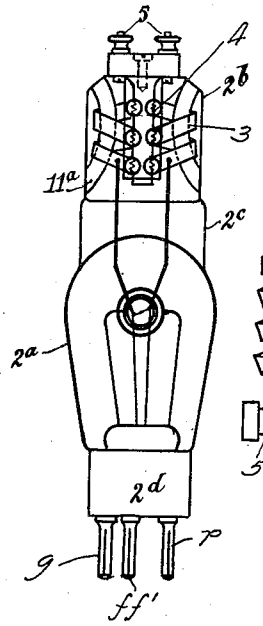


FIG. 9

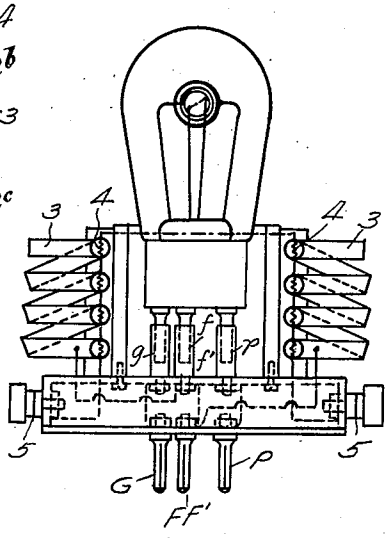
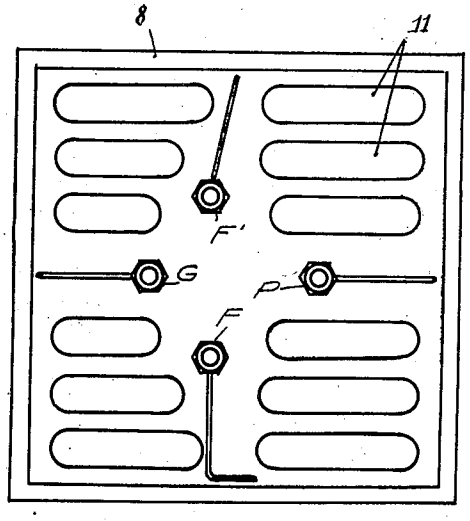


FIG. 5



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FIG. 6

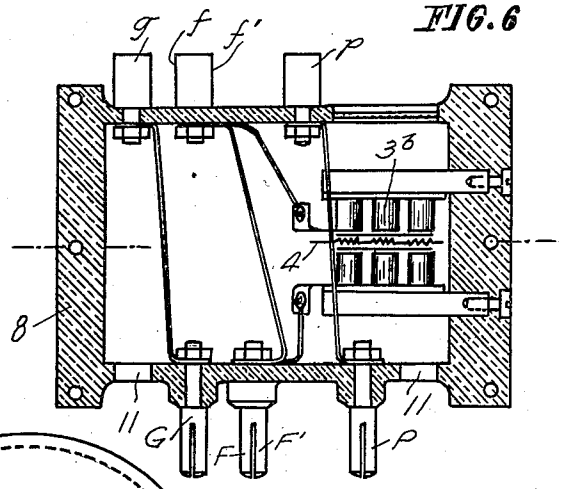


FIG. 8

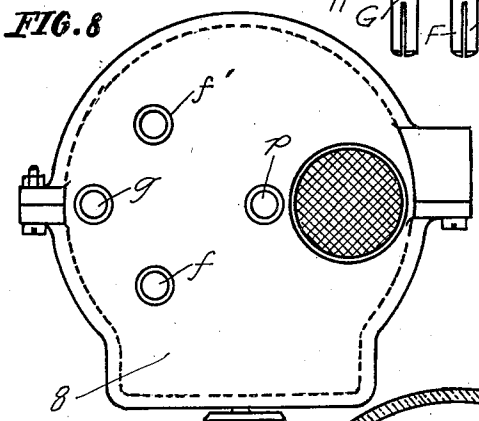
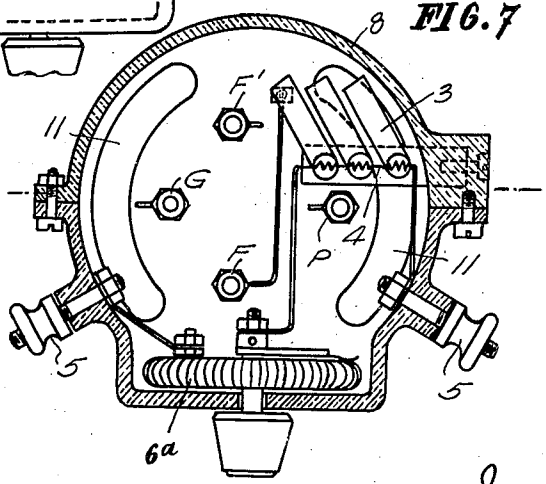


FIG. 7



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UNITED STATES PATENT OFFICE

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APPARATUS FOR RADIO TELEGRAPHY OR TELEPHONY

Application filed June 23, 1927, Serial No. 200,907, and in France July 5, 1926.

The apparatus employed for radio telegraphy or telephony containing a plurality of bulbs are supplied, as is well known, by a storage battery or by primary batteries of the dry or the liquid type, or by a thermo-electric battery. However, this method of supply offers various disadvantages. In the first place, when the battery is discharged or is damaged for any reason, the entire apparatus is put out of use. Furthermore, in the case in which the apparatus is supplied by a thermo-electric battery, whose heating current is furnished by the main electric lines, it is observed that the resulting voltage (i. e. + 4 v. − 4 v.) is, other factors being equal, proportional to the number of watts employed for the heating, and this latter is practically constant, irrespectively of the number of bulbs in the apparatus in service.

To obviate this defect, I have devised a radio apparatus, the subject matter of the invention, whose particular feature consists in the fact that each bulb is supplied by a separate source of current, so that the apparatus comprises individual source of current for each bulb. In this event, it will be observed in particular that if the source of current is a thermo-electric battery, the apparatus will employ exactly the amount of power which is necessary for the number of bulbs in use.

For the construction of the said apparatus adapted for the separate supply of the bulbs, I combine and connect each lamp with its individual source of current, such as a thermo-electric battery. This connection can be made in any suitable manner. For instance, each individual source of current is disposed in a case provided with suitable connecting terminals, and is placed directly between the radio outfit and the bulb. An element of this kind, which is essentially removable, constitutes what may be termed an "adapter". The source of current can also be mounted directly upon the bulb of which it forms a part.

Other suitable arrangements may obviously be employed, and the different sources of current may be placed together in a common case and connected with the bulbs, and a switch is used in order to connect or put in service as many sources of current and hence as many bulbs as may be desired.

This individual supply is not limited to the filament of the bulb, but it may obviously be employed for the plate current.

The following description, with reference to the appended drawings which are given by way of example, shows the manner in which the said invention may be carried into effect.

Fig. 1 is a diagram showing the series connection of an individual source of current.

Fig. 2 shows connections in parallel.

Fig. 3 is a vertical section of an adapter.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a top view of the adapter.

Figs. 6 and 7 are respective vertical and horizontal sections of a modified form of adapter.

Fig. 8 is a top view of the same.

Fig. 9 shows another modification.

Fig. 10 shows a bulb device provided with its individual source of supply, and mounted in combination with the bulb.

As shown in Fig. 1, the current which supplies the filament 1 of each lamp 2 of an outfit is furnished by a separate and distinct source of current for each lamp. This source, in the diagram shown in Fig. 1, consists of a thermo-electric battery 3, whose heating resistance 4 is traversed by the current from a main supply line which is connected at 5, the thermo-electric battery being herein connected in series with the lamp. The adjustment of the devices in the circuit supplying the filament can thus be effected by the rheostat 6 of the outfit 7, which latter is known per se.

At *f g p f'* are the usual connecting pins or plugs by which the lamp may be directly connected with the case 8 containing the separate source of current. In like manner at F G P F' are shown the connecting plugs of the said case by which it may be adapted to the outfit.

In the diagram shown in Fig. 2, the source of current or thermo-electric battery 3 is connected in parallel with the lamp filament; in this event it is necessary to provide a regulating rheostat either at 6^a or at 6^b.

To realize this system of individual sup-

ply of the lamps, I may employ separate elements or adapters, as shown by way of example in Figs. 3 and 5, in which the corresponding numerals indicated in Fig. 1 are employed, and the system is not provided with a regulating rheostat.

The thermo-electric battery may be of any suitable kind, for instance of the kind described in the U. S. Patent application Serial No. 105,025, filed April 27, 1926, entitled: Improvements in thermo-electric couples, each element of the battery consisting of a plate of constantin metal 3^a, a small stick of a thermo-electric alloy 3^b, and a cooling strip of copper 3^c, the sticks being placed between the bars 9 and held by suitable means.

It is advisable to provide in the case 8 containing the source of current and the connections, suitable means for aeration or ventilation which consists for example of the slots or apertures 11 which are formed on the upper and lower walls of the case 8. It will be observed that the apparatus thus constructed, which is termed "adapter," forms an independent element which is provided with its pins or plugs and which may be simply mounted upon the outfit in the place of each lamp, the said lamp being in turn directly connected with the adapter, and each post will comprise as many adapters as lamps.

The form of construction shown in Figs. 6 to 8 corresponds to the diagram Fig. 2, i. e. to a parallel arrangement. I have also placed upon these figures the reference numerals of the diagram.

It will be noted, according to what precedes, that each adapter may contain in the interior its source of current, or thermo-electric battery, but it is obvious that I may dispose the said battery at the exterior of the case 8. This arrangement is shown in Fig. 9, in which the said case contains only the connections and in which the elements of the thermo-electric battery 3 are disposed in a circular row, so as to leave a free space in the middle in which the three-electrode bulb is placed.

Finally, I may associate and combine with each lamp its source of current, so as to form a complete whole, as shown for instance in Fig. 10. In this case the bulb has a special shape and comprises two chambers 2^a and 2^b; the first chamber contains the filament-plate-grid device and the second has in the interior the source of current or thermo-electric battery.

The chamber 2^b is connected with the glass of the bulb by the base 2^c, similar to the lamp base 2^d, the connections being preferably arranged according to the diagram Fig. 2, i. e. in parallel; the current from the electric line enters at 5.

The cooling of the chamber containing the source of current may be effected in any suitable manner, for instance by means of the aeration conduits 11^a.

It is obvious that the invention is not limited to the device herein described, and that it is susceptible of all suitable modifications without departing from the principle of the invention.

What I claim is:—

1. A thermo-electric adapter for radio tubes comprising, in combination, a casing, a thermo-electric pile in said casing, a plurality of means carried by one face of said casing arranged to fit in a standard tube socket, a plurality of means on the opposite face of said casing arranged to receive the prongs of a standard tube, means for electrically connecting one of each of said first and second mentioned means in series with the output side of said pile and means for connecting the remainder of said first and second means together electrically.

2. A thermo-electric adapter for radio tubes comprising, in combination, a casing, a thermo-electric pile in said casing, a plurality of contact prongs carried by one face of said casing arranged to fit in a standard tube socket, a plurality of means on the opposite face of said casing arranged to receive the prongs of a standard tube, means for electrically connecting one of said contact prongs and one of said means in series with the output side of said pile and means for connecting the remainder of said contact prongs with the remainder of said first mentioned means electrically.

3. A thermo-electric adapter for radio tubes comprising, in combination, a casing, a thermo-electric pile in said casing, a plurality of means carried by one face of said casing arranged to fit in a standard tube socket, a plurality of metallic tubular elements on the opposite face of said casing arranged to receive the prongs of a standard tube, means for electrically connecting one of said first mentioned means and one of said tubular elements in series with the output side of said pile, and means for connecting the remainder of said first mentioned means with the remainder of said tubular elements.

4. A thermo-electric adapter for radio tubes comprising in combination, a casing, a thermo-electric pile in said casing, a plurality of prongs carried by one face of said casing arranged to fit in a standard tube socket, a plurality of metallic tubular members on the opposite face of said casing aranged to receive the prongs of a standard tube, means for electrically connecting one of said prongs and one of said tubular members in series with the output side of said pile and means for connecting the remainder of said prongs and tubular members together electrically.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

CHARLES MIEVILLE.