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G. LIEBMANN
COUPLING ELEMENT

2,064,841

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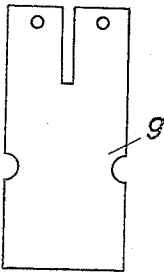


FIG. 2

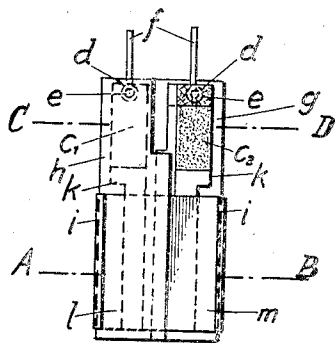


FIG. 1

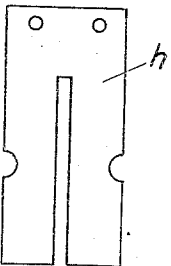


FIG. 3

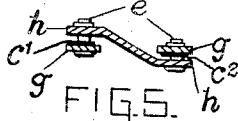


FIG. 5

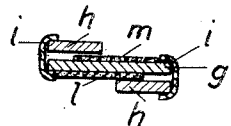


FIG. 4

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UNITED STATES PATENT OFFICE

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COUPLING ELEMENT

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3 Claims. (Cl. 250—16)

The present invention relates to a coupling element of the kind used in radio receivers and the like and which comprises for example two resistances and one condenser.

Each of said resistances forming part of the coupling element according to the invention consists of two thin insulating plates having a preferably highly resistive coating arranged between them.

When using resistances of the known types as parts of a coupling element, special connecting leads have been necessary for connecting the resistances with the armatures of the condenser.

These leads may be rendered superfluous when using resistances according to the invention.

For this purpose the resistive coatings are connected with the condenser armatures in direct fashion. This is accomplished by the following arrangement: The condenser armatures, which are either sprayed on or produced by separation of a metallic deposit from a solution, and the resistive coatings are mounted on a common support. This support is the dielectric of the condenser. The arrangement of the armatures is, in the known manner, of such kind that at oppositely disposed edges there are provided lead ledges with which the armatures are connected. At the remaining edges the armatures do not extend as far as the edge of the plate. A resistive coating is sprayed on to each side of the support, which coating extends as far as the armatures. A common cover plate covers both the resistive coatings as well as a part of the armatures. It is naturally also possible to employ a separate cover sheet on each side of the support. When employing a common cover sheet the support and cover plates are slotted and fitted one within the other. The same are held together by the lead ledges of the condenser, which ledges engage over the edges of the plates either with their entire length or with special parts provided for this purpose, and the rivets of the resistances. Owing to the fact that the armatures of the condenser are also covered in part by the cover plate there are avoided to an increased extent surface leakage currents, which give rise to difficulties particularly in the case of multi-stage valves, the cathodes of which are produced according to the metal vapour process. For connection of the resistive coatings with the condenser armatures, the latter are furnished in their form with connecting pieces, which are adapted to the width of the resistive layers. The finished coupling element is heated in vacuum or in a protective gas (for example nitrogen) to

500–600° C. The said connecting pieces have the advantage that a widening of the armatures close to the effective condenser faces is avoided. It may also be mentioned that likewise in the case of coupling elements capacity and resistance may be varied by cutting or scraping away the coating.

The figures illustrate a possible form of embodiment of the invention.

Fig. 1 is the complete view of a coupling element,

Figs. 2 and 3 the form of the supporting and cover plates,

Fig. 4 the cross-section A—B in Fig. 1, and

Fig. 5 the cross-section C—D in Fig. 1.

In the coupling element there are situated on the plate *g* the armatures *l* and *m* which, by means of connecting pieces *k*, are linked up with the resistive coatings *c*₁ and *c*₂. The cover plate *h* is connected with the supporting plate *g* by the condenser connecting ledges *i* and the rivets *e*, which press the ends of the wires *f* against the graphite coatings *d* being in contact with the resistive coatings *c*₁ and *c*₂.

The clamps *i*, *i* and the rivets *e* can be used as means of connecting the device in a circuit.

I claim:

1. A coupling element comprising one thin insulating plate, two metallic coatings arranged on the opposite sides of one part of said plate, two highly resistive coatings arranged on the other part of said plate, a further thin plate of insulating material the surface of which is at least equal to the surface of said resistive coatings, means to press the further said plate against the first said plate to cover said resistance-coatings in air-tight fashion, and means to connect each of said metallic coatings with one of said resistance-coatings.

2. A coupling element comprising a thin insulating plate furnished with a slot, two highly resistive coatings each of which is arranged at one side of said slot at opposite sides of said plates, two metallic coatings arranged on the opposite sides of the non-slotted part of said plate, each of said metallic coatings being connected with one of said resistance-coatings, a further thin insulating plate furnished with a slot, said plates being fitted one within the other by means of said slots to cover said resistance-coatings in air-tight fashion.

3. A coupling element comprising a thin insulating plate furnished with a slot, two highly resistive coatings each of which is arranged at one side of said slot at opposite sides of said

plates, two metallic coatings arranged on the opposite sides of the non-slotted part of said plate, each of said metallic coatings being connected with one of said resistance-coatings, a further thin insulating plate furnished with a slot, said plates being fitted one within the other by means of said slots to cover said resistance

coatings in air-tight fashion, and clamping means for pressing said plates against each other, said clamping means being connected with said elements and being adapted to be connected with a suitable circuit.

5

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