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M. SCHRUMPF

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HIGH FREQUENCY APPARATUS

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FIG.1.

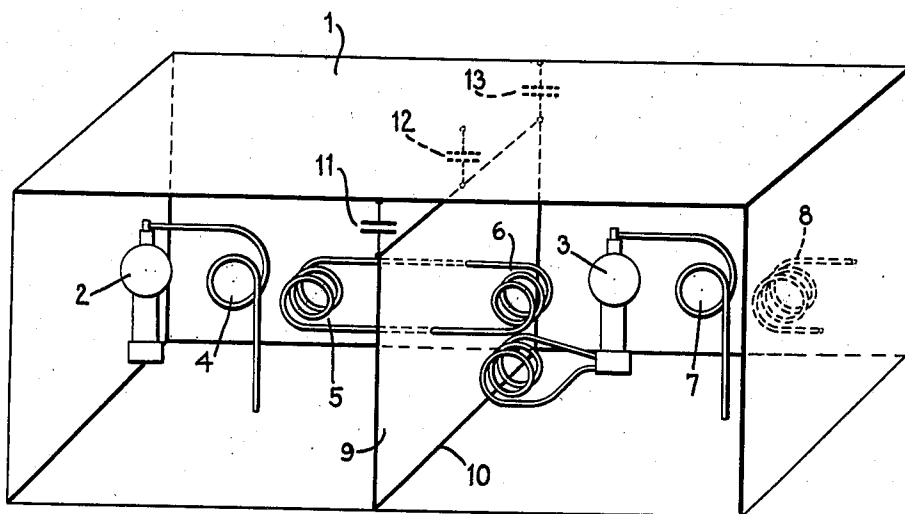
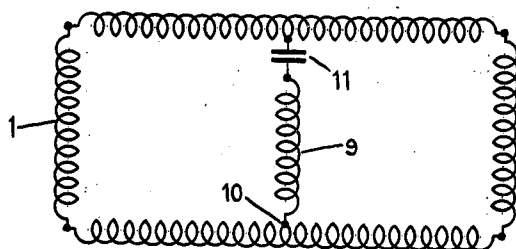


FIG.2.



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HIGH FREQUENCY APPARATUS

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1 Claim. (Cl. 250—16)

The invention relates to high frequency apparatus, especially transmitters and receivers. More particularly the invention is concerned with apparatus operating on very short waves, namely waves of the order of magnitude of a few meters or still shorter.

In connection with apparatus of this kind it is customary to dispose the entire arrangement, which comprises amplifying stages or oscillator stages, in a metallic screening box and to provide metallic screening walls between these stages. This however in the case of the said short waves entails the drawback that the walls of the screening box and these intermediate screening walls constitute circuits in which the inductance of such intermediate walls acts as a coupling member between the respective circuits. If in the screening case of a stage the oscillatory circuit voltages are induced, then the induced voltage will be effective in the other screening cases through the inductance of the intermediate screening walls. The individual stages are therefore not electrically independent of each other but are coupled to one another.

In order to overcome this disadvantage the invention proposes to avoid a direct electric interconnection of these screening walls and the screening box by interposing capacities therebetween. These capacities and the inductance of the intermediate screening walls constitute a series circuit the impedance of which is variable by calculating the capacities accordingly and may thus be given a desired value. For instance, the series circuit if tuned to a predetermined frequency forms a short circuit, mutual coupling between the individual stages then not being possible.

In the accompanying drawing

Fig. 1 is a diagrammatic and partially perspective view of one embodiment of the invention, while Fig. 2 shows a sectional diagram that serves to explain the function of this embodiment.

A metallic screening box 1, Fig. 1, contains two

tube stages 2, 3. The circuit arrangement of these stages is not completely represented, being immaterial to the invention. Only the oscillatory circuit inductances or coupling inductances 4, 5, 6, 7, 8 are diagrammatically indicated. In order to prevent the stages 2, 3 from influencing one another a metallic wall 9 is disposed between them. This wall is along its edge 10 electrically connected with box 1 while the opposite edge thereof is joined thereto through capacities 11, 12, 13.

In Fig. 2 the walls of screening box 1 and the wall 9 are represented as inductances. This wall is at 10 electrically connected with one wall of the box 1, while the opposite or upper edge thereof is through condenser 11 joined to the upper wall of box 1. If condenser 11 were not provided then the two cases into which box 1 is subdivided by wall 9 would be magnetically coupled to each other by the inductance of wall 9, whereby voltages would be able to pass from one circuit into the other. By varying condenser 11 such undesired coupling may be altered, assuming the zero value in the case of resonance, for instance.

The invention is applicable to apparatus comprising any number of tube stages and accordingly any number of screening walls of the kind here represented by wall 9.

The novel arrangement is of special advantage if employed in high frequency transmitters, is however intended also for use in connection with receivers.

What is claimed is:

High frequency apparatus comprising a metallic screening box, a number of tube stages contained in said box, said stages having a predetermined operating frequency, metallic screening walls between said stages and capacities interconnecting said screening box and said screening walls, each of said walls and its associated capacity together forming a series resonant circuit at the predetermined operating frequency.

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