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E. GOSSEL ET AL
ULTRA SHORT WAVE DEVICE
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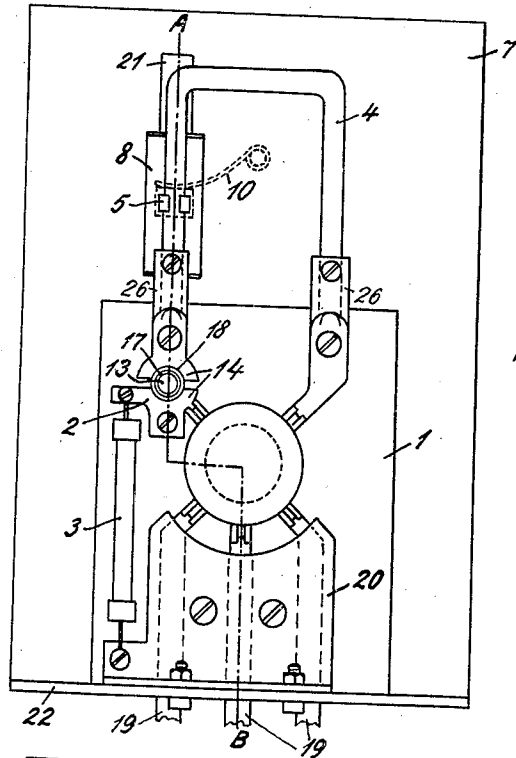


Fig. 1

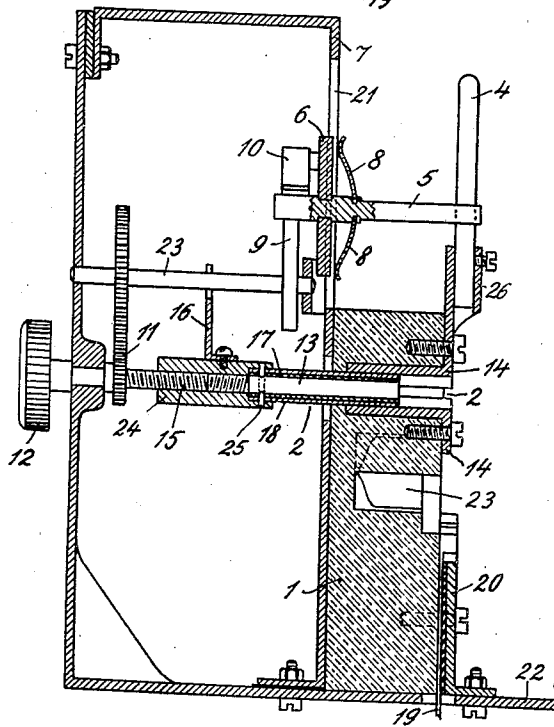


Fig. 2

Inventors:
Erich Gossel
and
Werner Puhlmann
22 by R. C. Hefner
Attorney

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ULTRA SHORT WAVE DEVICE

Erich Gossel and Werner Puhlmann, Berlin, Germany, assignors to C. Lorenz Aktiengesellschaft, Berlin-Tempelhof, Germany, a company

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2 Claims. (Cl. 250—16)

The invention is concerned with the construction of ultra short wave oscillatory vacuum tube circuit devices such as receivers and oscillation generators. An object of the invention is to provide for a particularly convenient arrangement of the individual parts thereof. One embodiment of the invention is described hereafter by way of example, reference being had to the accompanying drawing in which

Fig. 1 is an elevation of such embodiment while Fig. 2 shows a section on line A—B of Fig. 1.

The device described by way of example is of the kind having the oscillatory circuit located between anode and grid. However, it is to be understood that the principles of the invention are suitable to be adopted with circuit arrangements of any type available in this regard.

In a block 1, made of a low-loss insulating material, an electron tube 23 of the kind designated as acorn tube is mounted. Block 1 also carries the other operative means, fastened to it, such as a tuning condenser 2, a grid leak resistance 3 and an U-shaped wire or metal bow 4 that serves as a self-inductance. This block is preferably rectangular, or nearly so, and is mounted with one end face on a base plate 22. The anode current is supplied over a contact member 5 adapted to slide on bow 4, that is to say, along one limb thereof. Contact member 5 is fastened in a slide 6 which is guided in a slot 21 provided in a sheet metal plate or wall 7. Slide 6 is held in engagement with slot 21 by a spring 8 which is in engagement with member 5 while resting against plate 7, the anode current supply means 5, 6, 8 thus being in electrical contact with plate 7 which is of a comparatively large area, as will be seen especially in Fig. 1. In this way the anode current supply means is stabilized in potential by the capacity to ground of the large area thus preventing this means from incurring electric oscillations and thereby taking energy from the oscillatory circuit itself. Bow 4 is variable in its effective length, being mounted in sockets 26 in which it can be displaced. One of these sockets 26 is integral with one of the condenser electrodes 14. By adjusting bow 4 in its sockets 26 the initial point of the calibration curve can be adjusted on replacing the tube 23. It is necessary to displace the anode supply point, that is, the point in which member 5 contacts with bow 4, for the reason that the neutral point changes in accordance with frequency variations. It has been usual to adjust the neutral point manually. With devices as provided by the invention this

point is adjusted or displaced automatically in accordance with variations of the capacity of condenser 2. To such end the assembly 5, 6, 8 is moved by a cam disc 9 mounted on a shaft 23 geared to a tuning knob 12 by toothed wheels 11, and this knob is connected also with the dielectric 13 of the condenser 2 by a screw 15 and an internally threaded sleeve 24 in engagement with screw 15 and fixed to the dielectric 13 by a pin 25, for instance. A spring 10 acts to press the member 5 against disc 9. The means for moving the assembly 5, 6, 8 has been made in the shape of a cam disc or curve disc because the displacement of the neutral point need not occur in linear relation with variations of the capacity of condenser 2. In order to avoid a movable current supply means this condenser is constructed with its plates or electrodes fixed while the dielectric 13 is displaceable. These plates are constituted by the electrodes 14 which are of a somewhat semicircular cross-sectional area and are arranged to encompass the dielectric 13 made in the shape of a cylinder. Such cylinder or core 13 is covered with a thin metal layer 17 and this is coated with an insulating layer 18 which is very thin and has an extremely high dielectric constant. This layer 18 is of an insulating material which is highly wear-resistant from a mechanical standpoint and which has very low dielectric losses from an electrical standpoint. Condenser 2 thus comprises the parts 13, 17, 18. Layer 17 serves to very greatly shorten the path of the electrostatic field and thereby greatly to increase the capacity of the condenser. By turning the knob 12 the structure 13, 17, 18 is displaced longitudinally, that is, along the axis of the parts 14, thus varying the capacity of the condenser 2.

By constructing the condenser suitably a linear frequency variation is obtainable, that is to say, it is possible to attain a constant rate of change of frequency with respect to rotation of knob 12 within the frequency range of the oscillatory circuit. This result may be attained by a non-linear capacity variation of the condenser, such capacity variation being caused for instance, by varying the width of the slots by which the electrodes 14 are spaced from each other, that is to say, by varying the effective surface of the electrodes 14.

Conductors 19 are the leads to the cathode and heating device of tube 23. These leads are short-circuited to ground with respect to high frequencies by making them in the shape of tapes constituting the individual plates or elec-

trodes of a multiple condenser whose common plate 20 is connected to earth. Plate 25 also serves as an angle bracket by which block 1 and plate 22 are fastened to each other.

5 What is claimed is:

1. An ultra short wave radio set including a block of insulation, a recess in said block to receive an electron oscillator tube, contact members for the tube fastened directly to said block, a
10 tuning condenser having a pair of electrodes rigidly fastened to said block, one of said electrodes being directly connected with that one of said contact members which is positioned to engage the grid of said tube, a tuning inductance comprising a bow-shaped metal member and a corresponding pair of metal supports telescopically fitting the ends of said metal member, one of said supports being directly connected to that one of said contact members adapted to engage the
15 plate of said tube and the other of said supports being directly connected to the other one of said condenser electrodes, means to apply anode current including a contact disposed in direct adjustable sliding connection with one of the arms
20 of said bow-shaped inductance, operating means for adjusting said sliding contact along said bow-shaped inductance, further operating means for adjusting the capacity of said condenser, and an adjusting shaft common to both said operating
25 means.
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2. An ultra short wave radio set including a block of insulation, a recess in said block to receive an electron oscillator tube, contact members for the tube fastened directly to said block, a tuning condenser having a pair of electrodes rigidly fastened to said block, one of said electrodes being directly connected with that one of said contact members which is positioned to engage the grid of said tube, a tuning inductance comprising a bow-shaped metal member and a corresponding pair of metal supports telescopically fitting the ends of said metal member, one of said supports being directly connected to that one of said contact members adapted to engage the plate of said tube and the other of said supports being directly connected to the other one of said condenser electrodes, means to apply anode current including a contact disposed in direct adjustable sliding connection with one of the arms of said bow-shaped inductance, operating means including a cam and a spring-pressed follower connected to said sliding contact for adjusting said sliding contact along said bow-shaped inductance, further operating means for adjusting the capacity of said condenser, and an operating shaft common to both said operating means.

ERICH GOSSEL.
WERNER PUHLMANN. 30