

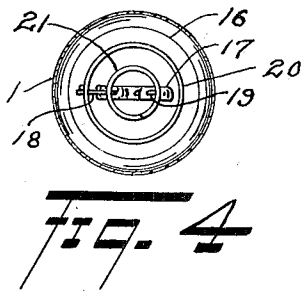
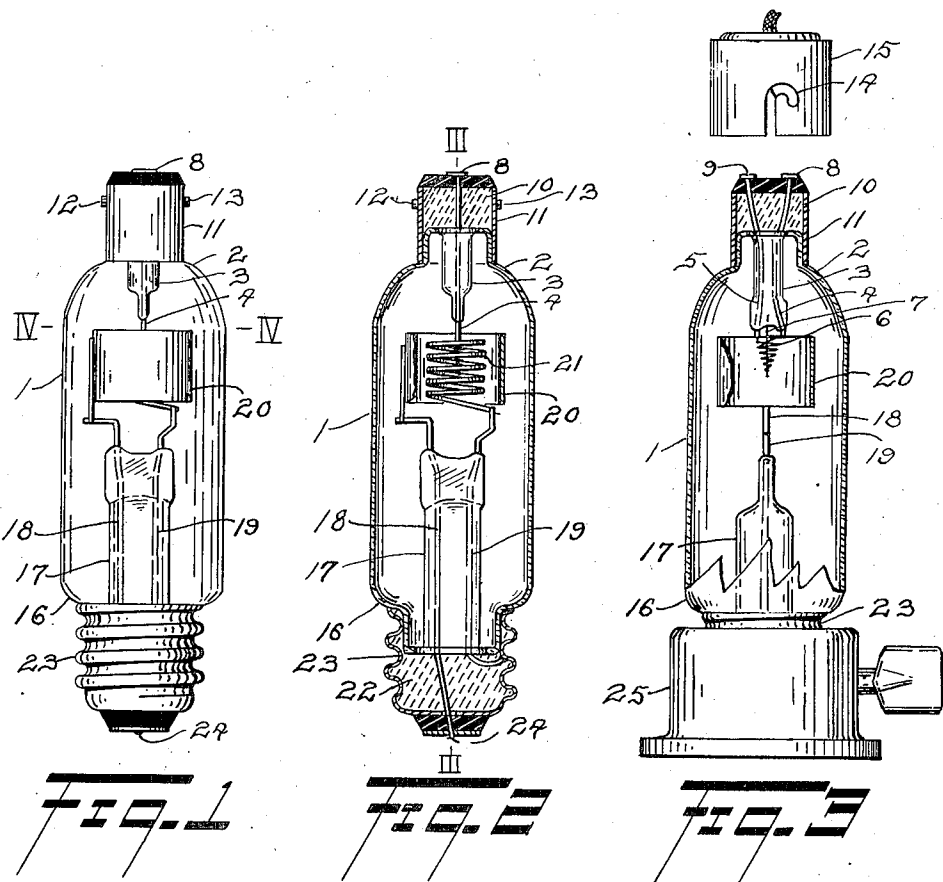
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ELECTRON TUBE

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# UNITED STATES PATENT OFFICE.

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## ELECTRON TUBE.

Application filed March 21, 1922. Serial No. 545,401.

This invention relates to electrical apparatus of the electron tube type.

This invention has utility when incorporated in wave detection or amplifying apparatus as used in radio signaling, more especially in so-called wireless telephony. This invention is particularly useful in insuring against crossing of circuits in radio hook-ups leading into the electron tubes thus making more easy proper wiring and so in conserving expensive tubes from burning out.

Referring to the drawings:—

Fig. 1 is a side elevation of an embodiment of the invention in an electron tube;

Fig. 2 is a medial longitudinal section of the tube of Fig. 1 and its terminal fittings;

Fig. 3 is a section on the line III—III

Fig. 2, with a showing of the socket fittings for the plug terminals; and

Fig. 4 is a section on the line IV—IV, Fig. 1.

In an embodiment of the device as shown a general housing impervious to air and translucent is shown as an outer cylindrical glass tube 1 having a reduced end 2 carrying an inward projection 3 as a filament support and way for lead-in wires 4, 5, for element 6 which may be given rigidity by carrying stem 7 from the support 3. The wires 4, 5, coming out through the tubular support 3 may extend to terminals 8, 9, when a double terminal plug fitting is used. This plug fitting is completed as a mounting for anchoring the terminals 8, 9, by having plastic filler 10 housed about the reduced end 2, to anchor therewith cylindrical plug section 11 having projections 12, 13, to coact with slots 14 in bayonet joint socket member 15.

Remote reduced end 16 opposite the reduced end 2 of the housing 1 carries a tubular support 17 directed toward the support 3 which may house lead-in wires 18, 19. Lead-in wire 18 is shown as having fixed therewith cylindrical sheet metal element 20 which may be of German silver and constitute the plate element of this electron tube. This plate element 20 is preferably concentrically disposed as to the heating element 6.

The lead-in wire 19 carries a metal helix 21 say of piano wire or preferably "Plato" composition material, which coil 21 may be termed the grid element and is preferably within the plate 20 about the filament 6. Accordingly, the heating element 6 is disposed concentric of and within the coil 21, which coil 21 is surrounded by the plate or

drum 20. The support 17 is disposed at 90° to the support 3, thereby providing maximum clearance between the lead-in wires and the elements supported. The reduced end 16 of the housing 1 has cemented thereto by insulation composition 22 a screw plug 23 to which the lead-in line 19 is connected while this composition 22 also supports concentric terminal 24 to which the line 18 extends. Socket 25 coacting with the threaded plug 23 may serve as a support for the housing 1 of the complete electron tube. The socket 25 is shown as of a type having a key switch, which key switch may be used in cutting out such one of the battery circuits as extends to such plug end of the tube if such be desired.

The structure as herein disclosed is one compact in form, simple and substantial in its arrangement, having elements permitting usual refill operations as conducted in incandescent lamp structures. It has further advantages in the guiding character of its plug fittings, the bayonet joint being used for low voltage current, while the screw plug being used for the higher voltage. Furthermore, with the bayonet socket connected to the low voltage current supply, and the screw socket connected to the higher voltage current supply, there can be no assembly of this electron tube as to the current supplies which may be disastrous to the elements of the tube. This simple expedient is of great practical value, especially with amateurs.

What is claimed and it is desired to secure by United States Letters Patent:—

1. An electron tube embodying a heating element provided with a pair of terminals, a bayonet joint plug to which the heating element terminals each extend, a grid element provided with a terminal, a plate element provided with a terminal, and a screw plug to which the grid and plate terminals extend.

2. An electron tube embodying a heating element provided with a pair of terminals, a first fitting to which the heating element terminals each extend, a grid element provided with a terminal, a plate element provided with a terminal, and a second fitting non-interchangeable with said first fitting, and to which second fitting the grid and plate terminals extend.

In witness whereof I affix my signature.

HENRY M. PINGEN.