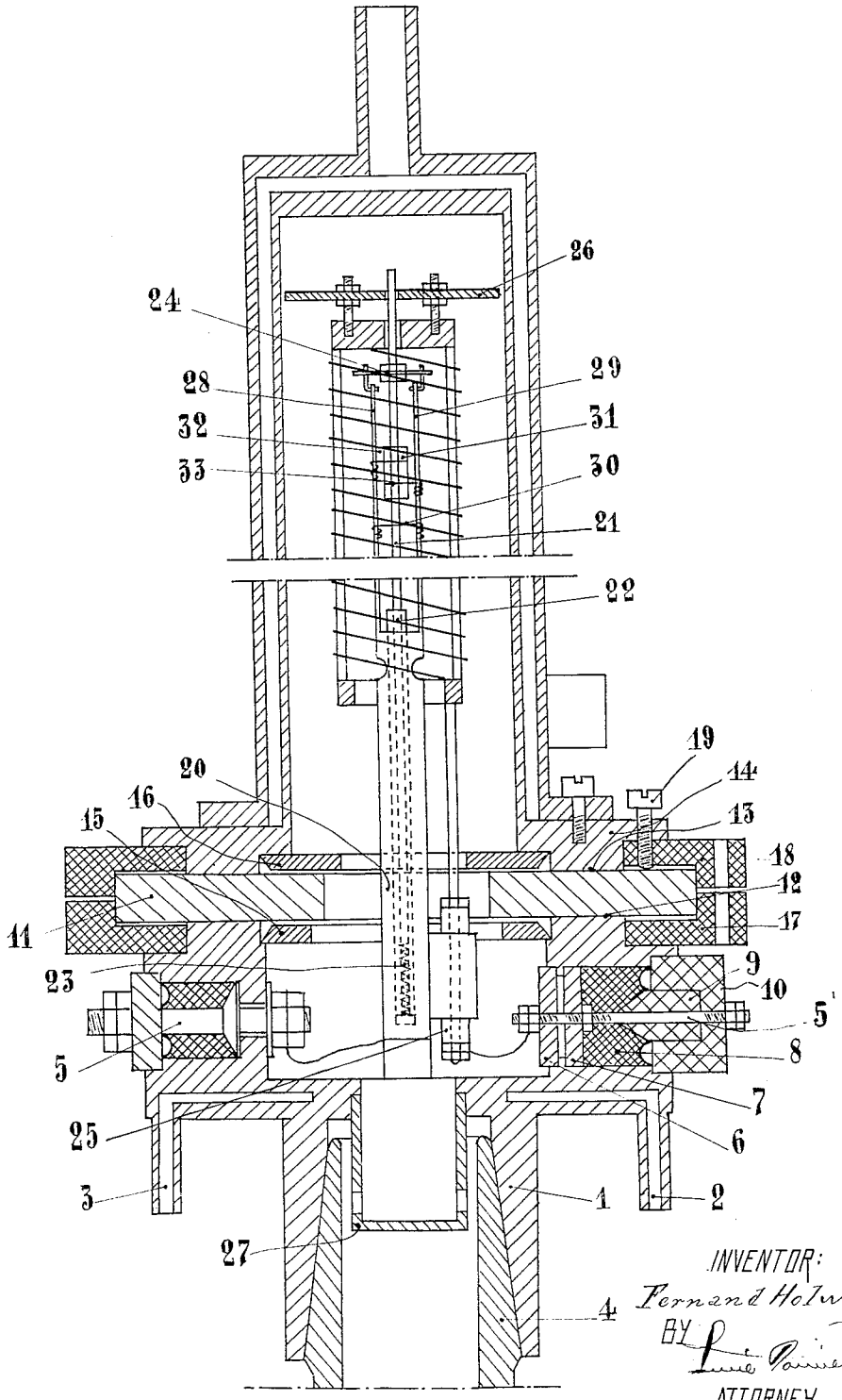
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THERMIONIC APPARATUS

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THERMIONIC APPARATUS.

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The object of my invention is to provide a thermionic apparatus or device which may consist of a take down diode or triode constantly working in connection with a pump through a wide and short channel connecting the two systems.

In order to make my invention more clearly understood I have illustrated, as an example, an embodiment thereof in and by a drawing appended hereto which shows a vertical section through the middle of a triode designed according to my invention.

A broad metal part 1 cooled by circulation of water through a passage 2, 3 and fitting over a ground cone on the suction tube 4 of the pump maintaining a vacuum in the lamp, carries two insulated current conductors or terminals 5, 5′; the terminal 5, which is of large section and poorly insulated, being connected with one of the ends of the filament whereof the other end is connected with the body of part 5; the other terminal 5′, of small section but particularly well insulated being connected with the grid. Insulation of this terminal 5′ may be obtained by means, for instance, of two glass, quartz, porcelain or such like disks 6 and 7, tightened by nuts carried by the terminal 5′, tightness being ensured by means of a plug of fusible plastic material, picein (pitch stuff), Golaz putty etc. cast into cavity 8. An insulating part 9, made for instance, of ebonite and rigidly mounted on terminal 5′, may project into the said insulating plug and may be covered with an insulating cap or hood 10.

This method of high tension passage is given merely as an example and may be replaced by any device calculated to ensure both tightness and good insulation, (thick ground glass or quartz for instance). The main joint between the base 1 of the lamp, which carries the filament in the case of a diode (the grid outlet being then done away with) or the filament and the grid in the case of a triode, and the anode 14 of the lamp is constituted by an insulating part 11 having plane faces 12 and 13 that form joints through interposition of, for instance, tap grease with said base and anode. The insulating part or disk 11 may protrude beyond the metal surfaces in contact with its faces 12 and 13; and at its inner periphery two metal guard rings 15 and 16 may be arranged which, however, do not contact with said disk, these rings affording a reservoir for excess grease, which may be constituted merely by a chamfer provided on the outer edge of the said rings. The upper guard ring 16 is held against the anode 14, a slight distance above the upper face of the disk 11, by means of screws or any other suitable devices which, being of no importance themselves, have not been represented. The lower ring 15 rests at its edge upon a small shoulder or ledge formed in the inner wall of the anode, as shown, and is thereby supported below and out of contact with the under face of said disk. These two rings 15 and 16 serve to protect the disk 11 against bombardment by electrons, as will be understood. The protruding outer portions of the insulating disk may be covered with two insulating parts 17 and 18 ensuring the centering of the whole, the upper part 18 and the anode 14 having a detaching screw 19 passing through them. The anode is of the usual double walled and water cooled type, preferably with a tangential lead or terminal. The filaments (two in parallel, for instance, as customary), indicated at 28 and 29 may be carried by broad metal parts 20 disposed face to face in the present case, but only one of which appears and tensioned by means of an axial rod 21, of molybdenum for instance, said rod sliding within an insulated tube 22 and being pushed outward endwise by a spring 23. The filament carrier 20 which is illustrated is suitably insulated, and is connected at its lower part to the terminal 5 of large section and at its upper part to the two filaments 28 and 29; the upper ends of the filaments being hooked to a plate 24 mounted on the top of rod 21. The other, or unillustrated, filament carrier, which is disposed back of the first one, is likewise connected at one end to the filaments and at the other end to the base 1. In the case of a triode a grid may surround the filament and be carried by an insulating tube 25. The grid-filament set may be centered in the anode and the filament centered in the grid by means of an insulating plate 26 made, for instance, of quartz carried by the grid and through which the end of rod 21 passes with slight friction. The plate itself fits in anode 14.

The tungsten filaments 28, 29, through which strong currents flow, attract one another and might come into contact; in order to avoid this possibility I may either fix up from place to place bridges 30 made of some

refractory thread wound around each filament, or I may use an insulating part 31, made, say, of quartz, carried by rod 21 and having two hooks 32, 33 fastened thereto.

Lastly, a guard rose or strainer 27 is adapted to prevent electrons from rushing toward the vacuum pump. Obviously, the embodiment shown is given merely as an example and I reserve the right to introduce any suitable constructional alterations without being deemed to depart from the scope of my invention as claimed.

Having now fully ascertained and described the nature of my said invention as well as the manner in which the same is to be performed, I declare that what I claim is:

1. A thermionic valve, comprising a hollow metal base having a plane top face; an anode having a plane-faced base; and a joint between the hollow metal base and said anode base embodying an annular insulating disk having plane upper and lower faces in direct contact with the adjacent plane faces of said bases and protruding outwardly beyond the same, a pair of insulating rings disposed on opposite sides of and encasing the protruding outer portion of the disk and engaged at their inner peripheries with said bases, and a pair of inner guard rings disposed on opposite sides of the inner peripheral portion of said disk to protect the latter against bombardment by electrons.

2. A thermionic valve, according to claim 1, in which the inner guard rings have their inner faces disposed out of actual contact with the insulating disk, and their outer edges beveled to form a reservoir for grease.

In testimony whereof I affix my signature.

FERNAND HOLWECK.