Oct. 5, 1965 A. P. DE VITO 3,210,713

TUBE SOCKET WITH VARIABLE RESISTOR

Filed July 22, 1963

Fig. 1

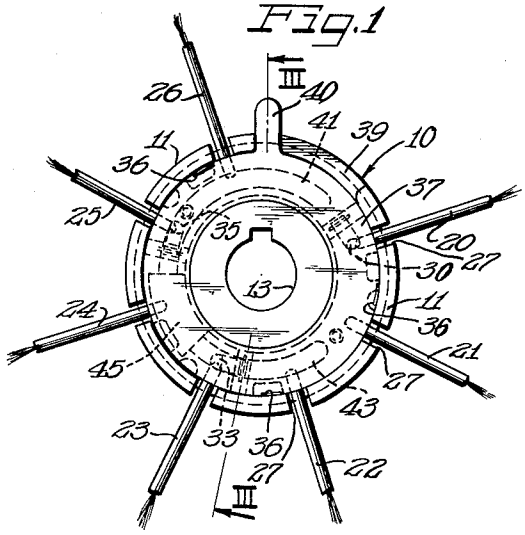


Fig. 3

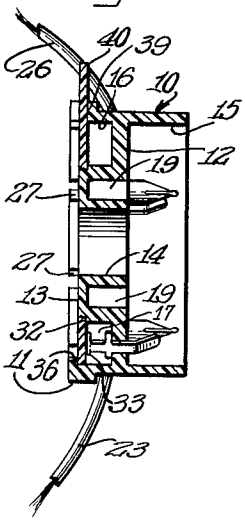


Fig. 2

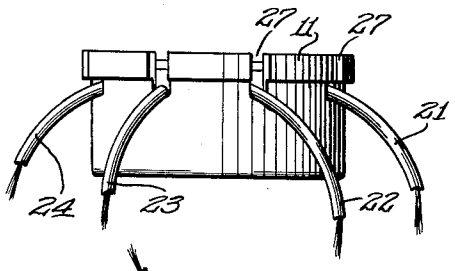
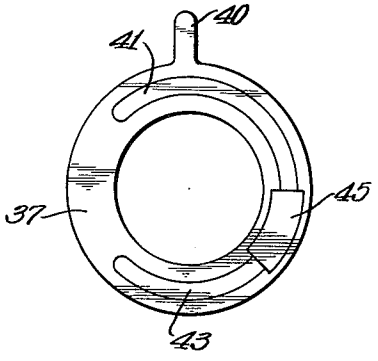


Fig. 5



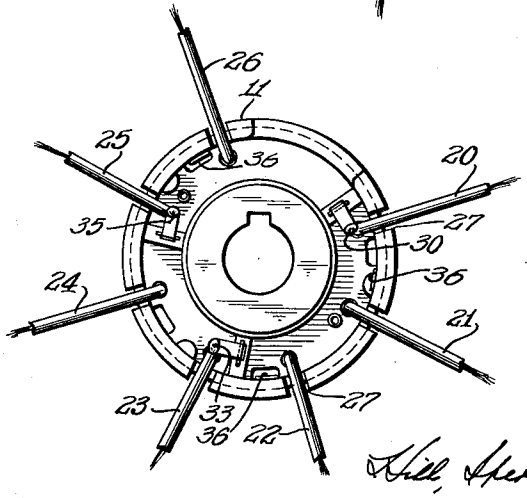


Fig. 4

INVENTOR.
Albert P. De Vito
BY
Hill, Sherman, Meroni, Gross & Simpson
ATTORNEYS

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TUBE SOCKET WITH VARIABLE RESISTOR

Albert P. De Vito, Chicago, Ill., assignor to Alcon Metal Products, Inc., Chicago, Ill., a corporation of Delaware

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This invention relates to improvements in sockets for electronic tubes and more particularly relates to an improved socket of the type in which a variable resistance may be placed between certain contacts of the tube.

A principal object of the invention is to provide a novel and improved variable resistance form of electronic tube socket arranged with a view toward utmost simplicity in construction and ease and efficiency in varying the resistance between certain contacts of an electronic tube.

A further object of the invention is to provide an improved form of socket for an electronic tube of the picture tube type, so arranged as to enable the focus of the tube to be changed while the tube is in operation.

A further object of the invention is to improve upon the electronic tube sockets for picture tubes heretofore in use by providing a simplified and improved form of resistor in the socket to place a resistance in the electronic gun and to vary the resistance to vary the focus of the tube, in which the means for varying the resistance is operable from the rear of the tube and the resistance in the circuit may be visually indicated.

A still further object of the invention is to provide a novel and improved form of socket for electronic tubes, utilizing an annular disk rotatably carrying the tube socket for varying the resistance between certain contacts in the socket, in which the resistance element and the contact elements are painted on the disk and the means for operating the disk to vary the resistance is in the form of a tab projecting from the socket and ascertaining the amount of variation of the resistance by the position of the tab with respect to certain points on the socket.

These and other objects of the invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawing wherein:

FIGURE 1 is a rear end view of a socket constructed in accordance with the principles of the present invention;

FIGURE 2 is a side view of the socket shown in FIGURE 1;

FIGURE 3 is a transverse sectional view of the socket taken substantially along line III—III of FIGURE 1;

FIGURE 4 is a rear end view of the socket with the resistor disk removed; and

FIGURE 5 is a plan view of the inside of the resistor disk showing the contacts and resistor thereon.

In the embodiment of the invention illustrated in FIGURE 1 of the drawings, I have shown in FIGURES 1, 2 and 3 a socket body **10** generally cylindrical in form and having an enlarged radially slotted rectangular bead **11** extending about the rear end portion thereof. The socket body is made from a suitable insulating material and has an intermediate partition **12** having an annular boss **13** extending rearwardly therefrom. A key hole socket **14** extends through the center of said boss and partition. The socket body also has an inner cylindrical wall **15** on the front side of the partition **12** and a rear cylindrical wall **16** on the back side of said partition and with the boss **13** forming an annular contact chamber **17**.

The partition **12** has the usual sockets **19, 19** leading thereinto from the front side thereof for receiving the prongs of an electronic tube.

A series of leads **20, 21, 22, 23, 24, 25** and **26** lead through slots **27** extending radially through the bead **11** and through the partition **12** and have connection with the sockets **19, 19** in a conventional manner. Certain of the leads **20, 23** and **25** have electrical connection with yieldable contacts **30, 33** and **35** extending angularly upwardly from the rear side of the partition and connected with certain prongs of the electronic tube. The contact **35** is a focus control contact and provides a voltage to the proper point in the electronic gun, which voltage may be varied to vary the focus of the tube.

As shown in FIGURES 1 and 3, the boss **13** has a shouldered portion **32** opening to the rear of the body **10** and adapted to form a support for an annular resistor disk **37** extending about said boss and engaging the wall **16**. The rectangular bead **11** has nibs **36** extending inwardly therefrom and adapted to accommodate the resistor disk **37** to be snapped thereunder. The nibs **36** thus form retainers for the resistor disk **37** and retain said disk to the body **10** for rotational movement about the boss **13**.

The wall **16** has an elongated slot **39** formed therein. A tab or arm **40** extends radially of the disk **37** outwardly of the body **11** through said slot. The tab **40** forms a lever arm that may be grasped by the fingers to rotatably move the disk **37** about the wall **16** and vary the resistance between the contacts **30** and **35** and between the contacts **33** and **35** in a manner which will hereinafter more clearly appear as this specification proceeds.

The disk **37** may be made from a suitable insulating material which can readily be snapped under the nibs **36, 36** and be rotatably retained to the body **10** by said nibs and has spaced segmental conductor strips **41** and **43** extending therealong for a portion of the circumference thereof and formed on an arc concentric with the periphery of said disk. The conductor strips **41** and **43** may be painted on said disk with a metallic paint which may preferably be sprayed on said disk. A silver paint provides a very good conductor although any other paint that will act as a conductor may be used instead. The conductor strips **41** and **43** are connected together by a resistor **45** which also may be painted on the disk **37** by spraying and may be a carbon paint.

When the arm **40** is in the position shown in FIGURE 1, the contacts **33** and **35** will engage the respective conductor strips **41** and **43**, placing the resistance **45** in the circuit between said contacts. In this position the circuit through the contact **30** will be open. As the arm **40** is moved along the slot **39** in a clockwise direction, the conductor strip **41** will come into engagement with the contacts **30** while the contact **35** will come into engagement with the resistor **45** and the resistor **45** will be placed in the circuit between the contacts **30** and **35** and the contacts **33** and **35**. Movement of the arm **40** in one direction or another will thus vary the resistance between the contacts **30** and **35** and between the contacts **33** and **35** and thereby vary the focus of the picture tube, the position of the arm **40** always indicating the amount of resistance in the circuit.

It may be seen from the foregoing that a simple and improved socket for electronic tubes has been provided in which the focus of the tube may readily be varied from the back of the tube while the tube is in operation, and that the position of the resistor is readily visible and indicated by the operating arm therefor.

While I have herein shown and described one form in which my invention may be embodied, it may readily be understood that various variations and modifications in the invention may be attained without departing from the spirit and scope of the novel concepts thereof.

I claim as my invention:

1. An electronic tube socket comprising a body having at least three terminal socket members adapted to receive the prongs of an electronic tube, at least three contacts spaced about a surface of said body and each being connected to a separate terminal socket member, conductors connected with said contacts and leading from said body, a disk overlying said contacts and rotatably mounted on said body for movement about an axis coaxial with the axial center of said body, said disk having means thereon accommodating the rotatable positioning of said disk by hand and having a pair of spaced conducting strips thereon movable to electrically engage certain of said contacts and having a resistor connected between said conducting strips and movable to electrically engage at least one other of said contacts to place a resistance between at least two of said contacts.

2. An electronic tube socket comprising a body having an intermediate partition, a front inner cylindrical wall extending forwardly of said partition and a rear cylindrical wall extending rearwardly of said partition, at least three terminal socket members in said partition adapted to receive the prongs of an electronic tube, at least three circumferentially spaced contacts spaced inwardly of said rear cylindrical wall and mounted on said partition, each being connected to a separate terminal socket member, and means providing an electrical circuit between said contacts and inserting a resistance in the circuit between two of said contacts comprising an annular disk rotatably mounted within said rear cylindrical wall for movement about an axis coaxial with the axis about which said wall is struck and having means thereon accommodating the manual positioning of said disk, two circumferentially spaced segmental conductors on the inner face of said disk electrically engageable with two of said contacts and a resistor on the inner face of the disk connecting the adjacent end portions of said conductors together and electrically engageable with a third of said contacts.

3. An electronic tube socket comprising a body having an intermediate partition, a front inner cylindrical wall extending forwardly of said partition, a central boss extending rearwardly of said partition and a rear cylindrical wall extending rearwardly of said partition and spaced radially outwardly of said boss, at least three terminal socket members in said partition spaced radially inwardly of said front inner cylindrical wall and adapted to receive the prongs of an electronic tube, at least three contacts mounted on said partition and extending rearwardly therefrom in the space between said boss and said rear cylindrical wall, each being connected to a separate terminal socket member and adapted to have connection with an external circuit, a disk rotatably mounted in the space between said boss and rear cylindrical wall outwardly of said partition and having two circumferentially spaced segmental conductors on the inner side thereof electrically engageable with at least two of said contacts, a resistor on the inner side of the disk connecting the adjacent ends of said conductors together and electrically engageable with a third of said contacts, said body having a slot therein opening outwardly through said rear cylindrical wall and said disk

having an arm extending radially therefrom outwardly through said slot and providing an arm for manually positioning said disk and enabling the position of said disk to be visually ascertained.

4. An electronic tube socket in accordance with claim 3 wherein the segmental contacts are a metallic paint painted on the inner face of said disk and the resistor is a carbon paint painted on the inner face of said disk.

5. In an electronic tube socket, a body having an intermediate partition, a front inner cylindrical wall extending forwardly of said partition, a plurality of terminal socket members in said partition opening through the front face thereof and spaced inwardly of said front inner cylindrical wall and adapted to receive the prongs of an electronic tube, a central boss extending rearwardly of said partition and a rear cylindrical wall spaced radially outwardly of said boss, a bead extending about the rear end portion of said body outwardly of said rear cylindrical wall, said bead and rear cylindrical wall being radially slotted to form recesses for lead wires, at least three contacts extending rearwardly of said partition in the space between said boss and said rear cylindrical wall, each being electrically connected to a separate one of the terminal socket members, a lead wire connected with each contact and extending outwardly of said body through a radial slotted portion thereof, a plurality of circumferentially spaced nibs extending inwardly of said rear cylindrical wall adjacent the rear end portion thereof, said bead having a rearwardly opening slot therein extending circumferentially therealong for a portion of the length thereof, a disk rotatably engageable with said boss and snapped in position past said nibs and retained to said boss for rotation thereabout by said nibs, an operating arm for said disk extending through said slot and into full view of the operator of said disk, and said disk having two circumferentially spaced segmental conductors on the inner face thereof electrically engageable with at least two of said contacts in said body and having a resistor on the inner face thereof, connecting the adjacent ends of said conductors together and electrically engageable with a third of said contacts in said body.

6. An electronic tube socket in accordance with claim 5 wherein the segmental contacts and resistor are painted on the inner face of said disk.

7. An electronic tube socket in accordance with claim 5 wherein the conductors painted on the inner face of said disk are a silver paint and wherein the resistor painted on the inner face of said disk is a carbon paint.

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RICHARD M. WOOD, *Primary Examiner.*

ANTHONY BARTIS, *Examiner.*