

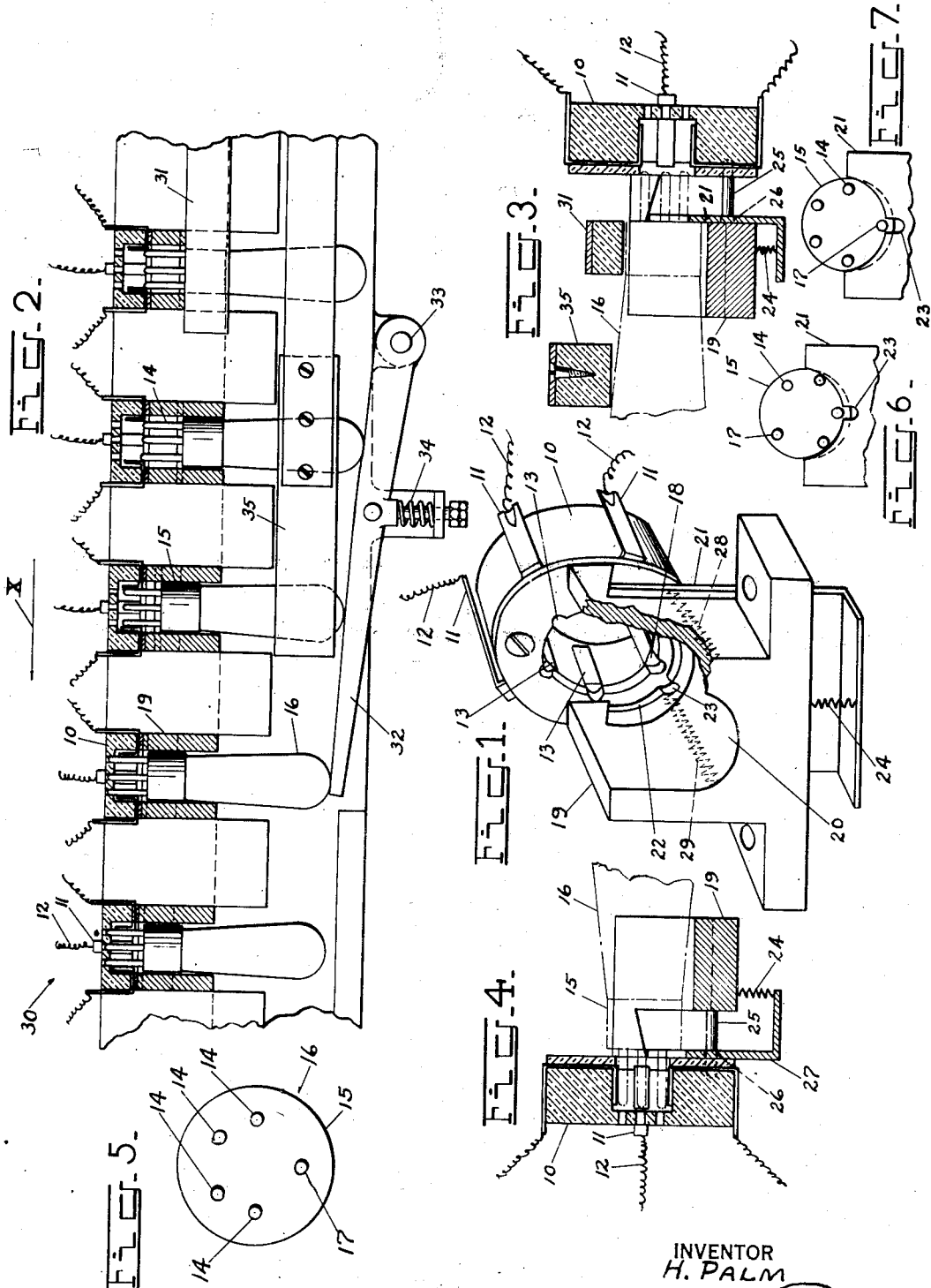
Aug. 1, 1933.

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1,920,662

RADIOTUBE BASE PIN LOCATING DEVICE

Filed Dec. 8, 1928



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1,920,662

RADIOTUBE BASE PIN LOCATING DEVICE

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Application December 8, 1928. Serial No. 324,749

3 Claims. (Cl. 250—27)

This invention relates to a device for automatically applying electrical devices such as radio tubes or the like to holders or sockets.

When manufacturing radio tubes or similar devices having a plurality of contact members it is desirable to test the devices by bringing the contact members into engagement with contacts of an electrical circuit so that electrical energy may be passed through the devices. Furthermore it is essential that all the devices be applied to the sockets in a predetermined manner so that the same contacts of each device are applied to given contacts of a socket.

In copending application Serial No. 313,221 filed October 18, 1928 and assigned to the assignee of the present invention an apparatus is shown in which radio tubes are tested for various characteristics and means are shown for automatically applying tubes to sockets. In the said application the tubes to be tested are provided with four contact-members and a side pin. The side pin is always in a fixed relation to the contact-members and is utilized in adjusting the tubes for the insertion of the said members into a socket.

The present invention is concerned with the adjustment of a device without a side pin and having five contact-members such as provided on radio tubes commonly known as A. C. tubes.

In the construction of an A. C. tube the contact-members are applied to the base in a definite and uniform arrangement, one of the members being disposed unsymmetrical with respect to the other members. In accordance with the present invention, advantage is taken of this non-uniform or eccentric arrangement of the members and one of the members is utilized as a means of controlling the adjustment of the tube for application to a socket.

It is an object of the invention therefore to provide a device for receiving and adjusting a radio tube for application to a socket.

Another object of the invention is to provide mechanism whereby a radio tube having an unsymmetrical arrangement of contact-members may be engaged by one of said members for adjustment to a given position.

Other objects and advantages of the invention will be more fully understood by reference to the accompanying drawing in which,

Fig. 1 is a perspective view, partly broken away, showing a device for receiving and adjusting an electrical device.

Fig. 2 is a plan view of a plurality of devices disposed in sockets, constituting a portion of a

conveyor, the latter being shown partly in cross section.

Fig. 3 is a longitudinal sectional view of a device for receiving a radio tube and shows the device about to be inserted into a socket.

Fig. 4 is a view similar to Fig. 3 showing a device inserted into a socket.

Fig. 5 is an end view of a base of an electrical device showing the arrangement of the contact pins or members.

Fig. 6 is a diagrammatic view of a base and its relation to adjusting means when the base is in position for adjustment, and

Fig. 7 is a view similar to that shown in Fig. 6 but with the base adjusted for insertion into a socket.

The above arrangement of the contact-members is employed in standard practice on such devices as the A. C. tube, as for example, the tube popularly known as the UY-227. For the purpose of receiving the device 16 the socket 10 is provided with an unsymmetrically spaced contact indicated by the numeral 18.

The present device as shown in Fig. 1 is so constructed as to receive a tube and includes a U-shaped support-member 19 the concave portion 20 thereof serves as a seat for the cylindrical base 15. Intermediate the support 19 and the socket 10 is provided what may be termed an adjuster-plate 21 having an arcuate shaped edge 22 and a notch 23 in partial alignment with the contact 18 of the socket. The said plate is so disposed that when a tube is positioned in the holder 19 the sides of three of the contact pins rest on the edge 22 of the plate. If the tube is so disposed that the contact member 17 of a tube rests in the notch 23 the tube may be moved inwardly and the said notch aligned with the contact 18 causing the contact member 17 to engage the contact 18 of the socket and the remaining contact-members 14 will engage with the contacts 13 in the socket.

In accordance with the present invention, however, tubes may be applied to the holders with the pins in any position with respect to the notch 23 and by rotating the tube about its longitudinal axis the contact members 14 will not enter the notch 23 since as shown in diagram Fig. 6 the spacing of the said contact members 14 is such that three of said members engage the edge of the adjuster plate and when a contact member is adjacent to the notch, the contact members on opposite sides of the said positioned contact member will prevent the latter from entering the notch.

However, when the contact member 17 is moved to position adjacent to the notch 23 it may be moved therein by slight pressure on the side of the base as shown in diagram Fig. 7. When the contact member 17 enters the notch and is pressed against the edge of the adjuster plate 21 the said plate which is normally held in an upper position by a spring 24 moves downwardly to bring the notch 23 in complete alignment with contact 18 and consequently the contact members 14 in alignment with contacts 13 of the socket. The tube may then be moved endwise along its longitudinal axis toward the socket and the contacts thereof will engage the proper contact members of the tube.

For the purpose of removing a tube from the socket the adjuster plate is arranged to serve as an ejector and is slidable on pins 25 projecting from the holder 19. These pins extend through slots 26 in the said plate so that when a tube is moved into a socket the plate 21 will be moved against the socket as shown in Fig. 4. When the tube is to be removed the plate 21 may be engaged at its lower end 27 and moved away from the socket causing the tube to be ejected. The plate 21 is held in its normal position against the holder 19 as shown in Fig. 3 by springs 28 and 29 (see Fig. 1).

The above described device may readily be applied to a machine such as a tube testing machine of character set forth in the above mentioned copending application. As a practical embodiment of the present device a portion of a conveyor 30 of a tube testing machine is shown (see Fig. 2) having a plurality of holders 19 and sockets 10. Tubes may be dropped into the holders at a loading position and the conveyor may move in the direction of the arrow X. As the conveyor moves the bases of the tubes 16 are engaged by a friction member 31 which may consist of a supported pad of rubber or other friction material so that the tubes are rotated until the contact 17 engages the notch 23.

The friction member may be resiliently supported so as to press upon the tubes and thus move the same firmly against the adjuster plate. When the tubes have been adjusted and are ready to be thrust into the sockets they are moved so as to engage a presser arm 32 pivoted at 33 and urged by a spring 34 toward the moving tubes thereby pressing them into position in the sockets. During a portion of this operation another friction pad 35 engages the bulb portions of the tubes to

hold them firmly in position. The conveyor may then move to subject the tubes to a testing or other operation after which means in the form of a cam member (not shown) may be arranged to engage the plate at 27 to eject the tubes from the sockets.

From the foregoing it will be evident that the present invention provides a mechanism whereby an electrical device having a plurality of irregularly spaced contact elements may be automatically applied to sockets of a machine and adjusted and moved to engage the contacts thereof with predetermined contacts of sockets thus eliminating the necessity of an operator with the result that articles of the character described may be produced at a high rate of speed and at reduced cost.

Although a preferred embodiment of the invention is shown and described herein it is to be understood that modifications may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A device for receiving and adjusting a radio tube having a plurality of contact elements, comprising a socket, a support adjacent to said socket, a guide plate having a notch intermediate said support and said socket, said guide plate being arranged to engage the contact elements of said tube means for rotating said tube to dispose a contact element thereof in the notch in said guide plate and means for moving said tube toward said socket.

2. A device for receiving and adjusting a radio tube having unsymmetrically spaced contact elements comprising a socket, means for supporting a tube with the contact elements thereof adjacent to the contacts of said socket and means for receiving one of said contact elements to serve as a guide for aligning the said elements for application to said socket.

3. A device for receiving and adjusting a radio tube having unsymmetrically spaced contact elements comprising a socket, means for supporting a tube with the contact elements thereof adjacent to the contacts of said socket and means for receiving one of said contact elements to serve as a guide for aligning the said elements for application to said socket and means for changing the relative positions of said tube and socket to engage said contact elements with given contacts in said socket.

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