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F. WILHELM ET AL

VACUUM TUBE ADAPTER

Filed April 11, 1922

Fig. 1.

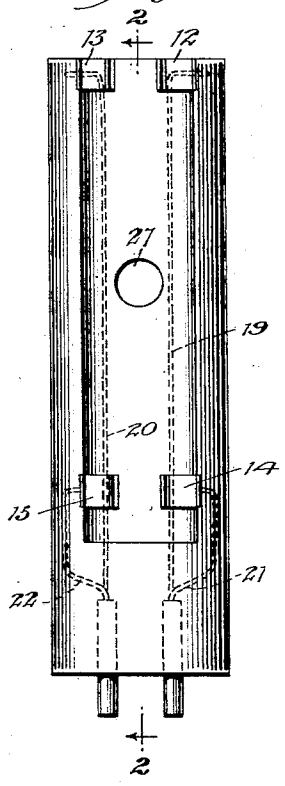



Fig. 2.

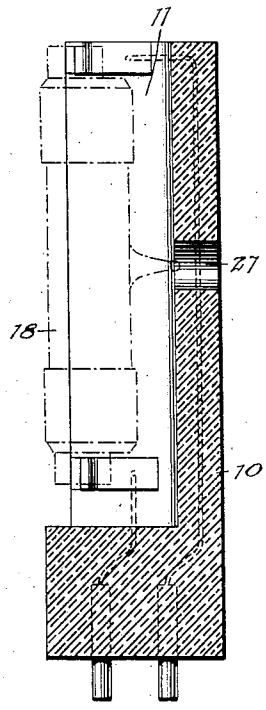



Fig. 3.

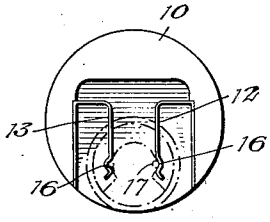
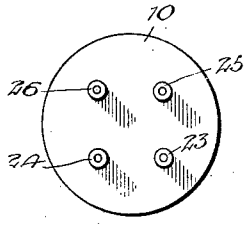



Fig. 4.




WITNESSES

W. L. Jones

E. W. Savage

INVENTORS

Frederick Wilhelm

William Schwarz

By Munn & Co

ATTORNEYS

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# UNITED STATES PATENT OFFICE.

FREDERICK WILHELM AND WILLIAM SCHWARZ, OF NEW YORK, N. Y.

## VACUUM-TUBE ADAPTER.

Application filed April 11, 1922. Serial No. 551,641.

*To all whom it may concern:*

Be it known that I, FREDERICK WILHELM and WILLIAM SCHWARZ, both citizens of the United States, and residents of the city of New York, borough of the Bronx, in the county of Bronx and State of New York, and of the city of New York, borough of Manhattan, in the county and State of New York, respectively, have invented new and useful Improvements in Vacuum-Tube Adapters, of which the following is a full, clear, and exact description.

This invention relates to adapters primarily designed for connecting the various types and sizes of vacuum bulbs into the receiving and transmitting circuits of wireless sets provided with a standard base for receiving the particular type of vacuum bulb.

In practice, in wireless receiving circuits, a particular standard contact base is provided which is connected into the circuit and adapted to receive a vacuum tube provided with four contact studs on its base. This makes it difficult to use any other type or size of vacuum tube with the particular set.

The general object of the invention is the provision of an adapter in which different sizes and types of vacuum tubes may be mounted for associating with the standard base connected into the wireless receiving and transmitting circuits to connect the vacuum tubes into the circuits.

This object is accomplished by providing a casing in which vacuum tubes may be located and providing means in the tube casing for contacting with the contact terminals of the tubes and electrically connecting them to contact studs mounted on the casing and adapted to project into the standard base connecting the vacuum tubes into the circuit.

This and other objects of the invention will be more clearly understood from the following detailed description and accompanying drawings.

Figure 1 is a top plan view of the adapter;

Figure 2 is a section along the line 2—2, Figure 1;

Figure 3 is an end view of the adapter as viewed from the top in Figure 1;

Figure 4 is an end view of the adapter as viewed from the bottom in Figure 1;

Referring to the above mentioned drawings, a casing 10 is shown provided with a channel or chamber 11. Mounted in the chamber 11 and attached to the casing are four spring contacts 12 to 15, inclusive. Each spring contact has a depression 16 formed therein near its outer end, into which one of the terminals 17 of the vacuum tube 18 fits. These spring contact terminals 12 to 15, inclusive, are connected by means of conductors 19 to 22, inclusive, to the contact studs 23 to 26, inclusive, respectively. Thus when the vacuum tube 18 is mounted in the adapter each terminal 17 is connected to one of the contact studs 23 to 26, inclusive.

The adapter was designed for use with wireless receiving and transmitting circuits. In order to mount a vacuum tube in a receiving or transmitting circuit, a socket carrying a plurality of contact members is first connected into the circuit. The contact studs 23 to 26 mounted in the casing 10 are so arranged that when the end of the casing 10 is projected into the socket they contact with the contact members carried by the socket. Thus when the casing is mounted in the socket the vacuum tube is connected with the top members provided in the socket and into the receiving or transmitting circuit.

The construction of the adapter may be greatly varied so as to accommodate any size or type of vacuum tube. In the case described above, the shape of the adapter is cylindrical being adapted to receive a cylindrical-shaped tube and an opening 27 is provided in the wall of the adapter to receive the nipple through which the air has been exhausted from the tube.

The casing of the adapter may be made from a variety of materials. The conductors which connect the spring contact terminals 12 to 15, inclusive, with the contact studs 23 to 26, inclusive, respectively, may either be embedded in the casing or located in the chamber 11. If the casing 10 is cast a good construction would be obtained by embedding the conductors in the body of the casing.

We would state in conclusion that while the illustrated example constitutes a practical embodiment of our invention, we do not limit ourselves strictly to the exact details herein illustrated since manifestly the

same can be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Claims:

1. An adapter for vacuum tubes comprising a casing having a chamber adapted to receive the vacuum tube in protective relation, one end of the casing being shaped to fit a socket, contact studs mounted in the shaped end of the casing and projecting therefrom, means in the chamber and carried by the casing for removably gripping and supporting the vacuum tube and establishing electrical connection with the vacuum tube terminals, and means for electrically connecting said contact establishing means of the tube with the contact studs projecting from the shaped ends of the casing.

2. An adapter for vacuum tubes comprising a casing having a chamber adapted to receive the vacuum tube in protective relation, one end of the casing being shaped to fit a socket, contact studs mounted in the shaped end of the casing and projecting therefrom, spring clips mounted in the chamber of the casing for removably gripping and supporting the vacuum tube and establishing electrical connection with the vacuum tube terminals, and means imbedded in the wall of the casing for electrically connecting said contact establishing means of the tube with the contact studs projecting from the shaped ends of the casing.

3. An adapter for vacuum tubes comprising a casing having a chamber adapted to receive the vacuum tube in protective relation, one end of the casing being shaped to fit a socket, contact studs mounted in the shaped end of the casing and projecting therefrom, means in the chamber and carried by the casing for removably gripping and supporting the vacuum tube and establishing electrical connection with the vacuum tube terminals, and means for electrically connecting said contact establishing means of the tube with the contact studs projecting from the shaped ends of the casing, said casing having an opening formed therein for receiving the exhaust nipple of the vacuum tube adapted to protect it.

FREDERICK WILHELM.
WILLIAM SCHWARZ.