Nov. 1, 1927. 1,647,736

F. C. KOLLATH

AMPLIFIER

Filed May 19, 1924

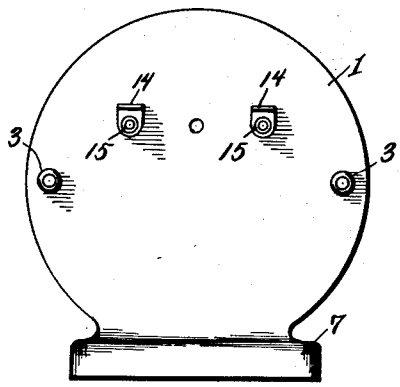

Fig. 1.

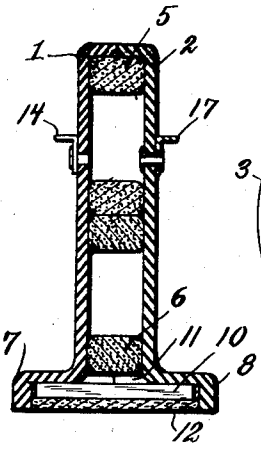

Fig. 2.

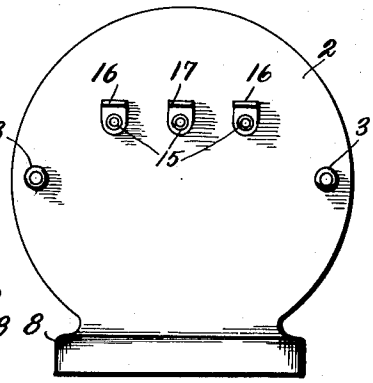

Fig. 3.

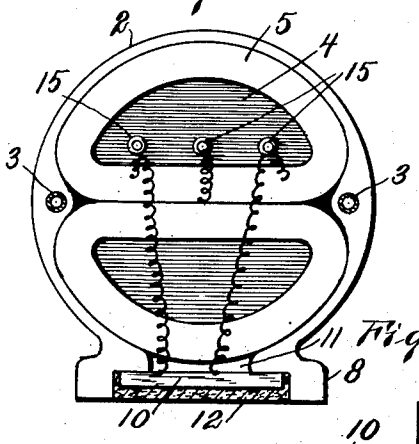

Fig. 4.

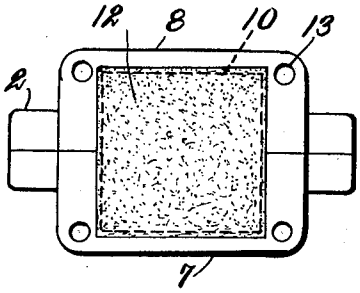

Fig. 5.

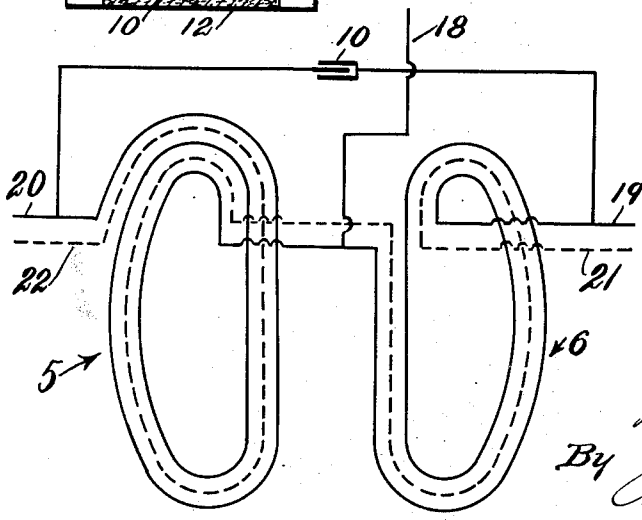

Fig. 6.

Inventor:
Francis C. Kollath.
By Chester E. Warner.
Attorney

Patented Nov. 1, 1927. 1,647,736

UNITED STATES PATENT OFFICE

FRANCIS C. KOLLATH, OF CHICAGO, ILLINOIS.

AMPLIFIER.

Application filed May 19, 1924. Serial No. 714,208.

My invention relates to radio frequency amplifiers, and is especially adapted for inter-stage coupling in radio receivers.

One of the objects of my invention is to provide an amplifier comprised of a plurality of primary and secondary coils arranged in such a manner that a closed magnetic field is formed, and which may be placed in close proximity to a similar amplifier or to other inductances without causing undesirable effects.

Another object of my invention is to provide a device which is cheap to manufacture, easy to assemble and of few parts.

Further objects of my invention will appear from the detailed description to follow and from the appended claims.

Realizing that my invention may be varied in its physical embodiment without departing from the spirit of the invention, I desire it to be understood that the specific construction and form herein shown is to be taken as illustrative and not in a limited sense.

In the accompanying drawings like portions of the device are designated by like characters thruout the several figures.

Fig. 1 is a side elevation of my invention and showing the primary soldering lugs.

Fig. 2 is a vertical, transverse, sectional elevation through Fig. 1.

Fig. 3 is a side elevation of the secondary side and showing the secondary lugs.

Fig. 4 is a vertical section taken on a line corresponding to the dividing line of the casing, the coils and condenser being shown in full lines.

Fig. 5 is a bottom view of the device as shown in Fig. 3.

Fig. 6 is a diagrammatic view showing the coil windings and taps and their relation to each other.

Referring now to the drawings in detail, the invention as shown comprises an insulating casing, preferably made in two identical and interchangeable halves 1 and 2 forming the sides of the casing, and which for convenience will hereafter be called the primary and secondary side respectively. These sides may be made of any suitable insulating material such as bakelite or hard rubber.

The halves are secured together by means of the eyelets 3 and are designed to provide a substantially circular chamber 4, in which are supported the semi-circular or D shaped coils 5 and 6.

The halves of the casing are provided with flanges 7 and 8 forming the walls of the chamber 9 which is adapted to receive the condenser 10. This condenser is of the usual fixed type used in radio reception, and is preferably rectangular in shape, and is laid in the chamber 9 in such a manner that it effectually closes the opening 11 between the chambers 4 and 9, the wax 12 is then poured into the chamber 9 securing the condenser in place and effectively insulating it. Holes 13 are provided in the flanges for mounting the device.

Soldering lugs are provided on the primary casing 1. These are secured by means of the eyelets 15.

Eyelets are used for securing the soldering lugs so that the ends of the primary coils may be passed thru them and wound around and soldered to the lugs on the outside of the casing. Lugs 16 are also provided on the opposite or secondary half of the casing and are also secured by means of eyelets, the terminals of the secondary are passed thru the eyelets and soldered in the same manner as on the primary side. On the secondary side is also provided a third lug 17 also secured by an eyelet and to which is secured a tap from the secondary coils.

It will be noted that the manner in which the coils are arranged forms a closed magnetic field. After the coils are wound and connected together as shown in Fig. 6, the primary is one continuous winding and the secondary is another continuous winding thru both coils and in the form of a figure 8.

It is found in practice that these amplifiers may be set side by side in radio receiving sets without causing undesirable effects.

It will be noted by reference to Fig. 6 that the coils are formed by winding the primary and secondary wires at the same time until a sufficient amount of primary is wound on, then the primary is cut off and the winding of the secondary is continued until the desired ratio is obtained. The two D shaped coils are then placed in the casing and the primaries are connected together as well as the secondaries thus forming a figure 8 coil

having a continuous primary and a continuous secondary. A tap 18 is taken from the secondary between the two coils as shown in Fig 6 and is connected to the soldering lug 17. This is for use in neutralizing which is common practice in many radio receivers.

The condenser is connected to the secondary terminals 19 and 20 as shown and which are in turn connected to the soldering lugs 16. The primary terminals 21 and 22 are connected to the soldering lugs 14.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent:

1. An amplifier comprising a pair of D shaped inductance coils consisting of primary and secondary windings, said primary windings being connected together and said secondary winding being connected together to form continuous primary and continuous secondary windings, said windings being parallel to each other and substantially in the form of a figure 8, said coils being in the same plane and having their flat sides parallel, a neutralizing tap from the secondary between the D shaped coils, and a condenser connected across the secondary terminals.

2. An insulating casing having a substantially circular chamber and a substantially rectangular chamber at right angles to each other, soldering lugs on said casing and secured thereto by means of eyelets, a pair of D shaped coils in said circular chamber and having parallel primary and secondary windings, said primary windings being connected together and said secondary and said secondary windings being connected together in the form of a figure 8, the terminals of said primary windings passing thru said eyelets and being connected to the soldering lugs on one side of said casing, the terminals of the secondary windings passing thru the eyelets and being connected to the lugs on the opposite side of said casing, and a condenser connected across the terminals of the secondary windings and supported in the rectangular chamber in said casing.

In witness whereof, I have hereunto subscribed my name.

FRANCIS C. KOLLATH.