Dec. 8, 1931. F. A. GEHM 1,835,036

RADIO RECEIVING SET

Filed Aug. 8, 1929

FIG. 1

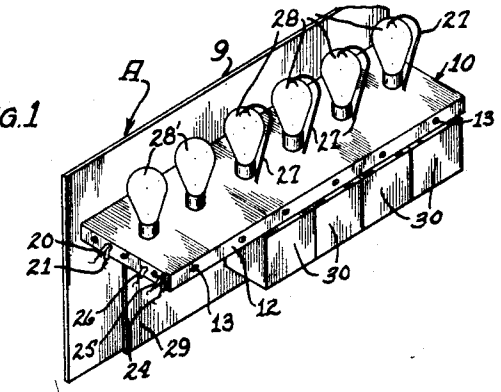


FIG. 2

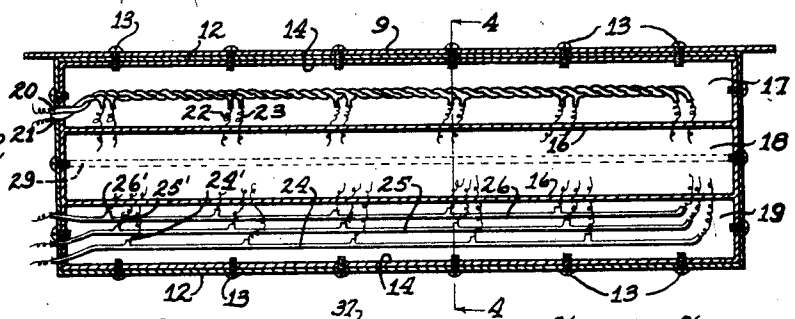


FIG. 3

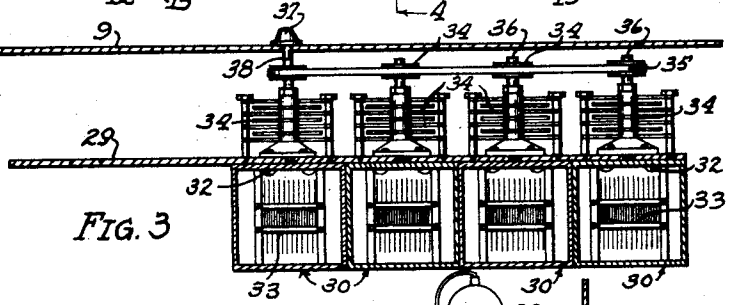


FIG. 5

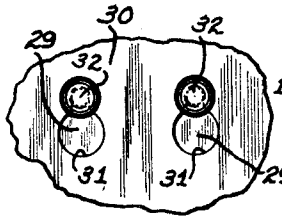
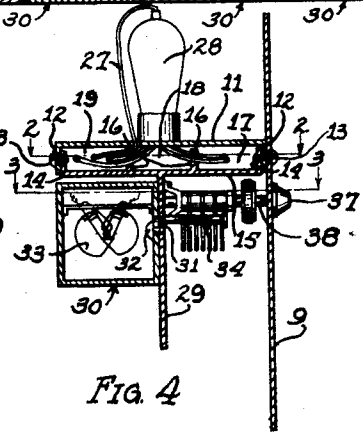


FIG. 4



WITNESSES:
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UNITED STATES PATENT OFFICE

FREDERICK A. GEHM, OF CHICAGO, ILLINOIS

RADIO RECEIVING SET

Application filed August 8, 1929. Serial No. 384,327.

This invention relates to radio receiving apparatus, having for its object the provision of certain desired improvements in the way of a more efficient method and construction for arranging and shielding the various units forming the modern radio receiving set chassis.

Another object is to provide a shielded radio receiving set chassis of a type particularly adapted for quantity production while affording the maximum in the way of an electrically efficient disposition of the tuning means employed, and a protection against dust, moisture and tampering.

Other objects and advantages of the method and construction employed will appear more fully in the details hereinafter set forth when taken in connection with the accompanying drawings in which:

Fig. 1 is a perspective view, with parts broken away, of a radio receiving set embodying my invention;

Fig. 2 is an enlarged plan sectional view, taken on the line 2—2 of Fig. 4;

Fig. 3 is a plan sectional view, taken on the line 3—3 of Fig. 4;

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 2; and

Fig. 5 is a fragmentary enlarged detail view showing the manner in which some of the shielding means are applied to the chassis.

In the drawings wherein similar characters of reference indicate corresponding parts in the several views of the preferred form of my invention, A designates the receiving set chassis as a whole which includes the panel 9 to which is secured an elongated comparatively shallow metal casing 10, the latter providing a shielding housing for the wiring hereinafter described more fully. As best shown in Figures 2 and 4, the casing 10 comprises an upper section 11 of substantially rectilinear shape, and having a downwardly projected flange 12, which latter is secured by bolts 13 to the upwardly projected flange 14 of the bottom section 15 of the container 10. The bottom section 15 is further provided with longitudinally extending upwardly projecting ribs or partitions 16, which latter provide the compartments 17, 18 and 19. In the compartment 17 the alternating current wires 20, 21, having the leads 22, 23, are housed. In the compartment 19, the plate, grid and cathode wires 24, 25 and 26 respectively, are installed, having the corresponding short leads 24′, 25′ and 26′. In the central compartment 18 all the short leads from the alternating current wires and the grid plate and cathode energizing wires together with the short leads 27 are brought, it being observed that all the vacuum tubes which include the screen grid tubes 28, and the conventional alternating current heater type tubes 28′ are mounted in a manner permitting the vacuum tube prongs (not shown) to be directly joined to the above mentioned leads.

Secured to or integral with the bottom of the lower section 15 of the casing 12 is a downwardly depending wall 29 which extends the entire length of the casing 10. On one side of the partition 29, as best shown in Figure 4, a series of shielding containers 30 are secured, it being observed that a bayonet slot 31 is provided in one of the walls of each of the containers 30, these slots serving to accommodate the heads of small bolts or rivets 32 secured to the partition 29. In assembling the chassis A, it will only be necessary to pass the heads of the metal bolts 32 into the bayonet slots 31, in order to secure the metal containers 30 in position to shield the transformers 33, which latter together with the condensers 34 mounted on the opposite side of the partition 29 form the other part. As clearly shown in Figures 3 and 4, it will be seen that the condensers 34 in the present instance comprise four separate units, which may be operatively joined in any suitable manner as by the chain or band 35, appropriately connected to the shafts 36 of the rotors of the condensers 34. A manipulating knob 37 secured on a shaft 38 directly connected to one of the rotor shafts 36 serves as a means to operate all of the tuning condensers 34 simultaneously.

The present radio receiving apparatus is designed for alternating current energization, it being essential that the wiring of radio sets of this type be shielded to prevent electromagnetic inductive effects in the wires 24,

25 and 26 connected to the plate, grid and cathode wires of the vacuum tubes employed. In Figure 2 it will be particularly noted that the alternating current wires 20 and 21 are closely twisted together and then placed in a separate compartment 17. The other wires 24, 25, 26 are housed in the compartment 19 of the container 12 while the short leads 27 from the screen grid tubes 28, as pointed out above, are carried directly into the middle compartment 18. Practically all the tuning instrumentalities that require shielding are thus separated and shielded in separate compartments, it being particularly desirable, as is well known, to shield the various electrical units employed, particularly the radio frequency coils or transformers 33 and the alternating current feed wires. In receiving sets of the alternating current type herein illustrated, the neglect to shield one unit alone may result in causing an electro-magnetic intercoupling, which is liable to introduce a considerable degree of distortion in reproduction.

The present radio receiving chassis is particularly designed and adapted for quantity production on a large scale, it being observed that the casing 10, the containers 30, the panel 9, and the partition 29 are preferably stampings, which may be conveniently and quickly assembled to form the completed unit shown in Figure 1, the chassis there shown being ready for immediate installation into a suitable cabinet. The entire chassis which is preferably of all metal may be grounded, which will still further reduce any tendency towards "body capacity" and undesired electro-magnetic intercoupling.

While I have described and illustrated a preferred form of my invention, it will be understood that the construction and disposition of parts may be modified and changed without departing from the spirit or sacrificing any advantages of the invention; hence it is to be understood that I do not limit myself to the precise details as set forth, but desire to avail myself of such embodiments and modifications as fairly fall within the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In combination with a panel of a radio receiving set, a comparatively shallow casing removably secured to said panel, a plurality of compartments in said casing, one of said compartments separately receiving the alternating current energizing wires of said radio receiving set, another of said compartments receiving other wires leading to the electrodes of vacuum tubes removably and operatively secured in an upper section of said casing, and a downwardly projecting partition secured to another section of said casing, said partition providing a means for supporting a plurality of transformers on one side thereof, and a plurality of condensers on the other side thereof, said transformers being individually segregated and shielded by containers removably secured to said partition.

2. A radio receiving set chassis comprising a casing, said casing including an upper section, a lower section receivable in said upper section, said lower section having a plurality of flanges, said flanges serving to separate the container formed by the conjunction of said upper and lower sections into a plurality of compartments, one of said compartments receiving the alternating current energizing wires of the said chassis, another of said compartments receiving the plate, grid and cathode energizing wires of the chassis, and a third compartment receiving the prongs of vacuum tubes and the short lead wires from the said alternating current plate, grid and cathode energizing wires.

3. A radio receiving set chassis comprising a casing, said casing including an upper section, a lower section receivable in said upper section, said lower section having a plurality of flanges, said flanges serving to separate the container formed by the conjunction of said upper and lower sections into a plurality of compartments, one of said compartments receiving the alternating current energizing wires of the said chassis, another of said compartments receiving the plate, grid and cathode energizing wires of the chassis, a third compartment receiving the prongs of vacuum tubes and the short lead wires from the said alternating current plate, grid and cathode energizing wires, and a plurality of shielding compartments, each arranged to contain a transformer.

4. A radio receiving set chassis comprising a casing, said casing including an upper section, a lower section receivable in said upper section, said lower section having a plurality of flanges, said flanges serving to separate the container formed by the conjunction of said upper and lower sections into a plurality of compartments, one of said compartments receiving the alternating current energizing wires of the said chassis, another of said compartments receiving the plate, grid and cathode energizing wires of the chassis, a third compartment receiving the prongs of vacuum tubes and the short lead wires from the said alternating current plate, grid and cathode energizing wires, a plurality of shielding compartments, each arranged to contain a transformer, and a plurality of condensers mounted without said wire and transformer containing compartments.

In testimony whereof I have signed my name to this specification.

FREDERICK A. GEHM.