C. R. YOUNG.

LOADING COIL CASE.

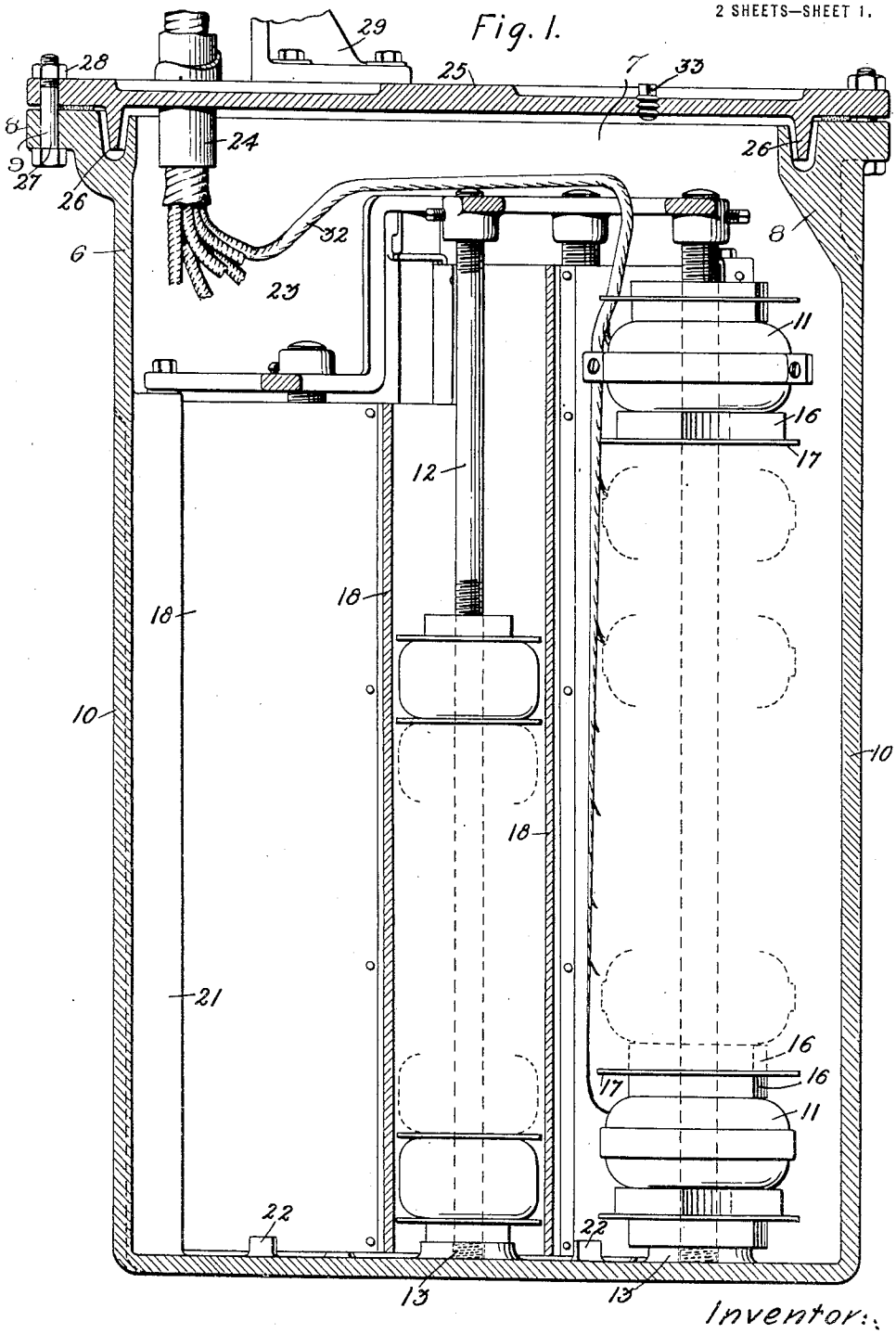
APPLICATION FILED MAY 26, 1916.

1,272,166.

Patented July 9, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

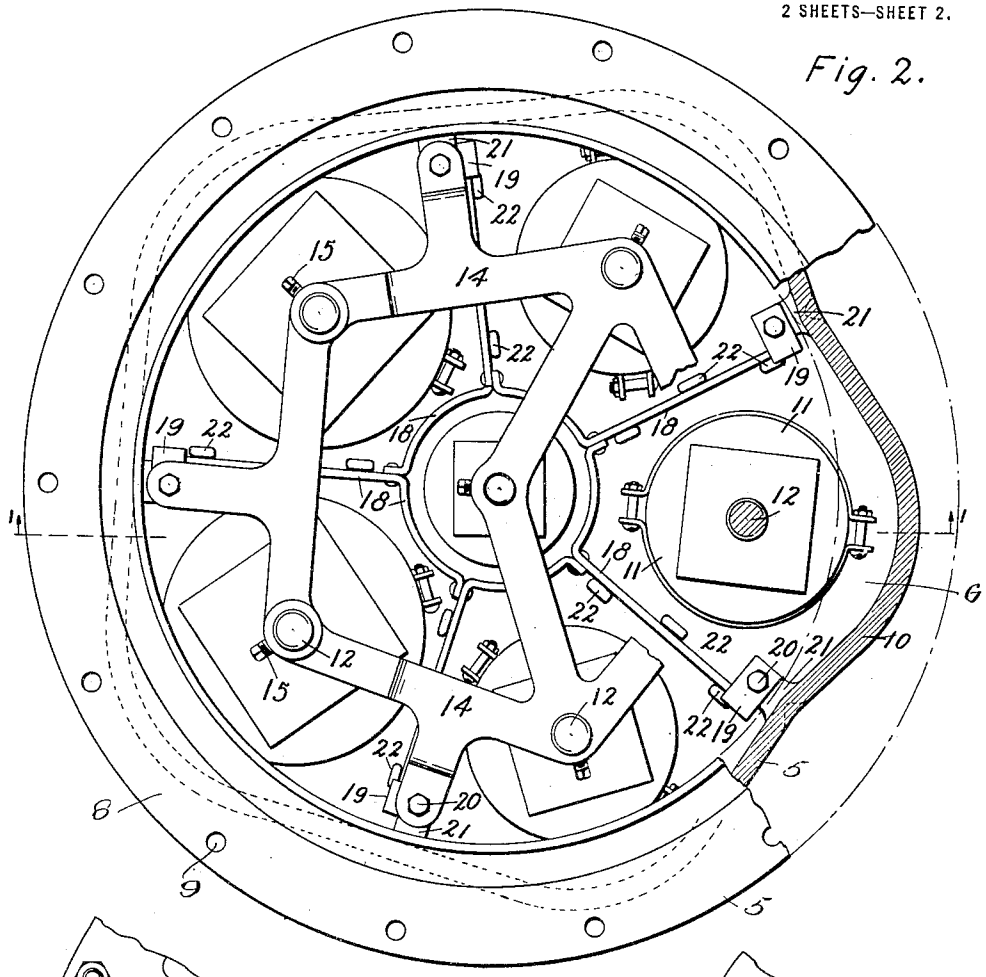


Fig. 3.

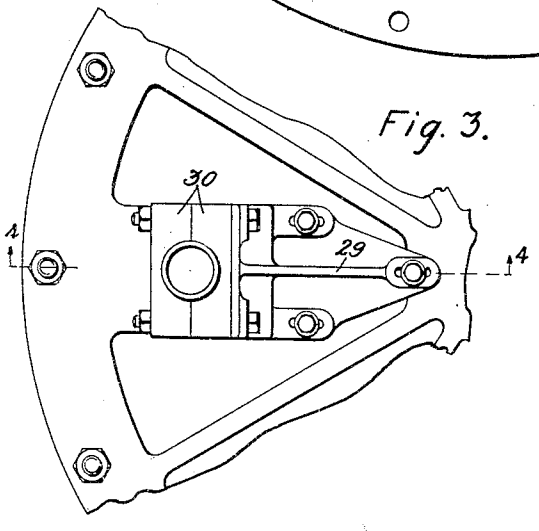
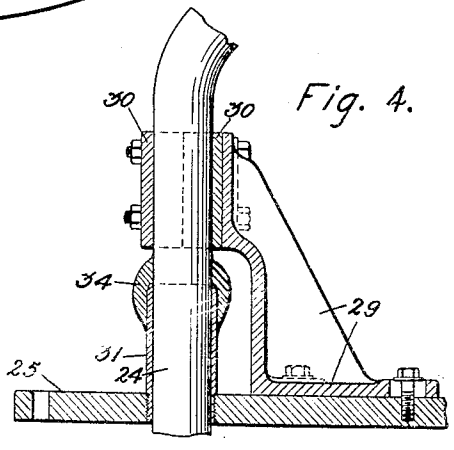


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES R. YOUNG, OF BLOOMFIELD, NEW JERSEY, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LOADING-COIL CASE.

1,272,166. Specification of Letters Patent. Patented July 9, 1918.

Application filed May 26, 1916. Serial No. 100,057.

To all whom it may concern:

Be it known that I, CHARLES R. YOUNG, a citizen of the United States, residing at Bloomfield, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Loading-Coil Cases, of which the following is a full, clear, concise, and exact description.

This invention relates to loading coil cases, and more particularly to an improved construction of coil compartments therein.

One object of this invention is the production of loading coil cases of limited maximum outside diameter, constructed in such a manner that loading coils when potted therein will have a minimum percentage of change in efficiency.

Another object is the novel construction of the coil partitions so as to facilitate assembling the coils in the case.

A well known type of loading coil case comprises a substantially cylindrical body portion open at one end, and provided at that end with a flange to which the cover of the case is bolted or otherwise secured, the interior of the case being divided into compartments for the reception of groups of coils by means of longitudinal partitions cast integral with the body of the casing. The greatest external diameter of the case, which is usually that of the flange to which the cover is secured, is generally determined by the dimensions of existing or standard structures in which the case is to be installed. However, it is frequently desirable, in order to reduce the magnetic leakage, that the cross sections of the compartments be enlarged so as to increase the space between each group of coils and the adjacent wall and partitions of the container over that possible with a case of the above type having the required number of compartments.

This is accomplished by extending portions of the sides of the case out underneath the flange to which the case cover is secured, employing removable partitions between the groups of coils mounted within the case, and constructing the compartments in such a manner as to allow a maximum amount of air space for each of the coils in order to avoid excessive magnetic leakage or potting losses.

This invention will be fully understood from the following description taken in connection with the accompanying drawings, in which Figure 1 is a vertical section of a loading coil case with loading coils mounted therein; Fig. 2 is a top elevation of the case shown in Fig. 1 with the cover removed and parts broken away showing the contour of the wall; Fig. 3 is a top elevation of a cable bracket; and Fig. 4 is a sectional view of the cable bracket taken on line 4—4 of Fig. 3.

The type of loading coil case constituting the embodiment of this invention shown in the drawings comprises a body portion 5 inclosing a coil-receiving space 6, and having an opening 7 at one end for the introduction of the coils. Surrounding the opening 7 is a flange 8 having bolt holes 9 near its outer periphery. The coils 11 are mounted on spindles 12 which are fitted into bosses 13 on the bottom of the case and held rigidly in position at the top of the case by means of a spider 14 and set screws 15. The spindles 12 are of non-magnetic material, being preferably of wood, and the spider 14 which is rigidly secured to the case proper in any suitable manner is usually of cast-iron. The air-gap coils are assembled on the spindles with wooden spacers 16 placed between the coils, and plates 17 of magnetic material placed between the spacers 16 for magnetically shielding adjacent coils on the spindle. The coils, after being assembled in this manner on the spindles, are placed in their respective positions in the case. The inner partitions 18, which are preferably of sheet iron, are then assembled in the case and secured thereto at the top by means of lugs 19 and screws 20 passing therethrough and into the tapped holes in the tops of ribs 21 which are preferably formed integral with and extend to the bottom of the case. At the bottom of the case, the partitions are held rigidly in place by bosses 22 which are also preferably cast integral with the case. The partitions form part of the magnetic shield of each loading coil and of each group of coils.

In former coil cases of this type, the inner periphery of the flange 8 has been substantially a continuation of the inner surface of the side walls of the case, so that the opening 7 and coil receiving space 6 were in alinement throughout the extent of each. In accordance with this invention, the portions of the side wall of the casing

adjacent to the spindles of the coils are built out beneath the lip or flange 8 as clearly shown at 10 in Figs. 1 and 2. By this construction the space between the coils in the outer compartments and the walls of their respective compartments may be considerably increased and a corresponding reduction in the magnetic leakage is obtained. However, it would be impracticable, if not impossible, to place a full spindle of coils in an outer compartment if the partitions were integral with the case or if they were secured in place before the spindles and coils are inserted. However, by employing cases with removable partitions, as hereinbefore described, the coils and spindles may be placed in their respective positions in the case and the partitions may then be easily inserted and secured in place afterward.

In the upper part of the case is a pocket or compartment 23 which is arranged for convenience in splicing the inside conductors 32 leading from the coils to the conductors of the cable stub 24 which projects through the cover of the case.

The cover 25 is provided with an annular rib 26 adapted to fit into a gutter formed in the flange 8. The cover may be rigidly secured to the case in any well-known manner, for example, by means of bolts 27 and nuts 28, the bolts passing through the cover and the bolt holes 9 in the lip or flange 8.

Rigidly secured to the top of the cover is a bracket 29 carrying a pair of cable clamps 30 for supporting the cable stub above the joint 34 located between it and a nipple 31 which is secured into an aperture in the case cover. This is for the purpose of preventing breaking or rupturing the lead sheath of the cable stub above the wiped joint due to vibration or bending in handling. After the coils are assembled and in proper position and before the cover is put in place, the case is filled to about the top of the spider with a suitable sealing compound, preferably of rosin and rosin-oil. The cover is then secured in place and through apertures in the cover hot asphaltum compound is poured until the case is completely filled. Suitable plugs 33, which are preferably of brass, are then tightly screwed into the openings through which the compound has been poured, thereby rendering the case impervious to air and moisture.

What is claimed is:

1. In combination, a case of magnetic material provided with an opening and inclosing a storage space a portion of which is out of alinement with said opening, and a removable partition of magnetic material in said space.

2. In combination, a loading coil case of magnetic material having a receiving space for groups of coils and an opening for the introduction of the coils into said receiving space, a portion of said space being out of alinement with said opening, and partitions for arrangement in said space to extend in directions transverse to said opening.

3. In combination, a loading coil case formed of magnetic material and provided with an opening for the introduction of the loading coils, a flange surrounding said opening and having a portion projecting over the coil receiving space, and partitions of magnetic material adapted for placement in the coil receiving space after the introduction of the coils to coöperate with the walls of said case to form magnetically shielded compartments for the respective groups of coils.

In witness whereof, I hereunto subscribe my name this 24th day of May, A. D. 1916.

CHARLES R. YOUNG.