

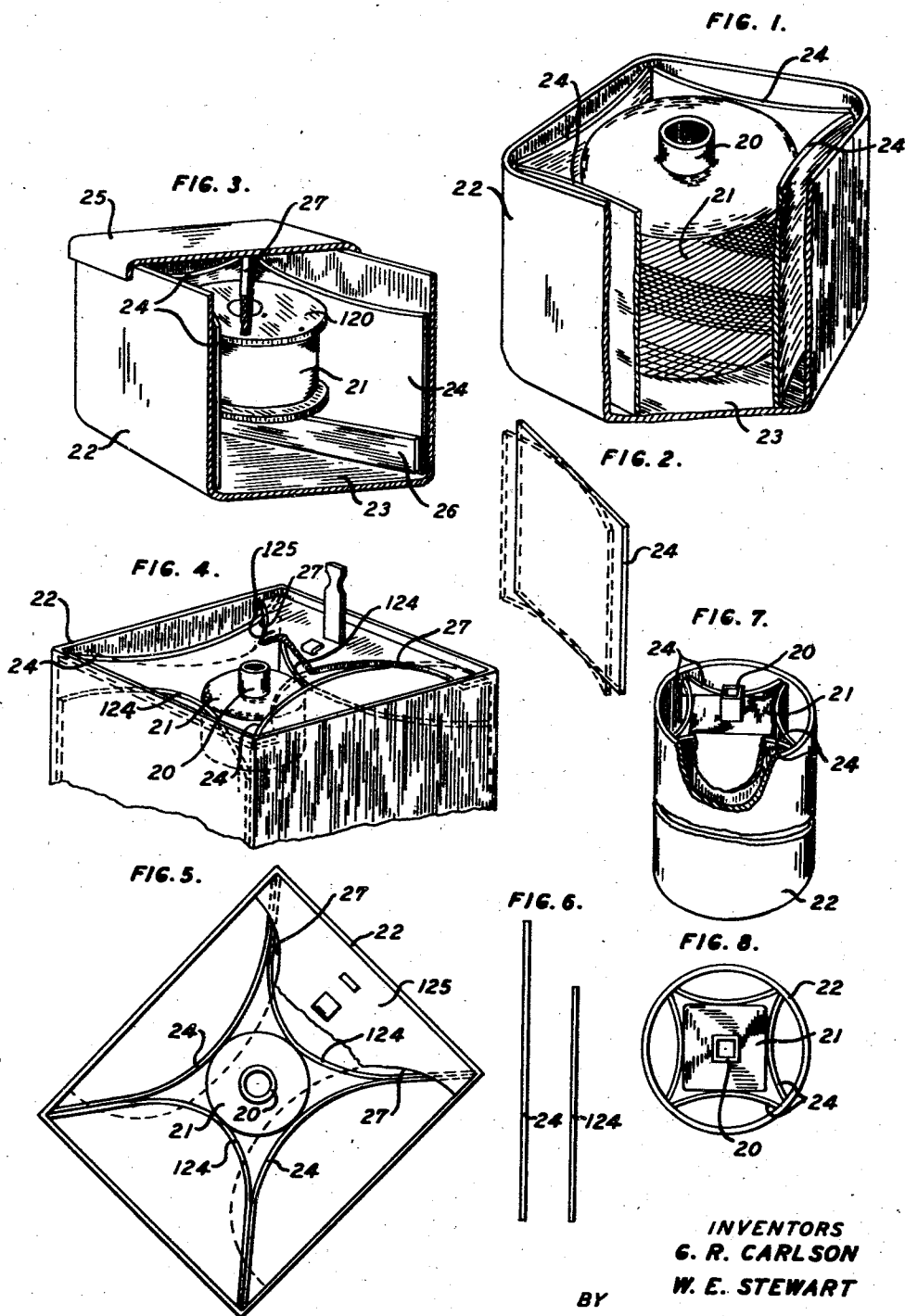
April 30, 1940.

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2,198,803

ELECTRICAL APPARATUS

Filed Aug. 25, 1937



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2,198,803

ELECTRICAL APPARATUS

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Application August 25, 1937, Serial No. 160,808

1 Claim. (Cl. 175—360)

This invention relates to electrical apparatus and more particularly to electrical devices housed within protective or shielding housings.

A certain type of electrical devices such as coils, condensers and similar compact electrical elements frequently used as components of many kinds of circuits, are often housed in casings for reasons of mechanical protection or of electrical shielding, and, in many instances, the housing containing the device is then filled with a molten "potting compound" which is allowed to set. Such potting compound may be a mixture of rosin and rosin oil, or of asphalt and sand, or other analogous material to seal the housed device against change in moisture content for example. In pouring the molten compound it may be difficult to keep the device properly centered, both vertically and horizontally within the usually considerably larger housing, while the compound is being poured and is setting. So also where potting compound is not used within a shielding housing, means to maintain a device within a housing in proper position therein may be desiderated.

An object of the present invention is to provide simple, inexpensive and reliable means for maintaining such electrical devices in proper position within a housing.

With the above and other objects in view one embodiment of the invention may contemplate the combination with a housing of parallelepipedal, cylindrical or other suitable form and a coil, condenser or analogous electrical device contained therein, of a plurality of bowed laminar spacing elements, each arching from two points of the housing and pressing centrally against the housed device to maintain the latter suitably spaced from the housing.

Other objects and features of the invention will appear from the following detailed description of one embodiment thereof, taken in connection with the accompanying drawing in which the same reference numerals are applied to identical parts in the several figures and in which

Fig. 1 is a broken view in perspective of a housing and a core type coil therein, positioned by means of spacers constructed in accordance with the invention;

Fig. 2 is a detached view of one of the spacers;
Fig. 3 is a view similar to Fig. 1 showing a housed spool type coil with bowed lateral spacers and straight top and bottom spacers;

Fig. 4 is a similar view of another form;

Fig. 5 is a view thereof in plan;

Fig. 6 is an edge view of two of the spacers of Fig. 4;

Fig. 7 is a view similar to Fig. 1 of another modified form, and

Fig. 8 is a view thereof in plan.

In Fig. 1, a substantially cylindrical electrical coil has a cylindrical tubular core 20 upon which is positioned a substantially cylindrical mass 21 of wound electrical conductor. The coil is positioned within a open topped, generally parallelepipedal housing 22, which may be of cardboard or the like or of metal as required by the purpose of the coil. As the wire body 21 is narrower vertically than the length of the core 20, the latter may be dimensioned to space the winding 21 suitably from the floor 23 of the housing. In the present instance the housing is square in horizontal cross section with slightly rounded corners and has a height equal to the length of the core 20. To maintain the coil properly centered within the housing, four rectangular laminae 24 of a suitably durable, stiff and elastic material are provided. Each of these is equal in height to the inside depth of the housing 22 or, preferably, is a trifle less in height. In length, each is so dimensioned that when forced into the housing with its vertical edges in two adjacent vertical corners of the housing, its central part will be bowed toward the vertical axis of the housing and the coil, as shown; so that each of the four spacers 24, when in position as shown in Fig. 1, will press along its vertical central line tangentially against the coil winding 21, thus maintaining the coil properly centered in the housing. The material of the spacers may be any suitable substance or combination having appropriate durability, stiffness, unchangeability, etc., such for example as hard fiber, wax impregnated cardboard, molded laminae of artificial resin, Celluloid, hard rubber or the like, with or without a content of fibrous or granular material, or of other analogous substances. If suitably insulated from the device, the spacers might even, exceptionally, be of metal.

In Fig. 3 is shown a generally cylindrical spool type coil, in which a body of wire 21 is wound on a spool 120 as core. In this case the spool heads may not be thick enough to hold the winding 21 at the desired distance from the bottom 23 and removable top 25 of the housing 22. Hence a straight strip 26 of the same material as the spacers 24, is set diagonally across the housing under the spool, on edge, and extending preferably from corner to diagonally opposite corner of the housing, and another like strip 27, is simi-

larly located above the spool. The ends of the strips 26 and 27 will be firmly held between the adjacent ends of the bowed spacers 24.

5 Figs. 4 and 5 show a modification of the arrangement of Fig. 1 in which two opposite spacers 24 are shorter than the inside depth of the housing 22 by a small amount while the other two spacers 124 are shorter yet. A top retainer 125 rests at its corners on the upper edges of the
10 spacers 24. The sides of the retainer 125 over the spacers 124 are straight and abut against the housing sides, while the sides of the retainer over the spacers 24 are more deeply arcuately notched as at 27 than the spacers 24 are bowed. Hence
15 with the structure assembled as shown in Fig. 4, molten potting compound may be poured through the notches to reach and fill all the compartments within. Fig. 6 shows the relative heights of the spacers 24 and 124.

20 Figs. 7 and 8 show a construction like that of Fig. 1, in which, however, the coil core 20 and its winding 21 are rectangular in cross section instead of cylindrical, and the housing is cylindrical. Evidently the coil and housing might be
25 both cylindrical, or both rectangular also.

The illustrative embodiments of the invention disclose a coil; but, clearly, it may be applied regardless of the nature of the device to be positioned and supported within the housing. For
30 example, a rolled cylindrical condenser or a filled rectangular condenser might be substituted for the coils illustrated. So also, while the spacers

are preferably originally straight and are elastically bowed when forced into position in the housing, yet they might well be originally formed or molded to be more or less bowed before being put in place.

The embodiments of the invention disclosed are illustrative only and may be modified and departed from in many ways without departing from the spirit and scope of the invention as pointed out in and limited solely by the appended 10 claim.

What is claimed is:

The combination of an electrical coil and a metallic shielding housing therefor with means for spacing the coil from the housing, the spacing means comprising a plurality of insulating
15 spacing members bent arcuately against their resilient tendency to straighten and disposed in abutting end to end arrangement about the coil in the housing, the peripheral component of the 20 resilient force of each member tending to straighten being met by an equal force exerted through the abutting ends of the adjacent members by their tendency to straighten and the radial component of the force of the ends acting
25 against the housing, said component forces jointly maintaining the curvature of the members and intimate engagement of the intermediate portions of the members with the coil to retain the coil in position.

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