

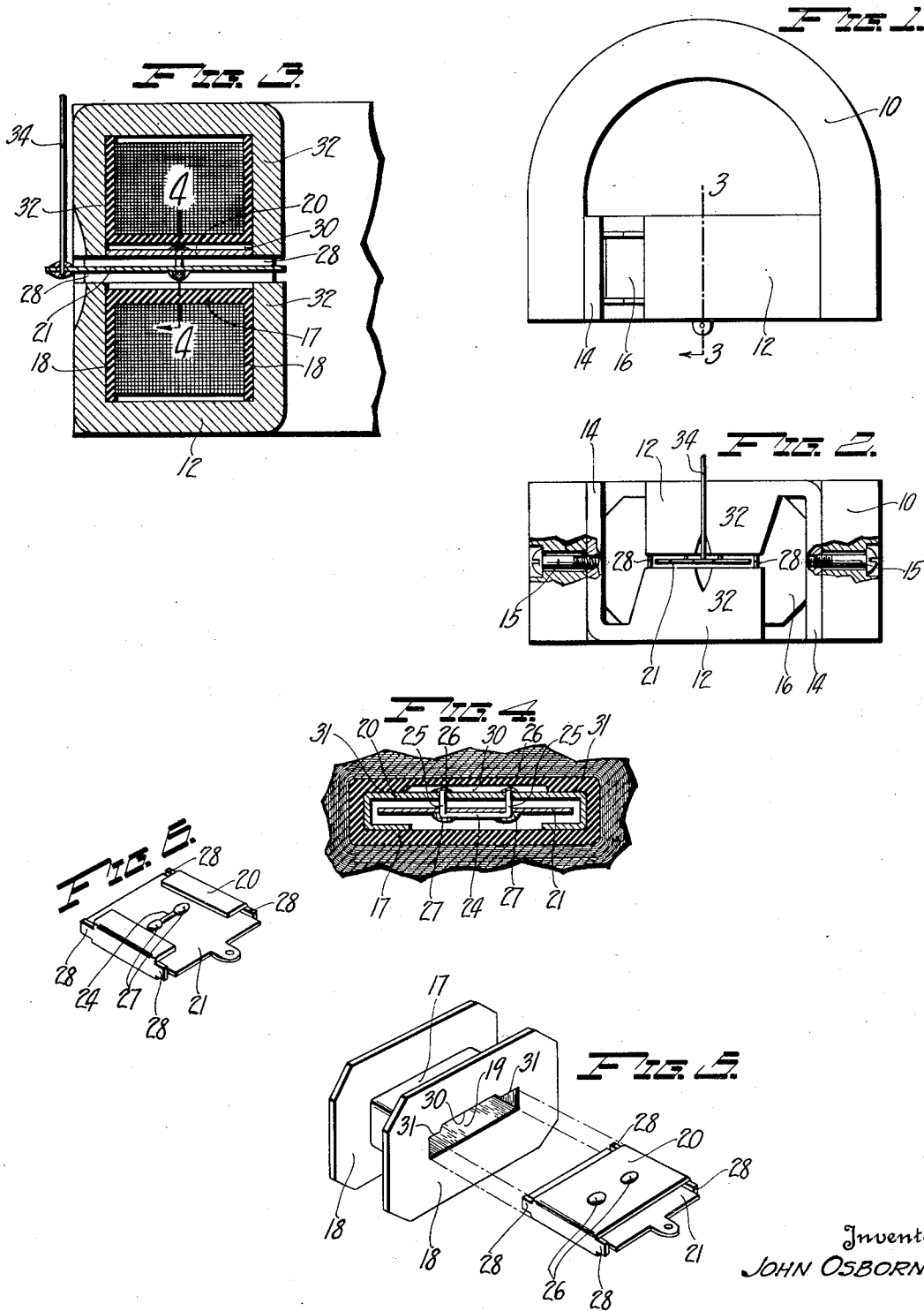
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ELECTROMAGNET COIL BOBBIN AND CORE

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ELECTROMAGNET COIL BOBBIN AND CORE.

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This invention relates to an electromagnet coil-bobbin and core and its principal objects are:

First. To provide an oscillating core mounted in a slip structure which may be easily pushed into or out of the coil bobbin.

Second. To provide a construction whereby the oscillating armature shall be mounted in a supporting structure independent of the bobbin.

Third. Provide the bobbin as an integral structure complete with sleeve and flanges, while the core is mounted in an independent supporting structure such as a non-magnetic metal shell which may be easily pushed into or out of the spool sleeve without disturbing the winding.

This device is peculiarly advantageous for use in the actuating units of radio loud speakers, though it is not restricted thereto. Heretofore, considerable inconvenience has been experienced in building or repairing the electromagnets of the loud speaker units because the coil is wound directly upon the sleeve in which the armature is mounted. In the present invention, this objection is completely avoided because the armature with its supporting structure, is separable from the bobbin sleeve and may be pushed in or out, without disturbing the coil or winding.

The features of this invention, for which the protection of Letters Patent of the United States is desired, are collectively grouped in the claims concluding this specification.

In the drawing, which illustrates merely one embodiment of my invention as applied to an electromagnetic loud speaker actuating mechanism,

Fig. 1 represents a plan thereof;

Fig. 2, a front elevation;

Fig. 3, a section taken on line 3—3, Fig. 1, drawn to an enlarged scale;

Fig. 4, a section on line 4—4, Fig. 3;

Fig. 5, the bobbin in perspective with the armature and its shell withdrawn therefrom and placed in the foreground; and,

Fig. 6, the armature and its shell in perspective, displaying the obverse side.

Referring to the drawing, 10 indicates a permanent magnet, between the legs of which are disposed the pole pieces 12, the latter having the stems 14 secured by screws 15 which pass through the legs of the magnet 10. Fitting snugly inside the pole pieces is the bobbin 16, composed of the sleeve 17

and the flanges 18. The sleeve and flanges are preferably moulded integral with each other to form one piece. This bobbin may be conveniently made of duralite or other similar substance.

The recess 19 is defined by the sleeve 17, and accommodates the shell or holder 20, in which the armature 21 is flexibly mounted by means of the usual U-shaped wire 24, whose legs 25 are held in the shell 20 by soldering, as indicated at 26. Drops of solder 27 serve to rigidly hold the wire 24 in the armature 21. Projecting from the shell 20 are the spacing lugs 28, which are positioned between the pole pieces 12 and serve to hold the pole pieces a given distance apart from each other, as indicated in Figs. 2 and 3, thus uniformly gauging the extent of the gap defined between the pole pieces.

It will be noticed in Figs. 3 and 5, that the coil of wire is wound on the sleeve 17 of the bobbin, the convolutions thereof being piled up between the flanges 18 without in any manner interfering with the insertion or withdrawal of the shell 20. The shell should fit snugly in the sleeve so as not to rattle therein, but at the same time, so it shall be easily pushed into place; in other words, a close telescoping fit.

The convenience of this arrangement will be readily apparent when it is remembered that ordinarily the entire spool and its coil must be torn apart in order to get at the armature or its mounting.

The beads of solder 26 naturally extend above the upper surface of the supporting structure, as indicated in Figs. 4 and 5. To accommodate the beads 26, when the supporting structure is slipped into place within the coil-bobbin, the recess 19 is counter-recessed as indicated at 30, leaving the surfaces 31 as guides for the supporting structure.

In the construction described, the coil-bobbin is held securely in place lengthwise, between the stems 14 of the pole pieces; sideways, by the legs 32 which straddle the bobbin, and vertically, by the lugs 28 and the backs of the pole pieces.

Motion from the oscillating core 21, which latter of course functions as an armature with respect to the magnet 10, is transmitted to the diaphragm (not shown) of the usual loud speaker, by means of the pin 34.

I am aware that it is not broadly new to construct an electromagnet coil-bobbin or

spool with an oscillating core therein, for which reason I limit my present claims to a coil-bobbin or spool into which may be telescoped a structure supporting an oscillating
5 core.

While a specific embodiment of this invention is herein shown and described, it is to be clearly understood that all the detailed parts thereof, may or may not be shown in
10 the preferred forms, and further, that the preferred forms may be varied from time to time, as the development of this invention and the arts to which it appertains, advance. Therefore, that which forms an essential and
15 characteristic part of this invention, will be readily discernible from the claims in which its spirit is generalized.

Having fully described my invention, what I claim is:

20 1. In an electromagnet coil-bobbin and core, a sleeve having a substantially elongated cross-section, a supporting member separate from, and fitted telescopically into said sleeve; and a substantially flat core oscillatingly
25 mounted in said supporting member.

2. An electromagnet coil-bobbin and core, comprising a sleeve having a substantially elongated cross-section, a supporting member of similar cross-section slidable into and
30 out of, said sleeve, and a substantially flat core oscillatingly mounted in the said supporting member.

3. An electromagnet coil-bobbin having a sleeve, flanges extending from said sleeve, substantially at the ends thereof, pole pieces
35 having legs straddling said flanges and extending mutually towards each other, a shell slidable into and out of said sleeve, a core mounted in said shell, and spacing members carried by said shell, said spacing members
40 positioned between said pole pieces.

4. An electromagnet coil-bobbin having an elongated recess extending therethrough to define an elongated cross-section, an armature-supporting structure corresponding to,
45 and slidable into said recess, and a substantial flat armature operatively mounted in said armature-supporting structure.

5. An electromagnet coil-bobbin having a suitably defined main recess extending there-
50 through, a supporting structure telescoped in said recess, an armature within said supporting structure, legs projecting from said armature through a wall of said supporting structure, protuberant fastenings holding the ex-
55 tremities of said legs in said supporting structure, and a counter recess defined in the supporting structure contiguous to said main recess for accommodating said protuberant fastenings.
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In testimony whereof I sign my name hereto.

JOHN OSBORNE.