

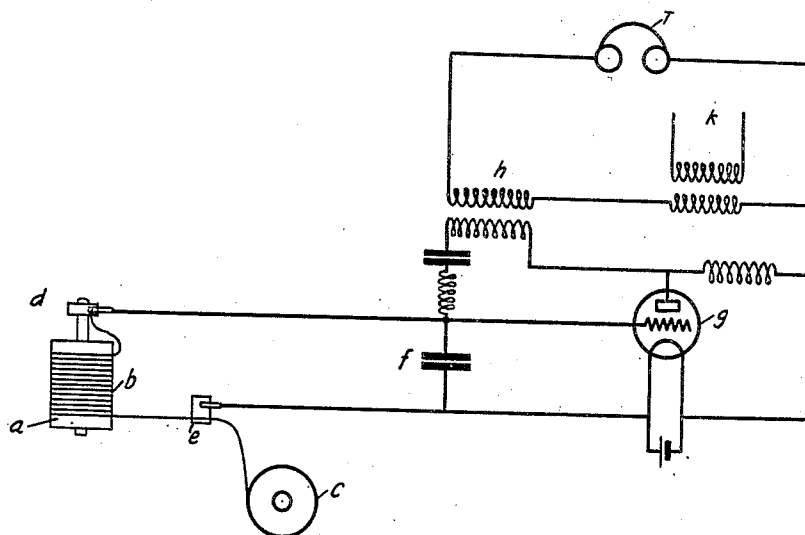
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METHOD OF AND MEANS FOR MAKING COILS POSSESSING ACCURATE INDUCTANCE

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METHOD OF AND MEANS FOR MAKING
COILS POSSESSING ACCURATE INDUC-
TANCE

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482,917, and in Germany September 26, 1929.

3 Claims. (Cl. 175—183)

The present invention discloses ways and means adapted to produce inductance coils of a kind wherein the desired inductance value is insured in the course of the winding process.

5 This makes for greater speed in large-scale manufacture.

According to the invention this end is attained by assuring that during the winding process the natural frequency of an oscillation circuit comprising the wire already wound upon the bobbin or body of the spool is controlled and checked up.

10 The arrangement adapted to practice this method comprises slide or liquid contacts whereby the wire already wound upon the bobbin remains cut into an oscillation circuit in the course of the winding process.

To wind the coils, non-insulated, i. e., bare wire is employed. Insulation is obtained either by spacer winding and subsequent fixing of the turns by suitable binders such as bakelite varnish, and the like, or by the use of a bobbin having a guide groove, or else by inserting a thread of silk between adjacent turns of wire.

15 If in the oscillation circuit containing the wire wound upon the bobbin an electric wave is produced in the course of the winding process, the frequency thereof can be easily checked by comparison with the constant wave of an auxiliary or standard circuit by that the two waves are brought to act upon a telephone receiver.

20 If the auxiliary frequency differs by, say, 1000 cycles from the frequency of the circuit changing in the course of the winding process and containing the coil to be wound, then a beat note will be produced in the telephone receiver of exactly 1000 pps at the instant when the said oscillation circuit has reached the desired or required nominal frequency; and this beat note indicates that the winding should be stopped at that very instant.

25 For the purpose of wave generation, one of the many apparatus known in the prior art may be employed, say, a buzzer. Of greatest advantage, however, is the use of a thermionic tube for wave generation.

30 Such an arrangement comprising a thermionic tube as wave generator is illustrated in the drawing by way of example. The bare wire as stored on the roll *c* is here wound by suitable mechanism upon the bobbin *a*. While the proc-

ess of winding proceeds, the wire *b* already wound on the bobbin, either from the very outset or else after a certain moment has been reached, remains in electric connection with a condenser *f* by way of a slide contact *e* and a slip ring *d*. The oscillation circuit comprising *b* and *f* may most conveniently be inserted between the grid and the filament of the generator or oscillator tube *g* and governs the wave-length of the latter, e. g., by back-coupling with the plate circuit. This frequency, say, by coupling transformer *h*, may be transferred to the circuit containing a head-set of the winding operator wherein it is superimposed upon a constant auxiliary frequency furnished from source *k*. As soon as the coil reaches the desired inductance value as the winding process proceeds, a definite beat note becomes audible in the headset, and then the operator discontinues the winding.

The condenser, if desired, may consist of the same device which is later to be used in the receiver set to form an oscillation circuit conjointly therewith. In this manner, the test or control apparatus hereinbefore disclosed results in oscillation circuits possessing exactly the desired wave-length.

I claim:

1. A method of winding inductance coils having accurate predetermined inductance values which comprises, connecting the coil to an oscillation generator circuit during the winding operation thereof, varying the frequency of oscillations generated by the generator circuit in accordance with variations in the inductance of the coil while being formed, comparing the frequency of oscillations produced thereby with a standard frequency and arresting the coil forming operation when the varying frequency generated reaches a predetermined value as compared with said standard frequency value.

2. A method of winding inductance coils having accurate inductance values which comprises, connecting the coil in the oscillation frequency controlling circuit of an oscillation generator circuit during the winding operation thereof, varying the frequency of oscillations generated by the generator circuit by increasing progressively the coil inductance, combining the frequency of oscillations produced thereby with a standard frequency to obtain a resulting beat frequency

and stopping the winding operation when the beat frequency reaches a predetermined limit value.

3. In a system for winding inductance coils having accurate inductance values, an oscillation generator circuit, means for connecting the coil during the winding operation thereof to the frequency determining circuit of said oscillation circuit said coil being adapted to vary the

frequency of oscillations generated by said generator circuit by increasing progressively the coil inductance through the winding operation thereof, a source of standard frequency energy, a common indicator circuit and means for coupling said indicator circuit to said standard source and to said first named oscillation generator circuit.

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