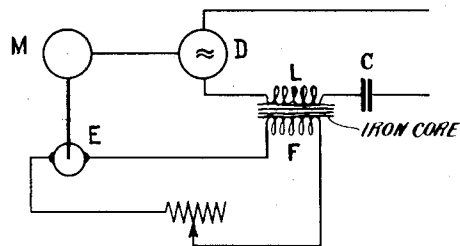


Feb. 10, 1925.

1,525,686

M. OSNOS

REGULATING ARRANGEMENT FOR VARYING CIRCUIT TUNING IN ACCORDANCE WITH
VARIATION IN FREQUENCY
Filed Feb. 20, 1923



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By his Attorney *Ira J. Adams*

UNITED STATES PATENT OFFICE.

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REGULATING ARRANGEMENT FOR VARYING CIRCUIT TUNING IN ACCORDANCE WITH VARIATION IN FREQUENCY.

Application filed February 20, 1923. Serial No. 620,219.

To all whom it may concern:

Be it known that I, MENDEL OSNOS, of Russian nationality, residing at 12/13, Hallesches Ufer, Berlin, Germany, have invented certain new and useful Improvements in Regulating Arrangements for Varying Circuit Tuning in Accordance with Variation in Frequency, of which the following is a specification, accompanied by drawings.

It is well known that even in case of relatively slight variations in the speed of rotation of high frequency apparatus, the sharpness of the tuning is materially affected whereby the amplitude of the antenna current is subjected to undesirable variations. In order to avoid this drawback it has already been suggested (see French Patent No. 461,099) to automatically adjust the tuning in accordance with the occasional speed variations by providing a centrifugal operating device which varies the self induction of the high frequency circuit or by providing a small exciter, the speed of which varies in proportion with that of the high frequency generator and which energizes a magnet which in turn actuates the tuning means.

Such mechanical actuation of the tuning means by means of a centrifugal device or electromagnets has many disadvantages. Such disadvantages are due to the inertia, friction or other variations in the centrifugal device whereby it will not operate exactly within the predetermined limits. Furthermore, there is a decided lagging due to the fact that a considerable mass such as the centrifugal device or the lever which is actuated by the electromagnet must be brought into operation. In accordance with the present invention, adjustment of the tuning to the speed of rotation is made much closer and more perfect by providing a small direct current generator, which is coupled with the driving motor of the high frequency generator to feed the auxiliary winding of a tuning choke coil, the main winding of which is provided in the high frequency circuit. In this manner in accordance with the variations in the speed of rotation, the condition

of saturation and therefore also the self induction of the tuning choke coil may be varied.

My invention is illustrated in the accompanying drawing, in which—

M is the driving motor, D the high frequency generator, E the direct current generator, C a tuning capacity, and L a tuning choke coil with iron core the auxiliary winding F of which controls the saturation.

If the antenna current is to be kept constant with variation in frequency, the load circuit of generator D which includes tuning coil L and capacity C must be kept in tune with the instantaneous frequency. Therefore with increase in frequency, either the inductance or capacity should be decreased and, likewise with decrease in frequency, either the inductance or capacity should be increased.

According to the invention the capacity is kept constant and the inductance varied as required by the frequency.

It will easily be understood that the relative ampere turns of the D. C. winding and of the A. C. winding on the tuning coil L can be so determined that the inductance of tuning coil L will decrease with increase in current thru the D. C. winding F; such as caused by an increase in frequency and likewise the inductance of tuning coil L will increase with decrease in current thru the D. C. winding F, such as caused by a decrease in frequency.

Having described my invention I declare that what I claim is:

1. Regulating arrangement comprising a high frequency alternator, a direct current generator connected to rotate therewith, means for tuning the alternator circuit including an inductive coil having a magnetic core, said inductive coil having an auxiliary winding connected to said direct current generator.

2. Regulating arrangement comprising a first source of alternating current, a second source of direct current, means whereby the voltage of said second source increases with increase in frequency of said first source and vice versa, a load circuit fed by said first source including an induc-

tive coil having a magnetic core, said inductive coil having an auxiliary winding connected to said second source.

3. Regulating arrangement comprising a
5 first source of alternating current, a second source of direct current, means whereby the voltage of said second source changes

with change in the frequency of said first source, a load circuit fed by said first source including an inductive coil having
10 a magnetic core, said inductive coil having an auxiliary winding connected to said second source.

MENDEL OSNOS.