

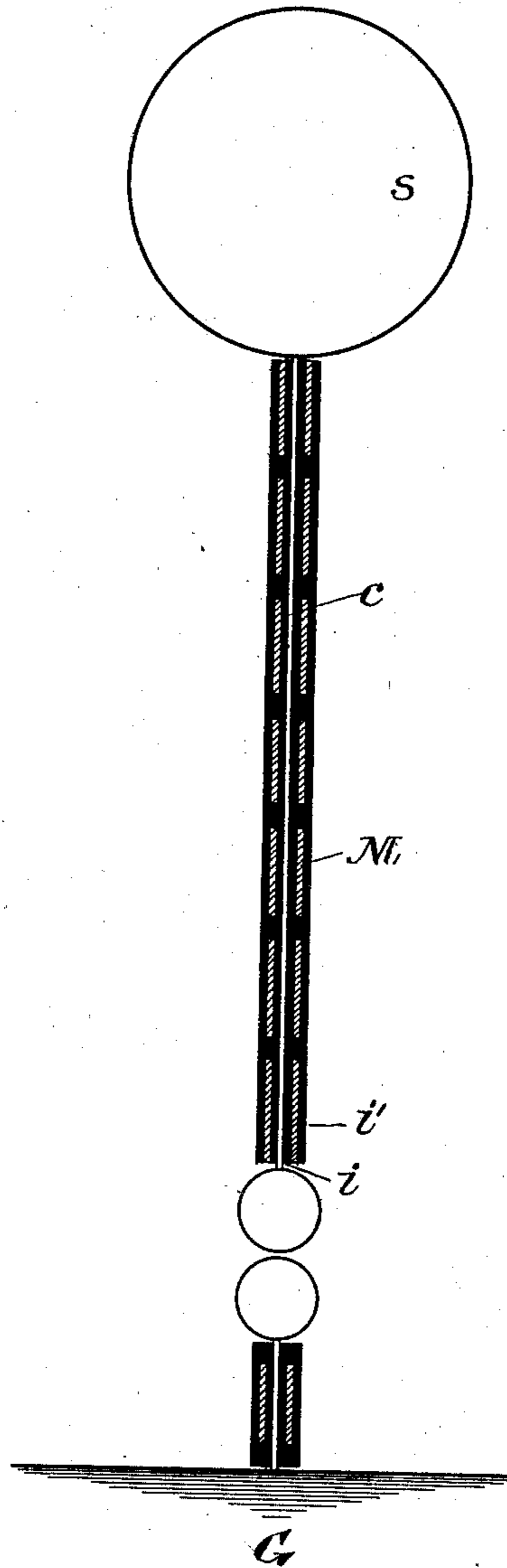
No. 717,512.

Patented Dec. 30, 1902.

J. S. STONE.  
TUNED ELECTRIC OSCILLATOR.

(Application filed Jan. 23, 1901.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN STONE STONE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO LOUIS E. WHICHER, ALEXANDER P. BROWNE, AND BRAINERD T. JUDKINS, TRUSTEES.

## TUNED ELECTRIC OSCILLATOR.

SPECIFICATION forming part of Letters Patent No. 717,512, dated December 30, 1902.

Application filed January 23, 1901. Serial No. 44,391. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN STONE STONE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Tuned Electric Oscillators, of which the following is a specification.

The invention relates to the art of space telegraphy or of signaling electrically between stations not connected by a conducting-wire, and more particularly to the elevated-conductor system of space telegraphy or that system in which the signals are transmitted by means of electromagnetic waves which emanate from elevated conductors.

The object of the present invention is to provide in an elevated-conductor system of space telegraphy means for definitely tuning the elevated conductors both at the transmitting and receiving stations to any desired periodicity, and this is accomplished by distributing the electromagnetic inertia along the wire and balancing said electromagnetic inertia by a suitable capacity.

A means of accomplishing this end is illustrated in the figure, in which C is a central copper core, *i* is a layer of suitable insulation, M is a circumferentially-continuous but longitudinally-discontinuous paramagnetic sheath, *i'* is another layer of insulation, S is a conducting-sphere, and G is a ground connection.

The free period of such a system will be approximately determined by the formula 35

$$T = 2 \pi \sqrt{CL},$$

where C is the electrostatic capacity of the sphere S, measured to earth, and L is the inductance of the conductor connecting S with the earth. The distributed electromagnetic inertia may also be conveniently imparted to the wire C by first insulating it and then winding on a layer of iron wire after the manner in which pianoforte-strings are loaded; but in every case care must be taken to produce longitudinal electrical discontinuity in the iron sheathing or wrapping at frequent intervals. Again, an insulating-coat thoroughly impregnated with iron-dust may be used, and, in fact, there are a great variety of ways of realizing the desired result; but 50

What I claim as my invention is—

1. In an electric oscillator the combination of a conducting-wire surrounded by insulation, a longitudinally-discontinuous paramagnetic sheath inclosing said conductor and a capacity. 55

2. A vertical oscillator adapted to transmit and receive free electromagnetic waves, having interiorly a wire surrounded by insulation, and a longitudinally-discontinuous paramagnetic sheath, inclosing said wire. 60

JOHN STONE STONE.

In presence of—

ALEX. P. BROWNE,  
ELLEN B. TOMLINSON.