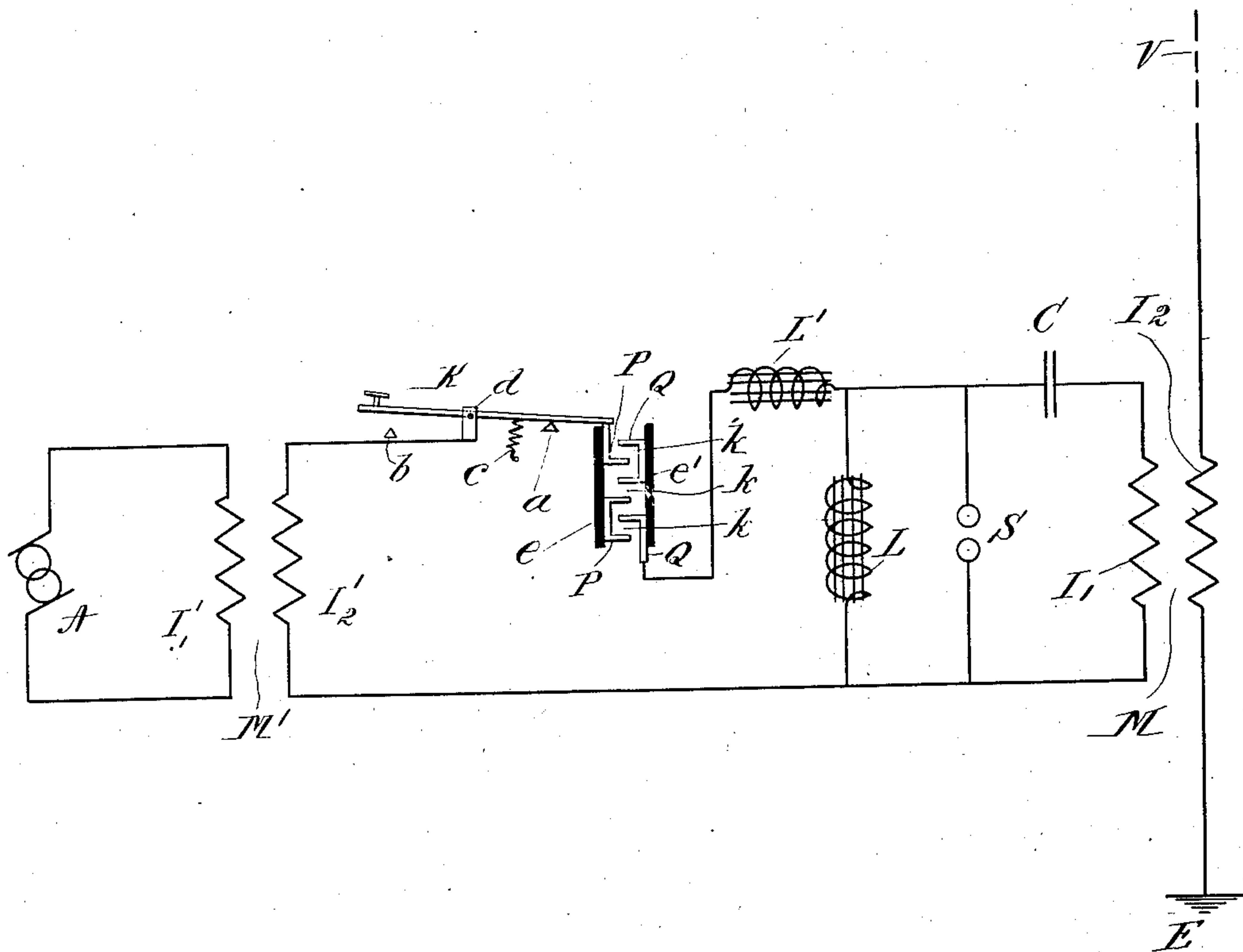


J. S. STONE.  
SPACE TELEGRAPHY.  
APPLICATION FILED MAR. 25, 1908.

908,815.

Patented Jan. 5, 1909.



WITNESSES:

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G. A. Higgins

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# UNITED STATES PATENT OFFICE.

JOHN STONE STONE, OF BOSTON, MASSACHUSETTS.

## SPACE TELEGRAPHY.

No. 908,815.

Specification of Letters Patent.

Patented Jan. 5, 1909.

Application filed March 25, 1908. Serial No. 423,099.

*To all whom it may concern:*

Be it known that I, JOHN STONE STONE, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Space Telegraphy, of which the following is a specification.

My invention relates to space telegraphy and its object is to provide means for increasing the power factor of the primary power circuit of a space telegraph transmitting system.

My invention may best be understood by having reference to the drawing which accompanies and forms a part of this specification and which illustrates certain apparatus and circuit arrangements embodying my invention; but it will be understood that my invention is not limited to the particular embodiment thereof illustrated in said drawing, inasmuch as many modifications may be made therein without departing from the principle thereof.

In the drawing, the figure diagrammatically represents a space telegraph transmitting system.

In the figure, A represents a source of vibratory current, such for example as an alternating current generator.

M M' are transformers.

I<sub>1</sub> I<sub>1</sub>' are transformer primaries.

I<sub>2</sub> I<sub>2</sub>' are transformer primaries.

V is an elevated transmitting conductor.

E is an earth connection.

L L' are ferric inductances.

K is a key arranged to operate the series-contact switch P Q to close or reduce the length of the gaps *k k*. Normally the key K is held against its front stop *a* by the spring *c*. The back stop *b* is so placed that when the key is depressed the gaps *k k* between the members P and Q, which are secured respectively to the insulating members *e e'* are either closed or else sufficiently reduced to permit the power circuit, which includes the generator A, to charge the condenser C. When the condenser C is charged to a potential sufficient to break down the medium between the electrodes of the spark gap or discharger S, high-frequency electrical oscillations are developed

in the sonorous circuit S C I<sub>1</sub>, and the energy of said oscillations is translated to the elevated conductor system V I<sub>2</sub> E, effecting the radiation of electromagnetic waves.

The system so far described is substantially the same as that disclosed in the patent to Cabot, No. 884,070 dated April 7, 1908.

The particular improvement effected by me over the prior art as shown in said patent, and which, it will be obvious, is not limited to the system of circuits disclosed therein but is capable of use in various other systems of circuits, consists in connecting across the terminals of the sonorous circuit an inductance, preferably the ferric inductance L, so proportioned that the parallel branch circuit L C I<sub>1</sub> having inductance in one of its branches and capacity in the other will have a capacity reactance for the frequency of the currents developed by the generator A, said capacity reactance preferably being equal to or greater than the inductance reactance offered by the transformer M' while the condenser C is being charged. When the said parallel branch circuit is designed as above set forth, the power factor of the primary power circuit which includes the generator A and the primary I<sub>1</sub>' is increased and may be raised to unity. The ferric inductance L' may be employed to compensate for the magnetic leakage in the transformer M'.

I claim:

1. A space telegraph transmitting system comprising a transformer, a source of vibratory current of definite frequency in series with the primary of said transformer, a sonorous circuit, connections from the secondary of said transformer to said sonorous circuit and an inductance connected across said sonorous circuit, said inductance being so proportioned that for currents of said frequency the power factor of the circuit including said primary is substantially unity.

2. A space telegraph transmitting system comprising a transformer, a source of vibratory current of definite frequency in series with the primary of said transformer, a sonorous circuit, connections from the secondary of said transformer to said sonorous circuit, and inductance connected across said

sonorous circuit, said inductance being so proportioned that for currents of said frequency the power factor of the circuit including said primary is substantially unity,  
5 and an inductance in said connections substantially equal in value to the magnetic leakage of said transformer.

In testimony whereof, I have hereunto subscribed my name this 23rd day of March 1908.

JOHN STONE STONE.

Witnesses:

PATRICK J. CONROY,  
JEANNIE STONE STONE.