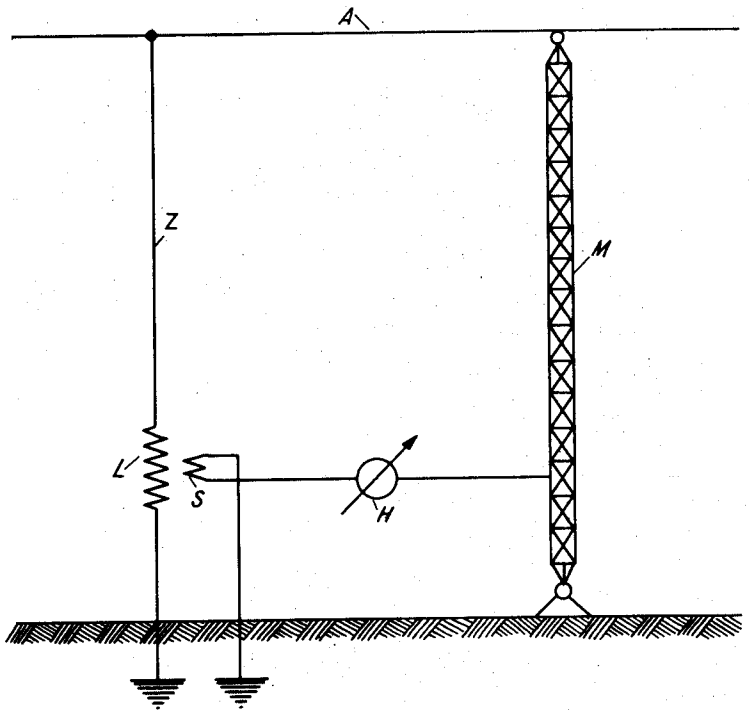
Feb. 12 , 1924. 1,483,860

O. VON BRONK

ANTENNA ARRANGEMENT FOR WIRELESS TELEGRAPHY

Filed Sept. 3, 1921



Inventor
OTTO von BRONK

By his Attorney
Lea Adams

Patented Feb. 12, 1924. 1,483,860

UNITED STATES PATENT OFFICE.

OTTO VON BRONK, OF BERLIN, GERMANY, ASSIGNOR TO GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M. B. H. HALLESCHES, OF BERLIN, GERMANY, A CORPORATION OF GERMANY.

ANTENNA ARRANGEMENT FOR WIRELESS TELEGRAPHY.

Application filed September 3, 1921. Serial No. 498,425.

To all whom it may concern:

Be it known that I, OTTO VON BRONK, citizen of the German Republic, residing at Berlin, Germany, have invented certain new and useful Improvements in Antenna Arrangements for Wireless Telegraphy (for which I have filed an application in Germany June 5, 1917, Patent No. 300,782), of which the following is a specification.

This invention relates to radio signalling systems and particularly to a method and apparatus for eliminating undesirable effects of the antenna masts.

The great height of the masts used for radio antenna makes it necessary to provide relatively great mechanical firmness. It is therefore necessary to make the masts almost entirely of metal. The masts are a troublesome necessity in the alternating field of the antenna as they produce distortion in the path of the lines of force between the antenna and its surroundings which unfavorably influence the radiation and produce currents in the masts, which, depending on the resistance present result in losses and diminish the effectiveness of the entire antenna arrangement. To prevent these, the masts are usually separated from the ground by means of insulation but it is difficult to maintain the insulation permanently good.

The present invention discloses a further means to counteract the effects mentioned as will be hereunto described. The mast is subjected to an electromotive force by means of an auxiliary source of energy drawn from the high frequency source and having the phase and distribution substantially equal to the electromotive force in the neighboring dielectric. The lines of force from the dielectric entering into the mast are thus reduced to a minimum so that the energy consumed in the mast can only be very small.

An illustrative embodiment of the invention is shown in the single diagrammatic figure of the drawing.

The antenna A carried by mast M is connected to the input feed conductor Z which contains the antenna induction coil L. The latter is coupled with a second coil S and from this the auxiliary energy is supplied to the mast. If S is uncoupled from L then a current flows through the mast and feeding conductor, the value of which can be determined on the meter H. By correct coupling of S and L and proper electrical values of the current path comprising the earth mast and dielectric an electromotive force of the proper phase and amplitude can be impressed on the mast so that the current in it will be a minimum.

Having described my invention, what I claim is:

1. In radio signalling systems having an antenna supported by a conducting mast, means for impressing an electromotive force on the mast to substantially prevent induced currents therein.

2. In radio signalling systems having an antenna supported by a conducting mast, means for impressing an electromotive force on the mast substantially equal and opposite to the electromotive force normally induced in the mast by the antenna.

3. In radio signalling systems having an antenna supported by a conducting mast, means for impressing an electromotive force on the mast substantially equal and opposite to the electromotive force normally induced in the mast by the antenna, said electromotive force being derived from said antenna system.

4. In radio signalling systems having an antenna supported by a conducting mast insulated from the earth, means for impressing an electromotive force on the mast to substantially prevent induced currents therein.

5. In radio signalling systems having an antenna supported by a conducting mast insulated from the earth, means for impressing an electromotive force on the mast substantially equal and opposite to the electromotive force normally induced in the mast by the antenna, said electromotive force being derived from the antenna system.

In testimony whereof I affix the signature.

OTTO VON BRONK.