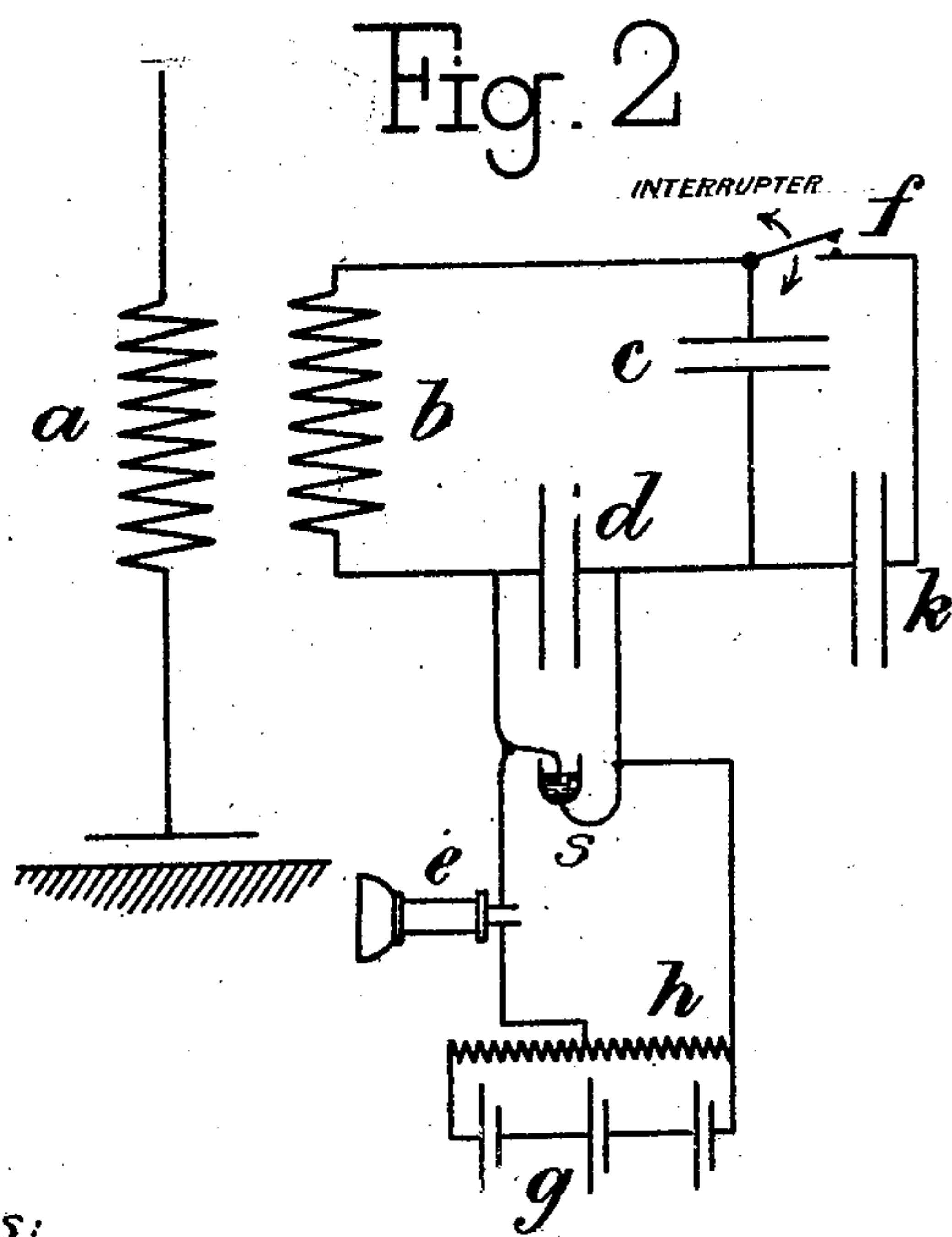
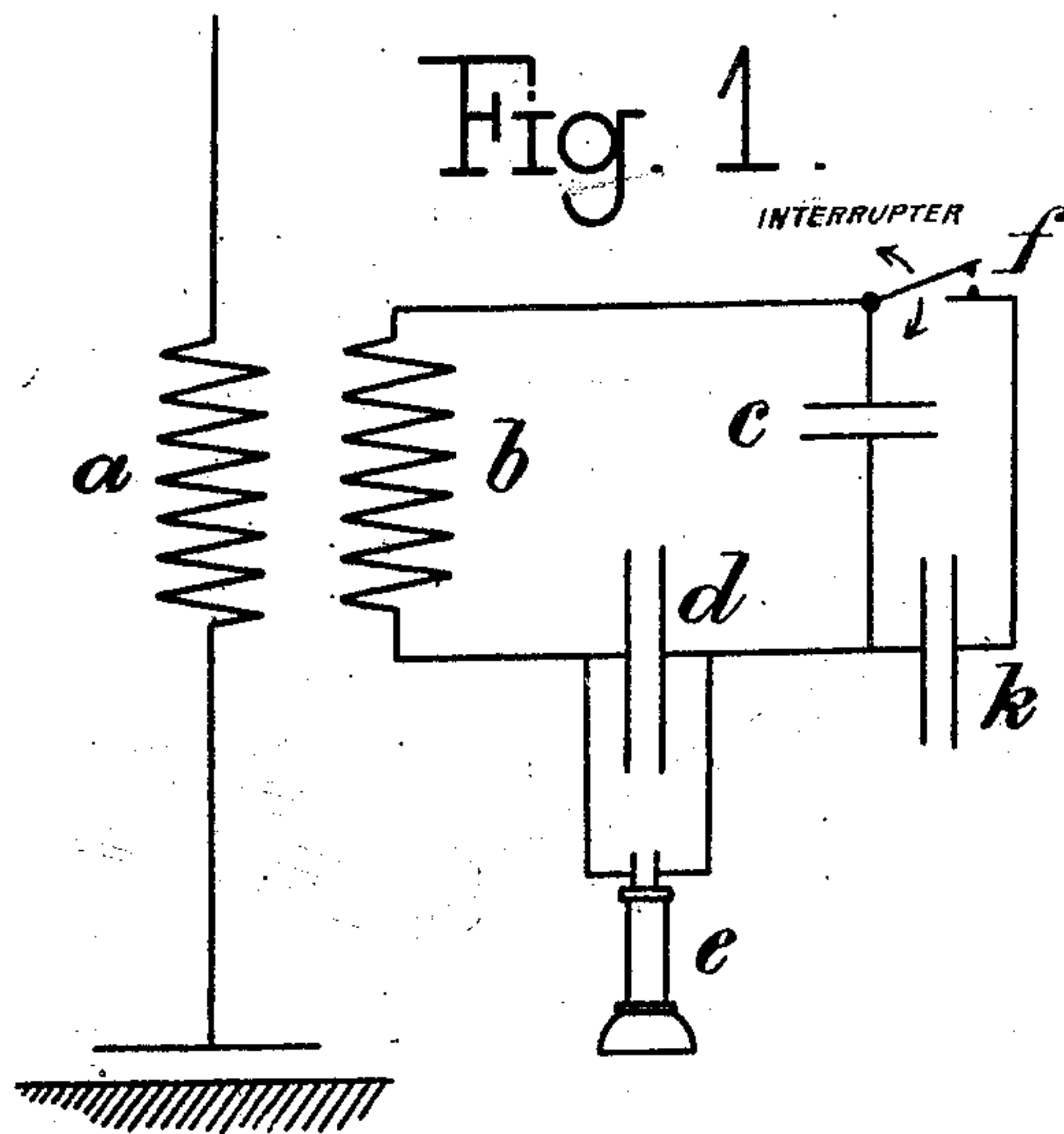


No. 897,779.

PATENTED SEPT. 1, 1908.

V. POULSEN.
RECEIVER FOR WIRELESS SIGNALING.
APPLICATION FILED MAR. 6, 1907.



Witnesses:
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UNITED STATES PATENT OFFICE.

VALDEMAR POULSEN, OF COPENHAGEN, DENMARK.

RECEIVER FOR WIRELESS SIGNALING.

No. 897,779.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed March 6, 1907. Serial No. 360,359.

To all whom it may concern:

Be it known that I, VALDEMAR POULSEN, a subject of the King of Denmark, residing at Copenhagen, Denmark, have invented certain new and useful Improvements in Receivers for Wireless Signaling, of which the following is a full, clear, and exact description.

This invention relates to a method and apparatus for wireless signaling by which the energy accumulated in the oscillation circuit is periodically brought to act on a wave indicator connected to such circuit. By the present invention this is effected by periodically putting the oscillation circuit out of resonance with the aerial or other circuit to which it is tuned. The accumulated energy will then at once be caused to act upon the wave indicator.

In the drawing, Figure 1 is a diagram illustrating a wireless receiving apparatus embodying the principles of my invention. Fig. 2 shows a slightly modified form of the same.

Referring to Fig. 1, *a* indicates a receiving antenna or aerial circuit from which oscillations are induced in the coil *b* which, together with the condensers *c* and *d*, constitutes a closed oscillation circuit.

e designates an ordinary telephone receiver which constitutes a detector or wave-indicator. At *f* there is provided an intermittent contact device which is adapted to couple or connect another condenser *k* in parallel with the condenser *c*. When the contact is interrupted at *f*, assuming that the oscillation circuit is tuned to resonance under these circumstances, intense oscillations will appear in the said oscillation circuit without passing through the telephone receiver *e*, on account of the enormous reactance of the latter to high frequency oscillations. If, now, the circuit is completed at *f*, the energy accumulated in the oscillation circuit will discharge itself suddenly through the telephone receiver *e*, which will accordingly be actuated.

While a full discussion of the theoretical considerations entering into this last action is impossible in this specification, and also unnecessary, it may be generally stated that, when the coils *a* and *b* are in resonance, the

condenser *d* is first charged and then discharged at a rate corresponding to the frequency of the oscillations. In other words, the condenser *d* receives each charge with extreme suddenness and almost instantly discharges itself again through the coil *b* which, being in resonance, does not oppose such discharge, but actually assists it and maintains the intensity of the oscillations. If, however, it be assumed that, after the condenser *d* receives a charge in this way, the coils *a* and *b* be no longer in resonance, then the discharge of the condenser through the coil *b* would be opposed. Its charge will therefore have to find another path, and such a path is provided by the telephone receiver *e*, even although the discharge through this path necessarily takes a much longer interval than an oscillation of the circuit. The discharge of the condenser *d* through the receiver *e* would, of course, take place in a very minute fraction of a second, producing a sharp tap, notwithstanding the fact that this interval is very considerably greater than the periodicity of the oscillations of the oscillation system. Accordingly, if the system is receiving waves, the fact will be indicated by taps in the telephone receiver *e* whenever contact is made at *f*, but, if the system is not receiving waves, there will be no taps in the telephone receiver *e*.

In the diagram shown in Fig. 2 an electrolytic detector is used as a wave indicator. The detector is indicated at *s* and the battery at *g*. *h* designates a variable resistance by means of which the potential across the detector may be regulated. The condensers *k* and *d* prevent the current from the battery *g* from passing any other way than through the detector.

In the two embodiments of the invention above described, the capacity of the oscillation circuit has been varied by means of the intermittent contact device.

What I claim is:

1. The method of wireless signaling which consists in impelling the energy from a resonant oscillation circuit having inductance and capacity through a detector having inductance by periodically unbalancing or de-

stroying the condition of resonance in said circuit.

2. A receiving apparatus for a wireless telegraph system comprising a circuit in
5 which oscillations are set up, an oscillation circuit in resonance therewith, a detector having a comparatively large reactance, and means for unbalancing or destroying the condition of resonance in said oscillation circuit,

whereby the energy accumulated by resonance is caused to discharge itself suddenly through the detector.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

VALDEMAR POULSEN.

Witnesses:

PEDER OLAF PEDERSEN,
VIGGO BLUM.