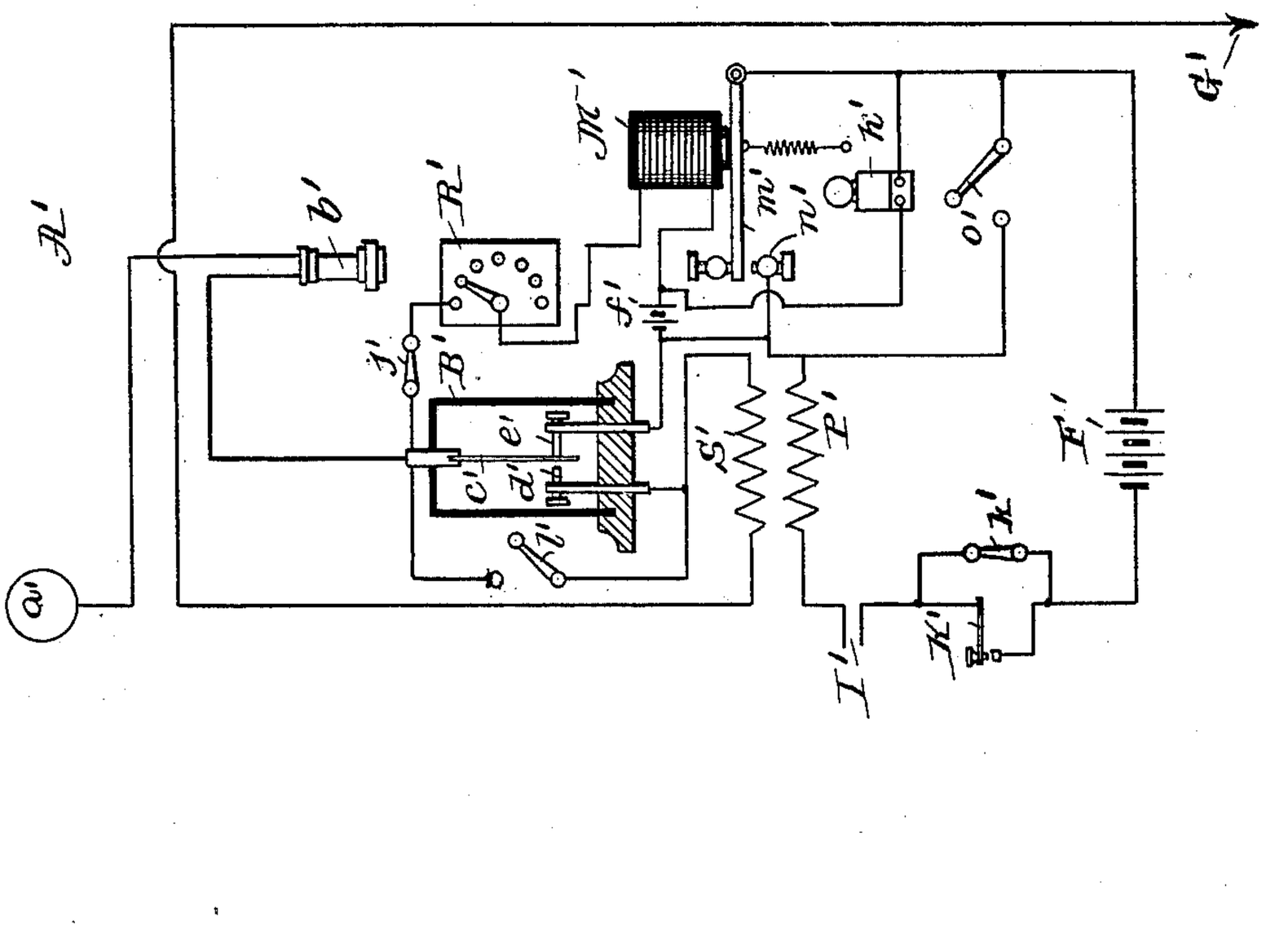
No. 657,224. Patented Sept. 4, 1900.

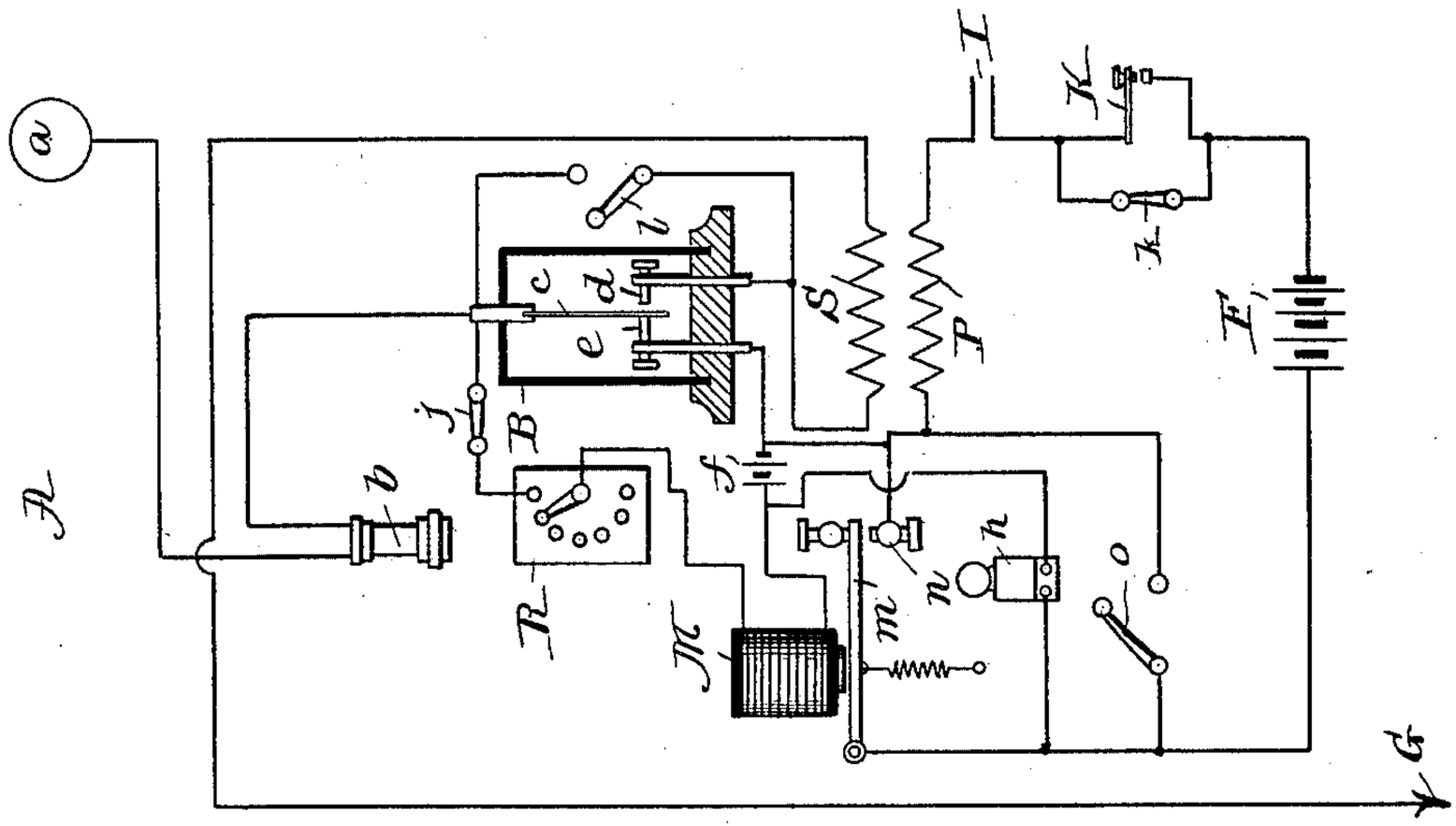
I. KITSEE.

WIRELESS OR SPACE TELEGRAPHY.

(Application filed Sept. 18, 1899.)

(No Model.)





Witnesses.
Jesse B. Keller.
Warren B. Eldridge.

Inventor.
Isidor Kitsee.

UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO CHARLES E. WILSON, OF SAME PLACE.

WIRELESS OR SPACE TELEGRAPHY.

SPECIFICATION forming part of Letters Patent No. 657,224, dated September 4, 1900.

Application filed September 18, 1899. Serial No. 730,876. (No model.)

To all whom it may concern:

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Wireless or Space Telegraphy, of which the following is a specification.

My invention relates to an improvement in wireless or space telegraphy. Its object is to provide wireless telegraphy with a system of "calling up" as well as receiving in a manner better adapted for the purpose than has heretofore been the case.

The great importance of wireless or space telegraphy consists in its employment in sea-going vessels. Its future usefulness lies in the fact that it will prevent collisions between vessels in foggy weather and will point out in such foggy or stormy weather to the officer in charge of the vessel dangerous localities, thereby enabling him to avoid the same. The use of the wireless system will therefore on vessels only be an occasional one, and the employment of persons to devote their entire time and attention to the receiving of such occasional messages is entirely out of the question. The first and most important point for a vessel employing the system of wireless telegraphy is to ascertain if a second vessel is inside of the radius of the electric zone, and the case may not unfrequently arise that the vessel calling would not receive any response on account of the absence of the person at the receiving-station in the second vessel. It will therefore be assumed that the path is free and no vessel present inside the zone, and the first vessel will proceed in its course, which may result in a collision and a loss of life. Instead of being a safeguard the employment of the wireless telegraphy may lead in such cases to accidents which otherwise might have been avoided. To obviate this possible occurrence and to automatically announce to the calling vessel if a second vessel is present in its electric zone is one of the aims of my invention, a second aim of which is to provide both the sending as well as the receiving station with a device capable of receiving after the first part of my invention—what I call the "calling up" and answering—is accomplished.

Referring to the drawing, which illustrates in diagrammatic view two stations, A is the sending and A′ the receiving station.

Similar letters indicate similar parts in both stations, with the exception that the letters in the second station are each provided with the numeral "1."

a is the terminal of the aerial conductor, connected through the receiver *b* with what I call the "calling up" device, consisting of an inclosure provided with a movable conductor *c*, normally in electrical contact with the adjustable screw *e*, in electrical contact with one pole of the battery *f*, the other pole of which is connected to one terminal of the electromagnet M, the second terminal of which is, with the interposition of the variable resistance R and the switch *j*, connected to the movable conductor *c*. The adjustable screw *d* is connected to one terminal of the secondary S and through switch *l* with *c*, the other terminal of the secondary being grounded at G. In a derived circuit of the battery *f* is also placed the bell or other annunciator *h*, one terminal of which derived circuit is connected to the adjustable stop *n*. This adjustable stop or contact-point *n* is also connected with one terminal of the primary P, the other terminal of which is, with the interposition of the vibrator or interrupter I and key K, with its derived circuit *k*, connected to one pole of the battery F, the other pole of which is in electrical contact with the movable armature *m* of the electromagnet *m*. To the adjustable stop *n* is also connected a wire having in its circuit a switch *o*.

I will first describe the arrangement of circuits when the apparatus is at rest, ready to receive and automatically respond to impulses sent from a distant station. In this arrangement the switches *j*, *l*, *o*, and *k* are in the following position: Switch *j* is closed, switch *l* is open, switch *o* is open, and switch *k* is closed. The incoming current impulses, therefore, will be received by the aerial conductor *a* and will flow through receiver *b* and thence through the movable conductor *c* to the adjustable screw *e;* but as the adjustable screw *e* is not in contact with the ground, and as the adjustable screw *d* is connected to the ground, and as *e*, *c*, and *d* are of different po-

tential, it follows that *c*, being of the same potential as *e*, will be repelled from *e*, and seeking to impart the same potential to the adjustable screw *d* it will move toward and in contact with the same. The path of the incoming current, therefore, will be from *a* through the receiver *b*, the movable conductor *c*, the screw *d*, and the secondary S to the ground G. As long as the movable conductor *c* is in contact with the screw *e* the local circuit containing the battery *f* is closed in the following manner: One terminal of the battery *f* is connected to one terminal of the coil of the electromagnet M, the other terminal of the magnet M being connected through the interposition of the resistance R and switch *j* to the movable conductor *c*, which rests at the screw *e*, connected to the other terminal of the battery *f*. Through the closing of this local circuit the magnet M is energized, and the armature *m* is therefore attracted and drawn from the lower stop *n*. In this position the shunt-circuit of the battery *f*, containing the annunciator *h*, is open, and the currents of the two batteries F *f* are opposed to each other. The electromotive force of these batteries should be as much as possible of the same value. The circuit of the battery F is then closed through the annunciator *h*, opposing battery *f*, primary P, interrupter I, and key-shunt *k;* but as the force of *f* is opposed to F the vibrator will not be actuated and no or very little current will flow through P. As soon as the movable conductor *c* leaves the screw *e* the circuit including the magnet M is broken, and the armature *m* drops to the stop *n* and establishes the following circuits: the shunt-circuit of the battery F, consisting of stop *n*, armature *m*, and annunciator *h;* second, the low-resistance circuit of battery F, consisting of armature *m*, connected to one pole of said battery, stop *n*, against which the armature rests, and primary P, connected with one terminal to stop *n* and with the other terminal to the interrupter I, which in turn is connected through the key-shunt *k* with the other terminal of the battery. The closing of these two circuits will accomplish the following: The closing of the shunt-circuit of *f* will actuate the annunciator *h*, and the closing of the low-resistance circuit of the battery F will actuate the interrupter I, thereby generating rapidly-recurring impulses in the primary P, which in turn will induce impulses in the secondary S. The path of these impulses will be as follows: from secondary S through *d*, through *c*, and through *b* to the aerial conductor *a* on one side and from S to the ground G on the other side. If the station is used as a transmitting-station, then the key-shunt *k* is opened, the switches *l* and *o* closed, and the switch *j* opened. The primary current of the battery F will flow from the positive terminal of said battery through the switch *o*, the primary P, the interrupter I, and operated key K back to the negative terminal. The currents induced in the secondary S will flow through one terminal thereof, through the switch *l*, the receiver *b*, to the aerial conductor *a*, and through the other terminal to the ground G. In this position the station is also ready to receive impulses from any other sending-station if its own key is at rest. These impulses will then flow from the aerial conductor *a* through the receiver *b*, the switch *l*, and secondary S to the ground G, it being understood that the intersecting wires from *b* and *j* are, as illustrated in the drawing, connected at their intersection. The office of the variable resistance R is to introduce as much resistance as is necessary in the circuit containing the electromagnet M, so that enough electromotive force may remain in the battery *f* to oppose the battery F. It is understood that both batteries should be of an equal number of cells, or if of different numbers the electromotive force of the individual cells should be such as to neutralize the difference in number. My intention is to place in the key-circuit, so-called, "blue-stone cells" and in the circuit containing the electromagnet M secondary cells of large capacity, and while I have here described a preferred arrangement of circuits and a preferred form of mechanism I do not limit myself to the arrangement or mechanism, as any other desired arrangement and form may be substituted therefor. If, therefore, one station desires to communicate with a second station, it will first shunt the calling-up device and then press the key-lever K, so as to transmit impulses to the second station. At the second station if no operator is present the calling-up device will automatically bring in motion the sending apparatus, thereby notifying the first station that a second station is inside the electric radius; but if these impulses continue to arrive without any interruption it will also advise the operator of the first station that no person is present at the second station, and therefore he does not need to transmit his message. The second operator being summoned by the alarm apparatus will shunt his calling-up device, and the two operators will then converse with the aid of their receivers *b b'*.

I have illustrated the device controlling the automatic answer as consisting of a movable conductor in proximity to adjustable screw-contacts; but I do not limit myself to this construction.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In wireless or space telegraphy, a "calling-up" device consisting of a movable conductor and two contact-points forming part of the receiving-circuit, one contact-point being also connected to a local battery and an electromagnetic device, the other pole of which is connected to the movable con-

ductor, the second contact-point being connected to the ground.

2. In wireless or spaced telegraphy, a system consisting of two or more stations, provided each with means for automatically answering the call of the station transmitting.

In testimony whereof I sign my name, in the presence of two subscribing witnesses, this 16th day of September, A. D. 1899.

ISIDOR KITSEE.

Witnesses:
E. R. STIELEY,
WM. M. DEUTSCH.