May 3, 1927. 1,626,803

J. S. FISHBACK

SELF CONTAINED RADIO RECEIVING UNIT

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Fig. 1.

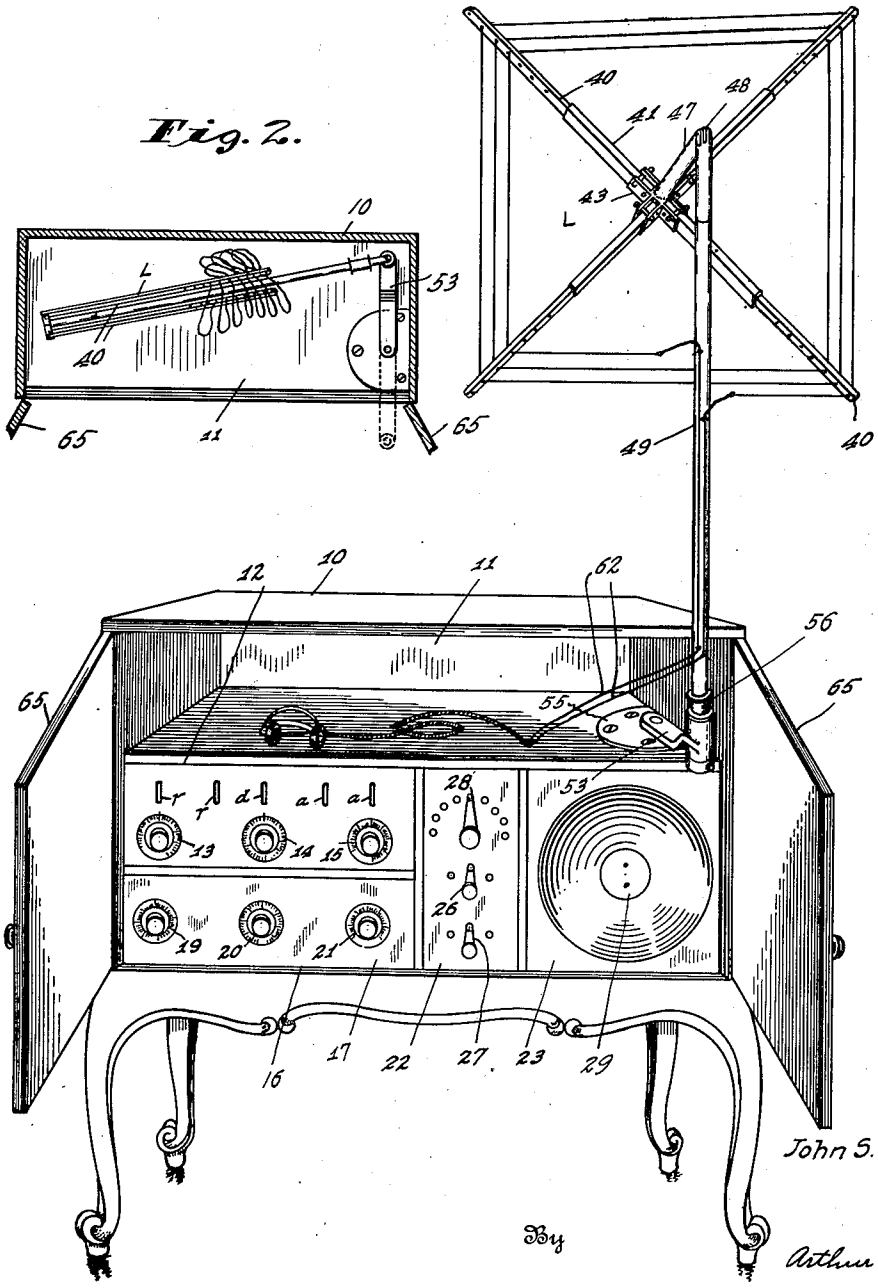


Fig. 2.

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Fig. 4.

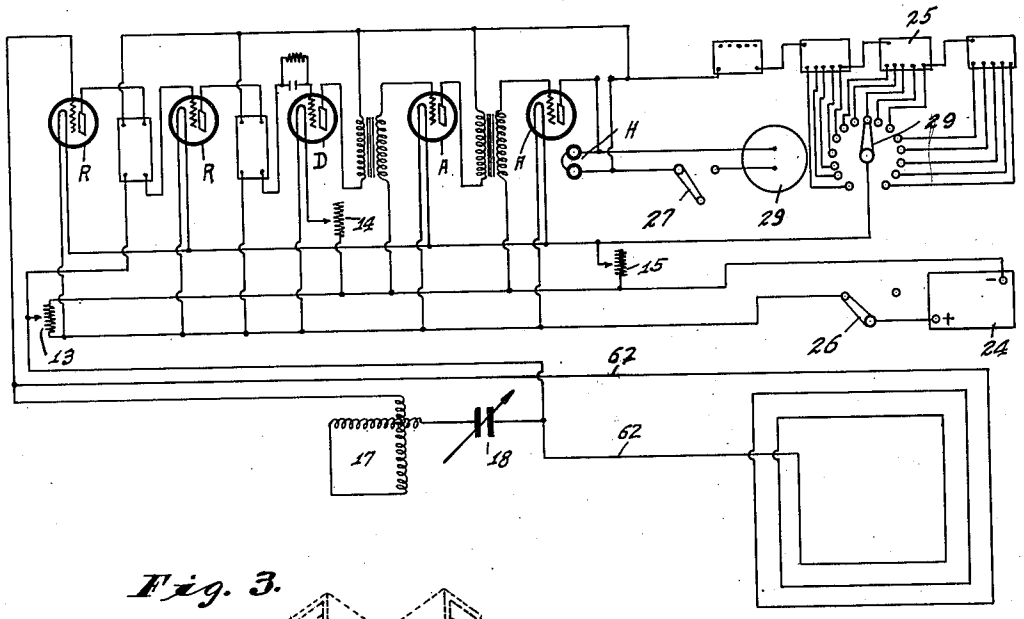


Fig. 3.

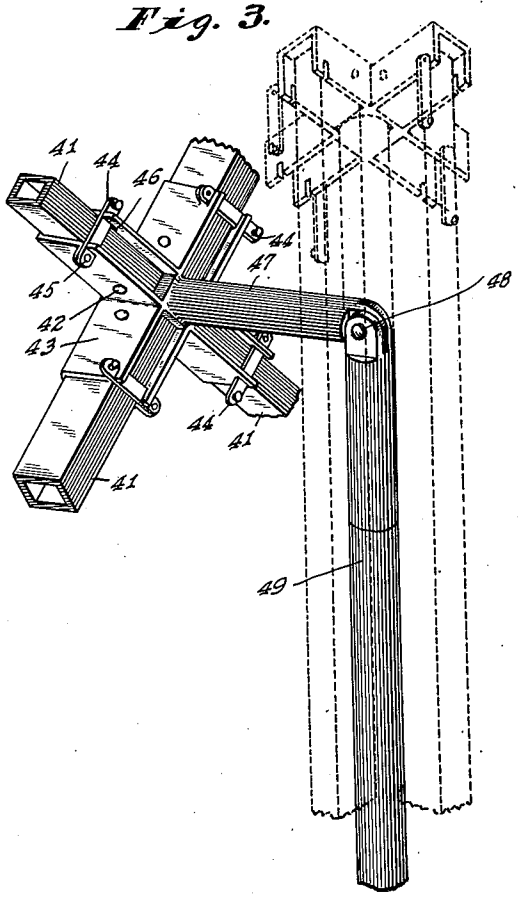
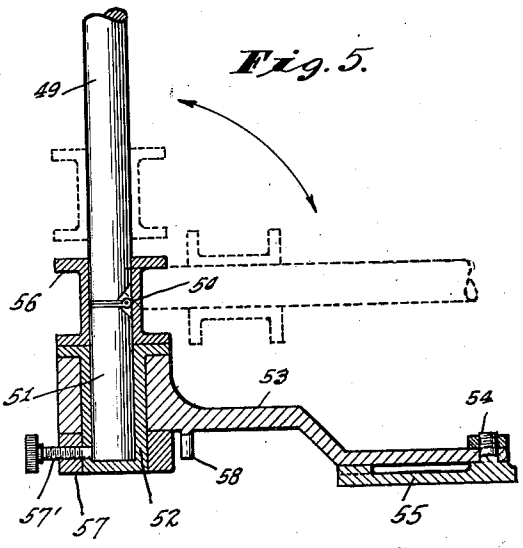


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN S. FISHBACK, OF INDIANAPOLIS, INDIANA.

SELF-CONTAINED RADIO RECEIVING UNIT.

Application filed March 27, 1922. Serial No. 546,961.

The object of my invention is to produce a self-contained radio-receiving unit of such character that it may be moved about from place to place independent of any fixed or external antenna and ground, and of such character that, when not in use, its antenna may, without electric disconnection, be hidden in the casing of the structure so that the device will present the appearance of a cabinet forming a satisfactory and sightly piece of furniture.

The accompanying drawings illustrate my invention: Fig. 1 is a perspective view of my device with the parts in position ready for the reception of radio-signals; Fig. 2 is a fragmentary horizontal section, on a smaller scale, showing the antenna in folded, hidden position; Fig. 3 is a fragmentary perspective view of a portion of the antenna, the full lines showing an operative or extended position and the dotted lines showing a collapsed condition preparatory to disappearance in the cabinet; Fig. 4 is a wiring diagram and Fig. 5 is a fragmentary detail of a portion of the antenna support.

In the drawings, 10 indicates a suitable cabinet provided with a space 11 for the reception of the folded loop antenna L; a compartment 12 for the reception of the radio-frequency-amplifiers R, R and the detector D; the audio-amplifiers A, A; the potentiometer or stabilizer 13; the rheostat 14 for adjusting the A-battery current to the amplifier tubes and the rheostat 15 for adjusting the A-battery current to the detector tube. The amplifiers R, R, detector D and amplifiers A, A are so placed within compartment 12 that their light filaments will be visible through the apertures *r*, *r*, *d* and *a*, *a* respectively, and the operating knobs of the rheostats 13, 14 and 15 are projected through the front of compartment 12.

Casing 10 is also provided with a compartment 16, conveniently just below compartment 12, in which are placed the vario-coupler 17 and variable-condenser 18. The vario-coupler is provided, in the usual manner, with two adjusting members 19 and 20, projected through the front cover of compartment 16, and the variable-condenser is provided with an adjusting member 21 also projected through the cover of compartment 16.

The cabinet 10 is also provided with a compartment 22 and a compartment 23. In the compartment 22, I arrange the usual so-called A-battery 24 and the usual so-called B-battery 25, said B-battery comprising a sufficient number of cells to provide the desired voltage for desired maximum range of the instrument. The cover of compartment 22 carries a switch 26 in the positive line of the A-battery; a switch 27 in one line of the loud talking horn or amplifier 29, which is mounted in compartment 23, and a multi-point switch 28 which is arranged to control the number of cells of the B-battery to be placed in activity.

A head piece H (one or more) is connected by a suitable length connection with the circuit, in the usual manner, and may be readily stored in compartment 10.

The radio-frequency-amplifiers, the detector, the audio-amplifiers, the vario-coupler, variable condenser, the head piece, the rheostats and batteries are of well known commercial types, connected with each other by substantial and permanent connections in the ordinary way, as indicated by the wiring diagram, Fig. 4, the only substantial difference residing in the provision of the multi-point switch 28 which furnishes substantially permanent connections for the various cells of the B-battery, instead of using the usual detachable clip which has been commonly utilized.

Heretofore, radio-receiving sets have, in many instances, comprised units of more or less completeness, but have nevertheless involved the utilization of various detached and detachable members which are unsightly and which furnish a considerable cause of difficulty in assembly, disassembly, etc., and in fact, produce an apparatus which is unsightly in the average home.

As previously stated, one of the primary objects of my invention is the production of a completed radio-receiving unit which may be moved about from place to place and wholly lacks the necessity of a separate antenna and ground.

To that end, I utilize the loop antenna L which is supported by a series of radiating insulating arms 40, each of which is carried at its inner end by a tube or holder 41 pivoted at 42 to a spider 43, each holder 41 being held in extended position by a latch 44 pivoted at 45 and swingable into or out of a notch 46 in the spider, the arrangement being such that by proper manipulation of the latch 44, the holders 41 may be held in extended position as shown in Fig. 1, and

in full lines in Fig. 3, or may be folded down parallel with the shank 47 of spider 43, as shown in dotted lines in Fig. 3. The shank 47 is pivoted, conveniently by a rule joint, at 48 to the upper end of an upright 49 which, near its lower end, is hinged at 50 to a stub 51 rotatably mounted in a vertically arranged seat 52 rotatably mounted in the end of a bracket 53, pivoted on a vertical pin 54 carried by base plate 55, mounted on the floor of compartment 11. A sleeve or collar 56 slidably mounted upon upright 49 and the upper end of the stub 51, serves, when desired, to hold the upright 49 in vertical position.

Seat 52 is held in bracket 53 by means of a collar 57 through which is threaded a set screw 57′ which also projects through the wall of seat 52 and engages the lower end of stub 51, the arrangement being such that the single set screw 57′ holds the parts in asembled position and also serves as a limiting finger in conjunction with the stop 58, carried by bracket 53, to limit rotation of upright 49 to slightly less than one complete rotation, so that the line wires 62 which connect the loop antenna in the system, may not be twisted off.

The construction of the loop antenna and its support is such that it may be supported, as shown in Fig. 1, in such manner that it may be turned about a vertical axis in order to be properly "pointed" toward the desired sending station or it may be collapsed and readily folded away in the compartment 11.

The interior of the casing 10, comprising compartments 11, 12, 16, 22 and 23, may be conveniently closed, so that the apparatus may be hidden, by suitable doors 65.

The line wires 61, 62 of the loop antenna connect with the system in the usual manner but, as already pointed out, this connection is a practically permanent one which does not need to be ever disturbed in the use of the apparatus.

It will be seen from the above that I have provided, as a single and complete unit, a radio-receiving apparatus which may be readily expanded for use and collapsed for storage without disturbing a single electrical connection and such that it may be readily shifted from place to place in a residence without in any way affecting its effectiveness.

I claim as my invention:

1. In a radio-receiving apparatus, a loop antenna comprising a base, a bracket pivoted upon the base, a standard pivoted in the bracket and comprising three hingedly connected portions, radiating arms pivotally connected to said standard, means for holding the arms in radiated position, and a loop of wire carried by said radiating arms, substantially as and for the purpose set forth.

2. A radio-receiving unit, comprising in combination with a portable cabinet having a radio-signal receiving unit, complete in itself, mounted therein, of a collapsible antenna permanently connected into the receiving unit and independent of all external connection, a standard on said cabinet and said antenna, said antenna and standard being collapsible into or projectible from the cabinet without disturbing its circuit connections.

In witness whereof, I, JOHN S. FISHBACK, have hereunto set my hand at Indianapolis, Indiana, this 25th day of March, A. D., one thousand nine hundred and twenty-two.

JOHN S. FISHBACK.