June 12, 1923.

1,458,466

A. CROSSLEY

ANTENNA SELECTOR SWITCH

Filed July 7, 1919

2 Sheets-Sheet 1

FIG. 2

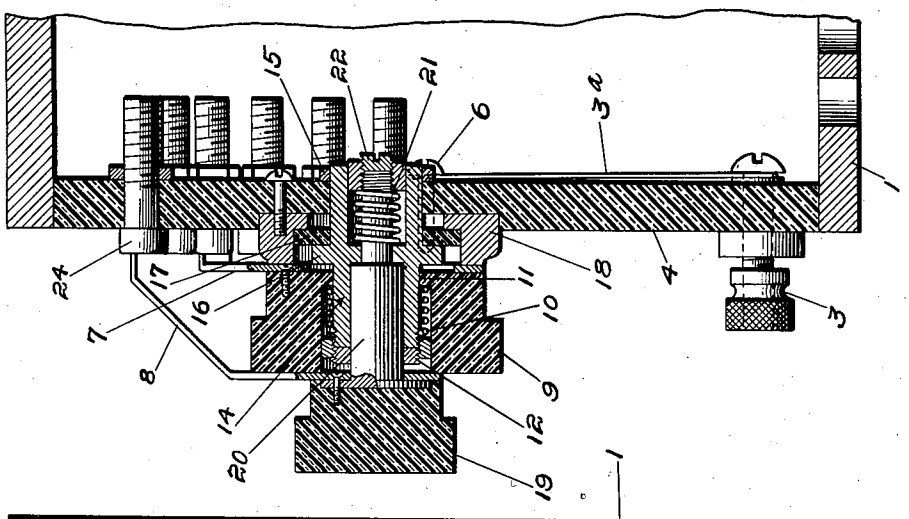
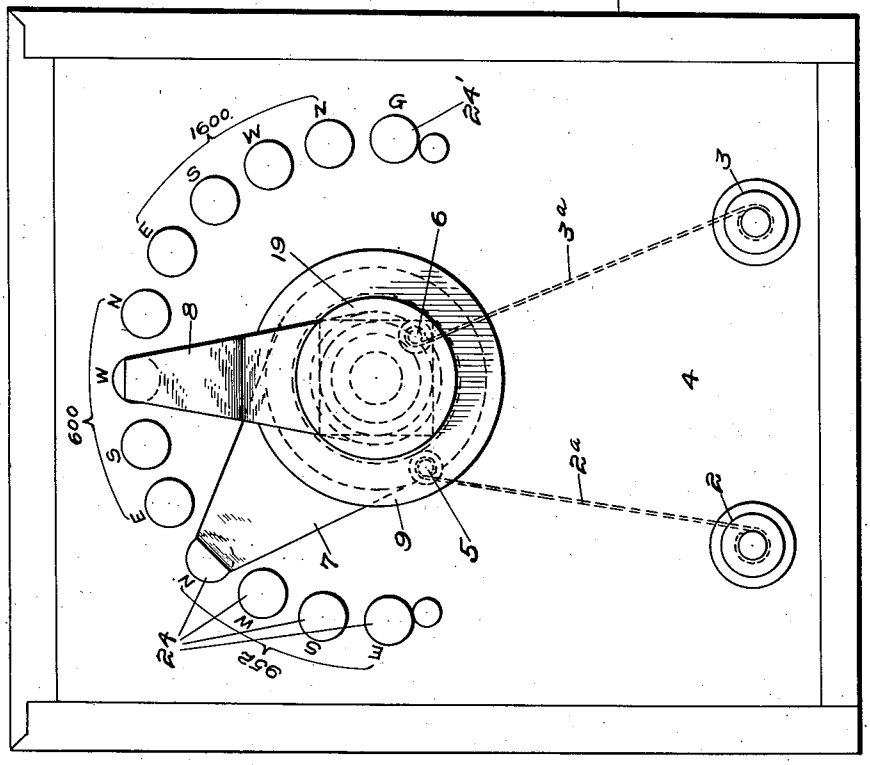


FIG. 1



Inventor

A. Crossley

By

Attorney

June 12, 1923.

1,458,466

A. CROSSLEY

ANTENNA SELECTOR SWITCH

Filed July 7, 1919

2 Sheets-Sheet 2

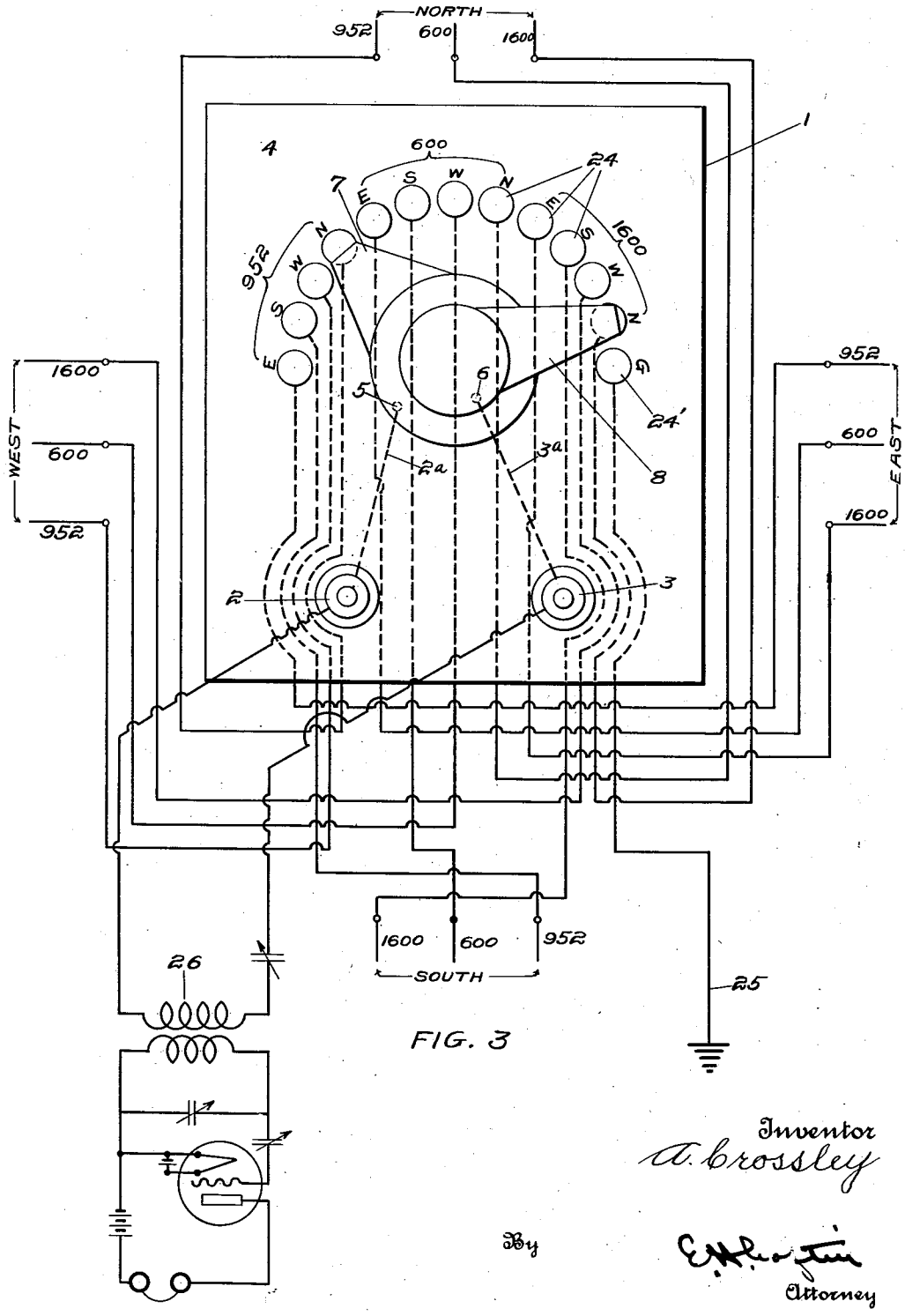


FIG. 3

Inventor
A. Crossley

By

Attorney

Patented June 12, 1923. 1,458,466

UNITED STATES PATENT OFFICE.

ALFRED CROSSLEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

ANTENNA SELECTOR SWITCH.

Application filed July 7, 1919. Serial No. 309,173.

To all whom it may concern:

Be it known that I, ALFRED CROSSLEY, a citizen of the United States, at present stationed at the Bureau of Steam Engineering, Navy Department, Washington, D. C., have invented an Improvement in Antennæ Selector Switches, of which the following is a specification.

My invention relates broadly to underground radio receiving systems and more particularly to a switching device for use as a selector to connect various combinations of antennæ to the radio receiving apparatus for directive reception.

The object of my invention is to provide a practical selector switch capable of rapid manipulation to connect various combinations of underground, elevated or loop antennæ to the receiving apparatus.

Another object of the invention is to provide in an antennæ switch construction means for insuring perfect electrical contact of the switch elements.

My invention will be understood by reference to the accompanying drawings which form a part of this specification and in which like reference characters have been used to indicate like parts throughout the several views.

Figure 1 is a front elevation of the antennæ selector switch. Figure 2 is a cross section of the switch shown in Figure 1. Figure 3 is schematic wiring diagram of the switch and associated circuits.

Referring particularly to Figure 1 the selector switch comprises case 1 having binding posts 2 and 3 secured to the top section 4 of insulating material. The binding posts connect to terminals 5 and 6 of rotary switch blades 7 and 8 through wires 2^a and 3^a. The rotary switch blade 7 is secured to insulating handle 9 substantially insulated and operative against the thrust of coil springs 10. The coil spring 10 acts between shoulder 11 of handle 9 and screw head 12 of member 14 secured to the inside of top panel 4 by flange 15 and suitable screws for example as shown at 6.

The member 14 is provided with flange 16 adapted to seat against insulated washer 17 recessed in collar 18. The collar 18 is secured to the panel 4 and forms a continuous bearing surface for switch blade 7.

The switch blade 8 is secured to insulated handle 19 having shaft 20 concentric within member 14 and retained in position by means of coil spring 21 and tension screw 22. Screw 6 which is a part of member 14 forms the terminal for switch blade 8 and suitable securing screws connected to collar 18 form the terminal for switch blade 7.

The switch blades 7 and 8 are arranged to rotate concentrically and are free to pass each other over a series of contact points 24. The contacts 24 are so related that the switch blades are capable of contacting with one or two points at the same time. The switch contacts are arranged in groups of four marked as indicated "E, S, W, and N", designating east, south, west and north, and connected as shown in Figure 3.

In the diagram Figure 3, I have shown a combination antennæ system associated with the selector switch of Figures 1 and 2. The antennæ leads from the contact points of the switch are connected to antennæ positioned as indicated at the four points of the compass. The antennæ proposed in this case are underground cables, but it will be understood that any type of antennæ may be connected to the contacts of the switch by use of additional contact points in order to afford a great variety of combinations of antennæ with the receiving apparatus. In each direction of the compass three underground antennæ are positioned having different natural periods say for example 600, 952, and 1600 meters respectively. The switch contacts are designated by groups for the wave length of 600, 952, and 1600 meters and the individual contacts marked as previously described with letters showing the points of the compass.

The contact 24′ is grounded at 25 and may form one connection to the primary circuit of radio receiving apparatus 26 through switch blade 8 terminal 6 wire 3^a and binding post 3. The other side of the primary circuit being connected thru binding post 2, wire 2^a terminal 5 and switch blade 7 to the underground antennæ having a period of 952 meters positioned in a northerly direction. By changing the position of switch blades 7 and 8 the radio receiving apparatus 26 may be connected to any selected antennæ for reception of signals in the particular direction desired.

The selector switch described has proven

highly successful in an underground antennæ installation in the Naval Operating Base, Hampton Roads, Virginia.

What I claim and desire to secure by Letters Patent of the United States is:

1. In combination a plurality of groups of independent directional collectors of radio signals, the collectors of each group having different wave length characteristics but having the same direction, and a rotary selector switch having contacts to which the collectors are connected, the said contacts being grouped and marked to indicate the directional and wave length characteristics of the collectors.

2. In combination a plurality of groups of independent directional collectors of radio energy; the collectors of each group having different characteristics but having the same direction, a ground connection, and a rotary selector switch adapted to combine a selected collector or collectors and ground to constitute a complete antenna, substantially as described.

ALFRED CROSSLEY.