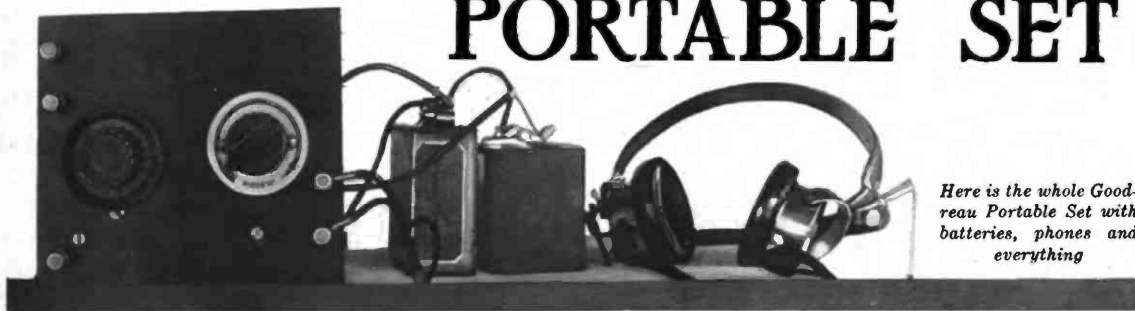


# GOODREAU'S SPIDERWEB PORTABLE SET



Here is the whole Goodreau Portable Set with batteries, phones and everything

By W. FRANCIS GOODREAU

WITH the coming of spring, the dyed-in-the-wool radio fan is on the lookout for a good portable receiver. Having received entertainment via radio all through the winter months, he is loath to give it up with the approach of warm weather, even though there are many other pleasures in which he can take part.

Spend the day as he will, in boating, swimming or fishing, when evening comes he turns to radio for entertainment. Spring-time, evening and radio! What a wonderful combination!

Having settled the question as to whether or not radio will be used on his vacation, the decision usually being that it will be used, the fan turns his attention to the type of set that will be most suitable. For summer use the portable set is the only thing, but there are many types of portable sets. Which shall he use?

A loop receiver is usually selected by those who intend to use radio in boats or machines, but the camper prefers something different if possible. With this in mind, I have designed and built a portable receiver which I now describe. The set is a complete receiver, and though it is only six inches by five inches in size, it is not a toy. It will work on antenna alone, ground alone, or antenna and ground together. It is selective, and receives well on distance.

During tests of this receiver, I have heard on antenna alone or ground alone Station KDKA, which is over 600 miles from Providence, R. I., where the set was tested. With

*Here is a set which Mr. Goodreau has designed particularly for the vacationist this summer. It is adaptable to the automobile or the camp. Mr. Goodreau himself will soon start out in an automobile on a special mission for RADIO IN THE HOME making some investigations for us in the farming districts, and he is going to take this set with him. We felt that it was so ideally adapted for the needs of the average summer vacationist that it was well worth printing this far in advance so that the reader can get it ready for the summertime. H. M. N.*

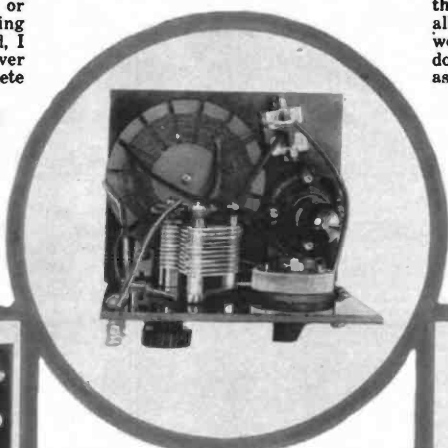
antenna and ground together, have heard Station WTAM at Cleveland, Ohio, and Station WDAP at Chicago. The music was clear, but not as loud as it would be on a full-

size receiver. To build this receiver you will need the following parts:

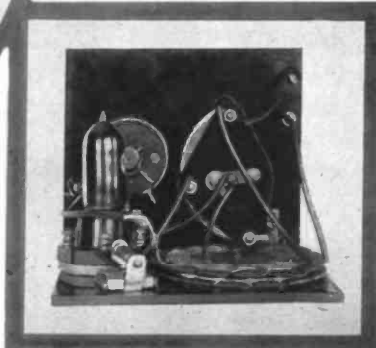
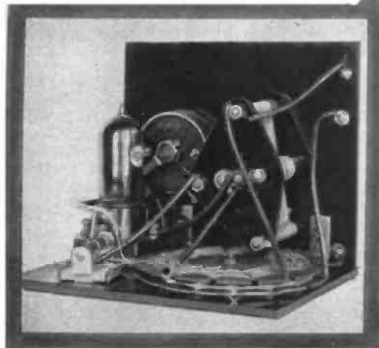
- 1 Radion panel, size 6x5x3-16 inches.
- 1 Base, same size, may be of wood or hard rubber.
- 1 Variable condenser, capacity .0005 mf., 23-plate.
- 1 Pacent or other 30-ohm rheostat.
- 1 Socket for UV199 tube.
- 1 UV199 tube.
- 1 Dubilier grid condenser, type 601-G, capacity .00025 mf.
- 1 variable grid leak.
- 1 Spiderweb coil, 100 turns.
- 2 Spiderweb coil frames.
- 5 Binding posts.
- 2 Brackets for mounting panel.
- 1 C battery to light filament.
- 1 Small size B battery, 22½ volts.

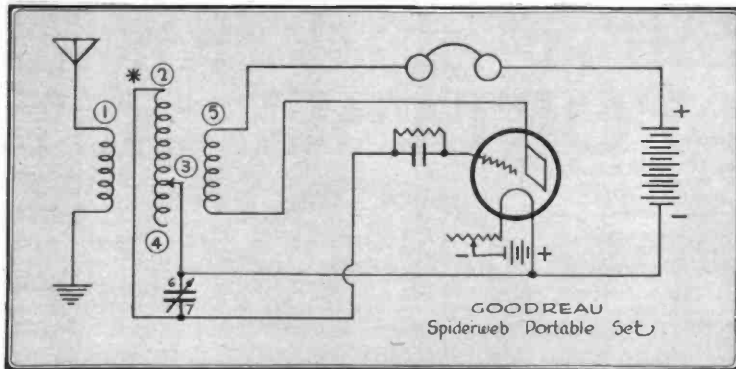
Having secured all the parts needed, we will now start the construction of the receiver.

The first thing to be done is to prepare the spiderweb coils, of which there are three. The 100-turn coil can be purchased all ready wound; the other two must be wound by hand. As there is nothing we can do with the 100-turn coil, we will set that aside until needed and start winding the other two coils. The first coil will consist of twenty turns of wire, the wire being No. 26 D. C. C. This D. C. C. means simply double cotton-covered wire. To wind this first coil place one end of the wire in one of the slots in the coil frame, leaving about six inches of wire free, then wind twenty turns of wire on the frame close together, after which cut the wire, leaving six inches free as you did before. As you count



Above is a view looking directly down upon the baseboard showing how the spiderweb coils are placed so that part of them come underneath the variable condenser. To the left and right are rear views showing the placing of the various instruments on both panel and baseboard





When using antenna or ground alone, connect at this point. When using both antenna and ground, connect as shown to primary coil

- 1 Twenty-turn coil.
- 2 Sixty-turn coil.
- 3 Tap at twentieth turn.
- 4 Inside end not connected.
- 5 One hundred-turn coil.
- 6 Rotor plates.
- 7 Stator plates.

Here is a full size form which will enable you to cut out your spiderweb coils. It is given because very few people know how to divide a circle into an uneven number of spokes. To use this form, simply trace it with a piece of tracing paper and then transfer this tracing to the heavy piece of cardboard or insulating material which you are going to cut out as a form for winding the spider web

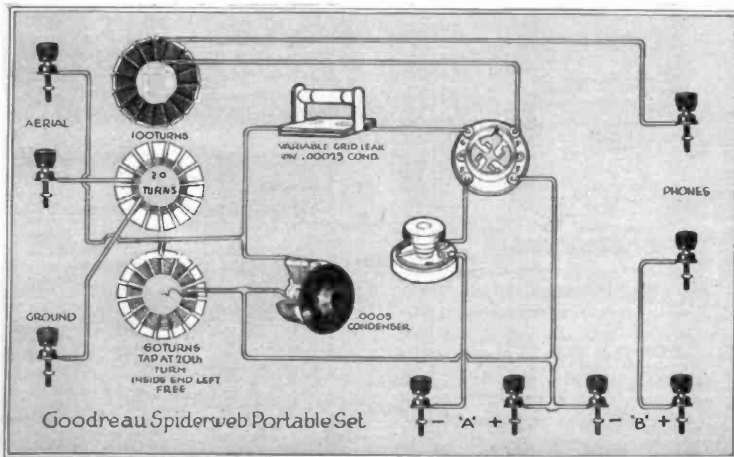
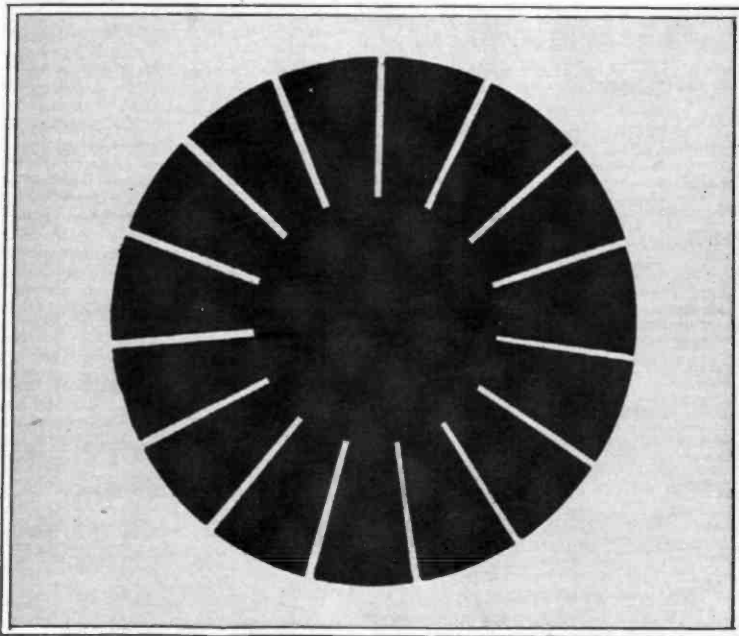
the turns on one side of a spoke, don't forget that there are just as many turns on the other side. For this coil, count ten on one side. You should now have a spiderweb coil wound with twenty turns of wire and having six inches of wire free at each end. This completes this coil, so we will put that with the 100-turn coil and wind the third coil.

This coil consists of sixty turns of wire, but is tapped at the twentieth turn, that is, wind twenty turns of wire on this coil as you did on the other, then take a tap by making a loop in the wire, twisting it for about six inches and then wind forty more turns of wire on the coil as close to the first winding as possible. You should now have a coil of wire containing sixty turns of wire, with a tap at the twentieth turn. This completes the winding of all the coils needed.

We are now ready to drill the panel and mount the parts on the panel and base. First we will drill the holes for our binding posts.

On the left-hand side we will need three holes, two in the upper left-hand corner and one in the lower left-hand corner. On the right-hand side we have two holes for binding posts; these are in the lower right-hand corner.

Next comes the variable condenser, which may be plain or vernier. In the pictures we show a Signal which was used in this set, but any good condenser will do. A Dubilier Variadon was also tried in this circuit and worked quite well, also saving quite a little space. We will mount the con-



denser on the left-hand side of the panel-as near the binding posts as possible without touching them.

Next to the condenser we will mount the Pacent 30-ohm rheostat. We have completed the panel now and we will go on to the next thing, which is to mount the rest of the parts on the base.

First let us drill a hole through the center of each spiderweb coil form and then drill a hole in the base, in such a position that the spiderweb coils may be fastened in position on the base with a small screw and nut. The coils should be partly under the variable condenser and should be fastened to the base in the following order: first the 100-turn coil, next the twenty-turn coil and last the sixty-turn coil. Make sure the ends of each coil are free and then fasten the coils firmly to the base with the screw and nut.

Next we will mount the grid condenser and leak. Mount these in position shown in pictures, and fasten to the base with small screws and nuts. Next (Continued On Page 26)



## HOW MANY STATIONS DO YOU GET ? and do you hear them "LOUD and CLEAR"

WHEN the fellow from next door comes in and wants to tell you about his set, and shows you a list of stations that looks like a Chinese newspaper, what have you got to show? Can you sit down and tune them in so that they sound as if they were in the next room? That's what thousands of radio owners can do who have learned how to get loud and clear messages from the far away stations by the Acme method.

### The importance of amplification

IN ORDER to hear clearly and distinctly, you must be sure that you are using amplifying transformers that amplify the sound without distorting it. Amplification is the key to radio—it increases the tiny sound waves that reach your set and makes them loud enough for you to hear and enjoy.

But it is not enough to amplify the sound, you must be sure that in amplifying it you do not blur it and make muffled, unintelligible sounds out of messages that should be clear and distinct. That is the danger of distortion.

### How to get amplification without distortion

THE Acme engineers have perfected two instruments that give you maximum amplification without distortion. The Acme R-2 (also R-3 and R-4) Radio Frequency Transformer builds up the radio energy before it reaches your detector. This increases your range. The Acme A-2 Audio Amplifying Transformer gives you greater volume of sound. It builds up the audio energy that leaves your detector and gives it to you "loud and clear." If you want to get the most out of your set, be sure to use Acme Transformers.

### How to get the best results

IN ORDER to get the best results, send for "Amplification Without Distortion"—an instructive and helpful book which not only explains exactly how to get the best results by proper amplification, but also contains a number of reliable wiring diagrams. It will help you build a set. Send the coupon with 10 cents for your copy.

# ACME

for amplification

The Acme A-2 Transformer (shown) and Acme R-2, R-3 and R-4 Radio Frequency Transformers sell for \$5 each at radio and electrical stores. Your dealer will be glad to help you.



ACME APPARATUS COMPANY,  
Dept. 56, Cambridge, Mass., U. S. A.  
Gentlemen: I am enclosing 10 cents  
(U. S. stamps or coin) for a copy of  
your book, "Amplification Without Dis-  
tortion."

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## Dance Orchestras Keep Up to Date by Radio

ONE of the newest adaptations of the use of radio in every day life is that to which Harold Geiser, of Buffalo, puts a Federal six-tube set. Mr. Geiser is director of the Vincent Lopez Dance Orchestra at the Hotel Statler, Buffalo.

It is necessary for the orchestra which Mr. Geiser directs to work in close relation with Vincent Lopez wherever he may be playing and also with the Vincent Lopez Orchestra at the Hotel Pennsylvania in New York. Mr. Geiser's living quarters are on the fifteenth floor of the Hotel Statler at Buffalo and he installed this set for the purpose of listening to the work of Mr. Lopez while out of Buffalo and also listening to the latest in orchestrations put on at the Hotel Pennsylvania to the end that they may be instantly adopted by the orchestra which he directs in Buffalo.

Mr. Geiser conceived the idea of using radio in this way when he first

with my banjo and drums men to duplicate it here.

"Almost daily I call certain individuals of the orchestra to listen in for certain parts, either new arrangements or unusually good performance of the orchestra at the Hotel Pennsylvania. Radio certainly has been a great aid to us in giving Buffalo up to the minute music in the best possible manner."

With only four tubes of the six-tube set in use at the present time, Mr. Geiser gets Chicago, and even west coast stations clearly. His antenna is strung from cornice to cornice between two wings of the Hotel Statler, which is three floors above his apartment. He is troubled little by interference or local disturbances.

He mentions the orchestra at the Edgewater Beach Hotel, the Clyde Doer Orchestra, "The Early Birds from Kansas" and music from stations at Davenport, Ia.; Elgin, Ill.;



Harold Geiser and members of the Vincent Lopez Dance Orchestra at the Hotel Statler, Buffalo, in Mr. Geiser's apartment on the fifteenth floor of the hotel, listening to a new arrangement of a dance number being played by the Vincent Lopez Orchestra at the Hotel Pennsylvania, New York. Mr. Geiser stands immediately back of the receiving instrument in the center

came to Buffalo and happened to hear Mr. Lopez, then in a theatrical engagement in New York, play a new arrangement. He was almost instantly able to adopt the arrangement in Buffalo, with the result that his orchestra was playing the latest New York orchestral arrangements by one of the country's favorites within twenty-four hours after the arrangement was played in public on the stage.

On March 11, Mr. Lopez, then playing at Keith's in Philadelphia, broadcast from station WIP a new arrangement. Mr. Geiser and his men heard it by radio and the next night played it in Buffalo.

"I frequently call the members of my orchestra to listen to other orchestras," said Mr. Geiser. "One night, for instance, we noted exceptionally good rhythm from the Henry Hoskins Orchestra, playing in the Garden Room, St. Francis Hotel, San Francisco. It was an especially fine piece of work. I immediately conferred

Cleveland, Louisville, Cincinnati, Pittsburgh, as well as all of the eastern points, which he listens to frequently. One night within five minutes he studied orchestrations from Cleveland, Chicago, Cincinnati and Louisville with equal clarity.

## Goodreau's Spiderweb Portable Set

(Continued From Page 18)

mount the tube socket in position shown. The socket used in this set was a Workrite, but any good socket of this type, such as Na-Ald, may be used. I have used a UV199 tube in this set as shown, but any tube may be used if desired, but you must change batteries to suit.

Now we will mount the base to the panel. This is done by means of small brackets, one on each side of the