The United States—A Broadcast Studio

Forty-Seven Stations Broadcast $1000-Dollar-a-Minute Program With Microphones at the Four Corners of the Country; 12,000 Miles of Telephone Lines Used in Tie-Up

By Joseph Riley

A STATION hook-up, termed "the greatest mechanical achievement in radio telephony ever attempted and the costliest program thus far given," gave millions of fans an hour of enjoyment on January 4, 1928. Not only was the program remarkable from an engineering standpoint, but it offered to the radio public a gathering of theatrical stars such as seldom has been grouped into sixty minutes of broadcasting.

Phillips Carlin, in New York, started off the hour by introducing Will Rogers, who was then seated before a microphone in his own home in Beverly Hills, California. The western microphone was then switched on and, in his own unique style, Rogers talked a few minutes, as befitted a master of ceremonies. He then introduced Paul Whiteman and his orchestra (who were back in New York) saying that Whiteman was "the man who brought opera up and jazz down, their meeting place being at his orchestra." The microphone in New York City was then switched on to the network, and the wonderful strains of George Gershwin's "Rhapsody in Blue" went out over the forty-seven stations.

At the conclusion of the number, the California microphone was again put on the air and Rogers introduced Dorothy and Fred Stone, who were playing at the Erlanger Theatre in Chicago. From a dressing room in the theatre, Stone and his daughter broadcast several songs. Following came a short talk from Detroit by the sponsor of the program, Edward G. Wilmer, president of Dodge Brothers, Inc.

From California again, Rogers introduced the man known to thousands for his "Mammy" songs, Al Jolson, who was in the heart of the mammy section of the country, New Orleans. After two or three songs of, and from, the South, Rogers made his final talk of the evening, reintroducing Paul Whiteman, who wound up the program with two popular jazz numbers from New York.

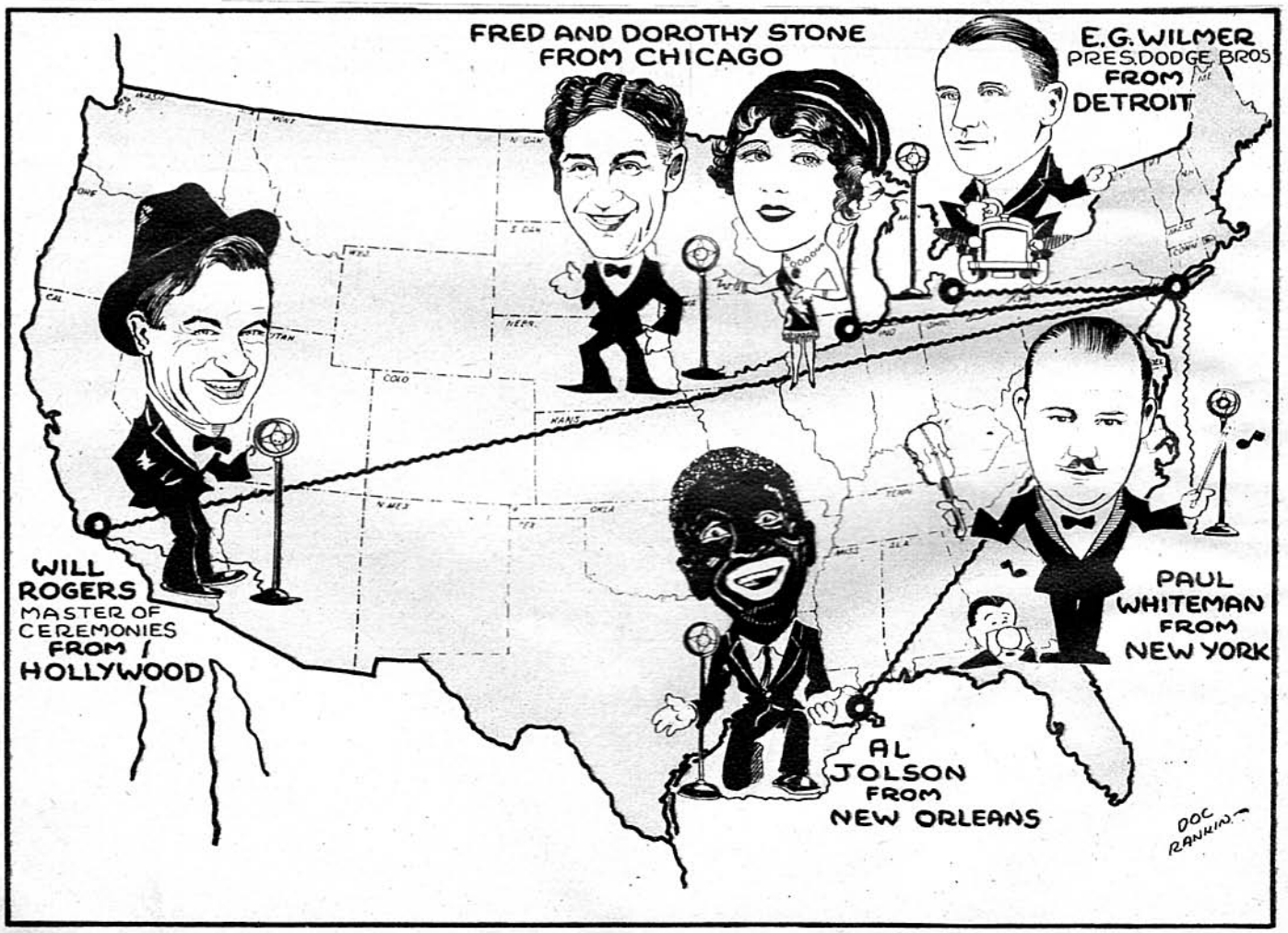
LONG LINES USED

To bring these widely-separated persons before the vast radio audience, estimated at more than twenty-five millions, approximately 12,000 miles of telephone lines were employed. Engineers of the National Broadcasting Company, in conjunction with engineers of the Bell System, which supplied the lines across the country, worked on the arrangement for several weeks. During the development of the plans, many complications arose, especially with respect to synchronizing the widely distributed switching centers. It was imperative that the most careful timing be maintained, in order to run off the program smoothly.

The transcontinental line which carried Will Rogers' introductions was routed through San Francisco, Salt Lake City, Denver, Omaha, Chicago and thence to New York.

In readiness in case of trouble was an emergency circuit from San Francisco through Dallas, Little Rock, St. Louis, Chicago, into New York. Then, in addition, were the usual telephone lines, required to

(*Continued on page* 1044)



impulse to say: "Well, what of it!" Oh, be not so murderous, so cruel. Bear with him, rather, in this hour of gladness, this moment of divine rhapsody. Try hard, try hard to make the eyes shine and the face illuminate. It will be balm to his poetic soul (otherwise so dull, so dead). For DX is his faith, his hope and his dear desire—his religion. It may burn out after a while, and again it may flame higher. But despair not. It might be worse. He is happy now. You could put crackers in his bed and he wouldn't mind. But treat his DX disdainfully and he will go mad; he will go mad if you do not grant him his hour of glory. Poison will gnaw within him if you do not understand that, in his soul of souls, he bears you no malice but is simply a radio-fan, exultant in his victory over the mundane earth, a giant of power in his own demesne, wrathful as a tiger when disturbed or taunted, but gentle as a lamb and sweet as a June day when he is getting his (say it softly!)—his DX!

Ah, to have understanding, Mrs. Jones, or at least to *seem* to understand—ah, this is the ultimate charity!

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(*Continued from page* 1004)

carry the program from the New York switchboard, through which the different performers' voices were all routed before they were put on the air from the broadcast stations. This meant thousands of miles of lines from New York to the forty-seven broadcast stations scattered over the country. In short, three transcontinental telephone circuits were required for the broadcast—one to serve the broadcast stations, one to transmit the program of the performers to New York and a third for emergency.

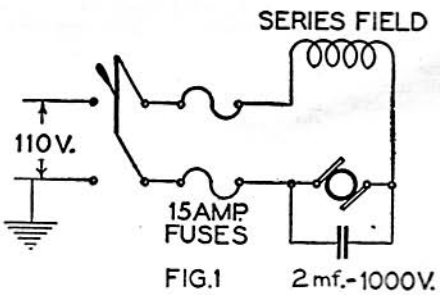
It is stated that the cost of putting on this hour of broadcasting was over $1,000 per minute; of the total, about $25,000 went to the artists appearing before the microphone, $35,000 to the telephone company and about $7,000 to the broadcasting company for the time the stations were on the air.

This broadcast, which is one of the most ambitious ever attempted, is said to have been received by one of the largest audiences that ever tuned in on a program. There seems to be no need for broadcasters to fear that sponsors think radio advertising does not pay, when a single company is willing to invest any such amount as was spent for this program. In short, this hour of broadcasting is remarkable from three standpoints, the celebrity of the artists participating, the cost, and the remarkable engineering work that was necessary.

How To Kill Vagrant Radio Noises

(*Continued from page* 989)

nected to ground, make this connection. The last of the interference may be killed by connecting a 2-mf. condenser (tested to stand 1,000 volts D.C.) across the brushes. Place the condenser as near as possible to the place where the sparking occurs. See Fig. 1.

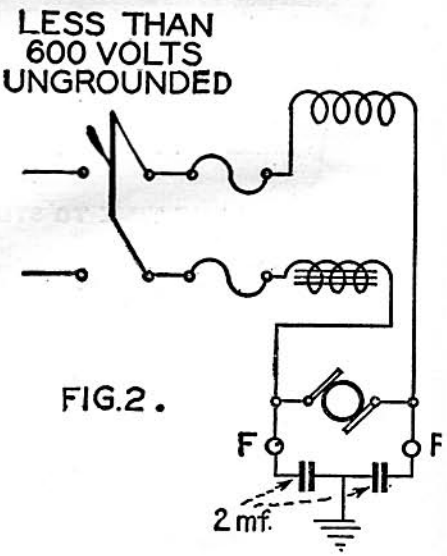


One way to stop a motor from broadcasting without a license is by placing across the brushes a 2-mf. condenser of suitably high-voltage rating.

If the line is over 110 volts and ungrounded the design of the filter should be changed. Two condensers of the same size mentioned above are connected *in series*, with their common point grounded. This system is then shunted across the commutator, as will be seen in Fig. 2. For very small motors, such as are used in hair driers, vacuum cleaners, soda-mixers, etc., a high-test condenser of ¼-mf. will do the trick.

In the case of a refrigerator control, furnace control, heating pad, or like device, giving trouble, more than likely sparking is taking place at the thermostat contacts. Hook a ¼-mf. condenser across the input. The result should be silence.

Then we have the case of bad contacts. Of course the best remedy that we can advise is to fix the contact. But then we just know that someone is going to yelp, "Suppose you can't fix it. What then?" If you find for instance, that the delicatessen man



The choke coil consists of 100 turns of No. 18 D.C.C. wire wound in a single layer on a 3-inch tube form, ⅛-inch thick and 8 inches long. It is wrapped with insulating tape after winding.