

# And Now your Telephone Receiver and How it Works

## A Bell System Advertisement

Do you know what makes it possible for you to hear a voice speaking into another telephone thousands of miles away—or just in the next block, for that matter? How the sound waves of your friend's voice, after being changed into electrical waves and brought to your telephone over many miles of wire, are changed back into sound waves again? How each word is reproduced distinctly, exactly as it was spoken?

Inside your telephone receiver are a number of very important parts. To these are brought the electrical waves started by the telephone transmitter at the other end of the line. There is a thin metal disc or diaphragm, and a strong magnet over the ends of which are placed two spools of fine copper wire. The diaphragm is placed so that it receives the normal "pull" of the magnet but does not touch it. When the electrical waves arrive from the telephone line they pass through the two coils of fine wire. The effect of this "ripple" of electric current passing round and round the coils is to first strengthen and then weaken the "pull" of the magnet. This action makes the diaphragm vibrate, thus setting up sound waves in the air exactly the same as those started by the voice of the person speaking to you. Your ear then receives them in the form of words.

It is only a little over 50 years since the telephone was invented, but now there is a nation-wide network of millions of telephones. There are 64 million miles of telephone wire in use in the Bell System throughout the United States.

