Application: The Moving-Coil Loudspeaker

Sound Reproduction

The loudspeakers of your radio and of other sound producing systems change electrical signals into sound waves. The electrical signals pass through a coil wound around the neck of a paper cone (this is called an electromagnet).

This coil acts as an electromagnet and is located near a permanent magnet. When the current flows one way, magnetic force pushes the electromagnet toward the permanent magnet, pulling the cone inward. When the current flows the other way, the cone is pushed outward.

Vibrations in the electric signal then cause the cone to vibrate. Vibrations of the cone produce sound waves in the air.