Bell Labs Engineers Develop Improved Speakerphone Set

News of Telephone Apparatus Development

Bell Labs engineers have developed an improved attachment to a telephone which will permit telephone customers—singly or in groups—to converse without holding the handset.

Called a speakerphone set, the new device is smaller, more reliable, easier to install, more powerful, and of higher sound fidelity than previous speakerphone models.

Operated in conjunction with a regular telephone, the new speakerphone consists of two units—a control pad and a loudspeaker—each of which may be placed wherever the customer desires. The control pad contains ON/QUIET and OFF buttons, a volume adjustment control, and a microphone. The loudspeaker unit houses the electronic circuitry used in the set, in addition to the loudspeaker itself.

The performance of the new speakerphone unit in small conferences has been improved by using an omnidirectional microphone. Each member of a small group sitting around a table can be heard equally well, because this microphone picks up sound directed at it from all angles.

As in previous models, the new set has voice-controlled switching. The caller's voice "turns on" the switching mechanism and his voice (or the entire group's) is transmitted to the other caller. Only one party, or group, can speak at one time. If both parties try to talk simultaneously, the person speaking loudest will transmit.

The new set switches from the listen-mode to the talk-mode more quickly than the older speakerphones did. This switching is performed by advanced electronic circuitry which also allows the user to interrupt more easily and from greater distances. Other improvements include additional power output and a speaker with better sound fidelity than previous models.

The use of integrated circuits provides higher reliability, while permitting an overall reduction in size. By using the new circuitry, a third unit which was part of the older sets has been eliminated, making the new speakerphone easier and less costly to install.

The new set operates in this way: Speakerphone calls are originated by pushing the ON button, waiting for dial tone and then dialing the number, without picking up the handset. All calls are terminated by pushing the OFF button.

To answer a speakerphone call, the customer simply pushes the ON button and adjusts the volume from the loudspeaker to a suitable level and talks with his normal voice volume. He does not need to pick up the handset. Although he will sound best to the calling party when close to the microphone, he is free to move about the room, write notes, or retrieve files, etc., during a conversation.

If privacy is desired for the incoming speech, the customer picks up the telephone handset, and the speakerphone turns off automatically. To transfer from handset to speakerphone, he depresses the ON button while replacing the handset in its cradle.

If the customer desires, he may temporarily switch off his microphone by pressing and holding the ON/QUIET switch. Then he may conduct a conversation with others in his room without being heard over the speakerphone until he releases the ON/QUIET switch.

The new set has been tested in businesses and residences in Indianapolis during 1971. Although designed primarily for business customers, the new speakerphone may be used wherever the hands-free and group features are desired. Production of the new set is planned by Western Electric next year.

A new, improved speakerphone set, developed at Bell Labs Indianapolis, Indiana location, will permit telephone customers—either singly or in groups—to carry on hands-free conversations of higher fidelity than previous models. For use in conference calls, the microphone-control unit is placed in the center of the group. The microphone is omnidirectional so that each conferee can be heard equally well. Previous sets required conferees to sit on one side of the microphone for best results. The speaker, at the corner of the table, houses the microcircuit control components, thus eliminating a large control box needed in previous sets.