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A Waterproof Loudspeaking Telephone—Loudspeaking-Telephone No. 3

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A hermetically-sealed loudspeaking telephone has been developed for use in situations where complete washing of the instrument is necessary to prevent the spread of infection.

THE handset and dial of a normal telephone cannot be washed or sprayed without causing damage to the instrument. For installation in such places as hospital operating theatres, laboratories and mortuaries, where frequent spraying with disinfectant is necessary to prevent the spread of infection, a sealed loudspeaking telephone has been developed, in which the components are mounted in waterproof containers.

Although intended primarily for hospitals, the equipment may also be used in situations exposed to the weather or in laboratories at atomic research stations, which may be exposed to harmful radiations.

DESCRIPTION

The complete equipment, which is known as a Loudspeaking-Telephone No. 3, comprises three units—a control unit (Control Unit No. 10A), a loudspeaker unit (Loudspeaker No. 5A), and an amplifier (Amplifier No. 138A). The control unit is usually mounted on a wall, at about head height, with the loudspeaker 3 ft or so above it, while the amplifier unit is placed in any convenient position in the same or in an adjacent room. The amplifier unit is not waterproof and if, therefore, it is placed in the same room as the control unit and loudspeaker it must be mounted inside a special waterproof container (Case No. 111A).

The equipment is not voice-switched and functions generally in the same manner as the Loudspeaking Telephone No. 1.* A handset is not provided because of the difficulty in making it waterproof, and for the same reason there is no dial. If used in association with a direct exchange line to an automatic exchange, the loudspeaking telephone will be connected as an extension on an Extension Plan No. 7 or similar installation, so that all outgoing calls are dialled from the main instrument before being extended to the loudspeaking telephone.

Control Unit

The control unit (Fig. 1) contains a microphone, push-button keys and an indicator lamp. The microphone is mounted behind a perforated grille, the apertures of which are sealed with a thin plastic membrane. Each push-button is mounted inside a flexible rubber bellows sealed to the case. The functions of the keys are as follows:

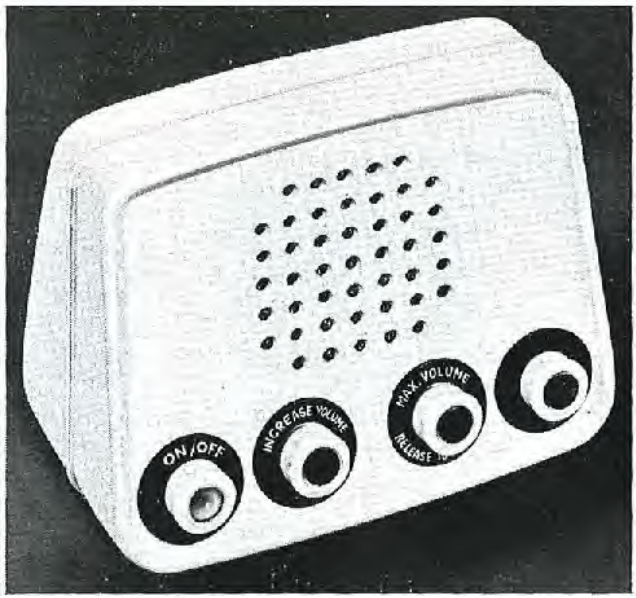

FIG. 1—CONTROL UNIT

On/Off Key. When depressed, the ON/OFF key locks in the ON position, connects the equipment to the line, and gives a calling loop to the distant exchange or main telephone. A small indicator lamp, mounted inside the operating plunger of this key, glows while the call is in progress. A second depression unlocks the key and disconnects the equipment from the line.

Volume Control 1. This is a 2-position key giving low or medium volume of received speech from the loudspeaker. The mechanical action of this key is similar to that of the ON/OFF key.

Volume Control 2. This is a non-locking push key which, when depressed, gives maximum loudspeaker volume. Simultaneously, it switches the microphone out

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* LOWE, W. T., and WILSON, F. A. A Loudspeaking Telephone without Voice Switching—Loudspeaking-Telephone No. 1. *P.O.E.E.J.*, Vol. 54, p. 1, Apr. 1961.

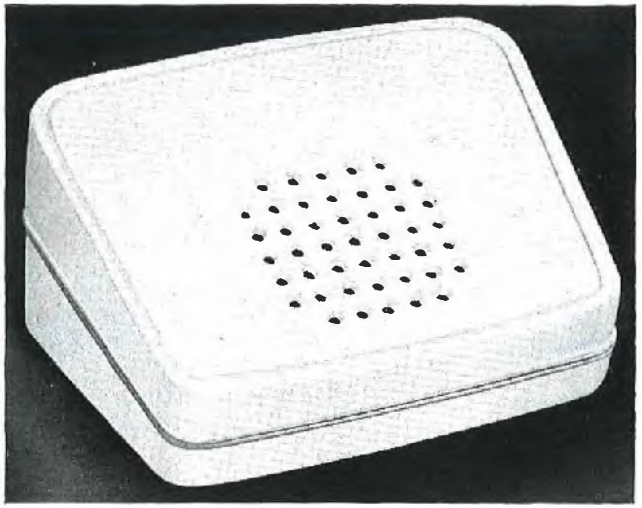

FIG. 2—LOUDSPEAKER UNIT

of circuit, thus preventing the onset of howling, which would otherwise occur with this maximum-volume condition due to the acoustic coupling between loudspeaker and microphone. The button must be released before speaking. Its use should seldom be necessary, but it is provided to compensate for the absence of a telephone handset, which would otherwise be used to receive faint calls.

A spare button is available for use if an additional signalling facility is required, such as "call main" on extension plan installations or "recall" on a P.B.X.

The case of the control unit is made in two similar halves, sealed by a neoprene gasket, of circular cross-section, which is fixed in a groove in the rim of one half of the case. Effective sealing is obtained because the gasket, which protrudes slightly, is compressed by the flat rim of the other half of the case when the two clamping screws in the rear of the case are tightened. The instrument cord is sealed to the case by a special grommet.

If the control unit is to be mounted on a wall, a plate (Plate, Mounting, No. 3A) is first fixed to the wall in the required position. The plate has three keyhole slots in which three pins in the back of the control unit engage and lock; the control unit then simply drops into position.

Loudspeaker Unit

The loudspeaker unit (Fig. 2) contains a 3 in. diameter loudspeaker and a calling buzzer. The construction of the case, sealing of the apertures and the method of wall mounting are all similar to those of the control unit.

Amplifier Unit

The amplifier unit is the standard Amplifier No. 138A used for the Loudspeaking Telephone No. 1.

CONCLUSION

The first use of this waterproof loudspeaking telephone will be in hospitals where "hands-free" operation is required and extra cleansing precautions are taken. Its special features make it suitable for many other applications in providing telephone communication where hitherto it has not been practicable to install a standard telephone instrument.

ACKNOWLEDGEMENTS

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