

(43) Date of A Publication 24.12.2002

(21) Application No **0114728.9**

(22) Date of Filing **18.06.2001**

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(51) INT CL⁷
H04M 1/60

(52) UK CL (Edition T)
H4J JL J30H J30K J37X

(56) Documents Cited
GB 2362287 A **GB 2362057 A**
WO 2000/045570 A1 **US 2001/0034253 A1**

(58) Field of Search
UK CL (Edition T) **H4J JK JL**
INT CL⁷ **H04M 1/05 1/60**
Other: **ONLINE: WPI, EPODOC, JAPIO**

(54) Abstract Title
Infrared optical fibre hands-free system for a radiotelephone

(57) An Infrared communication system through an optic fibre for mobile phones comprises an infrared transmitter 1, an infrared receiver 2, an optic fibre 3, a coupling power 8, a coupling signal 9, a mobile phone 7.

By connecting the Infrared transmitter 1, to the mobile phone 7, and by connecting the hands free device comprising of an earpiece 6, a microphone 5, a wire and coupler 4, to the infrared receiver 2, the mobile phone communication signal can be transmitted to the ear piece 6, and the microphone 5, communication signal can be transmitted back to the phone. The transmission from the phone to the ear piece 6, and the microphone 5, is all carried through the optic fibre 3.

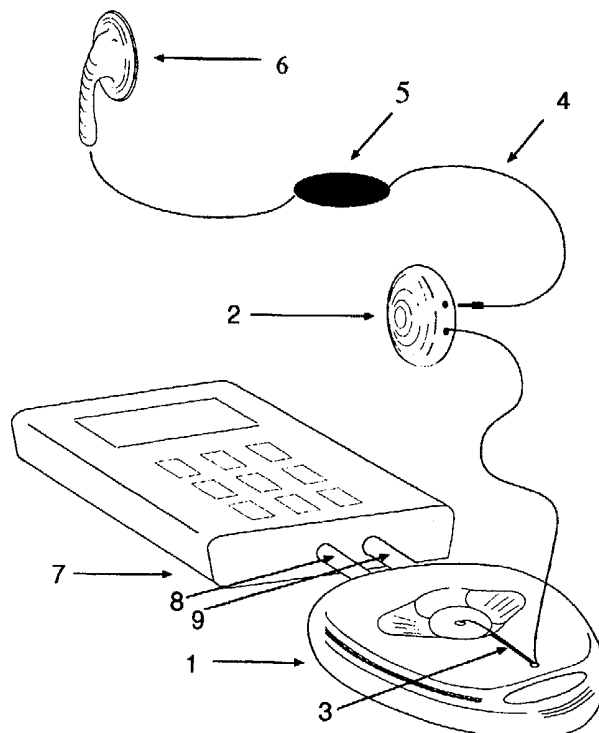


Fig.1.

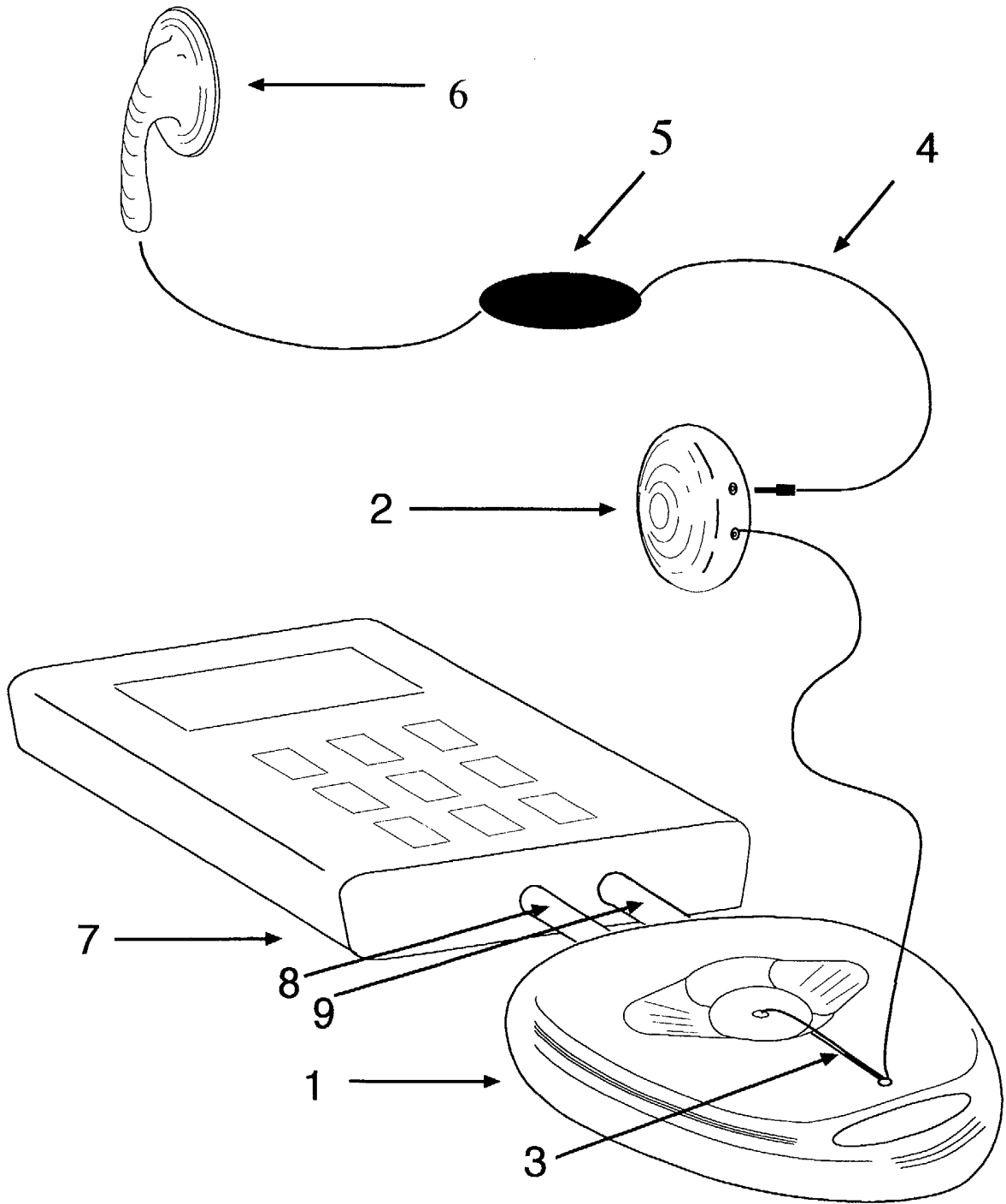


Fig.1.

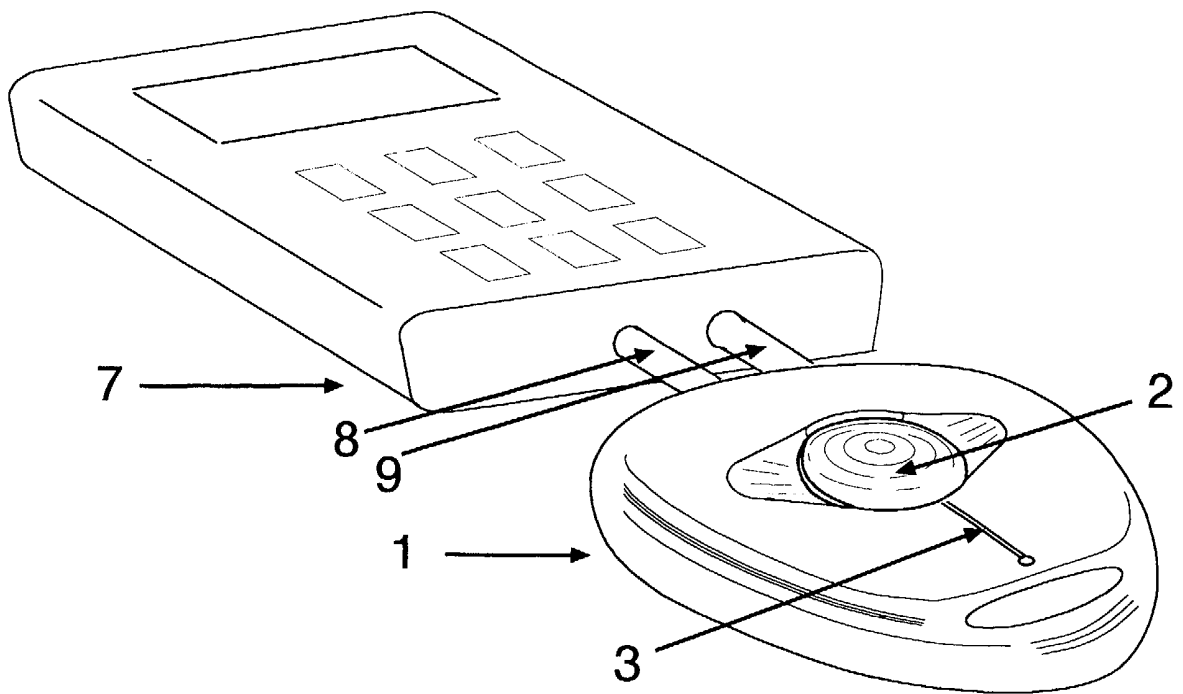


Fig.2.

Optic fibre infrared communication system for mobile phones and hands free devices.

The present invention relates to an optic fibre infrared communication system for mobile phones. More particularly, but not exclusively, it relates to such a system for use with all types of mobile phones.

It is well known that mobile phones have hands free communication devices, that are used generally when phone user's do not wish to hold the phone to the ear. This system operates with wires, these wires when coupled to a mobile phone carry the transmission signal from the mobile phones transmitter, directly to an earpiece and microphone hands free device.

However, it is not known that to combine an infrared transmitter and receiver, to a mobile phone, by a coupling, that the transmission signal from the mobile phones transmitter can be transmitted by an infrared transmitter through an optic fibre to an infrared receiver some distance away. The transmission is then available to be connected to any hands free wire system which has an earpiece and microphone device. This system operates without a wire directly from the mobile phones transmitter, to an earpiece and microphone hands free device.

It is the object of the present invention to provide such a system and to provide a combination of the system to all makes and all types of mobile phones.

According to the first aspect of the present invention there is provided a communication system which can be coupled to all mobile phones comprising an infrared transmitter, with a removable receiver recessed into the top face of the housing case.

The transmitter and the receiver are coupled through an optic fibre.

Preferably each communication system will operate when the receiver is out of the case of the transmitter.

Advantageously the optic fibre connects the transmitter and receiver permanently together, although as a unit it can be uncoupled from the mobile phone.

An embodiment of the present invention will now be more particularly described by way of example and reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of an optic fibre infrared communication system for mobile phones. The term infrared is the description given to a system that is provided to make possible a transmission and reception along a light beam.

The term optic fibre is a description given to a material provided that allows a light beam to move freely from one end to another.

The term a mobile phone, is intended to include all provided phones that are used where the user is available to receive phone calls wherever the user may be, and phones which could be coupled to the optic fibre infrared communication system.

The term hands free for a mobile phone shown in Figure 2 earphone 6, microphone 5, wire and coupler 4, refers to all provided devices which enable the user to use the phone without holding the phone to the ear, which can be coupled to the optic fibre infrared communication system for mobile phones and hands free devices. of the present invention

FIGURE 1 shows the relationship of the devices.

The infrared transmitter 1 is connected and can be disconnected from, the mobile phone 7, and has a removable infrared receiver 2, which is connected to the infrared transmitter 1 by an optic fibre 3. The communication signal from the mobile phones transmitter is transmitted through the coupling signal 9, to the infrared transmitter 1 attached. The coupling power 8 gives the power to operate the infrared transmitter 1, which sends the transmission along the optic fibre 3 to an infrared receiver 2, where an earpiece 6, microphone 5, hands free device can be connected to the infrared receiver 2, by a wire and coupler 4. When connected the transmission from the mobile phone 7, will be heard in the earpiece 6 and returned communication from the microphone 5, will be communicated back to the mobile phone 7.

The infrared receiver 2, when removed from the infrared transmitter 1 shows the optic fibre 3 attached to both. The infrared receiver attached to the optic fibre may be extended up to 1.5 meters from the infrared transmitter.

The earphone 6, microphone 5, wire and coupler 4, are all attached and can be coupled or uncoupled into the infrared receiver 2.

FIGURE 2 shows a feature of the infrared transmitter receiver.

In the housing case of the infrared transmitter 1, there is a recess on the top face this is for the infrared receiver 2, figure 2 shows the receiver in that recess ready to be removed for use, when not in use the receiver 2, is stowed here for future use. The slot in front of the recess is a channel to allow the optic fibre 3, to extend out of the transmitter 1, at 90 degrees if required, this is shown in figure 1.

CLAIMS

1. **Optic fibre infrared communication system for mobile phones comprising of an infrared transmitter and infrared receiver connected by a length of optic fibre which connects to a mobile phone and a hands free earpiece and microphone device.**
2. **A system as claimed in 1 being a connection between a hands free earpiece and microphone device and a mobile phone that is not a metal wire encased in plastic but an optic fibre which is all plastic.**
3. **A system as claimed in 1 or claim 2 that does not use the transmitter of the mobile phone for communication to the earpiece and microphone but has an infrared transmitter attachable and detachable and an infrared receiver to transmit the signal to the ear piece and microphone**
4. **A system as claimed in any one of the proceeding claims that uses no direct contact with the mobile phone apart from the plastic optic fibre attached to the infrared transmitter that transmits the communication signal by a light beam to the infrared receiver.**
5. **A system as claimed in any one of the proceedings that connects a hands free earpiece and microphone device to an infrared receiver by a plastic coated wire.**
6. **An optic fibre infrared communication system substantially as described herein with references to the accompanying drawings.**
7. **In combination, an optic fibre infrared communication system as claimed in any one of the proceeding claims with a mobile phone and hands free device.**
8. **A combination of three essential devices to enable communication to other phone users without holding a mobile phone to a human ear and without a plastic coated metal wire from the mobile phone transmitter to the earpiece and microphone hands free device.**



INVESTOR IN PEOPLE

Application No: GB 0114728.9
Claims searched: 1 to 8

Examiner: Peter Easterfield
Date of search: 7 February 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.T): H4J (JK, JL)
Int Cl (Ed.7): H04M 1/05, 1/60
Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X, E	GB 2362287 A (ROKE MANOR)	1-8
X, E	GB 2362057 A (DAVIDSON) see page 2 lines 1-13 and page 4 lines 14-21	1-8
X, E	US 2001/0034253 A1 (RUSCHIN)	1-8
X	WO 00/45570 A1 (ERICSSON) see figs 1 & 2 and page 5 lines 21-27	1-8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.