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Borland et al.

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(54) **SYSTEM AND METHOD FOR REDUCING CALL INTERRUPTIONS ON A TELEPHONE**

(75) Inventors: **David Borland**, Austin, TX (US); **Ken Alton**, Austin, TX (US)

(73) Assignee: **Legerity, Inc.**, Austin, TX (US)

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(51) **Int. Cl.**[7] **H04M 1/64**; H04M 11/00

(52) **U.S. Cl.** **379/67.1**; 379/70; 379/72; 379/76; 379/88.11; 379/88.12; 379/88.19; 379/88.2; 379/93.02; 379/93.11

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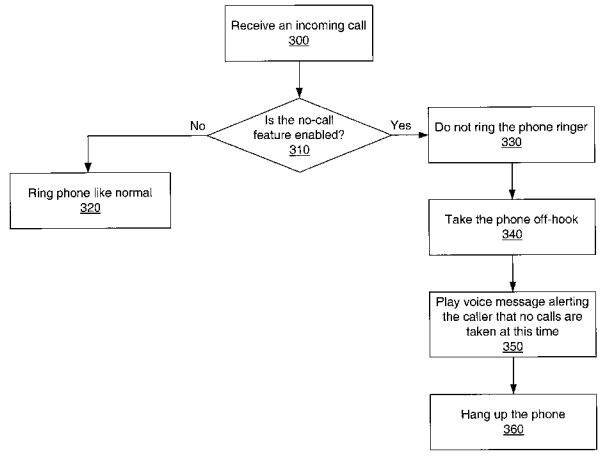
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Primary Examiner—Allan Hoosain
(74) *Attorney, Agent, or Firm*—Robert C. Kowert; Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.

(57) **ABSTRACT**

The present invention comprises an improved telephone system and method that reduce call interruptions to a telephone, i.e., reduce interruptions caused by a caller placing a call to the telephone. If the no-call feature is enabled and a call is received by the telephone, the telephone answers the incoming telephone call in response to receiving the telephone call. The telephone then plays a message to the caller indicating that no calls are being taken. The telephone plays the message after the telephone answers the incoming telephone call. The telephone does not generate an audible ring signal in response to the telephone call received from the caller. The telephone system further comprises an exemption logic unit for allowing calls placed by certain callers to come through even when the no-call feature is enabled. The user indicates the exception parties to the no-call feature prior to receiving a call from an external party or at a later time. If the caller is determined to be an exception party after a telephone call is received, a ring signal is generated, and the user may then answer the call in a normal fashion. Several methods are used to determine whether the caller is an exception party. In one method, the voice of the caller is analyzed using voice recognition techniques to determine the identity of the caller. Alternatively, a caller is asked to enter a personal identification number. Upon entering the correct identification number, the call is allowed through. A third method of identifying the caller comprises using information obtained from a Caller ID unit.

20 Claims, 11 Drawing Sheets



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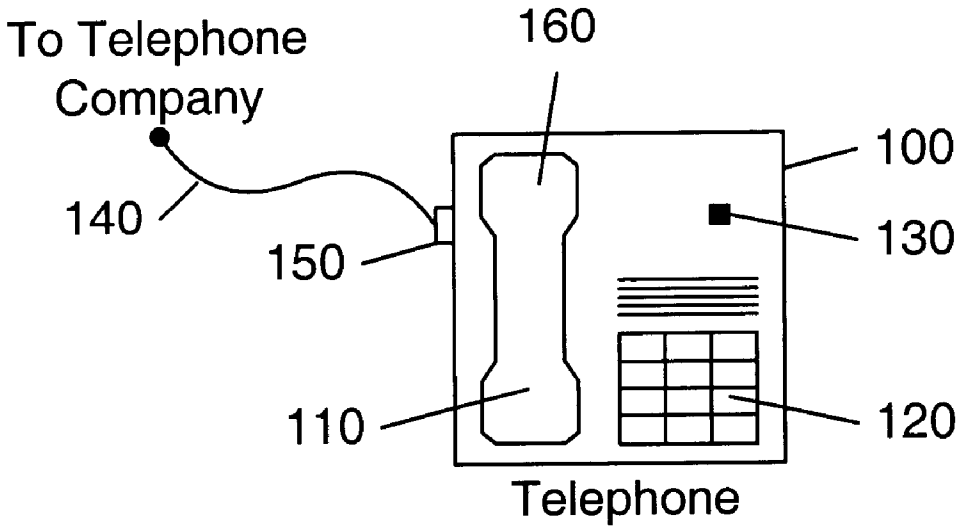

To Telephone Company
160
100
140
130
150
110
120
Telephone

FIG. 1

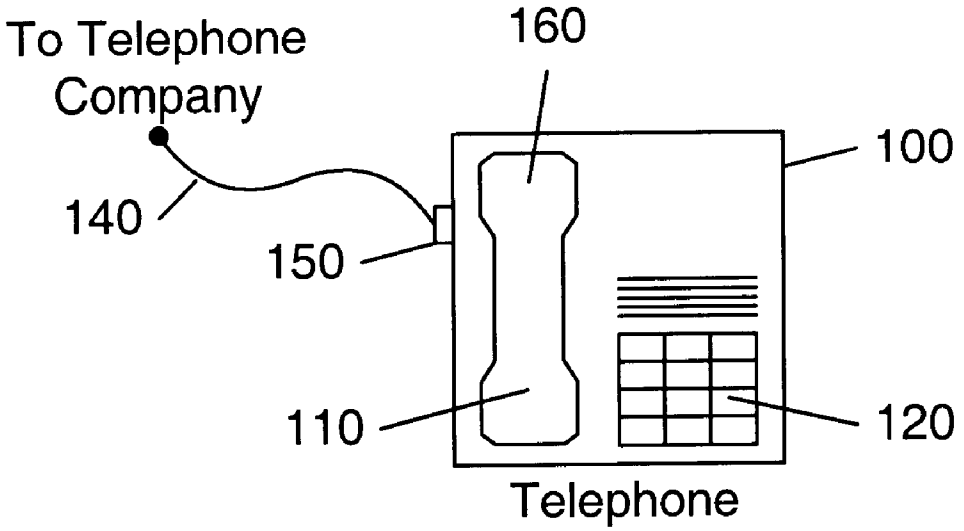

To Telephone Company
160
100
140
150
110
120
Telephone

FIG. 2

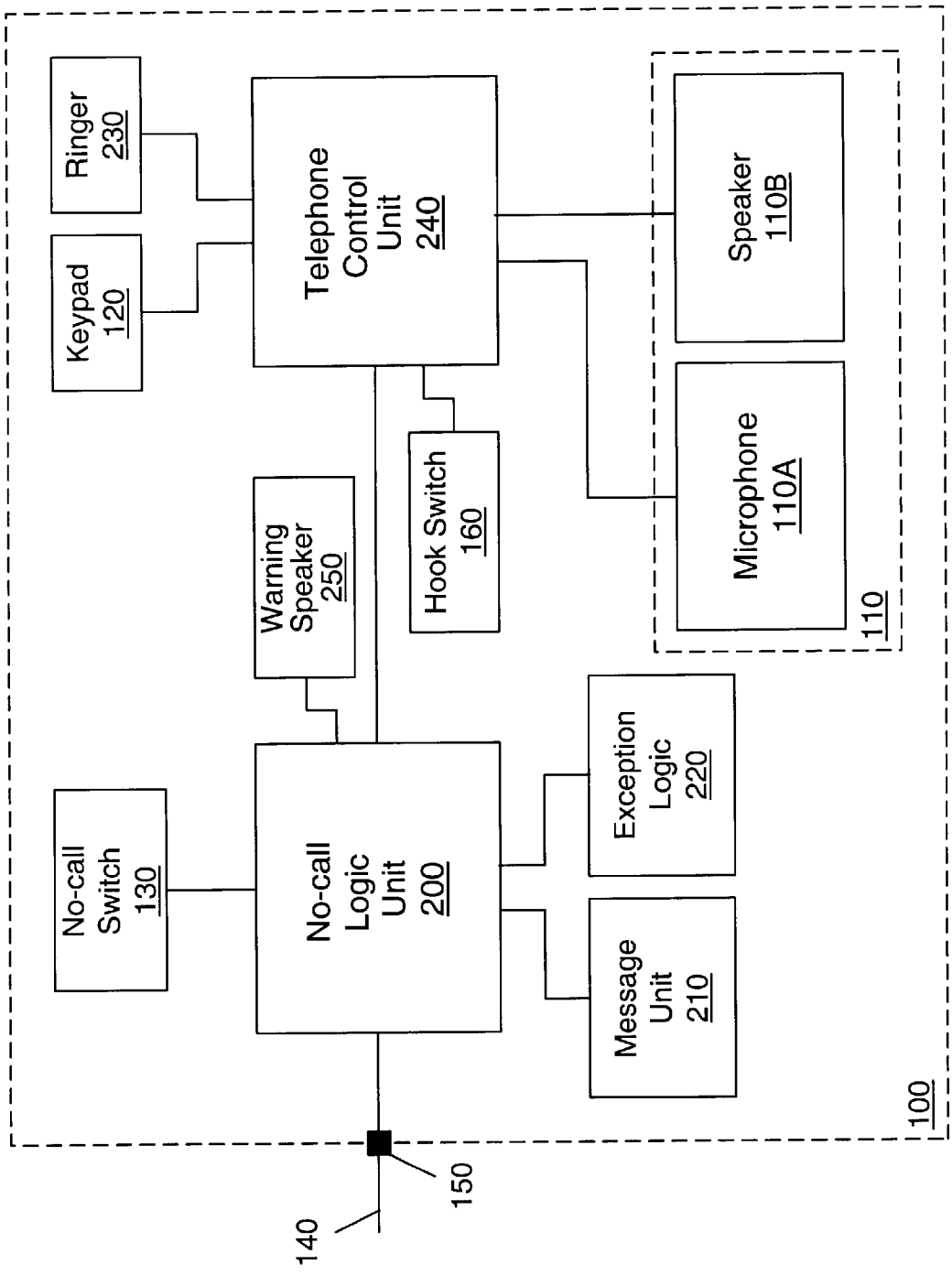

Ringer 230
Keypad 120
Telephone Control Unit 240
Speaker 110B
Microphone 110A
110
Warning Speaker 250
Hook Switch 160
No-call Switch 130
No-call Logic Unit 200
Exception Logic 220
Message Unit 210
100
140
150

FIG. 3

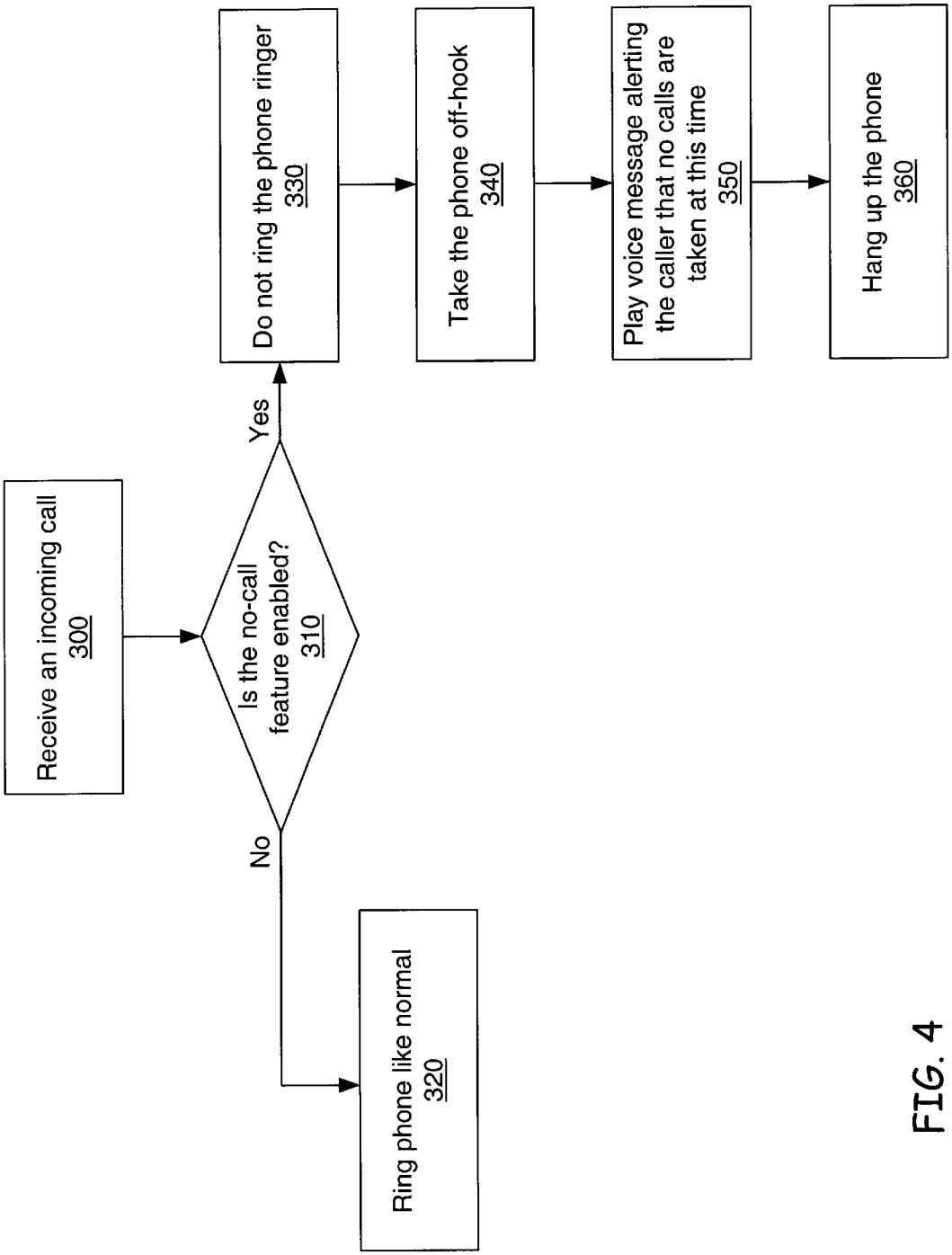

Receive an incoming call
300
Is the no-call feature enabled?
310
Yes
No
Do not ring the phone ringer
330
Take the phone off-hook
340
Play voice message alerting the caller that no calls are taken at this time
350
Hang up the phone
360
Ring phone like normal
320

FIG. 4

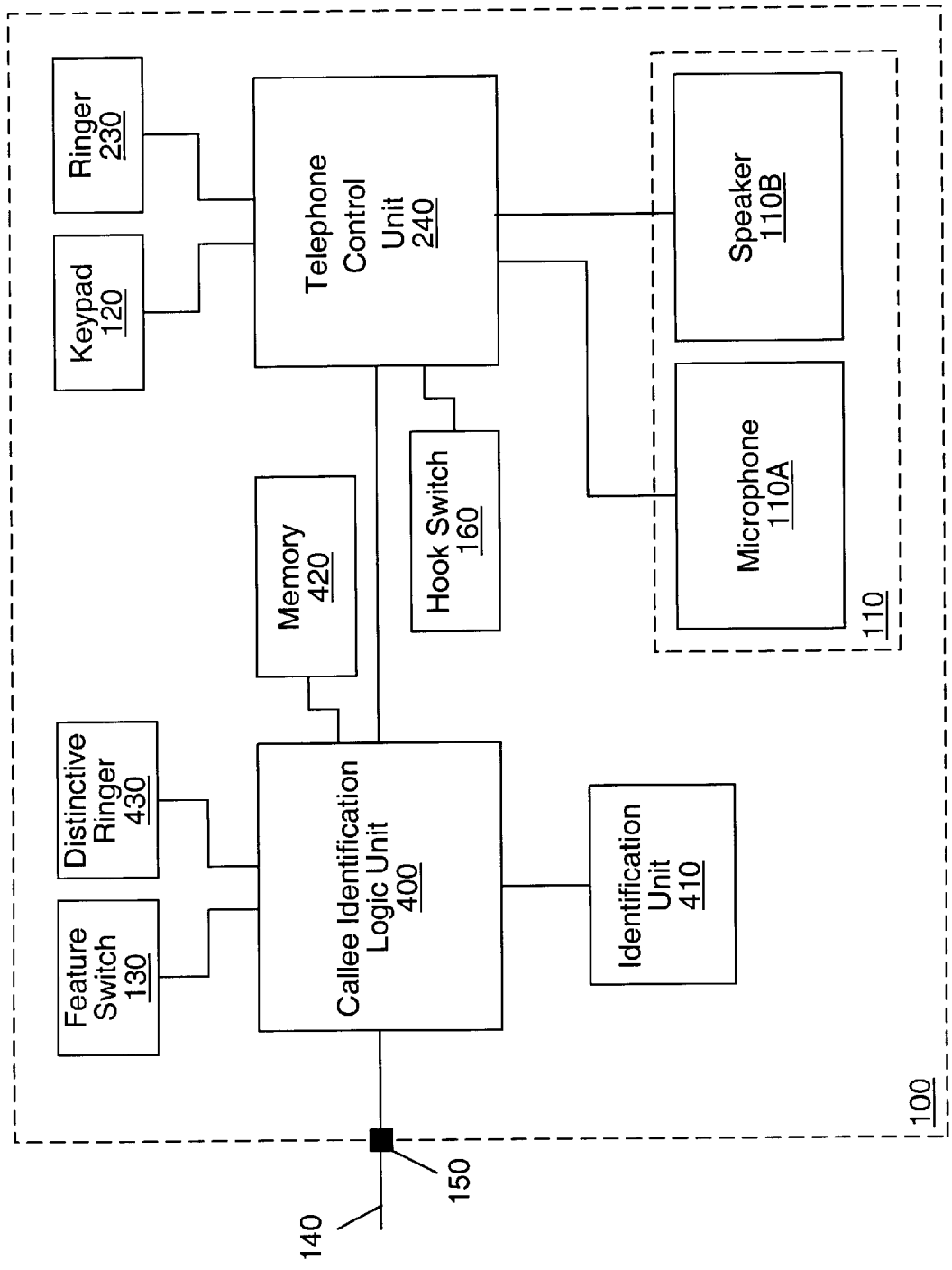

Ringer 230
Keypad 120
Telephone Control Unit 240
Speaker 110B
Microphone 110A
110
Memory 420
Hook Switch 160
Distinctive Ringer 430
Feature Switch 130
Callee Identification Logic Unit 400
Identification Unit 410
100
140
150

FIG. 5

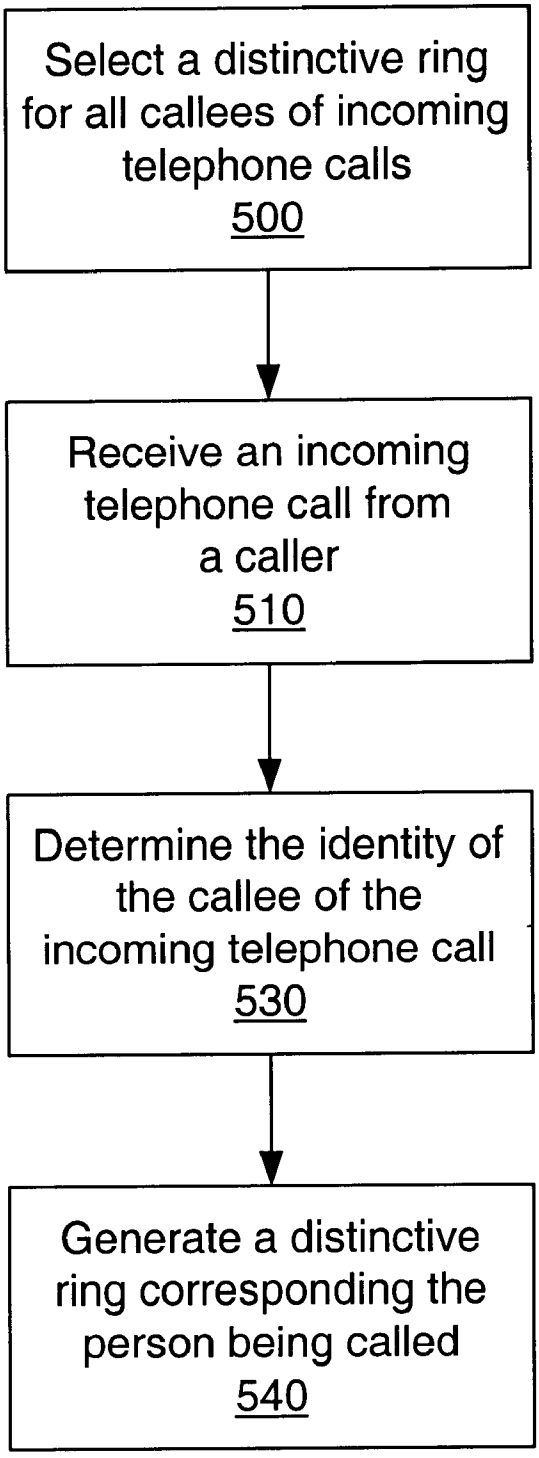

Select a distinctive ring for all callees of incoming telephone calls
500
Receive an incoming telephone call from a caller
510
Determine the identity of the callee of the incoming telephone call
530
Generate a distinctive ring corresponding the person being called
540

FIG. 6

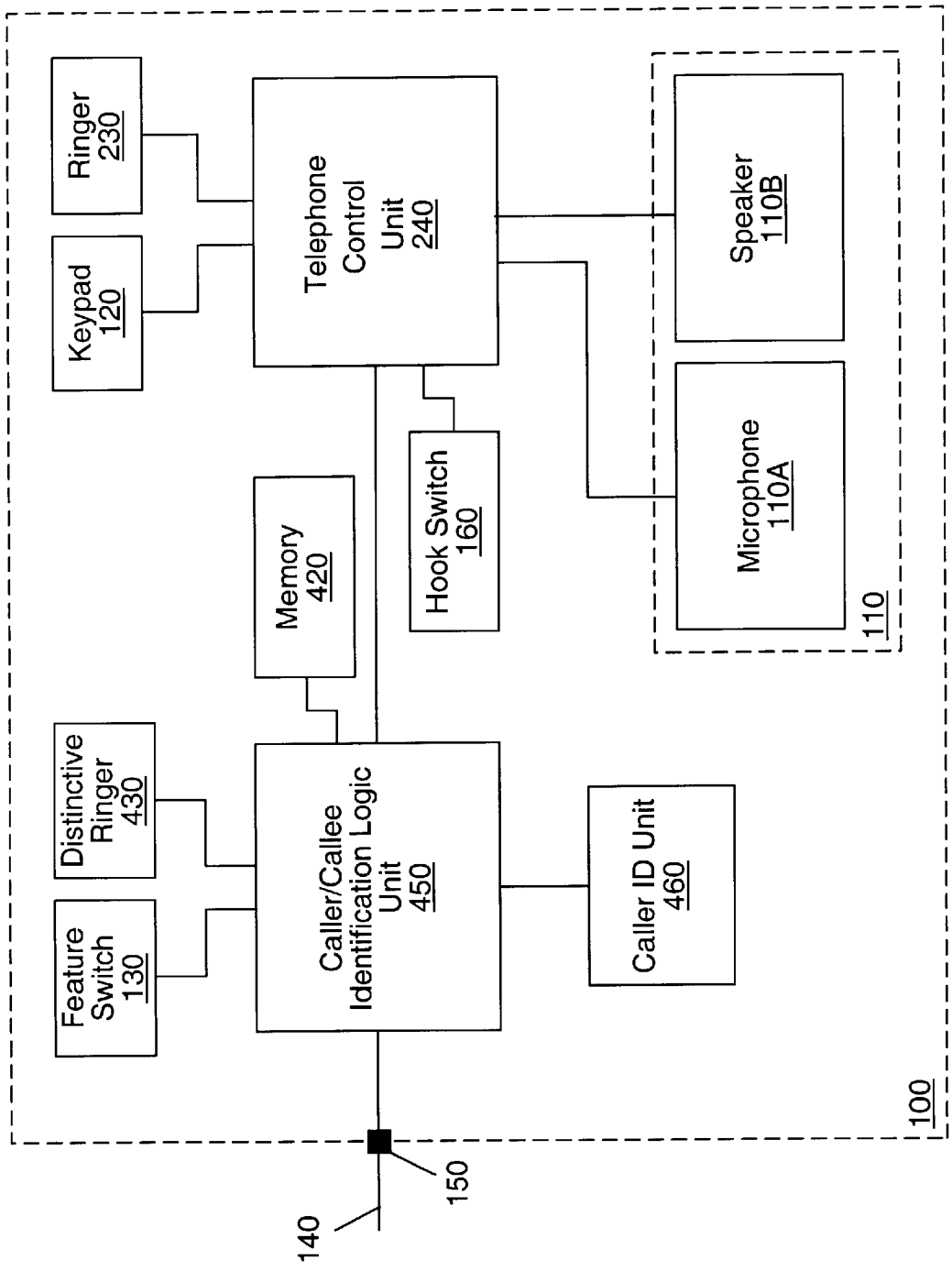

Ringer 230
Keypad 120
Telephone Control Unit 240
Speaker 110B
Microphone 110A
110
Memory 420
Hook Switch 160
Distinctive Ringer 430
Feature Switch 130
Caller/Callee Identification Logic Unit 450
Caller ID Unit 460
100
140
150

FIG. 7

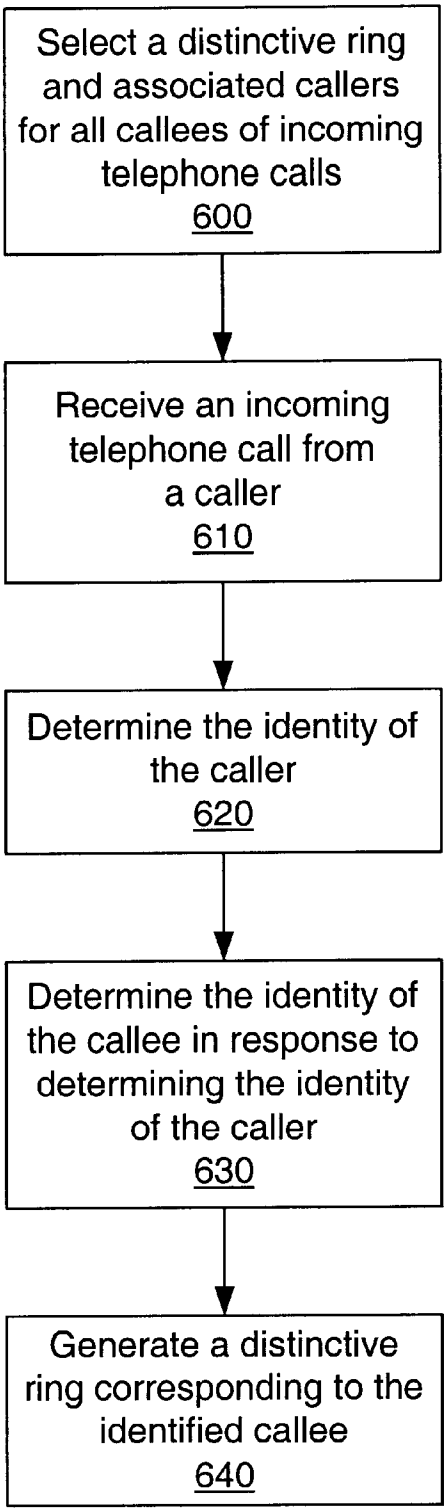

Select a distinctive ring and associated callers for all callees of incoming telephone calls
600
Receive an incoming telephone call from a caller
610
Determine the identity of the caller
620
Determine the identity of the callee in response to determining the identity of the caller
630
Generate a distinctive ring corresponding to the identified callee
640

FIG. 8

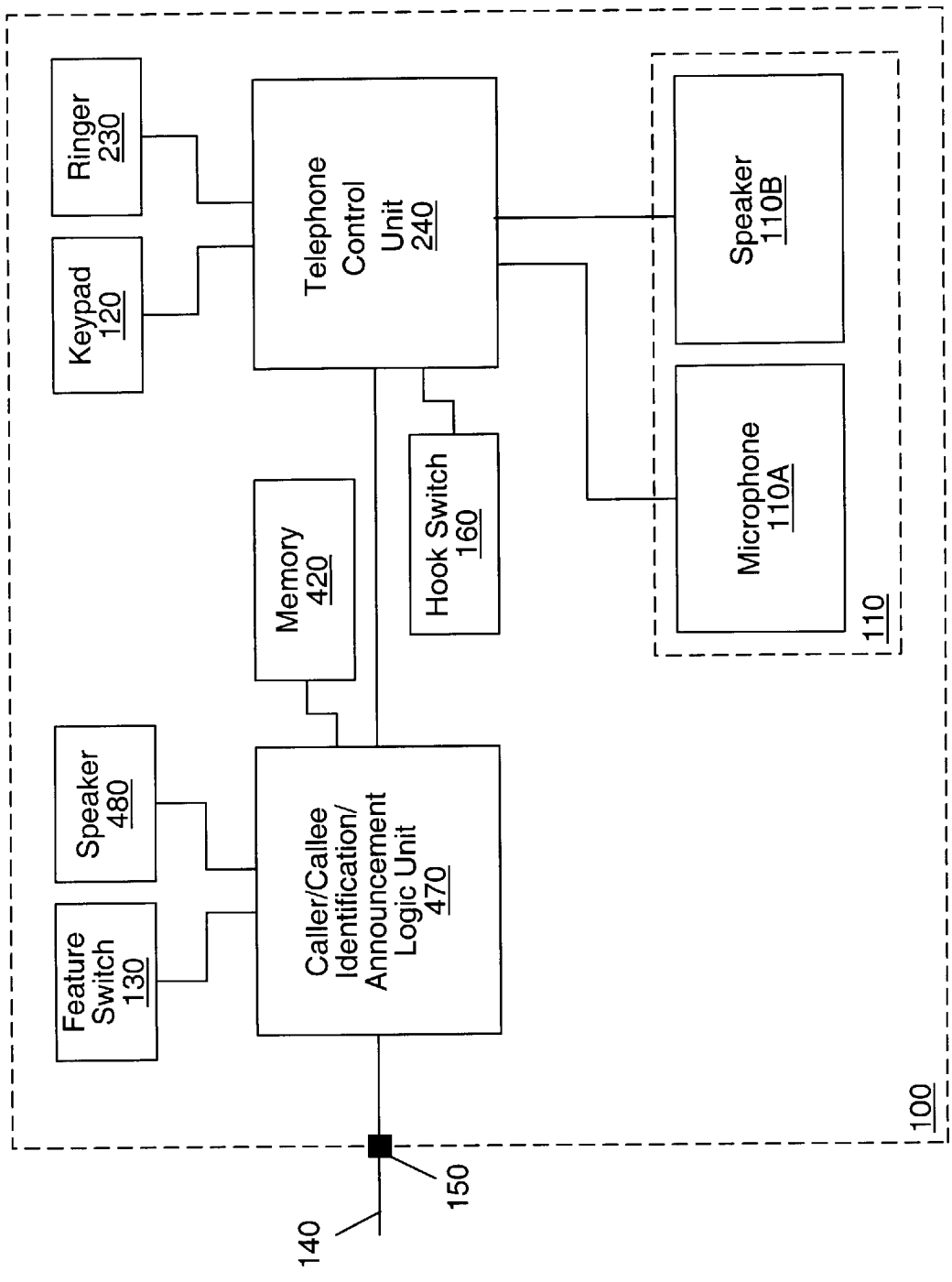

Ringer 230
Keypad 120
Telephone Control Unit 240
Speaker 110B
Microphone 110A
110
Memory 420
Hook Switch 160
Speaker 480
Feature Switch 130
Caller/Callee Identification/ Announcement Logic Unit 470
100
140
150

FIG. 9

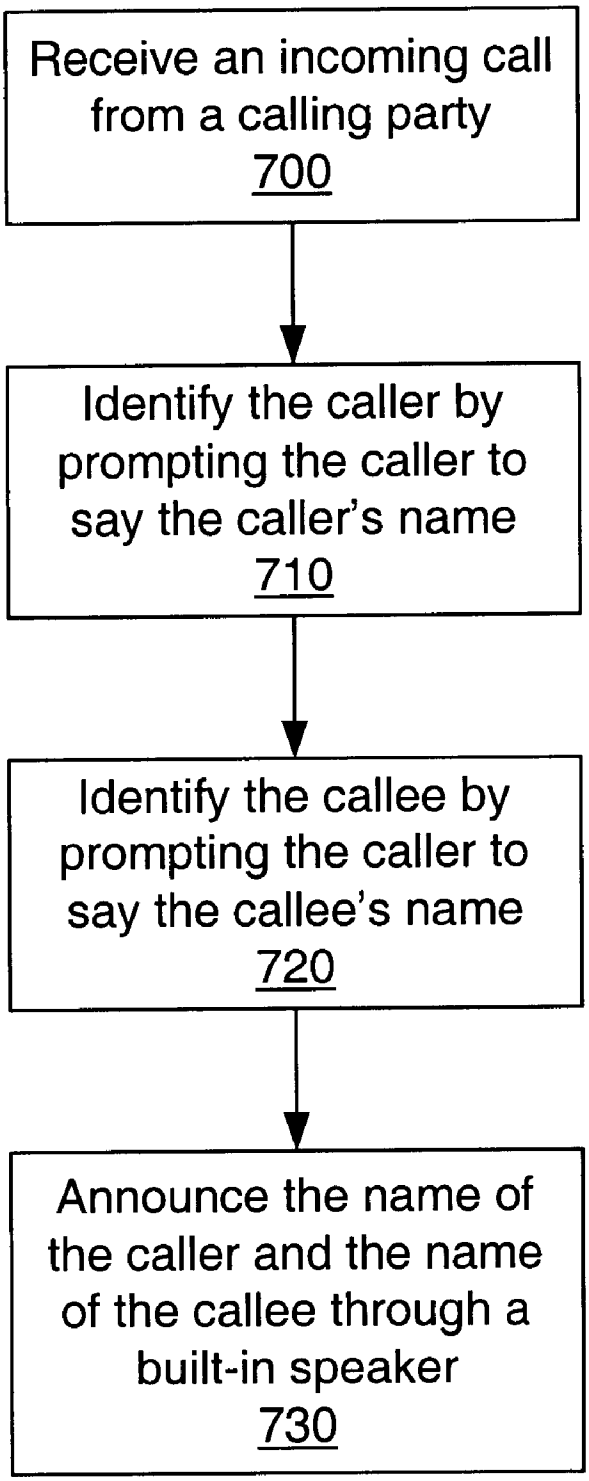

Receive an incoming call from a calling party
700
Identify the caller by prompting the caller to say the caller's name
710
Identify the callee by prompting the caller to say the callee's name
720
Announce the name of the caller and the name of the callee through a built-in speaker
730

FIG. 10

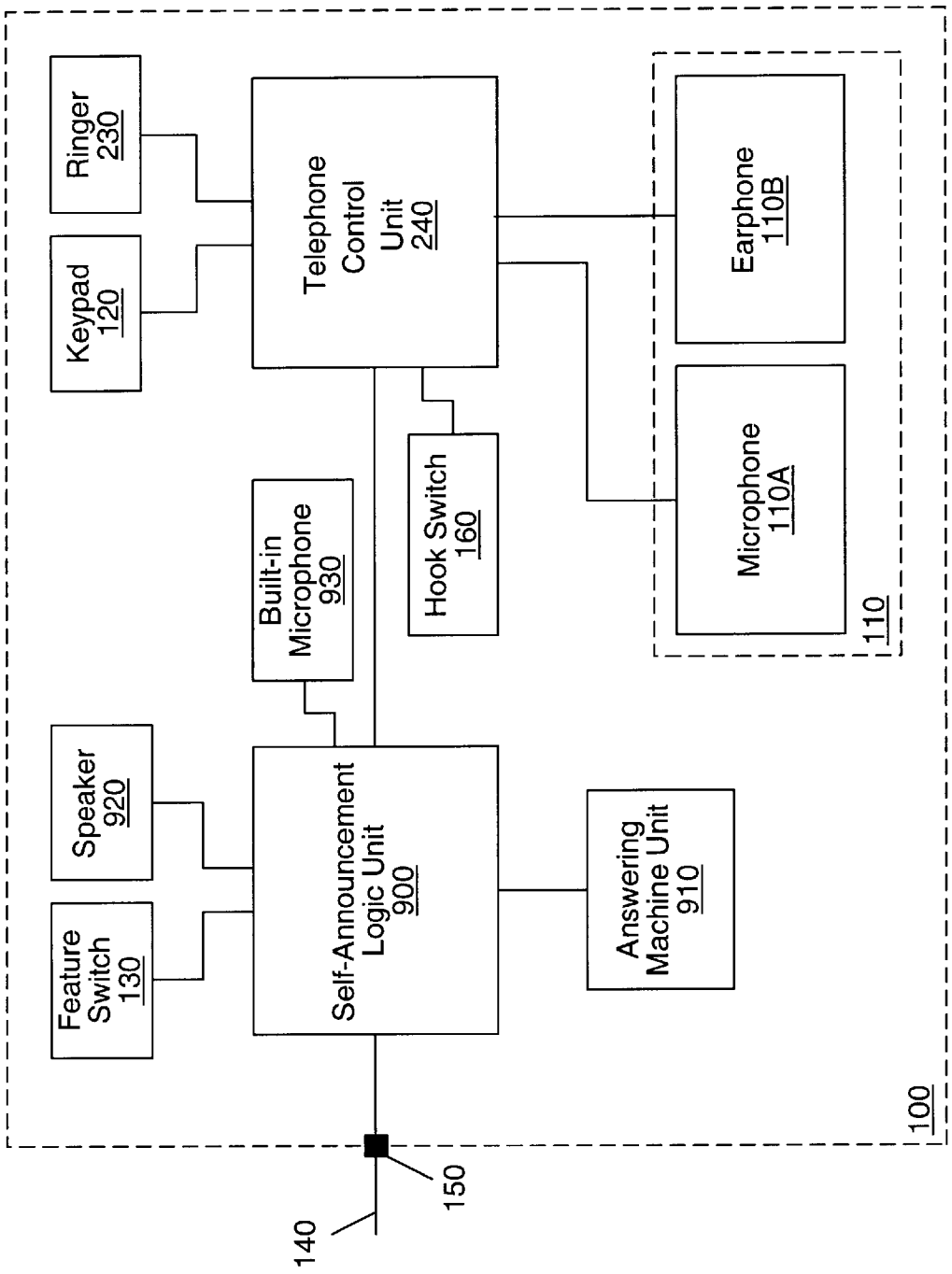

Ringer 230
Keypad 120
Telephone Control Unit 240
Earphone 110B
Microphone 110A
110
Built-in Microphone 930
Hook Switch 160
Speaker 920
Feature Switch 130
Self-Announcement Logic Unit 900
Answering Machine Unit 910
100
140
150

FIG. 11

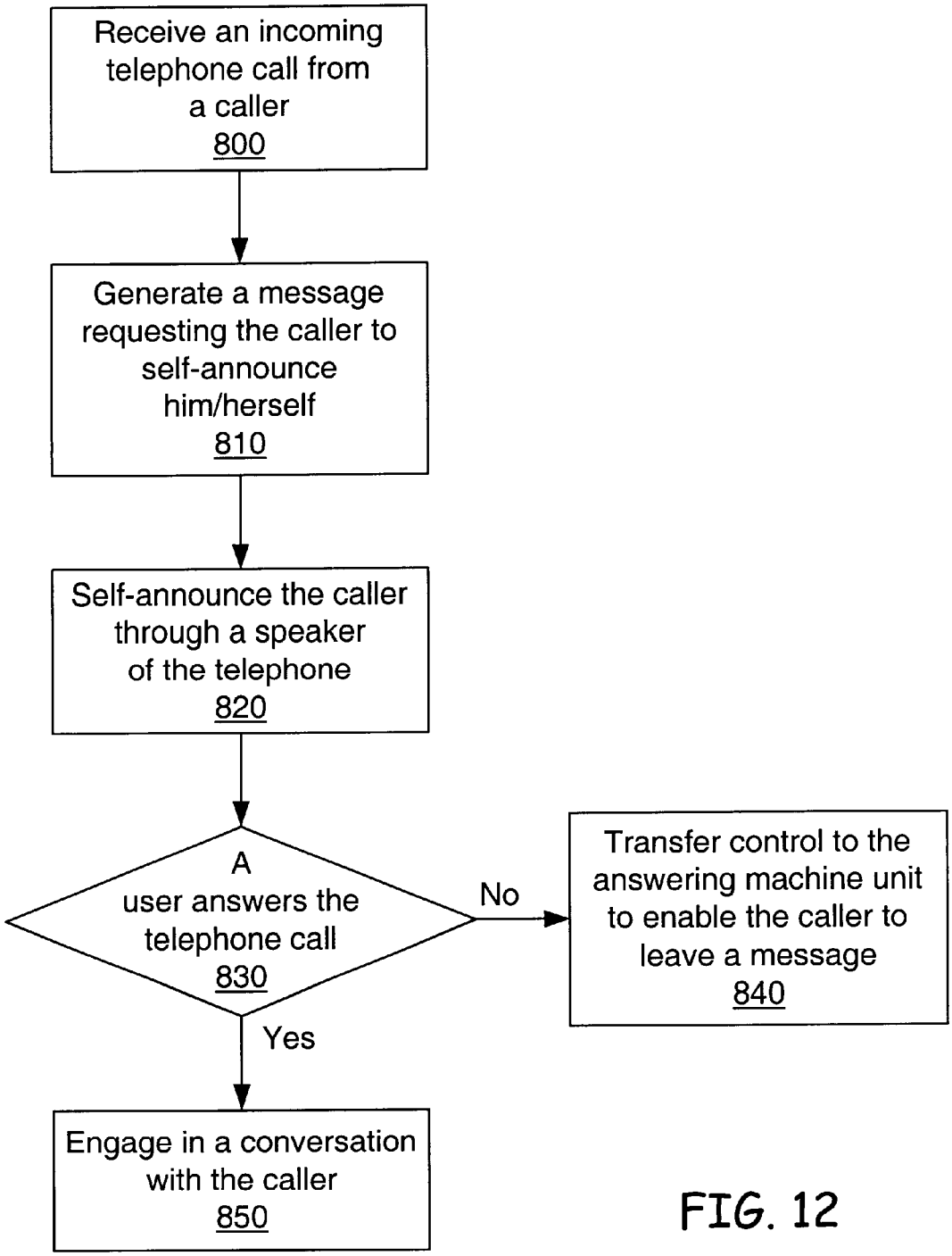

Receive an incoming telephone call from a caller
800
Generate a message requesting the caller to self-announce him/herself
810
Self-announce the caller through a speaker of the telephone
820
A user answers the telephone call
830
No
Transfer control to the answering machine unit to enable the caller to leave a message
840
Yes
Engage in a conversation with the caller
850

FIG. 12

SYSTEM AND METHOD FOR REDUCING CALL INTERRUPTIONS ON A TELEPHONE

CONTINUING DATA

This application is a Continuation of U.S. application Ser. No. 08/969,781 filed Nov. 13, 1997 now U.S. Pat. No. 6,173,041.

FIELD OF THE INVENTION

The present invention relates to a telephone system and method for reducing call interruptions, wherein the call interruptions are caused by incoming telephone calls placed by a caller to the telephone.

DESCRIPTION OF THE RELATED ART

Telephone subscribers communicate via a vast telephone network, referred to as the Public Switched Telephone Network (PSTN). In the present disclosure, the term "PSTN" is intended to include the analog phone network or POTS (Plain Old Telephone Service), ISDN (Integrated Services Digital Network), DSL (Digital Subscriber Line), and Wireless Local Loop (WLL), among others.

A telephone subscriber's communications devices, e.g., telephones, are typically connected in parallel to a telephone line which links a subscriber's premises to a telephone service provider's central office. An ordinary telephone is the most familiar of such communications devices. An ordinary telephone includes a handset, and the handset includes a receiver and a transmitter. The receiver is designed to be placed over a user's ear during use, and the transmitter designed to be positioned in close proximity to the user's mouth during use.

In a POTS system, when the telephone is not in use, the telephone is disconnected from the telephone line, except for a ringer circuit. When a caller places a telephone call to a receiving party, switching equipment in the central office transmits a series of ring signals over the receiving party's telephone line. The ring signals cause the ringer circuit of the receiving party's telephone to generate sounds which alert the receiving party to the incoming telephone call. At the same time, the switching equipment sends a series of ring-back signals to the caller to let the caller know that the telephone call is being placed. When the receiving party answers the incoming telephone call, a communication is established between the caller and the receiving party.

Several different types of communications devices are designed to automatically transmit or receive information following detection of one or more ring signals. Examples of such communications devices include telephone answering machines and communications devices equipped with modulator-demodulators (modems). An answering machine typically includes control circuitry which electrically connects a voice message unit to the telephone line after a predetermined number of ring signals are detected, causes the voice message unit to transmit (i.e., play back) a pre-recorded outgoing voice message, and then receives and records any incoming voice message transmitted by the caller following transmission of the outgoing voice message. Digital communications devices equipped with modems exchange frequency-encoded information via the telephone network. Facsimile (fax) machines are examples of such digital communications devices. A fax machine typically includes control circuitry which electrically connects a modem to a telephone line after a predetermined number of ring signals are detected, then either transmits or receives

frequency-encoded digital information. A modulator portion of a modem within a transmitting fax machine converts a digital value (i.e., a logic one or a logic zero) to a corresponding analog tone. A demodulator portion of a modem within a receiving fax machine performs the opposite function, converting the analog tone to the corresponding digital value.

Telephone service providers also offer "Caller ID" services which provide information about a caller. Devices which receive, store, and display digital Caller ID information are widely available. The Caller ID service is typically available to telephone subscribers for a small additional monthly fee. Under current standards, frequency-encoded digital Caller ID information is transmitted between the first and second ring signals. Information about a caller is thus received, stored, and displayed by a Caller ID device before a user would normally answer a ringing telephone. Caller ID information is typically recorded by Caller ID devices whether the associated telephone is answered or not. Caller ID circuitry may be included as part of a telephone or the caller ID circuitry may be part of a separate box that is also connected to the telephone line.

A telephone system would be desirable that provides the user or the users with additional features for a more effective use of their telephone service. Desirable features could be, for example: a feature that would enable the user to stop accepting incoming calls and inform the caller to that effect; a feature that could identify the caller and/or the callee of incoming call and alert the user to the identity of the caller and/or callee. Such features would enhance the usefulness of a user's telephone service.

Applicants are aware of the "party line" telephone networking. The "party line" comprises one telephone line that extends to multiple houses with support for multiple telephone numbers. Upon receiving a telephone call, all the telephones that are connected to the line ring but with a different cadence.

SUMMARY OF THE INVENTION

The present invention comprises an improved telephone system with additional features that enable a user or users to make more effective use of their telephone service.

In the first embodiment, the present invention comprises an improved telephone system and method that reduce call interruptions to a telephone, i.e., reduce interruptions caused by a caller placing a call to the telephone. The user can enable the no-call feature either by operating a switch on the telephone or by entering a specific numeric code using the telephone's keypad. If the no-call feature is enabled and a call is received by the telephone, when the telephone is answered, the telephone then plays a message to the caller indicating that no calls are being taken. The telephone plays the message after the call is answered. The telephone does not generate an audible ring signal in response to the telephone call received from the caller. Instead of generating a ring signal, the telephone plays the no-call message in response to the no-call feature being enabled.

The telephone system, according to the first embodiment, further comprises an exemption logic unit for allowing calls placed by certain callers to come through even when the no-call feature is enabled. The user indicates the exception parties to the no-call feature prior to receiving a call from an external party. If the caller is determined to be an exception party after a telephone call is received, a ring signal is generated, and the user may then answer the call in a normal fashion.

Several methods are used to determine whether the caller is an exception party. In one method, the voice of the caller is analyzed using voice recognition techniques to determine the identity of the caller. Alternatively, a caller is asked to enter a personal identification number. Upon entering the correct identification number, the call is allowed through. A third method of identifying the caller comprises using information obtained from a Caller ID unit.

In the second embodiment, the present invention comprises an improved telephone system and method that determine the identity of the callee of an incoming telephone call. A distinctive ring is first selected by one or more of the users of the telephone prior to activating the feature or at any later time. The callee identification feature is enabled either by operating a switch on the telephone or by entering a specific numeric code using the telephone's keypad. Information about the individual distinctive ring signals is stored in memory inside the telephone. When an incoming call is received from an external party, the telephone determines which one of the users is the callee of the telephone call. A distinctive ring signal is then generated corresponding to the callee of the incoming telephone call. The distinctive ring signal identifies the callee of the incoming telephone call to the telephone users.

In order to identify the callee of the telephone call, the telephone system, after answering the telephone call, inquires the caller for the identity of the callee. For example, the telephone announces the list of possible callees and ask the caller to enter a numeric code corresponding to the callee of the telephone call.

A callee may also be identified using voice recognition techniques. After answering a call, the telephone, using a prerecorded message, asks the caller to say the name of the callee. The telephone voice-processes the received voice signals in order to determine the identity of the callee. The telephone then generates a distinctive ring corresponding to the identified callee that identifies the callee to the telephone users.

In an embodiment where multiple telephones are connected on the same telephone line, one telephone is designated as the master telephone. Upon receiving an incoming telephone call, all the telephones that are connected to the line answer the incoming telephone call. In an embodiment where the callee is identified by inquiring the caller, the master telephone performs the inquiry and any other prompting of the caller that is involved. In an embodiment where the callee is identified by other means, for example, caller ID, all the telephones perform the identification. In all the embodiments, all the telephones on the line contain logic that generates the distinctive ring signals that identify the callee.

In the third embodiment, the present invention comprises an improved telephone system and method that determine the identity of the callee of an incoming telephone call by first determining the identity of the caller. The telephone users program the telephone by entering information on calling parties and their corresponding callees prior to any incoming telephone calls and prior to activating the feature. The users may also reprogram the telephone at any later time. The information on callers and corresponding callees is stored in memory inside the telephone. In addition, each user selects a distinctive ring signal that is unique to the user. Information about the distinctive ring signal is also stored in memory. The telephone system uses caller ID information, voice recognition, or prompts the caller for a numeric code in order to determine the identity of the caller.

The identity of the callee is determined after determining the identity of the caller. Information entered by the users during setup is accessed in order to determine which callee corresponds to the identified caller. Once the identity of the callee is established, a distinctive ring signal corresponding to the identified callee is generated.

In an embodiment where multiple telephones are connected on the same telephone line, one telephone is designated as the master telephone. Upon receiving an incoming telephone call, all the telephones that are connected to the line answer the incoming telephone call. In an embodiment where the caller is identified by inquiring the caller, the master telephone performs the inquiry and any other prompting of the caller that is involved. In an embodiment where the caller is identified by other means, for example, caller ID, all the telephones perform the identification. In all the embodiments, all the telephones on the line contain logic that generates the distinctive ring signals that identify the callee.

In the fourth embodiment, the present invention comprises a telephone system and method that identify and announce the caller and/or the callee of an incoming telephone call. After receiving a telephone call from a caller, the telephone system answers the telephone call. The identity of the caller is then determined. The telephone system prompts the caller to say his/her name. The name is recorded and repeatedly played back through a built-in speaker announcing the name of the caller to the users of the telephone.

In addition, the telephone system may also ask the caller to say the name of the callee. In that case, the name of the callee is also recorded and repeatedly played back. The name of the caller and the name of the callee are both announced to the users of the telephone.

In an embodiment where multiple telephones are connected on the same telephone line, one telephone is designated as the master telephone. Upon receiving an incoming telephone call, all the telephones that are connected to the line answer the incoming telephone call. In an embodiment where the caller and/or the callee are identified by inquiring the caller, the master telephone performs the inquiry and any other prompting of the caller that is involved. In an embodiment where the caller is identified by other means, for example, caller ID, all the telephones perform the identification. In all the embodiments, all the telephones on the line contain logic that enable the telephones to announce the identity of the caller and/or the callee.

In the fifth embodiment, the present invention comprises a telephone system and method for self-announcing a caller of an incoming telephone call. After an incoming call is received from a caller, the telephone answers the telephone before any ring signals are generated. A message is then generated requesting the caller to self-announce him/herself. A speaker on the telephone is activated to enable the telephone users to listen to the announcement.

After the caller self-announces him/herself, a user, if present, may decide to answer the telephone call. The user may answer the telephone call either by placing the telephone in speakerphone mode or by activating the handset and engaging in a conversation with the caller. If the user is not present or chooses not answer the telephone call, the telephone transfers control to an answering machine unit so that the caller is given the choice of leaving a message. In one embodiment, the answering machine is built-in to the telephone. In another embodiment, the answering machine is an external unit attached to the telephone.

In an embodiment where multiple telephones are connected on the same telephone line, one telephone is desig-

nated as the master telephone. Upon receiving an incoming telephone call, all the telephones that are connected to the line answer the incoming telephone call. Only the master performs any prompting of the caller that is involved. The caller's self identification is then heard on all the telephones that are connected on the line.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the accompanying drawings in which:

FIG. **1** shows a telephone with improved features and a switch for enabling/disabling the improved features;

FIG. **2** shows a telephone with improved features;

FIG. **3** shows a block diagram of a telephone with a no-call feature;

FIG. **4** shows a flowchart describing a method for reducing call interruptions by a caller placing a telephone call to a telephone;

FIG. **5** shows a block diagram of a telephone that identifies the callee of an incoming telephone call;

FIG. **6** shows a flowchart describing a method for identifying the callee of an incoming telephone call;

FIG. **7** shows a block diagram of a telephone that identifies the callee of an incoming telephone call by identifying the caller;

FIG. **8** shows a flowchart describing a method for identifying the callee of an incoming telephone call by identifying the caller;

FIG. **9** shows a block diagram of a telephone system for announcing a caller and a callee of an incoming telephone call;

FIG. **10** shows a flowchart describing a method for announcing a caller and a callee of an incoming telephone call;

FIG. **11** shows a block diagram of a telephone system for self-announcing a caller of an incoming telephone call; and

FIG. **12** shows a flowchart describing a method for self-announcing a caller of an incoming telephone call.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof are shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that the drawings and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the intention is to cover all modifications, equivalents and alternatives falling within the spirit and scope of the present invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

First Embodiment, System and Method for Reducing Call Interruptions Caused by Incoming Telephone Calls

In the first embodiment, the present invention comprises an improved telephone system that reduces call interruptions to a telephone, wherein the call interruptions are produced by a caller placing a call to a telephone. Such a telephone system is shown in FIG. **1**. Telephone **100** is connected to the telephone service provider's central office using telephone line **140**. Telephone **100** is coupled to telephone line **140** through port **150** for sending and receiving telephone signals to and from the central office. As used in the present invention, "telephone" may refer to a conventional or telephone, a digital telephone, cordless telephone, or a cellular telephone. Furthermore, the telephone functions may be performed by a computer, a personal digital assistant (PDA), a web surfer, or any other system that has a subfunction that acts like a classic telephone.

Telephone **100** further comprises handset **110**. Handset **110** comprises a speaker for receiving voice signals and generating an audible sound and a microphone for transmitting voice over the telephone line. In a POTS network, when the handset is located in the cradle of the telephone, the placement and/or weight of the handset **110** maintains hook switch **160** in the open position. Once the handset **110** is picked up by the user, hook switch **160** closes and telephone **100** turns on for placing or answering a call. It is noted that hook switch **160** may be closed by other means, such as the user pressing a "talk" button in the case of a cordless phone. Furthermore, for an ISDN, DSL, WLL, or other networks, the telephone answers the telephone call using means appropriate to that network.

Telephone **100** includes a no-call switch **130**. No-call switch **130** is preferably a toggle switch for turning the no-call feature on and off. The no-call feature will be discussed further below. Alternatively, the no-call feature is activated and deactivated by lifting handset **110** and entering a numeric code using the keypad **120**. For example, *28 may be the activation code and *29 may be the deactivation code. Such a telephone, without no-call switch **130**, is shown in FIG. **2**. In another embodiment, the no-call feature is enabled/disabled using a computer system coupled to the phone, wherein the no-call switch is either directly coupled to the telephone or coupled through the telephone line.

FIG. **3** shows a block diagram of telephone system **100**. When a caller places a call, a ring signal is transmitted to telephone system **100** through telephone line **140** to port **150**. No-call logic unit **200**, which is directly coupled to port **150**, first receives the incoming ring signal. If the no-call feature is disabled by either toggling no-call switch **130** or by entering the appropriate activation/deactivation code through keypad **120**, no-call logic unit **200** transmits the ring signal to telephone control unit **240**.

Telephone control unit **240** performs regular telephone functions as are well known in the art. Upon receiving a ring signal, telephone control unit **240** sends the ring signal to ringer **230**. Ringer **230** produces an audible ring that alerts the user to the incoming call. The user then answers the telephone call. In a POTS, the user answers the telephone call by lifting handset **110**, which closes switch **160** and places the telephone off-hook. For an ISDN, DSL, WLL, or other types of telephone network, the telephone is answered by other means appropriate to the protocol used. The user then transmits voice to the caller by talking into microphone **110**A and receives sound by listening to speaker **110**B.

The user can enable/disable the no-call feature either by operating switch **130** on the telephone or by entering a numeric code using the telephone's keypad. If the location, i.e., the home, includes a plurality of telephones, then preferably one of the telephones is the master telephone. Upon receiving an incoming telephone call, the master telephone answers the call before any other phone in the household. If the no-call feature is enabled, the master telephone plays the outgoing message and terminates the telephone call. If the no-call feature is not enabled or if the caller is an exception party, the master telephone allows the telephone signal to be transmitted to all the telephones in the household.

If the no-call feature is enabled and a call is received by the telephone, no-call logic unit **200** answers the telephone call but does not transmit the ring signal to telephone control unit **240**. Consequently, ringer **230** does not ring to alert the user about the incoming call.

In one embodiment, telephone system **100** comprises warning speaker **250**. In this embodiment, no-call logic unit **200** sends a signal to warning speaker **250** when the no-call feature is enabled and when an incoming call is received. Warning speaker **250** generates a sound that alerts the user to the incoming call and to the fact that the no-call feature is enabled. The sound generated by warning speaker **250** is distinctively different from the sound generated by ringer **230**. The sound generated by warning speaker **250** is short in duration and not very loud and thus is less annoying than a ring signal.

When the no-call feature is enabled, no-call logic unit answers the incoming telephone call and then sends a signal to message unit **210** to begin playing an outgoing message. The outgoing message is transmitted over telephone line **140** to the caller. The outgoing message could either be a prerecorded message that is stored in message unit **210** or the outgoing message could be a message recorded by the user using headset **110** during setup or at a later time prior to the incoming telephone call. The outgoing message could, for example, be: "We are not accepting calls at this time. Please call back later."

Telephone system **100**, according to the first embodiment, further comprises exception logic unit **220**. Exception logic unit **220** contains information that allows certain parties, referred to as exception parties, to override the no-call feature. Information about the exception parties is stored in exception logic unit **220** by the user during setup prior to enabling the no-call feature. The list of exception parties may also be updated at any later time by the user. If the no-call feature is enabled, before playing back an outgoing message from message unit **210**, exception logic unit **220** examines whether the caller is an exception party based on determining the identity of the caller. If the caller is determined to be an exception party, control is transferred to telephone control unit **240**, a ring signal is generated by ringer **230**, and the user answers the call in a regular fashion.

In another embodiment, the list may comprise non-exception parties. In this embodiment, the telephone rings normally for parties that are not included in the list. For parties that are included in the list, the no-call feature does not allow their calls through.

Information about the exception parties is stored in exception logic **220** in the form of a database. The database of exception parties is entered by the user during setup or at a later time prior to enabling the no-call feature. Numeric codes corresponding to each letter in the alphabet may be used by the user to enter the names of exception parties.

Several methods may be used to determine whether the caller is an exception party. In one embodiment, exception logic **220** contains circuitry that can perform Caller ID functions. The identity of the caller is then determined using Caller ID information. If the name of the caller matches a name that is stored in the database, the caller is considered an exception party.

Alternatively, voice recognition techniques are used by exception logic **220** to determine the identity of the caller. The exception logic, for example, asks the caller whether the user is an exception party. If the user answers "yes", exception logic performs voice recognition on the answer to determine the identity of the caller. The received voice is compared to previously stored voices from the exception parties.

The flowchart of FIG. **4** describes a method for reducing call interruptions on a telephone, wherein the call interruptions are caused by a caller placing a call to a telephone. In step **300**, an incoming call is received by the telephone. The telephone system, in step **310**, determines whether the no-call call feature is enabled. If the no-call feature is disabled, the telephone system, in step **320**, operates in normal mode by ringing the ringer and waiting for the user to answer the incoming call.

If the no-call feature is enabled, the telephone system does not ring to alert the user to the incoming call as shown in step **330**. The telephone system outputs an alternative, shorter in duration sound alerting the user to the incoming call and to the fact that the no-call is enabled. In step **340**, the telephone answers the incoming telephone call. In step **350**, a voice message is played alerting the caller that no calls are taken at this time. The voice message can be either a pre-recorded message or a message recorded by the user prior to enabling the no-call feature or at a later time. After the voice message is played, in step **360**, the telephone hangs up.

In addition, in one embodiment, the telephone system allows certain exception parties to place a call to the telephone system even when the no-call feature is enabled. A test to determine the caller's identification is performed after answering the incoming telephone call and before a voice message is played to the caller. If the caller is determined to be an exception party, the telephone resumes normal operation, i.e., the ringer sounds and the telephone is ready to be answered by the user.

Second Embodiment, System for Identifying Callees of Incoming Telephone Calls

In the second embodiment, the present invention comprises an improved telephone system that identifies the callee of an incoming telephone call. Such a telephone system is shown in FIG. **1**. In this embodiment, switch **130** is used for enabling and disabling the callee identification feature. Alternatively, the callee identification feature is activated by lifting handset **110** and entering a numeric code through keypad **120**. Such a telephone, without switch **130**, is shown in FIG. **2**. As described above, the feature may also be activated by a computer connected to the telephone. As used in the present invention, "telephone" may refer to a conventional or telephone, a digital telephone, cordless telephone, or a cellular telephone. Furthermore, the telephone functions may be performed by a computer, a PDA, a web surfer, or any other system that has a sub-function that acts like a classic telephone.

FIG. **5** shows a block diagram of telephone system **100** with the callee identification feature. When a caller places a call to telephone system **100**, a ring signal is transmitted to telephone system **100** through telephone line **140**. Callee identification logic unit **400**, which is directly coupled to port **150**, first receives the incoming ring signal. Callee identification logic unit **400** identifies the callee of the incoming call and generates a distinctive ring that identifies the callee of the incoming call. A more detailed description of the callee identification will follow. After identifying the callee and generating the distinctive ring signal, callee identification logic unit **400** transfers control to telephone control unit **240**. The callee identified by the distinctive ring signal may now answer the phone in a normal fashion.

Prior to receiving a telephone call, one or more of the users of the telephone system each program telephone system **100** with the user's name (or code) and a selected distinctive ring corresponding to each one of the users. The

users may also reprogram the telephone system at any later time in order to add or subtract users' names and associated distinctive ring signals. In the preferred embodiment, the user enters a numeric code (for example, *37) using keypad **120** which places callee identification logic unit **400** in program mode. The user can also place the callee identifier logic unit **450** in program mode using a voice command, or other means. Alternatively, one of the users programs the telephone for all the users. By following voice instructions, the user voices his/her name into microphone **110**A. The name is then digitized by callee identification logic unit **400** and stored in memory **420** in the form of a database. Alternatively, the user enters his/her name into the telephone by entering special codes through keypad **120**. A combination of two numbers on the keypad may correspond to one letter of the alphabet, for example. The user then cycles through a voice menu in order to select a distinctive ring signal that will be generated for telephone calls intended for him/her. A code for the selected ring signal is added to the database in memory **420**. The following table contains an example of what the database may contain.

#	Recorded Name	Ring Signal Code
1	Dave	13
2	Joe	9
2	Adam	4
4	Kim	11
.	.	.
.	.	.
.	.	.

In another embodiment, either directly or through the telephone line, the telephone system is coupled to a computer system, and software existing in the computer system is used to program the telephone system with the names of the users and the associated ring signals.

In a case where multiple telephones are connected on the same line, the database may be transmitted to all the telephones through an ethernet setup connecting together all of the telephones. In an embodiment where the database is not transmitted to the other telephones, the programmed, main telephone transmits a signal that disables the ringers of all the other telephones connected on the same line. Thus, the only ring produced for incoming telephone calls on that line is the ring of the main telephone which has the capability of being distinctive.

Callee identification logic unit **400** identifies the callee of the incoming call by inquiring the caller. Upon receiving and answering the incoming telephone call, callee identification logic unit **400** sends a signal to identification unit **410** to begin the identification of the callee. Identification unit **410** prompts the caller to provide information on the callee, preferably by using voice recognition or the keypad.

In one embodiment, identification unit **410** prompts the caller to enter a number that corresponds to the callee of the telephone call. Identification unit **410** accesses the database in memory **420** to use information with which to prompt the caller. For example, the identification unit may transmit a message like:

"You may enter your selection at any time.
To speak with Dave, please enter '1';
to speak with Joe, please enter '2';
to speak with Adam, please enter '3';
to speak with Kim, please enter '4'."

At any time, the caller may enter the appropriate number which will identify the callee to telephone system **100**. At that time, callee identification logic unit **100** generates the appropriate ring signal corresponding to the identified user. The ring signal is sent to distinctive ringer **430** which converts the electrical signal to an audible signal. The audible signal alerts the appropriate user that the incoming telephone call is intended for him/her.

Alternatively, identification unit **410** requests the caller to voice the name of the callee of the telephone call. An example conversation in this case may be:

ID unit: "Please say the name of the person that you are trying to reach."
Caller: "Adam."
ID unit: "Please wait."

Identification unit **400** performs voice recognition on the caller's reply to identify the callee. The results of the voice recognition are compared with the callee information contained in the database to more accurately determine the identity of the callee. Upon determining the identity of the callee, callee identification logic unit **400** sends the appropriate distinctive ring signal to distinctive ringer **430**. The distinctive ring signal alerts the appropriate callee that the incoming call is intended for him/her. In one embodiment, if the caller does not provide input to the callee identification logic unit **400**, the telephone system generates a generic ring signal.

The flowchart of FIG. **6** describes a method for identifying the callee of an incoming telephone call. During setup in step **500**, the users of the telephone system program the telephone by selecting a distinctive ring signal. The users select a distinctive ring signal by lifting the handset, dialing a numeric code that enters the telephone into program mode, and by choosing a ring from a menu of ring signals. The distinctive ring signal may also be selected using a computer system coupled to the telephone system, or through other means.

In step **510**, a telephone call is received from a caller and the telephone system answers the telephone call. In step **530**, the telephone system identifies the callee of the incoming telephone call. In one embodiment, the caller is prompted to select a callee from a voice menu, and the caller enters a code which identifies the callee. Alternatively, the caller is prompted to say the name of the name of the callee of the incoming telephone call. In that case, voice recognition is performed on the name to determine the identity of the callee. The results of the voice recognition are compared to stored voices of the names of all the users of telephone system.

After the caller is identified in step **540**, a distinctive ring signal is generated corresponding to the identified callee. The distinctive ring signal provides an immediate indication of which person in the household is being called. A distinctive ring signal is useful, for example, in situations where multiple roommates in a household are sharing one telephone line. A distinctive ring signal identifies a particular callee and prevents the others from answering the phone. Similarly, such a feature would be useful in household with teenage children that receive many telephone calls. By having a distinctive ring signal, the parents could recognize calls that are intended for them and telephone calls that are intended for their children.

In an embodiment where multiple telephones are connected on the same telephone line, such as in a home, one of the telephones is designated as the master telephone. In this embodiment, at least a subset, or all, of the telephones connected on the line have circuitry according to the present

invention which enables them to perform the identifying functions and generate the distinctive ring signals. Upon receiving an incoming telephone call, the telephones which include the distinctive ring circuitry answer the telephone call. In an embodiment where the caller is prompted by the answering telephone with a message, preferably only the master telephone performs the prompting, i.e., plays the voice message to the caller. The other telephones remain on standby while the outgoing message is played to the caller. Information obtained from the caller, i.e., the information identifying the callee, is processed by the respective telephones which include the present invention. In this embodiment, the telephones which include the present invention process the information obtained from the caller in order to obtain the identity of the callee. As a result, these telephones generate a distinctive ring in response to identifying the callee of the incoming telephone call. This embodiment enables multiple phones in a location, such as a home, to each generate a distinctive ring signal according to the present invention.

Third Embodiment, System for Identifying Callees of Incoming Telephone Calls by Identifying the Caller

In the third embodiment, the present invention comprises an improved telephone system that identifies callees of incoming telephone calls by first identifying the caller. Such a telephone system is shown in FIG. **1**. In this embodiment, switch **130** is used for enabling and disabling the caller/callee identification feature. Alternatively, the callee identification feature is activated by lifting handset **110** and entering a specific numeric code through keypad **120**. Such a telephone, without switch **130**, is shown in FIG. **2**. As noted above, in an alternate embodiment, the user can enable/disable the caller/caller identification function using a computer system coupled to the telephone system. As used in the present invention, "telephone" may refer to a conventional or telephone, a digital telephone, cordless telephone, or a cellular telephone. Furthermore, the telephone functions may be performed by a computer, a PDA, a web surfer, or any other system that has a sub-function that acts like a classic telephone.

FIG. **7** shows a block diagram of telephone system **100** with the caller/callee identification feature. When a caller places a call to telephone system **100**, a ring signal is transmitted to telephone system **100** through telephone line **140**. Caller/callee identification logic unit **450** which is directly coupled to port **150**, first receives the incoming ring signal. Caller/callee identification logic unit **450** then identifies the caller of the incoming call, preferably using caller ID. Using that information, caller/callee identification logic unit **450** then determines the identity of the callee and generates a distinctive ring that identifies the callee. A more detailed description of the caller and callee identification process will follow. After identifying the callee and generating the distinctive ring signal, caller/callee identification logic unit **450** transfers control to telephone control unit **240**. The callee identified by the distinctive ring signal may now answer the phone in a normal fashion.

Prior to receiving a telephone call, one or more of the users of the telephone system programs telephone system **100** with the user's name (or code), a distinctive ring corresponding to each one of the users, and a list of possible callers corresponding to each user. The users may also reprogram the telephone system at any later time in order to add or subtract names and associated distinctive ring signals. The user enters a numeric code (for example, *37) using keypad **120** which places callee identification logic unit **450** into program mode, By following voice instructions, the user voices his/her name which is digitized by caller/callee identification logic unit **450** and stored in memory **420** in the form of a database. By following instructions, the user also voices a list of possible callers that he/she may be receiving telephone calls from. Alternatively, the user enters his/her name and the list of possible callers into the telephone by entering special codes through keypad **120**. A combination of two numbers on the keypad may correspond to one letter of the alphabet, for example. The user then continues through the voice menu in order to select a distinctive ring signal that will be generated for telephone calls intended for him/her. A code for the selected ring signal is added to the database in memory **420**. The following table contains an example of what the database in memory **420** may contain.

#	Name of Callee	Possible Callers	Ring Signal Code
1	Dave	Jay, Mary, & Bob	13
2	Joe	Chris & Peter	9
2	Adam	Nik, Greg, & Craig	4
4	Kim	Tim, Gina, & Pam	11
.	.	.	.
.	.	.	.
.	.	.	.

Upon receiving and answering an incoming telephone, caller/callee identification logic unit **450** transfers control to Caller ID unit **460** performs the caller identification. Obtaining caller information using a Caller ID unit is well known in the art.

Alternatively, the identity of the caller is determined using voice recognition techniques. Upon answering the telephone, a voice recognition unit prompts the caller for his/her name. An example conversation may be:

ID unit: "Please say your name."

Caller: "Adam."

ID unit: "Please wait . . . Bob is being called. Or, no one is accepting your calls at this time."

The voiced name of the caller is then analyzed to determine his/her identity.

In one embodiment, callers are assigned personal identification numbers (PINs). Upon placing a call, the caller is asked, for example, to enter a PIN into the system. The database that is stored in memory **420** is modified to include PIN numbers in addition to names of callers.

After determining the identity of the user, caller/callee identification logic unit **450** accesses the database stored in memory **420** to search for the name of the caller. If the name of the caller is found in the database, the name of the corresponding callee is noted and a ring signal corresponding to the identified callee is generated. The ring signal is transmitted to distinctive ringer **430** that produces a distinctive ring which identifies the appropriate user. If the name of the user does not exist in the database, a generic ring signal is generated. Such a signal indicates to the users that an unknown caller is calling.

The flowchart of FIG. **8** describes a method for identifying the callee of an incoming telephone call by identifying the caller. During setup in step **600**, the users of the telephone system program the telephone by selecting a distinctive ring signal. The users select a distinctive ring signal by lifting the handset, dialing a numeric code that enters the telephone into program mode, and by choosing a

ring from a menu of ring signals. In addition, one or more users enter a list of possible callers using the numeric keypad. Each letter of the alphabet, for example, corresponds to a combination of numbers. In step **610**, a telephone call is received from a caller and the telephone system answers the telephone call. In step **620**, the telephone system identifies the caller of the incoming telephone call. The telephone system uses caller ID information, voice recognition, or prompt the caller for a numeric code in order to determine the identity of the caller.

In step **630**, the identity of the callee is determined according to the information obtained on the identity of the caller. Information entered by the users during setup is scanned to determine which callee corresponds to the identified caller. Once the identity of the callee is established, a distinctive ring signal corresponding to the identified callee is generated in step **640**.

In an embodiment where multiple telephones are connected on the same telephone line, such as in a home, one of the telephones is designated as the master telephone. In this embodiment, at least a subset, or all, of the telephones connected on the line have circuitry according to the present invention which enables them to perform the identifying functions and generate the distinctive ring signals. Upon receiving an incoming telephone call, the telephones which include the distinctive ring circuitry answer the telephone call. In an embodiment where the caller is prompted by the answering telephone with a message, preferably only the master telephone performs the prompting, i.e., plays the voice message to the caller. The other telephones remain on standby while the outgoing message is played to the caller. Information obtained from the caller, i.e., the information identifying the caller and/or the callee, is processed by the respective telephones which include the present invention. In this embodiment, the telephones which include the present invention process the information obtained from the caller in order to obtain the identity of the caller and/or the callee. As a result, these telephones generate a distinctive ring in response to identifying the callee of the incoming telephone call. This embodiment enables multiple phones in a location, such as a home, to each generate a distinctive ring signal according to the present invention.

Fourth Embodiment, System for Identifying and Announcing the Caller and/or the Callee of an Incoming Telephone Call by Identifying the Caller

In the fourth embodiment, the present invention comprises an improved telephone system that identifies and announces the caller and/or the callee of an incoming telephone call. Such a telephone system is shown in FIG. **1**. In this embodiment, switch **130** is used for enabling and disabling the caller and callee identification and announcement feature. Alternatively, the caller and callee identification and announcement is activated by lifting handset **110** and entering a numeric code through keypad **120**. Such a telephone, without switch **130**, is shown in FIG. **2**. As used in the present invention, "telephone" may refer to a conventional or telephone, a digital telephone, cordless telephone, or a cellular telephone. Furthermore, the telephone functions may be performed by a computer, a PDA, a web surfer, or any other system that has a sub-function that acts like a classic telephone.

FIG. **9** shows a block diagram of telephone system **100** with the caller/callee identification and announcement feature. When a caller places a call to telephone system **100**, a ring signal is transmitted to telephone system **100** through telephone line **140**. Caller/callee identification/announcement logic unit **470**, which is directly coupled to port **150** first receives the incoming ring signal Caller/callee identification/announcement logic unit **470** first identifies the caller and the callee of the incoming call. After identifying the caller and the callee, caller/callee identification/announcement logic unit **470** announces the name of the caller and the name of the callee. A more detailed description of the caller and callee identification process will follow. After identifying the caller and the callee of the incoming telephone call and after the beginning of announcing the caller and the callee, caller/callee identification/announcement logic unit **470** transfers control to telephone control unit **240**. The telephone may now be answered in a normal fashion.

The identity of the caller and the identity of the callee are determined using an outgoing message that asks the caller for his/her name and for the name of the callee. After answering the telephone, caller/callee identification/announcement logic unit **470** prompts the caller for his/her name and/or for the name of the callee. An example conversation may be:

ID unit: "Please say your name."

Caller: "Adam."

ID unit: "Please wait."

If the name of the callee is also desired, the conversation may be:

ID unit: "Please say your name first followed by a brief pause and then the name of the person that you are trying to reach"

Caller: "Adam . . . Paul"

ID unit: "Please wait."

Caller/callee identification/announcement logic unit **470** stores the two names in memory **420** and then repeatedly sends voice signals to speaker **480** up to a certain number of times. An example of what may be the output of the speaker is:

Speaker:

"Adam is calling for Paul,

Adam is calling for Paul,

Adam is calling for Paul,

Adam is calling for Paul,

Adam is calling for Paul"

In this example, caller/callee identification/announcement logic unit **470** announced the incoming call five times. After that, if the callee still has not responded to the incoming call by lifting handset **110**, caller/callee identification/announcement logic unit **470** either sends a final outgoing message to the caller and then hangs up the phone or reroutes the telephone call to an answering machine. An example of a final outgoing message may be:

"We are sorry, the party that you are trying to reach is not answering. Please try your call again later."

The flowchart of FIG. **10** describes a method for identifying and announcing the caller and/or the callee of an incoming telephone call. In step **700**, a telephone call is received from a caller and the telephone system answers the telephone. In step **710**, the telephone system identifies the caller of the incoming telephone call. The telephone system prompts the caller to say his/her name. The caller, in step **720** is asked to say the name of the person that he/she is trying to reach (callee). The telephone system stores both the name of the caller and the name of the callee in memory. In step **730**, the telephone system announces the name of the caller and the name of the callee by reading the names from

memory and by sending the names to a built-in speaker. Alternatively, the identity of the caller is determined by performing caller ID functions.

In an embodiment where multiple telephones are connected on the same telephone line, such as in a home, one of the telephones is designated as the master telephone. In this embodiment, at least a subset, or all, of the telephones connected on the line have circuitry according to the present invention which enables them to perform the identifying functions and announce the caller and/or the callee. Upon receiving an incoming telephone call, the telephones which include the announcing circuitry answer the telephone call. In an embodiment where the caller is prompted by the answering telephone with a message, preferably only the master telephone performs the prompting, i.e., plays the voice message to the caller. The other telephones remain on standby while the outgoing message is played to the caller. Information obtained from the caller, i.e., the information identifying the caller and/or the callee, is processed by the respective telephones which include the present invention. In this embodiment, the telephones which include the present invention process the information obtained from the caller in order to announce the caller and/or the callee. This embodiment enables multiple phones in a location, such as a home, to each announce the caller and/or the callee according to the present invention.

Fifth Embodiment, System for Self-announcing a Caller of an Incoming Telephone Call

In the fifth embodiment, the present invention comprises an improved telephone system and method for self-announcing a caller of an incoming telephone call. Such a telephone system is shown in FIG. **1**. In this embodiment, switch **130** is used for enabling and disabling the self-announcing feature. Alternatively, the self-announcing feature is activated by lifting handset **110** and entering a numeric code through keypad **120**. Such a telephone, without switch **130**, is shown in FIG. **2**. As described above, the self-announcing feature may also be enabled and disabled by a computer connected to the telephone. As used in the present invention, "telephone" may refer to a conventional or telephone, a digital telephone, cordless telephone, or a cellular telephone. Furthermore, the telephone functions may be performed by a computer, a PDA, a web surfer, or any other system that has a sub-function that acts like a classic telephone.

FIG. **11** shows a block diagram of telephone system **100** with the self-announcing feature. When a caller places a call to telephone system **100**, a ring signal is transmitted to telephone system **100** through telephone line **140**. Self-announcement logic unit **900**, which is directly coupled to port **150**, first receives the incoming ring signal and then answers the telephone call. In one embodiment, telephone system **100** automatically answers the incoming telephone call before the telephone or telephones are able to generate a ring signal. In another embodiment, the telephone system answers the telephone after one ring signal in order to alert the users to the incoming telephone call.

After answering the telephone call, self-announcement logic unit **900** generates a message prompting the caller to self-announce him/herself to the users of the telephone. In addition, self-announcement logic unit **900** activates speaker **920** so that the caller's announcement is audible to the users of the telephone. The volume of the speaker is preset by the users. An example of a message generated by self-announcement logic unit **900** is:

"You have reached John, Andrew, and Keith. Please announce your self by saying your name and the purpose of your telephone call after the tone."

In another embodiment, the telephone enters the announcement mode by producing a tone without first prompting the caller. This is useful when most of the regular callers to the telephone are familiar with the procedure, and the prompt from the telephone system becomes repetitive. After being prompted and/or hearing the characteristic tone, the caller is expected to announce him/herself An example of such an announcement is:

"This is John calling to ask Peter whether he is going to the football game tomorrow."

In one embodiment, an audible tone is generated by self-announcement logic unit **900** prior to the caller's self-announcement. Such a tone alerts the users of the telephone to the incoming call and to the fact that the caller is about to announce him/herself. The short audible tone is substantially different sounding form the telephone's regular ringer.

Built-in microphone **930** when used with speaker **920** allows the telephone to be used in speakerphone mode. The speakerphone mode is activated by operating a speakerphone switch on the telephone. In speakerphone mode, the telephone user performs hands-free conversations that do not require the use of the handset.

In one embodiment, the telephone comprises a feature that allows the user to select automatic microphone activation after receiving an incoming call. When automatic microphone activation is selected, after receiving an incoming call, the telephone automatically activates built-in microphone **930** in addition to activating speaker **920** for the caller self-announcement. This enables the telephone user to begin talking in response to the caller self-announcing him/herself without any input required form the user.

For more privacy, the user may choose to not select the automatic microphone activation feature. When automatic microphone activation is not selected, after a call is received, the telephone user is able to hear the caller's self-announcement, but the caller is not able to hear the telephone user, e.g. callee. If the user is present and decides that he/she wants to answer the telephone call, the user manually activates the microphone by either pressing the speakerphone button which activates built-in microphone **930** and places the telephone in speakerphone mode or lifts the handset to engage in a conversation with the caller.

The length of time that a caller is given to stay on the line while announcing him/herself is user programmable. The user can enter this time in seconds by lifting the handset or depressing the speakerphone button, entering a code that enters the telephone in program mode, and then entering the time in seconds using keypad **120**. Alternatively, the time is entered using a computer system connected to the telephone. If no one answers the telephone within the allowable amount of time, self-announcement logic unit **900** transfers control to answering machine unit **910**. The caller can then leave a message or hang up.

In another embodiment, after the allowable time has passed, the telephone generates a message requesting the caller to enter a numeric code in order to access answering machine unit **910**. Answering machine unit **910** may be part of telephone **100** or answering machine unit **910** may be a separate unit external to telephone **100**.

In yet another embodiment, the telephone does not enter the self-announcing mode for all callers. A database is maintained by the user or users of the telephone that contains a list of users for which the self-announcing feature is activated. For users that are not included in the database, the telephone generates a generic ring signal and does not enter into the self-announcing mode. A caller ID unit is used to

determine the identity of the caller which is then compared to the names stored in the database. Such a feature would be useful in cases where the telephone user or users only wanted the self-announcing feature activated only for close relatives and friends.

In another embodiment, the database contains a list of parties for which the self-announcing feature is not activated. For example, the list may contain names of telemarketers for which the self-announcement feature is not activated.

The flowchart of FIG. **12** describes a method for self-announcing a caller of an incoming telephone call. In step **800**, an incoming call is received from a caller. The telephone system, in step **810**, answers the telephone call, generates a message requesting the caller to self-announce him/herself, and activates a speaker on the telephone to enable the telephone users to listen to the announcement. When the self-announcing feature is activated, no ring signals are produced by the telephone. In step **820**, the caller self-announces him/herself through the telephone's speaker.

After the caller self-announces him/herself, a user, if present, may decide to answer the telephone call. The user may answer the telephone call either by putting the telephone in speakerphone mode or by activating the handset and engaging in a conversation with the caller. If the user is not present or chooses not answer the telephone call, the telephone, in step **840**, transfers control to an answering machine unit so that the caller is given the choice of leaving a message. In one embodiment, the answering machine is built-in to the telephone. In another embodiment, the answering machine is an external unit coupled to the telephone.

In an embodiment where multiple telephones are connected on the same telephone line, such as in a home, one of the telephones is designated as the master telephone. In this embodiment, at least a subset, or all, of the telephones connected on the line have circuitry according to the present invention which enables them to perform the self-announcing functions. Upon receiving an incoming telephone call, the telephones which include the self-announcing circuitry answer the telephone call. In an embodiment where the caller is prompted by the answering telephone with a message, preferably only the master telephone performs the prompting, i.e., plays the voice message to the caller. The other telephones remain on standby while the outgoing message is played to the caller. Information obtained from the caller, i.e., the information identifying the caller and/or the callee, is processed by the respective telephones which include the present invention. In this embodiment, the telephones which include the present invention process the information obtained from the caller in order to self-announce the caller. This embodiment enables multiple phones in a location, such as a home, to each self-announce the caller according to the present invention.

Although the method and apparatus of the present invention has been described in connection with the preferred embodiment, it is not intended to be limited to the specific form set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents, as can be reasonably included within the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. A method for reducing call interruptions on a telephone, wherein the call interruptions are produced by a caller placing a call to the telephone, the method comprising:

the telephone storing a list of exception parties to a no-call feature prior to receiving the telephone call from the caller;

the telephone receiving the telephone call from the caller;

the telephone determining if a no-call feature is enabled;

the telephone determining if the caller is one of the exception parties by comparing the identity of the caller to the list of exception parties;

if the no-call feature is enabled and if the caller is one of the exception parties, the telephone generating a ring signal in response to the telephone call even though the no-call feature is enabled; and

if the no-call feature is enabled and if the caller is not one of the exception parties, the telephone:

answering said telephone call prior to the telephone ringing; and

playing a message to the caller indicating that no calls are being taken, wherein the telephone plays the message after the telephone answers the telephone call.

2. The method as recited in claim **1**, wherein said list of exception parties comprises voice samples of the exception parties, and wherein said determining if the caller is one of the exception parties comprises comparing the caller's voice to said voice samples of the exception parties.

3. The method as recited in claim **1**, wherein said determining if the caller is one of the exception parties comprises the telephone requesting the caller to enter a personal identification number that identifies the caller.

4. The method as recited in claim **1**, wherein said determining if the caller is one of the exception parties comprises utilizing caller ID information from the telephone call.

5. The method as recited in claim **1**, further comprising, if the no-call feature is not enabled, the telephone generating the ring signal.

6. The method as recited in claim **1**, further comprising, if the no-call feature is enabled and if the caller is not one of the exception parties, generating a warning signal to alert a user that an in-coming call has been received while the no-call feature is enabled, wherein said warning signal produces a sound different from said ring signal.

7. The method as recited in claim **6**, wherein said warning signal produces a sound shorter in duration and not as loud as said ring signal.

8. A method for reducing call interruptions on a telephone, wherein the call interruptions are produced by a caller placing a call to the telephone, the method comprising:

the telephone storing a list of non-exception parties to a no-call feature prior to receiving the telephone call from the caller;

the telephone receiving the telephone call from the caller;

the telephone determining if a no-call feature is enabled;

the telephone determining if the caller is one of the non-exception parties by comparing the identity of the caller to the list of non-exception parties;

if the no-call feature is enabled and if the caller is not one of the non-exception parties, the telephone generating a ring signal in response to the telephone call even though the no-call feature is enabled; and

if the no-call feature is enabled and if the caller is one of the non-exception parties, the telephone:

answering said telephone call prior to the telephone ringing; and

playing a message to the caller indicating that no calls are being taken, wherein the telephone plays the message after the telephone answers the telephone call.

9. The method as recited in claim **8**, further comprising, if the no-call feature is not enabled, the telephone generating the ring signal.

10. The method as recited in claim 8, further comprising, if the no-call feature is enabled and if the caller is not one of the exception parties, generating a warning signal to alert a user that an in-coming call has been received while the no-call feature is enabled, wherein said warning signal produces a sound different from said ring signal.

11. The method as recited in claim 10, wherein said warning signal produces a sound shorter in duration and not as loud as said ring signal.

12. A telephone, comprising:

a microphone for transmitting a user's voice to a caller;

a speaker for transmitting the caller's voice to the user;

a ringer for sounding a telephone ring to alert the user to incoming calls;

exception logic configured to store a list of exception parties and to determine if incoming calls are from an exception party by comparing the identity of the caller to the list of exception parties;

a no-call logic unit coupled to a telephone line, wherein if a no-call feature is enabled, said no-call logic unit answers all incoming calls that are not from an exception party and plays a no-call message to the caller and disables the ringer from sounding the telephone ring; and

wherein if the no-call feature is not enabled or if an incoming call is from an exception party, the no-call logic does not answer the incoming call and causes the ringer to sound the telephone ring to alert the user so that the user may converse with the caller through the microphone and speaker.

13. The telephone as recited in claim 12, wherein said exception logic is configured to determine if incoming calls are from an exception party according to caller-ID information.

14. The telephone as recited in claim 12, wherein said exception logic is configured to determine if incoming calls are from an exception party by requesting the caller to enter a personal identification number.

15. The telephone as recited in claim 12, wherein said exception logic is configured to determine if incoming calls are from an exception party by comparing the caller's voice to previously stored voice samples of exception parties.

16. The telephone as recited in claim 12, further comprising a warning speaker configured to alert the user to incoming calls when the no-call feature is enabled, wherein the warning speaker produces a sound different from the sound produced by said ringer.

17. The telephone as recited in claim 16, wherein said warning speaker produces a sound shorter in duration and not as loud as said ringer.

18. The telephone as recited in claim 12, further comprising a toggle switch for enabling and disabling said no-call feature.

19. The telephone as recited in claim 12, further comprising a keypad, wherein said no-call feature is enabled by entering a code on said keypad.

20. The telephone as recited in claim 12, wherein the telephone is a master telephone that answers incoming calls before any other telephone connected on the telephone line.

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