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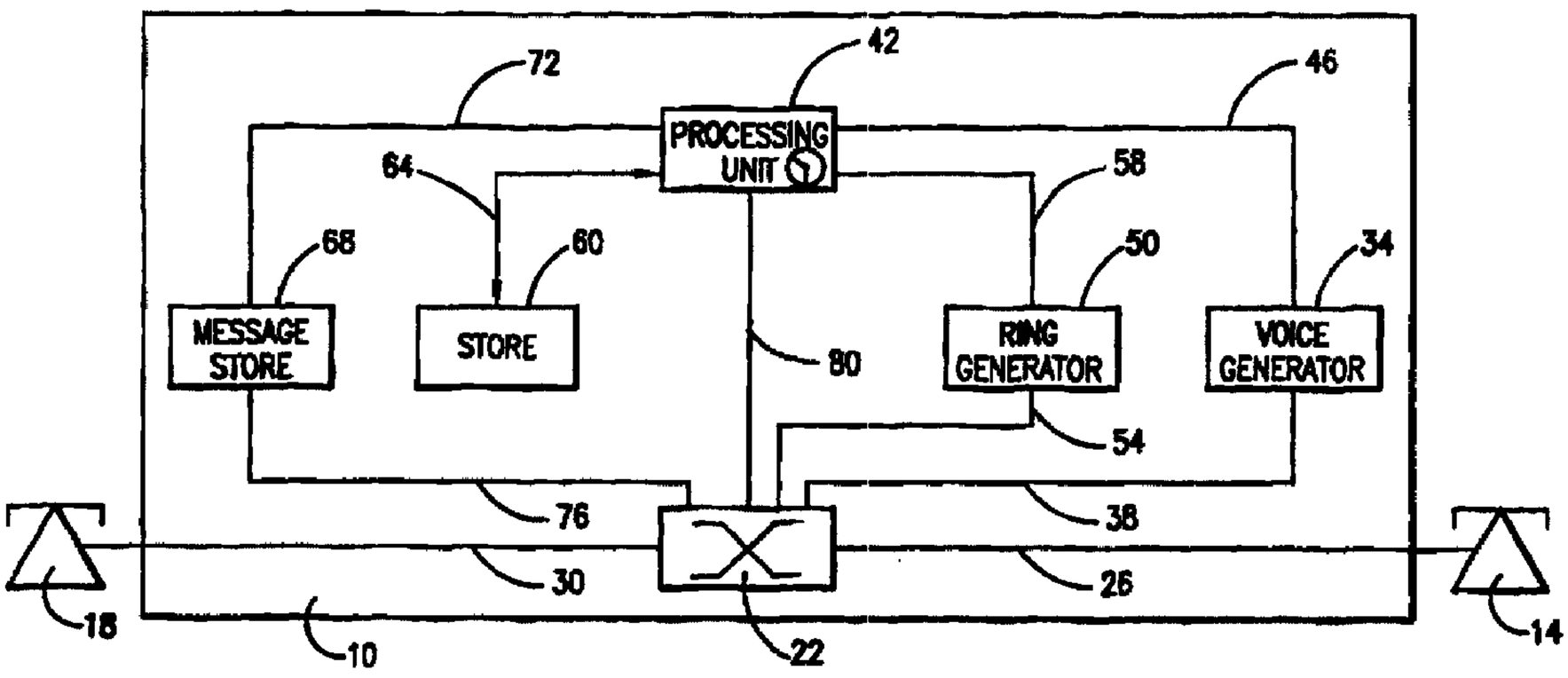
(54) **PROCEDE ET APPAREIL DESTINES A ENVOYER UNE ANNONCE A UN APPELANT**

(54) **METHOD AND APPARATUS FOR SENDING AN ANNOUCEMENT TO CALLER**




(57) L'invention concerne un appareil, dans un centre de commutation locale ou dans un réseau intelligent de pointe, permettant de déterminer si un appelé est abonné à un "service d'envoi d'annonce à l'appelant" fonctionnant lors de la réception d'un appel. L'appareil permet également de déterminer si ce service est activé au moment de l'appel. Le cas échéant, une annonce standard sélectionnée ou une annonce personnalisée se fait entendre à l'intention de l'appelant. L'annonce personnalisée, qui doit être enregistrée au préalable, permet à un abonné de donner à un appelant des indications spécifiques, à savoir s'il lui faut raccrocher ou rappeler. Dans un environnement commercial, cette annonce peut être utilisée pour faire passer un slogan ou une publicité de marque. La procédure d'acheminement d'appel est suspendue pour un intervalle de temps spécifié, afin de laisser à l'appelant assez de temps pour répondre. Une fois écoulé cet intervalle spécifié, la procédure d'acheminement d'appel est terminée.

(57) An apparatus in a local switch or in an advanced intelligent network determines whether a called party is a subscriber of a Send Announcement to Caller subscriber feature whenever a called party receives a call. The apparatus also determines whether the feature is presently activated. If it is, either a selected standard announcement or a customized announcement is played to the calling party. The customized announcement which must be prerecorded, allows a subscriber to give a calling party specific guidelines about whether the calling party should hang up or even bother to call back. In a business environment, this announcement can be used to play a trademark slogan or an advertisement. The call routing process is suspended for a specified amount of time to give the calling party enough time to respond. After specified amount of time has expired, the call routing process is completed.

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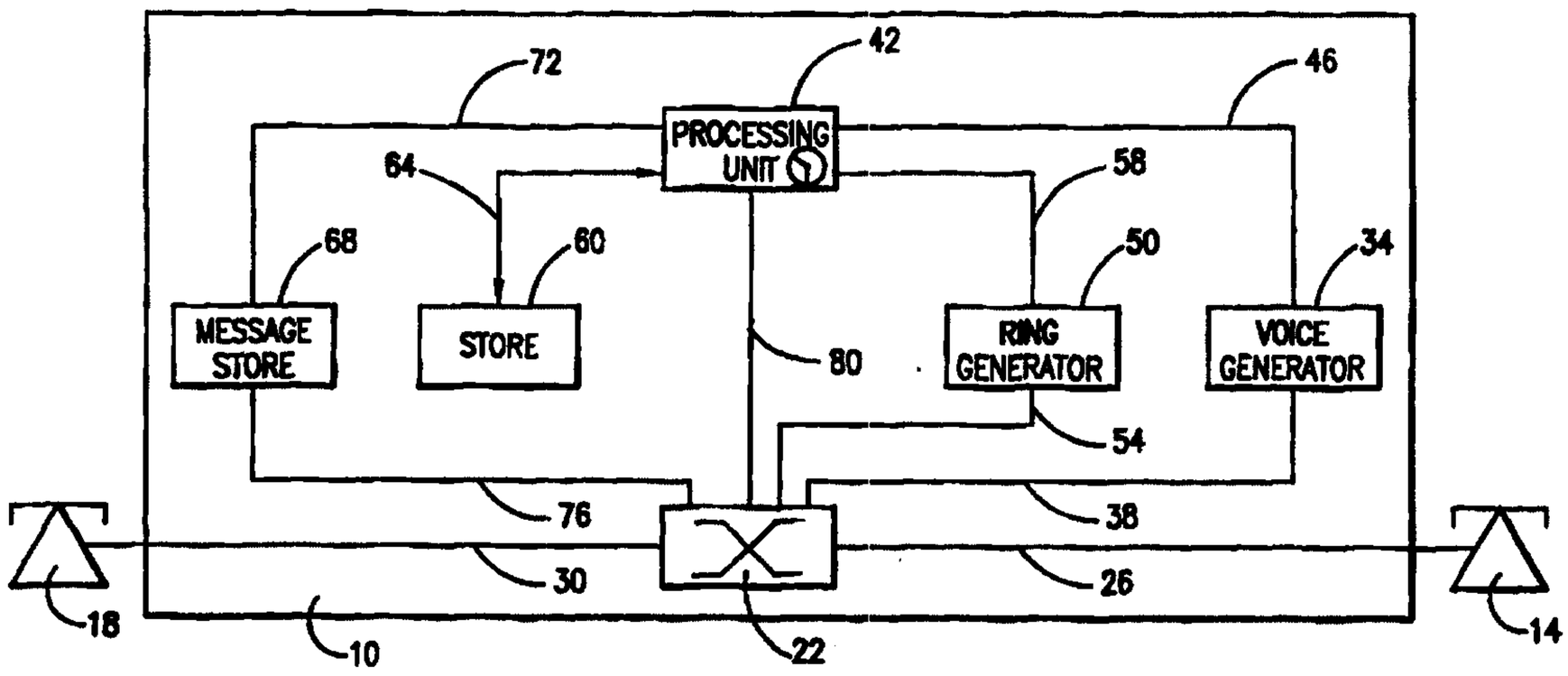



(57) Abstract

An apparatus in a local switch or in an advanced intelligent network determines whether a called party is a subscriber of a Send Announcement to Caller subscriber feature whenever a called party receives a call. The apparatus also determines whether the feature is presently activated. If it is, either a selected standard announcement or a customized announcement is played to the calling party. The customized announcement which must be prerecorded, allows a subscriber to give a calling party specific guidelines about whether the calling party should hang up or even bother to call back. In a business environment, this announcement can be used to play a trademark slogan or an advertisement. The call routing process is suspended for a specified amount of time to give the calling party enough time to respond. After specified amount of time has expired, the call routing process is completed.

# METHOD AND APPARATUS FOR SENDING AN ANNOUNCEMENT TO CALLER

## BACKGROUND OF THE INVENTION

### Technical Field of the Invention

This invention relates generally to the telecommunications field, and more specifically, to a method and apparatus for use in a telecommunications network for playing an announcement to a calling party.

### Description of Related Art

Traditionally, the home telephone has facilitated communications between friends and family. However, many calls received during the evening are from organizations seeking to sell products or collect donations. Because these calls are solicitous and usually unwelcome, there is a great demand for subscriber features which enable telephone customers to curtail the ability of outside organizations to invade their privacy at home. Exemplary and commonly known subscriber features which have been developed to help the consumer include Caller ID, Anonymous Call Rejection, Specified Call Blocking and Do Not Disturb. In general, these features either provide information to the called party about an incoming call or operate to reject a call for a specified reason.

There are countless reasons why a person might want to stop or at least reduce the number of calls received at a certain time. For instance, some people dislike answering calls from telemarketing organizations and organizations that seek charitable contributions. Other people prefer to minimize the number of calls received during a certain time. For example, a person may want to limit unnecessary calls during supper, during a television show or sporting event, or while taking a nap. In each of these situations, there is a desire to reduce the number of calls received at a certain time. Moreover, a

person may not want to activate a subscriber feature such as Do Not Disturb because it would block all calls, and other subscriber features such as select call blocking may not be available. Accordingly, there is a need for a subscriber feature which helps the subscriber satisfy the goal of reducing the number of calls received during a specified time.

U.S. Patent No. 5,467,388 describes a communication system utilizing a plurality of access levels, wherein the subscriber may selectively receive incoming calls from persons or numbers associated with one or more selectively enabled access levels. The system intercepts each incoming call, queries a database, compares the caller's phone number or an access code entered by the caller with a list of authorized access codes stored in the database, and processes the call if the caller's number or access code corresponds with a selectively enabled access level.

Schultz C. P., "Selective Reception of Individual Calls" Motorola Technical Developments, vol. 12, 1 April 1991, describes a system which stores ID's of qualified callers in the memory of a central controller unit. When the central controller receives an incoming call, the controller compares the caller's ID to a list of qualified callers associated with the target's ID. If the list contains the caller's ID, the controller processes the incoming call. If list does not contain the caller's ID, the controller transmits a message to the caller's radio indicating that the target is not available.

Zeheb D., "Secretarial Branch Exchange" IBM Technical Disclosure Bulletin, vol. 26, no. 5, October 1983, describes a system utilizing a user-controlled "profile" which stores the call handling procedures for specified extensions and a default procedure for non-specified extensions. The system compares the extension of an incoming call to the profile associated with the intended user. If an entry exists for that particular extension, the system handles the call in accordance with the user-specified instructions. If extension does not correspond

with an entry in the profile, the call is processed in accordance with a default procedure. A message is then played advising the caller of the available options.

U.S. Patent No. 4,941,167 describes a switch controller programmed to reply to incoming calls with one of a number of a customized or preselected messages. In one embodiment, upon receiving an incoming call, the switch controller broadcasts the selected or customized message to the caller rather than ringing the called party. In another embodiment, the switch controller transfers the caller to a transferee along with a message advising the transferee of the reason the caller was transferred. Accordingly, there is a need for a subscriber feature which helps the subscriber satisfy the goal of reducing the number of calls received during a specified time.

SUMMARY OF THE INVENTION

A method and apparatus are provided for playing a specified announcement to a calling party before call routing is completed. The calling party is given enough time to respond in an appropriate manner (e.g., hang up) if prompted to do so by the announcement, before the routing is completed and before the called party phone begins to ring. More specifically, the call routing process is temporarily suspended while the specified announcement is being played to the calling party. The call routing process is suspended for a specified amount of time after the announcement has been completed, so that the calling party has time to hang up if that is the appropriate response. The announcement which is played to the calling party can either be generated by a local switch or a customized message which has been recorded by the called party at an earlier time. The announcement may be played whenever a call is received or whenever a call is received during a certain time frame.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the method and apparatus of the present invention may be obtained by reference to the following Detailed Description along with the accompanying Drawings wherein:

Figure 1 is a functional block diagram that illustrates one embodiment wherein the present invention is implemented within a local switch;

Figure 2 is a functional block diagram that illustrates a second embodiment wherein the present invention as implemented within an advanced intelligent network; and

Figure 3 is a flow chart that illustrates a method for playing an announcement to a calling party in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

Figure 1 is a functional block diagram that illustrates one embodiment wherein the present invention is implemented within a local switch. Referring to Figure 1, a local switch 10 for connecting a calling party phone 14 to a called party phone 18 is shown. Local switch 10 includes a router 22 which is connected to calling party phone 14 by line 26 and to called party phone 18 by line 30. Generally, router 22 is for connecting one phone line to another and for connecting feature devices within switch 10 to the phone lines carrying a particular call. Feature devices are those devices which are used by a telecommunication network to support subscriber features such as caller ID, call blocking, etc.

One feature device within local switch 10 is a voice generator 34 for generating messages to be played either to a called party or to a calling party. Voice generator 34 is connected to router 22 by line 38 and to processing unit 42 by line 46. Local switch 10 also includes a ring generator 50 which is connected to router 22 by line 54 and to processing unit 42 by line 58. Ring generator 50 causes called party phone 18 to ring whenever a call is being connected from a calling party.

Local switch further includes a store 60 for storing subscriber information. Store 60 is coupled to processing unit 42 by line 64. Typically, store 60 includes a database of all subscribers serviced by local switch 10 and their respective subscriber features. Additionally,

if some features are selectably activated, then store 60 further includes information which indicates whether a give subscriber feature is presently activated.

Local switch 10 further includes a message store 68 for recording and playing messages generated by subscribers. Message store 68 is coupled to processing unit 42 by line 72 and to router 22 by line 76. Generally, some subscriber features include the option of recording a message by the subscriber. While message store 68 in Figure 1 is shown connected to processing unit 42 and to router 22, message store 68 can also be connected to voice generator 34 instead, wherein voice generator 34 writes the stored message to message store 68 and also reads the digitized message therefrom for conversion to an audio or voice message. In yet another embodiment, message store 68 is arranged within voice generator 34. In any case, a message is generated by voice generator 34 if the subscriber has not previously stored a customized message in message store 68.

After a message has been played to the calling party (either by message store 68 or voice generator 34), processing unit 42 delays completing the routing of the call for a specified amount of time after the announcement has been completed. In that way, the calling party has ample time to hang up if that is the appropriate response.

In operation, local switch 10 determines whether the Send Announcement to Caller Subscriber Feature ("SACSF") is activated for the called party at called party phone 18 whenever a call is received. Processing unit 42 in local switch 10 analyzes the contents of store 60 to determine if the SACSF is a subscriber feature of the called party and whether it is presently activated. Generally, store 60 includes a list of all telephones connected to and serviced by local switch 10 and their corresponding subscriber features. In another embodiment, store 60 maintains only a list of SACSF subscribers.

If the called party is a subscriber to the SACSF, local switch 10 then determines if the SACSF is presently activated for the called party. In the preferred embodiment, the SACSF is selectively activated. However, the SACSF can also be continuously activated by the called party. For this embodiment, local switch 10 examines a specified signal stored within store 60 to determine if the SACSF is presently activated. In another embodiment, this signal may be stored within another memory store (not explicitly shown).

In general, there are at least two types of operation which may be implemented for the present invention. In one embodiment, store 60 maintains a list of SACSF subscribers and a signal for each SACSF subscriber which specifies whether the feature is presently activated. In another embodiment, store 60 maintains a list of times during which the feature is to be activated. Accordingly, processor 42 sets the signal which specifies whatever the SACSF feature is presently activated according to the time. For the second embodiment, a specified number may be entered within the list of times during which the feature is to be activated if the called party desired that the SACSF feature be activated continuously. In both embodiments, however, the feature may be activated or deactivated by the subscriber by entry of a designated sequence of numbers/codes on the keypad of the telephone.

If a call is being received for a called party when the SACSF is activated, processing unit 42 of local switch 10 initially suspends the routing of the call. As a part of suspending the call routing, processing unit 42 delays sending control signals to router 22 thereby delaying completion of the call routing. Additionally, processing unit 42 delays sending control signals to ring generator 50 over line 58 to delay the transmission of a ring signal by ring generator 50 over line 54 to router 22. Voice generator 34, plays one of several types of announcements to the calling party. Voice generator 34 has many

different announcements which are to be played to a calling party. Generally, voice generator 34 is operable to play any announcement for standard subscriber features. For example, if a Do Not Disturb feature is activated, voice generator 34 informs the calling party that the called party is not accepting calls. Similarly, and with respect to the SACSF, voice generator 34 is operable to play an announcement that prompts the calling party to call back at a later time, unless the call is urgent or important. Alternatively, voice generator 34 can play a message that prompts the calling party to hang up if the call is solicitous in nature.

In yet another embodiment, voice generator 34 includes messages for playing to a calling party to inform the calling party of a certain mode of operation. For instance, if the called party is subject to wiretapping or to having the calls randomly monitored or recorded, voice generator 34 includes a message to so inform the calling party. Consequently, the calling party has the option of hanging up in order to maintain a private phone call.

Generally, voice generator 34 generates standard announcements for use by all subscribers of the SACSF. In the embodiment of Figure 1, voice generator 34 preferably does not generate customized messages to be played to the calling party.

Message store 68, on the other hand, is preferably operable to generate customized messages. These customized messages are created by the SACSF subscriber at a prior time. Generally, and in accordance with specified steps for recording a private message, local switch 10 prompts the SACSF subscriber to annunciate the message while it is being recorded. More specifically, processing unit 42 causes voice generator 34 to play a standard message to the subscriber to prompt the subscriber to vocalize the message so that it may be recorded. Processing unit 42 also sends control signals

to router 22 over line 80 to cause router 22 to connect line 76 and message store 68 to line 30. This action causes message store 68 to be connected to the subscriber's phone line to receive the message that the subscriber wishes to record. Accordingly, the message received from the subscriber is stored in message store 68.

As may be seen therefore, the system of the embodiment of Figure 1 allows a subscriber to have customized messages for playing to calling parties. Such customized messages may be used by an individual or by a business that is also a subscriber of the SACSF. For example, a business could use the SACSF to play a trademark slogan or advertisement prior to completion of the call connection.

Figure 2 is a functional block diagram that illustrates a second embodiment wherein the present invention is implemented within an advanced intelligent network ("AIN"). Referring now to Figure 2, the system of Figure 2 is similar to the system of Figure 1, and includes a ring generator 50, a voice generator 34, a central processing unit 42 and a store 60. However, the AIN also includes a service switching point ("SSP") 112, a signal transfer point ("STP") 108, a service control point ("SCP") 116 and an intelligent peripheral ("IP") 120. The SSP 112, STP 108, SCP 116 and IP 120 are connected in a known AIN configuration. More specifically, as may be seen, calling party phone 14 is connected to SSP 112 by line 110. STP 108 is connected to SSP 112 by line 114. STP 108 is also connected to SCP 116 by line 118. IP 120 is connected to SSP 112 by line 124.

The functionality of the commonly numbered elements within Figures 1 and 2 is the same for the embodiments shown in Figures 1 and 2. For example, voice generator 34 of Figure 1 is shown as a system within local switch 10. In the embodiment shown in Figure 2, however, voice generator 34 preferably resides within IP 120.

Nonetheless, the functionality for voice generator 34 is similar for each of the two embodiments. For each embodiment, voice generator 34 is operable to play announcements to calling party at calling party 14.

Operationally, SSP 112 analyzes the called party information for a call being placed by calling party phone 14, and determines whether an AIN treatment is needed and whether the subscriber has AIN capabilities. SSP 112 then sends an inquiry message to STP 108 over line 114. STP 108 then transmits the inquiry message to SCP 116 over line 118. SCP 116 then analyzes the contents of store 60 to determine that called party phone 18 is a subscriber to the SACSF and to determine whether that feature is presently activated. If that feature is activated for called party phone 18, SCP 116 sends a response message to SSP 112 via STP 108, SSP 112 then prompts IP 120 to cause voice generator 34 or message generator 68 to play a specified announcement. The message generated by message store 68 or voice generator 34 is routed to calling party phone 14. As in the system of Figure 1, a message is generated by voice generator 34 if the subscriber had not previously stored a customized message in message store 68. Similar to the system of Figure 1, processing unit 42 delays the routing process of the call for a specified amount of time after completion of the announcement to give the calling party ample time to hang up if hanging up is the appropriate response.

Figure 3 is a flow chart which illustrates a method for playing an announcement to a calling party, in accordance with a preferred embodiment of the invention. After a call is received (step 300), processing unit 42 of Figures 1 and 2 determines whether the SACSF is presently activated (step 310). If not, the method of the present invention is terminated (step 320). If the SACSF is activated, an announcement is generated to the calling party (step 330), and the routing of the call is suspended for a specified amount of time (step 340). The call

routing remains suspended until it is determined that the caller has hung up (step 350) or that the specified amount of time has expired (step 360). A typical specified amount of time is preferably three (3) seconds after the announcement was played (step 330).

Although an embodiment of the method and apparatus of the present invention has been illustrated in the accompanying Drawings and described in the foregoing Detailed Description, it is understood that the invention is not limited to the embodiments disclosed. The scope of the present invention instead is defined by the following claims.

WHAT IS CLAIMED IS:

1. A communication system for connecting a calling party to a called party through a switch, said communication system further characterized by:

voice generator means (34) for generating a standard announcement to said calling party;

a message store (68) for generating a customized message to said calling party;

a processing unit (42) for transmitting control signals, wherein said control signal are configured to suspend the connection of said calling party and said called party through said switch for a specified amount of time after one of said voice generator means and message store generates an announcement to said calling party; and

a router (22) coupled to receive the control signals and connected to said voice generator means (34), to said message store (68), to a calling party phone line associated with said calling party(26), and to a called party phone line associated with said called party (30), the router connecting one of the message store (68) or the voice generator means (34) to said calling party according to the control signals received form said processing unit (42) and connecting said calling part to said called party.

2. The communication system of claim 1 wherein the message store (68) is operable to record a customized message, which customized message is a recording of the called party.

3. The communication system of claim 1 wherein the standard announcement is preselectable by the called party.

4. The communication system of claim 3 wherein the standard announcement played by the voice generator (34)

informs the calling party that the call is subject to monitoring.

5. The communication system of claim 1 wherein playing either a standard message or a customized message is a called party selectable feature, further wherein said processing unit (42) is configured to determine whether the called party has selectably activated the selectable feature prior to transmitting control signals.

6. A communication switch for routing a call from a calling party to a called party, said switch comprising:

call routing suspension means for suspending said routing within said switch;

voice generator means for generating an announcement, upon activation of said call routing suspension means, to said calling party, said routing being suspended by said call routing suspension means for a specified time period after the termination of said announcement; and

connection means for connecting, after the termination of said specified time period, said call from said calling party to said called party through said switch.

7. The communication switch of claim 6 wherein the voice means is formed of a voice generator (34) for playing standard announcements.

8. The communication switch of claim 6 wherein the voice means is formed of a message store (68) for playing customized messages.

9. The communication switch of claim 6 wherein said control means is configured to transmit control signals to cause said voice means to generate a standard announcement only if there is no customized announcement.

10. The communication switch of claim 6 wherein said control means is configured to transmit control signals to cause said voice means to generate one of a standard announcement or a customized announcement according to called party selection.

11. A method for routing a call from a calling party to a called party through a local switch of a telecommunications system, said method comprising the steps of:

suspending said call routing within said switch;

generating, upon said call routing suspension, an announcement to said calling party, said call routing being suspended for a specified time period after the termination of said announcement; and

connecting, after the termination of said specified time period, said call from said calling party to said called party through said local switch.

12. The method of claim 11 wherein the suspending step includes suspending the routing of the call for a specified amount of time after said generating step has been completed.

13. The method of claim 12 wherein the specified amount of time is less than 30 seconds.

14. The method of claim 11 wherein said step of generating a specified announcement includes the step of generating a standard announcement.

15. The method of claim 14 wherein the step of generating a standard announcement includes the step of generating a message to inform the calling party that the call is subject to monitoring.

16. The method of claim 11 wherein said step of generating a specified announcement includes the step of generating a customized announcement.

17. The method of claim 16 wherein said step of generating a specified announcement includes the step of generating one of the customized announcement or a standard announcement according to called party selection.

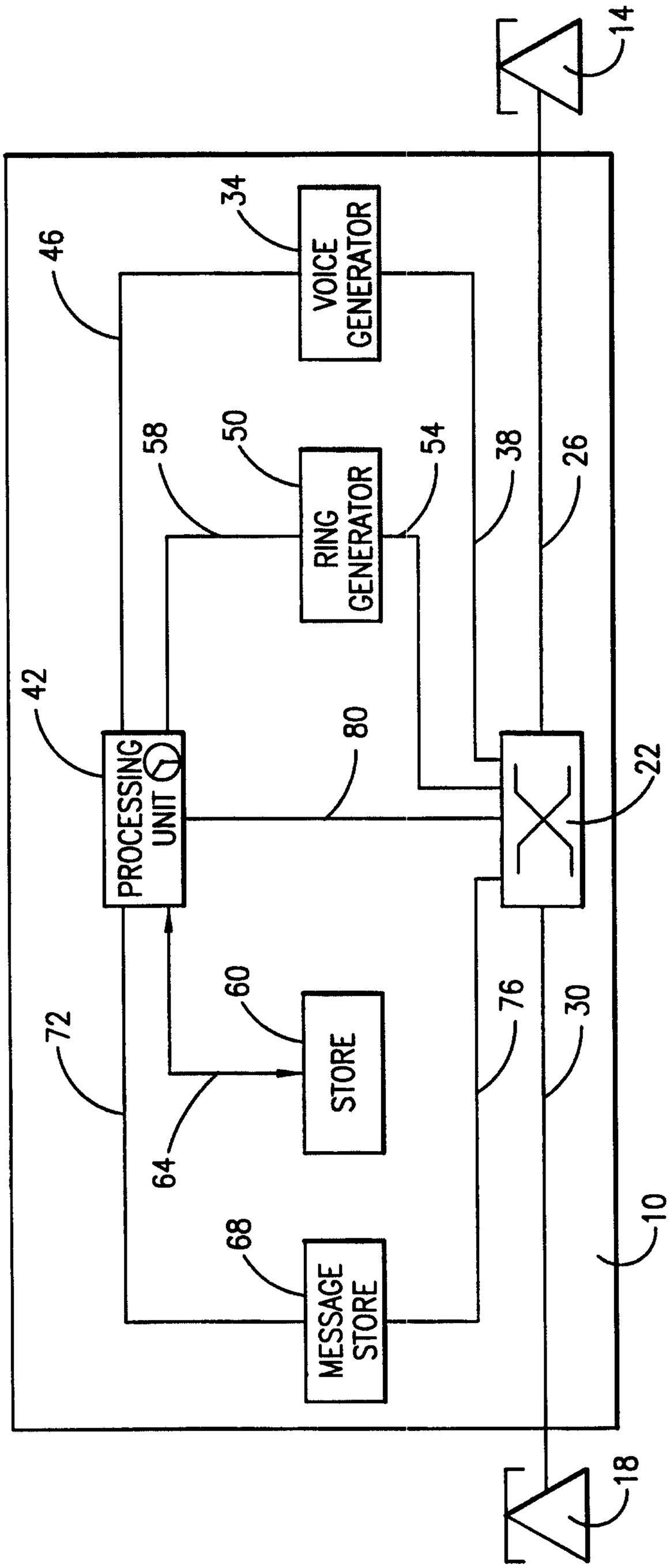
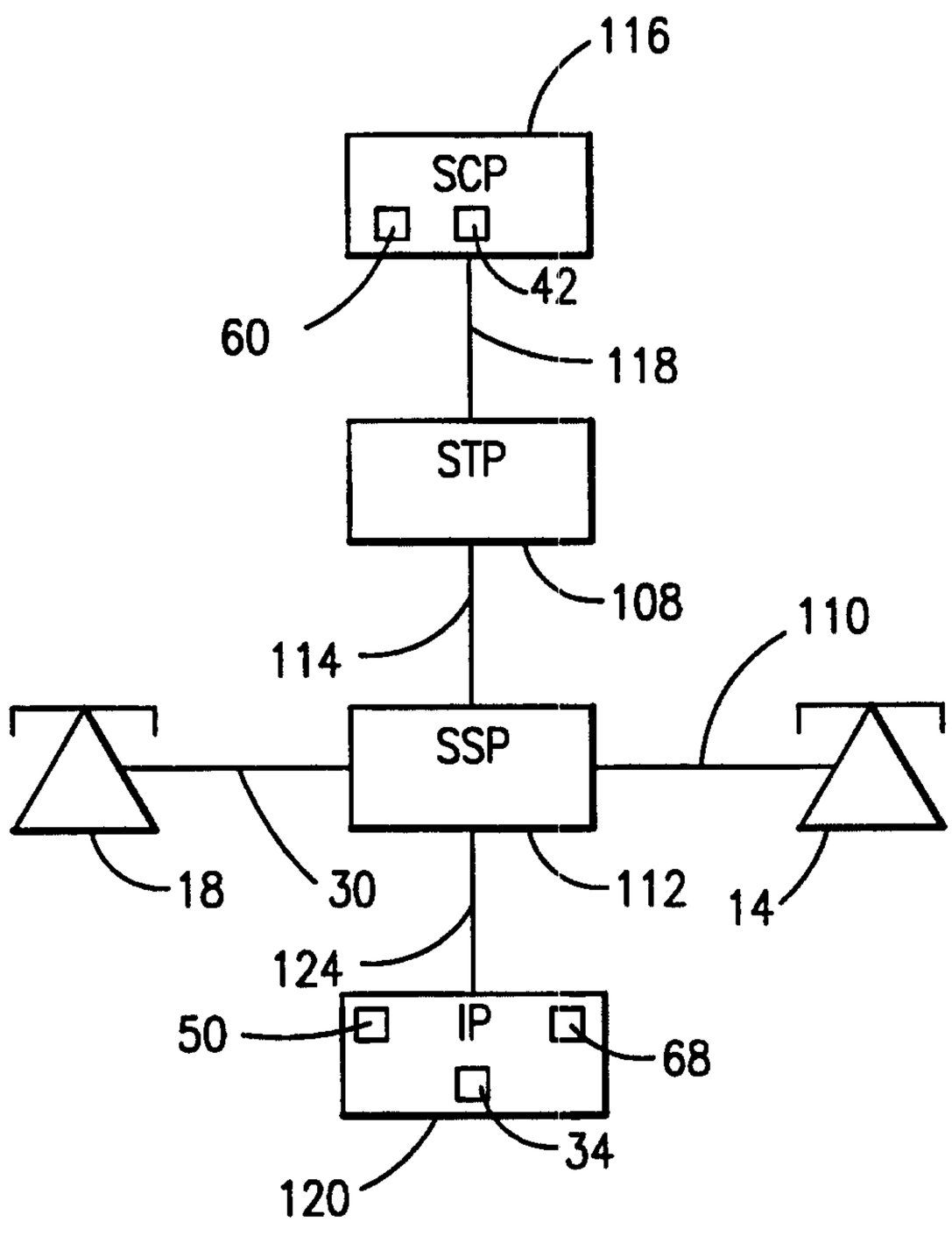

14
34
VOICE GENERATOR
46
58
50
RING GENERATOR
54
38
26
42
PROCESSING UNIT
80
22
72
60
STORE
64
76
30
68
MESSAGE STORE
10
18

FIG. 1


116
SCP
60
42
118
STP
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114
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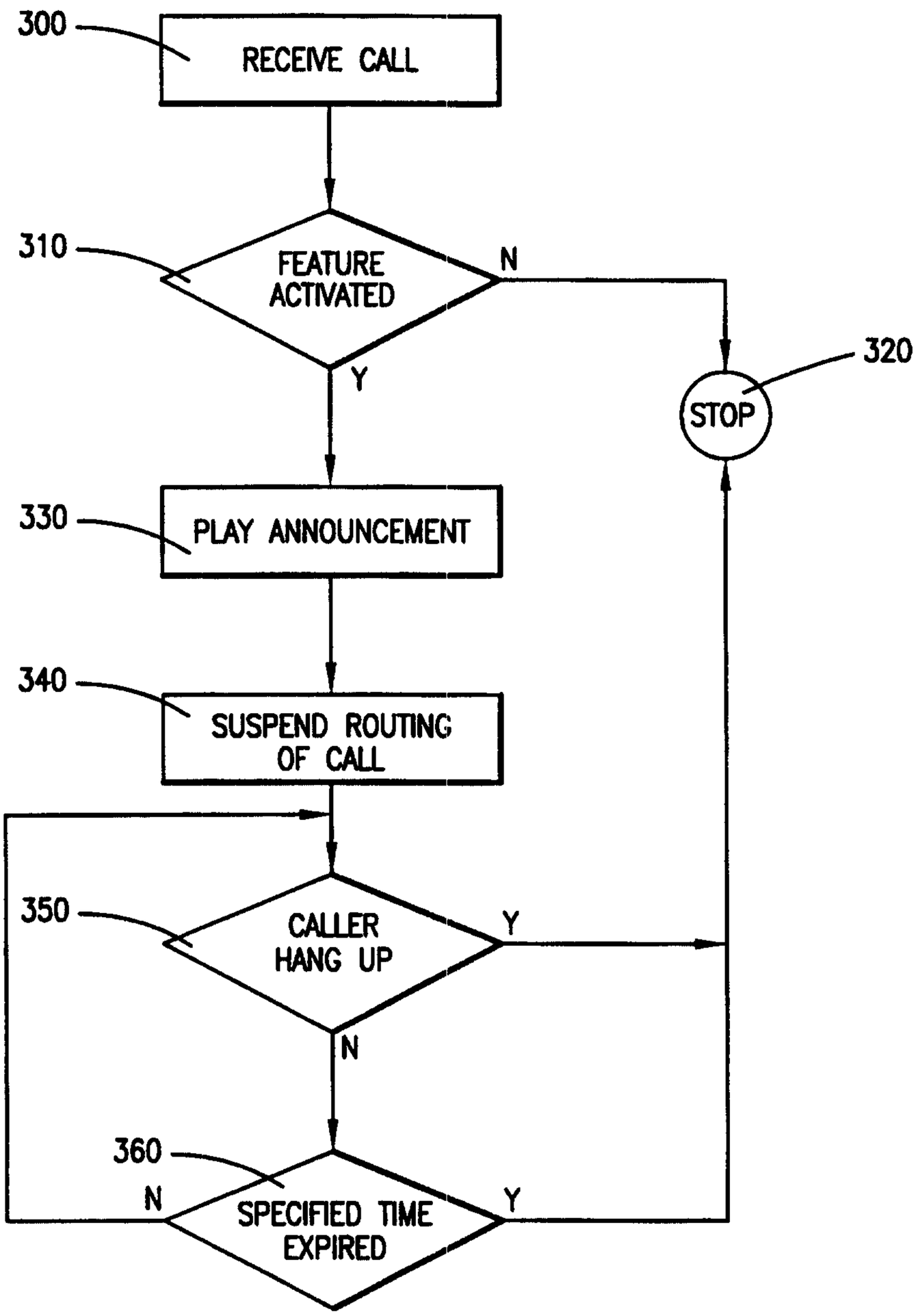
SSP
18
30
112
14
124
50
IP
68
34
120

*FIG. 2*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RECEIVE CALL
310
FEATURE ACTIVATED
N
Y
320
STOP
330
PLAY ANNOUNCEMENT
340
SUSPEND ROUTING OF CALL
350
CALLER HANG UP
Y
N
360
N
SPECIFIED TIME EXPIRED
Y

*FIG. 3*