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(72) Inventeurs/Inventors:

Etoh, Hiroshi, JP;

Takahashi, Chusei, JP

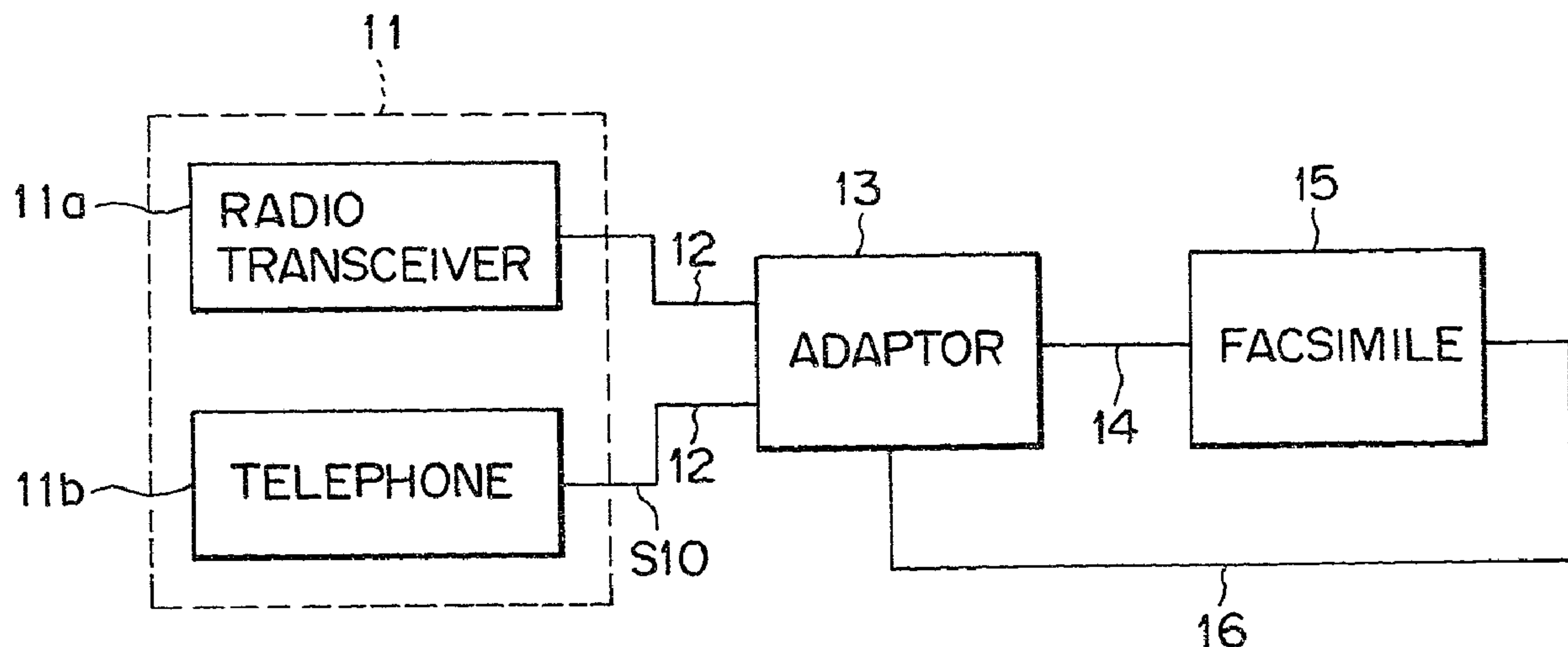
(73) Propriétaire/Owner:

OKI ELECTRIC INDUSTRY CO., LTD., JP

(74) Agent: FETHERSTONHAUGH & CO.

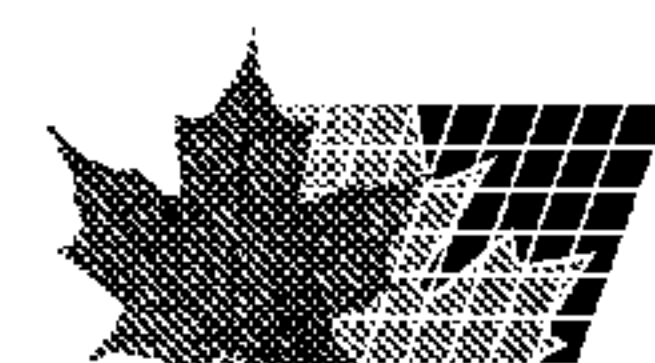
(54) Titre : SYSTEME DE TELECOPIE MOBILE POUVANT METTRE UN TELECOPIEUR EN MODE DE TRAVAIL
AUTOMATIQUEMENT

(54) Title: MOBILE FACSIMILE TELECOMMUNICATIONS SYSTEM CAPABLE OF AUTOMATICALLY OFF-HOOKING A
FACSIMILE DEVICE



(57) Abrégé/Abstract:

A mobile facsimile telecommunications system utilizes an automobile telephone system as a transmission path. In one aspect, this system utilizes an adaptor which can place the facsimile device under an off-hook condition without using an ordinary telephone set additionally provided to compensate for defects of a portable-type facsimile device having no dialing function, thereby achieving its simplification of system construction as well as the reduction of telephone charges. In another aspect, this system utilizes an automatic response function, a polling transmission function using a given default value, and an automatic off-hook function specified by an operator after conversation, thereby rendering the manipulation for facsimile communication simple.



1. ABSTRACT OF THE DISCLOSURE

A mobile facsimile telecommunications system utilizes an automobile telephone system as a transmission path. In one aspect, this system utilizes
5 an adaptor which can place the facsimile device under an off-hook condition without using an ordinary telephone set additionally provided to compensate for defects of a portable-type facsimile device having no dialing function, thereby achieving its simplification
10 of system construction as well as the reduction of telephone charges. In another aspect, this system utilizes an automatic response function, a polling transmission function using a given default value, and an automatic off-hook function specified by an operator
15 after conversation, thereby rendering the manipulation for facsimile communication simple.

1 MOBILE FACSIMILE TELECOMMUNICATIONS SYSTEM CAPABLE
OF AUTOMATICALLY OFF-HOOKING A FACSIMILE DEVICE

BACKGROUND OF THE INVENTION

5 Field of the Invention

This invention relates to a mobile facsimile telecommunications system utilizing an automobile telephone system as a transmission path in general, and more particularly to an adaptor to be used between an automobile telephone device and a portable-type facsimile device having no dialing function in such a facsimile telecommunications system, and to a method of performing facsimile transmission by utilizing a polling transmission function of a facsimile device which is coupled, via an adaptor, to an automobile telephone device or a wireless telephone device with equivalent properties.

Description of the Prior Art

A mobile facsimile telecommunications system illustrated in FIG. 1 is well known as one prior technique for performing facsimile telecommunications utilizing an automobile telephone system as a transmission path.

In FIG. 1, the mobile facsimile telecommunications system comprises an automobile telephone device 1 including a radio transceiver 1a and a telephone set 1b, an adaptor 2 coupled to the

1 telephone device 1, a facsimile device 3 connected to
the adaptor 2, and an ordinary telephone set 5
connected to the facsimile device 3 through a cable 4
serving as an interface based on a two-wire loop
5 dialing system (identical with an ordinary telephone
subscriber line). In this arrangement, one end of the
cable 4 is connected to telephone terminals of the
facsimile device 3.

As illustrated in FIG. 3, the adaptor 2
10 comprises a MODEM 2a containing a network control unit
(NCU) having an interface function of coupling the
automobile telephone device 1 to the ordinary telephone
subscriber line and a data processing unit for reading
and discriminating serial data S1 of a given format
15 transmitted from the automobile telephone device 1
external thereof, a controller 2b including a G3-class
communication control 2b-1, a main control 2b-2
constructed by a CPU, a ROM and a RAM and a RF
communication control 2b-3, and for outputting a
20 control signal S2 corresponding to the serial data S1,
a V.27 ter. MODEM 2C in conformity with the
Recommendations of the CCITT, and a central-office line
part 2d constructed in an ordinary telephone subscriber
signal format, adapted to be controlled by the control
25 signals S2 from the controller 2b and provided with an
interface function for the facsimile device 3.

In addition, the G3 communication control 2b-1

1 is provided with the same procedure as that of a
standard G3 facsimile device in conformity with the
CCITT Recommendations, and the MODEM 2a is provided
with an error correction control function introduced by
5 taking a wireless trunk line into account. The
ordinary telephone set 5 in FIG. 1 is used because most
of facsimile devices are not generally provided with
dialing and polling transmission functions.

In operation, an operator first makes a
10 telephone call to the other party and talks over the
telephone by use of the telephone set 1b of the
automobile telephone device 1, and then hangs up the
phone after conversation. Next, the operator sets a
manuscript into the facsimile device 3 and dials or
15 phones again by use of the ordinary telephone set 5.
At this juncture, the ordinary telephone set 5 and the
adaptor 2 are placed under off-hook conditions due to a
loop current flowing through a network control circuit
(NCU) in the facsimile device 3.

20 The dial signals from the ordinary telephone
set 5 are transmitted to the adaptor 2 through the NCU
of the facsimile device 3. The adaptor 2 transforms
the dial signals into a dial signal format suitable for
an automobile telephone and sends out them to the radio
25 transceiver 1a. When connected with a destined party,
the adaptor 2 provides a response signal to the
ordinary telephone set 5. Then, the operator confirms

1 the presence of the response signal and will depress a
start key on the facsimile device 3. Thus, the content
of the manuscript is scanned and transmitted to the
called party through the radio transceiver 1a.

5 As clearly understood from the foregoing, in
the facsimile telecommunications system using such
adaptor as illustrated in FIG. 3, it is required for
the operator to manipulate two telephone sets. In
fact, since the operator must enter into the facsimile
10 communication by originating calls again after
conversation, it will result in an increase of
manipulation time and telephone charges. Besides, from
the economical and special points of view, there were
some problems in the use of an ordinary telephone set.

15 As another prior art for a facsimile
telecommunications system in a moving body, T.
Takahashi et al. "Error-Free FAX Communication Adaptor"
Journal of Technology Transfer, Vol.12, No.11, pp.30 -
31, 1989 exhibits such an arrangement as indicated in
20 FIG. 2.

In FIG. 2, a facsimile telecommunications
system in a moving body comprises a wireless telephone
device 1 mounted on a moving body such as automobiles
or the like, for example. The wireless telephone
25 device 1 includes a radio transceiver 1a, and a
telephone set 1b provided with a key 1b-1 for
transmitting an initiation signal S1 which is serial

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1 data of a given format. An adaptor 2 is coupled to the
radio transceiver 1a and the telephone set 1b by way of
cables A, A on one hand, and also coupled via cable B
to a standard G3 facsimile device 3 recommended by
5 CCITT on the other hand.

In the aforesaid arrangement, the cables A and
B are interface cables. In particular, the cable A is
a cable used for interfacing between the radio
transceiver 1a and the telephone set 1b, and the cable
10 B is an interface cable suitable for a two-wire loop
dialing system. In addition, the facsimile device 3
includes a start key and a hook switch (both, not
shown) and is provided with automatic response and polling
transmission functions.

15 FIG. 4 is a detailed functional block diagram
of the adaptor 2 in FIG. 2 and generally similar to
that of FIG. 3, excepting for that the MODEM 2a in FIG.
3 is replaced by a cellular MODEM 2a' which includes an
NCU (Network Control Unit) having an interface function
20 for the wireless telephone device 1 and an ordinary
telephone subscriber line, and is provided with
modulation/demodulation and received-data error
correction control functions. As seen from FIG. 4, the
adaptor 2 comprises the cellular MODEM 2a' having
25 various functions mentioned above, a controller 2b
including a G3 communication control 2b-1 with a
control function for the facsimile device 3, a main

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1 control 2b-2 and an RF communication control 2b-3 for
controlling the cellular MODEM 2a', a V.27 ter. MODEM
2c with an interface function for the G3 communication
control 2b-1 in conformity with the Recommendations of
5 CCITT, and a central office line part 2d provided with
an ordinary telephone subscriber signal format as well
as interface function to the facsimile device 3 for
outputting a call signal S2'.

In this arrangement, the call signal S2' has
10 an on-off ratio of 201 PM and a make ratio of 33, and
the frequency of 400 Hz is modulated with a signal of
more than 15 Hz and less than 20 Hz.

The conventional facsimile telecommunications
system constructed as shown in FIG. 2 is operated
15 through the following steps:

- (1) Set the manuscript to the facsimile device 3;
- (2) Make a phone call to the receiving party using
the telephone set 1b on the wireless telephone device
1;
- 20 (3) Depress the key 1b-1 on the telephone set 1b
after having a conversation with the receiving party; and
- (4) Manipulate the hook switch or the start key on
the facsimile device 3 after confirming the presence of
the response signals from the adaptor 2.

25 As the result of the abovementioned
procedures, the facsimile telecommunications system in
the moving body indicated in FIG. 2 operates as

1 follows.

In the step (3), when the key 1b-1 is depressed, the initiation signal S1 assigned to the key 1b-1 in advance is applied to the cellular MODEM 2a',
5 and the operation thereof is conveyed to the controller 2b. Then, the controller 2b causes the central office line part 2d to generate the call signal S2' and to provide the facsimile device 3 with the call signal S2'. The facsimile device 3 will respond to it through
10 the manipulation of the hook switch or the start key specified in the step (4). As the result, the facsimile device 3 is placed under an off-hook condition on a loop formed in between the adaptor 2 and itself via the cable B.

15 This condition corresponds to PHASE A (Call Setting) in the transmission control procedures based on the CCITT Recommendation T-30. Communication between the facsimile device 3 and the G3 communication control 2b-1 is successively continued according to the
20 procedures of PHASE B (Premessage procedure), PHASE C (Message procedure), PHASE D (Postmessage procedure), and PHASE E (Call cancellation).

As described above, in order to send out the content of the desired manuscript using the facsimile
25 telecommunications system illustrated in FIG. 2, the operator is required to depress the key 1b-1 provided on the telephone set 1b after conversation as pointed

1 out in the step (3) and thereafter to manipulate the
hook switch or the start key, thereby rendering the
operationality in the case of the manuscript
transmission rather complex or troublesome.

5 Besides, supposing that the telephone set 1b
is located around the seat for a driver, whereas the
facsimile device 3 is located at a back seat, for
example, to which the driver himself may not reach from
his position, the driver is required to move to the
10 place where the facsimile device 3 is located within
the car in order to manipulate the hook switch or the
start key after depressing the key 1b-1 on the
telephone set 1b. It will be clear that the
operationality in this case becomes more complex or
15 troublesome as compared to the previously mentioned
case where the telephone set 1b and the facsimile
device 3 are placed adjacent to each other.

SUMMARY OF THE INVENTION

20 With foregoing situation in view, the present
invention has its primary object of the provision of a
mobile facsimile communication adaptor which is simple
in system construction with an ordinary telephone set
omitted.

25 It is another object of the present invention
to provide a mobile facsimile communication adaptor
capable of automatically transmitting the content of

1 the manuscript through the use of a telephone line only
once, thereby enabling the reduction of a manipulation
time as well as telephone charges.

It is still another object of the present
5 invention to provide a facsimile telecommunications
system in a moving body, which is free of troublesome
manipulation, especially in case where a wireless
telephone device and a facsimile device are mounted at
different places spaced apart from each other.

10 Further objects and advantages of the present
invention will become apparent as the following
description proceeds, and the features of novelty
characterizing the invention will be pointed out with
particularity in the claims annexed to and forming a
15 part of the specification.

Briefly, in keeping with the principle of the
present invention, the objects in one embodiment are
accomplished with the unique combination of a facsimile
device and an inventive adaptor comprising a MODEM
20 having an off-hook means for off-hooking between the
facsimile device and an ordinary telephone subscriber
line and provided with functions of reading and
discriminating serial data of a given format
transmitted from an external mobile wireless telephone
25 device and of interfacing between the mobile wireless
telephone device and the ordinary telephone subscriber
line, a controller for outputting a control signal

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corresponding to the serial data, and a central office line part controlled with the control signal for off-hooking an external facsimile device.

The objects of another embodiment in accordance with the present invention are accomplished by a mobile facsimile telecommunications system comprising a wireless telephone device and a facsimile device provided with automatic response and polling transmission functions, and operated according to a method including the steps of setting a manuscript to the facsimile device, setting the facsimile device to the automatic response and polling transmission function modes by use of a given default value, calling the receiving party on the telephone and having a conversation with it by means of the wireless telephone device, and manipulating the key on the wireless telephone device after conversation to automatically establish the off-hook condition of the facsimile device.

In accordance with the present invention, there is provided a method of performing mobile facsimile communication by utilizing a wireless telephone device in a moving body and a facsimile device having automatic response comprising the steps of: setting a manuscript to be transmitted in said facsimile device; and setting said facsimile device to automatic response, wherein said facsimile device is automatically set in an automatic response mode in response to an initiation signal generated by said wireless telephone device, a cellular modem detects said initiation signal, transmits an off-hook signal to a controller and said controller generates a call signal, causing said facsimile device to automatically carry out a facsimile telecommunications after receiving said call signal.

In accordance with the present invention, there is further provided a mobile facsimile communication apparatus

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comprising: a facsimile device having an automatic response device; a wireless telephone device for generating an initiation signal to set an automatic response mode in said facsimile device; a cellular MODEM for detecting said initiation signal and transmitting an off-hook signal; a controller for receiving said off-hook signal and generating a call signal which causes said facsimile device to automatically carry out a facsimile telecommunication after receiving said call signal.

10 BRIEF DESCRIPTION OF THE DRAWINGS

The noble features of the subject invention, as well as the invention itself, and the objects and advantages thereof will be better understood from the accompanying description taken in conjunction with the accompanying drawings in which:

15 FIG. 1 is a functional block diagram of a conventional mobile facsimile telecommunications system

1 presented for explaining drawbacks to be solved by a
first embodiment of the present invention ;

FIG. 2 is a similar diagram useful for
explaining drawbacks to be solved by a second
5 embodiment of the present invention;

FIG. 3 is a functional block diagram of an
adaptor in FIG. 1;

FIG. 4 is a functional block diagram of an
adaptor in FIG. 2;

10 FIG. 5 is a functional block diagram of a
mobile facsimile telecommunications system
corresponding to the first embodiment of the present
invention;

FIG. 6 is a partial block diagram of a MODEM
15 used in an adaptor of FIG. 5; and

FIGS. 7 and 8 show sequence diagrams used for
transmission of picture data in the first and second
embodiments, respectively.

20 DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIG. 5 wherein a facsimile
telecommunications system of the first embodiment in
accordance with the present invention is illustrated in
the form of a block diagram, it can be seen that the
25 first embodiment comprises an automobile telephone
device 11 having a radio transceiver 11a and a
telephone set 11b provided with an initiation key (not

1 shown) for generating an off-hook signal S10
corresponding to serial data of a given format, an
adaptor 13 coupled to the radio transceiver 11a and the
telephone set 11b via cables 12, 12 including serial
5 data lines for the off-hook signals S10, and a
facsimile device 15 having no dialing function and
connected to the adaptor 13 via a cable 14. In this
arrangement, the cable 14 is provided with identical
interfacing properties with respect to the radio
10 transceiver 11a and the telephone set 11b and connected
to line terminals of the facsimile device 15 on one end
and to FAX terminals of the adaptor 13 on the other
end. In addition, telephone terminals of the facsimile
device 15 are connected to ordinary telephone
15 subscriber line terminals of the adaptor 13 by way of a
cable 16.

Referring to FIG. 6 wherein a circuit diagram
which is used in the adaptor 13 of FIG. 5, instead of
the NCU employed within the MODEM 2a in FIG. 3, is
20 illustrated, the newly devised NCU comprises a control
21 which activates the adaptor 13 itself by, for
example, the initiation key on the telephone set 11b, a
data line 20 to be coupled to the RF communication
control 2b-3, a codec 23 coupled to the control 21 via
25 data line 22 and provided with the functions of
filtering and analog/digital conversion, a hybrid
transformer 24 whose primary winding is connected to

1 the codec 23, relays 30 and 31 controlled with control
signal from the control 21, and a terminal 33 connected
to the control 21 at one end via a data line 32 and to
be connected to the automobile telephone device 11 at
5 the other end.

A balancing resistor 25 is connected to the
center tap of the primary winding of the hybrid
transformer 24. Relay contacts 26 and 27 connected in
series with each other and with respect to one end of
10 the secondary winding of the hybrid transformer 24 are
used for generating dial signals and line switching
signals, respectively. Terminals 28 and 29 serving as
outputs of the secondary winding of the hybrid
transformer 24 are coupled to the ordinary telephone
15 subscriber line.

The relay contacts 26 and 27 are operatively
included in the relays 30 and 31, respectively, and the
combination of the relay 31 and the contact 27 serves
as an off-hook means for off-hooking between the
20 facsimile device 15 and the ordinary telephone
subscriber line.

Operation of the first embodiment shown in
FIGS. 5 and 6 will hereinafter be explained with
reference to FIG. 7 which shows a sequence diagram
25 describing the transmission of picture data from PHASE
B to PHASE C.

Supposing that the manuscript is to be

1 transmitted from the facsimile device 15 after
conversing with the called party by means of the
automobile telephone device 11b, the operator is
invited at first to set the manuscript to be
5 transmitted in the facsimile device, input its dial
number by means of the telephone set 11b, call the
destined party by depressing the initiation key and
then converse with that party. At the end of
conversation, the operator depresses again the
10 initiation key on the telephone set 11b. Then, the
off-hook signals S10 assigned to the initiation key is
sent to the radio transceiver 11a by way of the serial
data line. Simultaneously with this, the MODEM 2a
shown in FIG. 3 reads the off-hook signal S10,
15 interprets it as the data from the initiation key and
notifies it to the controller 2b. In other words, the
off-hook signal S10 will be applied to the controller
21 over the data line 32 shown in FIG. 6 and
interpreted therein.

20 Then, the MODEM 2a outputs the off-hook signal
on the serial data line and holds the automobile
telephone line. As the result, the control 21 turns
the relay 31 on to close the contact 27, so that a loop
is formed between the facsimile device 15 and the
25 telephone line via the cable 16 in FIG. 5, thereby
permitting the off-hook condition to be established
therebetween. In short, the off-hook condition

1 described above just corresponds to the same condition
as the handset of the ordinary telephone set
illustrated in FIG. 1 is taken up.

Next, the controller 2b receives the off-hook
5 signal S10 and controls the central office line part 2d
to send out a call signal (2100 Hz) and a DIS (Digital
Identification) signal to the facsimile device 15.
Thereafter, the operator is required to depress the
initiation key on the telephone set 11b and then
10 manipulate a start key on the facsimile device 15. As
the result of the manipulation of the start key on the
facsimile device 15, the facsimile device 15 provides a
DCS (Digital Command) signal and a TCF (Training Check)
signal to the adaptor 13, and the adaptor 13 provides a
15 CFR (Reception Ready Confirmation) signal to the
adaptor 13. Since the line loop is already formed
between the facsimile device and the adaptor, the
communication states corresponding to PHASE A (Call
setting) and PHASE B (Premessage procedure) in
20 conformity with the T-30 procedure recommended by CCITT
are established.

Then, the facsimile device 15 outputs picture
data (MH/MR) to the automobile telephone device 11
through the adaptor 13. The transmission of the
25 picture data will be completed when RTC and EOP signals
are generated from the facsimile device 15. Like
these, the communication between the facsimile device

1 15 and the G3 communication control 2b-1 is effected in
accordance with the procedures of PHASES B, C, D and E.

During the PHASE C (Message transmission), the
RF communication control 2b-3 converts the data from
5 the main control 2b-2 into a data format suitable for
wireless transmission and provides the converted data
to the MODEM 2a. The MODEM 2a converts the data into
codes suitable for error correction control and sends
out them to the automobile telephone device 11 by way
10 of the NCU shown in FIG. 6. In short, the control 21
receives the data from the RF communication control 2b-
3 on the data line 20, encodes them and provides the
encoded data to the codec 23 on the data line 22. The
codec 23 converts the digital signals into analog
15 signals which are delivered to the terminals through
the hybrid transformer 24, the contact 26 of the relay
30 and the contact 27 of the relay 31.

As clearly understood by those skilled in the
art, the inventive mobile facsimile communication
20 adaptor capable of accomplishing the simplification of
its construction as well as the reduction of telephone
charges may not be limited to the first embodiment
explained hitherto. For example, although the
combination of the relay 31 and the contact 27 is used
25 as an off-hook means, any other means may be used as
well provided that the facsimile device 15 and the
adaptor 13 can be placed under off-hook condition

1 through the cable 16.

FIG. 8 shows a communication sequence from the generation of the call signal S2' (PHASE 2) to the transmission of the picture data (PHASE C), which is
5 useful for explaining an improved facsimile telecommunications system embodied as a second embodiment with respect to the system in FIGS. 2 and 4. Abbreviated notations employed in FIG. 8 are all based on the CCITT Recommendation T-30.

10 In order to transmit the content of the manuscript by use of the facsimile device 3 after conversing with the specified receiving side using the telephone set 1b on the wireless telephone device 1, the following steps (1) through (3) are sequentially
15 effected.

(1) In step 10, the operator sets the manuscript to the facsimile device 3, places the system under its automatic response mode that couples the line automatically in response to a call from the other
20 party, and then presets to a polling transmission mode wherein the manuscript set previously in the transmission party is transmitted in reply to the demand from the receiving party when the other party or receiving side's identity is confirmed. In general,
25 the confirmation of the other party's identity will be made through the verification between an ID number registered in the transmission party and an ID number

1 sent from the receiving party. However, in this
embodiment, such an ID number for the receiving party
is not set at the time of setting of the polling
transmission mode, but a predetermined default value
5 (value to be fetched when an ID number is not
registered) is set as it is.

(2) In step 11, the operator calls the destined
party on the telephone using the telephone set 1b on
the wireless telephone device 1 and converses with the
10 destined party.

(3) In step 12, the operator depresses the key 1b-
1 on the telephone set 1b after the conversation with
the called party is ended. Then, the initiation signal
S1 assigned in advance to the key 1b-1 is transmitted
15 to the transceiver 1a via the cable A. At this
juncture, the cellular model 2a' in the adaptor 2 reads
the data on the up-serial signal line of the cable A,
interprets it as data from the key 1b-1 and informs the
controller 2b of the result of interpretation.
20 Immediately after this, the cellular MODEM 2a' outputs
an off-hook signal on the up-serial signal line in
order to hold the automobile telephone line. The
controller 2b receives the aforesaid notification and
outputs a control signal to the central office line
25 part 2d. The central office line part 2d outputs the
call signal S2' to the facsimile device 3 in response
to the control signal from the controller 2b.

1 The facsimile device 3 receives the call
signal S2' and starts to operate the automatic response
function in response thereto, thereby allowing the
system to be held under the off-hook condition. And,
5 after a quiet state for about two minutes, it sends out
a response signal (2100 Hz) and a DIS (R: Receive)
signal (Digital Identification Signal), successively.
Contrary to this, the adaptor 2 sends out a DIS (S/R:
Send/Receive) signal, waits for the arrival of the
10 aforesaid response signal and the DIS (R), and
thereafter sends out a DTC (Digital Transmission
Command) signal to the facsimile device 3. At this
point, the adaptor 2 recognizes that the facsimile
device 3 is placed under its transmission mode, i.e.
15 so-called its necessary negotiation is concluded.

Successively, the facsimile device 3 sends out
a TCF (Training Check) signal to the adaptor 2 and
receives a CFR (Confirmation to Receive) signal from
the receiving side via the adaptor 2. This condition
20 just corresponds to a state under which the necessary
procedure prior to communication becomes established.
As the result, the adaptor 2 reads the content of the
manuscript and proceeds to a picture data transmission
sequence.

25 When the picture data are to be transmitted
from the facsimile device 3 to the receiving side, the
picture data are compressed by use of a predetermined

1 compression system, such as a MH (Modified Huffman
Coding) system or a MR (Modified Read Coding) system
recommended by CCITT, or a MMR (Modified Modified Read
Coding) system.

5 The facsimile device 3 sends out each of a RTC
(Control Recovery) signal and a EPO (End of Procedure)
signal, after the completion of the picture data
transmission. Thus, the receiving side sends out a MCF
(Message Confirmation) signal (not shown). Thereafter,
10 the facsimile device 3 generates a DCN (Disconnect)
signal, cuts off the transmission line and ceases the
transmission of the manuscript.

 As clearly understood from the foregoing by
those skilled in the art, the polling transmission
15 function of the facsimile device in this second
embodiment is quite different from that employed in the
prior art. The improved facsimile transmission system
described in accordance with the second embodiment
including the steps of setting the facsimile device to
20 the automatic response function mode as well as to the
polling transmission function mode using a given
default value, thereafter depressing the key on the
telephone set, thereby enabling the facsimile device to
be automatically off-hooked at an appropriate stage
25 during its transmission operation, is not necessarily
limited to the second embodiment mentioned above. For
example, a train or the like can be used as a moving

1 body instead of an automobile. The aforesaid technical
idea of accomplishing the facsimile transmission system
can also be applied to the case wherein the content of
the manuscript is transmitted without any conversation
5 after telephoning. In addition, instead of the key 1b-
1 used for providing the initiation signal S1, any
other key to which other function is assigned may be
commonly used to generate the initiation signal S1.

While the invention has been particularly
10 shown and described with reference to certain preferred
embodiments, it will be understood by those skilled in
the art that various alterations and modifications in
form and detail, in addition to alternatives described
above, may be made therein. Accordingly, it is
15 intended that the following claims cover all such
alterations and modifications as fall within the true
spirit and scope of the invention.

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CLAIMS:

1. A method of performing mobile facsimile communication by utilizing a wireless telephone device in a moving body and a facsimile device having automatic response comprising the steps
5 of:

setting a manuscript to be transmitted in said facsimile device; and

setting said facsimile device to automatic response, wherein said facsimile device is automatically set in an
10 automatic response mode in response to an initiation signal generated by said wireless telephone device, a cellular modem detects said initiation signal, transmits an off-hook signal to a controller and said controller generates a call signal, causing said facsimile device to automatically carry out a
15 facsimile telecommunications after receiving said call signal.

2. A method of performing mobile facsimile communication according to claim 1, further comprising the step of calling the receiving party on the telephone and receiving a confirmation signal therefrom by means of said wireless
20 telephone device prior to facsimile communications.

3. A method of performing mobile facsimile communication according to claim 2, further comprising the step of manipulation of a key for off-hooking said facsimile device after receiving the confirmation signal.

25 4. A mobile facsimile communication apparatus comprising:

a facsimile device having an automatic response device;

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a wireless telephone device for generating an initiation signal to set an automatic response mode in said facsimile device;

a cellular MODEM for detecting said initiation signal
5 and transmitting an off-hook signal;

a controller for receiving said off-hook signal and generating a call signal which causes said facsimile device to automatically carry out a facsimile telecommunication after receiving said call signal.

10 5. The mobile facsimile communication apparatus of claim 4 wherein said cellular MODEM and said controller are located in an adapter.

6. The mobile facsimile communication apparatus of claim 4 further comprising a key for off-hooking said facsimile
15 device.

7. A mobile facsimile communication apparatus for transmitting a content of a manuscript from a moving body to another by utilizing wireless telephone devices respectively installed thereon comprising:

20 a facsimile device having automatic response and a predetermined key to send an initiation signal; and

an adapter for receiving said initiation signal, said adapter having a MODEM for sending an off-hook signal for automatically off-hooking another facsimile device in response
25 to said initiation signal.

FETHERSTONHAUGH & CO.

OTTAWA, CANADA

PATENT AGENTS

Fig. 1
PRIOR ART

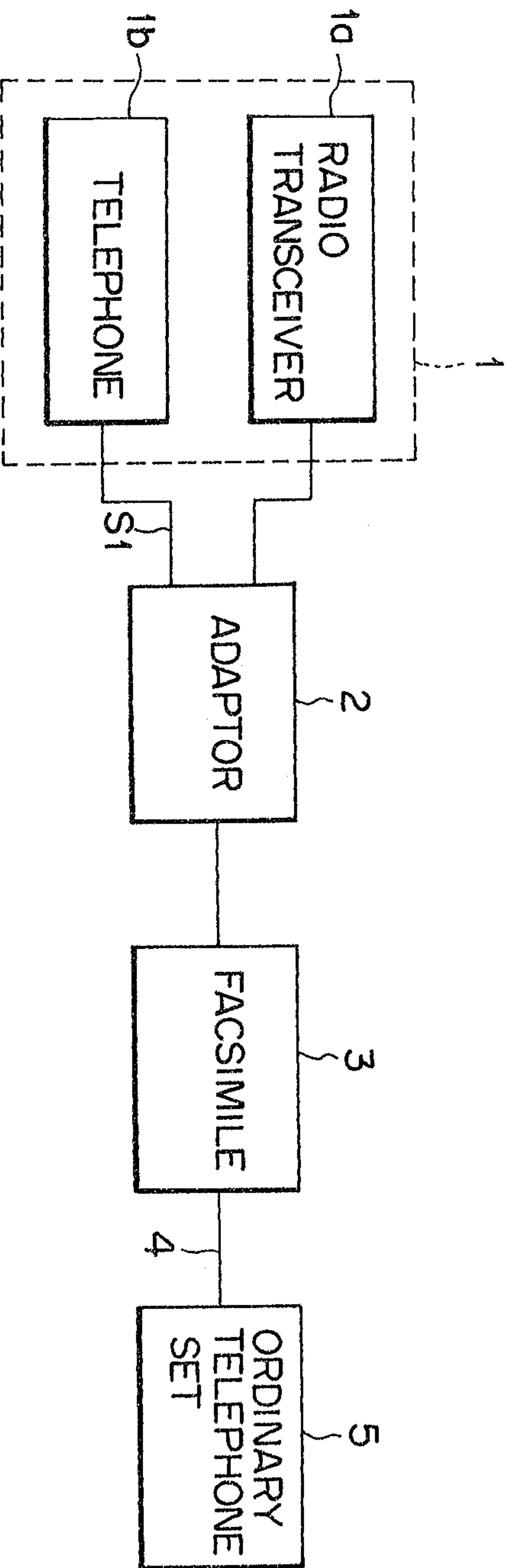


Fig. 2
PRIOR ART

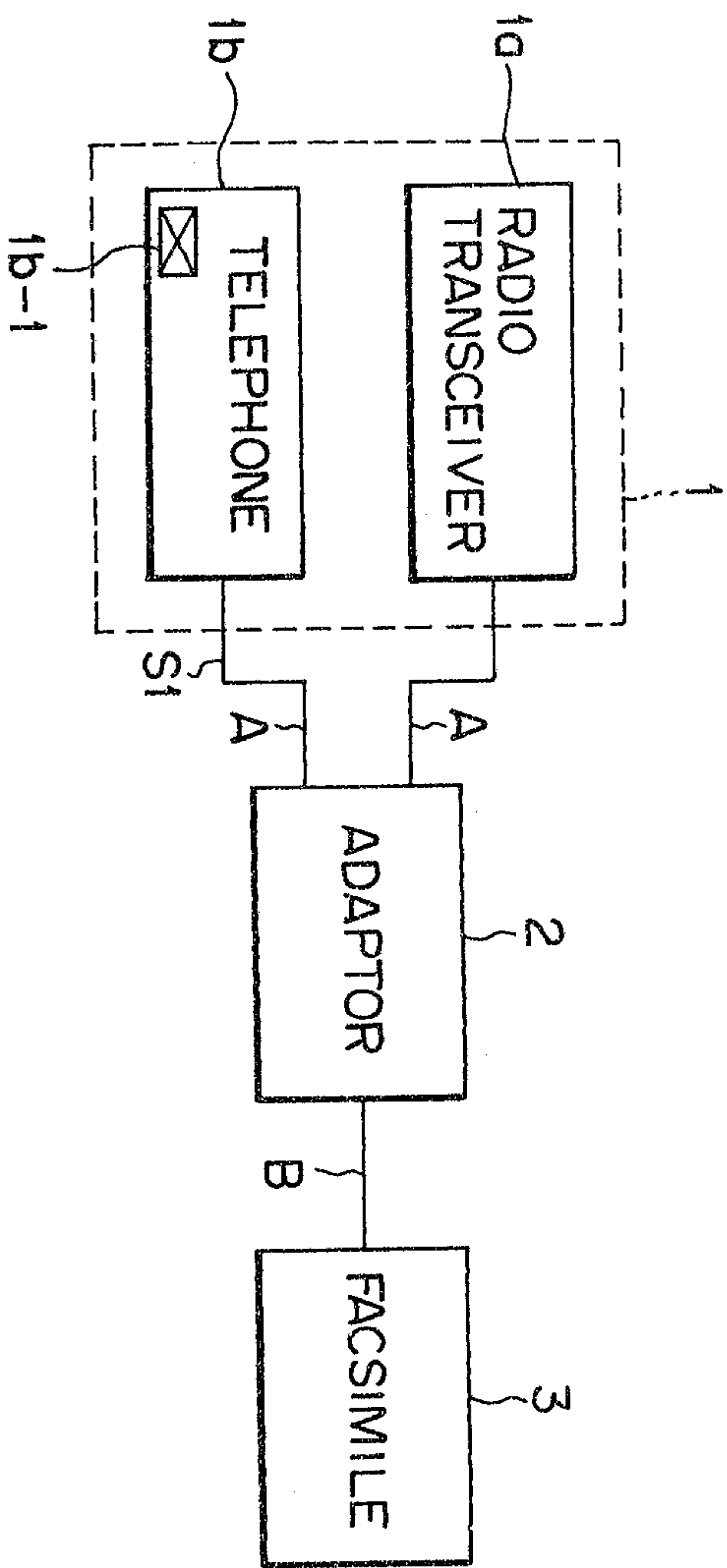


Fig. 3
PRIOR ART

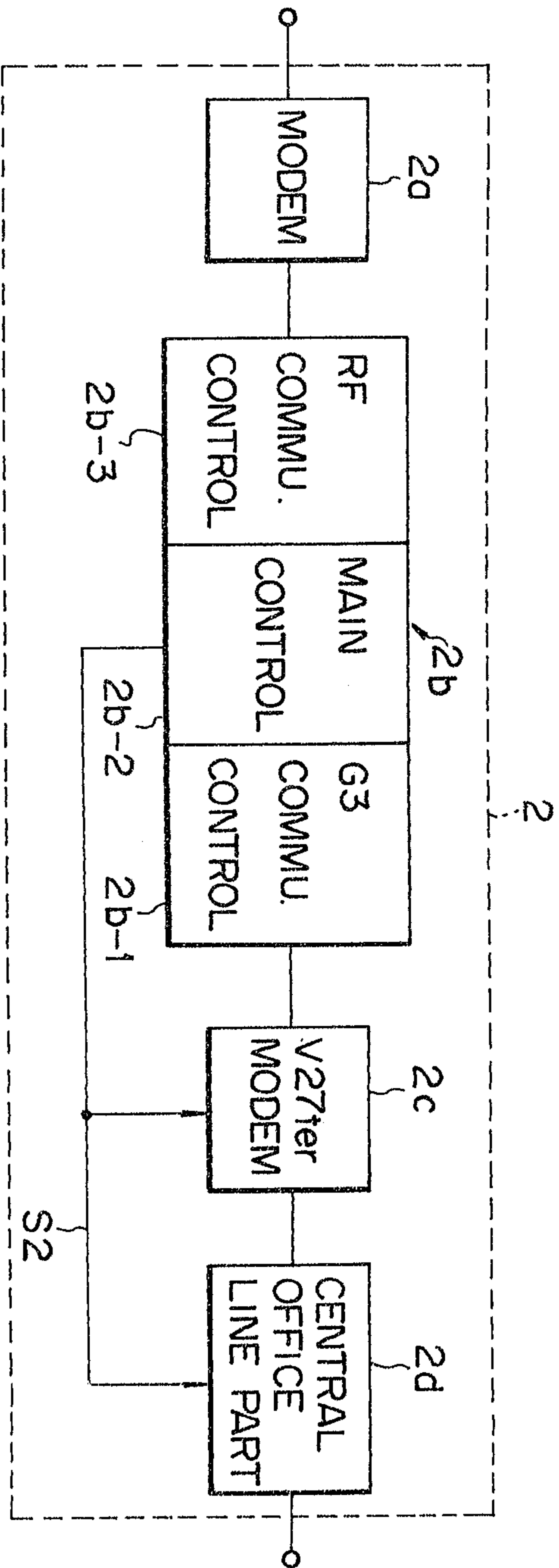


Fig. 4
PRIOR ART

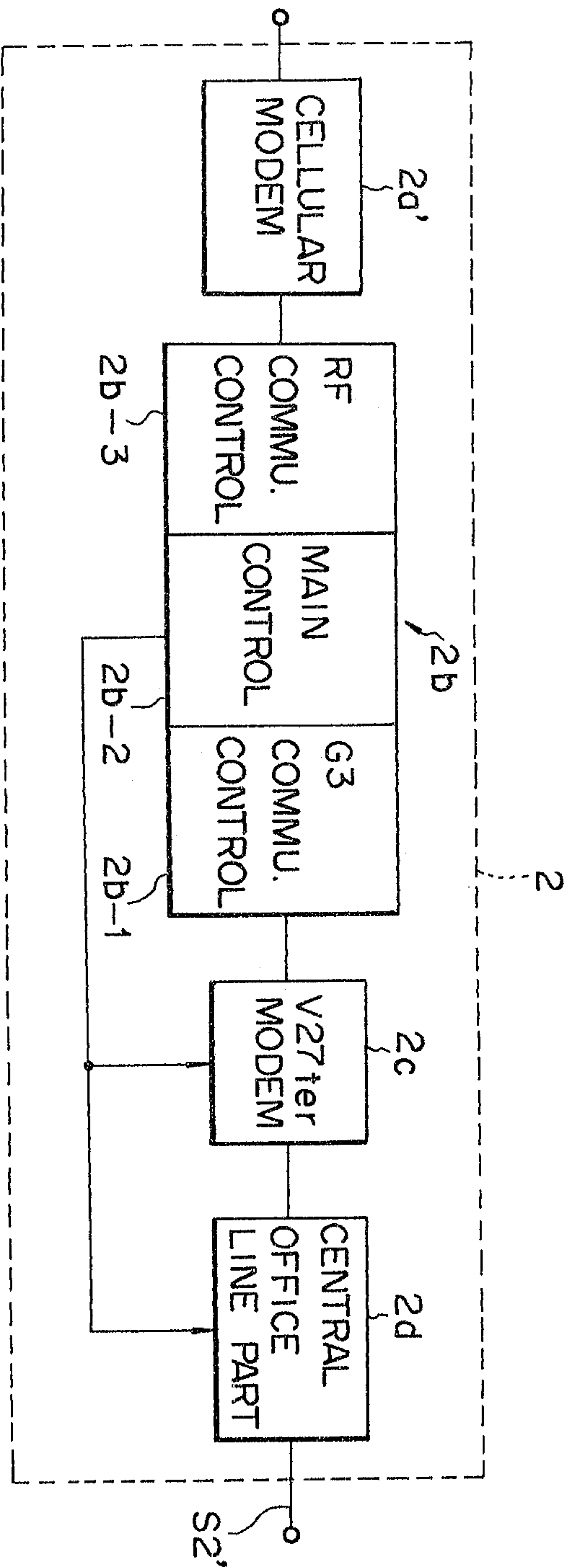


Fig. 5

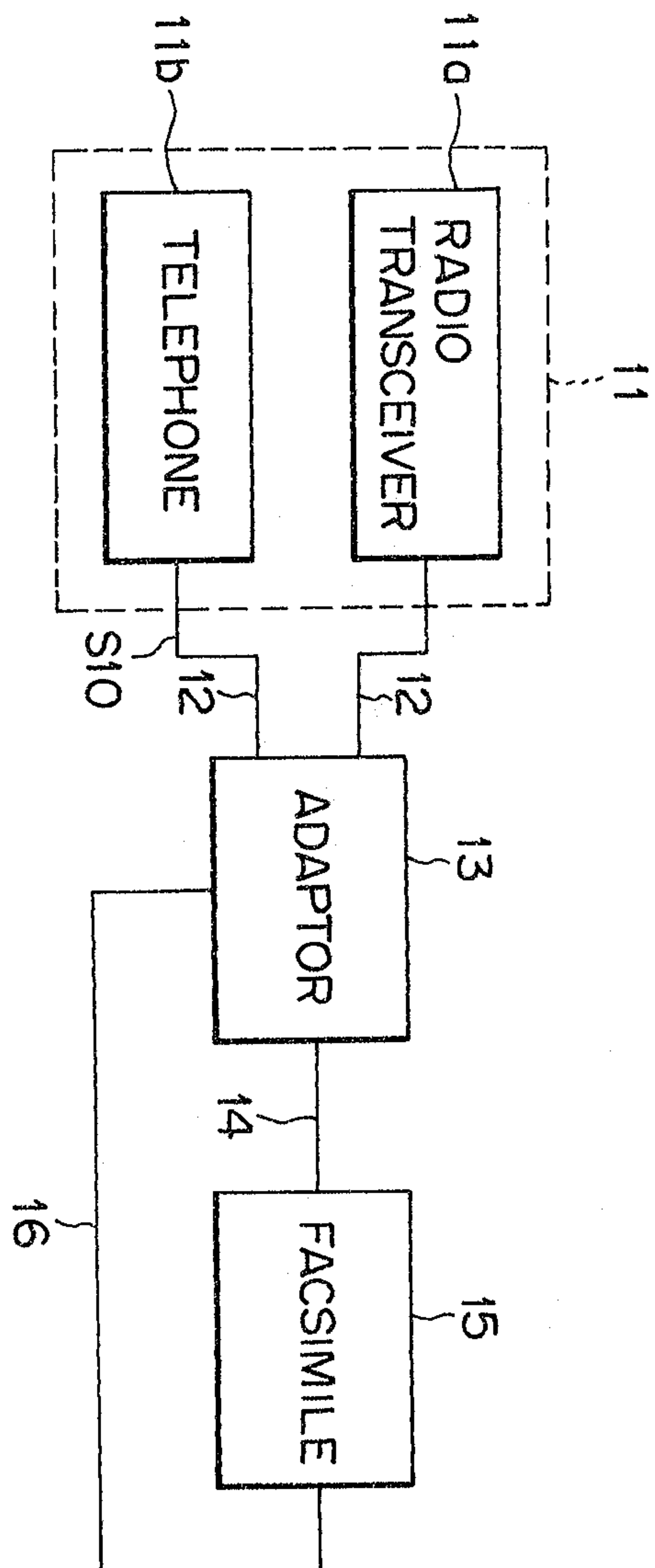


Fig. 6

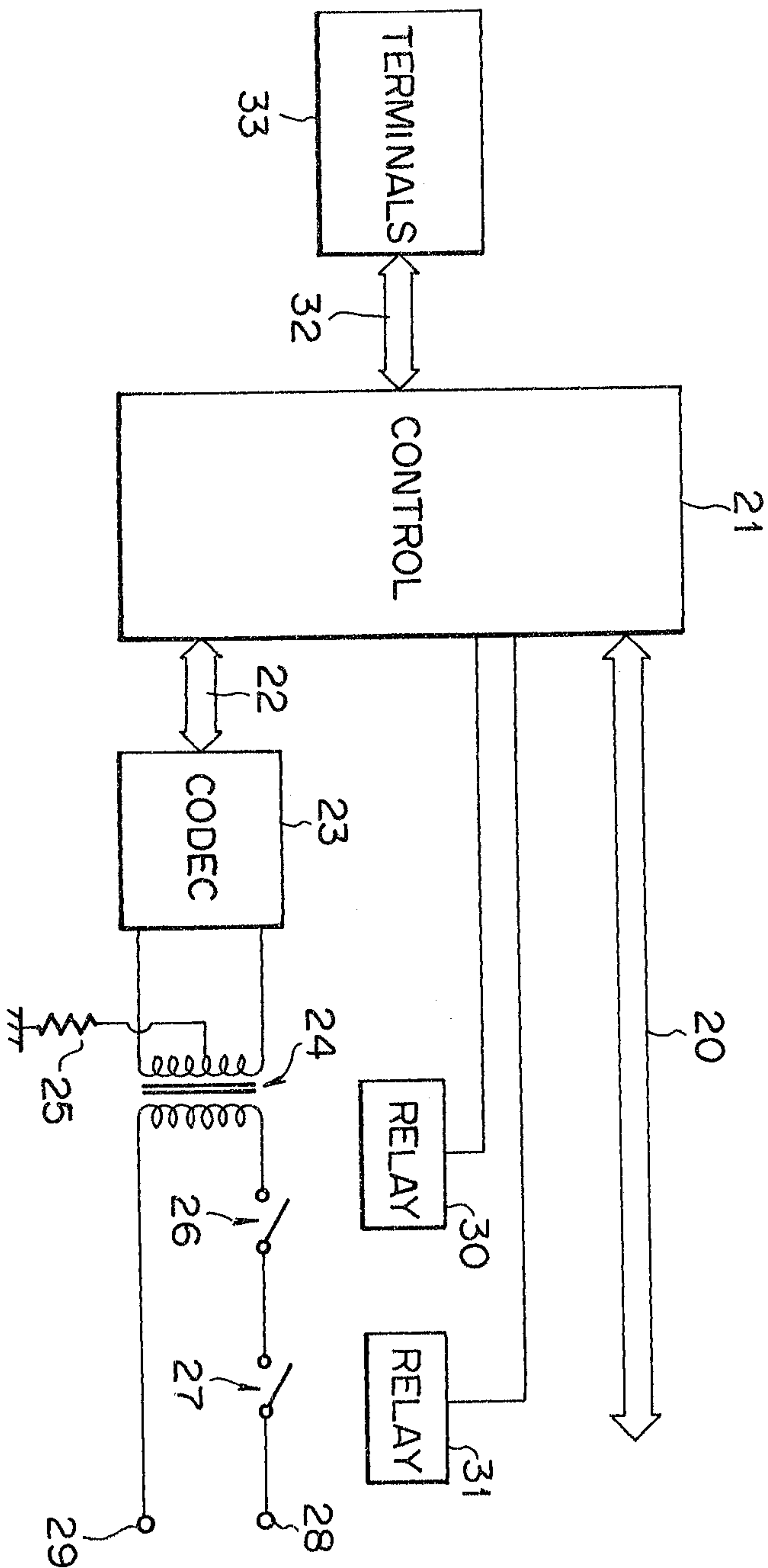
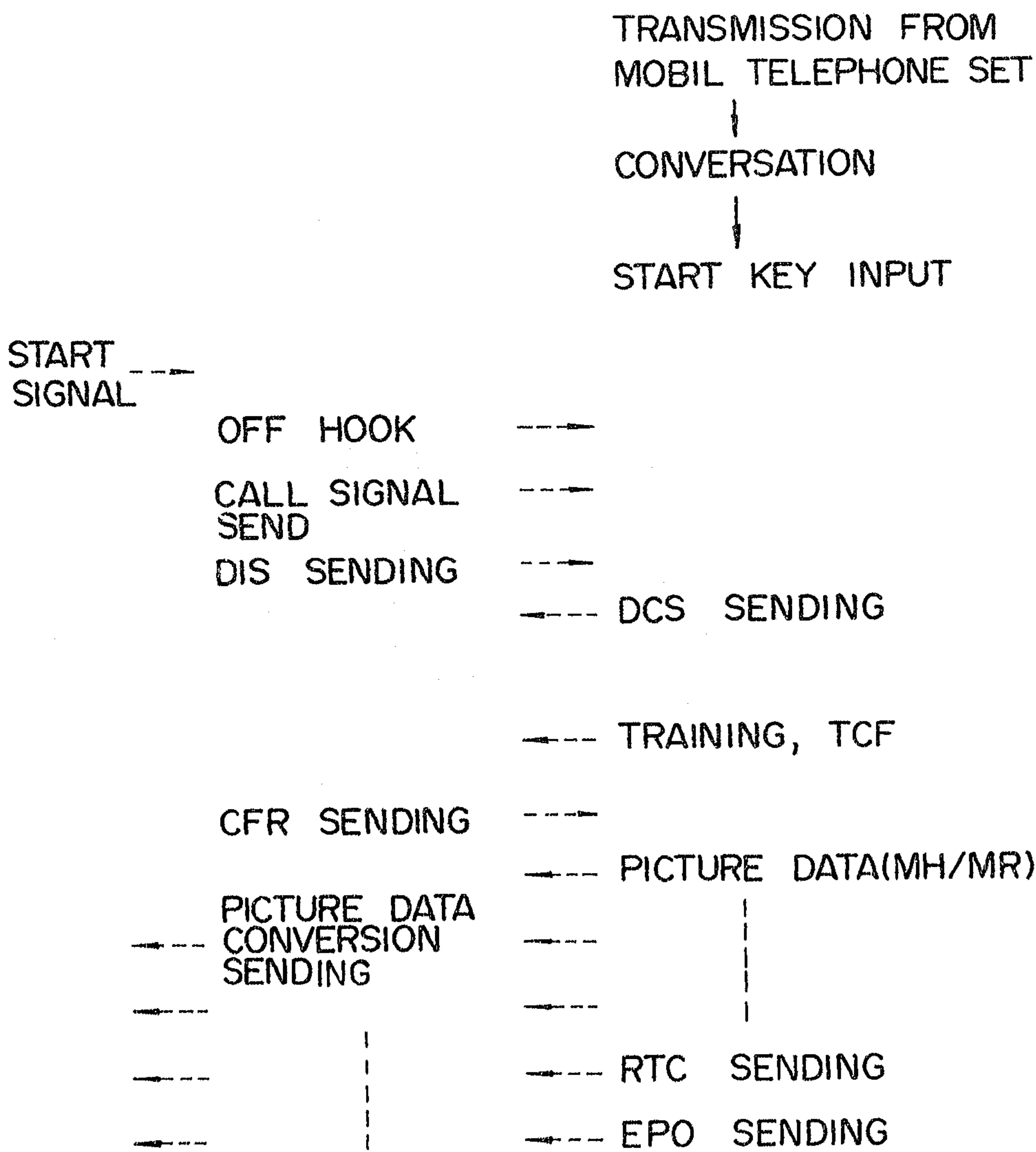


Fig. 7

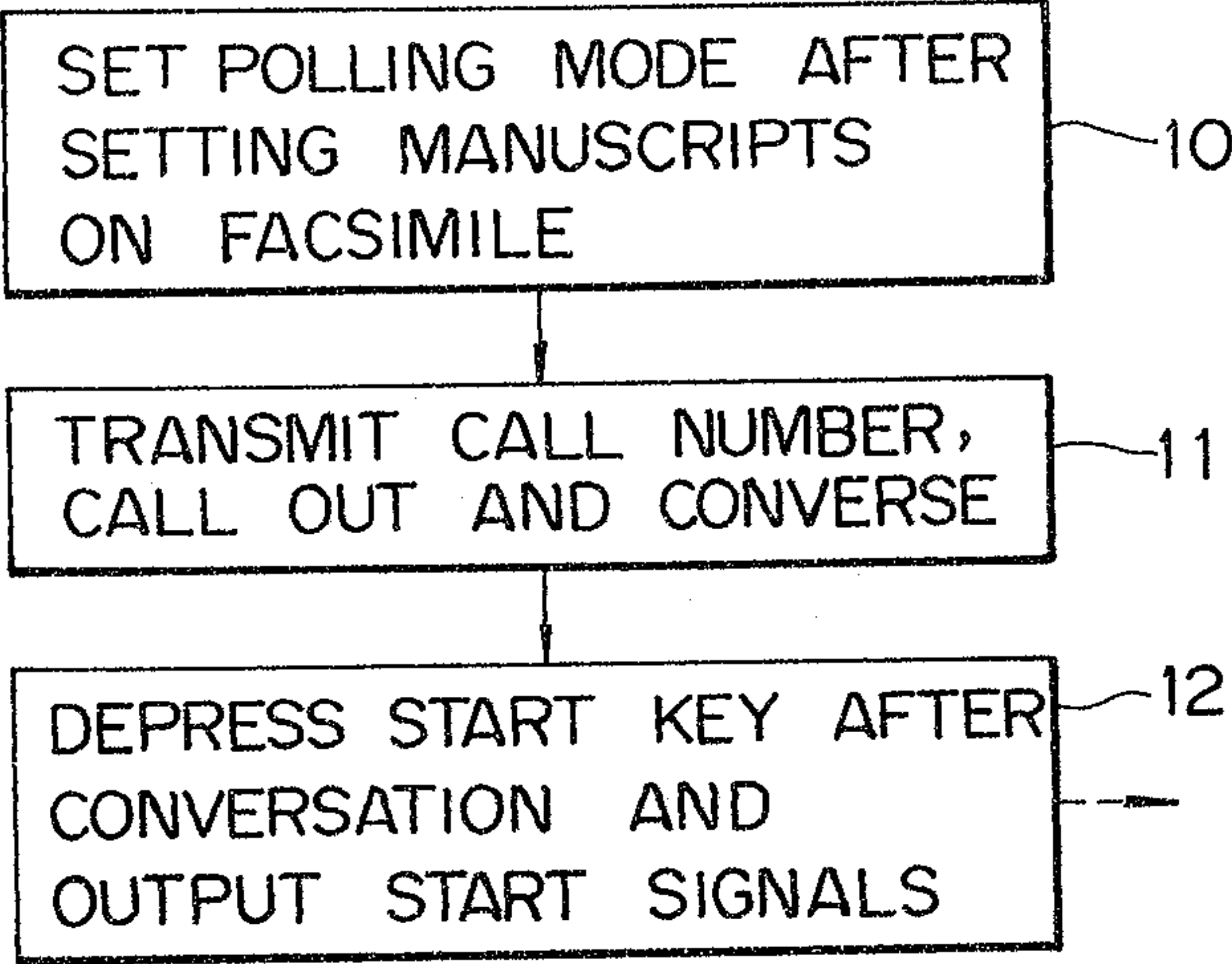
<MOBIL TELEPHONE 11> <ADAPTOR 13> <FACSIMILE 15>



Patent Agents
Fetherstonhaugh & Co.

Fig. 8

<RADIO TELEPHONE 1> <ADAPTOR 2> <FACSIMILE 3>



CALL SIGNAL SEND:---

--- OFF HOOK

DIS SENDING
(S/R)

--- ANSWER SIGNAL
--- SENDING

--- DIS SENDING
(R)

DTC SENDING

--- TRAINING, TCF

CER SENDING

--- PICTURE DATA
(MH/MR)

--- PICTURE DATA
CONVERSION, SEND. ---

--- RTC SENDING

--- EOP SENDING

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