

number alone; and attempts to suggest appropriate area codes when presented with a subscriber number and an exchange code, or with a subscriber number, an exchange code and an area code. When using the present invention with non-NANP numbering schemes, it is necessary to relate, as is known in the art, appropriate portions of the non-NANP numbering scheme to the subscriber number, exchange code, and area code elements. In preferred embodiments, the present invention formulates target telephone numbers responsive to the relative locations of the calling party and the called party, and to the characteristics of the telephone systems being utilized.

[0026] In the preferred embodiments depicted in **FIG. 1**, the caller interface is Caller Interface **140**. In this preferred embodiment, Caller Interface **140** is in communication with Calling Party **180** and with Area Code Processor **110**. As is known in the art, Caller Interface **140** may be implemented in hardware, in software, or in a combination of hardware and software. In a preferred embodiment, Calling Party **180** is a subscriber using a subscriber telephone unit in communication with Caller Interface **140** through a standard subscriber telephone line. In an alternative preferred embodiment, Calling Party **180** is a personal computer user, Caller Interface **140** is implemented on a personal computer, and the personal computer user communicates with Caller Interface **140** through the keyboard and/or other input devices, as are known in the art, of the personal computer. In an alternative preferred embodiment, Calling Party **180** is a wireless mobile phone user, Caller Interface **140** is implemented on hardware and/or software contained within the mobile phone handset, and the wireless mobile phone user communicates with Caller Interface **140** through the input devices, as are known in the art, of the mobile phone handset. In a preferred embodiment, Calling Party **180** is a mobile phone user and Caller Interface **140** is implemented on hardware and/or software contained at the mobile telephone carrier's transmission tower, the mobile telephone switching center, or elsewhere as part of a telecommunications network as apparent to one of skill in the art in view of this specification and the appended claims. Calling Party **180** may access Caller Interface **140**, in preferred embodiments, by other means as are known in the art.

[0027] In the preferred embodiments depicted in **FIG. 1**, the means for monitoring call initiation signals of the caller interface is Monitor **145**. As is known in the art, Monitor **145** monitors call initiation signals emitted by Calling Party **180**. In preferred embodiments, the call initiation signals may be standard telephone subscriber unit signaling or may be signals received from the input devices, including, for example, the keyboard, of a personal computer, as is known in the art, that indicate a desire by Calling Party **180** to utilize the apparatus of the present invention. In preferred embodiments, the call initiation signals comprise signals generated by Calling Party **180** in the course of accessing dialing assistance mechanisms such as speed dialers, autodialers, and voice-activated dialers.

[0028] In preferred embodiments, the apparatus of the present invention forms a transparent link between Calling Party **180** and a telecommunications network until Monitor **145** receives certain predesignated sequences as part of the call initiation signals. When one of these predesignated sequences is received, Monitor **145** activates, as is known in the art, the other functional elements of the present inven-

tion. For example, in a preferred embodiment, a predesignated sequence is four numerals followed by a long pause. When Calling Party **180** enters this predesignated sequence on his subscriber unit keypad, it is interpreted by Monitor **145** as signifying a desire to activate the present invention and the four numerals are interpreted as the four-digit subscriber number of a called party. In a preferred embodiment, the predesignated sequences are any call initiation signals that indicate that Calling Party **180** is attempting to place a telephone call. For example, in preferred embodiments, the predesignated sequences comprise the call initiation signals generated by Calling Party **180** in the course of or as a result of accessing dialing assistance mechanisms such as speed dialers, autodialers, and voice-activated dialers. In a preferred embodiment, the predesignated sequences comprise call initiation signals that include a full telephone number. In a further preferred embodiment, the predesignated sequences comprise call initiation signals that include a telephone number without an area code. In a preferred embodiment, the predesignated sequences comprise call initiation signals that include a subscriber number without an area code or an exchange code. In an alternative preferred embodiment, the call initiation signals may contain a particular activation sequence, as is known in the art, and the predesignated sequences include this activation sequence. In this alternative preferred embodiment, the activation sequence may include a code character selected from the group consisting of # and \*. These code characters are particularly useful when Calling Party **180** is using a standard subscriber telephone unit to communicate with the present invention.

[0029] In the preferred embodiments depicted in **FIG. 1**, the means for receiving called party information of the caller interface is Receiver **150**. As described above, Receiver **150** is responsive to Monitor **145** and remains inactive, as is known in the art, until Monitor **145** receives a predesignated sequence. In response to Monitor **145**, Receiver **150** receives called party information from Calling Party **180**. In preferred embodiments, the called party information may be received as signaling from a standard telephone subscriber unit, signaling received from the keyboard and/or other portions of a personal computer, or other signaling as may be known in the art for transmitting called party information. For example, in preferred embodiments, dialing assistance mechanisms such as speed dialers, autodialers, and voice-activated dialers generate called party information that is received by Receiver **150**. Additional methods of communicating with Calling Party **180** are described below in connection with Selector **155**. The called party information includes the subscriber number, and may also include the exchange code and/or the area code and/or other appropriate dialing codes such as access and country codes. As is known in the art, Receiver **150** makes the called party information available for use within Caller Interface **140** and Area Code Processor **110**.

[0030] In a preferred embodiment, the Receiver **150** includes means for associating identification information with the calling party. For example, if the present invention is implemented at a central office location, then the central office provides Receiver **150** with identification information on the calling party, as is known in the art. In an alternative preferred embodiment, the calling party may provide a code or password to Receiver **150** that, in turn, is used by the associating means to access previously stored identification